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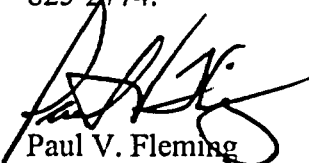
NLS2004066  
May 10, 2004

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555-0001

Subject: Emergency Plan Revision 46  
Cooper Nuclear Station, NRC Docket 50-298, DPR-46

The purpose of this letter is to transmit Revision 46 to the Cooper Nuclear Station Emergency Plan in accordance with the provisions of 10 CFR 50.54(q). Attachment A is a summary of the changes made to the Emergency Plan, none of which represent a reduction of effectiveness.

If you have any questions or comments concerning this submittal, please contact me at (402) 825-2774.



Paul V. Fleming  
Licensing Manager

/lb

Attachment/Enclosure

cc: U. S. Nuclear Regulatory Commission w/attachment and enclosure (2)  
Regional Office - Region IV

NRC Senior Resident Inspector w/attachment and enclosure

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EMERGENCY PLAN REVISION 46  
NARRATIVE SUMMARY OF CHANGES

OVERVIEW

The Emergency Plan was revised to reflect recent organizational changes. Several title changes affected the descriptions of responsibilities in the Emergency Plan. Emergency Preparedness now reports to a new position (Director of Nuclear Safety Assurance). In addition, minor editorial corrections were made and the Letter of Agreement listing was updated.

Section/Page	Description
Cover Page	Changed approval authority title from VP Plant Support to Dir. Nuc. Safety Assurance.
Page vi	Changed approval authority for Emergency Plan changes from Vice President of Plant Support to Director of Nuclear Safety Assurance.
Section 5.2.3.10/ Page 5-8	Editorial correction to add the word "hour" in the phrase "24 hour continuous operations staffing."
Section 6.2.2/ Page 6-1	Editorial correction to change "EPIP 5.72" to "EPIP 5.7.2." This was a typographical error.
Section 8.3/ Page 8-7	Changed reporting relationship of Emergency Preparedness Manager from Vice President of Plant Support to Director of Nuclear Safety Assurance. The Director of Nuclear Safety Assurance has the same responsibilities regarding Emergency Preparedness as the previous position, and also has equivalent access to senior management.
Section 9.2/ Page 9-2	Changed titles in description of Recovery Organization from "Senior Manager of Corporate Communications" to "Corporate Communications & Public Relations Manager," and from "Environmental Policy Manager" to "Corporate Environmental Manager."
Section 9.3/ Page 9-2	Changed title from "Plant Manager" to "General Manager of Plant Operations." Changed title from "Radiological Manager" to "Radiation Protection Manager."
Section 9.4.1/ Page 9-3	Revised second sentence in discussion of the Station Operations Review Committee to better match the wording in the Quality Assurance Policy Document. Clarified that the committee is advisory to the General Manager of Plant Operations and the chairman is designated in writing by the General Manager of Plant Operations.

Appendix B, Section A.4/ Page B-3	Changed cross reference from "5.2,3.10" to "5.2.3.10." This was a typographical error.
Appendix D, LOA Item 12/ Page D-2	Updated the date of Letter of Agreement for the Institute of Nuclear Power Operations (INPO) to reflect current INPO letter dated 9-24-03.
Appendix D, LOA Item 18/ Page D-2	Corrected typographical error in date of Letter of Agreement for the Brownville Fire Chief. The correct date is 9-1-95.

## ATTACHMENT 3 LIST OF REGULATORY COMMITMENTS©

**Correspondence Number:** NLS2004066

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing & Regulatory Affairs Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

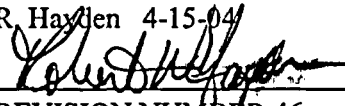
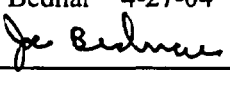
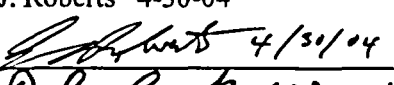
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NEBRASKA  
PUBLIC POWER  
DISTRICT

EMERGENCY PLAN

FOR

COOPER NUCLEAR STATION

REVISED BY / DATE EP Staff R. Hayden 4-15-04 	REVIEWED BY / DATE EP Manager J. Bednar 4-27-04 	APPROVED BY / DATE Dir. Nuc. Safety Assurance J. Roberts 4-30-04 
REVISION NUMBER 46		D.B. Cook 4-30-04

**NEBRASKA PUBLIC POWER DISTRICT  
EMERGENCY PLAN  
FOR  
COOPER NUCLEAR STATION**

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THE NEBRASKA PUBLIC POWER DISTRICT  
EMERGENCY PLAN  
FOR COOPER NUCLEAR STATION

Introduction

The Cooper Nuclear Station (CNS) is a one-unit Boiling Water Reactor power station rated at 778 Mw(e) operated by the Nebraska Public Power District. The station is located on the west bank of the Missouri River between the towns of Brownville and Nemaha, Nebraska. Cooper Nuclear Station has been in commercial operation since July 1974.

This Emergency Plan: (1) describes the organization formed to manage emergency situations; (2) provides the mechanism to classify emergencies according to severity of consequences; (3) defines and assigns functional responsibilities for emergency response actions; (4) outlines courses-of-action and protective measures to mitigate the consequences of an accident and to safeguard station personnel and the public; and (5) presents a general post-emergency plan and District organization for restoring the plant to normal operating status. Detailed implementing procedures for specific emergency actions during an incident are contained in the Cooper Nuclear Station Emergency Plan Implementing Procedures.

This Emergency Plan establishes the policies and practices involving the Nebraska Public Power District in the unlikely event of an emergency at the Cooper Nuclear Station. Additions, deletions, or modifications to this Emergency Plan must be reviewed by the Station Operations Review Committee and approved by the Director of Nuclear Safety Assurance before such changes can be incorporated. The Director of Nuclear Safety Assurance has overall authority and responsibility for radiological emergency response planning at CNS.

The Emergency Plan Implementing Procedures for the Nebraska Public Power District emergency response activities are the documents which implement the requirements of this plan. Additions, deletions, or modifications to the Emergency Plan Implementing Procedures are made in accordance with the CNS Administrative Procedures.

Copies of this Plan and the implementing documents shall be issued via a system of controlled distribution which will assure that all copies remain current.

## 1.0 Definitions

The following are definitions of terms commonly used in the Nebraska Public Power District (NPPD) Emergency Plan.

- 1.1 Alternate Emergency Operations Facility (AEOF) - the offsite emergency response facility which is a backup for the nearsite Emergency Operations Facility. The AEOF is located within the Nemaha County Multiplex Building in Auburn, Nebraska.
- 1.2 Annual - once during every calendar year.
- 1.3 Assessment Actions - actions taken during or after an emergency to obtain and process information necessary to determine the character and magnitude of the emergency and specific corrective emergency measures.
- 1.4 Class "A" Dose Assessment Model - a dose assessment computer code which utilizes actual 15 minute average meteorological data from the meteorological instrumentation maintained by the licensee or from alternate meteorological sources. This model provides calculations of relative concentrations and transit times within the plume exposure Emergency Planning Zone (EPZ). The output from a Class A model typically includes the plume dimensions and position, and the location, magnitude, and arrival time of (1) the peak relative concentration, and (2) the relative concentrations at appropriate locations.
- 1.5 Control Room - the Control Room, operating under the direction of the Shift Manager, is the primary point from which station conditions are monitored and controlled. It is the point where many corrective actions are taken to mitigate an emergency and where the initial assessment and classification of an emergency are made.
- 1.6 Corrective Actions - measures taken to reduce the severity of, or terminate an emergency at or near the source of the problem; to prevent an uncontrolled release of radioactive material; or to reduce the magnitude of the radioactive release.
- 1.7 Emergency Action Levels - parameter thresholds or sets of conditions used to classify an emergency. These parameters or conditions are indicators of the severity or potential severity of the emergency.
- 1.8 Emergency Operations Facility (EOF) - the nearsite emergency response facility which is the focal point for overall NPPD management of an emergency at CNS, and coordination of offsite radiological emergency operations. When activated, the EOF is under the direction of the EOF Director, who is responsible for maintaining continued coordination with governmental authorities regarding radiological consequences of an incident.
- 1.9 Emergency Planning Zone (EPZ) - defined area established around CNS for which emergency planning is set forth in detail. These are the areas in which the potential need for protective action(s) is recognized and addressed. The two EPZs are defined as the plume exposure pathway and ingestion exposure pathway.
- 1.10 Information Authentication Center - that portion of the JIC and EOF where information concerning the emergency is gathered, coordinated, and disseminated.

- 1.11 Ingestion Exposure Pathway - the pathway through which principal exposure would be from the ingestion of contaminated water, milk, or food. The ingestion exposure pathway is referred to as the 50-mile EPZ since it includes the area within a 50-mile radius of CNS.
- 1.12 Joint Information Center (JIC) - the offsite emergency response facility which is the prime location for coordinating news media releases of information concerning the emergency between Utility, State, and Federal representatives. Employee information and rumor control activities are also conducted from this location.
- 1.13 Local Emergency Response Plans - plans for local governmental response to radiological emergencies at CNS by Nemaha, Otoe, and Richardson counties in Nebraska and Atchison county in Missouri.
- 1.14 Operational Support Center (OSC) - the onsite emergency response facility from which emergency repair teams, monitoring teams, damage control teams, inplant assignments, or other emergency response activities are coordinated and dispatched. The OSC is under the direction of the OSC Supervisor.
- 1.15 Plume Exposure Pathway - the pathway through which principal exposure is by whole body exposure to gamma radiation (from the plume and deposited materials) and inhalation exposure (from the passing radioactive plume). The time of potential exposure could range in length from minutes to days. The dimensions of the plume exposure planning zone are depicted in Appendix C and is also referred to as the 10-mile EPZ.
- 1.16 Process Radiation Monitoring System - instrumentation designed to detect abnormal radiation levels and to activate appropriate alarms and controls for process and effluent plant system pathways.
- 1.17 Protective Actions - actions taken to prevent or minimize radiological exposure. These may include in-house shelter, evacuation, respiratory protection, and thyroid blocking.
- 1.18 Protective Action Guides - the projected radiological dose which warrants protective action to minimize exposure to radioactive material. (Reference: "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents" as revised May 1992, EPA 400-R-92-001)
- 1.19 Recovery Actions - post-emergency assessment, planning, resource allocation and corrective actions taken to restore the station as nearly as possible to its pre-emergency condition.
- 1.20 State Emergency Response Plans - plans for the States of Nebraska, Missouri, Iowa, and Kansas responding to radiological emergencies at CNS. Each plan sets forth specific responsibilities and procedures for emergency agencies responsible for offsite emergency operations and the protection of the affected population.

- 1.21 Technical Support Center (TSC) - the onsite emergency response facility which provides space and equipment for emergency response personnel to monitor station conditions, analyze problems, and provide technical guidance and assistance to the Control Room, OSC, and EOF. It also contains technical documents and drawings and is the focal point for onsite corrective action implementation during an emergency. This facility is under the direction of the TSC Director.

## 2.0 Scope and Applicability

The Nebraska Public Power District (NPPD) Emergency Plan for CNS provides the mechanism to classify various types of emergencies and provides prior planning of emergency preparedness implementation actions. It delineates organized functions and responsibilities for the control and mitigation of an emergency to assure maximum protection of the public, station personnel, and plant equipment. This plan delineates responsibilities and actions to be taken by station, general office personnel, and other agencies during emergencies.

The Emergency Plan Implementing Procedures (EPIPs) designate responsibilities and define actions to be taken by assigned personnel in order to reduce or confine the consequences of an emergency. Appendix A provides the titles and summaries of the EPIPs.

The NPPD Emergency Plan interfaces with several State and Local Emergency Response Plans for areas that comprise the CNS Emergency Planning Zones (EPZs). Within the Nebraska portion of the 10-mile EPZ this Plan interfaces with the Nemaha County, Richardson County, and State of Nebraska Radiological Response Plans, as well as the Reception Area Plans for Otoe and Richardson Counties. Within the Missouri portion of the 10-mile EPZ, this plan interfaces with the Atchison County Nuclear Emergency Response Plan, State of Missouri Nuclear Accident Plan, and the Nodaway County Reception and Care Plan. For the 50-mile Ingestion Pathway EPZ, the NPPD plan interfaces with the Radiological Response Plans of the states of Iowa and Kansas, as well as those of Nebraska and Missouri. In the event of a radiological emergency, the state and local agencies are responsible for coordinating their efforts in dealing with radiological concerns beyond the CNS site boundaries.

In addition to state and local support, federal agencies may also provide assistance in accordance with the Federal Radiological Emergency Response Plan (FRERP), i.e., Nuclear Regulatory Commission (NRC), Environmental Protection Agency (EPA), Department of Energy (DOE), Coast Guard, and Federal Emergency Management Agency (FEMA). The NRC, assuming the position of the Lead Federal Agency, shall coordinate the Federal response.

The protection of the health and safety of the general public is the prime concern; accordingly, the appropriate Local, State, and Federal Agencies will be supported by NPPD to the fullest extent practical.



### 3.0 Summary of the Nebraska Public Power District (NPPD) CNS Emergency Plan

Nuclear power plant emergency plans are required to fulfill the requirements of 10 CFR 50.47 and Appendix E. The Nuclear Regulatory Commission (NRC) is required to determine the adequacy of the licensee Emergency Plan. The Federal Emergency Management Agency (FEMA) is required to determine the adequacy of State and Local plans. Together the two agencies determine the adequacy of overall emergency preparedness.

The CNS Emergency Plan has been structured with NRC and FEMA guidance contained in NUREG-0654 (FEMA-REP-1), "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, November 1980. Appendix B of this plan provides a cross-index of the CNS Emergency Plan to NUREG-0654.

The plan delineates the organization for emergencies, provides the methodology for classifying emergencies according to severity, defines and assigns responsibilities and authorities, and outlines measures to mitigate the consequences of an accident and minimize effects on the health and safety of the public and station personnel. In addition, the plan presents a general approach and organization for station recovery.

Radiological emergency planning for CNS has been coordinated with state and local emergency response agencies. The States of Nebraska, Missouri, Iowa, and Kansas, as well as the appropriate local government agencies which would be involved in emergency response operations, are aware of the emergency response measures described in the CNS Emergency Plan and will be advised of changes or modifications to these measures resulting from plan reviews and audits.

The CNS Emergency Response Organization (ERO) is responsible for onsite emergency operations and for maintaining a continuous flow of accurate radiological and station status information to offsite emergency authorities.

Sections of the Emergency Plan in the balance of this document detail the emergency preparedness program. The contents of those sections are summarized below:

- Section 4.0 - Emergency Conditions - describes emergency classifications, initiating events, Emergency Actions Levels and corresponding NPPD and State and Local actions in response to each emergency classification. Emergency Action Levels and corresponding actions noted are based upon design and operating characteristics specific to CNS and upon NRC guidance for boiling water reactors as contained in Appendix 1 to NUREG-0654, Rev. 1 and NRC Emergency Preparedness Position Paper (EPPOS-1).
- Section 5.0 - Organizational Control of Emergencies - describes the function and responsibilities of the CNS emergency response organization. Interfaces with offsite emergency agencies are defined and specified. This section also defines the specific assignments of personnel and identifies local and contract support service arrangements.
- Section 6.0 - Emergency Measures - describes the activation of the emergency response organization, assessment of plant conditions, initiation of protective and corrective actions onsite, recommendation of protective actions offsite, and measures to aid injured or contaminated personnel.

- Section 7.0 - Emergency Response Facilities and Equipment - describes facilities, emergency response equipment, and communications systems (onsite and offsite) available to assess emergency conditions, support emergency operations, notify offsite support agencies, provide aid to injured or contaminated personnel, and to control and mitigate incident-related damage.
- Section 8.0 - Maintaining Emergency Preparedness - describes the Emergency Preparedness Department and Emergency Preparedness Training Program, emergency drills and exercises, methods to review and update the Emergency Plan, and the process to maintain an adequate inventory of emergency equipment and supplies. This section also outlines methods used to provide emergency preparedness information to the general public.
- Section 9.0 - Recovery - defines, in general terms, post-emergency reentry and recovery plans and organization. Recovery operations are divided into short-term activities, which are conducted during and immediately after an emergency, and long-term recovery activities, which comprise the more involved post-emergency efforts to return the station to a normal operating status.
- Appendix A contains summaries of each EPIP and a cross reference to the appropriate section of the CNS Emergency Plan.
- Appendix B contains the cross reference of the CNS Emergency Plan to NUREG-0654.
- Appendix C contains maps and other references which depict evacuation routes, environmental sampling points, population distribution, etc. as defined in NUREG-0654, (Rev. 1) Section J.10.(a) and (b).
- Appendix D contains a listing of the Letters of Agreement maintained with offsite support agencies. The Emergency Plan signature page verifies that current Letters of Agreement are maintained in the Emergency Preparedness files as specified in Appendix D.
- Appendix E contains a list of supplies and emergency equipment typical of the inventory kept in the emergency response equipment lockers and storage areas.
- Appendix F contains a listing of the interfacing emergency response plans of the various Local, State, and Federal Support Agencies.

#### 4.0 Emergency Conditions

The types of emergencies considered in the CNS Emergency Plan are classified into four categories as recommended in Emergency Action Level Guidelines for Nuclear Power Plants, Appendix 1, NUREG-0654, Rev. 1 and modified by NRC Emergency Preparedness Position Paper Number 1 (EPPOS-1). The initiating conditions of NUREG-0654, Appendix 1, as well as the postulated accidents described in Chapter XIV of the Cooper Nuclear Station (CNS) Updated Safety Analysis Report, have been considered in developing the criteria presented in Section 4.1. Tables 4.1-1 through 4.1-4 provide specific Emergency Action Levels. Emergency Action Levels and corresponding classifications are included in EPIP 5.7.1, "Emergency Classification."

Each successive classification is more severe. This classification system results in responses that are both timely and appropriate for a wide range of emergency conditions.

There are three principal advantages of the graded classification system:

1. To assure timely notification of particular events which could lead to significant consequences should events continue to deteriorate, which might be indicative of more serious conditions not fully appreciated at the time of discovery.
2. To provide an assessment of the actual or likely implications of the event which can be clearly communicated to various affected parties during the early stages of the event.
3. To provide a means for setting in motion appropriate, prearranged, near-term emergency actions by affected parties.

The initiating conditions of NUREG-0654, Appendix 1, Rev.1, as well as the postulated accidents described in Chapter XIV of the Cooper Nuclear Station (CNS) Updated Safety Analysis Report, have been considered in developing the criteria presented in Section 4.1. Tables 4.1-1 through 4.1-4 provide specific Emergency Action Levels. Emergency Action Levels and corresponding classifications are included in EPIP 5.7.1, "Emergency Classification."

#### 4.1 Classifications

The four classifications of emergencies are:

1. NOTIFICATION OF UNUSUAL EVENT
2. ALERT
3. SITE AREA EMERGENCY
4. GENERAL EMERGENCY

The fundamental logic connecting the four classifications of emergencies is to provide an escalating gradation of events related to the severity of their consequences.

Section 5.0 of the CNS Emergency Plan provides a description of the portions of the Emergency Response Organization which will be activated in the event of a NOTIFICATION OF UNUSUAL EVENT, ALERT, SITE AREA EMERGENCY, or GENERAL EMERGENCY.

#### 4.1.1 NOTIFICATION OF UNUSUAL EVENT

This classification consists of events in the process of occurring, or which have occurred, that indicate a potential degradation of the level of safety of the station. These types of events may progress to a more severe emergency classification if they are not mitigated. Therefore, appropriate offsite agencies will be notified of such events in order to be better prepared for response if the event should progress to a more severe classification. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

The purpose of this classification and its associated offsite notifications is to assure that the first step in any response later found to be necessary has been initiated. This brings the operating staff into a state of readiness, and provides a systematic handling of information and decision-making. These conditions may not be particularly significant from an emergency or safety standpoint, but have the potential to increase in significance from a safety standpoint if proper action is not taken or if circumstances beyond the control of the operating staff render the situation more serious. Upon declaration of a NOTIFICATION OF UNUSUAL EVENT, key onsite personnel, as well as specified management within NPPD will be notified (see Section 7.4). The NOTIFICATION OF UNUSUAL EVENT is maintained until the event is terminated or an escalation to a more severe emergency class is required.

Table 4.1-1 lists Emergency Action Levels and Table 4.1-5 lists expected actions for the NOTIFICATION OF UNUSUAL EVENT classification.

#### 4.1.2 ALERT

The ALERT classification is comprised of events which are in progress, or have occurred, that involve an actual or potentially substantial degradation of the safety level of the station. At this classification, minor releases of radioactivity may occur or may have occurred. Any releases are expected to be limited to small fractions of EPA Protective Action Guideline exposure levels. Operator modification of station operating status is a probable corrective action if such modification has not already been accomplished by automatic protection systems.

Upon declaration of an ALERT, notifications will be made (see Section 7.4). Notifying offsite agencies at an ALERT classification assures emergency personnel are readily available to respond if the situation becomes more serious, or to perform confirmatory radiation monitoring, if required. The TSC, EOF, and OSC are manned and activated at the declaration of an ALERT.

The ALERT status is maintained until the event is downgraded, terminated, or escalated to a more severe emergency class.

Table 4.1-2 lists Emergency Action Levels and Table 4.1-6 lists expected actions for the ALERT classification.

#### 4.1.3 SITE AREA EMERGENCY

A SITE AREA EMERGENCY classification is comprised of events that are in progress, or have occurred, which involve actual or potential major failure of plant functions needed for protection of the public. The SITE AREA EMERGENCY reflects conditions where there is a clear potential for significant releases of radioactive material, or such releases are in progress, but a core meltdown is not indicated based on current information. Releases are not expected to exceed EPA Protective Action Guidelines, except near the site boundary.

Upon declaration of a SITE AREA EMERGENCY, non-ERO personnel are evacuated, monitoring teams are dispatched, offsite authorities are apprised of the emergency, the JIC is manned and activated, and periodic updates to the public are provided.

The SITE AREA EMERGENCY status is maintained until the event is downgraded, terminated, or escalated to a GENERAL EMERGENCY.

Table 4.1-3 lists Emergency Action Levels and Table 4.1-7 lists expected actions for the SITE AREA EMERGENCY classification.

#### 4.1.4 GENERAL EMERGENCY

A GENERAL EMERGENCY is comprised of events which are in progress, or have occurred, that involve actual or imminent substantial core degradation or melting with a potential for the loss of containment integrity. The GENERAL EMERGENCY reflects conditions that may affect the general public. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area. The GENERAL EMERGENCY declaration initiates predetermined protective actions for the public, provides information to the appropriate state, local, and federal authorities, initiates additional measures as indicated by actual or potential releases, provides for coordination with offsite authorities, and provides periodic updates for the public.

Upon declaration of a GENERAL EMERGENCY, an automatic minimum protective action recommendation of evacuation for a 2-mile radius and 5 miles downwind, unless conditions make evacuation dangerous, and advise remainder of plume EPZ to go indoors to monitor EAS broadcasts, will be made to state or local authorities. If conditions make evacuation dangerous, sheltering may be recommended as alternative protective action. Consider recommending evacuation of extended distances if conditions dictate.

The GENERAL EMERGENCY status is maintained until the event is downgraded or terminated.

Table 4.1-4 lists Emergency Action Levels and Table 4.1-8 lists expected actions for the GENERAL EMERGENCY classification.

## 4.2 Offsite Radiological Assessment

The station will perform a preliminary assessment of the offsite consequences of an emergency. This preliminary assessment includes estimation by analytical methods of radiation dose rate, projected integrated dose for sectors and downwind distances, and a determination of the appropriate emergency classification.

The primary method for determining the radioactive release rate uses monitored release points. Effluent radiation monitor readings are available for the Elevated Release Point, Turbine Building Vent, Reactor Building Vent, and Radwaste/Augmented Radwaste Building Vents.

The elevated release point release rate can be determined by correlating the exposure rates on high range radiation monitors in the drywell to those which have been calculated assuming a Design Basis Loss of Coolant Accident (LOCA). The LOCA calculations are based on the NUREG-0737 assumptions that of the maximum full power equilibrium isotopic inventories, 100% of the noble gases, 25% of the halogens, and 1% of the remaining particulates are instantaneously released to the atmosphere of the primary containment. The entire release is assumed to be through the standby gas treatment system and out the elevated release point. Other methods may be used as described in EPIP 5.7.16.

The dose rate and integrated dose are based on duration of release, release rates, meteorological data, and atmospheric dispersion factors.

The radioiodine concentration is obtained by multiplying the radioiodine release rate by the dispersion factor. The Committed Dose Equivalent (CDE) is determined by multiplying the air concentration by the exposure time and then by the dose conversion factor.

The noble gas concentration is obtained by multiplying the noble gas release rate by the dispersion factor. The Total Effective Dose Equivalent (TEDE) is determined by multiplying the air concentration by the exposure time and then by the appropriate dose conversion factor.

Upon activation of the EOF and the State Emergency Operations Centers, the affected state assumes primary responsibility for confirmatory and continuing offsite radiological assessment. This is accomplished by dispatching state field monitoring teams and by analyzing data provided by the CNS field teams. CNS will deploy field monitoring teams for initial offsite monitoring prior to the arrival of responding state monitoring teams. These CNS teams may remain in the field to assist the state field monitoring teams.

## 4.3 Spectrum of Possible Accidents and Initiating Events

A number of accident scenarios which might occur at CNS have been analyzed in Chapter XIV of the CNS Updated Safety Analysis Report for both severity of consequence and probability of occurrence. These types of accidents reflect the design characteristics of a Boiling Water Reactor and are addressed in Tables 4.1-1 through 4.1-4 and in EPIP 5.7.1 from the standpoint of initiating conditions, Emergency Action Levels, and subsequent emergency classification.

TABLE 4.1-1  
NOTIFICATION OF UNUSUAL EVENT  
EMERGENCY ACTION LEVELS (EALs)

EAL	(Alarm, Instrument Reading, etc.)	OPERATING MODE
1.1.1	Uncontrolled AND unmonitored radiological release of liquid outside the Protected Area.	ALL
1.1.2	Offsite Dose Assessment Manual (ODAM) limits exceeded as indicated by either HIGH-HIGH alarm on a gaseous effluent radiological monitor <u>OR</u> Combined Effluent Monitor indication on SPDS which cannot be cleared within 30 minutes.	ALL
2.1.1	Steam Jet Air Ejectors radiation monitor reads > 1,500 mrem/hr <u>OR</u> an increase of 300 mrem/hr within a 30-minute period.	ALL
2.1.2	Coolant sample activity > 4.0 uCi/gm DOSE EQUIVALENT I-131.	ALL
2.1.3	RCS operational LEAKAGE in excess of Technical Specification limits as indicated by: a. Any pressure boundary LEAKAGE; <u>OR</u> b. > 5 gpm unidentified LEAKAGE; <u>OR</u> c. > 30 gpm total LEAKAGE averaged over the previous 24 hour period; <u>OR</u> d. > 2 gpm increase in unidentified LEAKAGE within the previous 24 hour period in MODE 1.	MODE 1, 2, or 3
3.1.1	Failure to meet COMPLETION TIME of a Technical Specification REQUIRED ACTION requiring a MODE change.	MODE 1, 2, or 3
4.1.1	Loss of all offsite power sources to vital busses "F" and "G" for greater than 15 minutes.	ALL
4.1.2	Unplanned loss of most or all safety system annunciators.	MODE 1 or 2
5.1.1	ANY fire <u>within the Protected Area</u> which takes longer than 10 minutes to extinguish.	ALL
5.1.2	Report or detection of toxic or flammable gases that could enter the Protected Area in amounts that will affect the health of plant personnel or can affect normal plant operation.	ALL

TABLE 4.1-1 (continued)  
NOTIFICATION OF UNUSUAL EVENT  
EMERGENCY ACTION LEVELS (EALs)

EAL	(Alarm, Instrument Reading, etc.)	OPERATING MODE
6.1.1	Security threat, attempted entry, or attempted sabotage.	ALL
7.1.1	Ground motion greater than 0.01g as indicated by Control Room seismic monitoring panel.	ALL
7.1.2	River level greater than 899' or less than 867'.	ALL
7.1.3	Tornado touching down within the Owner Controlled Area.	ALL
7.1.4	Sustained wind speed greater than 74 mph.	ALL
8.1.1	Aircraft crash within the Protected Area.	ALL
8.1.2	Explosion within the Protected Area.	ALL
8.1.3	Failure of a turbine rotating component causing an automatic reactor scram with release of radioactivity to the Turbine Building or which potentially affects safety systems.	ALL
8.1.4	Other conditions existing which in the judgment of the Emergency Director warrant declaration of an Unusual Event.	ALL



TABLE 4.1-2  
ALERT  
EMERGENCY ACTION LEVELS (EALs)

EAL	(Alarm, Instrument Reading, etc.)	OPERATING MODE
1.2.1	Unplanned rise in area radiation levels within the Protected Area > 1000 times normal.	ALL
1.2.2	Gaseous effluent radiological monitors indicate a release rate ten times the Offsite Dose Assessment Manual (ODAM) limits, without indication of fuel cladding loss.	ALL
2.2.1	Loss of fuel cladding or primary coolant boundary fission product barriers.	Per Technical Specifications
3.2.1	Fuel handling accident on the refueling floor with release of radioactivity to secondary containment as indicated by HIGH alarm on refueling floor ARM #2, CAM, or Reactor Building ventilation monitor.	ALL
3.2.2	Evacuation of Control Room required or anticipated with control of shutdown systems established from local stations.	ALL
3.2.3	Complete loss of all capability to place or maintain the plant in MODE 4 or 5.	MODE 3, 4 or 5 with irradiated fuel in the vessel
3.2.4	Failure of Automatic or Manual scram.	MODE 1 or 2
4.2.1	Loss of all AC power (on and off-site sources) to vital busses "F" and "G" during MODE 4 or 5.	MODE 4 or 5
4.2.2	Loss of DC power sources resulting in loss of all ECCS capability for <u>less</u> than 15 minutes.	ALL
4.2.3	Unplanned loss of most or all safety system annunciators with a transient in progress.	MODE 1 or 2
5.2.1	A fire with a potential to cause degradation of a plant safety system required to be OPERABLE.	ALL
5.2.2	Report on detection of toxic or flammable gases within a Vital Area in concentrations that will be life threatening to plant personnel or will affect the safe operation of the plant.	ALL

TABLE 4.1-2  
ALERT  
EMERGENCY ACTION LEVELS (EALs)

EAL	(Alarm, Instrument Reading, etc.)	OPERATING MODE
6.2.1	On-going security compromise as indicated by: 1) Armed intruder(s) being inside the Protected Area boundary; <u>OR</u> 2) An explosive device has been located within the Protected Area boundary; <u>OR</u> 3) Security related explosion within the Protected Area boundary	ALL
7.2.1	Ground motion greater than 0.1g as indicated by the Control Room seismic monitoring panel.	ALL
7.2.2	River level greater than 902' or less than 865'.	ALL
7.2.3	Tornado touching down within the Protected Area.	ALL
7.2.4	Sustained wind speed greater than 95 mph.	ALL
8.2.1	Aircraft striking structures within the Protected Area.	ALL
8.2.2	Missile impact, from whatever source, within the Protected Area.	ALL
8.2.3	Known explosion damage to the facility affecting normal plant operation.	ALL
8.2.4	Turbine failure causing casing penetration which creates serious radiological concerns or damages plant safety systems.	ALL
8.2.5	Other conditions existing which in the judgment of the Emergency Director warrant declaration of an Alert.	ALL

TABLE 4.1-3  
SITE AREA EMERGENCY  
EMERGENCY ACTION LEVELS (EALs)

EAL	(Alarm, Instrument Reading, etc.)	OPERATING MODE
1.3.1	Radiological gaseous effluent releases resulting in Total Effective Dose Equivalent (TEDE) projection at or beyond the Site Boundary of > 0.1 REM.	ALL
1.3.2	Radiological gaseous effluent releases resulting in Committed Dose Equivalent (CDE) (Thyroid) projection at or beyond the Site Boundary of >0.5 REM.	ALL
2.3.1	Significant core damage with a possible loss of coolable geometry as indicated by:  ≥ 20% gap activity as determined by Chemistry <u>OR</u> Primary Containment radiation monitors read >10,000 REM/hr.	ALL
2.3.2	Known loss of coolant accident (LOCA) greater than all available make-up capacity.	ALL
2.3.3	Loss of any TWO fission product barriers. The fission product barriers are defined as follows:  A. Fuel Cladding B. Primary Coolant Boundary C. Primary Containment	Per Technical Specifications
3.3.1	Major damage to irradiated fuel <u>OR</u> Fuel pool water level below the top of the spent fuel.	ALL
3.3.2	Evacuation of the Control Room accompanied by the inability to locally control shutdown systems within 15 minutes.	ALL
3.3.3	Complete loss of all available means to place or maintain the plant in MODE 3.	MODE 1, 2, or 3
3.3.4	Failure of the Reactor Protection System (RPS), including Alternate Rod Insertion (ARI), to bring the reactor shutdown under all conditions without boron.	MODE 1 or 2

TABLE 4.1-3 (Continued)  
SITE AREA EMERGENCY  
EMERGENCY ACTION LEVELS (EALs)

EAL	(Alarm, Instrument Reading, etc.)	OPERATING MODE
4.3.1	Loss of all AC power (on and offsite sources) for more than 15 minutes with the reactor in MODE 1, 2, or 3.	MODE 1, 2, or 3
4.3.2	Loss of DC power sources required for ECCS operation for more than 15 minutes.	ALL
4.3.3	Inability to monitor a significant transient in progress.	ALL
5.3.1	Fire compromising the functions of safety systems.	ALL
6.3.1	On-going security compromise in a plant Vital Area as indicated by: 1) Armed intruder(s) being inside a plant Vital Area; <u>OR</u> 2) An explosive device has been located within a plant Vital Area; <u>OR</u> 3) Security related explosion within a plant Vital Area.	ALL
7.3.1	Ground motion greater than 0.1g as indicated on the Control Room seismic monitoring panel <u>AND</u> reports of major plant damage.	MODE 1, 2, or 3
7.3.2	Sustained wind speed greater than 100 mph.	MODE 1, 2, or 3
7.3.3	Flooding from any source (External or Internal) which renders multiple ECCS systems inoperable when they are required to be OPERABLE.	MODE 1, 2, or 3
7.3.4	Low river level which results in complete loss of the Service Water System.	ALL
8.3.1	Aircraft crash affecting vital areas with the plant in MODE 1, 2, or 3.	MODE 1, 2, or 3
8.3.2	Missile or explosion damage to safe shutdown equipment with plant in MODE 1, 2, or 3.	MODE 1, 2, or 3
8.3.3	Other conditions existing which in the judgment of the Emergency Director warrant declaration of a Site Area Emergency.	ALL

TABLE 4.1-4  
GENERAL EMERGENCY  
EMERGENCY ACTION LEVELS (EALs)

EAL	(Alarm, Instrument Reading, etc.)	OPERATING MODE
1.4.1	Radiological gaseous effluent releases resulting in Total Effective Dose Equivalent (TEDE) dose at or beyond the Site boundary of 1 REM.	ALL
1.4.2	Radiological gaseous effluent releases resulting in Committed Dose Equivalent (CDE) (Thyroid) dose at or beyond the Site boundary of 5 REM.	ALL
2.4.1	Loss of any TWO of THREE fission product barriers, <u>AND</u> the <u>potential</u> exists for the <u>loss</u> of the THIRD. The fission product barriers are defined as follows:  A. Fuel Cladding B. Primary Coolant Boundary C. Primary Containment	Per Technical Specifications
3.4.1	Failure of the Reactor Protection System (RPS) or alternate rod insertion or SLC to bring the reactor shutdown under all conditions which could result in a core meltdown with subsequent containment failure likely.	MODE 1 or 2
3.4.2	Other plant conditions exist, from whatever source, which make a release of large amounts of radioactivity in a short time period possible (e.g., any core melt situation).	ALL
4.4.1	Total loss of all AC power (on and offsite sources) with the inability to keep the core covered.	ALL
5.4.1	Any major internal or external fire substantially beyond the design basis which could cause massive common damage to plant systems.	ALL
6.4.1	Loss of physical control of the station.	ALL
7.4.1	Any major natural phenomenon <u>substantially beyond</u> the design basis which could cause massive common damage to plant systems.	ALL
8.4.1	Other conditions existing which in the judgment of the Emergency Director warrant declaration of a General Emergency (i.e., any core melt situation.)	ALL

TABLE 4.1-5

NOTIFICATION OF UNUSUAL EVENT - EXPECTED ACTIONS

CNS Actions

1. Notify responsible state and local governmental agencies of emergency conditions within 15 minutes of declaration.
2. Notify the ERO if determined to be necessary by the Emergency Director.
3. Augment on-shift resources as needed.
4. Assess and respond.
5. Terminate with verbal summary to offsite authorities, followed by written report within 24 hours.

OR

6. Escalate to a more severe class.

State/Local Actions

1. Provide assistance if requested (fire, security, medical, etc.).
2. Continue notification as necessitated by situation.
3. Standby until verbal termination.

OR

4. Escalate to a more severe class.

TABLE 4.1-6

## ALERT - EXPECTED ACTIONS

CNS Actions

1. Notify responsible state and local governmental agencies of emergency conditions within 15 minutes of declaration.
2. Notify the ERO, augment resources and activate TSC, OSC, and EOF. The JIC may be placed on standby status.
3. Assess and respond.
4. Dispatch onsite monitoring teams with associated communications.
5. Provide periodic plant status updates to offsite authorities.
6. Provide periodic meteorological assessments to offsite authorities and, if releases are occurring, dose estimates for actual releases.
7. Close out or recommend reduction in Emergency Class by verbal summary to offsite authorities followed by written summary within 8 hours of closeout or class reduction.

OR

8. Escalate to a more severe class.

State/Local Actions

1. Provide assistance if requested (fire, security, medical, etc.).
2. Augment resources and bring primary response centers to stand-by status.
3. Place key emergency personnel (including monitoring teams and associated communications) on stand-by status.
4. If necessary, Governor proclaims Disaster Emergency Condition. Dispatch State Field Command Post and key emergency response personnel including radiological monitoring teams with associated equipment and communications. Alert all state agencies and local government to standby or assume an increased readiness posture.
5. Provide confirmatory offsite radiation monitoring and ingestion pathway dose projections if actual releases substantially exceed Offsite Dose Assessment Manual (ODAM) limits.
6. Maintain ALERT status until verbal termination.

OR

7. Escalate to a more severe class.

TABLE 4.1-7

## SITE AREA EMERGENCY - EXPECTED ACTIONS

CNS Actions

1. Notify responsible state and local governmental agencies of emergency conditions within 15 minutes of declaration.
2. Notify the ERO, augment resources by activating TSC, OSC, EOF and JIC.
3. Assess and respond.
4. Dispatch onsite and offsite monitoring teams with communications equipment.
5. Provide a dedicated individual for plant status updates to offsite authorities and periodic press briefings.
6. Make senior technical and management staff onsite available for consultation with NRC and state representatives on a periodic basis.
7. Provide meteorological data and dose estimates (for actual releases) to offsite authorities via a designated individual.
8. Provide release and dose projections based on available plant condition information or contingencies.
9. Closeout or recommend reduction in emergency class by briefing offsite authorities at EOF followed by written summary within 8 hours of closeout or class reduction.

OR

10. Escalate to GENERAL EMERGENCY.

State/Local Actions

1. Provide assistance as requested in accordance with established disaster support procedures.
2. If In-House Shelter is desirable, activate public notification systems within at least two miles of the plant.
3. Provide the public within the plume exposure EPZ with periodic updates on emergency status.
4. Augment resources by activating state/local EOCs.
5. Dispatch key onsite emergency personnel, including monitoring teams and communications equipment.
6. Alert other personnel to standby status (e.g., those needed for traffic control or evacuation) and dispatch personnel to near-site duty station.
7. Provide offsite monitoring results to CNS and jointly assess them.
8. Continuously assess information from CNS and offsite monitoring teams with regard to initiating/modifying public protective actions.
9. Recommend placing milk animals within two miles on stored feed and assess need to extend distance.
10. Provide press briefings, perhaps jointly with CNS.
11. Maintain SITE AREA EMERGENCY status until termination or reduction of emergency class.

OR

12. Escalate to GENERAL EMERGENCY.



TABLE 4.1-8

## GENERAL EMERGENCY - EXPECTED ACTIONS

CNS Actions

1. Notify responsible state and local governmental agencies of emergency conditions within 15 minutes of declaration.
2. Notify the ERO, augment resources by activating TSC, OSC, EOF, and JIC.
3. Recommend protective action of evacuation for a 2-mile radius and 5 miles downwind, unless conditions make evacuation dangerous, and advise remainder of plume EPZ to go indoors to monitor EAS broadcasts to state and local authorities. Consider recommending evacuation of extended distances if degrading conditions warrant.
4. Assess and respond.
5. Dispatch onsite and offsite monitoring teams and associated communications equipment.
6. Provide a dedicated individual for plant status updates to offsite authorities and periodic press briefings. Coordinate joint information releases with offsite authorities.
7. Make senior technical and management staff available for periodic consultation with NRC and state representatives.
8. Provide meteorological data and dose estimates (for actual releases) to offsite authorities via a dedicated individual.
9. Provide release and dose projections based upon available plant condition information and foreseeable contingencies.
10. Terminate (or recommend reduction of) emergency class by briefing offsite authorities at the EOF, followed by written summary within 8 hours.

State/Local Actions

1. Provide any assistance requested in accordance with established disaster support procedures.
2. Initiate immediate public notification of GENERAL EMERGENCY status and provide periodic public updates.
3. Recommend evacuation for a 2-mile radius and a 5-mile direct downwind segment and assess the need to extend distances if conditions degrade.
4. Augment resources by activating state/local primary response centers.
5. Dispatch other emergency personnel to duty stations within 5-mile radius and alert others to standby status.
6. Provide offsite monitoring results to CNS, DOE, EPA, and others and jointly assess them.
7. Continuously assess information from CNS and offsite monitoring teams with regard to modifying public protective actions and mobilizing evacuation resources.
8. Recommend placing milk animals within 10-mile radius on stored feed and assess need to extend distance.
9. Provide press briefings, perhaps jointly with CNS.
10. Maintain GENERAL EMERGENCY status until termination or reduction of emergency class.

## 5.0 Organizational Control of Emergencies

In the event of an emergency, NPPD has both the normal operating organization (on-shift Control Room staff) and an organization specifically designed to augment them. The Emergency Response Organization may, depending upon the classification of the accident, range from the normal operating staff to a comprehensive emergency force composed of onsite, general office, state and local support, and contract personnel.

This section of the Emergency Plan describes the normal on-shift Operating organization, the Emergency Response Organization, other support available, and the governmental agencies responsible for dealing with offsite emergency conditions. Post-emergency station recovery plans are presented in Section 9.0. A general overview of the Nuclear Power Group Organization is described in the USAR.

### 5.1 Normal Operating Organization

Direct operation and control of the Nuclear Power Plant is the responsibility of the on-duty Operations crew, operating out of the Control Room. The normal operating crew is staffed and qualified to perform all actions necessary to institute immediate protective measures and to implement the Emergency Plan. The composition and relationship of the Control Room crew (Normal Operating Organization) is depicted in Figure 5.2-1.

#### 5.1.1 Lines of authority

- 5.1.1.1 The Shift Manager is the senior licensed individual on the operating crew. The Shift Manager must hold a Senior Reactor Operator's license.
- 5.1.1.2 If the Shift Manager is incapacitated the Control Room Supervisor assumes the Shift Manager role. The Control Room Supervisor must also hold a Senior Reactor Operator's license.
- 5.1.1.3 Reactor Operators (Control Room Operators) report to the Control Room Supervisor. Reactor Operators must hold a Reactor Operator's license
- 5.1.1.4 Station Operators function under the direction of Reactor Operators or the Control Room Supervisor. Station Operators do not require a license.
- 5.1.1.5 The Chem/RP Technician reports to the Shift Manager.
- 5.1.1.6 The Shift Technical Engineer reports to the Shift Manager.

#### 5.1.2 Responsibilities/Functions

- 5.1.2.1 The Shift Manager is the individual, on-shift at all times, vested with the authority and responsibility to immediately and unilaterally initiate any emergency actions, including protective action recommendations to authorities responsible for

implementing off-site emergency measures. Upon declaration of an emergency the Shift Manager becomes the site Emergency Director. The Emergency Director is responsible for, and may not delegate, classifying emergencies, ensuring notifications are made to off-site authorities, and recommending protective actions to off-site authorities.

The Shift Manager is responsible for providing guidance and support to the operating crew. He will ensure that there is an adequate staff to perform the required operational functions and be responsible for ensuring proper communications from the Control Room to the TSC, OSC, and EOF. In conjunction with key technical personnel, he will also assess station operations and ensure recommended corrective actions are given adequate consideration. He will also control and monitor station conditions, take corrective actions to mitigate or terminate the incident, stabilize the plant, and minimize accident consequences. Upon entry into Severe Accident Guidelines, the Shift Manager shall take direction for accident mitigation from the Operations Coordinator in the TSC.

Upon activation of the EOF the on-call Emergency Director will relieve the Shift Manager of Emergency Director duties.

- 5.1.2.2 The Control Room Supervisor (CRS) directs the activities of the Control Room Operators and Station Operators in response to normal, abnormal, and emergency procedures. The CRS functions as the primary command and control interface between the SS and other Operations Shift personnel.
- 5.1.2.3 Reactor Operators (Control Room Operators) are responsible for the safe operation of the reactor and balance of plant.
- 5.1.2.4 Station Operators are responsible to the Control Room Supervisor. Station Operators perform functions in the plant such as equipment monitoring, log keeping, equipment operation, and tag-outs.
- 5.1.2.5 The Chem/RP Technician is responsible for providing advice and assistance to the crew regarding radiological issues. This position has primary responsibility for performing Dose Assessment on-shift.
- 5.1.2.6 The Shift Technical Engineer serves in an advisory capacity to the Shift Manager in the diagnosis of off-normal events, transients, and accident situations. The Shift Technical Engineer functions to provide an independent assessment of the operation and response of the plant. The STE may perform other functions as assigned, so long as they do not interfere with this oversight role.

Upon declaration of an emergency (Alert or higher), two additional positions become available to the Control Room. They are part of the ERO (described below) but function from the Control Room, therefore are described here.

5.1.2.7 The Technical Communicator provides a flow of technical data to the Ops/EOP Advisors in the TSC and EOF, and the Technical Communicator in the OSC.

5.1.2.8 The Control Room Logkeeper maintains an accurate log of important Control Room activities.

## 5.2 Emergency Response Organization

Key elements of the Emergency Response Organization (ERO) at CNS are depicted in Figures 5.2-2, 5.2-3, and 5.2-4.

Emergency Response Organization (ERO) positions in the TSC, OSC, and EOF, along with functions for these facilities are summarized in the following paragraphs. Sufficient personnel have been designated to assure that functional responsibilities are maintained for continuous 24-hour operation. The Emergency Response Organization roster is maintained by the Emergency Preparedness Department.

The Emergency Response Organization operates from the Control Room and the following onsite Emergency Response Facilities. These CNS emergency response facilities will be activated within approximately one (1) hour following the declaration of an Alert or higher.

- Technical Support Center
- Operational Support Center or alternate
- Emergency Operations Facility

The Emergency Response Organization is supported by the following offsite Emergency Response facilities as necessary:

- Alternate Emergency Operations Facility
- Joint Information Center

The TSC, EOF, and OSC will be manned and activated at the declaration of an ALERT or higher level emergency. The JIC may be placed on standby during an ALERT, and will be manned and activated upon the declaration of a SITE AREA EMERGENCY or GENERAL EMERGENCY.

In all accident classifications, the Emergency Director is in charge of the Emergency Response Organization. The Emergency Director is assigned the authority and responsibility to immediately and unilaterally initiate emergency response actions. The Emergency Director may not delegate the following:

- **Event Declaration,**
- **The decision to notify authorities responsible for offsite emergency measures and,**
- **Recommend protective actions to authorities responsible for offsite emergency measures.**

Under a NOTIFICATION OF UNUSUAL EVENT all emergency response functions will usually be conducted from the Control Room by the on-shift Operating organization described in section 5.1. At an ALERT, the TSC, EOF, and OSC will be activated and will provide further management, technical, and craft support. At a SITE AREA EMERGENCY or GENERAL EMERGENCY the JIC is activated and will have the additional support of the Public Affairs Director.

The authorities and responsibilities of each position are as follows:

#### **5.2.1     Emergency Director**

The Emergency Director is in command of the NPPD Emergency Response Organization. His/her responsibilities are as follows:

- **Verify that the NPPD onsite and offsite emergency response functions are being performed in a timely manner.**
- **Ensure that adequate technical and logistical support is available to the station organization.**
- **Ensure continuity of emergency response resources.**

All emergency actions which may involve exposures exceeding occupational exposure limits must be approved by the Emergency Director.

The Emergency Director provides management expertise to the emergency organization and may initially report to the Control Room instead of the EOF. As the situation warrants he may relocate to any onsite facility to confer with members of the various emergency response organizations. The Emergency Director will be supported by the following positions:

#### **5.2.2     TSC Director**

The TSC Director is in charge of TSC functions and activities. His/her primary responsibility is to maintain command and control in the TSC to provide technical assistance and recommendations to the Control Room.

The primary function of the TSC staff is to augment Control Room efforts to manage the plant emergency by:

- Diagnosing station conditions
- Recommending and prioritizing corrective or mitigative actions
- Providing technical support to Control Room personnel

The TSC Director is assisted in these functions by individuals assuming the minimum staff ERO positions below and depicted in Figure 5.2-2.

- 5.2.2.1 The Operations Coordinator provides a liaison between the Control Room and the TSC/OSC Staffs, on personnel, technical, and administrative issues related to plant operations. Upon entry into Severe Accident Guidelines, the Operations Coordinator shall assume decision-making authority from the Shift Manager related to accident mitigation actions and provide direction to the Control Room operating staff.
- 5.2.2.2 The Engineering Coordinator provides engineering expertise to the TSC Director. He/she shall also coordinate the activities of the Engineering Group through the Engineering Team Leader. The Engineering Coordinator will maintain liaison with General Electric, Burns & Roe, Inc., Institute of Nuclear Power Operations, and other contract support as referenced in Section 5.3.3
- 5.2.2.3 The Maintenance Coordinator provides expertise to the TSC Director in the areas of equipment analysis/status, repair options, and equipment repair priorities. Also, supervises the activities of the OSC as directed by TSC Director through the OSC Supervisor.
- 5.2.2.4 The Chemistry/Radiological Protection Coordinator provides chemistry and radiological protection expertise to the TSC Director and is also responsible for the following:
- Assess radiological dose, recommend radiation protection measures, direct radiological surveys and decontamination actions, and assist in assessment of offsite consequences.
  - Provide chemical analyses for the evaluation of station systems and provide data to aid in the determination of reactor core conditions and release potentials.

This individual is assisted by other radiological personnel. These emergency response personnel will provide technical expertise on radiological release rates and dose projections, in plant radiological surveys, and will input data into the dose assessment model, when required.

The additional Key Functional staff, and other positions listed below, enhance the operation of the TSC.

- 5.2.2.5 The ENS Communicator will provide continuous communication with the NRC when requested to do so.
- 5.2.2.6 The Operations/EOP Advisor provides technical assistance and operational information to the Operations Coordinator. He/she maintains a proactive assessment of EOP and SAG implementation as well as performs plant condition assessments
- 5.2.2.7 The Engineering Team Leader directs the efforts of the engineering group based on the direction and priorities established by the TSC Director and Engineering Coordinator
- 5.2.2.8 The Electrical Engineer provides information on station electrical system capabilities, status, alternate power arrangements, and evaluates the necessity of repair, installation, and modification of electrical equipment. Will also provide information on I&C issues.
- 5.2.2.9 The Mechanical Engineer performs analyses on mechanical components and provides information on various mechanical systems capabilities, status, and evaluates the necessity of repair, installation, or modification of mechanical equipment.
- 5.2.2.10 The Civil Engineer provides information and analysis on station component structural status and integrity.
- 5.2.2.11 The Reactor Engineer provides information and analysis on the conditions of the reactor core.
- 5.2.2.12 The Function Status Assessment Engineer evaluates the availability of plant systems which may be used to perform functions specified in the Plant Specific Technical Guidelines/Severe Accident Technical Guidelines.
- 5.2.2.13 The Control Parameter Assessment Engineer evaluates the availability of instrumentation used to determine values of the Emergency Operation Procedures/Severe Accident Guideline control parameters.
- 5.2.2.14 The Security Coordinator provides security plan knowledge and expertise. Coordinates all security related response activities including initial and continuous accountability of personnel when required per EPIP 5.7.10. The Security Coordinator may be assisted by other members of the CNS security force.
- 5.2.2.15 The Facility Logkeeper maintains an accurate log of important TSC functions and also maintains/updates the display of priority work items.
- 5.2.2.16 The Administrative Assistant provides administrative support such as faxing, copying, and material needs.

### 5.2.3 EOF Director

The EOF Director is in charge of the EOF functions and responsibilities including ensuring the EOF is capable of supporting the Emergency Director's management of the overall licensee emergency response.

The primary functions of the EOF staff are to provide assistance to the Emergency Director, coordination of emergency offsite response activities, and to provide support to the responding offsite support agencies by:

- Coordinating radiological and environmental assessment.
- Determining and recommending protective actions for the public.
- Coordinating emergency response activities with Federal, State, and Local agencies.
- Event classification and continual assessment of plant conditions related to classification.
- Notification to offsite authorities.

The EOF Director is assisted in these functions by individuals assuming the minimum staff ERO positions below and depicted in Figure 5.2-3.

- 5.2.3.1 The Radiological Control Manager provides radiological information and recommendations to the Emergency Director and/or EOF Director with regard to dose assessment, protective actions, and the use of Potassium Iodide. The Radiological Control Manager is assisted by and directs the activities of the Radiological Assessment Supervisor. Additional duties include interfacing with appropriate state and local dose assessment groups.
- 5.2.3.2 The Radiological Assessment Supervisor assists the Radiological Control Manager in determining potential or actual impacts of radiological releases, developing protective action recommendations, and coordinating the activities of the field monitoring teams. This is accomplished by supervising the activities of the Field Team Coordinator and Dose Assessment Coordinator located in the EOF dose assessment room.
- 5.2.3.3 The Offsite Communicator is responsible for gathering and disseminating information to appropriate Offsite Agencies in accordance with EPIP 5.7.6.

The additional Key Functional staff, and other positions listed below, enhance the operation of the EOF.



- 5.2.3.4 The Operations/EOP Advisor provides technical assistance and operational information to the Emergency Director and/or EOF Director. He/she also may assist the Technical Information Coordinator by reviewing technical information for transmission to the JIC.
- 5.2.3.5 The Field Team Coordinator coordinates the movement and sampling activities of the CNS Downwind Survey Teams as directed by the Radiological Assessment Supervisor.
- 5.2.3.6 The Dose Assessment Coordinator coordinates dose assessment activities as directed by the Radiological Assessment Supervisor. This individual has to be familiar with source term data, release data, meteorological information, and other dose assessment parameters.
- 5.2.3.7 The Dose Assessment Clerk performs dose assessment as instructed by the Dose Assessment Coordinator using assessment methods as described in Section 6.3.3.
- 5.2.3.8 The Downwind Survey Vehicle Driver performs as the driver of the downwind survey team vehicle.
- 5.2.3.9 The Field Teams are composed of at least one individual selected from a pool of personnel knowledgeable and experienced in radiation protection as defined by ANSI Standard 18.1, and trained in sampling techniques and analysis in accordance with the Emergency Preparedness Training Program. They are familiar with the equipment and methods to be used to perform plume-tracking and media sampling due to previous experience in radiological protection. Other CNS personnel may act as vehicle drivers or assistants.
- 5.2.3.10 The Logistics Coordinator is responsible for providing on-going EOF accountability, food/lodging/transportation support and coordinating the capability of 24 hour continuous operations staffing. |
- 5.2.3.11 The Technical Information Coordinator is responsible for gathering technical information to be transmitted to the JIC. This information should be readily available from the status boards and/or specific individuals located in the EOF.
- 5.2.3.12 The Emergency Preparedness Coordinator assists with activation of the Emergency Response Facilities and ensures that ERO personnel are performing their duties as defined by the Emergency Plan, EPIPs, and Positional Instructional Manuals.
- 5.2.3.13 The Clerical Coordinator ensures that sufficient clerical support exists in the EOF to adequately support EOF personnel.

5.2.3.14 The Facility Logkeeper maintains an accurate log of all important EOF activities and also maintains and updates the display of EOF priority work items.

#### 5.2.4 Operational Support Center (OSC) Supervisor

The OSC Supervisor is in charge of OSC functions and activities. His/her primary responsibility is to assure work items assigned to the OSC, based on the direction and priorities established by the TSC and assigned by the Maintenance Coordinator, are carried out.

The OSC is located adjacent to the TSC. Functional assignments at the OSC, coordinated from the TSC are:

1. Operating staff support
2. Radiation surveys and decontamination
3. Maintenance, repair, and damage control
4. Chemistry
5. Reentry, search, and rescue

The OSC Supervisor is assisted in these functions by individuals assuming the minimum staff ERO positions described below and depicted in Figure 5.2-4.

- 5.2.4.1 Electricians (2)
- 5.2.4.2 I & C Technicians (2)
- 5.2.4.3 Mechanics (2)
- 5.2.4.4 Radiation Protection Technicians (6)

The additional Key Functional staff, and other positions listed below, enhance the operation of the OSC.

OSC Leads listed below work together to assign emergency mitigation work activities to available OSC personnel best suited in performance of the assigned task. The OSC Leads work as a multi-disciplinary team to assemble, brief, and dispatch teams. They are also responsible for monitoring the progress of the respective teams, overseeing their safety, and debriefing them upon completion of their assigned tasks.

- 5.2.4.5 Chemistry/Radiological Protection Lead
- 5.2.4.6 I&C Lead
- 5.2.4.7 Electrical Lead
- 5.2.4.8 Mechanical Lead
- 5.2.4.9 Utility Lead

5.2.4.10 An OSC Clerk provides clerical support such as logkeeping, faxing, copying, and material requisition, to the OSC Staff.

5.2.4.11 The Technical Communicator provides a flow of technical data from the Technical Communicator in the Control Room to the OSC.

The OSC also contains a pool of trained personnel with expertise from their normal day-to-day activities. The following are examples of these additional personnel from which teams may be assembled.

- Welders/Pipefitters/Machinists
- Chemistry Technicians
- Utility/Tool Crib
- Warehouse Personnel
- Operators
- Engineers

### 5.3 Offsite Emergency Organization

The emergency plan is designed to be implemented in a step-by-step fashion as site needs dictate. The offsite capabilities activated by this plan will have pre-assigned duties meant to relieve site personnel of offsite related responsibilities as soon as practical. This shifting of responsibilities will take place rapidly and formally as the emergency evolves and will relieve site personnel needed for in-plant activities.

NPPD employees located at the General Office or other NPPD facilities may be used to form a technical manpower pool from which technical support may be drawn. These employees may be utilized by virtue of their normal job position, availability, or personal qualifications.

#### 5.3.1 Joint Information Center (JIC) - The JIC is a media briefing area and is located at NPPD Headquarters, Columbus, Nebraska.

The principal functions of the JIC include:

- Coordinating the development and dissemination of information to the news media.
- Conducting media monitoring.
- Maintaining rumor control.
- Providing NPPD employees with information concerning the emergency.

The staffing of the JIC will be dependent upon the type of emergency situation at CNS. A minimum staffing level, described below and depicted in Figure 5.3-1, will ensure principal functions of the JIC can be accomplished:

##### 5.3.1.1 The Public Affairs Director directs NPPD Public Relations personnel in preparation of position statements, interviews, and dissemination of information to employees, participants, industry organizations, legislative representatives, and members of the Board of Directors. He/she is also responsible for generating press releases and is responsible for ensuring that the information authentication function is being performed.

- 5.3.1.2 The Technical Briefer will assist the Public Affairs Director (PAD) by receiving and relaying technical information from the EOF Technical Information Coordinator. He/she is also responsible for advising the Public Affairs Director in matters regarding Tech Specs, USAR, EOPs and EIPs. The Technical Briefer may also assist in the composition of Nuclear Network messages.
- 5.3.1.3 The Public Information Officer prepares releases for the news media and provides support to the Designated Spokesperson. He/She also coordinates with Public Information officers from other Agencies, responds to inquiries from the public, and assists with other JIC activities as necessary.

To enhance the effectiveness of the JIC, the JIC Management Staff is also supported by the following Key Functional and other positions:

- Facility Manager
- Media Monitor
- Designated Spokesperson
- Rumor Control Staff
- Employee Information Staff
- Public Affairs Director Secretary

The JIC contains up-to-date copies of station, state, and county emergency plans, maps of the CNS site area and its environs, regional maps, and station layout drawings. Other equipment, facilities and services that will be located within, or near, the JIC include communication links with the EOF and state Emergency Operations Centers, reproduction equipment, and word processing capability.

### 5.3.2 Public Information Support

Emergency public information will be coordinated and released through the Joint Information Center (JIC).

Public information releases to the news media will be channeled through the JIC. Accurate and timely information on emergency conditions will be transmitted to JIC personnel. Coordinated news conferences will be conducted by Public Information Officers representing NPPD, as well as Federal, State, and Local Agencies. Provisions are made for a question and answer exchange.

The NPPD Designated Spokesperson located at the JIC is responsible for ensuring that information pertaining to events at CNS is properly transmitted to the news media. The Designated Spokesperson or JIC staff will be in contact with personnel in the EOF and will organize and distribute the technical information for use in media briefings, and press releases.

### 5.3.3 Contract Support

In addition to General Office support, the CNS Emergency Response Organization may draw on outside support. Letters of Agreement with organizations which may provide assistance to NPPD are listed in Appendix D.

A brief description of this contract support is provided below.

#### 5.3.3.1 Manpower and Equipment Augmentation

The Institute of Nuclear Power Operations, as an organization serving the nuclear industry, has organized a response plan for nuclear power plant emergencies. Manpower and equipment may be requested from institute members to augment onsite capabilities.

#### 5.3.3.2 Technical Support

The General Electric Company has organized a Boiling Water Reactor Emergency Support Program. This program provides for an Emergency Response Team composed of personnel with appropriate technical disciplines, which will report to NPPD upon request. A Technical Support Team is also established at General Electric Nuclear Headquarters in San Jose, California. Communications between the CNS Emergency Response Organization and General Electric will enhance technical assistance to the station.

In the event CNS needs additional technical support, NPPD has made arrangements with the following organizations:

- Burns & Roe
- Stone & Webster Engineering Corp.

#### 5.3.3.3 Radiological Monitoring and Analysis Support

Arrangements have been made with Omaha Public Power District's Fort Calhoun Nuclear Station to provide monitoring equipment and personnel trained to use this equipment. The Radiochemistry Laboratory at the Fort Calhoun Station is able to perform backup radioisotopic analyses of monitoring samples. If the emergency is such that more monitoring equipment and personnel are needed, resources such as the Institute of Nuclear Power Operations may be requested.

Emergency service is available from the current dosimetry vendor which includes extra dosimetry, instrumentation, and technical

### 5.4 Participating Federal, State and Local Agencies

Figure 5.4-1 depicts the interrelationships among some of the various State and Federal organizations, which may respond to an emergency at CNS.

Offsite monitoring and assessment activities will be coordinated at the EOF. The General Office support groups, as well as State, Local, and Federal Agencies will coordinate their efforts through the EOF (Figures 5.4-1 and 5.4-2). The NRC onsite effort may be coordinated through the TSC or EOF, whichever is appropriate. The affected states may send liaison representatives to the EOF to aid in the coordination effort.

#### 5.4.1 The State of Nebraska

In the State of Nebraska, the Nebraska Emergency Management Agency, under the Nebraska Adjutant General, is the lead planning agency for developing radiological emergency plans for fixed nuclear facilities. On receipt of information indicating the need for state and local government response, a disaster emergency condition will be declared by the Governor and the State Emergency Operations Center will be activated. State agencies having responsibilities under the Nebraska State Radiological Emergency Response Plan for nuclear power plant incidents will be notified and kept informed of the progress of the emergency as discussed in that Plan.

A Governor's Authorized Representative (GAR) will be designated by the Governor. The GAR will coordinate activities of state agencies responding to the emergency. The GAR will also be a point of contact for decisions involving implementation of protective actions as recommended by the Emergency Director.

The Nebraska State Emergency Operations Center will be the principal point of contact with the Emergency Operations Centers of adjacent states. As conditions warrant, the state EOC command and control functions may be carried out from other designated facilities.

A Nebraska Health & Human Services Regulation and Licensure (HHSRL) representative will be at the Field Command Post or the EOF. Acting in coordination with NPPD Management and other agencies, he/she is responsible to perform initial state assessment of the health hazard to include development of recommendations for initiation of protective actions. This individual or representative will also coordinate the activities of the state radiological monitoring teams and advise the Governor's Authorized Representative and local governments as to health hazards of the incident. Radiological monitoring will be conducted by both CNS field monitoring personnel and the HHSRL Radiological Monitoring Teams.

The lead agencies for the countywide emergency planning in Nemaha, Richardson, and Otoe Counties are the respective County Emergency Management Agencies/Directors. The responsibilities of various county groups are described in the appropriate annexes of the individual County Radiological Emergency Response Plans.

#### 5.4.2 The State of Missouri

The principal state agency for the coordination of emergency response in the State of Missouri is the Missouri State Emergency Management Agency (SEMA). SEMA coordinates actions, operations, and resources involving response required to support decisions affecting the emergency. The Missouri Division of Health, through the Bureau of Environmental Epidemiology, is responsible for all decisions affecting protective responses, dose, dose commitment during the emergency, and recovery in the emergency area.

In the event of an emergency, communications between CNS and the Division of Health is maintained in order to confirm measurements and estimates of possible offsite consequences and to keep the State EOC informed of the status of the emergency.

Emergency response and support operations will be initiated through decisions made jointly by the Director, SEMA, and the Director, Division of Health or their duly appointed representatives, or on request of affected governmental officials. In the event of an emergency, which may present an offsite hazard to the public, the State Emergency Operations Center at Jefferson City will be activated in accordance with the State Emergency Operations Plan.

A representative of the state may be dispatched to the EOF. He will have direct communications with the Forward Command Post to provide accurate and timely information to state and local response forces. Atchison County authorities are notified through the Atchison County Sheriff's Department that is notified by NPPD or by SEMA. The response from these authorities is more fully detailed in the Atchison County Nuclear Emergency Response Plan.

#### 5.4.3 The States of Kansas/Iowa

The States of Kansas and Iowa may also play an active role in responding to an emergency at CNS. While neither state is within the 10 mile EPZ, they are located within the 50 mile Ingestion Exposure Pathway. As such, NPPD will maintain liaison with the appropriate officials of these states and provide information and recommendations as the situation dictates.

More detailed information can be found in the Emergency Response Plan of each respective state.

#### 5.4.4 Nuclear Regulatory Commission

The NRC regulates nuclear activities to protect the health and safety of the public and to preserve environmental quality and has developed an Incident Response Plan to ensure that its statutory responsibilities are fulfilled.

The responsibilities assigned by the NRC plan are exercised through a set of implementing procedures that delineate the manner in which each function will be performed, the criteria to be used in making each decision, and the information needed for both.

When NPPD notifies the NRC of an emergency, the initial NRC response is to ascertain the status of the station and monitor emergency response activities to assure that the public and the environment are fully protected. The NRC will measure offsite radiological effects and develop projections of onsite and offsite effects for the use of other federal, state, and local agencies. The NRC may offer specific advice to NPPD to help solve or limit the consequences of the problem. The NRC is prepared to amend or change CNS Technical Specifications or to issue formal orders if NPPD should fail to take whatever actions the NRC deems necessary to protect the public.

The Chairman of the Commission is the senior NRC authority for all aspects of emergency response and will become the "Director" of all NRC activities and personnel.

Normally the Chairman will delegate responsibilities to a "Deputy Director" upon activation of the Operations Center. The Deputy Director will carry out the delegated responsibilities unless the Chairman specifically directs otherwise. Together, the Director and Deputy Director assure that preplanned actions commence and identify other necessary actions unique to the particular incident. Headquarters and region teams will carry out these actions.

The Director may appoint an NRC "Director of Site Operations" as soon as a qualified official arrives at the site, assesses the situation, and reports back to the Director. The Director may also delegate one or more of the following authorities to the Director of Site Operations:

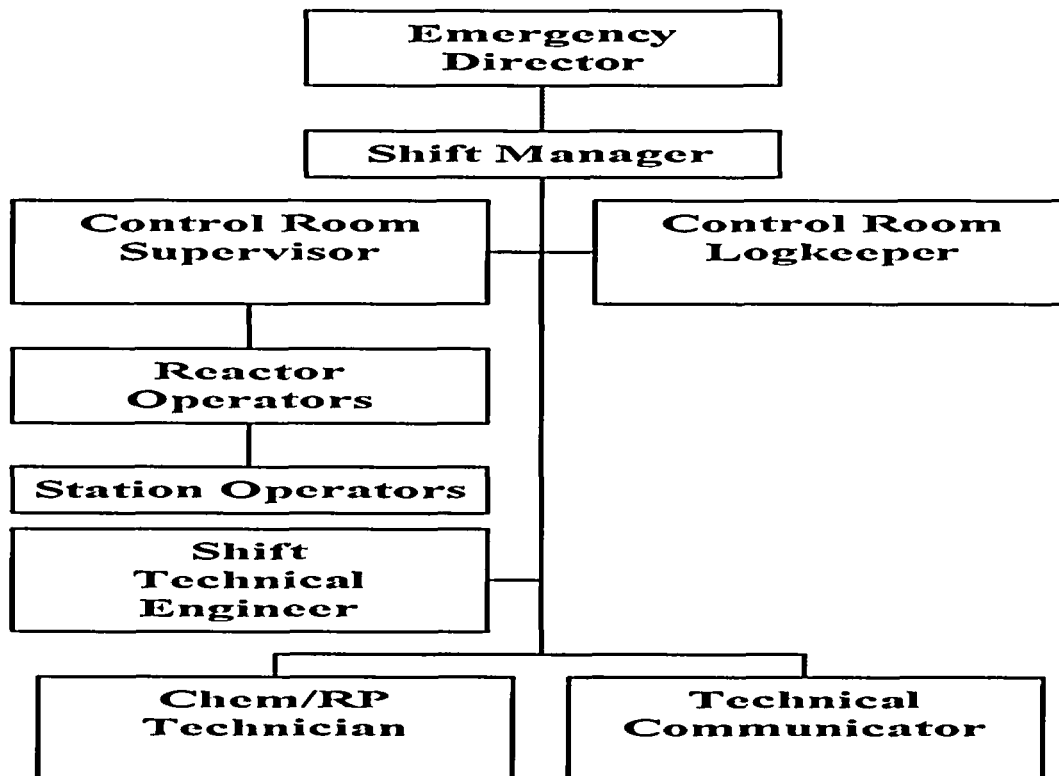
1. Authority to recommend actions to the licensee.
2. Authority to direct the licensee to take specific actions.
3. Authority to recommend actions off site, including protective measures for the public.

Other officials and organizations will be immediately informed of the appointment and delegated authority. The Director of Site Operations will assume supervision of all NRC personnel at the site, will represent the NRC in interactions with other agencies, and will decide what response actions must be taken, consistent with the delegated authority.



Figure 5.2-1  
CNS Normal Operating Organization - Control Room

<u>Position</u>	<u>Number</u>
Shift Manager	(1)
Control Room Supervisor	(1)
Reactor Operator	(2)
Station Operator	(3)
Chem/RP Technician	(1)
Shift Technical Engineer	(1)+
Control Room Logkeeper	(1)*
Technical Communicator	(1)*



+The Station Technical Engineer is not required to be onshift during cold shutdown conditions.

\*These personnel are not on-shift.

Figure 5.2-2  
CNS Emergency Response Organization - Technical Support Center (TSC)

Position

TSC Director<sup>1</sup>

Operations Coordinator<sup>1</sup>

Chemistry/Radiological Protection Coordinator<sup>1</sup>

Maintenance/OSC Coordinator<sup>1</sup>

Engineering Coordinator<sup>1</sup>

Operations/EOP Advisor<sup>2</sup>

Security Coordinator<sup>2</sup>

Engineering Team Leader<sup>2</sup>

Control Parameter Assessment Engineer<sup>2</sup>

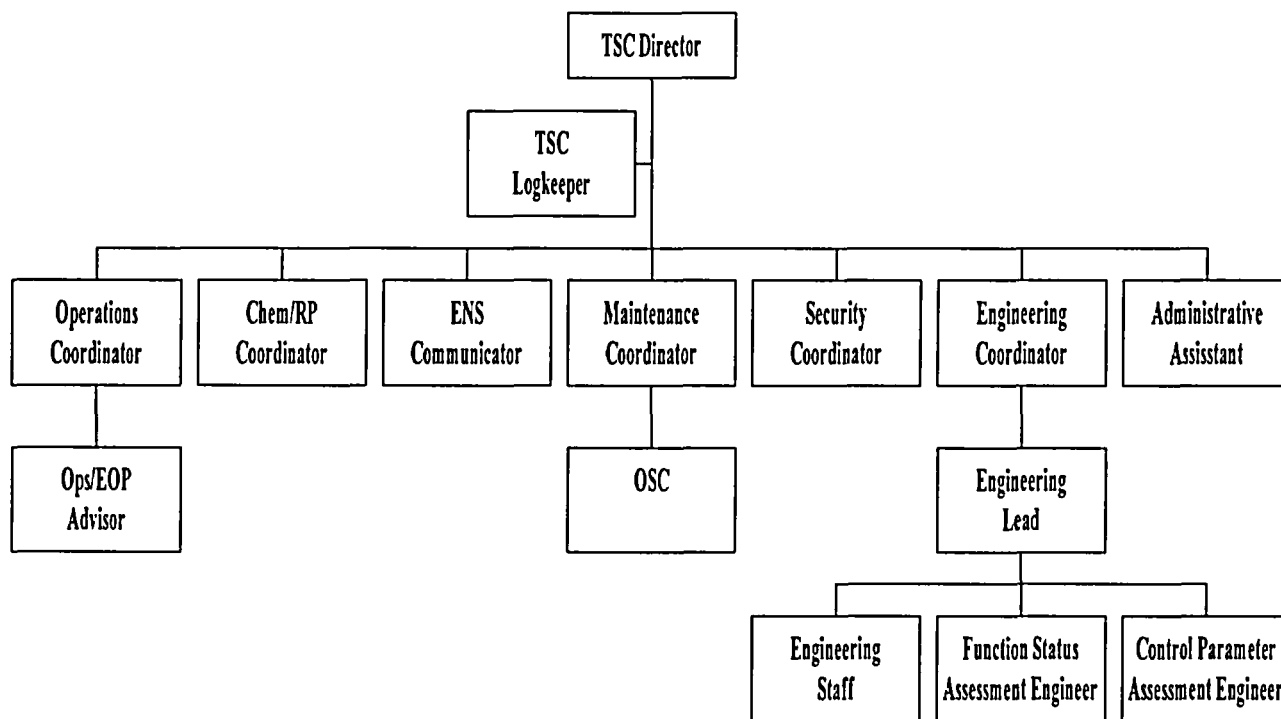
Function Status Assessment Engineer<sup>2</sup>

Engineering Staff<sup>3</sup>

ENS Communicator<sup>2</sup>

Administrative Assistant

TSC Logkeeper



<sup>1</sup>Minimum Staff

<sup>2</sup>Key Functional Staff

<sup>3</sup>Engineering disciplines will be Reactor, Civil, Mechanical, and Electrical

figure 5.2-3  
CNS Emergency Response Organization - Emergency Operations Facility (EOF)

Position

Emergency Director<sup>1</sup>

EOF Director<sup>1</sup>

Radiological Control Manager<sup>1</sup>

Radiological Assessment Supervisor<sup>1</sup>

Offsite Communicator<sup>1</sup>

Operations/EOP Advisor<sup>2</sup>

Technical Information Coordinator<sup>2</sup>

Emergency Preparedness Coordinator<sup>2</sup>

Dose Assessment Coordinator

Fieldteam Coordinator

Dose Assessment Clerk

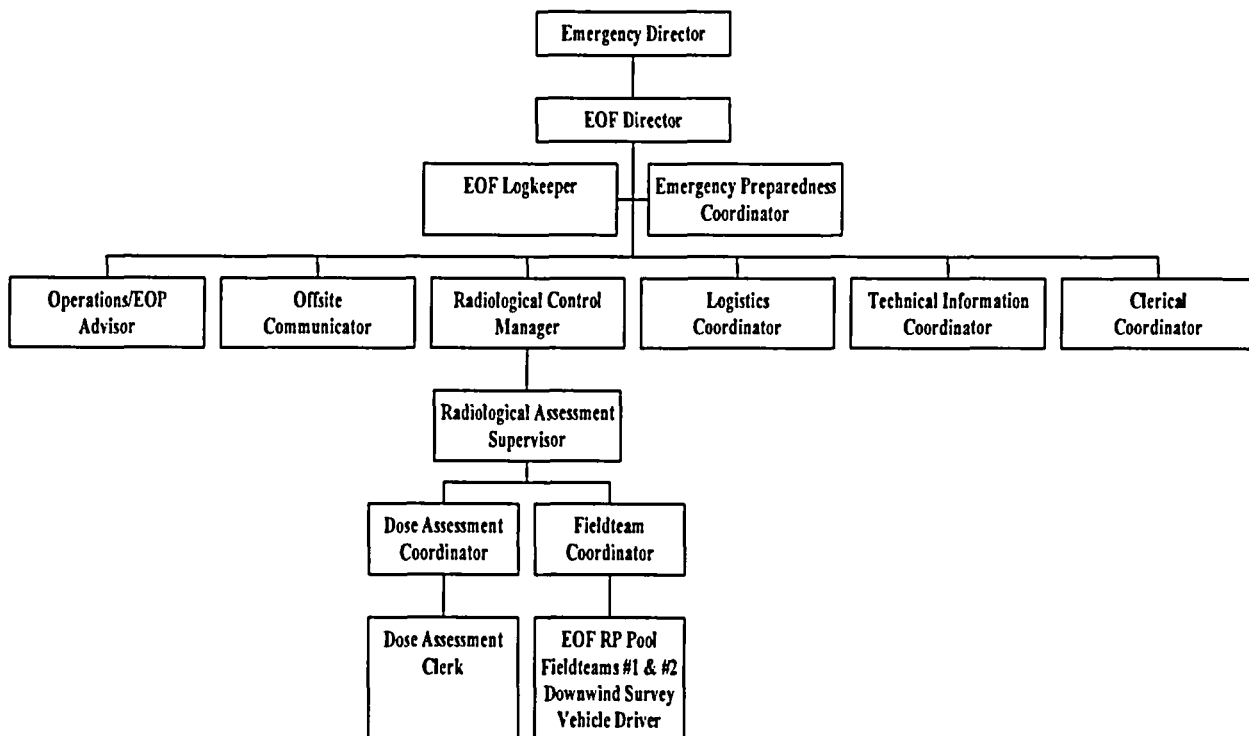
Logistics Coordinator

EOF RP Pool

EOF Logkeeper

Clerical Coordinator

Downwind Driver



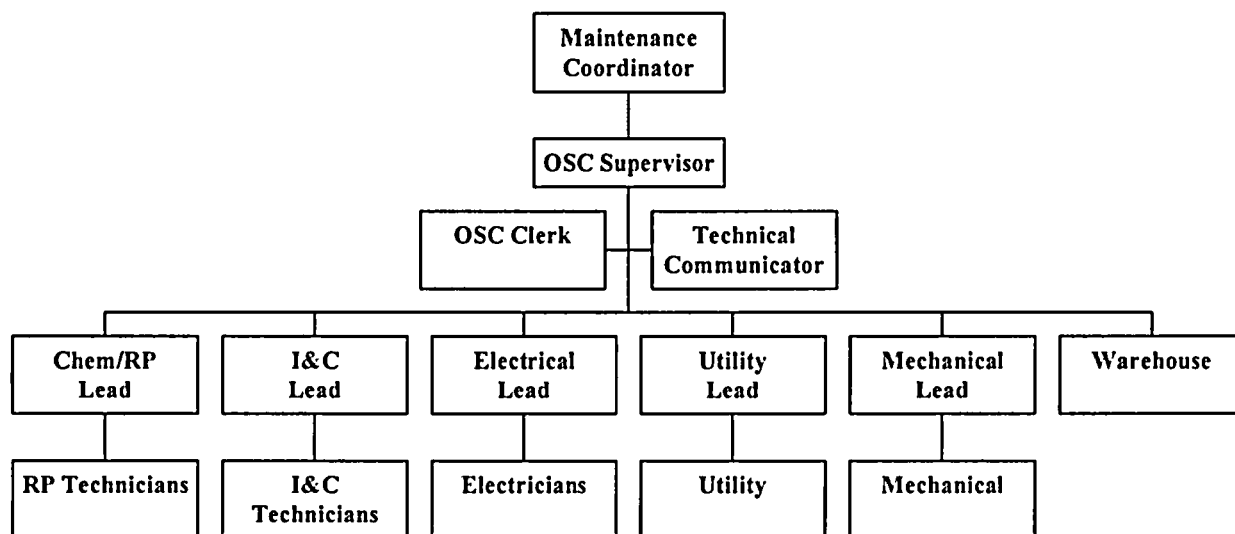
<sup>1</sup>Minimum Staff

<sup>2</sup>Key Functional Staff

Figure 5.2-4  
CNS Emergency Response Organization - Operations Support Center (OSC)

Positions

OSC Supervisor<sup>2</sup>  
 Technical Communicator  
 Chem/RP Lead<sup>2</sup>  
 RP Technicians<sup>1</sup>(6 minimum)  
 Electrical Lead  
 Electricians<sup>1</sup>(2 minimum)  
 Mechanical Lead  
 Mechanics<sup>1</sup>(2 minimum)  
 I&C Lead  
 I&C Technicians<sup>1</sup>(2 minimum)  
 Utility Lead  
 Utility personnel  
 OSC Clerk  
 Warehouse person



<sup>1</sup>Minimum Staff

<sup>2</sup>Key Functional Staff

Figure 5.3-1  
CNS Emergency Response Organization - Joint Information Center (JIC)

Position

Public Affairs Director<sup>1</sup>

Technical Briefer<sup>1</sup>

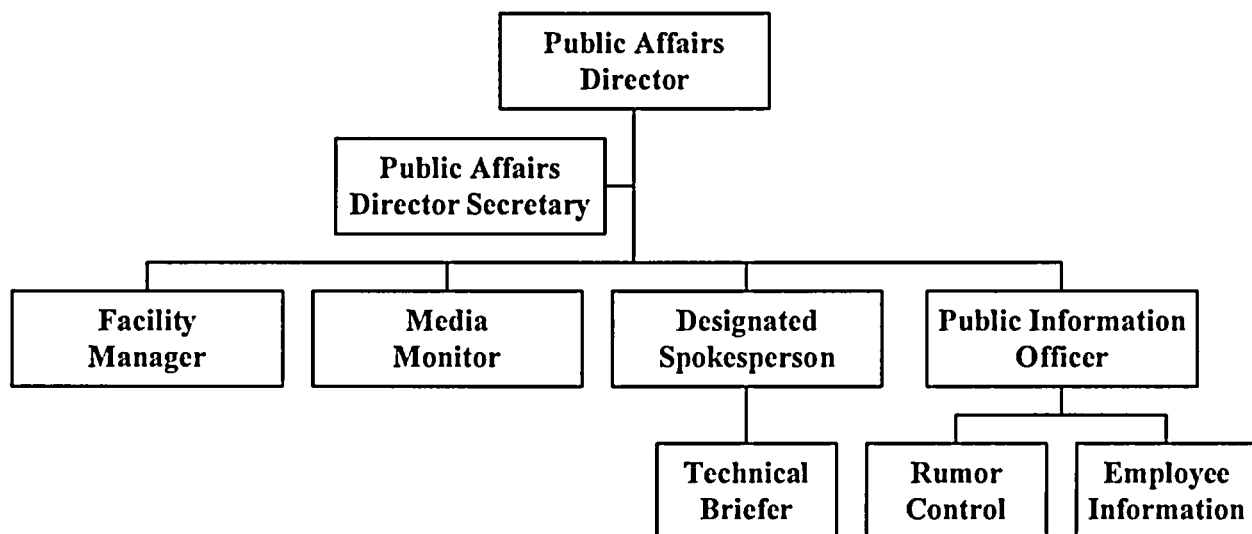
Public Information Officer<sup>1</sup>

Facility Manager<sup>2</sup>

Designated Spokesperson<sup>2</sup>

Public Affairs Director Secretary

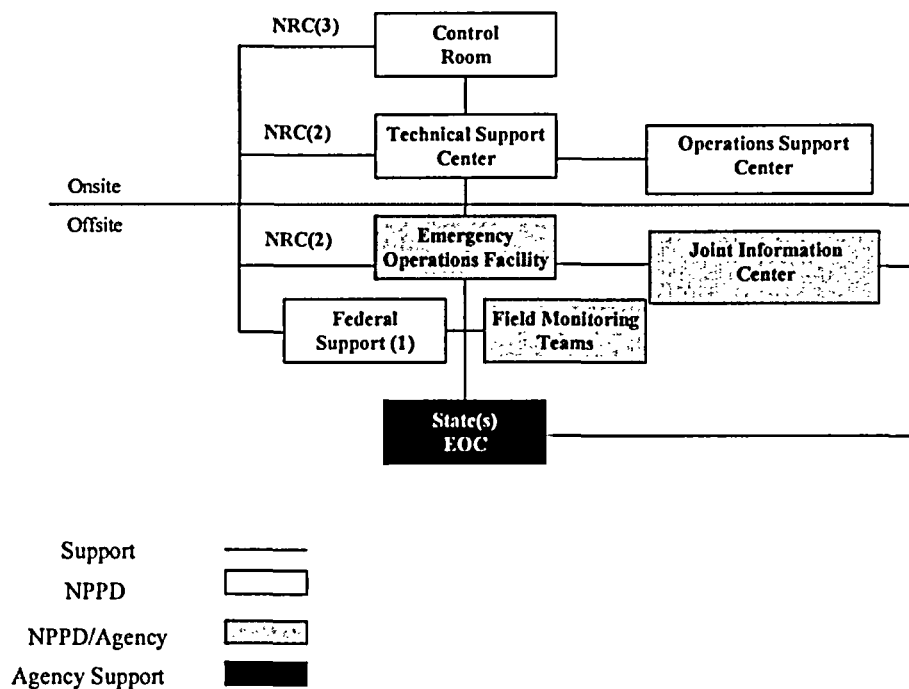
Media Monitor



<sup>1</sup>Minimum Staff

<sup>2</sup>Key Functional Staff

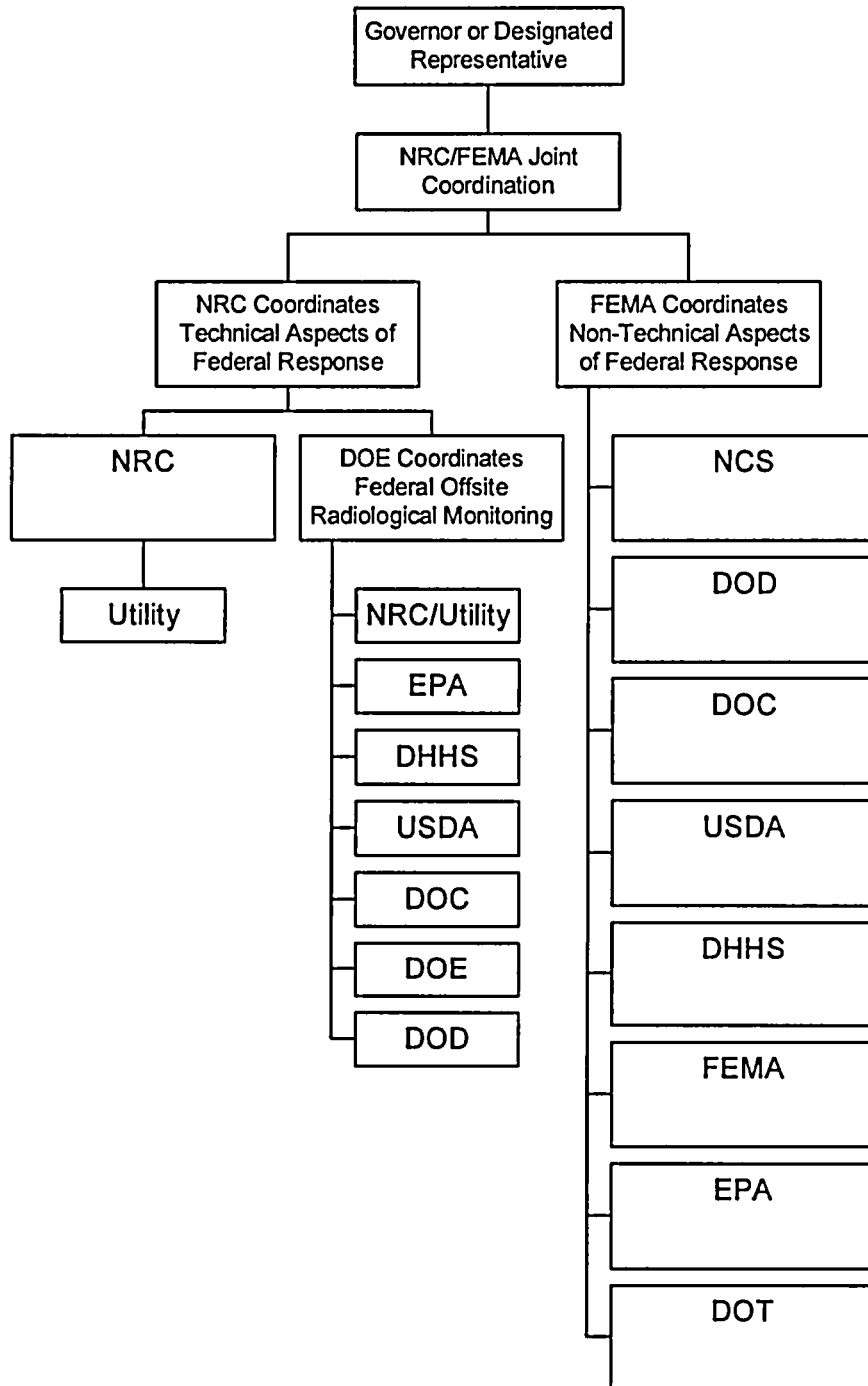
Figure 5.4-1  
Interrelationships of Emergency Response Organizations



Notes:

- (1) See Figure 5.4-2 for detailed information on Federal Support.
- (2) NRC Support in TSC and EOF.
- (3) NRC Resident Inspector located in the Control Room.

Figure 5.4-2  
Federal Response Management Diagram  
Cooper Nuclear Station



Source: Federal  
Register 45FR84911

## 6.0 Emergency Measures

Nebraska Public Power District (NPPD) emergency measures will be conducted in accordance with the particular emergency classification at Cooper Nuclear Station (CNS). This section of the plan (1) discusses emergency alarms and evacuation, (2) identifies segments of the station emergency organization that will be activated at each class of emergency, (3) details methods and procedures for assessment actions, (4) specifies actions to correct or minimize the emergency situation, (5) describes protective actions to prevent or minimize radiological exposure, and (6) discusses aid to affected personnel.

### 6.1 Site Emergency Alarms

When an emergency condition exists that could affect the safety of station personnel the appropriate alarm will be manually activated and an announcement made from control room. If the condition involves a fire, the fire alarm will be activated and designated personnel will respond. If the condition results in an emergency declaration, the emergency alarm will be activated and an announcement made.

The condition of the emergency will dictate what directions will be given during the announcement. Site security personnel may assist in notification of personnel on NPPD property.

### 6.2 Notification and Activation of Emergency Response Organizations

The four classes of emergencies defined in Section 4.0 require a varying degree and scope of emergency response. The appropriate parts of the emergency response organization activated in each emergency classification are presented in Section 5.0.

The transition from the normal operating organization to the emergency response organization involves the following steps:

- Notify the emergency response organization members who are offsite, or are onsite but may not be aware of the emergency, that their assistance is required.
- Fill emergency response positions on an interim basis with personnel who are immediately available at the time of the emergency.
- Fill positions in the emergency organization with ERO members as they arrive at the various emergency response facilities.

#### 6.2.1 Onsite Plant Personnel

Plant personnel onsite are notified by an emergency alarm and announcement as described in Section 6.1 and EPIP 5.7.2.

#### 6.2.2 Offsite Plant Personnel

Plant personnel (ERO) offsite are notified in accordance with EPIP 5.7.2. This is normally accomplished via the CNS Automated Notification System. A listing of telephone numbers for notification of ERO members is maintained by the Emergency Preparedness Department.



### 6.2.3 Joint Information Center (JIC)

EPIP 5.7.6, Notification, defines how General Office personnel are notified. Depending upon the situation, the JIC may be activated. Personnel notification schemes and procedures for activating these facilities are contained in EPIP 5.7.23.

### 6.2.4 Offsite Authorities and Support Agencies

When an emergency classification is declared, CNS will initiate predetermined notifications as defined in EPIP 5.7.6. Initial notifications to responsible state and local governmental agencies will be completed within 15 minutes of the declaration of an emergency. The contents of initial and follow-up notifications are set forth in EPIP 5.7.6, and contain information about the class of emergency, release information, potentially affected population areas, and protective action recommendations. Follow-up communications with offsite authorities will consist of periodic messages containing additional information as described in EPIP 5.7.6.

Notifications to responsible State and Local Governmental Authorities are normally accomplished via the CNS State Notification Telephone System.

Offsite authorities, as well as technical support groups likely to be consulted in an emergency, are listed in the Emergency Telephone Directory.

### 6.2.5 Nuclear Regulatory Commission (NRC)

Notification of the NRC Operations Center for all emergency classification levels is normally accomplished via the Federal Telecommunication System Emergency Notification System (FTS-ENS) in accordance with EPIP 5.7.6.

## 6.3 Assessment Actions

The assessment of station conditions, radiation levels, and offsite consequences is initially conducted by the Control Room. Radiological dose assessment can also be performed in the Control Room, as necessary. The Shift Manager, in the role of Emergency Director, activates the emergency response organization described in Section 5.0 per EPIP 5.7.2. Assessment actions described in Table 6.3-1 will continue throughout the emergency. These assessments may result in reclassification, which could alter emergency response actions.

CNS has systems for monitoring radioactive materials released to the environment and is equipped with process and system monitors capable of assessing radiological conditions and initiating appropriate alarms or actuating control equipment for containment of radioactive materials if pre-established limits are reached. These systems will monitor radioactive releases during accident conditions.

### 6.3.1 Post-Accident Sampling System

Samples of both reactor water coolant and drywell atmosphere can be drawn using post-accident sampling system. This system allows personnel to safely take samples and conduct analyses, while keeping radiation dose to personnel within specified limits. Samples collected and analyzed will provide information, which may indicate reactor conditions such as cladding failure, effects from high fuel temperature, or fuel melting.

### 6.3.2 Meteorological Data

The site has meteorological instrumentation, which indicates and records wind speed, wind direction, and temperature differentials on a continuous basis. Detailed information on this system can be found in Section 7.5.2. A continuous readout of this information is available on the Plant Management Information System (PMIS). In the event that meteorological information from this primary source is unavailable, meteorological information is available from the National Weather Service.

### 6.3.3 Dose Assessment

CNS has the capability of performing dose projections during a radiological emergency using two separate techniques:

1. CNS-DOSE: CNS-DOSE, a computerized class 'A' model, is the primary method of performing rapid dose projections (predictions) in order to develop protective action recommendations during the early accident phase within the plume exposure EPZ. The program is operated on plant computers and can make use of current meteorological and radiological effluent monitor readings as well as manually entered data.
2. Hand Calculation: A manual calculation, derived from the methodology utilized by CNS-DOSE, is the backup method for performing dose projections in order to develop protective action recommendations during the early accident phase within the plume exposure EPZ. Input data is taken from the same resources as the computerized method. Both centerline and off-centerline calculations can be performed.

Once the EOF is operational, dose projection and assessment responsibilities are transferred from the Control Room to this facility. The TSC also has the capability to perform dose assessments.

Offsite concentrations of radionuclides and radiation dose rates are determined by NPPD and State downwind survey teams. Once the EOF is operational, downwind survey teams are deployed with portable radiological instrumentation (air samplers and radiation survey meters) and communications equipment in vehicles designated for this purpose. The field instrumentation used for airborne activity monitoring has the capability to detect radioiodine concentrations as low as  $1.0 \times 10^{-7}$   $\mu\text{Ci/cc}$  (microcuries per

cubic centimeter). Field information is used to validate dose projections and to assist in determining the adequacy of protection actions.

#### 6.4 Corrective Actions

Instrumentation and Control systems monitor, provide indications and alarms, record, and automatically control systems necessary for the safe operation of the station. Control and display of information from these systems is centralized in the Control Room. Displays are also available in the TSC and EOF. This instrumentation is a source of information used to determine emergency classification as shown in Tables 4.1-1 through 4.1-4, and EPIP 5.7.1 (Emergency Classification), and may provide entry conditions for Abnormal Operating Procedures (AOPs), Emergency Operating Procedures (EOPs) or Severe Accident Guidelines (SAGs). AOPs, EOPs, and SAGs contain steps for preventive and/or corrective actions to avoid or mitigate consequences of an emergency.

During a declared emergency, corrective actions are performed by the ERO under the direction of the Emergency Director. These corrective actions are designed to (1) terminate the accident, (2) mitigate or eliminate potential hazards to the public and station personnel, (3) restore the plant to a safe and stable condition, and (4) de-escalate the emergency classification. Corrective actions may also involve response by the following:

- Fire Brigade

The CNS Fire Brigade will respond to station fire calls. The Fire Brigade is composed of the Fire Brigade Leader, two Station Operators, and two other individuals qualified as Fire Brigade members, in accordance with station procedures. If offsite firefighting assistance is required, an offsite Department will be requested and escorted to the fire scene by security personnel upon arrival.

- Repair and Damage Control Team

For minor emergencies, station personnel will handle cleanup, repair, and damage control. For more severe emergencies, the support of additional NPPD personnel or specialized outside contractors may be required to assist in damage control, cleanup, and repair operations.

#### 6.5 Protective Actions

Onsite actions to protect station personnel and visitors during a declared emergency are the responsibility of the Emergency Director. Measures for the protection of the general public are detailed in the State Emergency Response Plans.

Protective actions for onsite personnel will be taken whenever a radiological emergency has occurred, or may occur, which might result in concentrations of airborne activity or radiation levels in excess of pre-determined limits. Protective actions will also be taken for onsite personnel in other emergency situations such as fires, floods, tornadoes, or security related events where personnel safety is threatened. Activation of Emergency Response Facilities, assembly and accountability activities, and evacuation of site personnel may be delayed if it is determined by the Emergency Director that personnel

safety would be threatened. In this situation, onsite personnel will be notified of these events by the station alarms, telephone calls, or public address system announcements, as applicable. Personnel will be notified of appropriate protective actions to be taken as soon as assessment actions permit a proper evaluation of conditions.

Following the instructions and using the procedures referenced in EPIP 5.7.20, the Radiological Control Manager will determine if the projected downwind doses indicate a need to implement any type of protective actions. If the results of the analysis indicate a need to implement protective actions, he will inform the Emergency Director of his findings and together they will decide if protective action recommendations are warranted.

The Emergency Director will provide protective action recommendations to offsite authorities. Protective actions for offsite areas are implemented by state and local government emergency response organizations. These actions may include evacuation or in-house shelter. Factors such as release duration, mobilization time, or adverse weather will be important considerations affecting protective actions. The action which affords the lower radiation dose is preferred. Approximate initiation times for protective actions are shown in Table 6.4-2.

Within the Plume Exposure Pathway, an Alert and Notification System has been installed. Residents of this EPZ have been instructed to tune to their local Emergency Alert System radio station for further instructions when the Alert and Notification System is activated. This system was established to meet the prompt notification requirements established by the NRC and was designed for response to any disaster where prompt notification of the public is desirable. The design basis and rationales for the Alert and Notification System is in the Alert and Notification Design Report. Details pertaining to physical and administrative controls of this system are also found in this document.

The Alert and Notification System includes fixed sirens and tone activated National Oceanic and Atmospheric Administration / Emergency Alert System (NOAA/EAS) Radio Receivers. These tone-activated radio receivers are made available to residences located within the Plume Exposure Pathway, but outside the hearing range of the fixed sirens. The radios are pre-tuned to an EAS station and are automatically activated when the EAS is activated. Special use or remote area notification is discussed in the CNS Alert and Notification Design Report. State and local plans have provisions for notifying the transient population within the Plume Exposure Pathway.

EPIP 5.7.27 describes how the system will be activated in the event of an emergency. Local and/or state governments are responsible for implementation of notification/warning actions. Normally, public warning information will be disseminated as directed by the Governor or his Authorized Representative. However, the notification system provides for local government decision and initiation of notification/warning actions, especially in the event of a major nuclear power plant incident. Local governments may make decisions based on the recommendations of NPPD management or state representatives.

As indicated in EPIP 5.7.27, pre-arranged messages are used when instructing the general public on what actions should be taken. EPIP 5.7.27 also provides CNS personnel the messages and instructions to be provided to the general public (in the event that the state and local authorities can not initiate the Alert and Notification System). Approximately

15 minutes will be required to notify the public from the time the decision has been made to activate the system to the time required to broadcast a message.

EPIP 5.7.27.1 describes how a malfunctioning tone-activated radio will be repaired or replaced.

#### 6.5.1 Rescue Operations

The search and rescue function is handled by trained emergency response personnel. If station personnel are unaccounted for in the initial or subsequent personnel accountability, an emergency team will be assigned to locate and, if necessary, rescue them, observing the guidelines set forth in EPIP 5.7.15.

#### 6.5.2 Onsite Protective Equipment and Supplies

Protective equipment is available onsite to minimize radiological dose and contamination, as well as fire fighting hazards. The types of equipment include full-face particulate respirators, self-contained breathing apparatus, protective clothing, and air-fed respirators.

This equipment is located in the normal station storage areas, and in or near the Control Room and the emergency response facilities. An inventory of this equipment is contained in EPIP 5.7.21.

#### 6.5.3 Personnel Assembly and Accountability

When the emergency alarm is sounded site visitors, contractors and non-ERO onsite personnel will proceed to their Designated Assembly Area. Emergency response personnel will report to their emergency response facility or designated assembly area. The results of personnel accountability will be compiled and reported to the Emergency Director. In the event an individual cannot be located, search teams will be dispatched. Initial accountability will be completed within 30 minutes and continuous accountability will be maintained throughout the course of the emergency per EPIP 5.7.10.

#### 6.5.4 Dismissal and Evacuation

When the emergency alarm is sounded, all personnel will proceed to their designated assembly area by the most direct route unless otherwise instructed to avoid specified areas. The classification and magnitude of the emergency will dictate which Emergency Response Facilities shall be activated, the areas of the site to be avoided, and the offsite support required.

Upon assembly and accountability of all personnel, it may be appropriate to dismiss specific personnel to go home, or necessary, to direct personnel to the alternate assembly point located in the Nemaha County Multiplex Building.

All SITE AREA and GENERAL EMERGENCIES require evacuation of all non-ERO personnel. EPIP 5.7.11 provides the specific procedures to be followed in the event site dismissal or evacuation is required. Once the decision has been made to evacuate, non-ERO employees, contractors, and

visitors can be evacuated and relocated to a remote assembly area within approximately one hour.

Personnel will not return to the station or deactivate emergency response facilities until directed by the Emergency Director or until the "ALL CLEAR" signal is sounded by the Control Room.

#### 6.5.5 Contamination and Dose Control Measures

##### 6.5.5.1 Onsite

Measures will be taken to prevent ingestion of radioactive materials deposited within the Protected Area. Affected areas will be isolated. Details of contamination control measures for onsite areas are contained in Station Operation procedures.

The monitoring of the work environment within radiological control areas, including specific instructions, precautions, and limitations to personnel working within these areas is supervised by Radiological Protection personnel.

Food for emergency response personnel will be provided from offsite sources or from onsite supplies stored in a contamination resistant location.

Exposure to airborne radioactivity will be controlled in accordance with appropriate ALARA principles. Periodic air samples will be taken to assure that radioiodine and airborne contamination levels are known.

Radioprotective tablets are available for voluntary use by NPPD personnel. NPPD may also provide radioprotective tablets to non-NPPD emergency response organizations for distribution to their emergency workers. Administration of these tablets to non-NPPD personnel will be the responsibility of these non-NPPD organizations. Any NPPD distribution of radioprotective tablets will be made at the direction of the Emergency Director.

EPIP 5.7.14 provides further information on the use and distribution of radioprotective (Potassium Iodide) tablets.

During an emergency, equipment and tools will be unconditionally released for use outside the area only if their radiation levels are less than 1 mrem/hr above background (fixed contamination) and 220 dpm/100cm<sup>2</sup> alpha activity or 2200 dpm/100cm<sup>2</sup> beta-gamma activity above background (removable contamination).

##### 6.5.5.2 Offsite

For areas beyond the site boundary, Nebraska and Missouri radiological monitoring teams, in coordination with CNS

monitoring teams, will identify contamination and radiation levels. For areas where public access normally occurs, criteria for offsite areas will be applied. Criteria and measures for contamination control in offsite areas are detailed in the Nebraska and Missouri Emergency Plans.

#### 6.5.6 Security and Access Control

The CNS Security Plan is approved by the NRC and restricts access to the site. Security personnel control access to the Protected Area and during declared emergencies, control access to areas of the Owner Controlled Area.

A roadblock will be established on the Plant Access road. Personnel attempting to access the site will be informed of the situation and, if cleared, will be directed to the proper location.

For security related emergencies, Local Law Enforcement Agency assistance may be requested.

### 6.6 Aid to Affected Personnel

#### 6.6.1 Emergency Personnel Dose Criteria

Dose records for station personnel are maintained by the Radiological Protection Group and are accessible at the TSC. This information will be utilized in determining emergency team assignments. Criteria used for limiting dose to emergency workers are based on recommendations of the U.S. EPA and are shown in Table 6.4-1.

Emergency workers will wear dosimetry as required by Radiological Protection personnel. Emergency worker dosimetry will be provided on a 24-hour basis by Radiological Protection personnel. Every effort will be made to minimize emergency worker dose through the use of protective equipment and supplies and by minimizing exposure time. The Chemistry/Radiological Protection Coordinator and the Maintenance Coordinator, with assistance of the OSC Supervisor, are responsible for making emergency team assignments. Only the Emergency Director may authorize emergency workers to receive dose in excess of 10CFR20 occupational limits. Personnel conducting corrective or protective actions or life-saving actions who may receive dose in excess of occupational limits should be selected from those who volunteer. Radiological Protection personnel are also responsible for providing self-reading and permanent dosimetry devices to emergency personnel assembled at the OSC and for assuring accountability of each worker's dose. Emergency radiation exposure is controlled in accordance with EPIP 5.7.12.

#### 6.6.2 Decontamination and First Aid

Provisions have been made to assist personnel who are injured, contaminated, or who may have received high radiation doses. Station personnel are trained in first aid and portable first aid kits are available at strategic locations throughout the station. In addition, first aid lockers and decontamination

facilities are provided within the station. In the event the above are not available during an emergency, the EOF will be used as a first aid station and personnel decontamination center. Detailed information on personnel monitoring and decontamination, including radiological criteria is contained in Station Radiological Protection Procedures. Personnel found to be contaminated will undergo decontamination under the direction of Radiological Protection personnel.

#### 6.6.3 Medical Transportation

A station ambulance is available for the transportation of injured personnel when station EMTs are available. This vehicle is reserved for emergency use to assure ready availability in time of need. During times when the station ambulance is unavailable due to the performance of preventative maintenance, malfunction, or other circumstances, backup medical transportation services shall be contacted and services requested when necessary.

The CNS ambulance is equipped with all required equipment and supplies required by the State of Nebraska for a licensed ambulance. The ambulance also has communications equipment for communicating with the Plant and Nemaha County Hospital. Ambulance attendants (Nebraska-certified EMTs or Paramedics) are trained to handle contamination cases. In addition, NPPD Radiological Protection personnel will accompany contaminated patients to the hospital. The Auburn Rescue Squad or Nemaha County Hospital Rescue Squad may also be contacted to transport injured personnel to the hospital during times when the station ambulance is unavailable.

#### 6.6.4 Medical Treatment Facilities

The Shift Manager or his designee in accordance with EPIP 5.7.24 will notify the appropriate hospitals if injured personnel are to be transported from the site.

Arrangements have been made with the hospitals listed below for care of injured personnel, including cases involving radiological contamination and radiation over-exposure. Selection of the hospital and medical assistance will be based on:

1. Obtaining the most rapid access to the necessary medical services and facilities
2. Capabilities of the specific hospital to provide the required services
3. Accessibility due to weather and road conditions
4. Number of injured personnel to be transported
5. Preference of the injured personnel, if the type and severity of the injury permit



Except as otherwise dictated by the above conditions, hospitals and medical assistance will be utilized in the following order of priority, based on proximity to Cooper Nuclear Station:

1. Nemaha County Hospital, 2022 13th Street, Auburn, Nebraska
2. University Nebraska Medical Center, 42nd and Dewey, Omaha, Nebraska

In accordance with Nebraska Statutes (85-805, 806, 807) Nebraska Public Power District supports the University of Nebraska Radiation Health Center and maintains the right to all services of the Radiation Health Center for, but not limited to:

- Specialized medical and related services for evaluation, treatment and management of radiation casualties;
- Routine medical, radiation protection, consultation and associated services;
- Educational programs for nuclear safety, with emphasis on preventive medicine and radiological protection.

Patients with radiological injuries beyond the scope of the local medical facilities will be transferred to the Radiation Health Center at the discretion of the local medical staff.

TABLE 6.3-1

## ASSESSMENT ACTIONS

<u>Action</u>	<u>Description</u>
1. Surveillance of Emergency Assessment Instrumentation	The radiation level, pressure, temperature, flow, and meteorological data are monitored. Control Room operators can assess plant status by observing sensor readout. Most sensors have visual and audible alarms. Data will be provided to the Emergency Director as necessary for his assessment. Control Room operators will take corrective actions as necessary.
2. Personnel Accountability	Personnel Assembly and Accountability is the responsibility of the Security Coordinator and is carried out utilizing the security computer. Personnel accountability is maintained by communications with lead personnel at the various emergency response facilities.
3. Inplant Radiological Surveys	Radiological Protection Teams perform these surveys. The radiation levels on the station's fixed area and ventilation monitoring systems will be used to assist in these evaluations. Contamination surveys of equipment and personnel is conducted with portable equipment from the emergency kits or routine station equipment storage areas.
4. Site Boundary Surveys	The surveys are handled by Radiological Protection Teams in same fashion as inplant surveys.
5. Offsite Consequence Assessment	Radiological assessment personnel will use the Computer model, effluent monitors, meteorological output, or data supplied by deployed Radiological Protection Teams. Manual Dose assessment techniques are available in the event computer programs are unavailable.
6. Environmental Monitoring	Samples of various environmental media are collected and analyzed by station Chemistry and Radiological Protection personnel. Results will be evaluated by station personnel with assistance from a contract laboratory if required. State and Federal response personnel may also analyze collected media.
7. Assessment Reporting	In the case of actual or potential offsite consequences, the state and local authorities are immediately notified in accordance with the appropriate CNS EPIP's. Local authorities use predetermined criteria to initiate various protective actions for the public, as illustrated in Table 6.4-2.

TABLE 6.4-1

## PAGs for the Early Phase of a Nuclear Incident

<u>Protective Action</u>	<u>PAG (PROJECTED DOSE)</u>	<u>COMMENTS</u>
Evacuation (or sheltering <sup>a</sup> )	1-5 rem <sup>b</sup>	Evacuation (or, for some situations, sheltering <sup>a</sup> ) should normally be initiated at 1 rem.
Administration of stable iodine	25 rem <sup>c</sup>	Requires approval of State medical officials.

<sup>a</sup> Sheltering may be the preferred protective action when it will provide protection equal to or greater than evacuation, based on consideration of factors such as source term characteristics, and temporal or other site-specific conditions.

<sup>b</sup> The sum of the effective dose equivalent resulting from exposure to external sources and the committed effective dose equivalent incurred from all significant inhalation pathways during the early phase. Committed dose equivalents to the thyroid and to the skin may be 5 to 50 times larger, respectively.

<sup>c</sup> Committed dose equivalent to the thyroid from radioiodine.

Note: From EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Accidents (Table 2-1).

**GUIDANCE ON DOSE LIMITS FOR WORKERS PERFORMING EMERGENCY SERVICES**

<u>DOSE LIMIT<sup>a</sup> (rem)</u>	<u>ACTIVITY</u>	<u>CONDITION</u>
5	All	N/A
10	Protecting valuable property	Lower Dose Not Practicable
25	Life Saving or Protection of Large Populations	Lower Dose Not Practicable
>25	Life Saving or Protection of Large Populations from Extensive Exposure	Only on a Voluntary Basis to Persons Fully Aware of the Risks Involved

<sup>a</sup> Sum of external effective dose equivalent and committed effective dose equivalent to non-pregnant adults from exposure and intake during an emergency situation. Workers performing services during emergencies should limit dose to the lens of the eye to 3 times the listed value and doses to any other organ (including skin and body extremities) to 10 times the listed value. These limits apply to all doses from an incident, except those received in unrestricted areas as members of the public during the intermediate phase of the incident.

Note: From EPA 400-R-92-001, Manual of Protective Action Guides and Protective Actions for Nuclear Accidents (Table 2-2).

TABLE 6.4-2

INITIATION TIMES FOR PROTECTIVE ACTIONS FOR THE GENERAL PUBLIC

Approximate Initiation Time	Exposure Pathway	Action to be Initiated
0 - 4 Hours	Inhalation of gases or particulates	Evacuation, in-house shelter, (if evacuation is not practical), access control, respiratory protection, prophylaxis (thyroid protection).
	Direct radiation	Evacuation, in-house shelter, access control.
4-48 Hours	Milk	Take cows off pasture, prevent cows from drinking surface water, quarantine contaminated milk, utilize stored feeds.
	Harvested fruits and vegetables	Wash all produce, or impound produce.
	Drinking water	Cut off contaminated supplies, substitute from other sources.
	Unharvested produce	Delay harvest until approved.
2-14 Days	Harvested produce	Substitute uncontaminated produce.
	Milk	Discard or divert to stored products, such as cheese.
	Drinking water	Filter, demineralize, test.

## 7.0 Emergency Response Facilities and Equipment

This section of the CNS Emergency Plan describes the Control Room and the Emergency Response Facilities, including onsite and offsite communications systems, assessment equipment and facilities, protective facilities and equipment, first aid and medical facilities, and damage control equipment and supplies.

### 7.1 Control Room

Emergency assessment and control is initially directed from the Control Room by the Shift Manager prior to activation of the Technical Support Center (TSC). The Control Room is located in the Control Building and is equipped with an emergency bypass ventilation system allowing habitability during Design Basis Accidents as defined in the Cooper Nuclear Station (CNS) Updated Safety Analysis Report. The Control Room contains plant instrumentation, required technical drawings, CNS records, and communications equipment.

Communication equipment available for this facility is shown on Table 7.1-1.

### 7.2 Emergency Response Facilities

When activated, the following Emergency Response Facilities supplement the Control Room in assessing and controlling emergencies:

#### 7.2.1 Technical Support Center

The TSC (Figure 7.2-1) is the focal point for onsite emergency coordination and for directing and assisting the Control Room during station emergency conditions. The following functions are performed in the TSC:

- Provide management and technical support to station operations personnel during an emergency.
- Relieve operations personnel of duties not directly related to reactor system manipulations (e.g., NRC notifications).
- Temporarily assumes the role of the EOF in the event the EOF functions must be transferred to the Alternate EOF (AEOF).

The TSC is located on the first floor of the Administration Building. Figure 7.2-1 provides a layout of the TSC.

If the TSC should become uninhabitable, personnel would relocate to the EOF.

To protect personnel under most conditions, the TSC is provided with dedicated radiological protection and monitoring equipment capable of continuous indication of dose rates and airborne radioactivity concentrations. Local alarms provide early warning to TSC personnel.

The TSC ventilation system is comparable to the control room ventilation system. Although not seismically qualified, redundant, or automatically

activated, it does include high efficiency particulate air filters and charcoal filters. System capacity is based on design basis accident airborne radioactivity levels, independent of thyroid blocking provisions (potassium iodide).

Emergency equipment listed in EPIP 5.7.21 and Appendix E is provided to protect personnel who must exit the TSC or continue TSC operation during the presence of low-level airborne radioactivity or radioactive surface contamination.

To facilitate the TSC function, a set of as-built drawings of the station, schematics and diagrams, Technical Specifications, Station Operating Procedures, Emergency Operating Procedures, Severe Accident Guidelines and associated Technical Support Guidelines, station operating records, records needed to perform the functions of the EOF when it is not operational, and a copy of the Updated Safety Analysis Report are available to personnel in the TSC.

Communication equipment available for this facility is shown on Table 7.1-1.

#### 7.2.2 Operational Support Center

The OSC (Figure 7.2-2) is the assembly and staging area for CNS personnel for emergency response assignments. The OSC provides a location where plant logistic support can be coordinated during an emergency.

Chemistry/Radiological Protection personnel, Mechanical Maintenance personnel, Electrical and Instrument & Control personnel, and administrative personnel report to the OSC. The OSC is located adjacent to the TSC. In the event the OSC would need to be relocated due to habitability concerns, the Instrument & Control Shop (932' Level) has been identified as an alternate OSC.

Communication equipment available for this facility is shown on Table 7.1-1.

#### 7.2.3 Emergency Operations Facility

The EOF (Figure 7.2-3) is located adjacent to the Security Building, outside the Protected Area. The EOF performs the following functions:

- Management of the offsite emergency response.
- Coordination of radiological and environmental assessment.
- Determination of recommended protective actions for the public.
- Coordination of emergency response activities with federal, state, and local agencies.
- Event Classification.
- Notification to offsite authorities.

The EOF has sufficient space to accommodate CNS emergency response personnel and representatives from local, state, and federal response agencies.

Offsite monitoring teams will be dispatched from the EOF. Emergency lockers in the EOF and/or downwind survey vehicles contain material and equipment needed for offsite monitoring and reentry activities. This equipment includes procedures, protective clothing, radiation detection instrumentation, dosimetry, air sampling equipment, respiratory protection equipment, personnel decontamination supplies, and counting instruments. A list of this equipment is included in the Emergency Plan, Appendix E, as well as in Implementing Procedure (EPIP) 5.7.21. Results of offsite surveys and sample analyses will be reported to the EOF for evaluation and assessment, and to aid in the development of protective action recommendations to offsite authorities.

Personnel in the EOF and TSC have the capability to assess meteorological data, current plant conditions and release rate data from the Safety Parameter Display System (SPDS) or the Control Room to determine projected downwind doses. All of this data is prominently displayed in the EOF and is readily available to local, state, and federal authorities for use in making an independent determination of protective actions.

Communication equipment available for this facility is shown on Table 7.1-1.

Communication by facsimile equipment between the EOF, TSC, and the JIC is also provided.

Information available in the EOF includes: CNS Technical Specifications, Operating Procedures, Emergency Operating Procedures, Updated Safety Analysis Report, environs radiological monitoring records, and selected as-built drawings. In addition, copies of state and local emergency response plans and information pertinent to evacuation is also maintained.

The Nebraska Field Command Post and the Nebraska State Patrol Mobile Emergency Communications Unit may be stationed adjacent to the EOF. Electrical power is available to these vans. Communications between the EOF and the communication vans consists of direct intercom and telephone via external plug-in at the EOF. Radio communications are also available.

#### 7.2.4 Alternate Emergency Operations Facility

The AEOF (Figure 7.2-4) is located in the town of Auburn, Nebraska, approximately 10½ miles west of CNS. It is housed in the Nemaha County Multiplex Building. If emergency conditions dictate relocation to the AEOF, emergency evaluation and coordination activities will be accomplished from this location. It will serve as the alternate assembly point for station personnel. The AEOF has emergency lockers containing similar amounts and types of emergency equipment as the EOF; however, it does contain a larger quantity of decontamination equipment should decontamination of evacuated station personnel be required. A list of the general type of this emergency and decontamination equipment is included in Appendix E of this plan as well as EPIP 5.7.21.

Communication equipment available for this facility is shown on Table 7.1-1.

In the unlikely event that the EOF had to be evacuated, key personnel would evacuate the area and relocate to the AEOF in accordance with EPIP 5.7.9.1 and EPIP 5.7.11.

Personnel in the TSC would be notified of the situation and control of the onsite and offsite aspects of Emergency Response would be directed from the TSC. It is estimated that the activation of the AEOF would require approximately one hour. It should be emphasized that key personnel relocating to the AEOF would maintain contact with CNS via mobile radio or cellular telephones. Direct communications with the TSC and JIC would be established from the AEOF.

#### 7.2.5 Joint Information Center

The JIC is the media briefing area and is the focal point for contact with the media. The JIC (Figure 7.2-5) is located on the third floor of the NPPD General Office Building in Columbus, Nebraska. The JIC is jointly staffed by utility, State, and Federal personnel. The JIC carries out the following functions:

- Coordinate the dissemination of information to the news media.
- Conduct media monitoring.
- Maintain rumor control.
- Provide NPPD employees with information concerning the emergency.

To assure accurate and timely information is available to the public, personnel manning the JIC have current information on plant status available. A direct continuous line for communication is available between the JIC and the EOF. NPPD personnel are available to respond to any questions regarding plant status, radiological releases, protective actions, etc.

Communication equipment available for this facility is shown on Table 7.1-1.

Since public information activities occur at the JIC, CNS has not dedicated an area within the EOF for media representatives.

The EOF has an area dedicated for state Public Information Officers to inform counterparts located in the JIC of the events, which are occurring at CNS.

The NPPD Designated Spokesperson located in the JIC is responsible for all interfaces with the media. The Designated Spokesperson and the Public Affairs support staff will receive information on plant status from designated personnel located in the EOF and will interact with state Public Information Officers as required.



### 7.3 Communications Systems and Notification

#### 7.3.1 Plant Communications Equipment

Onsite communications are provided by:

- Site PBX.
- Station Intercom/Gaitronics.
- Alternate Intercom System.
- FM radio system with remote control consoles located in the Control Room and the Central Alarm Station, Secondary Alarm Station, TSC, and EOF (further described in Section 7.3.3.1 and 7.3.3.2).
- Sound power.

#### 7.3.2 Telephone Communications

Telephone communications to offsite organizations are provided by the following:

- Trunks in buried cable connecting PBX to the central office at Brownville, Nebraska.
- Federal Telecommunications System (FTS) telephone system including Emergency Notification System (ENS) and Health Physics Network (HPN) circuits. The ENS circuit of this system is manned 24-hours a day at the Control Room and NRC Headquarters.
- Trunks connecting the PBX to the N.P.P.D. microwave telephone network.
- Several local numbers connecting telephones located in several places throughout the plant to the local service provider's Central Office in Brownville, Nebraska.
- The State Notification Telephone System's dedicated lines will ring the Nebraska State Patrol, Missouri State Patrol, Atchison County Sheriff's Department, and Nemaha County Sheriff's Department. The use of law enforcement agencies as the initial points of contact provides 24-hour coverage. The dedicated lines listed also have extension lines in the following facilities: Nebraska State Emergency Management Agency EOC, Missouri State Emergency Management Agency EOC, Atchison County EOC, and Nemaha County EOC. Once the EOCs are operational, notifications may be made using the extension lines at the EOCs with the concurrence between the respective EOC and the law enforcement agency.

Should the PBX lose AC power the system will automatically switch to back-up battery power. These batteries will power the PBX for approximately 6 hours. All stations will continue to function in their normal fashion. If the PBX system should fail there are several trunks that will be directly connected to pre-selected extensions.

National Warning System (NAWAS) is installed, monitored, and operated from the Control Room. NAWAS, which is manned 24-hours a day, is a nationwide telephone system primarily for attack warnings.

7.3.3 Radio Communications for use both onsite and offsite are provided by:

7.3.3.1 Two-Way FM Radio System (High Band)

A system used primarily by inplant operations/emergency response personnel and the security force.

This radio system can be used for communications between the Control Room/Security Alarm Stations and the Nemaha County Sheriff's Department located in Auburn, Nebraska.

It is possible to operate this system either base-to-portable or portable-to-portable. The range of either system at maximum would be approximately twenty miles.

It is equipped with an encoder to activate the alert monitor receiver at the Nemaha County Sheriff's Office.

7.3.3.2 Two-Way FM Radio System (Low Band)

This low band system is primarily used by offsite field monitoring personnel.

This radio system can be used for communications between CNS and NPPD vehicles.

At CNS four remote control heads are accessible, one each in the Control Room, TSC/OSC, EOF, and the 345 kV substation.

7.4 Notification by Emergency Class

Notification schemes detailed by specific accident classification including notification of the general public are contained in EPIP 5.7.6, EPIP 5.7.27, and EPIP 5.7.23.

The four classes of emergency defined in Section 4.0 require varying degree and scope of emergency response. The emergency organization for a NOTIFICATION OF UNUSUAL EVENT classification consists of the normal shift personnel. Normally, no further site emergency staff augmentation is required, although several members of station management, including senior management personnel, are notified. Notification of responsible state and local governmental agencies, and well as the NRC, will also be performed.

In an ALERT classification, the TSC, EOF, and OSC will be activated. Notification of state, local, and NRC authorities, as well as station management and staff will be initiated.

SITE AREA EMERGENCY and GENERAL EMERGENCY classifications require complete activation of all emergency response facilities, including state and local Emergency Operations Centers (EOCs). The complete emergency response notification scheme, depicted in Figure 7.4-1 shall be initiated.

## 7.5 Environmental Assessment Capabilities

This section outlines the equipment available at CNS for the evaluation and assessment of emergency conditions. Some of this equipment is used in the initial evaluation and classification of the emergency as described in Section 4.0. Other equipment and capabilities described in this section are used in the assessment, mitigation, and subsequent analysis and monitoring of areas, equipment, and the environment. In some cases equipment may serve for both initial and continual assessment.

### 7.5.1 Seismic Monitor

A seismic event monitor and recorder is located in the Control Room. This instrument, in conjunction with assessment of equipment damage within the station, will be a primary factor in determining the emergency condition and classification as a result of a seismic occurrence. Detailed seismic information can be obtained from the Conservation and Survey Division of the University of Nebraska. Additional seismic information can be obtained from the U.S. Geological Survey office of Earthquake Studies in Golden, Colorado.

### 7.5.2 Meteorological Monitoring

Two meteorological monitoring sites are located at a grade elevation of 889 feet above mean sea level. A 100-meter tower and a backup 10-meter tower located 1,230 feet and 1,597 feet respectively, from the northwest corner of the reactor building are used to gather the meteorological data. The 100-meter tower gathers data at three levels, 100 meters, 60 meters, and 10 meters. The 10-meter tower data is collected at the 10-meter level. The redundant signal cables from the towers to the plant are located in either protected duct banks or directly buried in separated routings so that only one path can be interrupted at a time due to construction or other activities. The data is displayed by the data acquisition system located in the computer room adjacent to the control room. Digital data may also be displayed on both the Meteorological System console and the Plant Management Information System display console. The meteorological monitoring system is powered locally from the 12.5 kV ring bus and from MCC "L" in the event of a loss of off-site power condition. The system monitors and continuously records the following:

- Wind speed and wind direction are measured continuously at all tower levels. Wind system components include a three-cup anemometer, wind vane, heater, translators, and recorders. The installed range for

wind direction is  $0-540^{\circ} \pm 3^{\circ}$  with a threshold speed of 0.58 mph and a damping of 0.4 at 1.13 meters. The installed range for wind speed is  $100 \text{ mph} \pm 0.15 \text{ mph}$  or 1%. The threshold speed is 0.6 mph and the distance constant is 1.5 meters.

- Sigma Theta is calculated using the Climatronics Sigma Computer. The running sigma theta is updated every minute for the 15-minute time constant. The sigma theta values are then accessed by the data acquisition system.
- Air temperatures are monitored at all four locations. A system comprised of thermistor temperature probes, motorized aspirated radiation shields, and temperature translator is used to monitor the temperature and the corresponding delta-T's at the various levels. The estimation of atmospheric stability is based on the vertical temperature difference between the 100-meter, 60-meter, and 10-meter tower elevations. The installed accuracy is  $-30$  to  $+50^{\circ}\text{C} \pm 5\%$  not to exceed  $0.15^{\circ}\text{C}$  between tower vertical sample points.
- Dewpoint temperature is measured with Climatronics dewpoint system. This system consists of an aspirated dewpoint sensor and a dewpoint translator module.
- Precipitation is measured using an electrically heated rain and snow gauge. This gauge uses the tipping bucket method to measure all forms of precipitation. The instrument has a resolution of 0.01 inches.

Backup meteorological data may be obtained from the National Weather Service Office located in Valley, Nebraska, which offers projected windspeed, wind direction, and temperature up to the 10,000-foot level. Information can be obtained by telephone or NAWAS.

#### 7.5.3 Missouri River Monitoring

CNS is located on the Missouri River, river mile 532.5. This river is the only water source in the area that has the potential for causing major flood damage. Operations personnel record the river level once per shift. Backup information concerning river level and flow is available from the U.S. Geological Survey Station in Nebraska City, Nebraska, via the U.S. Geological Survey in Council Bluffs, Iowa.

#### 7.5.4 Radiological Monitors

CNS maintains a Radiological Protection program and related radiological equipment in accordance with NRC Regulations, guidelines, and recommended practices. This program, including personnel, procedures, and equipment is periodically inspected by the NRC. The program provides manpower and equipment to evaluate, assess, and perform follow-up action for radiological emergencies. In addition to the equipment used in normal

radiological controls, a special inventory of emergency equipment is maintained both onsite and offsite for emergency radiological response. State Radiological Health Departments, nearby nuclear plants, federal radiological assistance plan teams, and private organizations such as the Institute of Nuclear Power Operations and General Electric may be requested to provide manpower and radiological monitoring equipment during an emergency situation. Equipment vendors may also be contacted to provide equipment needed in an emergency situation.

The instrumentation listed below at the described locations is used to evaluate radiological conditions and assess the radiological risks. Tables 4.1-1 through 4.1-4 may require the use of indications from these sources in classifying emergencies.

#### 7.5.4.1 Effluent Release Point Monitors

Each effluent release point is continuously monitored for particulates, radioiodines, and noble gases. The fixed filters and radioiodine absorbing charcoal cartridges may be changed and taken to the radiochemistry laboratory for analysis and release level determination. Noble gas samples may also be taken and analyzed, or release rate versus monitor readings may be used to determine release rates for each effluent point. The CNS effluent monitors are capable of monitoring releases during normal and accident conditions.

#### 7.5.5 Main Steam Line Monitors

The four main steam lines are continuously monitored for radiation level. This instrument system consists of four channels, which contain the following:

- An ionization chamber, used to measure the steam radiation level as it leaves primary containment.
- A logarithmic monitor with local readout located in the Control Room.
- An annunciator for low/inop, high, and high/high radiation readout located in the Control Room.

A selectable recorder is located in the Control Room and is provided to continuously monitor two channels. If radiation levels increase above the alarm setpoint, visual and audible alarms are actuated in the Control Room.

#### 7.5.5.1 Steam Jet Air Ejector Monitors

Off-gas radiation levels are continuously monitored by the Steam Jet Air Ejector monitors. Each monitor system consists of an ionization detector with readouts and recorder in the Control Room. Calibration curves relate count rate and flow versus release rate at the Steam Jet Air Ejectors. This flow path is independently

monitored at the Elevated Release Point by monitors described in 7.5.4.1.

Measurement is made upstream of the 30-minute holdup line. If the alarm setpoint is exceeded and the alarm does not clear within 15 minutes, the off-gas holdup line isolates and the reactor will be shutdown.

#### 7.5.5.2 Area Radiation Monitors

Areas within CNS are monitored with permanently mounted Area Radiation Monitors. Many of these monitors have local level indications and local audible and visual alarms, including level indications and audible and visual alarm annunciation in the Control Room. Area Radiation Monitors are in locations that may be occupied by station personnel or where higher than normal radiation levels may indicate system malfunction. The alarm setpoints are based on the normal operational radiation background surrounding each individual monitor. Any abnormal increase in radiation levels will produce an annunciator alarm in the Control Room. A continuous record of this monitor system is provided on a Control Room multipoint recorder. Area Radiation Monitors located inside the primary containment will alert personnel to abnormal radiation increases.

#### 7.5.5.3 Liquid Radioactivity Monitors

Changes in the levels of radioactive material within a liquid system with its subsequent radiation level change is normally monitored by the Area Radiation Monitor system. The Reactor Equipment Cooling system, the Radioactive Liquid Effluent line, and the Service Water Cooling system each have detectors, which continuously monitor radioactivity level. A readout, visual and audible alarms, and recorder are provided in the Control Room.

#### 7.5.5.4 Constant Air Monitors

In addition to the Gaseous Effluent Release Points described in Section 7.5.4.1. Constant Air Monitor units analyze surrounding building air. These units filter the air on moving filters and monitor this filter for radioactivity level. One of these monitors, normally stationed on the refueling floor, also has radioiodine monitoring capabilities. After the air is filtered, it passes through a charcoal cartridge, which absorbs iodine. This cartridge is monitored by a scintillation detector. Those Constant Air Monitors are mobile and may be stationed at strategic locations within the station. Each has a local activity readout recorder and visual alarm functions.

#### 7.5.5.5 Portable Air Sampling Equipment

In addition to the constant air monitors described above, portable air sampling equipment is also available. Three basic types of portable air samplers are provided at the station. Particulate and iodine samplers, both high volume and low volume, may be used. These types of air samplers circulate air through a particulate filter and then through a radioiodine absorbing charcoal cartridge. The filters and charcoal cartridges are then analyzed for airborne radioactivity. Radioanalysis of these air samples are normally performed in the CNS Radiological Protection Counting Room or the Radiochemistry Laboratory.

Both silver zeolite charcoal and conventional charcoal cartridges are available for use with portable air samplers. The use of conventional cartridges requires the extra step of purging noble gases prior to analysis for radioiodines. Facilities to purge these gases are available in the Radiochemistry Lab.

Air samplers are also available in the emergency lockers described in EPIP 5.7.21. The Nebraska and Missouri State Radiological Health Departments also have air-sampling equipment available for offsite surveys. In addition, nearby nuclear plants, as well as the Department of Energy (DOE) via the NRC, may be requested to provide air-sampling backup.

#### 7.5.5.6 Process Monitors

System readouts, scaled to provide normal and abnormal primary system parameter indications, are displayed in the Control Room. Such parameters include, but are not limited to, pressure, temperature, level indication, and flow rates. Each parameter will normally have alarm setpoints with audible and visual alarm capabilities when setpoints are exceeded. Particular instruments also have recorder capabilities, which serve as a record of system performance. Process monitors, their alarms, annunciators, and recorders, give indication of system performance. Process monitors serve as indicators to alert station personnel of emergency situations. Monitor indications, in conjunction with the Emergency Action Levels discussed in EPIP 5.7.1, are used to initiate emergency measures and aid in the evaluation and assessment of such emergency situations.

#### 7.5.6 Environmental Radiation Surveillance

The CNS Environmental Radiation Surveillance Program was initiated in 1970. The initial phase determined background levels of radioactivity in the environment around CNS. The Environmental Radiological Program has continued throughout plant startup, preoperational testing phases, and operation of the station.

This program basically consists of the aspects described below:

- Radiation monitoring within a ten-mile radius, which is accomplished by the use of thermoluminescent dosimeters. In addition, the NRC and State Health Departments have placed thermoluminescent dosimeters in areas surrounding the station.
- Continuous air sampling is performed within a ten-mile radius of the station. Air sampling stations collect airborne particulates on stationary filters, then pass this filtered air through charcoal cartridges to collect gaseous radioiodines.
- Samples which are periodically taken for environmental radiological assessments include:
  - Missouri River water samples
  - Ground water samples
  - Vegetation samples
  - Milk samples
  - Fish samples from Missouri River
  - Sediment from Missouri River shoreline

The environmental program analyzes a wide variety of samples from the environment for radiological concerns. In case of an emergency affecting offsite radiological parameters, any phase of this program may be used to assess the situation. In addition, portable air sampling equipment for particulates and radioiodines is available for gaseous release emergencies; dose rate instruments and analytical capabilities are available for environmental assessment. The State(s) Department of Health, other nuclear plants, and the DOE via the NRC are also available to aid in environmental assessments.

#### 7.5.7 Radioanalysis Laboratories

The radiochemistry laboratory and Radiological Protection Counting Room, located in separate buildings from the reactor, are used to analyze onsite and offsite emergency monitoring samples. These facilities are equipped with analytical instruments capable of measuring radionuclides and their associated emergency concentrations in environmental samples. Gross radiation level instrumentation is also available in the EOF and AEOF emergency kits. The State(s) Health Department and Omaha Public Power District's Fort Calhoun Nuclear Station may also be requested to assist in the analysis of environmental monitoring samples.

#### 7.6 Fire Protection

Although the fire protection system is not detailed in the CNS Emergency Plan, the type, location, and severity of a fire may prompt this Emergency Plan to be implemented. CNS maintains a fire protection system in accordance with NRC regulations, which is periodically inspected by the NRC to verify fire protection capabilities. CNS has its own fire pumps with backup capabilities and distribution systems, including numerous hose



and hydrant stations, automatic sprinkler system, and fire barriers. Materials used meet fire code requirements. An onsite emergency fire house containing portable fire fighting equipment is maintained and periodically inventoried. Smoke detectors, heat detectors, visual means, and Control Room annunciation of the fire system serve as indicators of fire location and severity.

#### 7.7 Emergency Lockers

Emergency lockers containing respiratory protection equipment, air sampling equipment, survey equipment, and other emergency type equipment are located in the Control Room and the CNS emergency response facilities. An emergency rescue locker is located in Administration Building, level 903° near the entrance to the RCA. EPIP 5.7.21 lists the locations and minimum inventory requirements for the emergency lockers, the station ambulance, and the emergency downwind survey vehicles.

Respiratory protection equipment, protective clothing, survey equipment, sampling equipment, and other equipment for reentry, rescue or emergency operations will be provided from these emergency lockers if normal station supplies are not available. Radioprotective tablets (Potassium Iodide) are stocked in emergency lockers and are available on a voluntary basis to emergency response personnel as conditions dictate. These tablets will be dispensed only with the permission of the Emergency Director.

These lockers will remain unlocked with a seal across the door, which will break when the doors are opened.

The contents of the lockers will be inventoried at least each calendar quarter and also after each use using EPIP 5.7.21. Any missing or expended items shall be replaced. A new seal will then be attached to the doors. Any time a locker seal is found broken, the contents of the locker will be promptly verified by inventory of the contents.

The procedures and associated attachments available in the emergency lockers will be updated as required.

#### 7.8 Habitability Equipment

Control Room shielding and ventilation are designed to allow personnel habitability during Design Basis Accident Conditions. The TSC/OSC has shielding and ventilation similar to the Control Room for habitability during the course of an emergency. The TSC/OSC ventilation system is not seismic qualified, redundant, instrumented in the Control Room, or automatically activated. In the unlikely event the OSC is not habitable, an Alternate OSC location is provided which has ventilation similar to the TSC/OSC. The EOF meets the habitability requirements of NUREG-0696 (Functional Criteria for Emergency Response Facilities). In the unlikely event the EOF is not habitable, an Alternate EOF is provided outside the 10 mile EPZ. Portable radiation monitoring instrumentation, communications equipment, respiratory equipment, and protective clothing are available in or near the Control Room, TSC, OSC, EOF, AOSC, and AEOF.

## 7.9 Medical Facilities and First Aid

### 7.9.1 Medical Facilities

Arrangements have been made with the hospitals listed below for care of injured personnel, including cases involving radiological contamination and radiation over-exposure. Selection of the hospital and medical assistance will normally be based on obtaining the most rapid access to the necessary medical services, the capability of the specific hospital to provide the required services, and the preference of the injured personnel, if the type and severity of the injury permit.

1. Nemaha County Hospital, 2022 13th Street, Auburn, Nebraska
2. University Nebraska Medical Center, 42nd and Dewey, Omaha, Nebraska

### 7.9.2 First Aid

First aid kits are available at strategic locations throughout the station. These kits are fully equipped with supplies and materials appropriate for use in radiological emergencies.

Figure 7.2-1  
TSC Floor Plan

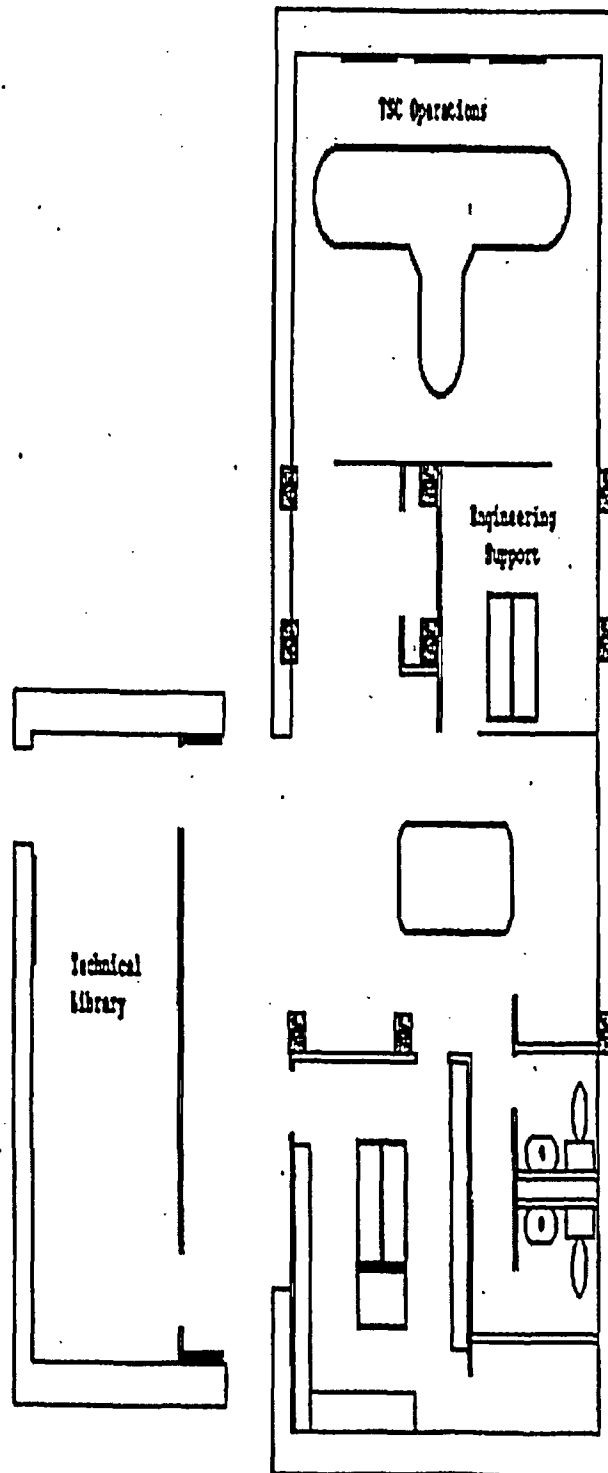


Figure 7.2-2  
OSC Floor Plan

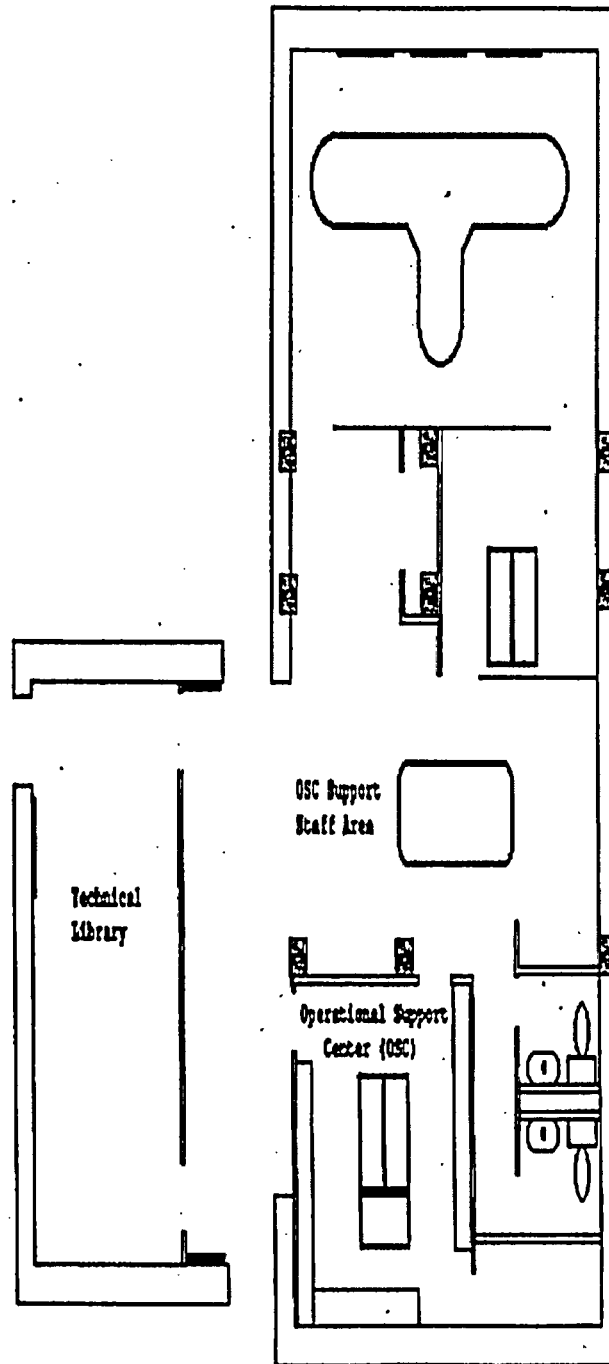


Figure 7.2-3  
EOF Floor Plan

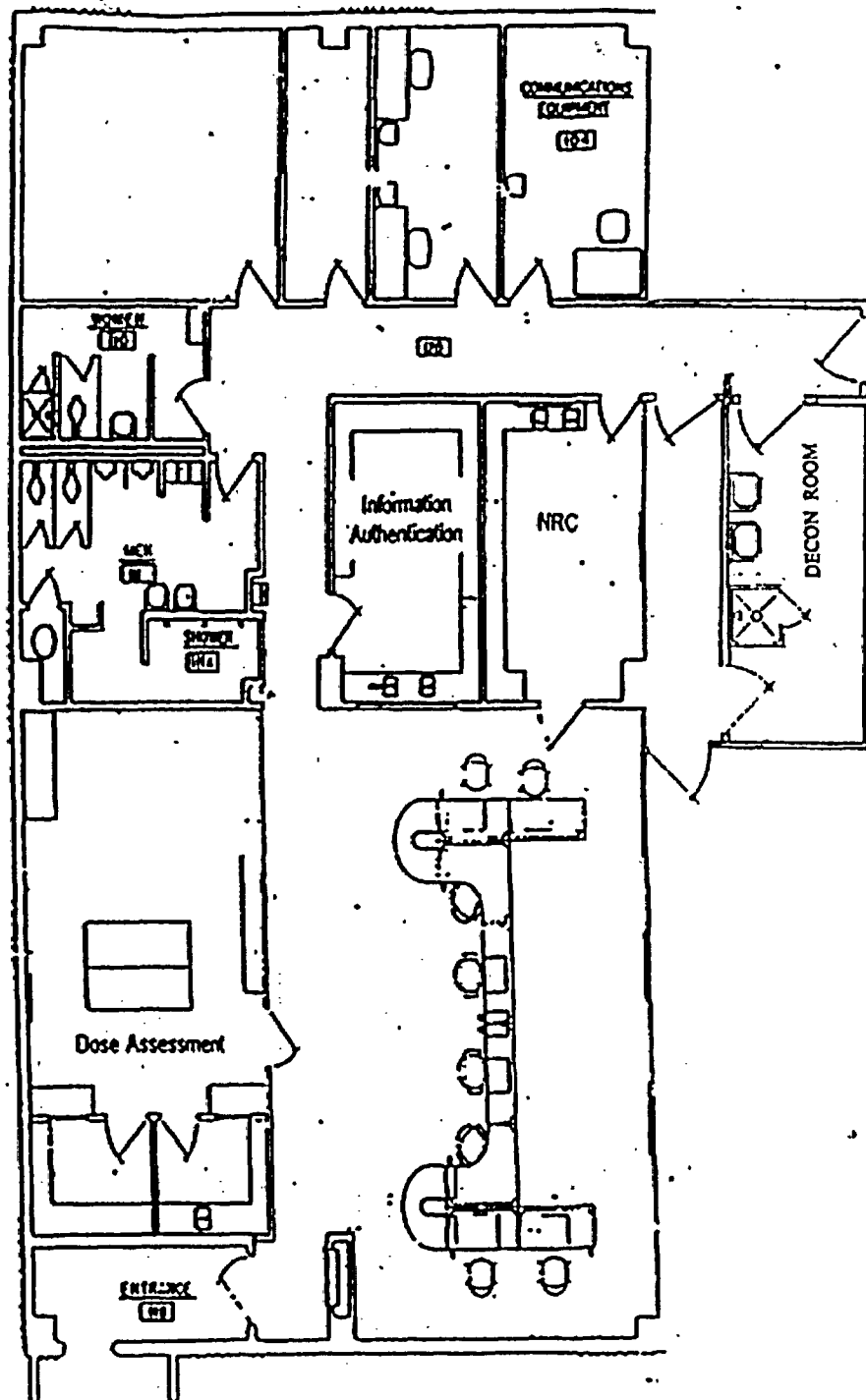


Figure 7.2-4  
AEOF Floor Plan

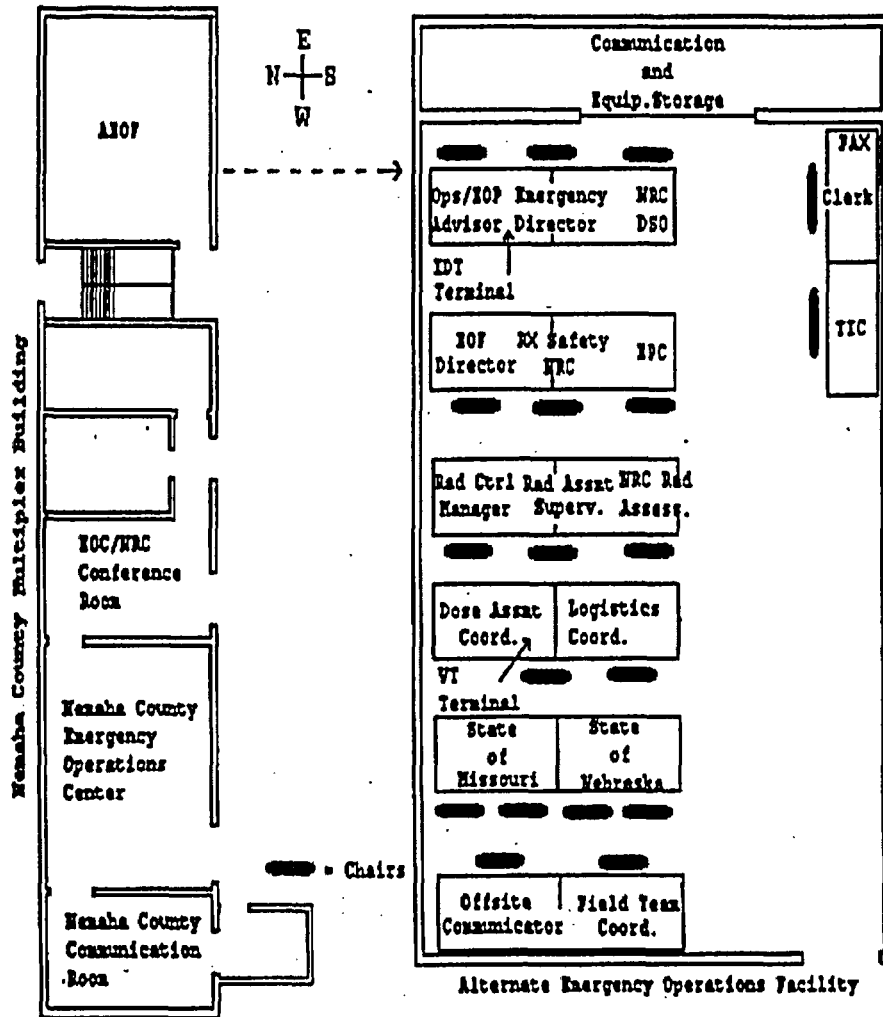


Figure 7.2-5  
JIC Floor Plan

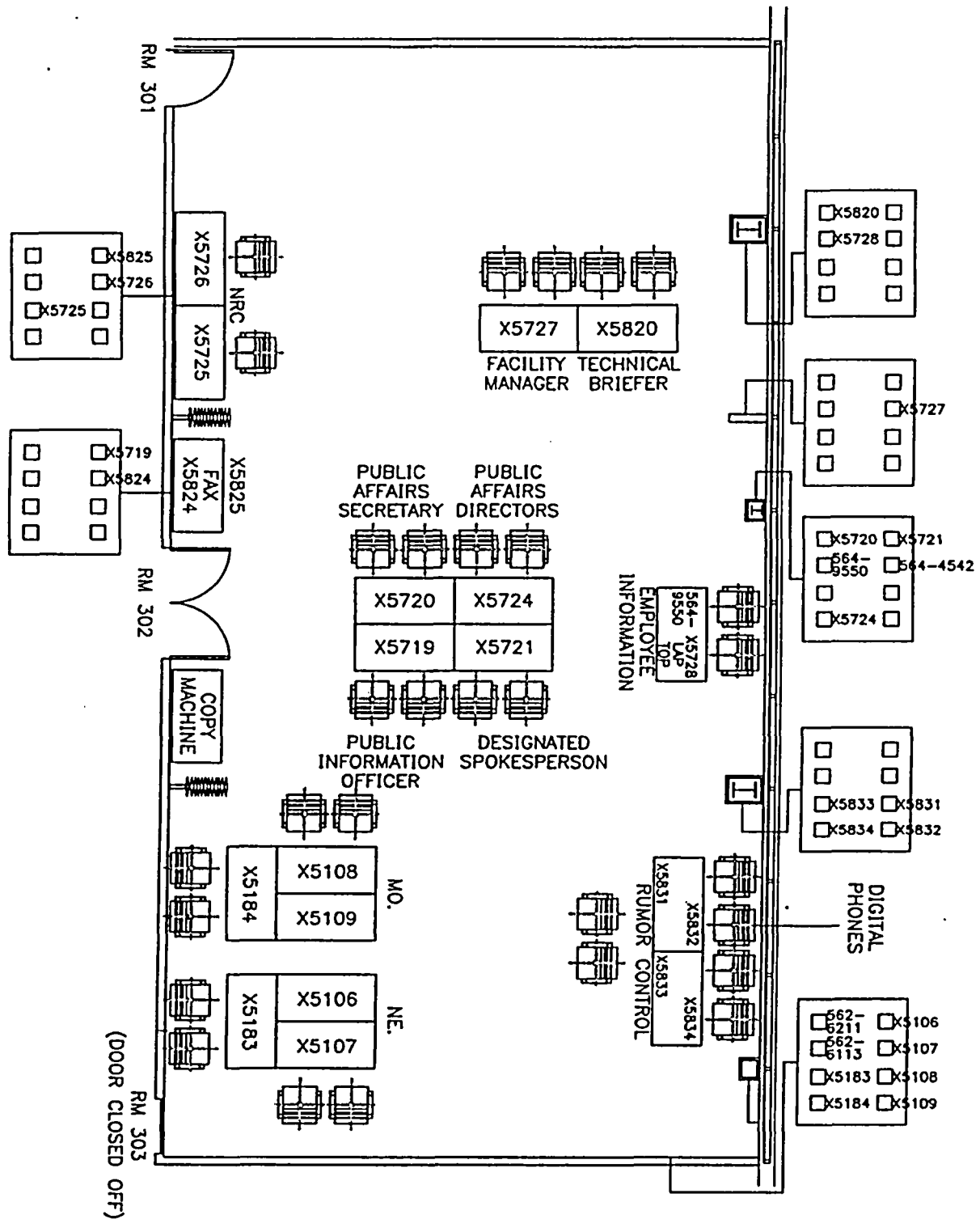


Figure 7.4-1  
Notification Chart for Emergency Classification

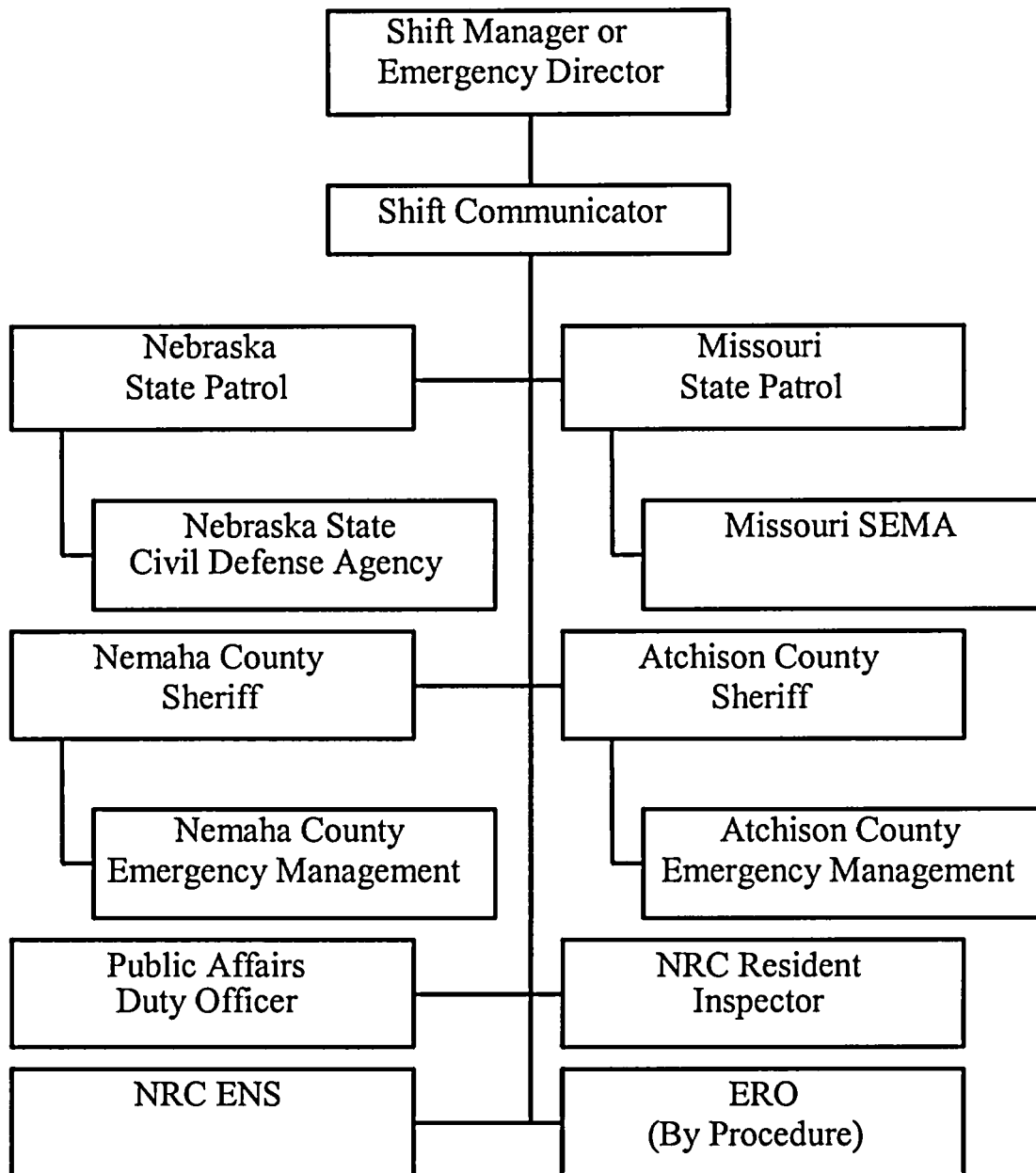




Table 7.1-1

## ERF Communications Systems

COMMUNICATIONS SYSTEM	OSC	EOF	TSC	CR	JIC	AEOF	AOSC
1. Telephone PBX	X	X	X	X	X	X	X
2. Station Intercom System "Gaitronics"	X	X	X	X			X
3. Sound Power System			X	X			X
4. Alternate Intercom System	X	X	X	X			X
5. FTS 2001SYSTEM ENS Telephones to NRC		X	X	X			
HPN Telephones to NRC		X	X				
Other Extensions to NRC MCL, RSCL, PMCL, etc.		X	X				
6. NPPD Microwave Network	X	X	X	X	X	X	X
7. Telephone extensions to Local Exchange		X	X	X	X	X	
8. NAWAS				X			
9. CNS State Notification Telephone System		X	X	X			
10. Radio Base Station Console (High-Band)	X	X	X	X		X	
11. Cross-Band Encoding				X			
12. NPPD State-Wide Radio System (Low Band)	X	X		X		X	

## 8.0 Maintaining Emergency Preparedness

Maintenance of the CNS Emergency Plan and Emergency Preparedness Program consists of: (1) training for NPPD emergency response personnel, (2) drills and exercises, (3) regular emergency plan review and evaluation, and (4) periodic inventory, maintenance, and testing of emergency facilities and equipment.

### 8.1 Training

Emergency Preparedness training ensures that Emergency Response Organization (ERO) members, will be familiar with applicable portions of the following Emergency Preparedness documents:

- NPPD Emergency Plan for CNS
- NPPD Emergency Preparedness Implementing Procedures (EPIPs) for CNS
- ERO Positional Instructional Manual Checklists (PIMs) for CNS

#### 8.1.1 Training for CNS Emergency Response Organization (ERO)

ERO members may be stationed at CNS, Columbus General Office or other NPPD offices. These employees may become members of the ERO by virtue of their normal job position, or may be selected to fill a position in the ERO based on their availability and/or personal qualifications.

Emergency Response Organization members will receive initial training which will be followed by requalification training. This training includes both knowledge-based and performance-based elements. Requalification training on knowledge based elements generally will be offered on a 12-month cycle not to exceed 15 months. Requalification training on performance based elements will be offered on a calendar year basis. Exceptions to the requalification training periods are as noted in ERO Training Qualification Descriptions. Details are as noted in the ERO Training Qualification Descriptions. No employee will become an active member of the ERO until training has been completed and the individual has been qualified.

Training will be conducted in accordance with the ERO Training Program Guide. Initial training will consist of formal sessions utilizing materials indicated by the ERO Training Program Guide. This training will be followed by an evaluation of the students comprehension of the subject material. Requalification training may consist of formal training, drills, exercises, or other alternate methods of completion as described by the ERO Training Program Guide. Training records and documentation will be maintained by the Nuclear Training Department. The Emergency Preparedness Department is responsible for assuring that all appropriate emergency response personnel are adequately trained.

Training will be developed and utilized for areas as required per 10 CFR 50 Appendix E.IV.F, Training :

Directors and/or coordinators of the plant emergency organization

Personnel responsible for accident assessment, including control room shift personnel

Radiological monitoring teams

Fire Control teams (fire brigades)

Repair and damage control teams

First Aid and rescue teams

Medical support personnel

Licensee's headquarters support personnel

Security personnel

Emergency Preparedness training material is identified in the ERO Training Program Guide. A listing of training requirements and a synopsis of the course content is contained in this document. Fire Brigade, Security, and First Aid training have been established to fulfill requirements of other programs. Lesson plans addressing these areas have been developed and are taught under their respective training programs. Training materials will be revised to correspond with changes made to the Emergency Plan, Emergency Plan Implementing Procedures, or other supporting documents. Changes may be identified through drill and exercise performance.

#### 8.1.2 Training for Emergency Preparedness Department Personnel

Training for the Emergency Preparedness Manager and staff will be provided through participation in industry sponsored emergency planning symposia and workshops, as well as observation of drills and exercises of other utilities. This training will also be conducted on a 12-month cycle not to exceed 15 months. Documentation for such participation will be recorded and maintained by the Emergency Preparedness Manager and NPPD Human Resources Department.

#### 8.1.3 Training for Participating Agencies

Training for participating agencies is programmed by the individual agencies with aid from the State Governments in Nebraska, Missouri, Kansas, and Iowa. NPPD personnel are available to describe the special conditions and constraints involved in dealing with the station emergencies and any radiological release situations.

NPPD offers training annually for employees of the Nemaha County Hospital, Members of the Volunteer Fire Departments of Brownville, Nemaha, Peru, and Auburn, Local Ambulance Services, Local Civil Defense Personnel, and Local Law Enforcement Agencies.

This training includes notification procedures, basic radiation protection theory, and the identity, by position and title, of the individual in the onsite emergency organization who will control CNS emergency response activities.

#### 8.1.4 Public Education

NPPD prepares educational material for annual distribution to the public within the 10-mile plume exposure Emergency Planning Zone (EPZ). The material is mailed to residents and is available for review at NPPD headquarters, CNS, the Nebraska State Emergency Management Agency, the Nebraska Department of Health - Division of Regulation and Licensure, and the Missouri State Emergency Management Agency. The material outlines the station's operational concept, defines the various classifications of emergencies, summarizes the emergency plan and procedures developed to safeguard the general public, reviews appropriate protective actions (i.e., in-house shelter, evacuation, etc.), and describes public warning signals and their meaning. Facts about radiation and contacts for additional information are included. The material is reviewed annually by NPPD and State and Local Emergency Management Agencies and updated as required.

To provide for the notification and education of the transient population within the 10-mile EPZ, NPPD has provided numerous copies of the information to the following:

- Missouri Tourist Information Center
- Walnut Grove KOA Campground
- All motels within the 10-mile EPZ
- Indian Cave State Park
- Brownville Historical Society

In the event of an emergency at CNS, the owner, operator, etc., of each of these establishments has been instructed to distribute the material to any individuals occupying their facilities.

For special use areas within the EPZ, NPPD has made arrangements for the establishment of other means of notification of the transient population. Informational bulletin boards and/or signs have been established at Brownville State Recreation Area, Brick Yard Hill Wildlife Area, and river access boat ramps. At Indian Cave State Park, an informational brochure includes information on what actions should be taken in the event of an accident at CNS.

#### 8.1.5 Media Familiarization

Annual programs are conducted to acquaint media personnel with the CNS Emergency Plan, information concerning basic nuclear plant operation and radiation, and the locations and means employed to disseminate emergency information to the public. This activity may be performed in cooperation with the NPPD Public Affairs Department.

## 8.2 Drills and Exercises

Regular participation by station personnel in drills and exercises is designed to maintain emergency preparedness and test specific aspects of emergency plans, procedures, and equipment. Evaluation of these drills and exercises is conducted and revisions to the Emergency Preparedness Program are implemented to improve performance.

### 8.2.1 Exercises

An exercise is an event that tests the integrated capability and a major portion of the basic elements existing within the Emergency Plan.

Emergency exercises (required biennially), are conducted annually and simulate events that may result in offsite radiological releases to the extent requiring response by offsite authorities. In accordance with the Nuclear Regulatory Commission (NRC) and the Federal Emergency Management Agency (FEMA) rules, these exercises are conducted jointly with participating federal, state, and local government agencies to assure effective response to major emergency situations. These combined exercises are coordinated by the CNS Emergency Preparedness Department with state and local emergency planning personnel.

During any six-year period, two exercises will commence offshift - between 6:00 p.m. and 4:00 a.m. Exercises will be conducted during different seasons of the year. At least one exercise shall be unannounced.

Objectives for joint exercises are developed by NPPD with the states of Nebraska, Missouri, Kansas, and Iowa as appropriate. Scenarios are developed to ensure that essential portions of plans and organizations are tested within a six-year period and to ensure that the scenarios include at least the following:

- Statement of basic objectives and evaluation criteria.
- Date, time, place, and participating organizations.
- Simulated events.
- Time schedule of initiating events.
- Narrative summary describing exercise particulars which may include such things as simulated casualties, offsite medical assistance, rescue of personnel, deployment of radiological monitoring teams, and public information activities.
- Provision for proper utilization of observers.

Initial critiques will be held at each facility immediately following termination of the exercise. A synopsis of the exercise critique process is as follows:

Players critique their own performance, noting areas requiring improvement. Evaluators then present their initial findings to the players. Players have the

opportunity to provide evidence to the evaluators of actions taken for which they did not receive credit. Evaluators then prepare their critique findings. This includes categorizing each finding using the following definitions.

- |                   |   |  |
|-------------------|---|--|
| Deficiency        | - | demonstrated or observed inadequacies, whether a single isolated case or a collection of observations, that indicate the state of emergency preparedness is not adequate to protect the health and safety of the public. |
| Weakness          | - | demonstrated or observed inadequacies, that require corrective action, but when considered by themselves do not adversely impact the health and safety of the public.  |
| Improvement Items | - | demonstrated or observed problem areas that are not considered to adversely affect the health and safety of the public, but correction would enhance the level of preparedness.  |

Evaluators should identify the root cause and, if possible, provide a solution for each weakness or deficiency.

The Emergency Preparedness Department conducts a meeting of the Lead Evaluators where categorized critique items are formatted for presentation to CNS Sr. Management. Exercise findings are then presented to the NRC. The Emergency Preparedness Manager will ensure that Exercise findings are tracked and resolved as appropriate.

At the conclusion of joint exercises, FEMA, NRC, and state observers will also conduct critiques. Formal evaluations of these exercises published by federal or state authorities will be reviewed by NPPD management. Areas found to be deficient or weak will be identified and corrective actions implemented.

The Safety Review and Audit Board, as well as the NPPD Quality Assurance Department, will perform periodic audits of the plan and may serve as observers during the exercises.

#### 8.2.2 Drills

A drill is a supervised instruction period aimed at testing, developing, and maintaining skills in a particular operation.

Emergency drills are conducted on a scheduled basis with emphasis placed upon the orderly implementation of activities prescribed within the Emergency Plan and EPIPs. Guidelines for administering drills are in place to ensure a quality drill program.

Drill performance is critiqued by personnel acting as drill evaluators who may offer on-the-spot corrections to deficient performance. Each evaluator is assigned to evaluate drill performance in a specific area of emergency

response. A written evaluation of drill performance is provided to CNS Management by the Emergency Preparedness Manager.

Based on the results of these critiques, including participants' comments, follow-up action is then recommended by the Emergency Preparedness Manager, with action items assigned by the appropriate level of management.

Drills for the station staff are conducted periodically to: (1) test response timing and familiarity with implementing procedures and methods, (2) test emergency equipment, (3) ensure that emergency response organization personnel are familiar with their duties. Certain drills (i.e., fire, communications and notification, and medical emergency) are coordinated with offsite participating agencies. The Emergency Preparedness Manager has the overall responsibility for preparing, scheduling, and conducting emergency drills.

A brief description of the type of drills conducted at CNS follows:

8.2.2.1 Fire Drills

Fire drills are conducted in accordance with plant Technical Specifications.

8.2.2.2 Medical Emergency Drills

A medical emergency drill or exercise involving the treatment of a simulated contaminated person is conducted once per calendar year with provision for participation by local support service agencies.

8.2.2.3 Radiological Monitoring Drills

These drills are conducted annually for onsite and offsite personnel assigned to radiation survey and monitoring teams. They shall include operation of instruments, tests of field communications equipment, interpretation of radiation readings, calculation of dose rates, collection of sample media (soil, water, vegetation, and air) and record keeping.

8.2.2.4 Radiological Protection Drills

Radiological Protection drills are conducted semi-annually, generally in connection with joint exercises or radiological monitoring drills. They involve analyses of simulated elevated radiation levels, both liquid and airborne, as well as direct radiation measurements in the environment.

Analyses of inplant liquid samples including the use of the postaccident sampling system will be conducted on an annual basis.

#### 8.2.2.5 Communications Drills

Communications systems are periodically tested during normal use, CNS security checks, and scheduled tests, as well as during emergency drills and exercises. The CNS telephone system, microwave communications system, site radio system and plant intercom system are used daily during normal plant operation. The NRC ENS is tested daily by phone check from NRC Headquarters and monthly from CNS to NRC Headquarters from the Control Room, Technical Support Center (TSC), and Emergency Operations Facility (EOF). The NRC Health Physics Network (HPN) direct telephone is tested monthly from the TSC, and EOF. The State Notification Telephone System is tested monthly.

### 8.3 Emergency Preparedness Department

To ensure the maintenance and implementation of the Emergency Preparedness Program, several Emergency Preparedness positions at CNS have been established. A CNS Emergency Preparedness Manager reports directly to the Director of Nuclear Safety Assurance. Emergency Preparedness Coordinator (EPC) positions have been established with each assigned a primary area of responsibility. Each EPC reports directly to the Emergency Preparedness Manager. An Emergency Preparedness Specialist (EPS) position has also been established to assist in the conduct of Emergency Preparedness Department Activities. The EPS reports directly to the Emergency Preparedness Manager.

These positions have been established to:

- Maintain continued coordination with state and local emergency planners on the status of Emergency Preparedness including budgetary issues
- Annual review and development of revisions to the CNS Emergency Plan and Implementing Procedures
- Coordinate drills and other aspects of the NPPD Emergency Preparedness training programs
- Coordinate the development and implementation of the annual exercise
- Ensure that adequate District resources are available to support the NPPD Emergency Preparedness program
- Assist the EP Manager with the following:
  - All emergency preparedness activities at the CNS site.
  - Emergency preparedness and public relations with the local communities--includes medical facilities.



- . Alert and Notification System--including fixed siren maintenance and testing and Emergency Alert System radio distribution and maintenance.
- . Emergency response facility readiness.
- . Development and revision of CNS EP Training Lesson Plans, and maintenance of EP training records.
- . Responsibilities as defined in the Emergency Plan and EPIPs.
- . NRC and FEMA interface.
- . Audits--includes Quality Assurance audits per 10CFR50.54(t) and NRC Inspection Report response submittal.
- . Meteorological and dose assessment.
- . Annual exercise--includes scenario preparation.
- . Emergency Preparedness Drills.
- . Training in the above areas.
- . Responsibilities as defined in the Emergency Plan and EPIPs.
- . NRC and FEMA interface functions relating to the above areas.

#### 8.4 Corporate Communications Department

The CNS Emergency Preparedness Program relies on support from the NPPD Corporate Communications Department. Personnel within this department are responsible for:

- Interface with the CNS Emergency Preparedness Department.
- Interface with other agency Public Information Officers.
- Emergency planning public information material to include mailing list control revision, reprint, and mailout of the material.
- Media interfaces which may include conferences, quarterly newspaper and radio ads for the CNS Alert and Notification System testing program, media monitoring, and JIC activities.
- Training in the above areas.
- Responsibilities as defined in the Emergency Plan and EPIPs.

#### 8.5 Review and Update of the Emergency Plan

The CNS Emergency Plan is reviewed annually and revised as necessary. The annual review and update is documented by the CNS Emergency Preparedness Manager. Special

attention is devoted to reviewing station-government agency interfaces, maintaining effective communication channels, and, on a quarterly basis, ensuring the accuracy of the contact and notification lists to verify telephone numbers and the responsible individuals to be contacted. Liaison with state and local agencies ensures uniform updating and plan improvement. All revisions shall be reviewed and approved by the Station Operations Review Committee prior to implementation.

Independent audits of the various aspects of the Emergency Preparedness program are conducted annually by NPPD Quality Assurance Personnel and the Safety Review and Audit Board and will be conducted as outlined in the Quality Assurance Program for Operations Policy Document. The independent audit includes, but is not limited to, the Emergency Plan, Emergency Plan Implementing Procedures, training, readiness testing, equipment, and interfaces with state and local organizations. The results are considered by NPPD management in modifying aspects of the plan. Audit documentation is maintained for at least five years. Revised or updated emergency plans and procedures are handled in accordance with document control procedures as delineated in the CNS Operations Manual. Distribution is controlled by the Emergency Preparedness Manager, via the Document Control Department.

#### 8.6 Maintenance and Inventory of Emergency Equipment and Supplies

Quarterly inspections of the operational readiness of items of emergency equipment and supplies are conducted. Deficiencies noted during inspections are corrected in a timely manner. The use of EPIP 5.7.21, Maintaining Emergency Preparedness - Emergency Exercises, Drills, Tests, and Evaluations, in conjunction with the CNS Preventative Maintenance Tracking System, and Emergency Preparedness Departmental Guides ensure equipment is ready for use. Sufficient reserves of instruments and equipment are maintained to replace those undergoing calibration or repair. Calibration of equipment is conducted at intervals set forth in Technical Specifications. In addition, the planned use of communications, first aid, fire fighting and radiation measuring equipment during scheduled drills further ensures the availability and operability of emergency equipment.

## 9.0 Recovery

This section of the Emergency Plan describes the initiating conditions and transitional steps required to move from Emergency Response Organization operations into Recovery Operations. With the safety of the public and station personnel being of the utmost priority, recovery operations allow for a smooth transition from the Emergency Response Organization operations to normal day-to-day operations.

Recovery operations will include measures taken during and immediately following the emergency, as well as, the longer term post-emergency efforts. These operations will be performed by station and other NPPD personnel, and, if required, by contract technical and labor support. Manpower and equipment resources supporting the individual functional segments of the Recovery Organization will vary according to the severity of damage and specific situational needs.

The Emergency Director will evaluate the effectiveness of corrective actions and determine if the emergency is under control. The following station conditions will serve as general guidelines for decisions whether the emergency is under control:

- Radiation levels are stable or decreasing with time.
- Releases of radioactive materials to the environment have ceased or are controlled within permissible license limits.
- Fire, flooding, or similar emergency conditions no longer constitute a hazard to the station or station personnel.
- Measures have been successfully instituted to correct or compensate for malfunctioning equipment.

Based on the consideration of these criteria as well as other pertinent items, the Emergency Director shall determine when to activate the Recovery Panel.

### 9.1 Recovery Panel

If, after evaluating the effectiveness of corrective actions, the Emergency Director determines that the emergency is under control, he will activate the Recovery Panel.

The panel may consist of the following personnel:

- Emergency Director
- Vice-President Nuclear or his designee
- Emergency Operations Facility (EOF) Director
- Technical Support Center (TSC) Director
- Public Affairs Director (JIC)
- Radiological Control Manager (EOF)

Personnel acting on this panel can either be physically present or connected by telephone conference from their various emergency response facilities. The purpose of the Recovery Panel is to evaluate emergency termination considerations, determine plant

status parameters, and the planning and implementation of recovery operations. A time frame can then be established for securing emergency response and de-escalation of the emergency classification for recovery, if not already completed. Based upon this information, the Vice-President Nuclear or his designee may initiate the Recovery Organization.

## 9.2 Recovery Organization

Once the decision has been made to activate the Recovery Organization, NPPD Emergency Response Facilities and their personnel shall be informed (via briefings, Public Address systems, telephones, etc.).

The Public Affairs Director shall inform personnel at the JIC of the activation of the Recovery Organization. Depending upon the amount of media interest, the JIC may be deactivated at this time. Public Affairs duties and responsibilities would then be assumed by the Corporate Communications & Public Relations Manager and staff. Other personnel at the JIC return to their normal work stations and support the recovery effort through their normal position functions.

The Emergency Director or his alternate shall inform personnel in the EOF, TSC, OSC, and Control Room of the activation of the Recovery Organization.

Depending upon current conditions, any of these facilities may be deactivated at this time. Once deactivated, personnel in these facilities would return to their normal work stations and support the recovery effort through their normal position functions. The Recovery Organization is the same as the normal Nuclear Power Group Organization, described in Section 5, except the Corporate Communications & Public Relations Manager and the Corporate Environmental Manager are included in the organization.

## 9.3 Recovery Exposure Control

The General Manager of Plant Operations is responsible for ensuring that the Radiation Protection Manager evaluates the advisability of initiating re-entry. Information on existing conditions, interviews with employees involved in the emergency, regulatory dose guidelines, and, when necessary, counsel from recognized experts will be utilized in formulating decisions on re-entry. The development and evaluation of these operations will be under the direction of the General Manager of Plant Operations. General Office support personnel will aid in the requisition of technical assistance, increased manpower, and special equipment.

During recovery and re-entry operations, actions will be preplanned to minimize the amount of radiation dose to personnel. Access to areas will be controlled and radiation dose will be documented. Estimates of total population dose will be coordinated with state and federal authorities.

## 9.4 Nuclear Safety Committees

Normal safety review organizations, Station Operations and Review Committee (SORC) and Safety Review and Audit Board (SRAB) will continue to function throughout all recovery activities.

9.4.1 Station Operations Review Committee (SORC)

An onsite nuclear safety committee is provided to review all matters pertaining to nuclear safety in the operation of the nuclear facility. This committee is advisory to the General Manager of Plant Operations and the chairman is designated in writing by the General Manager of Plant Operations. Committee membership, responsibilities and authorities are detailed in the Quality Assurance Program for Operation Policy Document and station procedures.

9.4.2 Safety Review and Audit Board (SRAB)

An offsite nuclear safety committee is provided to perform independent review and audit of station activities. SRAB is advisory in nature. Committee membership, responsibilities, and authorities are detailed in the Quality Assurance Program for Operation Policy Document and SRAB Instructions and Guidelines.

## APPENDIX A

### LISTING OF EMERGENCY PLAN IMPLEMENTING PROCEDURES

## APPENDIX A

### PROCEDURES IMPLEMENTING THE EMERGENCY PLAN

<u>PROCEDURE NO.</u>	<u>TITLE</u>
5.7.1	Emergency Classification
5.7.2	Shift Supervisor EPIP
5.7.6	Notification
5.7.7	Activation of the TSC
5.7.8	Activation of the OSC
5.7.8.1	Activation of the Alternate OSC
5.7.9	Activation of the EOF
5.7.9.1	Activation of the Alternate EOF
5.7.10	Personnel Assembly and Accountability
5.7.11	Early Dismissal/Evacuation of Non-Designated Site Personnel
5.7.12	Emergency Radiation Exposure Control
5.7.13	Personnel Monitoring and Decontamination
5.7.14	Stable Iodine Thyroid Blocking
5.7.15	OSC Team Dispatch
5.7.16	Release Rate Determination
5.7.17	Dose Assessment
5.7.18	Off-site and Site Boundary Monitoring
5.7.19	On-site Radiological Monitoring
5.7.20	Protective Action Recommendations
5.7.21	Maintaining Emergency Preparedness - Emergency Exercises, Drills, Tests, and Evaluations
5.7.23	Activation of the JIC
5.7.24	Medical Emergency
5.7.25	Recovery Operations
5.7.26	Long-Term Environmental Monitoring
5.7.27	Alert and Notification System
5.7.27.1	EBS Tone Activated Radio Malfunctions
5.7.27.2	False Activation of Alert and Notification System Sirens
5.7.28	Administration of Positional Instruction Manuals (PIMs)
5.7COMMUN	Communications
5.7ENS	ENS Communicator

Controlled copies of the CNS EIPs are maintained in all Emergency Response Facilities.

Summaries of each EPIP and a cross-reference to the appropriate section of the CNS Emergency Plan is provided below.

#### 5.7.1 EMERGENCY CLASSIFICATION

This procedure provides a means of classifying an event into one of four emergency classifications as described in Section 4.0 of the Emergency Plan.

The procedure establishes four basic modules which depict the eight types of events which could occur at CNS (radiological, fission product barrier threat or loss, operational, power or alarms, fire flammable toxic, security, natural phenomenon, and other hazards. These events are abnormal conditions considered to be those initiating events upon which all emergencies categorized within the Emergency Action Levels are based (see Section 4.1 of the Emergency Plan).

#### 5.7.2 SHIFT SUPERVISOR EPIP

This procedure provides a series of actions to be taken upon declaration of an Emergency Classification. Personnel shall be directed to use additional procedures to adequately respond to an emergency event. Certain actions may still need to be performed by the Shift Manager, as requested by the Emergency Director, after command and control of the emergency response has been transferred to the EOF.

#### 5.7.6 NOTIFICATION

This procedure provides notification instructions to be followed upon declaration of an emergency condition. These include initial, follow-up, and event termination notifications to responsible state and local governmental agencies and NRC notifications prior to TSC activation.

Upon declaration of an emergency condition, all notifications and communications will be handled from the Control Room (CR) until the Technical Support Center (TSC) and/or the Emergency Operations Facility (EOF) are activated. All telephone numbers needed for notification or follow-up information transmission are in the Emergency Telephone Directory located in the Control Room, Technical Support Center, Emergency Operations Facility, and other designated areas.

#### 5.7.7 EMERGENCY RESPONSE FACILITY (ERF) ACTIVATION 5.7.8 PROCEDURES

5.7.8.1,  
5.7.9,  
5.7.9.1

These procedures describe the sequence of events and the staffing requirements for the activation of the TSC (5.7.7), OSC (5.7.8), Alternate OSC (5.7.8.1, EOF (5.7.9), and the Alternate EOF (5.7.9.1). They provide further information on the functions of the CNS ERFs (see section 7.2 of the Emergency Plan) and provide responsibilities of key emergency response personnel.



#### 5.7.10 PERSONNEL ASSEMBLY AND ACCOUNTABILITY

This procedure describes the immediate and on-going emergency personnel assembly and accountability actions to be taken by all onsite personnel including ERO members, security personnel, contractors, and visitors in the event of a station emergency. It also provides a means to ascertain the names of missing individuals within 30 minutes and account for all onsite individuals continuously thereafter.

Since each site employee, security officer, visitor, and contractor is assigned a designated assembly area and each area is assigned a Designated Assembly Area Supervisor (DAAS) personnel accountability, in accordance with the discussions in Section 6.5 of the Emergency Plan, is assured.

#### 5.7.11 EARLY DISMISSAL/EVACUATION OF SITE PERSONNEL

As discussed in Section 6.5 of the Emergency Plan, in the event of an emergency situation it may be desirable to minimize the number of non-ERO personnel onsite. If the emergency involves a radiological release or the potential for a release, then evacuation of non-ERO personnel is desirable, or may be required, to minimize exposure to radioactive material.

This procedure provides an efficient means for evacuation of personnel from isolated areas or from the plant site in its entirety. Furthermore, it provides a definition of the duties and responsibilities of designated supervisory personnel associated with site evacuation.

#### 5.7.12 EMERGENCY RADIATION EXPOSURE CONTROL

As indicated in Section 6.6 of the Emergency Plan, under certain emergency conditions it may become necessary for emergency workers to receive dose in excess of occupational limits established by 10CFR20. Dose limits for workers performing emergency services are contained in this procedure.

As indicated in the Emergency Plan and procedure, the Emergency Director has the authority to authorize dose in excess of occupational limits. This dose is only justifiable if it is determined that benefits are being achieved, the dose is commensurate with the significance of the objective, and every reasonable effort is being made to maintain emergency workers dose As Low As Reasonably Achievable (ALARA).

The primary purpose of this procedure is to provide policy guidance, address required authorization, and set forth maximum criteria for emergency radiation dose control in the event emergency workers are required to exceed established annual dose limits.

#### 5.7.13 PERSONNEL MONITORING AND DECONTAMINATION

As discussed in Section 6.6 of the Emergency Plan, the objectives of personnel decontamination techniques are to promptly reduce radiation dose; to minimize the absorption of radionuclides, particularly radioiodine, into the body; and to prevent the spread of localized contamination.

This procedure provides instructions for decontamination of station personnel during emergency conditions utilizing normal decontamination facilities or alternate areas if necessary.

#### 5.7.14 STABLE IODIDE THYROID BLOCKING (KI)

The purpose of this procedure is to define under what emergency conditions Potassium Iodide (KI) should be administered to station personnel and who has the authority to determine when and at what dosages KI should be administered. The procedure also provides a discussion of the effectiveness of KI, the recommended dosage, as well as any precautions and potential side effects.

As indicated in Section 7.7 of the Emergency Plan, KI tablets are stored in the CNS emergency lockers and are available on a voluntary basis to emergency response personnel as conditions dictate. These tablets will be dispensed only with the permission of the Emergency Director (also see Section 6.5.5 of the Emergency Plan).

#### 5.7.15 OSC TEAM DISPATCH

As defined in Section 6.5 of the Emergency Plan, if station personnel are unaccounted for in the initial or subsequent emergency accountability, the Emergency Director will assign an emergency team to locate, and if necessary, rescue them.

This procedure provides guidance and requirements necessary to conduct efficient rescue and re-entry operations. It presents the organization and operation of Rescue and Re-Entry Teams and identifies the precautions which should be observed by the Rescue and Re-Entry Teams (including equipment carried during search and rescue operations).

#### 5.7.16 RELEASE RATE DETERMINATION

This procedure describes methodology for the manual determination of airborne radioactive release rates from the Elevated Release Point, reactor building vent, the turbine building vent, and the augmented radwaste building vent utilizing effluent monitor readings.

Upon determination of release rates, actual or projected plume exposure dose may be calculated in accordance with EPIP 5.7.17, "Dose Assessment." This dose provides a basis for relating plume exposure dose to the EPA Protective Action Guides (PAGs) in accordance with EPIP 5.7.20, "Protective Action Recommendations." (See Section 6.3 of the Emergency Plan.)

#### 5.7.17 DOSE ASSESSMENT

This procedure provides a means for personnel to quickly predict offsite dose rates and integrated dose based on meteorological data, release rates, and dispersion.

#### 5.7.18 OFFSITE AND SITE BOUNDARY MONITORING

In the event of an accidental radiological release, data obtained from offsite survey will be used to assess the magnitude of the release and to determine which offsite areas have been affected by the release. As indicated in Section 4.2 of the Emergency Plan, CNS will deploy field monitoring teams for initial offsite monitoring prior to the arrival of responding state teams. The CNS teams will remain in the field and assist the State(s) Teams as required.

Data obtained through the offsite survey shall be utilized to determine actual release rates, deposition rates, and actual dose. Dose assessments provide a basis for decision making concerning recommendation of appropriate protective actions in accordance with EPIP 5.7.20, Protective Action Recommendations. Offsite survey data will be used in conjunction with onsite release rate determination and dose assessment capabilities to accurately determine offsite consequences of an accident condition.

This procedure describes the emergency offsite and site boundary radiological monitoring and field surveys to be undertaken in the event of an airborne release of radioactive gases from CNS. Instructions for the implementation of the program, locating sampling points, collecting samples, and performing field surveys are provided.

#### 5.7.19 ONSITE RADIOLOGICAL MONITORING

In the event of an accidental release involving radionuclides, data obtained from the onsite survey will be used to make initial assessments concerning the magnitude of the accident and decisions concerning evacuation of site personnel.

Principal concerns for accidental radioactive releases, particularly gaseous releases, include limiting internal dose through appropriate respiratory protection equipment, anticontamination clothing, limiting external dose by identifying areas of high radiation, and containment of the material to prevent the spreading of contamination or release to the environs.

This procedure describes the emergency onsite radiological monitoring necessary to determine dose rates, airborne particulate, noble gas, and radioiodine activity levels due to an accidental release of radionuclides. The onsite survey entails the interior space of all station buildings.

#### 5.7.20 PROTECTIVE ACTION RECOMMENDATIONS

Dose estimates (which population groups may potentially receive) are calculated according to the dose assessment methodology described in EPIP 5.7.17, Dose Assessment. These dose estimates are referred to as projected dose. A protective action is an action taken to avoid or reduce a projected dose when the benefits derived from such action are sufficient to offset any undesirable features of the protective action.

This procedure provides a basis for relating actual or projected plume exposure dose to the EPA Protective Action Guides (PAGs) in order to recommend the appropriate protective actions to the county or state governments. (See Sections 6.5 and 6.6.)

5.7.21 MAINTAINING EMERGENCY PREPAREDNESS - EMERGENCY EXERCISES, DRILLS, TESTS AND EVALUATIONS

This procedure provides a means of ensuring the operational readiness and availability of equipment required for the immediate action steps of all four Emergency Classification action levels. This procedure also provides instructions for documenting the completion of periodic surveillances, tests, drills, and training to ensure availability, operability, and reliability.

As an emergency situation progresses, conditions may arise which require augmentation of emergency equipment. The necessary equipment will be utilized on an as-needed basis to support the emergency operations. (See Section 6.5.2 of the Emergency Plan.)

5.7.23 ACTIVATION OF THE JIC

This procedure describes the sequence of events and the staffing requirements for the activation of the Joint Information Center (JIC). It provides further information on the functions of the JIC and its interaction with CNS ERF's (see Section 7.2 of the Emergency Plan) and provides responsibilities of key emergency response personnel.

5.7.24 MEDICAL EMERGENCY

As delineated in Section 6.6.3 and 6.6.4 of the Emergency Plan, arrangements with local organizations have been made for the transportation and care of injured/contaminated personnel.

This procedure details the treatment of injured personnel during a radiological emergency. The topics addressed by the procedure are: (1) aid to contaminated and non-contaminated injured personnel on site, and (2) transportation and treatment of injured personnel. It also provides information on local offsite facilities and the actions to be taken by offsite personnel.

5.7.25 RECOVERY OPERATIONS

This procedure describes recovery operations necessary to identify the extent of station damage and radiological contamination (if any) and return the station to an operating status in compliance with the Technical Specifications.

Recovery operations will include measures taken during and immediately following the emergency, as well as, the longer term post-emergency efforts. These operations will be performed by station and other NPPD personnel, and, if required, by contract technical and labor support. Manpower and equipment resources supporting the individual functional segments of the Recovery Organization will vary according to the severity of damage and specific situational needs.

5.7.26 LONG-TERM ENVIRONMENTAL MONITORING

Methods to be used for evaluating long-term environmental consequences and analyses of trends involving key isotopes of radioactive material released from CNS are described in this procedure. Immediate collection and analysis of samples from impacted areas following a release shall be conducted in accordance with EPIP 5.7.18, Offsite And Site Boundary Monitoring. Long-term environmental monitoring and trend analyses shall be conducted in accordance with EPIP 5.7.26. Appropriate protective measures are also discussed. (Also see Section 7.5.5 of the Emergency Plan.)

5.7.27, ALERT AND NOTIFICATION SYSTEM

5.7.27.1 &

5.7.27.2

The purpose of these procedures are to describe the CNS Alert And Notification System within the Plume Exposure Pathway (10-Mile EPZ) of Cooper Nuclear Station. This system was set up to meet prompt notification requirements for Cooper Nuclear Station. It was also designed for response to any disaster, fire, flood, tornado, etc., where prompt notification of the public is desirable.

As indicated in Section 6.5 of the Emergency Plan, the CNS Early Warning System consists of fixed sirens covering areas of high population density and tone activated Emergency Alert System (EAS) radios in the low population density rural areas.

The fixed siren system is composed of 24 pole mounted sirens.

The EAS tone activated radios are in residences located within the rural 10-Mile EPZ in areas outside the effective range of the fixed sirens. These radios are pretuned to Emergency Alert Stations (KFAB-1110 kHz Omaha, within the Nebraska EPZ and KFEQ-680 kHz St. Joseph, within the Missouri EPZ) and are automatically activated when the EAS stations sound tones.

5.7.28 ADMINISTRATION OF POSITIONAL INSTRUCTION MANUALS (PIMS)

This procedure provides guidance on the revision and control of the Positional Instructional Manuals (PIMs). This procedure shall ensure proposed changes to the PIMs are properly evaluated and approved prior to implementation. This shall prevent any potential degradation to the CNS Emergency Plan and its associated implementing procedures.

5.7COMMUN COMMUNICATIONS

As presented in Sections 7.1, 7.2 and 7.3 of the Emergency Plan, the Emergency Response Organization has available to it various types of communications equipment which allow for effective communication to both onsite and offsite groups. This procedure provides a description of these systems and very basic instructions for their use.

5.7ENS ENS COMMUNICATOR

The procedure provides guidance to the ENS Communicator in the TSC. This includes instruction on turnover from the Shift Communicator and establishing communication with the NRC.

## EPIP/EMERGENCY PLAN CROSS-REFERENCE

<u>EPIP No.</u>	<u>Emergency Plan Section</u>
5.7.1	4.1, Tables 4.1-1 through 4.1-4
5.7.2	5.1.2, 6.2, 7.2
5.7.6	6.2, 7.4
5.7.7	5.2, 7.2.1
5.7.8	5.2, 7.2.2
5.7.8.1	5.2, 7.2.2
5.7.9	5.2, 7.2.3, 7.2.4
5.7.9.1	5.2, 7.2.3, 7.2.4
5.7.10	6.5.3
5.7.11	6.5.4
5.7.12	6.5.5, 6.6.1, 6.6.2
5.7.13	6.5.5, 6.6.1, 6.6.2
5.7.14	6.5.5.1
5.7.15	6.5.1
5.7.16	4.2, 6.3, 7.5
5.7.17	4.2, 6.3, 7.5
5.7.18	4.2, 6.3, 7.5
5.7.19	4.2, 6.3, 7.5
5.7.20	6.5, 6.6
5.7.21	6.5.2, 7.7, 7.8, Appendix E
5.7.23	5.3, 6.2.3, 7.2.5
5.7.24	6.6.2, 6.6.3, 6.6.4, 7.9
5.7.25	9.1, 9.2

<u>EPIP No.</u>		<u>Emergency Plan Section</u>
5.7.26	7.5	
5.7.27	6.5	
5.7.27.1	6.5	
5.7.27.2	6.5	
5.7.28	None	
5.7ENS	5.2.3.5	
5.7COMMUN	7.3	

## APPENDIX B

### CROSS INDEX TO NUREG-0654



## APPENDIX B

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Cross Reference NUREG-0654 to EAL Number General Emergency Conditions .....	B-48

## Planning Standards and Evaluation Criteria

### A. Assignment of Responsibility (Organization Control)

#### Planning Standard

Primary responsibilities for emergency response by the nuclear facility licensee, and by State and local organizations within the Emergency Planning Zones have been assigned, the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>
1.		
a.	Each plan shall identify the State, local, Federal and private sector organizations (including utilities), that are intended to be part of the overall response organization for Emergency Planning Zones. (See Appendix 5).	Sections 5.0, 5.1, 5.2, 5.3 5.4, 7.9.1 Appendices D, F
b.	Each organization and suborganization having an operational role shall specify its concept of operations, and its relationship to the total effort.	Section 5.0
c.	Each plan shall illustrate these interrelationships in a block diagram.	Figures 5.2-1 through 5.2-4, 5.3-1, 5.4-1, 5.4-2
d.	Each organization shall identify a specific individual by title who shall be in charge of the emergency response.	Sections 5.1.2, 5.2.1 Figures 5.2-1, 5.2-2, 5.2-3, 5.2-4
e.	Each organization shall provide for 24 hour per day emergency response, including 24 hour per day manning of communications links.	Sections 5.1, 5.1.2.1, 5.2.2.4, 5.2.3.3

A. Assignment of Responsibility (Organization Control) (continued)

<u>Evaluation Criteria</u>	<u>Cross Reference To Plan</u>
2.	
a. Each organization shall specify the functions and responsibilities for major elements and key individuals by title, of emergency response, including the following: Command and Control, Alerting and Notification, Communications, Public Information, Accident Assessment, Public Health and Sanitation, Social Services, Fire and Rescue, Traffic Control, Emergency Medical Services, Law Enforcement, Transportation, Protection Response (including authority to request Federal assistance and to initiate other protective actions), and Radiological Exposure Control. The description of these functions shall include a clear and concise summary such as a table of primary and support responsibilities using the agency as one axis, and the function as the other. (See Section B for licensee).	Not Applicable to Licensee
b. Each plan shall contain (by reference to specific acts, codes or statutes) the legal basis for such authorities.	Not Applicable to Licensee
3. Each plan shall include written agreements referring to the concept of operations developed between Federal, State, and local agencies and other support organizations having an emergency response role within the Emergency Planning Zones. The agreements shall identify the emergency measures to be provided and the mutually acceptable criteria for their implementation, and specify the arrangements for exchange of information. These agreements may be provided in an appendix to the plan or the plan itself may contain descriptions of these matters and a signature page in the plan may serve to verify the agreements. The signature page format is appropriate for organizations where response functions are covered by laws, regulations or executive orders where separate written agreements are not necessary.	Appendix D

A. Assignment of Responsibility (Organization Control) (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference To Plan</u>	
4.	Each principal organization shall be capable of continuous (24-hour) operations for a protracted period. The individual in the principal organization who will be responsible for assuring continuity of resources (technical, administrative, and material) shall be specified by title.	Section	5.2.3.10

B. Onsite Emergency Organization

Planning Standard

On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available, and the interfaces among various onsite response activities and offsite support and response activities are specified.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
1.	Each licensee shall specify the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal staff complement.	Sections Figure	5.0, 5.1 5.2-1
2.	Each licensee shall designate an individual as emergency coordinator who shall be on shift at all times and who shall have the authority and responsibility to immediately and unilaterally initiate any emergency actions, including providing protective action recommendations to authorities responsible for implementing offsite emergency measures.	Section Figure	5.1 5.2-1
3.	Each licensee shall identify a line of succession for the emergency coordinator position and identify the specific conditions for higher level utility officials assuming this function.	Section	5.1.1.2, 5.1.2.1
4.	Each licensee shall establish the functional responsibilities assigned to the emergency coordinator and shall clearly specify which responsibilities may not be delegated to other elements of the emergency organization. Among the responsibilities which may not be delegated shall be the decision to notify and to recommend protective actions to authorities responsible for offsite emergency measures.	Sections	5.1.2, 5.2, 5.2.1

B. Onsite Emergency Organization (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
5.	Each licensee shall specify the positions or title and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity. For emergency situations, specific assignments shall be made for all shifts and for plant staff members, both onsite and away from the site. These assignments shall cover the emergency functions in Table B-1 entitled, "Minimum Staffing Requirements for Nuclear Power Plant Emergencies." The minimum onshift staffing levels shall be as indicated in Table B-1. The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1. The implementation schedule for licensed operators, auxiliary operators and the shift technical advisor on shift shall be as specified in the July 31, 1980, letter to all power reactor licensees. Any deficiencies in the other staff requirements of Table B-1 must be capable of augmentation within 30 minutes by September 1, 1981, and such deficiencies must be fully removed by July 1, 1982.	Sections	5.2 .
		Figures	5.2-1, 5.2-2, 5.2-3 5.2-4, 5.3-1, 5.4-1
6.	Each licensee shall specify the interfaces between and among the onsite functional areas of emergency activity, licensee headquarters support, local services support, and State and local government response organization. This shall be illustrated on a block diagram and shall include the onsite technical support center and the operational support (assembly) center and the licensee's nearsite Emergency Operations Facility (EOF).	Figures	5.4-1, 5.4-2

B. Onsite Emergency Organization (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
7.	Each licensee shall specify the corporate management, administrative, and technical support personnel who will augment the plant staff as specified in the table entitled "Minimum Staffing Requirements for Nuclear Power Plant Emergencies," (Table B-1) and in the following areas:	Section	5.3
		Figure	5.3-1
a.	Logistics support for emergency personnel, e.g., transportation, communications, temporary quarters, food and water, sanitary facilities in the field, and special equipment and supplies procurement;	Section	5.2.3.10
		Section	9
b.	Technical support for planning and reentry/recovery operations;	Sections	5.2, 5.2.3
c.	Management level interface with governmental authorities; and	Sections	5.3.1, 5.3.2
d.	Release of information to news media during an emergency (coordinated with governmental authorities).		
8.	Each licensee shall specify the contractor and private organizations who may be requested to provide technical assistance to and augmentation of the emergency organization.	Section	5.3.3
		Appendix	D
9.	Each licensee shall identify the services to be provided by local agencies for handling emergencies, e.g., police, ambulance, medical, hospital, and fire-fighting organizations shall be specified. The licensee shall provide for transportation and treatment of injured personnel who may also be contaminated. Copies of the arrangements and agreements reached with contractor, private, and local support agencies shall be appended to the plan. The agreements shall delineate the authorities, responsibilities, and limits on the actions of the contractor, private organization, and local services support groups.	Section	5.4, 7.9.1
		Appendices	D, F

C. Emergency Response Support and Resources

Planning Standard

Arrangements for requesting and effectively using assistance resources have been made, arrangements to accommodate State and local staff at the licensee's near-site Emergency Operations Facility have been made, and other organizations capable of augmenting the planned response have been identified.

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
1. The Federal government maintains in-depth capability to assist licensees, States and local governments through the Federal Radiological Monitoring and Assessment Plan (formerly Radiological Assistance Plan (RAP) and Interagency Radiological Assistance Plan (IRAP). Each State and licensee shall make provisions for incorporating the Federal response capability into its operation plan, including the following:	
a. Specific persons by title authorized to request Federal assistance; see A.1.d., A.2.a.	Sections 5.2.3, 7.2.3
b. Specific Federal resources expected, including expected times of arrival at specific nuclear facility sites; and	Figure 5.4-1,
c. Specific licensee, State and local resources available to support the Federal response, e.g., air fields, command posts, telephone lines, radio frequencies and telecommunications centers.	Section 7
2.	
a. Each principal offsite organization may dispatch representatives to the licensee's near-site Emergency Operations Facility. (State technical analysis representatives at the near-site EOF are preferred.)	Not Applicable to Licensee
b. The licensee shall prepare for the dispatch of a representative to principal offsite governmental emergency operations centers.	N/A



C. Emergency Response Support and Resources (continued)

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
3. Each organization shall identify radiological laboratories and their general capabilities and expected availability to provide radiological monitoring and analyses services which can be used in an emergency.	Sections 5.3.3.3, 7.5.7
4. Each organization shall identify nuclear and other facilities, organizations or individuals which can be relied upon in an emergency to provide assistance. Such assistance shall be identified and supported by appropriate letters of agreement.	Section 5.3.3 Appendix D

D. Emergency Classification System

Planning Standard

A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee, and State and local response plans call for reliance on information provided by facility licensees for determinations of minimum initial offsite response measures.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
1.	An emergency classification and emergency action level scheme as set forth in Appendix 1 must be established by the licensee. The specific instruments, parameters or equipment status shall be shown for establishing each emergency class, in the in-plant emergency procedures. The plan shall identify the parameter values and equipment status for each emergency class.	Section	4.0
2.	The initiating conditions shall include the example conditions found in Appendix 1 and all postulated accidents in the Final Safety Analysis Report (FSAR) for the nuclear facility.	Tables	4.1-1, 4.1-2, 4.1-3, 4.1-4
3.	Each State and local organization shall establish an emergency classification and emergency action level scheme consistent with that established by the facility licensee.	Not Applicable to Licensee	
4.	Each State and local organization should have procedures in place that provide for emergency actions to be taken which are consistent with the emergency actions recommended by the nuclear facility licensee, taking into account local offsite conditions that exist at the time of the emergency.	Not Applicable to Licensee	

E. Notification Methods and Procedures

Planning Standards

Procedures have been established for notification, by the licensee of State and local response organizations and for notification of emergency personnel by all response organizations; the content of initial and follow-up messages to response organizations and the public has been established; and means to provide early notification and clear instruction to the populace within the plume exposure pathway Emergency Planning Zone.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
1.	Each organization shall establish procedures which describe mutually agreeable bases for notification of response organizations consistent with the emergency classification and action level scheme set forth in Appendix 1. These procedures shall include means for verification. Specific details need not be included in the plan.	Sections Figure	6.2.4, 7.4 7.4-1
2.	Each organization shall establish procedures for alerting, notifying, and mobilizing emergency response personnel.	Section Figure	6.1, 6.2, 7.4 7.4-1
3.	The licensee in conjunction with State and local organizations shall establish the contents of the initial emergency messages to be sent from the plant. These measures shall contain information about the class of emergency, whether a release is taking place, potentially affected population and areas, and whether protective measures may be necessary.	Section	6.2.4
4.	Each licensee shall make provisions for follow-up messages from the facility to offsite authorities which shall contain the following information if it is known and appropriate:	Section	6.2.4
a.	Location of incident and name and telephone number (or communications channel identification) of caller;	Section	6.2.4
b.	Date/time of incident;	Section	6.2.4
c.	Class of emergency;	Section	6.2.4

E. Notification Methods and Procedures (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
d.	Type of actual or projected release (airborne, waterborne, surface spill), and estimated duration/impact times;	Section	6.2.4
e.	Estimate of quantity of radioactive material released or being released and the points and height of releases;	Section	6.2.4
f.	Chemical and physical form of released material, including estimates of the relative quantities and concentration of noble gases, iodines and particulates;	Section	6.2.4
g.	Meteorological conditions at appropriate levels (wind speed, direction (to and from), indicator of stability, precipitation, if any);	Section	6.2.4
h.	Actual or projected dose rates at site boundary; projected integrated dose at site boundary;	Section	6.2.4
i.	Projected dose rates and integrated dose at the projected peak and at 2, 5, and 10 miles, including sector(s) affected;	Section	6.2.4
j.	Estimate of any surface radioactive contamination inplant, onsite or offsite;	Section	6.2.4
k.	Licensee emergency response actions underway;	Section	6.2.4
l.	Recommended emergency actions, including protective measures;	Section	6.2.4
m.	Request for any needed onsite support by offsite organizations; and	Section	6.2.4
n.	Prognosis for worsening or termination of event based on plant information.	Section	6.2.4

E. Notification Methods and Procedures (continued)

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
5. State and local government organizations shall establish a system for disseminating to the public appropriate information contained in initial and follow-up messages received from the licensee including the appropriate notification to appropriate broadcast media, e.g., the Emergency Alert (EAS).	Not Applicable to Licensee
6. Each organization shall establish administrative and physical means, and the time required for notifying and providing prompt instructions to the public within the plume exposure pathway Emergency Planning Zone. (See Appendix 3.) It shall be the licensee's responsibility to demonstrate that such means exist, regardless of who implements this requirement. It shall be the responsibility of the State and local governments to activate such a system.	Section 6.5
7. Each organization shall provide written messages intended for the public, consistent with the licensee's classification scheme. In particular, draft messages to the public giving instructions with regard to specific protective actions to be taken by occupants of affected areas shall be prepared and included as part of the State and local plans. Such messages should include the appropriate aspects of sheltering, ad hoc respiratory protection, e.g., handkerchief over mouth, thyroid blocking or evacuation. The role of the licensee is to provide supporting information for the messages. For ad hoc respiratory protection see "Respiratory Protective Devices Manual" American Industrial Hygiene Association, 1963 pp. 123-126.	Section 6.5

F. Emergency Communications

Planning Standard

Provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>
1.	The communication plans for emergencies shall include organizational titles and alternates for both ends of the communication links. Each organization shall establish reliable primary and backup means of communication for licensees, local, and State response organizations. Such systems should be selected to be compatible with one another. Each plan shall include:	
a.	Provision for 24-hour per day notification to and activation of the State/local emergency response network; and at a minimum, a telephone link and alternate, including 24-hour per day manning of communications links that initiate emergency response actions;	Sections 5.1, 5.1.2.1, 5.2.2.4, 5.2.3.3, 7.3. Table 7.1-1
b.	Provision for communications with contiguous State/local governments within the Emergency Planning Zones;	Sections 6.2.4, 7.1, 7.2, 7.3
c.	Provision for communications as needed with Federal emergency response organizations;	Sections 6.2.5, 7.1, 7.2, 7.3
d.	Provision for communications between the nuclear facility and the licensee's near-site Emergency Operations Facility, State and local emergency operations centers, and radiological monitoring teams;	Table 7.1-1
e.	Provision for alerting or activating emergency personnel in each response organization; and	Sections 6.2, 6.2.1, 6.2.2, 6.2.3, 6.2.4, 6.2.5

F. Emergency Communications (continued)

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
f. Provision for communication by the licensee with NRC headquarters and NRC Regional Office Emergency Operations Centers and the licensee's near-site Emergency Operations Facility and radiological monitoring team assembly area.	Sections 6.2.5, 7.1, 7.2, 7.3 Table 7.1-1
2. Each organization shall ensure that a coordinated communication link for fixed and mobile medical support facilities exists.	Sections 6.6.3, 6.6.4
3. Each organization shall conduct periodic testing of the entire emergency communications system (see evaluation criteria H.10, 2.a and Appendix 3).	Sections 8.2.2.5

G. Public Education and Information

Planning Standard

Information is made available to the public on a periodic basis on how they will be notified and what their initial actions should be in an emergency (e.g., listening to a local broadcast station and remaining indoors), the principal points of contact with the news media for dissemination of information during an emergency (including the physical location or locations) are established in advance, and procedures for coordinated dissemination of information to the public are established.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>
1.	Each organization shall provide a coordinated periodic (at least annually) dissemination of information to the public regarding how they will be notified and what their actions should be in an emergency. This information shall include, but not necessarily be limited to: <ul style="list-style-type: none"><li>a. Educational information on radiation;</li><li>b. Contact for additional information;</li><li>c. Protective measures, e.g., evacuation routes and relocation centers, sheltering, respiratory protection, radioprotective drugs; and</li><li>d. Special needs of the handicapped.</li></ul> Means for accomplishing this dissemination may include, but are not necessarily limited to: information in the telephone book; periodic information in utility bills; posting in public areas; and publications distributed on an annual basis.	Section 8.1.4



G. Public Education and Information (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
2.	The public information program shall provide the permanent and transient adult population within the plume exposure EPZ an adequate opportunity to become aware of the information annually. The programs should include provision for written material that is likely to be available in a residence during an emergency. Updated information shall be disseminated at least annually. Signs or other measures (e.g., decals, posted notices or other means, placed in hotels, motels, gasoline stations and phone booths) shall also be used to disseminate to any transient population within the plume exposure pathway EPZ appropriate information that would be helpful if an emergency or accident occurs. Such notices should refer the transient to the telephone directory or other source of local emergency information and guide the visitor to appropriate radio and television frequencies.	Section	8.1.4
3.			
a.	Each principal organization shall designate the points of contact and physical locations for use by news media during an emergency.	Sections Figure	5.3.1, 7.2.5, 8.1.5 7.2-5
b.	Each licensee shall provide space which may be used for a limited number of the news media at the near-site Emergency Operations Facility.	Section Figure	7.2.5 7.2-5
4.			
a.	Each principal organization shall designate a spokesperson who should have access to all necessary information.	Sections	5.3.2, 7.2.5
b.	Each organization shall establish arrangements for timely exchange of information among designated spokespersons.	Sections	5.3.2, 7.2.5
c.	Each organization shall establish coordinated arrangements for dealing with rumors.	Section	5.3.1, 7.2.5

G. Public Education and Information (continued)

Evaluation Criteria

Cross Reference  
to Plan

- d. Each organization shall conduct coordinated programs at least annually to acquaint news media with the emergency plans, information concerning radiation, and points of contact for release of public information in an emergency.

Section 8.1.5

## H. Emergency Facilities and Equipment

### Planning Standard

Adequate emergency facilities and equipment to support the emergency response are provided and maintained.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
1.	Each licensee shall establish a Technical Support Center and an onsite operations support center (assembly area) in accordance with NUREG-0696, Revision 1.	Sections	7.2.1, 7.2.2
		Figures	7.2-1, 7.2-2
2.	Each licensee shall establish an Emergency Operations Facility from which evaluation and coordination of all licensee activities related to an emergency is to be carried out and from which the licensee shall provide information to Federal, State and local authorities responding to radiological emergencies in accordance with NUREG-0696, Revision 1.	Sections	7.2.3
		Figures	7.2-3
3.	Each organization shall establish an emergency operations center for use in directing and controlling response functions.	Not Applicable to Licensee	
4.	Each organization shall provide for timely activation and staffing of the facilities and centers described in the plan.	Section	6.2
5.	Each licensee shall identify and establish onsite monitoring systems that are to be used to initiate emergency measures in accordance with Appendix 1, as well as those to be used for conducting assessment.	Section	7.5
The equipment shall include:			
a.	Geophysical phenomena monitors (e.g., meteorological, hydrologic, seismic);	Sections	7.5.1, 7.5.2, 7.5.3
b.	Radiological monitors (e.g., process, area, emergency, effluent, wound and portable monitors and sampling equipment);	Section	7.5.4, 7.5.5

H. Emergency Facilities and Equipment (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
6.	c. Process monitors (e.g., reactor coolant system pressure and temperature, containment pressure and temperature, liquid levels, flow rates, status or lineup of equipment components); and	Section	7.5.5.6
	d. Fire and combustion products detectors.	Section	7.6
7.	Each licensee shall make provision to acquire data from or for emergency access to offsite monitoring and analysis equipment including:		
	a. Geophysical phenomena monitors (e.g., meteorological, hydrologic, seismic);	Sections	7.5, 7.5.1, 7.5.2 7.5.3
	b. Radiological monitors including ratemeters and sampling devices. Dosimetry shall be provided and shall meet, as a minimum, the NRC Radiological Assessment Branch Technical Position for the Environmental Radiological Monitoring Program; and	Sections	7.5.4
8.	c. Laboratory facilities, fixed or mobile.	Section	7.5.7
	Each organization, where appropriate, shall provide for offsite radiological monitoring equipment in the vicinity of the nuclear facility.	Sections	7.5.6
9.	Each licensee shall provide meteorological instrumentation and procedures which satisfy the criteria in Appendix 2, and provisions to obtain representative current meteorological information from other sources.	Section	7.5.2
	Each licensee shall provide for an onsite operations support center (assembly area) which shall have adequate capability, and supplies, including, for example, respiratory protection, protective clothing, portable lighting, portable radiation monitory equipment, cameras and communications equipment for personnel present in the assembly area.	Section	7.2.2

H. Emergency Facilities and Equipment (continued)

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
10. Each organization shall make provisions to inspect, inventory and operationally check emergency equipment/instruments at least once each calendar quarter and after each use. There shall be sufficient reserves of instruments/equipment to replace those which are removed from emergency kits for calibration or repair. Calibration of equipment shall be at intervals recommended by the supplier of the equipment.	Sections 7.7, 8.6  Appendix E
11. Each plan shall, in an appendix, include identification of emergency kits by general category (protective equipment, communications equipment, radiological monitoring equipment and emergency supplies).	Table 7.1-1, Appendix E
12. Each organization shall establish a central point (preferably associated with the licensee's near-site Emergency Operations Facility), for the receipt and analysis of all field monitoring data and coordination of sample media.	Section 7.2.3

## I. Accident Assessment

### Planning Standard

Adequate methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
1.	Each licensee shall identify plant system and effluent parameter values characteristic of a spectrum of off-normal conditions and accidents, and shall identify the plant parameter values or other information which correspond to the example initiating conditions of Appendix 1. Such parameter values and the corresponding emergency class shall be included in the appropriate facility emergency procedures. Facility emergency procedures shall specify the kinds of instruments being used and their capabilities.	Tables	4.1-1, 4.1-2, 4.1-3, 4.1-4
2.	Onsite capability and resources to provide initial values and continuing assessment throughout the course of an accident shall include post-accident sampling capability, radiation and effluent monitors, in-plant iodine instrumentation, and containment radiation monitoring in accordance with NUREG-0578, as elaborated in the NRC letter to all power reactor licensees dated October 30, 1979.	Sections	4.2, 6.3, 7.5
3.	Each licensee shall establish methods and techniques to be used for determining:		
a.	The source term of releases of radioactive material within plant systems. An example is the relationship between the containment radiation monitor(s) reading(s) and radioactive material available for release from containment.	Section	6.3.3, 7.5
b.	The magnitude of the release of radioactive materials based on plant system parameters and effluent monitors.	Section	6.3.3, 7.5

I. Accident Assessment (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
4.	Each licensee shall establish the relationship between effluent monitor readings and onsite and offsite exposures and contamination for various meteorological conditions.	Section	6.3.3, 7.5
5.	Each licensee shall have the capability of acquiring and evaluating meteorological information sufficient to meet the criteria of Appendix 2. There shall be provisions for access to meteorological information by at least the near-site Emergency Operations Facility, the Technical Support Center, the Control Room and an offsite NRC center. The licensee shall make available to the State suitable meteorological data processing interconnections which will permit independent analysis by the State, of facility-generated data in those States with the resources to effectively use this information.	Section	6.3.2, 7.5
6.	Each licensee shall establish the methodology for determining the release rate/projected doses if the instrumentation used for assessment are offscale or inoperable.	Sections	4.2, 6.3.3
7.	Each organization shall describe the capability and resources for field monitoring within the plume exposure Emergency Planning Zone which are an intrinsic part of the concept of operations for the facility.	Sections	4.2, 6.3
8.	Each organization, where appropriate, shall provide methods, equipment and expertise to make rapid assessments of the actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways. This shall include activation, notification means, field team composition, transportation, communication, monitoring equipment and estimated deployment times.	Sections Tables	4.2, 6.3, 7.5 6.3.1
9.	Each organization shall have a capability to detect and measure radioiodine concentrations in air in the plume exposure EPZ as low as $10^{-7}$ uCi/cc (microcuries per cubic centimeter) under field conditions. Interference from the presence of noble gas and background radiation shall not decrease the stated minimum detectable activity.	Sections	6.3.3, 7.5.5.5

I. Accident Assessment (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>
10.	Each organization shall establish means for relating the various measured parameters (e.g., contamination levels, water and air activity levels) to dose rates for key isotopes (i.e., those given in Table 3, page 18) and gross radioactivity measurements. Provisions shall be made for estimating integrated dose from the projected and actual dose rates and for comparing these estimates with the protective action guides. The detailed provisions shall be described in separate procedures.	Sections 6.3, 6.5, Tables 6.3-1, 6.4-1
11.	Arrangements to locate and track the airborne radioactive plume shall be made, using either or both Federal and State resources.	Not Applicable to Licensee



J. Protective Response

Planning Standard

A range of protective actions have been developed for the plume exposure pathway EPZ for emergency workers and the public. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>
1.	Each licensee shall establish the means and time required to warn or advise onsite individuals and individuals who may be in areas controlled by the operator, including: <ul style="list-style-type: none"><li>a. Employees not having emergency assignments;</li><li>b. Visitors;</li><li>c. Contractor and construction personnel; and</li><li>d. Other persons who may be in the public access areas on or passing through the site or within the owner-controlled area.</li></ul>	Sections 6.1, 6.5
2.	Each licensee shall make provisions for evacuation routes and transportation for onsite individuals to some suitable offsite location, including alternatives for inclement weather, high traffic density and specific radiological conditions.	Section 6.5.4
3.	Each licensee shall provide for radiological monitoring of people evacuated from the site.	Section 6.6.2
4.	Each licensee shall provide for the evacuation of onsite nonessential personnel in the event of a Site or General Emergency and shall provide a decontamination capability at or near the monitoring point specified in J.3.	Sections 6.5.4

J. Protective Response (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
5.	Each licensee shall provide for a capability to account for all individuals onsite at the time of the emergency and ascertain the names of missing individuals within 30 minutes of the start of an emergency and account for all onsite individuals continuously thereafter.	Section	6.5.3
6.	Each licensee shall, for individuals remaining or arriving onsite during the emergency, make provisions for: <ul style="list-style-type: none"> <li>a. Individual respiratory protection;</li> <li>b. Use of protective clothing; and</li> <li>c. Use of radioprotective drugs (e.g., individual thyroid protection).</li> </ul>	Section	6.5.2, 6.5.5.1
7.	Each licensee shall establish a mechanism for recommending protective actions to the appropriate State and local authorities. These shall include Emergency Action Levels corresponding to projected dose to the population-at-risk, in accordance with Appendix 1 and with the recommendations set forth in Tables 2.1 and 2.2 of the Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (EPA400-R-92-001). As specified in Appendix 1, prompt notification shall be made directly to the offsite authorities responsible for implementing protective measures within the plume exposure pathway Emergency Planning Zone.	Sections Table	6.5 6.4-1
8.	Each licensee's plan shall contain time estimates for evacuation within the plume exposure EPZ. These shall be in accordance with Appendix 4.	Appendix C	

J. Protective Response (continued)

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
9. Each State and local organization shall establish a capability for implementing protective measures based upon protective action guides and other criteria. This shall be consistent with the recommendations of EPA regarding exposure resulting from passage of radioactive airborne plumes (EPA-400-R-92-001) and with those of DHEW (DHHS)/FDA regarding radioactive contamination of human food and animal feeds as published in the Federal Register of December 15, 1978 (43 FR 58790).	Not Applicable to Licensee
10. The organization's plans to implement protective measures for the plume exposure pathway shall include:	
a. Maps showing evacuation routes, evacuation areas, preselected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas; (identification of radiological sampling and monitoring points shall include the designators in Table J-1 or an equivalent uniform system described in the plan);	Appendix C
b. Maps showing population distribution around the nuclear facility. This shall be by evacuation areas (licensees shall also present the information in a sector format);	Appendix C
c. Means for notifying all segments of the transient and resident population;	Sections 6.5
d. Means for protecting those persons whose mobility may be impaired due to such factors as institutional or other confinement;	Not Applicable to Licensee
e. Provisions for the use of radioprotective drugs, particularly for emergency workers and institutionalized persons within the plume exposure EPZ whose immediate evacuation may be infeasible or very difficult, including quantities, storage, and means of distribution.	Not Applicable to Licensee

J. Protective Response (continued)

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
f. State and local organizations' plans should include the method by which decisions by the State Health Department for administering radioprotective drugs to the general population are made during an emergency and the predetermined conditions under which such drugs may be used by offsite emergency workers; <sup>1</sup>	Not Applicable to Licensee
g. Means of relocation;	Not Applicable to Licensee
h. Relocation centers in host areas which are at least 5 miles and preferably 10 miles, <u>beyond</u> the boundaries of the plume exposure emergency planning zone; (See K.8)	Not Applicable to Licensee
i. Projected traffic capacities of evacuation routes under emergency conditions;	Not Applicable to Licensee
j. Control of access to evacuated areas and organization responsibilities for such control;	Not Applicable to Licensee
k. Identification of and means for dealing with potential impediments (e.g., seasonal impassability of roads) to use of evacuation routes, and contingency measures;	Not Applicable to Licensee
l. Time estimates for evacuation of various sectors and distances based on a dynamic analysis (time-motion study under various conditions) for the plume exposure pathway emergency planning zone (See Appendix 4); and	Not Applicable to Licensee

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<sup>1</sup>See DHEW (new DHHS) Federal Register notice of December 15, 1978 (43 FR 58798) entitled "Potassium Iodide as a Thyroid Blocking Agent in a Radiation Emergency." Other guidance concerning the storage, stockpiling, and conditions for use of this drug by the general public, is now under development by the Bureau of Drugs, DHHS.

J. Protective Response (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
m.	The bases for the choice of recommended protective actions from the plume exposure pathway during emergency conditions. This shall include expected local protection afforded <sup>2</sup> in residential units or other shelter for direct and inhalation exposure, as well as evacuation time estimates.	Section	6.5
		Tables	6.4-1, 6.4-2
11.	Each State shall specify the protective measures to be used for the ingestion pathway, including the methods for protecting the public from consumption of contaminated foodstuffs. This shall include criteria for deciding whether dairy animals should be put on stored feed. The plan shall identify procedures for detecting contamination, for estimating the dose commitment consequences of uncontrolled ingestion, and for imposing protection procedures such as impoundment, decontamination, processing, decay, product diversion, and preservation. Maps for recording survey and monitoring key land use data (e.g., farming), dairies, food processing plants, water sheds, water supply intake and treatment plants and reservoirs shall be maintained. Provisions for maps showing detailed crop information may be by including reference to their availability and location and a plan for their use. The maps shall start at the facility and include all of the 50-mile ingestion pathway EPZ. Up-to-date lists of the name and location of all facilities which regularly process milk products and other large amounts of food or agricultural products originating in the ingestion	Not Applicable to Licensee	

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<sup>2</sup>The following reports may be considered in determining protection afforded.

- (1) "Public Protection Strategies for Potential Nuclear Reactor Accidents Sheltering Concepts with Existing Public and Private Structures" (SAND 771725), Sandia Laboratory.
- (2) "Examination of Offsite Radiological Emergency Measures for Nuclear Reactor Accidents Involving Core Melt" (SAND 780454), Sandia Laboratory.
- (3) "Protective Action Evaluation Part II, Evacuation and Sheltering as Protective Actions Against Nuclear Accidents Involving Gaseous Releases" (EPA 520/178001B U.S. Environmental Protection Agency.

J. Protective Response (continued)

Evaluation Criteria

Cross Reference  
to Plan

pathway Emergency Planning Zone, but located elsewhere, shall be maintained.

12. Each organization shall describe the means for registering and monitoring of evacuees at relocation centers in host areas. The personnel and equipment available should be capable of monitoring within about a 12-hour period all residents and transients in the plume exposure EPZ arriving at relocation centers.

Not Applicable to Licensee

K. Radiological Exposure Control

Planning Standard

Means for controlling radiological exposures, in an emergency, are established for emergency workers. The means for controlling radiological exposures shall include exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Action Guides.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
1.	Each licensee shall establish onsite exposure guidelines consistent with EPA Emergency Worker and Lifesaving Activity Protective Actions Guides (EPA 400-R-92-001) for:	Sections	6.6.1
		Table	6.4-1
	a. Removal of injured persons;		
	b. Undertaking corrective actions;		
	c. Performing assessment actions;		
	d. Providing first aid;		
	e. Performing personnel decontamination;		
	f. Providing ambulance service; and		
	g. Providing medical treatment services.		
2.	Each licensee shall provide an onsite radiation protection program to be implemented during emergencies, including methods to implement exposure guidelines. The plan shall identify individual(s), by position or title, who can authorize emergency workers to receive doses in excess of 10 CFR Part 20 limits. Procedures shall be worked out in advance for permitting onsite volunteers to receive radiation exposures in the course of carrying out lifesaving and other emergency activities. These procedures shall include expeditious decision making and a reasonable consideration of relative risks.	Sections	6.6.1

K. Radiological Exposure Control (continued)

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
3.	
a. Each organization shall make provision for 24-hour-per-day capability to determine the doses received by emergency personnel involved in any nuclear accident, including volunteers. Each organization shall make provisions for distribution of dosimeters, both self-reading and permanent record devices.	Sections 6.6.1
b. Each organization shall ensure that dosimeters are read at appropriate frequencies and provide for maintaining dose records for emergency workers involved in any nuclear accident.	Sections 6.6.1
4. Each State and local organization shall establish the decision chain for authorizing emergency workers to incur exposures in excess of the EPA General Public Protective Action Guides (i.e., EPA PAGs for emergency workers and lifesaving activities).	Not Applicable to Licensee
5.	
a. Each organization as appropriate, shall specify action levels for determining the need for decontamination.	Sections 6.5.5.1
b. Each organization, as appropriate, shall establish the means for radiological decontamination of emergency personnel wounds, supplies, instruments and equipment, and for waste disposal.	Section 6.6.2, 6.6.3, 6.6.4
6. Each licensee shall provide onsite contamination control measures including:	Sections 6.5.5.1, 6.5.5.2
a. Area access control;	
b. Drinking water and food supplies;	
c. Criteria for permitting return of areas and items to normal use, see Draft ANSI 13.12.	



K. Radiological Exposure Control (continued)

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
7. Each licensee shall provide the capability for decontaminating relocated onsite personnel, including provisions for extra clothing and decontaminants suitable for the type of contamination expected, with particular attention given to radioiodine contamination of the skin.	Sections 7.2.3, 7.2.4

L. Medical and Public Health Support

Planning Standard

Arrangements are made for medical services for contaminated injured individuals.<sup>1</sup>

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>
1.	Each organization shall arrange for local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurance that persons providing these services are adequately prepared to handle contaminated individuals.	Section 6.6.4
2.	Each licensee shall provide for onsite first aid capability.	Section 6.6.2
3.	Each State shall develop lists indicating the location of public, private, and military hospitals and other emergency medical services facilities within the State of contiguous States considered capable of providing medical support for any contaminated injured individual. The listing shall include the name, location, type of facility and capacity and any special radiological capabilities. These emergency medical services should be able to radiologically monitor contaminated personnel, and have facilities and trained personnel able to care for contaminated injured persons.	Not Applicable to Licensee
4.	Each organization shall arrange for transporting victims of radiological accidents to medical support facilities.	Section 6.6.3

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<sup>1</sup>The availability of an integrated emergency medical services system and a public health emergency plan serving the area in which the facility is located and, as a minimum, equivalent to the Public Health Service Guide for Developing Health Disaster Plans, 1974, and to the requirements of an emergency medical services system as outlined in the Emergency Medical Services System Act of 1973 (P.L. 93154 and amendments in 1979 P.L. 96142), should be a part of and consistent with overall State or local disaster control plans and should be compatible with the specific overall emergency response plan for the facility.

M. Recovery and Reentry Planning and Postaccident Operations

Planning Standard

General Plans for recovery and reentry are developed.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>
1.	Each organization, as appropriate, shall develop general plans and procedures for reentry and recovery and describe the means by which decisions to relax protective measures (e.g., allow reentry into an evacuated area) are reached. This process should consider both existing and potential conditions.	Sections 9.0, 9.1, 9.2
2.	Each licensee plan shall contain the position/title, authority and responsibilities of individuals who will fill key positions in the facility recovery organization. This organization shall include technical personnel with responsibilities to develop, evaluate and direct recovery and reentry operations. The recovery organization recommended by the Atomic Industrial Forum's "Nuclear Power Plant Emergency Response Plan" dated October 11, 1979, is an acceptable framework.	Sections 9.0, 9.1, 9.2
3.	Each licensee and State plan shall specify means for informing members of the response organizations that a recovery operation is to be initiated, and of any changes in the organizational structure that may occur.	Section 9.2
4.	Each plan shall establish a method for periodically estimating total population exposure.	Sections 6.3.3

N. Exercises and Drills

Planning Standard

Periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected.

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
1.	
a. An exercise is an event that tests the integrated capability and a major portion of the basic elements existing within emergency preparedness plans and organizations. The emergency preparedness exercise shall simulate an emergency that results in offsite radiological releases which would require response by offsite authorities. Exercises shall be conducted as set forth in NRC and FEMA rules.	Sections 8.2, 8.2.1
b. An exercise shall include mobilization of State and local personnel and resources adequate to verify the capability to respond to an accident scenario requiring response. The organization shall provide for a critique of the annual exercise by Federal and State observers/evaluators. The scenario should be varied from year to year such that all major elements of the plans and preparedness organizations are tested within a five-year period. Each organization should make provisions to start an exercise between 6:00 p.m. and midnight, and another between midnight and 6:00 a.m. once every six years. Exercises should be conducted under various weather conditions. Some exercises should be unannounced.	Sections 8.2, 8.2.1

N. Exercises and Drills (continued)

Evaluation Criteria

Cross Reference  
to Plan

2. A drill is a supervised instruction period aimed at testing, developing and maintaining skills in a particular operation. A drill is often a component of an exercise. A drill shall be supervised and evaluated by a qualified drill instructor. Each organization shall conduct drills, in addition to the annual exercise at the frequencies indicated below:

Sections 8.2, 8.2.2

a. Communication Drills

Communications with State and local governments within the plume exposure pathway Emergency Planning Zone shall be tested monthly. Communications with Federal emergency response organizations and States within the ingestion pathway shall be tested quarterly. Communications between the nuclear facility, State and local emergency operations centers, and field assessment teams shall be tested annually. Communication drills shall also include the aspect of understanding the content of messages.

Section 8.2.2.5

b. Fire Drills

Fire drills shall be conducted in accordance with the plant (nuclear facility) technical specifications.

Section 8.2.2.1

c. Medical Emergency Drills

A medical emergency drill involving a simulated contaminated individual which contains provisions for participation by the local support services agencies (i.e., ambulance and offsite medical treatment facility) shall be conducted annually. The offsite portions of the medical drill may be performed as part of the required annual exercise.

Section 8.2.2.2

N. Exercises and Drills (continued)

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
d. <u>Radiological Monitoring Drills</u>	
Plant environs and radiological monitoring drills (onsite and offsite) shall be 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. The State drills need not be at each site. Where appropriate, local organizations shall participate.	Section 8.2.2.3
e. <u>Health Physics Drills</u>	
(1) Health Physics drills shall be conducted semiannually which involve response to, and analysis of, simulated elevated airborne and liquid samples and direct radiation measurements in the environment. The State drills need not be at each site.	Section 8.2.2.4
(2) Analysis of inplant liquid samples with actual elevated radiation levels including use of the postaccident sampling system shall be included in Health Physics drills by licensees annually.	
3. Each organization shall describe how exercises and drills are to be carried out to allow free play for decision making and to meet the following objectives. Pending the development of exercise scenarios and exercise evaluation guidance by NRC and FEMA the scenarios for use in exercises and drills shall include but not be limited to, the following:	
a. The basic objective(s) of each drill and exercise and appropriate evaluation criteria;	Sections 8.2.1, 8.2.2

N. Exercises and Drills (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
b.	The date(s), time period, place(s) and participating organizations;	Section	8.2.1
c.	The simulated events;	Section	8.2.1
d.	A time schedule of real and simulated initiating events;	Section	8.2.1
e.	A narrative summary describing the conduct of the exercises or drills to include such things as simulated casualties, offsite fire department assistance, rescue of personnel, use of protective clothing, deployment of radiological monitoring teams, and public information activities; and	Section	8.2.1
f.	A description of the arrangements for and advance materials to be provided to official observers.	Section	8.2.1
4.	Official observers from Federal, State or local governments will observe, evaluate and critique the required exercises. A critique shall be scheduled at the conclusion of the exercise to evaluate the ability of organizations to respond as called for in the plan. The critique shall be conducted as soon as practicable after the exercise, and a formal evaluation should result from the critique.	Section	8.2.1
5.	Each organization shall establish means for evaluating observer and participant comments on areas needing improvement, including emergency plan procedural changes, and for assigning responsibility for implementing corrective actions. Each organization shall establish management control used to ensure that corrective actions are implemented.	Section	8.2.1

O. Radiological Emergency Response Training

Planning Standard

Radiological emergency response training is provided to those who may be called on to assist in an emergency.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>
1.	Each organization shall assure the training of appropriate individuals.	Sections 8.1, 8.1.1
a.	Each facility to which the plant applies shall provide site specific emergency response training for those offsite emergency organizations who may be called upon to provide assistance in the event of an emergency. <sup>1</sup>	Section 8.1.3
b.	Each offsite response organization shall participate in and receive training. Where mutual aid agreements exist between local agencies such as fire, police, and ambulance/rescue, the training shall also be offered to the other departments who are members of the mutual aid district.	Not Applicable to Licensee
2.	The training program for members of the onsite emergency organization shall, besides classroom training, include practical drills in which each individual demonstrates ability to perform his assigned emergency function. During the practical drills, on-the-spot correction of erroneous performance shall be made and a demonstration of the proper performance offered by the instructor.	Sections 8.1.1, 8.1.2
3.	Training for individuals assigned to licensee first aid teams shall include courses equivalent to Red Cross Multi-Media.	Section 8.1.1

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<sup>1</sup>Training for hospital personnel, ambulance/rescue, police and fire departments shall include the procedures for notification, basic radiation protection, and their expected roles. For those local services support organizations who will enter the site, training shall also include site access procedures and the identity (by position and title) of the individual in the onsite emergency organization who will control the organizations' support activities. Offsite emergency response support personnel should be provided with appropriate identification cards where required.



O. Radiological Emergency Response Training (continued)

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
4.	Each organization shall establish a training program for instructing and qualifying personnel who will implement radiological emergency response plans. <sup>2</sup> The specialized initial training and periodic retraining programs (including the scope, nature and frequency) shall be provided in the following categories:		
a.	Directors or coordinators of the response organizations;	Section	8.1.1
b.	Personnel responsible for accident assessment;	Section	8.1.1
c.	Radiological monitoring teams and radiological analysis personnel;	Section	8.1.1
d.	Police, security and fire fighting personnel;	Section	8.1.1, 8.1.3
e.	Repair and damage control/correctional action teams (onsite);	Section	8.1.1
f.	First aid and rescue personnel;	Section	8.1.1
g.	Local support services personnel including Civil Defense/Emergency Service personnel;	Sections	8.1.3
h.	Medical support personnel;	Section	8.1.1, 8.1.3
i.	Licensee's headquarters support personnel;	Section	8.1.1
j.	Personnel responsible for transmission of emergency information and instructions.	Section	8.1.1
5.	Each organization shall provide for the initial and annual retraining of personnel with emergency response responsibilities.	Section	8.1.1

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<sup>2</sup>If State and local governments lack the capability and resources to accomplish this training, they may look to the licensee and the Federal government (FEMA) for assistance in this training.

\* NRC and FEMA encourage State and local governments which have these capabilities to continue to include them in their training programs.

P. Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans

Planning Standard

Responsibilities for plan development and review and for distribution of emergency plans are established, and planners are properly trained.

<u>Evaluation Criteria</u>		<u>Cross Reference to Plan</u>	
1.	Each organization shall provide for the training of individuals responsible for the planning effort.	Section	8.1.2
2.	Each organization shall identify by title the individual with the overall authority and responsibility for radiological emergency response planning.	Section	Introduction, 8.3
3.	Each organization shall designate an Emergency Planning Coordinator with responsibility for the development and updating of emergency plans and coordination of these plans with other response organizations.	Section	8.3
4.	Each organization shall update its plan and agreements as needed, review and certify it to be current on an annual basis. The update shall take into account changes identified by drills and exercises.	Section	8.5
5.	The emergency response plans and approved changes to the plans shall be forwarded to all organizations and appropriate individuals with responsibility for implementation of the plans. Revised pages shall be dated and marked to show where changes have been made.	Section	8.5
6.	Each plan shall contain a detailed listing of supporting plans and their source.	Section Appendix F	2.0
7.	Each plan shall contain as an appendix listing, by title, procedures required to implement this plan. The listing shall include the section(s) of the plan to be implemented by each procedure.	Appendix A	

P. Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans (continued)

<u>Evaluation Criteria</u>	<u>Cross Reference to Plan</u>
8. Each plan shall contain a specific table of contents. Plans submitted for review should be cross referenced to these criteria.	Table of Contents Appendix B
9. Each licensee shall arrange for and conduct independent reviews of the emergency preparedness program at least every 12 months. (An independent review is one conducted by any competent organization either internal or external to the licensee's organization, but who are not immediately responsible for the emergency preparedness program.) The review shall include the emergency plan, its implementing procedures and practices, training, readiness testing, equipment, and interfaces with State and local governments. Management controls shall be implemented for evaluation and correction of review findings. The results of the review, along with recommendations for improvements, shall be documented, reported to appropriate licensee corporate and plant management, and involved Federal, State and local organizations, and retained for a period of five years.	Section 8.5
10. Each organization shall provide for updating telephone numbers in emergency procedures at least quarterly.	Section 8.5

### CROSS REFERENCE

<u>10CFR50.47</u>	<u>NUREG-0654/FEMA-REP 1, Rev. 1 - Planning Standards</u>
b.1	A Assignment of Responsibility (Organization Control)
b.2	B Onsite Emergency Organization
b.3	C Emergency Response Support and Resources
b.4	D Emergency Classification System
b.5	E Notification Methods and Procedures
b.6	F Emergency Communications
b.7	G Public Education and Information
b.8	H Emergency Facility and Equipment
b.9	I Accident Assessment
b.10	J Protective Response
b.11	K Radiological Exposure Control
b.12	L Medical and Public Health Support
b.13	M Recovery and Reentry Planning and Post-accident Operations
b.14	N Exercises and Drills
b.15	O Radiological Emergency Response Training
b.16	P Responsibility for the Planning Effort: Development, Periodic Review and Distribution of Emergency Plans

10CFR50.47.b contains sixteen standards to be met by a licensee's Emergency Plan.

NUREG-0654/FEMA-REP-1 Rev. 1 contains sixteen planning standards which must be addressed in the licensee's Emergency Plan. The NUREG-0654 Planning Standards are word for word duplications of the standards found in 10CFR50.47.b.

The cross-reference between NUREG-0654 and the NPPD Emergency Plan found in Appendix B of the NPPD Emergency Plan adequately provides a cross-reference to the standards in 10CFR50.47.b.

CROSS REFERENCE 10CFR50 APPENDIX E  
TO CNS EMERGENCY PLAN

10CFR50, Appendix E.IV	NUREG-0654	NPPD Emergency Plan Section
A.1	A.1.b, c	5.0, 5.1
A.2a	A.1.d, B.2, 3	5.1, 5.2
A.2b	B.5	5.2
A.2c	B.2, 3	5.2
A.3	B.7	5.3
A.4	B.5 I	5.2 4.2, 6.3, 6.5
A.5	B.8	5.3., Appendix D
A.6	B.9	5.4 6.5, 6.6, Appendices D, F
A.7	C	5.4.1, 5.4.2, 5.4.3, 5.4.4, 6.5, 6.6, Appendices D, F
A.8	J.9	6.2.4, 6.5, 6.6, Appendix D
B	D, I, J	4.0, 6.3, 7.5
C	D	4.0, 6.0
D.1	E	5.4., 6.0, 6.2.4, 6.2.5, 6.5 Appendix D
D.2	G.1, 2	8.1.4
D.3	E	6.2.4, 6.5
E.1	K.3a, b	6.5.5.1, 6.6.1, 7.2, Appendix E
E.2	H.6, 7, 8, I	4.0, 7.5, 7.7
E.3	K.5, 6, 7	6.5, 6.6
E.4	L	6.6
E.5	L	6.6, Appendix D
E.6	L	6.6.3, 6.6.4, Appendix D
E.7	L	6.6.3, 6.6.4, Appendix D
E.8	H.1, 2	7.2.1, 7.2.3
E.9	F	7.0, 7.3, 8.2
F	N, O	8.1, 8.2, 8.4
G	P.2, 3	8.3, 8.4, 8.5, 8.6
H	M	9.0

CROSS REFERENCE  
NUREG-0654 TO EAL NUMBER  
FOR NOTIFICATION OF UNUSUAL EVENT CONDITIONS

<u>NUREG-0654</u> <u>INITIATING CONDITION</u>	<u>COOPER NUCLEAR STATION</u> <u>EMERGENCY ACTION LEVEL NUMBER</u>
1	Not Applicable
2	1.1.1
2	1.1.2
3.a	2.1.1
3.b	2.1.2
3.c	Not Applicable
4	3.1.1
5	2.1.3
6	2.2.1
7	4.1.1
7	Not Applicable
8	Not Applicable
9	Not Applicable
10	5.1.1
11	Not Applicable
12	6.1.1
13.a	7.1.1
13.b	7.1.2
13.c	7.1.3
13.d	7.1.4
14.a	8.1.1
14.b	Not Applicable
14.c	8.1.2
14.d	5.1.2
14.e	8.1.3
15	8.1.4
16	Not Applicable
17	Not Applicable

CROSS REFERENCE  
NUREG-0654 TO EAL NUMBER  
FOR ALERT CONDITIONS

NUREG-0654  
INITIATING CONDITION

COOPER NUCLEAR STATION  
EMERGENCY ACTION LEVEL NUMBER

1	2.2.1
2	Not Applicable
3	Not Applicable
4	2.2.1
5	2.2.1
6	1.2.1
7	4.2.1
8	4.2.2
9	2.2.1
10	3.2.3
11	3.2.4
12	3.2.1
13	5.2.1
14	4.1.2
15	1.2.2
16	6.2.1
17.a	7.2.1
17.b	7.2.2
17.c	7.2.3
17.d	7.2.4
18.a	8.2.1
18.b	8.2.2
18.c	8.2.3
18.d	5.2.2
18.e	8.2.4
19	8.2.5
20	3.2.2

CROSS REFERENCE  
NUREG-0654 TO EAL NUMBER  
FOR SITE AREA EMERGENCY CONDITIONS

<u>NUREG-0654</u> <u>INITIATING CONDITION</u>	<u>COOPER NUCLEAR STATION</u> <u>EMERGENCY ACTION LEVEL NUMBER</u>
1	2.3.2
2	2.3.1
3	Not Applicable
4	2.3.3
5	Not Applicable
6	4.3.1
7	4.3.2
8	3.3.3
9	3.3.4
10	3.3.1
11	5.3.1
12	4.2.3, 4.3.3
13	1.3.1
13	1.3.2
14	6.3.1
15.a	7.3.1
15.b	7.3.3
15.b	7.3.4
15.c	7.3.2
16.a	8.3.1
16.b	8.3.2
16.c	Not Applicable
17	8.3.3
18	3.3.2



CROSS REFERENCE  
NUREG-0654 TO EAL NUMBER  
FOR GENERAL EMERGENCY CONDITIONS

NUREG-0654  
INITIATING CONDITION

COOPER NUCLEAR STATION  
EMERGENCY ACTION LEVEL NUMBER

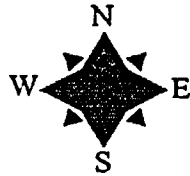
1	1.4.1
1	1.4.2
2	2.4.1
3	6.4.1
4	3.4.2
5	Not Applicable
6.a	3.4.1
6.a	4.4.1
6.b	2.4.1
6.c	2.4.1
6.d	3.4.2
7	5.4.1
7	7.4.1
7	8.4.1

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APPENDIX C

EVACUATION ROUTES/MAPS

1

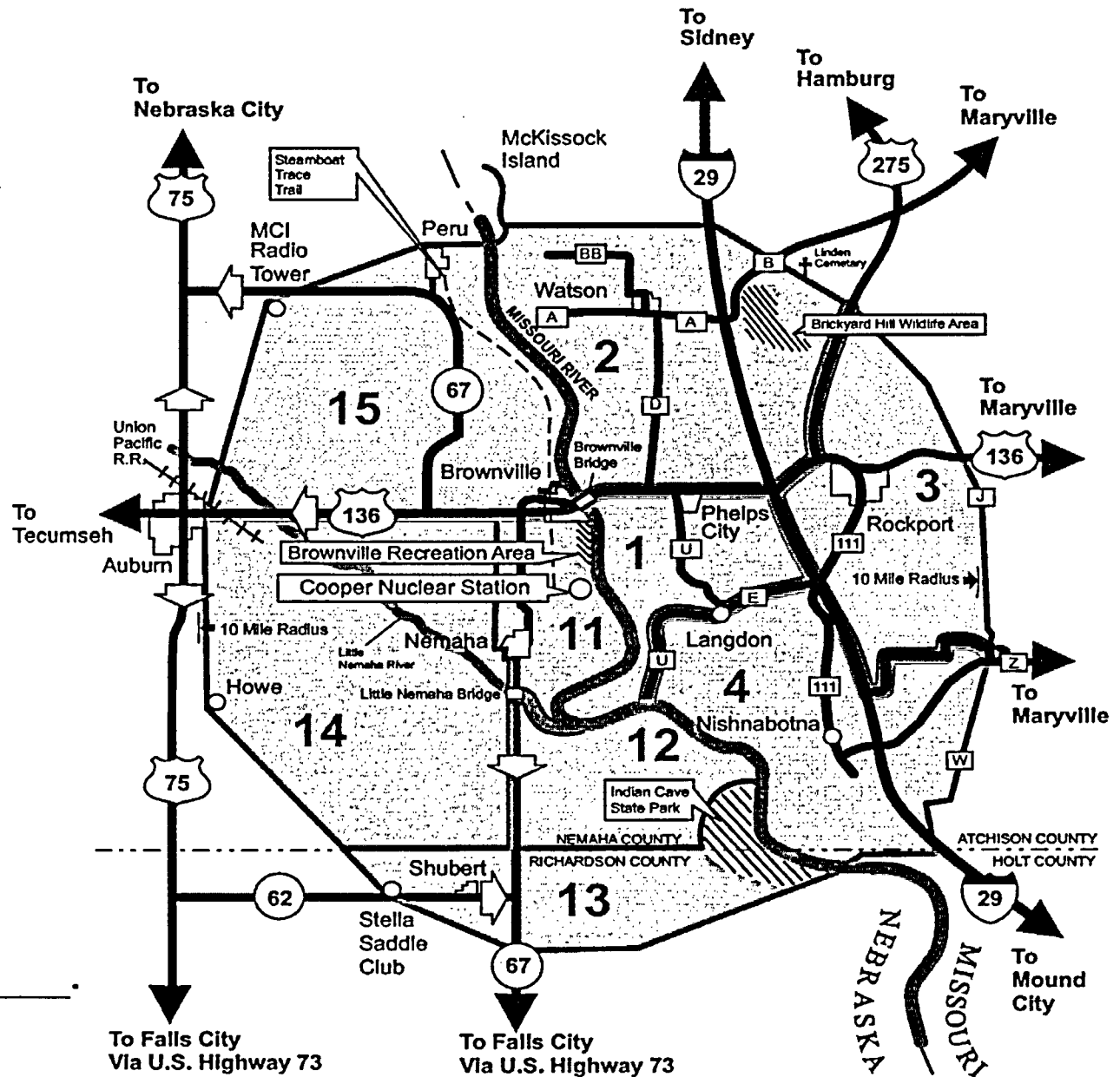


# PRIMARY EAS BROADCAST

The primary EAS station for Nebraska is **KFAB, 1110 on your AM radio dial.**

In Missouri the primary EAS station is **KFEQ, 680 on your AM radio dial.**

I live in Area \_\_\_\_\_.



2 N E B R A S K A			
	LOCATION	EVACUATION ROUTES	RECEPTION CENTERS
11	From the Brownville Bridge on U.S. Highway 136, south along the west bank of the Missouri River to the confluence of the Little Nemaha River, northwest along the north bank of the Little Nemaha River to U.S. Highway 67, then north to Nemaha, west 1/2 mile from Nemaha to the first north/south County Road, then north on the County Road to U.S. Highway 136 to the Brownville bridge. This area includes the villages of Brownville and Nemaha, the Brownville State Recreation Area, and the Steamboat Trace Trail.	To Falls City... U.S. Highway 75 or Nebraska Highway 67 south to U.S. Highway 73 south to Falls City.	FALLS CITY: Falls City Middle School 14th and Morton Streets.
12	From the Little Nemaha river bridge on Nebraska Highway 67 along the southern bank of the Little Nemaha River to the Missouri River confluence, along the Missouri River east and south to the northern boundary of Indian Cave State Park. Then west and south along the boundary of Indian Cave State Park to the intersection of the Richardson and Nemaha County line then west to Highway 67, then north on Nebraska Highway 67 to the Little Nemaha River bridge.		
13	From the intersection of the Richardson and Nemaha County line and 3.5 miles east of U.S. Highway 75 east to, and including all of Indian Cave State Park, then south along the Missouri River (east side of park) to the southeast corner of the park. From the southeast corner of the park and the river, go southwest to a point three miles east and one mile south of the intersection of Nebraska Highways 62 & 67, then west three miles to Nebraska Highway 67 then northwest to the Stella Saddle club, continuing to the Nemaha and Richardson County line, one mile northwest of the Stella Saddle Club. This area includes the village of Shubert.		
14	From the Union Pacific Railroad tracks east of Auburn, east on U.S. Highway 136 to 1/2 mile west of the intersection of U.S. Highway 136 & Nebraska Highway 67, then south to Nemaha, continuing south along Nebraska Highway 67 to the intersection of Nebraska Highway 67 and the Richardson County and Nemaha County line, then west along the Nemaha County and Richardson County line to the intersection of the county line and 3.5 miles east of U.S. Highway 75, then northwest, to the Union Pacific Railroad tracks and Howe Road, then north to the intersection of the Union Pacific Railroad tracks and U.S. Highway 136. This area includes the village of Howe.	To Nebraska City... U.S. Highway 136 west to U.S. Highway 75 north to Nebraska City...or proceed north & west on Nebraska Highway 67 to U.S. Highway 75 then north to Nebraska City.	NEBRASKA CITY: Nebraska City Middle School 1st Corso and 9th Street.
15	From the Union Pacific Railroad tracks east of Auburn, northeast to the MCI Radio tower, (which is two miles east of U.S. Highway 75 on Nebraska Highway 67), from the MCI tower east northeast to include the town of Peru, then east to the Missouri river, then south along the west bank of the Missouri River to the river bridge at Brownville, then west on U.S. Highway 136 to the Union Pacific railroad tracks east of Auburn. This area includes Steamboat Trace Trail.		

M I S S O U R I			
1	Area bounded to the west by the Missouri River, to the north by U.S. Highway 136, to the east by I-29, and to the south by routes U and E. This includes the town of Phelps City.	North on Route U to U.S. Highway 136 east East on Route E to State Highway 111 North on State Highway 111 to U.S. Highway 136 east.	MARYVILLE: Lamkin Gymnasium 4th St. & Ray Ave. Northwest Missouri State University.
2	Area bounded to the west by the Missouri River, to the north by County Roads 14, 15, 26 and 63, to the east by U.S. Highway 275 and to the south by U.S. Highway 136. This includes the Brickyard Hill Conservation Area and the town of Watson.	North on Route D to Route A, then East on Route A to Route B, then East on Route B to U.S. Highway 59, then South on U.S. Highway 59 to U.S. Highway 136 east.	
3	Area bounded to the west by I-29 and U.S. Highways 136 and 275, to the north by County road 152, to the east by route J and County Roads 162, 163, and 165, and to the south by County Roads 408 and 409. This includes the town of Rock Port.	North on state Highway 111 to U.S. Highway 136 east.	
4	Area bounded to the west by the Missouri River and Route U, to the north by Route E, to the northeast by I-29 and County Roads 408 and 409, to the east by Route W and to the south by the Atchison County Line. This includes the towns of Langdon and Nishnabotna.	East on Route E, then north on State Highway 111 to U.S. Highway 136 east. East on Route Z to Route W, then North on Route W to Route J, then North on route J to U.S. Highway 136 east.	

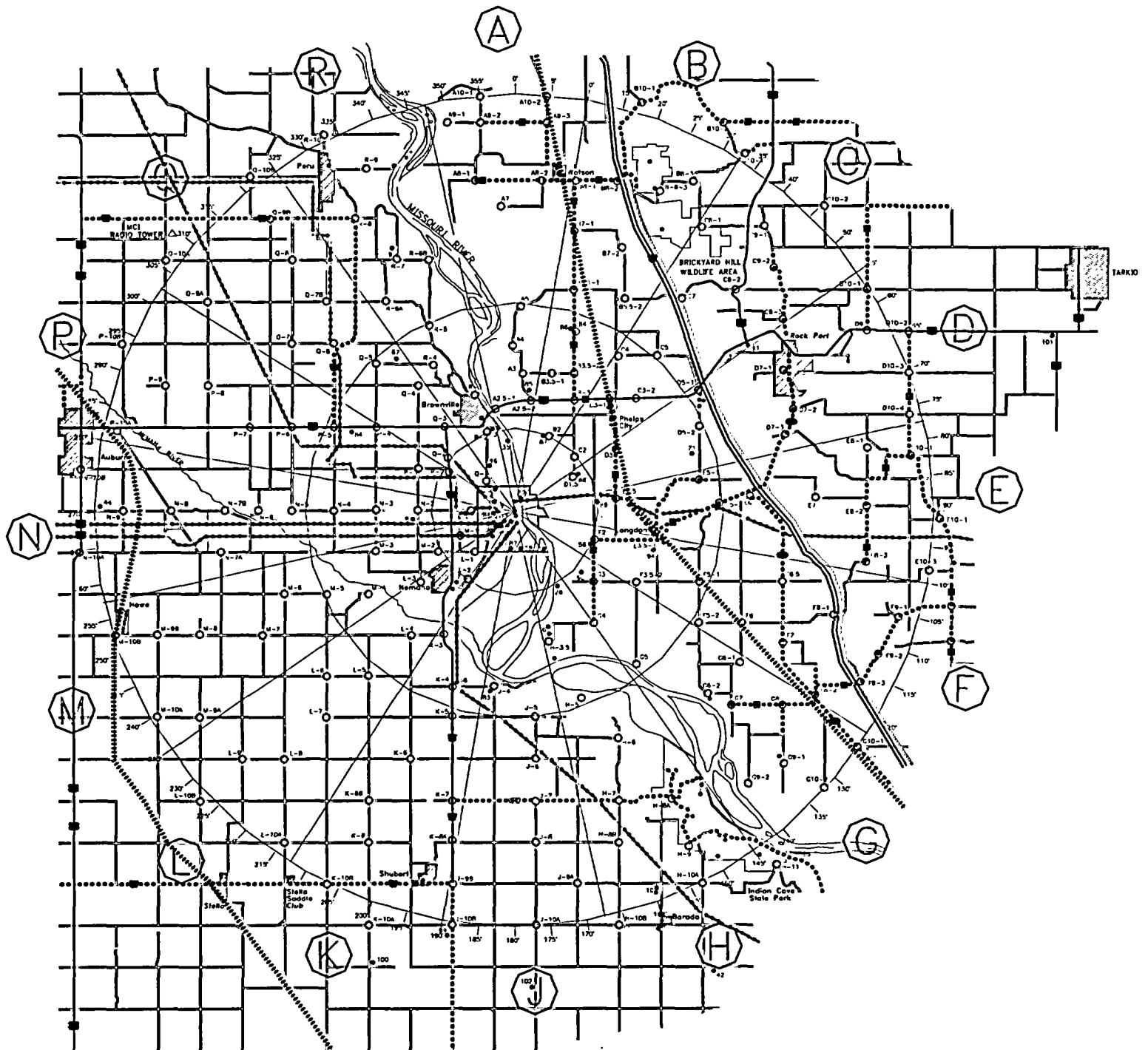
A



# COOPER NUCLEAR STATION—POPULATION ESTIMATES

ZONES			1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	45	50	SECTOR
DOWNWIND DIRECTION OF THE CENTERLINE, IN DEGREES	DIRECTION	SECTOR	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-15	15-20	20- 25	25-30	30-35	35-40	40-45	45-50	TOTAL
0	(N)	A	0	0	0	7	4	3	5	74	123	18	135	1795	907	1333	794	1861	1897	7513	16469
22.5	(NEE)	B	0	0	5	10	20	20	8	5	25	38	153	178	873	1552	6840	1639	829	4502	16697
45	(NE)	C	0	0	44	4	6	13	45	32	50	35	130	185	411	855	914	932	6328	1571	11555
67.5	(ENE)	D	0	4	4	6	18	13	843	828	43	35	2640	170	180	508	1257	926	630	1835	9940
90	(E)	E	0	6	15	10	26	28	10	5	25	28	970	175	130	648	884	3857	7664	603	15084
112.5	(ESE)	F	0	0	6	10	21	13	8	13	20	28	170	218	226	283	921	488	723	1577	4725
135	(SE)	G	0	0	4	4	9	3	3	13	8	0	228	626	178	1647	466	1674	560	1788	7211
157.5	(SSE)	H	0	0	0	3	4	0	3	9	10	10	147	236	534	265	386	909	1273	874	4663
180	(S)	J	0	0	0	0	7	13	21	29	14	30	190	686	5032	431	791	4540	600	2686	15070
202.5	(SSW)	K	0	0	0	4	10	12	23	16	226	35	187	509	399	242	3304	485	2963	443	8858
225	(SW)	L	0	3	207	3	7	3	10	13	7	25	382	316	1395	318	416	336	430	962	4833
247.5	(WSW)	M	0	2	13	9	12	20	18	25	26	23	175	224	263	708	1486	279	473	760	4516
270	(W)	N	0	2	3	8	15	20	16	22	17	26	1228	459	291	2392	496	917	533	1087	7532
292.5	(WNW)	P	0	3	8	16	16	14	15	36	14	10	2262	392	483	296	774	660	614	1284	6897
315	(NW)	Q	6	11	11	17	10	11	8	14	16	24	127	275	481	427	643	2340	2242	1630	8293
337.5	(NNW)	R	0	2	174	19	21	22	12	18	21	1380	121	222	2461	4707	343	1309	1175	8328	20335
ZONE		TOTAL	6	33	494	130	206	208	1048	1152	645	1745	9245	6666	1424 4	16612	20715	23152	28934	37443	162678

# Pre-selected Sampling Points



MISSOURI portion of EPZ, Evacuation Time Estimate Summary taken from Annex I, Appendix 1,  
Attachment A of the January 1999 Atchison County Emergency Plan

	Population	Cumulative Population
EPZ—10 miles	Population—2236	SA-1 through SA-4—2451
Sub-Area 1	(Approx 2 miles) Sectors A,B,C,D,E,F,G,J Population—25	Population—25
Sub-Areas 1 and 2	(Approx 5/10 miles) Sectors R,A,B,C Population—402	Population—552 (Includes 150 transients)
Sub-Areas 1,2, and 4	(Approx 5/10 miles) Sectors R,A,B,C,D,E,F,G,H,J Population—590	Population—760 (Includes 170 transients)
Sub-Areas 1, and 4	(Approx 5/10 miles) Sectors C,D,E,F,G,H,J Population—273	Population—393 (Includes 120 transients)
Sub-Areas 1,2,3, and 4	(Approx 10 miles) Sectors R,A,B,C,D,E,F,G,H,J Population—2236	Population—2451 (Includes 215 transients)

\* Cumulative population for each sub-area includes estimate transient populations.

\*\* Time necessary to effect an evacuation of the entire plume exposure pathway could be up to an average of 30 minutes in normal conditions and an average of 62 minutes under adverse conditions.



NEBRASKA portion of EPZ, Evacuation Time Estimate Summary taken from the Nebraska Radiological Emergency Plan (RERP) Attachment 19

ALLOCATION	NEBRASKA CITY	HOST* POPULATION
1,671	All persons living <u>north</u> of Highway 136: Proceed West on Highway 136 to Auburn, Nebraska; then North on 75 <u>or</u> proceed North and West on N-67 to Highway 75; then North to Nebraska City. Maximum Driving miles—30.	6,547
ALLOCATION	FALLS CITY	HOST* POPULATION
1,293	All persons living south of Highway 136; Proceed South on Highway 67 to Highway 73; then on Highway 73 to Falls City. Maximum miles to be traveled—22.	4,769
<b>TOTAL ALLOCATION</b> 2,964	<b>HOST/EVACUEE RATIO</b> 0.27	<b>TOTAL HOST POPULATION</b> 11,316
<b>EVACUATION TIME FACTORS</b>		
1,000 cars/hour 2.70 persons per car, average speed is 30 mph. Total vehicles 1,111. Evacuation time to exit EPZ to Nebraska City—39 minutes; to Falls City—24 minutes.		

\* 1990 Census, Nebraska Natural Resources Commission

## APPENDIX D

### LETTERS OF AGREEMENT

Letters of Agreement (LOAs) supporting the CNS Emergency Plan are listed on the following page, with their effective dates, and are incorporated in the Emergency Plan by reference. The Emergency Plan signature page verifies a signed copy of a current Letter of Agreement is on file per this Appendix. This Appendix is updated at each revision of the Emergency Plan. Copies of the current Letters of Agreement are maintained in the Emergency Preparedness office.

Letters of Agreement are reviewed annually by the CNS Emergency Planning Coordinator, or his designee. Each organization is then contacted. The type of support defined in the letters is discussed to determine if any significant changes have occurred. If significant changes have occurred, a Letter of Agreement is requested from the agency. If there are no significant changes, the Letters of Agreement are certified current by the CNS Emergency Planning Coordinator and documented with a record of telephone conversation or other appropriate documentation. A change in original signatory(ies) to a given Letter of Agreement does not in itself require revision of that Letter.

The documentation associated with this review process is maintained by the CNS Emergency Planning Coordinator.

## APPENDIX D

### Letters of Agreement

Letters of Agreement supporting the CNS Emergency Plan are certified annually. This list is revised at each revision of the Emergency Plan. Copies of the current Letters of Agreement are maintained in the Emergency Preparedness office.

	<u>Agreement</u>	<u>Date</u>
1.	Nemaha County Hospital	1-26-00
2.	Auburn Rescue Squad	12-9-99
3.	Nebraska State Patrol	11-20-00
4.	Nebraska State Emergency Management Agency	12-11-01
5.	Nebraska Department of Health and Human Services	9-24-99
6.	Missouri State Emergency Management Agency	7-27-01
7.	Kansas Division of Emergency Preparedness	5-7-81
8.	Iowa Emergency Management Division	7-2-98
9.	Atchison County Sheriff	4-18-94
10.	Nemaha County Sheriff	7-23-96
11.	Richardson County Sheriff	5-19-97
12.	Institute of Nuclear Power Operations	9-24-03
13.	General Electric (SIL 324)	9-18-98
14.	Pacific Northwest Laboratories, Battelle Memorial Division	1-5-01
15.	Omaha Public Power District/Fort Calhoun Station	4-28-98
16.	Nebraska State Emergency Management Agency/ Nebraska Game and Parks Commission	7-3-97
17.	Peru State College	3-11-93
18.	Brownville Fire Chief	9-1-95
19.	Auburn Fire Chief	5-1-95
20.	Nemaha Fire Chief	5-1-95
21.	Peru Fire Chief	5-1-95
22.	University of Nebraska Medical Center	8-3-01

## APPENDIX E

### LISTING OF EMERGENCY KITS AND GENERAL CATEGORIES OF PROTECTIVE EQUIPMENT AND SUPPLIES FOR EMERGENCY PURPOSES

This appendix contains a list of supplies that is typical of the inventory kept in the Emergency Response Lockers. For a precise inventory of the equipment and supplies, and who is responsible for it, refer to the most current revision of EPIP 5.7.21 "MAINTAINING EMERGENCY PREPAREDNESS—EMERGENCY EXERCISES, DRILLS, TESTS, AND EVALUATIONS."

## EMERGENCY EQUIPMENT MAINTAINED AT CONTROL ROOM

### A. General Supplies

1. Coveralls
2. Shoe Covers
3. Gloves
4. Geiger-Mueller Survey Meter (Range 0–50 mR/Hr)
5. Ion-Chamber Survey Instrument (Range 0–50 R/Hr)
6. Dosimeter, Direct Reading, Electronic
7. Radiation Monitor (Frisker)
8. Step-Off Pad
9. Thyroid Blocking Tablets (KI)

### B. Respiratory Protection Equipment

#### NOTE

The air breathing equipment is not within the Emergency Locker. The cases are located near the Emergency Locker for convenience, inspection, and maintenance.

1. Air Breathing Masks (Self-Contained with Voice Communicators)
2. Full-Face Filter Masks with Filters
3. Full-Face Filter Masks with Filters and Voice Communicators
4. Spare Air Cylinders

### C. Miscellaneous (Supplies)

1. Plastic Bag, Large
2. Radiation Warning Signs
3. Radiation Barrier Rope
4. Radiation Warning Tape
5. Hand Lantern, with 6-Volt Battery
6. Flashlight, with Two “D” Cell Batteries
7. Batteries for Hand Lantern (6 Volt)
8. Batteries for Flashlights (“D” Cell)
9. Batteries for Mask Voice Communicators (9 Volt)
10. First Aid Kit

## EMERGENCY EQUIPMENT MAINTAINED AT OSC

### A. General Supplies and Protection Equipment

1. Flashlight, with Two "D" Cell Batteries
2. Masking Tape
3. Particulate Filter, 2"
4. Charcoal and Silver Zeolite Cartridges
5. Air Sample Plastic Bags and Labels
6. Smear Books
7. Spare Batteries
8. Personnel Radiation Monitor
9. Step-Off Pads
10. Protective Clothing (Full Sets)
11. Self-Contained Breathing Apparatus
12. Spare Bottle for SCBA
13. Thyroid Blocking Tablets (KI)
14. Survey Instrument Ion Chamber (Range 0 to 50 R/hr)
15. IAC/Electrical Tool Kits
16. Volt Ohmmeter
17. Radiological Posting Supplies
18. Mechanical Maintenance Tool Kit
19. Coveralls, Paper
20. Shoe Covers, Disposable 14"
21. Gloves, Disposable
22. Continuous Air Monitor

### B. Emergency Rescue Locker Equipment

1. Wrecking Bar
2. Bolt Cutters
3. Hacksaw and Blades
4. Come-Along
5. Cable Slings
6. Hydraulic Jacks



## EMERGENCY EQUIPMENT MAINTAINED AT OSC

7. Sledge Hammers
8. Porta Power
9. Web Slings
10. Sound Powered Phones
11. Safety Belt and Line
12. Fire Axe
13. Crow Bar
14. 200'—3-Part Block and Tackle
15. Battery Lanterns

## EMERGENCY EQUIPMENT MAINTAINED AT ALTERNATE OSC (AOSC)

### A. General Supplies and Protection Equipment

1. Coveralls, Paper
2. Shoe Covers
3. Gloves, Disposable
4. Step-Off Pad
5. Area Radiation Monitors
6. Continuous Air Monitor
7. Radiation Monitor (Frisker)
8. Flashlight, with 2 "D" Cell Batteries
9. Spare Batteries ("D" Cell)
10. Thyroid Blocking Tablets (KI)
11. Team Dispatch Forms

## EMERGENCY EQUIPMENT MAINTAINED AT EOF

### A. General Supplies

1. Coveralls
2. Shoe Covers
3. Gloves
4. Extendable Probe Survey Instrument (Range 0–1,000 R/Hr)
5. Ion-Chamber Survey Meter (Range 0–50 R/Hr)
6. Geiger-Mueller Survey Meter (Range 0–50 mR/Hr)
7. Sample Holder with Pancake-Type Detector
8. Scaler Electronic Package
9. Dosimeter, Direct Reading Electronic
10. Thyroid Blocking Tablets
11. Spare Batteries (“AA” Cell)
12. Charcoal Filter for Air Samplers
13. Silver Zeolite Cartridges for Air Samplers
14. Extension Cord, Electric (50')
15. Radiation Monitor (Frisker)
16. Area Radiation Monitor
17. Continuous Air Monitor
18. Step-Off Pads

### B. Respiratory Protection Equipment

#### NOTE

The air breathing equipment is not within the Emergency Locker but the cases are near the Emergency Locker for convenience, inspection, and maintenance.

1. Air Breathing Masks (Self-Contained)
2. Spare Air Cylinders

### C. Miscellaneous (Supplies)

1. Plastic Sheeting
2. Plastic Bag, Small
3. Plastic Bag, Large
4. Radiation Warning Signs

## EMERGENCY EQUIPMENT MAINTAINED AT EOF

5. Radiation Barrier Rope
  6. Smear Books
  7. Radiation Warning Tape
  8. Hand Lantern with 6-Volt Battery
  9. Flashlight, with Two "D" Cell Batteries
  10. Batteries for Hand Lantern (6 Volt)
  11. Batteries for Flashlights ("D" Cell)
  12. Small Hand Tool Kit with Straight Slot Screwdriver, Phillips Screwdriver, Small Pliers, and Small Vise Grip
- D. Emergency Downwind Survey Kit Supplies
1. Full-Face Respirator
  2. Hand Lantern
  3. Spare Batteries
  4. Dosimeter, Direct Reading Electronic
  5. Health Physics Procedure 9.3.6.2, Emergency Air Samplers
  6. Calculator
  7. Portable Radios
  8. Geiger Mueller Survey Instrument
  9. Ion Chamber Survey Instrument
  10. Paper Coveralls
  11. Rubber Shoe Covers
  12. Sample Bottles
  13. Masslin Cloths
  14. One-Piece Plastic Coveralls
  15. Complete Set of EPIP's
  16. 2" Air Sample Filters
  17. Silver Zeolite Cartridges
  18. Charcoal Cartridges
  19. 2" Milipore Air Sample Filters
  20. Smear Books

## EMERGENCY EQUIPMENT MAINTAINED AT EOF

21. Air Sampler with Head
22. Radioactive Material Stickers
23. 10-Mile Radius Map
24. Site Map
25. Plastic Bag
26. Disposable Gloves

### E. Personnel Decontamination Supplies

1. Soap
2. Septisol (Germicide)
3. Lanolin
4. Swabs, Cotton Tipped, 100s
5. Compresses, Gauze, 3" x 3", 100s
6. Towels, Paper
7. Beaker, Plastic, 100 ml
8. Hand Brush
9. Towels

### F. First Aid and Rescue Equipment

#### NOTE\*

Stretcher stored near Emergency Locker.

#### Item

1. First Aid Kit
2. Stretcher\*
3. Rope, ½"-50'

## EMERGENCY EQUIPMENT MAINTAINED AT AEOF

### A. General Supplies

1. Coveralls
2. Shoe Covers
3. Gloves
4. Geiger-Mueller Survey Meter (Range 0–50 mR/Hr)
5. Ion-Chamber Survey Meter (Range 0–50 R/Hr)
6. Radiation Monitor (Frisker)
7. Sample Holder with Pancake-Type Detector
8. Scaler Electronic Package
9. Dosimeter, Direct Reading Electronic
10. Spare Batteries
11. Filters for Air Sampler
12. Step-Off Pad
13. Liter Bottle
14. Portable Air Sampler (High Volume)
15. Inverter
16. Charcoal Filter for Air Samplers
17. Silver Zeolite Cartridges for Air Samplers
18. Extension Cord, Electric

### B. Miscellaneous (Supplies)

1. Duct Tape
2. Thyroid Blocking Tablets
3. Plastic Sheeting
4. Plastic Bag, Small
5. Plastic Bag, Large
6. Radiation Warning Signs
7. Radiation Barrier Rope
8. Smear Book
9. Radiation Warning Tape
10. Hand Lantern with 6-Volt Battery

## EMERGENCY EQUIPMENT MAINTAINED AT AEOF

11. Flashlight, with Two "D" Cell Batteries
  12. Batteries for Hand Lantern (6 Volt)
  13. Batteries for Flashlights ("D" Cell)
  14. Batteries for Ion Chamber ("C" Cell)
  15. Batteries for Ion Chamber (9 Volt)
  16. Pocket Knife
  17. Small Hand Tool Kit with Straight Slot Screwdriver, Phillips Screwdriver, Small Pliers, and Small Vise Grip
  18. Shovel
- C. Emergency Decontamination Equipment and Supplies
1. 55-Gallon Radwaste Barrels with Lids
  2. Disposable Coveralls
  3. Disposable Gloves, 25 Pair/Box
  4. 2" Masking Tape
  5. Small Poly Bag
  6. Large Poly Bag
  7. Plastic Buckets
  8. Bar Soap
  9. Bath Towels
  10. Poly Sheeting
  11. Health Physics Procedure 9.1.6, Personnel Decontamination
  12. Pumice Soap
  13. Septisol (Germicide)
  14. Lanolin
  15. Health Physics Procedure 9.6.2, Portable Beta-Gamma Counting Instruments
  16. Swabs, Cotton Tipped, 100s
  17. Compresses, Gauze, 3" x 3", 100s
  18. Towels, Paper
  19. Beaker, Plastic 150 ml
  20. Hand Brush

## EMERGENCY EQUIPMENT MAINTAINED AT AEOF

### D. First Aid and Rescue Equipment

1. First Aid Kit
2. Stretcher



## EMERGENCY EQUIPMENT MAINTAINED FOR AMBULANCE

### A. Emergency Equipment Maintained for Ambulance

1. Dosimeter, Direct Reading Electronic
2. Spare Batteries
3. TLD Badge
4. Geiger-Mueller Survey Meter
5. Ion-Chamber Survey Instrument
6. Radiation Tags
7. Smear Books
8. Form CNS-RP25, TLD Badging Record

## EMERGENCY EQUIPMENT MAINTAINED AT HOSPITAL

### A. Emergency Equipment Maintained at Hospital

1. Radiation Barrier Rope
2. Masking Tape
3. Absorbent Paper
4. Plastic Sheeting
5. Applicable Radiation Warning Signs
6. Shoe Covers
7. Bags, Plastic (Large)
8. Bags, Plastic (Small)
9. Radiation Marking Tape
10. Coveralls
11. Gloves, Rubber Disposable
12. Cardboard Boxes, 2' x 3'
13. Masolin Cloths
14. Step-Off Pad

## EMERGENCY VEHICLES MAINTAINED AT CNS

### A. Emergency Vehicles Maintained at CNS

1. All Wheel Drive Chevrolet Astro Van with High and Low Band Radio for Emergency Preparedness/Security Use Only
2. All Wheel Drive GMC Safari Van with High and Low Band Radio for Emergency Preparedness/Security Use Only
3. Ambulance (2WD), Ford F-350 Chassis with Medical Configuration and High Band Radio for Medical Use Only.

**APPENDIX F**

**INTERFACING EMERGENCY PLANS**

APPENDIX F  
INTERFACING EMERGENCY PLANS

NEBRASKA

1. State of Nebraska Radiological Emergency Response Plan for Nuclear Power Plant incidents—Nebraska Emergency Management Agency.
2. Radiological Emergency Response/Reception Plan for Nuclear Power Plant incidents for Richardson County—Nebraska Emergency Management Agency, Richardson County Emergency Management Agency.
3. Radiological Emergency Response Plan for Nuclear Power Plant incidents for Nemaha County—Nebraska Emergency Management Agency, Nemaha County Emergency Management Agency.
4. Radiological Emergency Reception Plan for Nuclear Power Plant incidents for Otoe County—Nebraska Emergency Management Agency, Otoe County Emergency Management Agency.

MISSOURI

1. State of Missouri Emergency Nuclear Accident Plan—Missouri State Emergency Management Agency.
2. Atchison County Radiological Emergency Response Plan—Atchison County, Missouri.

KANSAS

1. State of Kansas, Appendix 12 Nuclear Facilities Incident Response Plan To Annex N, Nuclear Emergencies Of The State Emergency Operations Plan - Division of Emergency Management; Department of Health and Environment, Bureau of Air and Radiation.

IOWA

1. Iowa Radiological Emergency Plan—Section B—Nuclear Power Plant Accident/Incident—Iowa Emergency Management Division.

FEDERAL

1. Federal Radiological Emergency Response Plan—United States Nuclear Regulatory Commission; Federal Emergency Management Agency.