Arkansas Nuclear One - Administrative Services
Document Control
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Document Update Notification

COPYHOLDER NO:	**103**
TO:	**NRC - WASHINGTON**
ADDRESS:	**DOC CNTRL DESK MAIL STOP OP1-17 WASHINGTON DC 20555**
DOCUMENT NO:	**OP-1903.033**
TITLE:	**PROTECTIVE ACTION GUIDELINES FOR RESCUE/REPAIR & DAMAGE CONTROL TEAMS**
REVISION NO:	**017-01-0**
CHANGE NO:	**PC-01**
SUBJECT:	**PERMANENT CHANGE (PC)**

☑ ***If this box is checked,*** *please sign, date, and return transmittal in envelope provided.*

☐ *ANO-1 Docket 50-313*

☐ *ANO-2 Docket 50-368*

Signature Date

A045

ENTERGY OPERATIONS INCORPORATED
ARKANSAS NUCLEAR ONE

TITLE: PROTECTIVE ACTION GUIDELINES FOR RESCUE/REPAIR & DAMAGE CONTROL TEAM SET # 103	PROC/WORK PLAN NO. 1903.033	CHANGE NO. 017-01-0
	WORK PLAN EXP. DATE N/A	TC EXP. DATE N/A
	SAFETY-RELATED ☒YES ☐NO	IPTE ☐YES ☒NO
	TEMP ALT ☐YES ☒NO	

When you see the *TRAP*

- **Time Pressure**
- **Distraction/Interruption**
- **Multiple Tasks**
- **Over Confidence**
- **Vague or Interpretive Guidance**
- **First Shift/Last Shift**
- **Peer Pressure**
- **Change/Off Normal**
- **Physical Environment**
- **Mental Stress (Home or Work)**

use the *TOOLS!!*

- **Self Check**
- **Peer Check**
- **3-Part Communication**
- **Pre-Evolution Briefs**
- **Knowledge**
- **Placekeeping**
- **STAR**
- **Procedures**

VERIFIED BY	DATE	TIME

FORM TITLE: VERIFICATION COVER SHEET	FORM NO. 1000.006A	CHANGE NO. 047-04-0

ENTERGY OPERATIONS INCORPORATED
ARKANSAS NUCLEAR ONE

TITLE: PROTECTIVE ACTION GUIDELINES FOR RESCUE/REPAIR & DAMAGE CONTROL TEAMS	PROC/WORK PLAN NO. 1903.033	CHANGE NO. 017-01-0

☒ PROCEDURE ☐ WORK PLAN, EXP. DATE N/A PAGE 1 OF 1

TYPE OF CHANGE:
☐ NEW ☐ REVISION ☒ PC ☐ TC ☐ DELETION
Procedure or Work Plan ☐ EZ EXP. DATE: N/A

AFFECTED SECTION: (Include step # if applicable)	DESCRIPTION OF CHANGE: (For each change made, include sufficient detail to describe reason for the change.)
1903.033 B	Re-formatted form for ease of use and to more clearly delineate paper path.

SECTIONS — PAGE NO.

1.0 PURPOSE

The purpose of this procedure is to provide protective action guidance for personnel performing rescue/repair and damage control procedures in hazardous areas at ANO.

2.0 SCOPE

This procedure is applicable to emergency situations involving Unit One and/or Unit Two.

3.0 REFERENCES

3.1 REFERENCES USED IN PROCEDURE PREPARATION:

3.1.1 Emergency Plan

3.1.2 Procedure 1012.019, "Radiological Work Permits"

3.1.3 NCRP Report No. 39, "Basic Radiation Protection Criteria", Paragraph 258

3.1.4 EPA-520/1-75-001, "Manual of Protective Action Guides and Protective Actions for Nuclear Incidents"

3.1.5 Conversation memorandum dated 1/21/86 on the subject of Re-entry Guidelines...memorandum recorded by Steve Gallagher.

3.2 REFERENCES USED IN CONJUNCTION WITH THIS PROCEDURE:

3.2.1 Procedure 1903.035, "Administration of Potassium Iodide"

3.2.2 Procedure 1903.066, "Emergency Response Facility-Operational Support Center (OSC)"

3.2.3 Procedure 1905.001, "Emergency Radiological Controls"

3.2.4 Procedure 1903.023, "Personnel Emergency"

3.2.5 Procedure 1053.005, "Confined Space Entry Program"

3.2.6 ANO Station Policy (SP-R), "Heat Stress"

3.3 RELATED ANO PROCEDURES:

None

3.4 REGULATORY CORRESPONDENCE CONTAINING NRC COMMITMENTS WHICH ARE IMPLEMENTED IN THIS PROCEDURE: **[BOLD]** DENOTES COMMITMENTS

3.4.1 0CAN119804 (P-16218), 1903.033B, "OSC Team Briefing"

3.4.2 0CAN119804 (P-16219), Attachment 2

3.4.3 LIC 94-226 (P-14029) Note 6.2

4.0 DEFINITIONS

4.1 Emergency Direction and Control - Overall direction of facility response which must include the non-delegable responsibilities for the decision to notify and to recommend protective actions to Arkansas Department of Health personnel and other authorities responsible for offsite emergency measures. With activation of the EOF, the EOF Director typically assumes the responsibility for Emergency Direction and Control. The management of on-site facility activities to mitigate accident consequences remains with the TSC Director in the Technical Support Center. The Shift Superintendent retains responsibility for the Control Room and plant systems operation.

4.2 Emergency Response Organization (ERO) - The organization which is composed of the Initial Response Staff (IRS), the EOF staff, the TSC staff, the OSC staff, and the Emergency Team members. It has the capability to provide manpower and other resources necessary for immediate and long-term response to an emergency situation.

5.0 RESPONSIBILITY AND AUTHORITY

5.1 The Shift Superintendent, TSC Director or Emergency Operations Facility Director is responsible for approving personnel exposures exceeding the limits of 10 CFR 20 under the conditions specified in this procedure. After activation of the TSC, the TSC Director will typically assume the responsibility for approving in-plant personnel exposures exceeding 10 CFR 20 limits.

5.2 The Technical Support Center (TSC) Director is responsible for the overall development and implementation of rescue/repair and damage control plans. He shall direct the Maintenance Manager to develop those plans as appropriate and shall direct the OSC Director to implement the formulated plans.

5.3 The Maintenance Manager is responsible for the development of repair and damage control plans under the direction of the TSC Director. He shall provide the OSC Director with recommendations developed by the TSC staff. He shall also report all results to the TSC Director.

5.4 The Operational Support Center (OSC) Director is responsible for implementation of rescue/repair and damage control plans. He shall ensure that appropriate rescue/repair and damage control teams are selected, briefed upon the specific objectives of the mission, and that the progress of the teams is tracked. He shall report all results to the TSC Director.

5.5 The Radiation Protection and Radwaste Manager is responsible for providing oversight to all of the Health Physics activities and for ensuring that the TSC Director is informed of current radiological conditions.

5.6 The Health Physics Supervisor is responsible for providing Health Physics coverage for rescue/repair and damage control operations. He is responsible for directing onsite monitoring and decontamination and shall also provide radiological protection information for rescue/repair team briefings. He will report all results to the OSC Director.

5.7 The Maintenance Superintendent is responsible for the selection of appropriate personnel for rescue/repair and damage control teams. He will conduct briefings based upon the specific objectives of the mission and will track the progress of the teams. He shall report all results to the OSC Director.

5.8 The Shift Superintendent is responsible for development and implementation of rescue/repair and damage control operations until activation of the OSC has been accomplished.

5.9 The Onsite Radiological Monitoring Section of the Emergency Radiation Team is responsible for providing radiological monitoring during the initial and subsequent entries of specialized rescue/repair and damage control teams until radiation areas have been properly marked.

5.10 The Appointed Team Leader is responsible for the accountability of personnel involved in rescue/repair and damage control operations.

6.0 INSTRUCTIONS

6.1 GUIDELINES

6.1.1 When making plans to re-enter the plant following a radiological incident, the Shift Superintendent/Operational Support Center Director shall form specialized teams composed of individuals best suited to evaluate unknown conditions that may be encountered.

6.1.2 The appointed team leader and Health Physics Supervisor shall make every effort to minimize re-entry personnel exposure.

6.1.3 Guidelines have been established for the following emergency situations. For Emergency Classifications of **ALERT** and above, ANO administrative limits are no longer in effect. Emergency dose limits default to 10CFR20 limits. Authorization may be granted to exceed 10CFR20 dose limits. Authority for granting extensions above these limits is delegated to the Shift Superintendent until the TSC is activated. After the TSC and EOF are activated, authority for granting extensions above 10CFR20 limits is delegated to the TSC Director for on-site emergency responders, and the EOF Director for off-site emergency responders. Refer to the chart below for guidance on dose limits for workers performing emergency services.

Dose limit* (rem TEDE)	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	Life saving or protection of large populations	Only on a voluntary basis to persons fully aware of the risks involved (refer to Attachment 1 of this procedure for health risks).

* 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.

6.1.4 Rescue/repair and damage control personnel shall perform their duties in the most safe and efficient manner possible. Once their operations have been completed, they shall follow self-monitoring and personnel decontamination procedures as specified by the Health Physics Supervisor.

6.2 ACTIONS

NOTE

[During a "Personnel Emergency" the Emergency Medical Team may go into Radiologically Controlled Areas without SRDs/Alarming Dosimeters as long as an HP Technician is acting as the RWP; and is monitoring dose rates and time in the area. Prompt medical attention shall take precedence over HP procedures when an individual is seriously injured.]

6.2.1 Personnel selected for the rescue/repair and damage control teams should report to the OSC (unless otherwise instructed) for their briefing.

6.2.2 The rescue/repair and damage control team leader shall function under the direction of the Shift Superintendent/OSC Director.

6.2.3 Immediate Actions

A. If dose to significant radioiodine concentrations is likely or possible, then refer to procedure 1903.035, "Administration of Potassium Iodide" for guidance.

B. Rescue/repair and damage control teams shall be briefed using Form 1903.033B, "OSC Team Briefing Form". This form serves as an emergency RWP and Work Order.

C. Rescue/repair and damage control teams shall be accompanied by a member of the Emergency Radiation Team during initial entry and subsequent re-entries into plant areas until radiation areas have been marked.

D. If the situation requires re-entry for the purpose of search and rescue, personnel from the Emergency Medical Team and Emergency Radiation Team shall be assigned to the rescue team.

E. The Shift Superintendent or OSC Director shall ensure that briefings are conducted, per Section 6.2.3.B or 6.2.3.F as appropriate, and authorization for exceeding 10CFR20 exposure limits is granted and documented on Form 1903.033A.

F. In the event that the time required for a formal briefing jeopardizes plant equipment or personnel safety, the briefing may be accomplished as the entry is being made subject to the following:

1. The specific exposure limit being authorized is specified.

2. Expected dose rates and stay times are specified.

3. The Shift Superintendent, TSC Director, or EOF Director has given verbal approval for the activity and authorized exposures above 10CFR20 limits.

4. Form 1903.033A and B may be completed as a follow-up to the emergency response activities.

G. For reentry team electronic dosimeter settings, refer to Attachment 2 of this procedure.

6.2.4 Follow-up Actions of the Rescue/Repair and Damage Control Team

A. Report and function as directed by the Shift Superintendent/OSC Director.

B. Debrief in accordance with Form 1903.033E, "OSC Team Debriefing".

7.0 ATTACHMENTS AND FORMS

7.1 ATTACHMENTS

7.1.1 Attachment 1 - "Risks Associated with Large Doses of Radiation"

7.1.2 Attachment 2 - "Emergency Reentry Team Alarming Dosimeter Setting Evaluation

7.2 FORMS

7.2.1 Form 1903.033A - "Authorization Form For Increasing Exposures Above 10CFR20 Limits".

7.2.2 Form 1903.033B - "OSC Team Briefing Form".

7.2.3 Form 1903.033D - "OSC Team Observation Report"

7.2.4 Form 19Q3.033E - "OSC Team Debriefing"

7.2.5 Form 1903.033F - "OSC Team Tracking"

ATTACHMENT 1

Risks Associated with Large Doses of Radiation

Health effects associated with whole-body absorbed doses received within a few hours[a]:

Whole Body Absorbed dose (rad)	Early Fatalities[b] (percent)	Whole Body Absorbed Dose (rad)	Prodromal Effects[c] (percent affected)
140	5	50	2
200	15	100	15
300	50	150	50
400	85	200	85
460	95	250	98

[a]Risks will be lower for protracted exposure periods.

[b]Supportive medical treatment may increase the dose at which these frequencies occur by approximately 50 percent.

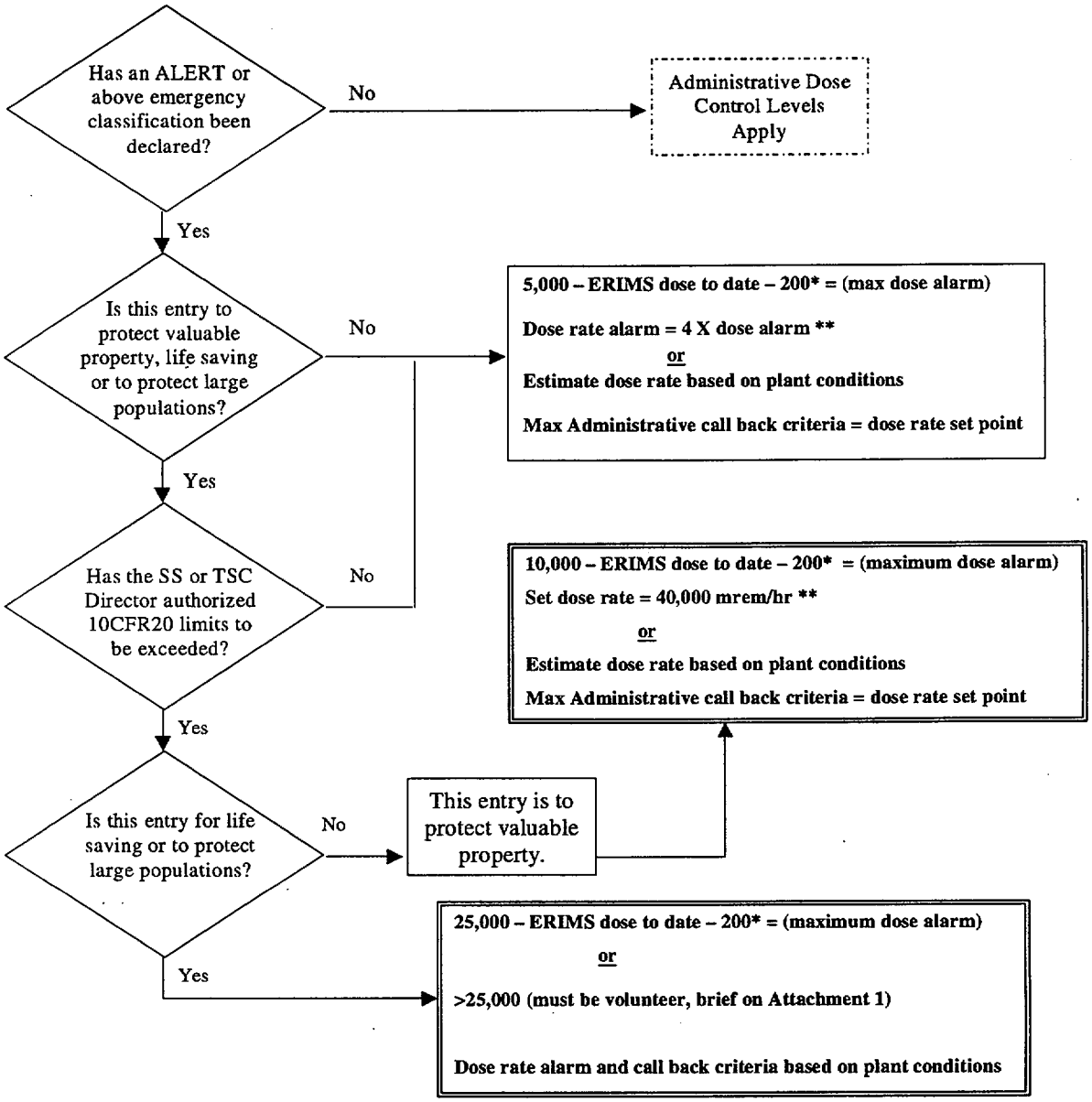
[c]Forewarning systems of more serious health effects associated with large doses of radiation.

Approximate cancer risk to average individuals from 25 rem effective dose equivalent delivered promptly:

Age at exposure (years)	Appropriate risk of premature death (death per 1,000 persons exposed)	Average years of life lost if premature death occurs (years)
20 to 30	9.1	24
30 to 40	7.2	19
40 to 50	5.3	15
50 to 60	3.5	11

Attachment 2

[Emergency Reentry Team Alarming Dosimeter Setting Evaluation]



* *200 mrem is based on allowing re-entry team exit dose (2 minutes, 6 rem/hr average dose).*

** *Maximum dose rates estimates based on an estimated 15 minute job duration.*

I A Rescue/Repair and Damage Control Team has been formed. A reentry must be made for: (check one)

☐ 1. Protecting valuable property (lower dose not practicable) planned dose shall not exceed 10 rem TEDE.

☐ 2. Lifesaving or protection of large populations (lower dose not practicable) planned dose shall not exceed 25 rem TEDE.

☐ 3. >25 rem TEDE:

a. Lifesaving or protection of large populations

b. Only on a voluntary basis to persons fully aware of the risks involved.

II The individuals listed below have been briefed on the requirements of the task and the guidelines in section 6.1.3. They have been authorized to exceed the dose limits of 10CFR20 if necessary to accomplish this task within the guidelines listed in Section 6.1.3.

NAME (PRINTED)	SIGNATURE **	BADGE NUMBER

III AUTHORIZATION*

SS/TSC Director/EOF Director _____
(signed) (date)

* May be given verbally via telephone.

** Signifies person has been briefed concerning guidelines for exceeding 10CFR20 dose limits (1903.033A).

cc: Personnel File
Personal Dosimetry Record

OSC TEAM BRIEFING FORM

DATE:	TEAM NUMBER:	PRIORITY:

Completed by OSC Director

MISSION: _____

Completed by Maintenance Superintendent

TEAM MEMBERS:

	NAME	BADGE	AVAILABLE DOSE
TEAM LEADER			

Completed by HP Supervisor

RADIOLOGICAL REQUIREMENTS:

PROTECTIVE CLOTHING:

Estimated Work Area Contamination Level: _____

- ☐ NONE
- ☐ SINGLES
- ☐ DOUBLES
- ☐ OTHER

RESPIRATORY PROTECTION:

Estimated Work Area DACs: _____

- ☐ NONE
- ☐ SCBA
- ☐ IODINE CANISTER
- ☐ POTASSIUM IODIDE
- ☐ OTHER _____

DOSIMETRY

Estimated Work Area Dose Rate: _____

Call-Back Dose Rate: ☐

- ☐ ELECTRONIC DOSIMETRY
  - Dose Alarm: _____ mR
  - Dose Rate Alarm: _____ mR/hr
- ☐ SELF-READING DOSIMETRY
  - Range: _____
- ☐ OTHER

GENERAL BRIEFING ITEMS:

YES	NO	
		Release in progress?
		Failed fuel present?
		RCS leakage present?

ROUTING INSTRUCTIONS:

☐ Normal Access Route ☐ Access via route described below:

_____

BRIEFING COMPLETED BY: _____
CRAFT

_____
HP

TEAM DISPATCHED: DATE: TIME:

Return this form to the Team Tracking Board Communicator

Team Designator:_____ OSC Phone Numbers: Maint. Supt. 6615 OSC Director: 6612
HP Supv. 6614 Radio Area 6619

When reporting from the scene to the OSC, answers to the following general questions should be provided:

Where? What? Why? How Much? What Effect on Plant (if known)?

==========

Conditions at the Scene:

Extent of Repair Necessary: Major\Minor\Difficult to tell. Estimated Repair Time:_____

Spills or Leaks Occurring: Yes\No Type: Air\Steam\Liquid\Hazardous Chemicals

Electrical Hazards: Yes/No Lighting Problems: Yes\No

Description: (suggestions for descriptive terms are given below)_____

_____

_____

_____

==========

Radiological Conditions:

Radiological levels in the area around equipment:_____

_____

Radiological problems getting to\from equipment:_____

_____

Other radiological problems:_____

_____

==========

Suggestions for descriptive terms include:

LOCATION - Where in the plant and where in the system?

For Mechanical Systems:

LEAK - Visible? How much? (Drips, Streams, Plume)
Source? (Pipe, Weld, Flange, Fitting, Union, Packing Gland, Valve Body, Body to Bonnet, Gasket, Mechanical Seal, Relief Valve)

PROBLEM - Sheared, Cracked? (circumferential, longitudinal) Length of Crack or Break

OTHER - Overheating, Corrosion, Vibration, Chatter, Other damage in the area?

For Electrical Systems:

CONDITION - Burned, Melted, Vaporized, Arcing, Corroded, Open Circuited, Shorted, Grounded?

INSULATION - Burned, Bare, Overheated, Cracked?

CABLING - Kinked, Shorted, Burned, Frayed?

CONTACTS - Burned, Pitted, Corroded, Loose Connections

OTHER - Won't close/open. Damage to Equipment in area?

**NOTE: if this form is contaminated, discard after transmitting information to the OSC or Control Room.

Team Designator:_____

Task Completed: _____ Yes _____ No

Team Leader:_____

Time of Return to OSC:_____ Date:_____ Total Time in Plant:_____

Highest Individual Exposure Received:_____ Name of Individual:_____

Mission Objective:_____

_____

_____

Status:_____

_____

_____

Observations\Problems:_____

_____

_____

_____

_____

Unexpected Radiation Levels Encountered:_____

_____

_____

_____

Follow-up Actions Needed:_____

_____

_____

_____

_____

Ensure plant area map board is updated with current dose rate.

Team Debriefed by:_____ Date\Time:_____

Ensure debriefing is logged on the OSC Team Tracking board.

OSC Director:_____

TEAM NUMBER	PRIORITY CODE	MISSION	DOSE LIMIT	TIME DEPARTED	RETURNED TIME	DEBRIEF

FORM TITLE:	FORM NO.	REV.
OSC TEAM TRACKING	**1903.033F**	**017-01-0**