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September 21, 2001
LIC-01-0091

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

Reference: Docket No. 50-285

SUBJECT: Transmittal of Changes to Radiological Emergency Response Plan (RERP)

In accordance with 10 CFR 50.54(q), 10 CFR 50, Appendix E, Section V, and 10 CFR 50.4(b)(5), please find RERP change packages enclosed for the Document Control Desk (holder of Copy 165) and the NRC Emergency Response Coordinator (holder of Copies 154 and 155).

The document update instructions and summary of changes are included on the Confirmation of Transmittal (Form EP-1) form attached to each controlled copy change package. Please return the Confirmation of Transmittal forms by November 13, 2001.

The revised documents included in the enclosed package are:

RERP Index Page 1 of 2 issued 09/13/01
RERP-Section 1 R11a issued 09/02/99
RERP-Section J R16a cover sheet and pages 9, 10, 13 & 14 issued 01/06/00

If you have any questions regarding the enclosed changes, please contact Carl Simmons at (402) 533-6430.

Sincerely,

S. K. Gambhir
Division Manager
Nuclear Operations

SKG/ash

Enclosures

A045

- c: T. H. Andrews, Emergency Response Coordinator (2 sets)
Alan Wang, NRC Project Manager (w/o enclosures)
W. C. Walker, NRC Senior Resident Inspector (w/o enclosures)
Winston & Strawn (w/o enclosures)

OMAHA PUBLIC POWER DISTRICT

Confirmation of Transmittal for
Emergency Planning Documents/Information

<input checked="" type="checkbox"/> Radiological Emergency Response Plan (RERP)	<input type="checkbox"/> Emergency Plan Implementing Procedures (EPIP)	<input type="checkbox"/> Emergency Planning Forms (EPF)
<input type="checkbox"/> Emergency Planning Department Manual (EPDM)	<input type="checkbox"/> Other Emergency Planning Document(s)/ Information	

Transmitted to:

Name: Document Control Desk Copy No: 165
Tom Andrews Copy No: 154
Tom Andrews Copy No: 155

Date: _____

The following document(s) / information is forwarded for your manual:

REMOVE SECTION


RERP Index page 1 of 2 issued 04/17/01
RERP-Section I R11 issued 09/02/99
RERP-Section J R16 cover sheet and pages 9, 10, 13 & 14 issued 01/06/00

INSERT SECTION

RERP Index page 1 of 2 issued 09/13/01
RERP-Section I R11a issued 09/02/99
RERP-Section J R16a cover sheet and pages 9, 10 13 & 14 issued 01/06/00

Summary of Changes:

RERP-Section I was revised to correct typographical errors in paragraph 2.1.3 and to change the reference in paragraph 2.23 from Eppley Airfield to Offutt Air Force Base.
RERP-Section J was revised to correct a typographical error in paragraph 2.5 and Table J-5, Emergency Worker Exposure Limits, was revised to change the condition title "Pregnant Emergency Workers" to read as "Declared Pregnant Emergency Workers".



Supervisor - Emergency Planning

I hereby acknowledge receipt of the above documents/information and have included them in my assigned manuals.

Signature: _____

Date: _____

Please sign above and return by 11/13/01 to:

Karma Boone
Fort Calhoun Station, FC-2-1
Omaha Public Power District
444 South 16th Street Mail
Omaha, NE 68102-2247

NOTE: If the document(s)/information contained in this transmittal is no longer requested or needed by the recipient, or has been transferred to another individuals, please fill out the information below.

☐ Document(s)/Information No Longer Requested/Needed

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**RADIOLOGICAL EMERGENCY RESPONSE PLAN INDEX
RERP**

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Fort Calhoun Station
Unit No. 1

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RERP - SECTION I

RADIOLOGICAL EMERGENCY RESPONSE PLAN PROCEDURE

Title: ACCIDENT ASSESSMENT

FC-68 Number: 53312

Reason for Change: CID 980240/02 - Clarify that there is only one output of MCT Data - The ERF. Delete references to system description manual. Editorial changes to enhance readability and comprehension.

Initiator: Mark Reller

Preparer: Mark Reller

Correction (a): Page 2 (issue all pages) (09-13-01)

ACCIDENT ASSESSMENT

1. ACCIDENT ASSESSMENT SUMMARY

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

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

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

2. ASSESSMENT CAPABILITIES

2.1 Resources for Detection/Assessment of Non-Radiological Events

2.1.1 Fire Detection

The fire detection system is detailed in the FCS Systems Training Manuals.

2.1.2 Seismic Monitoring

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

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

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

2.1.3 River Level

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

2.2 Resources for Detection/Assessment of Radiological Releases

2.2.1 Plant Process Radiation Monitors

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

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

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

2.2.2 Area Radiation Monitors

Area Radiation Monitors are strategically throughout the plant to monitor gamma radiation levels. The Area Radiation Monitors are fully described in the System Training Manual.

2.2.3 Meteorological Instrumentation

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

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

2.2.4 Water Analyses

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

2.2.5 Post Accident Sampling

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

2.3 Field Monitoring

2.3.1 Monitoring Operations

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

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

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

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

2.3.2 Personnel

A. Onsite Field Monitoring

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

B. Offsite Field Monitoring

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

C. Environmental Monitoring

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

2.3.3 Equipment

Section H of this plan and the EPT Manual lists the Emergency Kit locations.

3. ASSESSMENT OF RADIOLOGICAL RELEASES

3.1 Methods of Assessment

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

Fort Calhoun Station
Unit No. 1

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RERP SECTION J

RADIOLOGICAL EMERGENCY RESPONSE PLAN

Title: PROTECTIVE RESPONSE

FC-68 Number: DCR 10973

Reason for Change: Revise population numbers per new Evacuation Time Estimate and realigned EPZ. Insert new maps and charts, New Sub Areas. Minor editorial changes.

Initiator: Mark Reller

Preparer: Mark Reller

Correction (a): Pages 9 and 14 (09-13-01)

1,2,3

2.4.1 Table J-8³ summarizes the shielding factors for designated structures/locations from surface deposition of radioactive material. Burson and Profio proved that the fallout shielding technology developed via nuclear weapons tests could be directly applied to radioactivity deposited on surfaces after a reactor accident. The shielding factors listed in Table J-8 assumes uniform distribution of the radioactive fallout.

In each of the cases discussed, inhalation and shielding factors from a gamma cloud source and shielding factors from surface deposition of radioactive material, it is noted that the shielding factors using sheltering as a method of protection ranges from 0.6 to 0.005. Although the best protection seems to be the basement of large multi-structured buildings, the basement of any house has been proven to provide significant shelter from airborne and surface deposited radioactive material.

2.5 Radiological Environmental Monitoring

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

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

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

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

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

Table J-1 - Summary of Considerations for Selecting the Evacuation PAG's¹

DOSE Rem (mrem)	Consideration(s)
50 Rem (50000 mrem)	Assumed threshold for acute health effects in adults.
10 Rem (10000 mrem)	Assumed threshold for acute health effects in the fetus.
5 Rem (5000 mrem)	Maximum acceptable dose for normal occupational exposure for adults.
5 Rem (5000 mrem)	Maximum dose justified to average members of the population, based on the cost of evacuation.
0.5 Rem (500 mrem)	Maximum acceptable dose to the general population from all sources from nonrecurring, non-accidental exposure.
0.5 Rem (500 mrem)	Minimum dose justified to average members of the population, based on the cost of evacuation.
0.5 Rem (500 mrem)	Maximum acceptable dose ² to the fetus from occupational exposure of the mother.
0.1 Rem (100 mrem)	Maximum acceptable dose to the general population from all sources from routine (chronic) non-accidental exposure.
0.03 Rem (30 mrem)	Dose that carries a risk assumed to be equal to or less than that from evacuation.

¹ Taken, in part, from Table C-8, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents," EPA-400-R-92-001, May, 1992.

² This is also the dose to the 8- to 15-week-old fetus at which the risk of mental retardation is assumed to be equal to the risk of fatal cancer to adults from a dose of 5 rem.

Table J-4 - Protective Action Guides for Exposure to Deposited Radioactivity ¹

Protective Action	PAG (projected dose in first year) ²	Comments
Relocate the general population. ³	≥ 2 Rem (≥ 2000 mrem)	Beta dose to skin may be up to 50 times higher.
Apply simple dose reduction techniques. ⁴	< 2 Rem (< 2000 mrem)	These protective actions should be taken to reduce doses to as low as practicable levels.

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

² The projected sum of total effective dose equivalent (TEDE) from external gamma radiation and committed effective dose equivalent (CEDE) from inhalation of resuspended materials, from exposure or intake during the first year. Projected dose refers to the dose that would be received in the absence of shielding from structures or the application of dose reduction techniques. These PAG's may not provide adequate protection from some long-lived radionuclides.

³ Persons previously evacuated from areas outside the relocation zone defined by this PAG may return to occupy their residences. Cases involving relocation of persons at high risk from such action (e.g., patients under intensive care) should be evaluated individually.

⁴ Simple dose reduction techniques include scrubbing and/or flushing hard surfaces, soaking or plowing soil, minor removal of soil from spots where radioactive materials have concentrated, and spending more time than usual indoors or in other low exposure rate areas.

Table J-5 - Emergency Worker Exposure Limits

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

NOTE: Fort Calhoun Station has established separate administrative limits for use during normal operating conditions. These limits are outlined in various Radiation Protection procedures and policies.