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THE CLEVELAND ELECTRIC ILLUMINATING COMPANY
PERRY NUCLEAR POWER PLANT OPERATIONS MANUAL

TITLE: RADIATION WORK PERMITS

REVISION: 0 EFFECTIVE DATE: 3-8-85

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Radiation Work Permits

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SCOPE OF REVISION:

RADIATION WORK PERMITS

1.0 PURPOSE

To describe the method of initiation, preparation and utilization of a Radiation Work Permit.

2.0 SCOPE

This procedure describes the mechanism for ensuring that an evaluation of radiological conditions is performed commensurate to the potential hazard associated with a designated work activity. In addition, this procedure describes the implementation of radiological controls required as a result of the evaluation which shall apply to all personnel participating in the work activity.

3.0 RESPONSIBILITY

- 3.1 The Managers Perry Plant Operations Department (PPOD) and Perry Plant Technical Department (PPTD) shall be responsible for overall compliance to specified radiation protection requirements.
- 3.2 The Supervisor responsible for the performance of a work activity (or the work order planner for activities to be performed pursuant to a work order) shall be responsible for initiating a Radiation Work Permit in support of that work activity as prescribed by this procedure and shall ensure that RWP supplements are transmitted to Health Physics at the end of each working shift.
- 3.3 The Plant Health Physicist shall be responsible for ensuring that radiological conditions are adequately determined and evaluated and that appropriate radiation protection requirements are prescribed in the preparation of Radiation Work Permits.
- 3.4 Each individual authorized on a Radiation Work Permit shall be responsible for compliance to radiation protection requirements prescribed on the Radiation Work Permit when participating in the work activity.

4.0 REFERENCES

- 4.1 Reg. Guide 1.16.

4.2 Reg. Guide 8.8.

5.0 DEFINITIONS

5.1 Radiation Work Permit (RWP)

An administrative form which documents radiological conditions associated with a specific work activity and location and prescribes radiological controls to be established pursuant to the work activity.

5.2 General Radiation Work Permit (GRWP)

An administrative form which documents the same information as an RWP but more broad scope in nature in order to address routine or repetitive work activities which may take place in various locations.

6.0 DETAILS

6.1 Requirements for an RWP

6.1.1 An RWP shall be initiated for work activities associated with the existence or anticipated occurrence of any of the following conditions:

1. Radiation levels ≥ 100 mRem/hr.
2. Removable contamination ≥ 1000 dpm/100cm² beta-gamma
 ≥ 100 dpm/100cm² alpha
3. Airborne activity levels at which the total isotopic MPC ratio is greater than or equal to 1.0.
4. Neutron radiation areas.
5. Handling of licensed by-product material.
6. Entry into the Containment and/or Drywell.
7. Work involving the opening of radioactive or potentially radioactive systems.
8. As required by the Plant Health Physicist or Health Physics Supervisor.

6.2 RWP Preparation (Refer to Radiation Work Permit Flowchart; Attachment 1)

6.2.1 Initiation

1. An RWP may be requested by any individual requiring access to an RWP area for the purpose of accomplishing, planning or supervision of a work activity. RWPs should be requested at least one working shift prior to the planned work activity to allow Health Physics the time to perform the necessary area radiological surveys and prepare the RWP.
2. The requester shall complete the requestor section of the RWP Part 1; Form PAP-0512-1 (Attachment 2) as follows:
 - a. Check the GENERAL block if a GRWP is being requested.
 - b. Unit - common facilities shall be recorded as Unit 1.
 - c. Location - where the work activity is to take place (include room number if applicable). For repetitive tasks, simply record "various".
 - d. Description of Work - a brief description of the work activity to be performed (reference Work Order number if applicable).
 - e. Start Date/Time - as planned.
 - f. Estimated completion date - as planned.
 - g. Estimated Manhours - the total manhours estimated to complete the work from start to finish. (NA for GRWPs).
 - h. Requested By - requesting individual's signature.
3. The requestor shall identify personnel planned to work under an RWP by completing the NAME and ID NUMBER sections of an RWP Supplement - Part 2; Form PAP-0512-2 (Attachment 3). For a GRWP, an RWP Weekly Supplement - Part 3; Form PAP-0512-3 (Attachment 4) shall be utilized.

NOTE: The requesting individual should review each individual's current quarterly exposure to ensure that it is not so near an administrative limit as to preclude the individual's participation in the work activity.

4. Normally RWPs shall be valid for one working shift. In the case of a work activity extending through several shifts, the requester shall initiate an RWP Supplement - Part 2; Form: PAP-0512-2 (Attachment 3) as required by 6.2.1,3 for each shift.

5. RWPs requested less one working shift prior to the planned work activity should be approved by the appropriate Unit Supervisor or the Shift Supervisor.
6. In the case of an emergency, continuous Health Physics coverage may be substituted for an RWP however, an RWP shall be prepared as soon as possible.

6.2.2 Determination of Radiological Conditions

1. Health Physics shall perform radiological surveys as appropriate to evaluate the existing and potential radiological conditions associated with the work activity and document on the RWP the work area and highest levels that currently exist.
2. GRWPs shall refer to the posted surveys.

NOTE: Current routine surveys may be utilized for this purpose provided they are representative of current conditions and comprehensive enough to prescribe adequate radiological controls.

3. Based upon the radiological conditions and the requirements of PAP-0118, Operational ALARA Program, Health Physics shall request an ALARA review as appropriate. An ALARA review may be requested despite the fact that radiological conditions do not meet the criteria specified in PAP-0118, if it is felt that anticipated radiological conditions warrant additional evaluation.
4. The ALARA Coordinator shall:
 - a. Assign a job function code as determined from Reference 4.1.
 - b. Ensure that an ALARA review is performed and that performance of the review is documented on the RWP (including the ALARA task number).
 - c. Ensure that ALARA review requirements are incorporated into the scope of the work activity and the RWP as appropriate.

6.2.3 Radiation Protection Requirements

1. Based upon the anticipated radiological conditions associated with work activity, Health Physics shall indicate on the RWP the appropriate radiation/contamination protective requirements and Health Physics coverage for participating personnel.

2. Health Physics shall refer to the Protective Equipment Guide (Attachment 5) for guidance on adequate protective equipment.
3. Health Physics shall also incorporate ALARA Review Requirements as applicable.
4. GRWP's shall state that personnel must contact Health Physics for the protective requirements prior to entry into High Radiation, Contamination or Airborne Radioactivity Areas.

NOTE: In addition to an RWP, each entry in a High Radiation Area shall require one or more of the following:

- A radiation monitoring device which continuously indicates the radiation dose rate in the area.
 - A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received.
 - A Health Physics Technician (or Health Physics personnel of equivalent qualification) shall perform radiation surveillance as prescribed by the RWP.
5. Health Physics shall indicate under Special Instructions any additional radiation protection requirements not specifically addressed under that section as well as limitations or exceptions to those requirements.

6.3 RWP Implementation

6.3.1 Review and Approval

1. The Health Physics Technician responsible for preparing the RWP shall verify the current radiation exposure for personnel designated to participate in the work activity and shall sign as preparer. The Health Physics Supervisor and the RWP requester shall determine the need for extending an individual's administrative exposure limit versus replacing the individual with someone having a lower cumulative exposure.
2. Health Physics Supervision upon verifying that the information on the RWP is accurate and that the prescribed controls are sufficient shall enter the expiration date and sign for Health Physics approval.

NOTE: Approval of an RWP by Health Physics must not be mistaken as approval for the work activity to begin.

The RWP shall be entered into the RWP Log (Attachment 6) and assigned the next sequential RWP number.

3. The final approval shall be obtained from the responsible Operations Unit Supervisor indicating that the system/component is available for the described work activity, i.e., depressurized, drained, tagged-out, etc.
4. Normally RWPs shall be valid for one working shift. In the cases of an extending work activity (two or more working shifts), the RWP - Part 1 shall be updated as required.

6.3.2 RWP Posting

1. The original RWP shall be posted at the work location. For GRWPs, the original shall be posted in an area centrally located to the work activity or the work group.
2. A copy of the GRWP/RWP shall be forwarded to the appropriate Unit Control Room. (A copy of GRWP or RWP for work activities in common areas or various areas throughout the facility shall be forwarded to Unit 1 Control Room.
3. Health Physics shall retain a copy of the GRWP or RWP.

6.3.3 RWP Extension

1. The expiration date of an RWP may be extended if it is determined that the work activity will continue beyond the planned completion date. Extension of an RWP expiration date shall be approved by Health Physics Supervision. The expiration date shall be changed on the original by a single line-out and initial by Health Physics with the Control Room and Health Physics copies updated.
2. An RWP expiration date shall not be extended beyond December 31 of any calendar year.

6.3.4 Use of the RWP Supplement - Part 2

1. Prior to commencing work under an RWP, personnel participating in the work activity shall:

- a. Initial Part 2 which shall serve as verification that the individual has read and understands the requirements of the RWP.
 - b. Record the time and their pocket dosimeter reading.
2. Upon stopping work under the RWP and leaving the area personnel shall:
- a. Record the time they left the area.
 - b. Record their pocket dosimeter reading.
 - c. Record the total exposure received during the entry (i.e., Total Exposure equals the difference between the pocket dosimeter reading in and the pocket dosimeter reading out).
3. At the end of the working shift each individual should add the pocket dosimeter readings for each entry together and place the pocket dosimeter total in the "Total Exposure" column.
4. At the end of each working shift each individual should add time in hours together for each entry to the nearest tenth of an hour and complete the "Total Hrs" column.
5. The requester shall ensure the completed RWP Supplement - Part 2 is returned to the Health Physics office at the end of each working shift.

6.3.5 Use of the RWP Weekly Supplement - Part 3

1. Prior to commencing work under a GRWP, personnel participating in the work activity shall initial Part 3 which shall serve as verification that the individual has read and understands the requirements of the GRWP.
2. Each day that the individual works under the GRWP he/she shall record the total exposure received that day as determined from the individual's pocket dosimeter.

6.4 RWP Revision

6.4.1 An RWP may be revised in order to reflect changed Radiation Protection Requirements.

1. The scope of revision shall be addressed under Special Instructions and shall be approved by the Health Physics Supervisor as indicated by his signature on the original and Health Physics' copy.

6.4.2 An RWP Supplement (Part 2 or Part 3) may be revised to allow for the addition or deletion of personnel on the Authorization List due to circumstances unforeseen during planning of the work activity.

1. The addition of personnel shall be accomplished by simply adding the individual's name and ID number to the supplement. Health Physics shall initial the entry verifying approval on the original copy and update Health Physics' copy.
2. Personnel shall be deleted from a supplement by a line-out initialed by Health Physics on the original. The Health Physics' copy shall be updated.

6.5 RWP Termination

6.5.1 A GRWP or RWP shall be terminated under any of the following conditions:

1. Radiological Conditions degrade to the point that the Radiation Protection Requirements are inadequate.
2. Radiological Conditions improve to the point that the Radiation Protection Requirements require a second revision or a major rewrite to prescribe adequate controls.
3. The work activity is completed or cancelled.
4. The RWP expiration date is reached.

6.5.2 The requestor of the RWP shall ensure that the original RWP is removed from posting and returned to Health Physics.

6.5.3 Upon receiving the original RWP and copies, the Health Physics Supervisor shall sign for termination and indicate the reason for termination on the original RWP.

6.6 Records

6.6.1 The original RWP including all original RWP supplements and RWP logsheets shall be retained as per PAP-1701, Plant Records Management.

7.0 ATTACHMENTS

7.1 Attachment 1 - Radiation Work Permit Flowchart.

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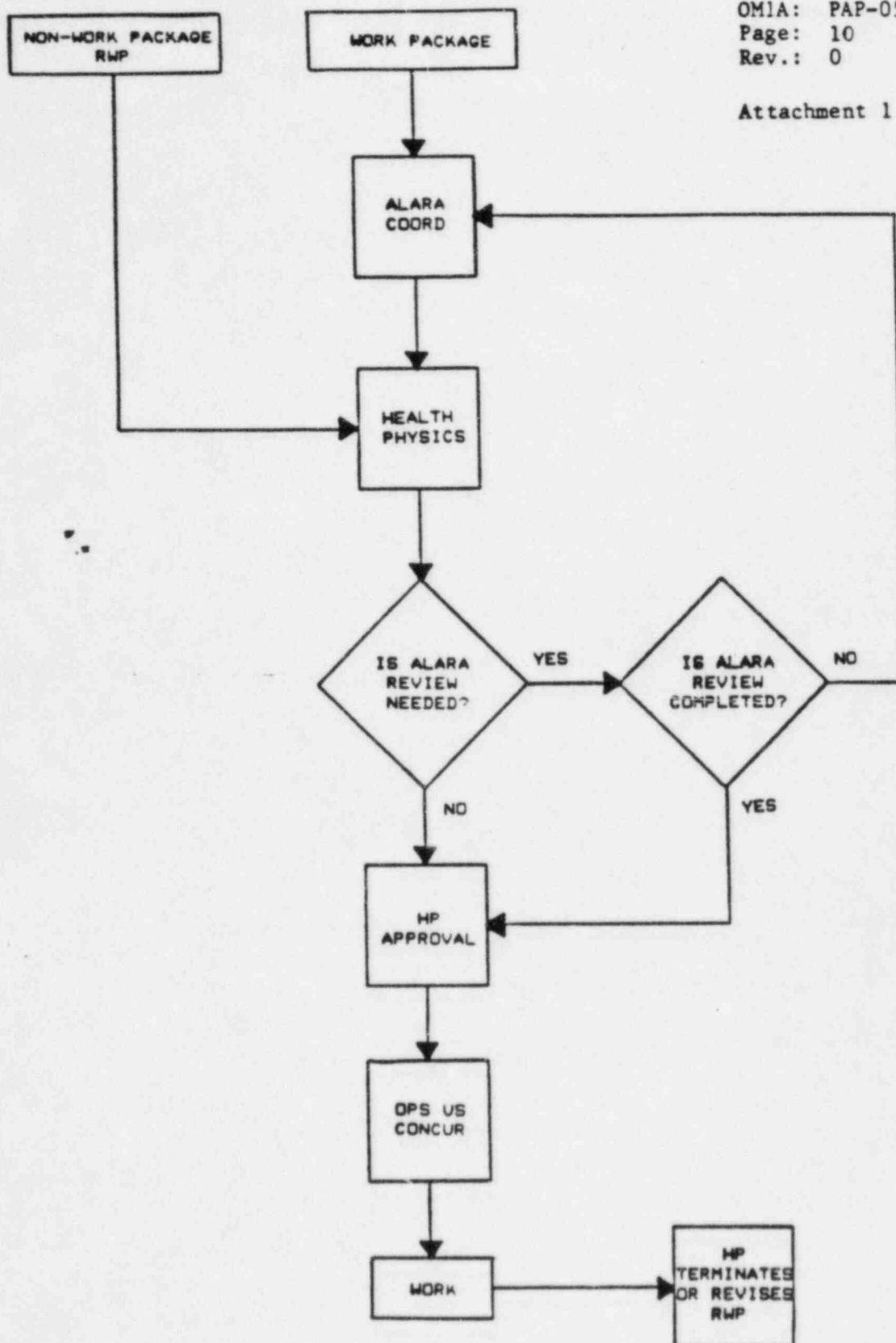
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- 7.2 Attachment 2 - Form: PAP-0512-1, Radiation Work Permit.
- 7.3 Attachment 3 - Form: PAP-0512-2, Radiation Work Permit Supplement - Part 2.
- 7.4 Attachment 4 - Form: PAP-0512-3, Radiation Work Permit Weekly Supplement - Part 3.
- 7.5 Attachment 5 - Protective Equipment Guide.
- 7.6 Attachment 6 - Form: PAP-0512-4, Radiation Work Permit Log.

ATTACHMENT 1
RADIATION WORK PERMIT (RWP) FLOW CHART

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Attachment 1



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Attachment 2

Form: PAP-0512-1

RADIATION WORK PERMIT PART 1					
General <input type="checkbox"/>		Unit <input type="checkbox"/>			
Requestor	Location: _____				
	Work Description: _____				
	Work to begin: _____ (Time) Estimated Completion: _____ (Date)				
	Estimated Manhours: _____ Requested By: _____ (Date)				
Job Function: <input type="checkbox"/> ALARA Referral Required? YES <input type="checkbox"/> NO <input type="checkbox"/> ARN: <input type="text"/> - <input type="text"/>					
ALARA Task Number: <input type="text"/> Est. Manrem: _____					
Health Physics Coverage: Initial Survey Only <input type="checkbox"/> Periodic <input type="checkbox"/> Continuous <input type="checkbox"/>					
Radiological Conditions	Location	Radiation (mrem/hr)	Contamination (dpm/100 cm ²)	Airborne (uCi/cu ft)	Comments
Special Instructions			Radiation Protection Requirements		
			Dosimeter	TLD	Rubbers
				Extremity TLD	Plastic Shoe covers
				Low Range Dosim	Cloth Shoe covers
				Hi Range Dosim	Rubber Shoe covers
			Body	Labcoat	Resp/Partic.
				Coveralls 1 2	Resp/Iodine
				Plastic Suit	Resp/Air
					SCBA
			Head	Cap	Hood/Air
				Hood	See Att. Survey
Safety Glasses					
Face Shield					
Gloves	Cotton Liners	Doserate Meter			
	Rubber 1 2	Type: _____			
	Surgical 1 2	MPL: _____			
Approval	Signature		Date	Time	
	Preparer				
	HP Supr.				
	Unit Supr.				
Expiration					Termination:
Extended					<input type="checkbox"/> Work Completed <input type="checkbox"/> Expired <input type="checkbox"/> Cancelled <input type="checkbox"/> Changed Conditions
		Terminated By: _____		Date: _____ Time: _____	

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[illegible]

Attachment 4
Form: PAP-0512-3

RADIATION WORK PERMIT WEEKLY SUPPLEMENT

RWP #

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Unit
Dates to [illegible]

Protective Equipment Guide

This guide designates the minimum protection requirements and should be utilized based upon anticipated radiological conditions.

Personnel Monitoring

Area Radiation Levels

- | | | |
|----------------|---|--|
| 0-100 mR/hr | - | TLD and 0-500 mR direct reading dosimeter |
| 100-1000 mR/hr | - | TLD and 0-500 mR direct reading dosimeter
0-5 R dosimeter (optional)
Initial area radiation survey by H.P. |
| 1R - 5R | - | TLD and 0-5R direct reading dosimeter
Initial and periodic area radiation surveys by H.P. |
| >5R | - | TLD and 0-5R direct reading dosimeter
Continuous H.P. Coverage |

Additional guidance is provided in OMIA: PAP-0514, External Exposure Control.

Protective Clothing

Area Contamination Levels

- | | | |
|---------------------------------|---|--|
| 1000-50K dpm/100cm ² | - | Lab Coat, Rubber gloves w/cotton liners
rubber overshoes w/plastic shoe covers - no
physical work i.e., climbing, crawling, or
kneeling |
| >50K | - | Full PC's |
| >100K | - | Respiratory Protection |
| >500K | - | Double PCs, Particulate respirator |
| Wet Work | - | Plastic PCs |

Additional guidance is provided in OMIA: PAP-0511, Radiological Control Areas.

Respiratory Equipment

Specific guidance is provided in OMIA: PAP-0510, Respiratory Protection.

