

NUCLEAR OPERATIONS DEPARTMENT  
PILGRIM NUCLEAR POWER STATION  
Procedure 1.4.5  
PNPS TAGGING PROCEDURE

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Date *May 30, 1984*

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I. PURPOSE

The purpose of this procedure is to provide instruction to Pilgrim Station personnel for the use of protective tags.

II. DISCUSSION

A. General

1. All work at Pilgrim Station is to be conducted in a safe manner and each man is ultimately responsible for his own and fellow worker's safe being.

2. Electrical Equipment

The fact that the switching and placing of protective tags has been completed must not be accepted as final proof that any electrical conductor or equipment is free from dangerous potential. The individual for whom it is tagged has the responsibility of assuring himself that the tagging is proper and conditions are safe for work to commence.

3. Mechanical Equipment

Before work is started on red tagged pressure vessel or piping, tanks, or piping where acids, chemicals, noxious or explosive gases or vapors could be present, or other steam, mechanical or chemical equipment, operating personnel must take precautionary measures to assure the safety of personnel involved by testing, venting, draining, flushing, neutralizing, forced ventilation or any other applicable procedures. The individual whom the tag is applied for has the responsibility of assuring himself that the tagging is proper and that conditions are safe for work to commence.

4. Whenever work is to be done on or near any equipment under the jurisdiction of Pilgrim Division, or the equipment is to be held out of service, this procedure shall be followed. A careful analysis must be made to determine the switch and/or valve operations, location of protective tags and other work area protection necessary to prevent a compromise to nuclear safety, injury to personnel and/or damage to equipment.

5. This procedure does not cover the 345 kV equipment at Pilgrim Station which is tagged in accordance with General Order 127 - REMVEC.

B. Isolating Equipment for Maintenance

1. General Equipment

- a. Before starting work on equipment, protection at the work location requires that valves, switches and other devices directly associated with the equipment be set in the proper position to isolate the equipment from all sources of electricity, steam, water, oil, air or any other liquid or gas which could cause injury or damage.
- b. In addition to any equipment which has been, or is to be, isolated and tagged for work, consideration must also be given to any other equipment at the work location which may present a hazard due to its proximity. Under these conditions, if the other equipment cannot be effectively barriered off, or the hazard otherwise controlled, it will be necessary to isolate the equipment and attach protective tags in accordance with the Maintenance Request (M.R.).
- c. Controls for the equipment being isolated should bear a Red Tag to indicate that the equipment has been taken out of service. If the controls are required to operate other components, then the controls should be tagged with a Caution Tag. For example, if SBLC pump A were being worked on, and pump B and the squib valves were required to be operable, then the control switch in the Control Room would be tagged with a Caution Tag.
- d. In some cases, the equipment which is isolated and tagged may affect the safe operation of other equipment. Under such conditions, equally careful attention must be given to tagging the affected equipment. For instance, a feed pump breaker must be Red tagged whenever there is any Red tagging of valves, which shut off the feed pump suction.
- e. Electrical equipment must be disconnected from all possible sources of potential to be properly isolated. Generally, this requires opening all circuit breakers, knife blades and secondary sides of any potential transformers involved. This would include the high voltage, low voltage and any intermediate voltage of transformers and the AC and DC ends of rotary converters and motor generator sets. Depending on the equipment and the nature of the work, it could also include starting switches, field switches and neutral switches. In addition to disconnecting all sources of potential, the movement of any mechanical parts which could cause injury or damage must be prevented. On rotating machinery all possible sources of power which could turn the rotor, must be shut off or disconnected. The movement of other parts, such as, brush lifting devices, rheostats, tap changers and operating mechanisms, must be prevented by opening switches and/or removing fuses in the control supply. Red tags must also be placed at all devices which have been set in the proper position and at the controls for these devices.

- f. Steam and associated equipment must be completely isolated by closing all valves controlling the flow of steam, water, oil, gas, compressed air, chemicals or other substance which could cause injury or damage. Electrical, pneumatic or hydraulic control supplies must be cut off. Vents and drains must also be opened as required to release dangerous pressures or harmful substances. Red tags must also be placed at all devices which have been set in the proper position and at the controls for these devices.

## 2. Turbine Generators

- a. Turbine generators must be isolated on both the steam and electric sides. In addition, on hydrogen-cooled generators, the hydrogen must be purged and a test made to assure the absence of hydrogen before the generator case is opened.

## 3. Fire Protection Equipment

- a. When persons are working in areas equipped with fire protection systems, the release of carbon dioxide, dry chemical or water could result in a deficiency of oxygen, cause a slip or fall, obscure the exit route, or damage disassembled equipment. Before work is started in one of these areas, an investigation should be made to determine the necessary personnel safety precautions that must be implemented should a fire protection system inadvertently discharge.

## 4. Enclosed Spaces

- a. When work is to be done inside of a boiler, duct, tank, drum or other enclosed space where it is possible for a man to be sealed inside, a Red Tag for the person in charge of the work must be attached at the door, manhole or other point of closing.

## C. Station Work Area Protection

1. Before work is started in the vicinity of energized equipment, the safe work area, including the access, must be marked off to establish safe clearances and insure that live parts cannot be contacted. Where such hazard exists, the limits of the safe work area must be clearly designated by using the signs referred to in Paragraphs 2 and 3, below, stringing rope or tape to outline the area, and/or installing temporary barriers to prevent people from inadvertently touching, slipping, or falling into or otherwise contacting live parts.

2. High Voltage Warning Signs

Whenever work is to be done in the vicinity of high voltage equipment which is, or could be, energized, signs with the words "Danger High Voltage" must be placed to warn and remind personnel of the hazard.

3. High Potential Testing Warning

Special signs with the wording "Danger High Potential Testing" are provided for use during high potential testing to warn all persons in the vicinity of the danger. Before the test is started, these signs must be placed near the terminals or in the vicinity of any equipment undergoing tests. Station Operators must see that this precaution is carried out before testing is allowed to proceed. These signs should not be used as a general warning in high voltage areas when testing is not being done.

III. PROCEDURE

A. Protective Tags - Purpose

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NOTE: Mini-tags are available and should be utilized, as required, so as not to obscure any controls, valves, switches, handles, etc.

1. Red Tags

A Red Tag attached to a switch or valve prohibits the operation of such device. These tags are applied to protect personnel from injury and equipment from damage by forbidding the operating of devices which could result in the equipment being energized, the movement of mechanisms, or the flow of steam, air, gas or liquids.

2. Nuclear Watch Engineer Tag

An orange tag may be attached by the N.W.E. or N.O.S. to prevent operation of equipment. These tags are applied to protect personnel from injury and equipment from damage by forbidding the operating of devices which could result in the equipment being energized, the movement of mechanisms, or flow of steam, air, gas or liquids.

3. Master Danger Tag

A red tag used to keep the control room and management personnel cognizant of the number of tags applied to a system, and the maintenance request number.

4. Caution Tags

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Caution tags (Yellow Tags) are used for two basic purposes: one is to indicate that a particular piece of equipment is temporarily not in its normal operable status, but may be operated safely when the precautions listed on the tag are followed or, to alert the operator that a particular piece of equipment is temporarily operating not in accordance with its total design.

## 5. Testing Tags

The Testing Tags (White Tag with green border) are used to indicate that a piece of equipment or a system is being tested, or that operation of the equipment or system is being held for testing. Following completion of maintenance work, if post-work testing is to be performed, the isolation tags are removed and Testing Tags are applied to controls and critical valves. The system or equipment is not to be started until the test director or appointed alternate is present, except in an emergency. Testing Tags do not prohibit operation. Testing Tags placed on equipment for post-work testing should bear the M.R. number.

## 6. REMVEC Tags

The 345kV system is tagged in accordance with General Order 127 - REMVEC. Their tags are:

Red Tag	-	Isolation
White Tag	-	Do Not Operate
Blue Tag	-	Potential Testing
White Tag (Green Border)	-	Hold

## B. Use of Protective Tags

1. The on-watch Watch Engineer or Operating Supervisor shall authorize the issuance and placement of protective tags. The person delegated by the Watch Engineer or Operating Supervisor to perform the tagging and/or isolation, is responsible for the proper isolation, placement of protective tags, performance of any tests required to determine if conditions are safe for the proposed work, and for the completion of the isolation section of BECO Form 3793, (Maintenance Request) as per procedure 1.5.3.
2. The Supervisor who is directly in charge of the work is responsible for requesting protective tags.
3. Tags emanating from the Maintenance Request form should bear the name of the individual who is responsible for the work, as he is responsible for the progress and status of the job.
4. Additional tags may be requested by individuals performing the work and may be emplaced with the Watch Engineer's approval. They should be removed at the end of the job or conclusion of the individual's shift.
5. Red Tags and Testing Tags must be filled out to indicate the equipment, who the tag is on for, and the Maintenance Request numbers. All blanks of the Caution Tag must be filled in. If no Maintenance Request Form exists, all blanks of the Red Tags and Testing Tags must be filled in.

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6. Protective tags must be attached securely to controls, valves, switches, operating handles, etc., so that they cannot fall off, blow off or be knocked off.
  7. When tags are attached in locations subject to dirt, moisture, or other conditions which could cause the writing on the tags to become illegible, the tags should be protected by inserting each tag in a transparent holder. A separate holder must be used for each tag.
  8. The Watch Engineer or Operating Supervisor may authorize NWE Orange Tags to be attached to equipment without an accompanying Maintenance Request whenever such action is necessary to prevent operation of faulty equipment or to protect personnel from a safety hazard.

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Tags placed on equipment by the operating personnel for this reason, must be recorded by the system number in the NWE Tag Log kept in the Admin. Assistants office. This log should indicate the system number, the number of tags, the equipment upon which the tag was placed, position and location of the tags, the reason for tagging, the name of the person authorizing the tag, the name of the person placing the tag, the date the tag went on, the date the tag came off, the reason it was removed, the name of the person authorizing the tag(s) to be removed and the person who removed it. Upon removal of the tag(s) the operating personnel should then bring the tag(s) to either the Watch Engineer or Operating Supervisor for verification. When verification is completed the operating personnel will initial the "removed by block" on the Watch Engineer's Tag Log sheet, the Watch Engineer or Operating Supervisor will then initial the "W.E. authorization" block, the operator will return all tags to the Administrative Assistant for closeout.

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9. When the use of a caution tag is required on equipment, the tag shall be recorded by the system number in the caution tag log book kept in the Administrative Assistant's office. When the tags are removed, the operators' will return all tags to the Administrative Assistant for closeout.

A semi-annual review of the caution tags will be performed to verify the applicability of the tag.

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10. The Chief Operating Engineer or designee is responsible for conducting a semi-annual review of outstanding tags. This review is applicable to Watch Engineer's tags, caution tags, and those associated with selected open (outstanding) Maintenance Requests located in the Operations Group office. The scope of the review will be determined by the Chief Operating Engineer but will, as a minimum, consist of a representative sampling of safety-related systems. The results of that review will be documented on the appropriate Attachment.

Note: During the semi-annual review of Red Tags, a tour of the Station will be made to resolve any Watch Engineer Tags that exist in the plant but are not included in the appropriate Log MR.

C. Temporary Clearing of Selected Red Tags

1. Selected Red Tags may be removed temporarily for the purpose of verifying that a particular maintenance activity has been satisfactorily completed, when it is impractical to completely clear the Maintenance Request.
2. The approval of the Implementing Supervisor/worker and the Watch Engineer must be obtained prior to clearing Selected Red Tags.

Note: Initials, of W.E./O.S. and the individual whom the tag has been applied for and date in the margin, adjacent to the selected red tags, shall provide documentation of their approval.

3. Selected Red Tags removed under this authority shall be replaced with Testing Tags, properly filled in. The selected red tag shall be attached to the Maintenance Request form maintained in the control room and rehung when verification is complete.

D. Releasing Protective Tags

1. Protective Tags placed on equipment in accordance with a M.R., shall be cleared only after any Protective Tags placed on equipment at the individual's request for the performance of that work are removed, the work is completed and the M.R. has been signed off and returned to the Operating Supervisor by the individual responsible for accomplishing the work. A summary of the work done, any changes made and the condition of the equipment must be reported on the M.R. when releasing Protective Tags. The signed off M.R. will signify that the Red Tags are released and that the Watch Engineer or Operating Supervisor can order the tags to be removed.
2. If a person fails to release his Red Tag, it may be ordered off only with the approval of the Station Manager, or his designated alternate, providing the person cannot be located to release his tag personally and it is definitely determined that the person is not working on the equipment. In addition, a definite arrangement must be made to notify the person immediately on his return to work that his Red Tag has been removed. It must be determined that the equipment is in satisfactory condition before it is made available for service.
3. All M.R. Red Tags must be removed from any equipment before it is made alive for service.

E. Questions on Tagging and Safety

1. Any questions or doubt in connection with the use of protective tags or associated safe working conditions should be referred to the Watch Engineer, who has jurisdiction and, if necessary, to the Station Manager until the matter is resolved.



IV. AUTHORIZATION

- A. Each procedure revision must have a station O.R.C. review documented by a Procedure Change Notice, and in addition, must be authorized by the Station Manager.

V. ATTACHMENTS

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- A. NWE Tag/Safety Related MR Tag Review form.
- B. Watch Engineer's Tag Log
- C. Caution Tag Log
- D. Caution Tag Review Form



RMG Control No.
Dept. Doc. No.
Record Type A4.08
<input type="checkbox"/> Safety-Related
<input type="checkbox"/> Non Safety-Related

To \_\_\_\_\_ From \_\_\_\_\_

Date \_\_\_\_\_

Subject: RESULTS OF SEMI-ANNUAL REVIEW OF W.E. TAGS SAFETY RELATED RED TAG MR'S

Period Covering \_\_\_\_\_ to \_\_\_\_\_

A review of PNPS Watch Engineer red tags and selected safety related MR's in readily accessible areas of the station has been performed by the Operations Group. Results are provided as follows:

NAME OR # IS OK	# OF TAGS AUTHORIZED		ACCOUNTED FOR		EXPLANATION OF DEVIATIONS (IF KNOWN)	CORRECTIVE ACTIONS TAKEN TO RESOLVE DEVIATIONS
	W.E. LOG BOOK	MR FILE	W.E. LOG BOOK	MR FILE		

Based on the results of this review, the next recommended red tag review will be conducted in 0 1 2 3 4 5 6 months.

(select one)

Suggest 25% unexplained deviations requires augmented review. \_\_\_\_\_

Chief Operating Engineer Review

\_\_\_\_\_ Concur  
\_\_\_\_\_ Disagree

Recommend perform next review in \_\_\_\_\_ months.

\_\_\_\_\_  
Chief Operating Engineer Date

Distribution:

WATCH ENGINEER'S TAG LOG

SYS. NO.	# of TAGS	LOCATION	EQUIPMENT	REASON TAGGED	DATE ON:	PLACED BY:	W.E. AUTH:	DATE OFF:	REASON REMOVED	REMOVED BY:	W.E. AUTH:

WATCH ENGINEER'S CAUTION TAG LOG

SYS. NO.	#of TAGS	LOCATION	EQUIPMENT	REASON TAGGED	DATE ON:	DATE PLACED BY:	W.E. AUTH:	DATE OFF:	REASON REMOVED	REMOVED BY:	W.E. AUTH:



RMG Control No.
Dept. Doc. No.
Record Type A4.08
<input type="checkbox"/> Safety-Related
<input type="checkbox"/> Non Safety-Related

To \_\_\_\_\_ From \_\_\_\_\_

Date \_\_\_\_\_

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**Subject:** RESULTS OF SEMI-ANNUAL REVIEW OF CAUTION TAGS

Period Covering \_\_\_\_\_ to \_\_\_\_\_

A review of PNPS Watch Engineer Caution Tags in readily accessible areas of the station has been performed by the Operations Group. Results are provided as follows:

NAME OR # IS OK	# OF TAGS AUTHORIZED		ACCOUNTED FOR W.E. LOG BOOK	EXPLANATION OF DEVIATION (IF KNOWN)	CORRECTIVE ACTIONS TAKEN TO RESOLVE DEVIATIONS
	W.E. LOG BOOK	MR FILE			

Based on the results of this review, the next recommended caution tag review will be conducted in 0 1 2 3 4 5 6 months.

(select one)

Suggest 25% unexplained deviations requires augmented review.

Chief Operating Engineer Review

\_\_\_\_\_ Concur  
\_\_\_\_\_ Disagree

Recommend perform next review in \_\_\_\_\_ months.

\_\_\_\_\_  
Chief Operating Engineer Date

1.4.5D-1 Rev. 15

Distribution: