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Effective Date:
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<b>TECHNICAL REVIEW</b>	
Prepared by: _____	Date: _____
Reviewed by: _____ Independent Reviewer	Date: _____

<b>PROCEDURE APPROVAL</b>	
Approved by: _____ Manager, Emergency Planning	Date: _____
Reviewed by: _____ Operations Committee Chairman	Date: _____
Reviewed by: _____ Manager, Regulatory Performance	Date: _____
Approved by: _____ Plant Manager, Nuclear	Date: _____
Authorized by: _____ Vice President, Nuclear	Date: _____

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## **1.0 PURPOSE**

- (1) This section describes the measures to be taken to control radiological exposure to emergency workers and the affected offsite population.
- (2) The Nuclear Management Company (NMC) is assigned operational responsibility for the DAEC. However, IES maintains corporate accountability for activities at the DAEC and will participate when necessary in activities at the DAEC. The reference "IES/NMC" will be used throughout this procedure to signify this relationship. Further details regarding this relationship can be found in the "Nuclear Power Plant Operating Services Agreement" (NPPOSA) between IES and the NMC.

## **2.0 REQUIREMENTS**

### **2.1 EXPOSURE GUIDELINES**

- (1) Conditions may arise wherein consideration will be given to authorizing radiological exposures beyond the normal occupational limit to emergency personnel. These decisions will be based upon the following categories of risk: Emergency Workers.
- (2) To provide the flexibility that may be necessary for emergencies, IES/NMC will not consider any occupational dose received during the year and will apply the EPA dose limits stipulated in Table 2.2 of EPA 400-R-92-001 (Manual of Protective Action Guides and Protective Actions for Nuclear Incidents) dated October 1991 with 2nd printing May 1992. However, when determining if a worker may respond to an emergency, IES/NMC will consider prior overexposures and/or planned special exposures when establishing a worker's available emergency dose. Time permitting, NRC Reg Guide 8.35 (Planned Special Exposures) guidelines will be used.
- (3) When emergency action is necessary such that emergency personnel would receive radiological exposures beyond the normal occupational limits, the guidelines as outlined in Table K-1 apply.
- (4) For emergency response actions which might include inhalation of gases or particulates, the emergency dose limit Committed Dose Equivalent to the thyroid is ten times the listed limit in Table K-1. Although respirators and stable

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iodine should be used where effective to control doses to emergency team workers, Committed Dose Equivalent (thyroid dose) may not be a limiting factor for lifesaving missions.

## 2.2 ONSITE RADIATION PROTECTION PROGRAM

- (1) Protective measures associated with the use of protective clothing and the use of respiratory protection equipment are discussed in Section J.

## 2.3 EXPOSURE CONTROL

- (1) Exposure Monitoring
  - (A) IES/NMC will provide exposure monitoring services to determine the doses received by emergency personnel. A health physics technician will supplement each shift operating crew to provide health physics coverage during backshifts, weekends, and holidays when the normal plant staff is not present. In addition, the shift radwaste operator is available to assist the health physics technician at all times. Added health physics coverage will be provided by trained personnel assigned to the Radiation Protection Department on an as needed basis. The on-shift chemist has been designated to run the MIDAS Dose Projection System.
  - (B) Electronic or self reading dosimeters and permanent record (thermoluminescent) dosimeters will be issued to onsite emergency personnel including those from IES/NMC, NRC, state, county, and local agencies.
- (2) Exposure Records
  - (A) Standard radiation protection practices will be followed in preparing and maintaining exposure records. These procedures ensure that dosimeters are read at appropriate frequencies. Separate records will be maintained for IES/NMC, NRC, local, state, contractor and consultant personnel who arrive at the site. The Site Radiation Protection Coordinator will be responsible for ensuring that personnel are informed of permissible exposure limits and work time within a controlled zone. Following

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deactivation, each agency participating in onsite recovery activities will be sent the exposure records for its personnel.

## 2.4 CONTAMINATION CONTROL MEASURES

- (1) Decontamination Action Levels
  - (A) Standard radiation protection requirements associated with decontamination of areas, equipment, and tools, etc. will be followed. Any modifications to these standards will be as authorized by the Site Radiation Protection Coordinator.
  
- (2) Decontamination Facilities
  - (A) Decontamination facilities are located at the Access Control Point in the Administration Building. These facilities provide for the decontamination of personnel, supplies, and equipment and for waste disposal. The Low Level Radwaste facility can also provide for the decontamination of supplies, equipment, and for waste disposal.
  
- (3) Area Access Control
  - (A) Area access will be established and controlled in accordance with standard practices.
  
- (4) Water and Food Supplies
  - (A) Water and food supplies at the site shall be verified as acceptable for ingestion in those situations where the probability of contamination of food and water exists.

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(5) Area Return to Normal Use

- (A) The Site Radiation Protection Coordinator will determine when evacuated areas may be returned to normal use. Radiological monitoring of those areas will be accomplished in accordance with standard radiation protection practices.

**2.5 DECONTAMINATION OF RELOCATED PERSONNEL**

- (1) Personnel will be decontaminated when possible in the onsite decontamination center prior to relocation. Personnel will be taken to the Offsite Radiological and Analytical Laboratory/Offsite Decontamination Facility (ORAL/ODEF) (located at 1017 12th Avenue SW in Cedar Rapids) as prescribed in Emergency Plan Implementing Procedures when onsite decontamination is not possible. All personnel will be decontaminated prior to release or reassignment to emergency duties. Necessary equipment and supplies will be available for use at the offsite decontamination facility, including provisions for extra clothing, decontamination methods suitable for the type of contamination expected, and radioiodine contamination of the skin. Personnel who cannot be decontaminated will be taken to Mercy Medical Center or University of Iowa Hospitals and Clinics for further evaluation.

**3.0 ATTACHMENTS**

- (1) TABLE K-1, "EPA PROTECTIVE ACTION GUIDELINES"

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TABLE K-1  
EPA PROTECTIVE ACTION GUIDELINES\*

Protective Action	PAG (projected dose)	Comments
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 and 50 times larger, respectively.

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

Guidance on Dose Limits for Workers Performing Emergency Services

Dose Limit <sup>a</sup> (rem)	Activity	Condition
5	all	
10	protecting valuable property	lower dose not practicable
25	life saving or protection of large populations	lower dose not practicable
>25	lifesaving or protection of large populations	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 nonpregnant adults from exposure and intake during an emergency situation. Workers performing services during emergencies should limit dose to the lens of the eye to three times the listed value and doses to any other organ (including skin and body extremities) to ten 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.

\*EPA 400-R-92-001 - Manual of Protective Action Guides and Protective Actions for Nuclear Incidents, Dated 1991 with 2nd printing May 1992.