

NUCLEAR POWER GENERATION
DIABLO CANYON POWER PLANT
SELF PACED LESSON GUIDE

PROGRAM: **CLEARANCE TRAINING**

COURSE: **CLEARANCE PROCESS**

TOPIC: **CLEARANCE PROCESS OVERVIEW**

LESSON: **ESOMS CLEARANCE & TAGGING FOR MAINT. & ENGINEERS**

COURSE No.: **N/A**

TOPIC No.: **N/A**

LESSON No.: **CLETAG**

APPROXIMATE TIME FOR INSTRUCTION: **1.5 HOURS**

Instructor Materials

1. N/A, this course is self paced.

Student Materials

1. Computer
2. Web Base Training Module

Lesson References

1. OP2.ID1, "Clearances", Rev. 23.
2. OP2.ID2, "Tagging Requirements", Rev. 15.

Remarks

1. This lesson is normally presented via Web Based Training.
2. Evaluation of this material is via a test given in Web Based Training.

AUTHOR:	<u>Woody White</u>	DATE:	<u>11/16/10</u>
REVIEWED BY:	<u>KEITH SCOTT ROBERTS</u> TRAINING SUPERVISOR	DATE:	<u>01/24/11</u>
APPROVED BY:	<u>M.J. GIBBONS</u> LINE MANAGER	DATE:	<u>01/25/11</u> REV. 0

Introduction

Purpose

The purpose of the lesson is to provide students with an understanding of the lockout/tagout processes that provide personnel and equipment protection. The student will be able to see how the process is designed to provide a safe working environment. The student will learn the relationships between tags and the controlling systems.

Applicability

The lockout/tagout processes used at DCPD are designed to protect personnel and equipment. If you understand this process it will enable you and your co-workers the ability to work safely in the plant. In addition it will help the plant to maintain control of equipment and maintain a safe operating environment DCPD.

Objectives

Objectives The following objectives apply to the lesson.

Number	Objective Text
1.	Describe the purpose of the Clearance Module and the clearance and tagging process at DCPD.
2.	Describe the relationship between tagouts, clearances, and tags.
3.	Describe the method to log into eSOMS, view and print a clearance.
4.	Given a copy of a clearance, determine the status of that clearance.
5.	Describe the general requirements for hanging and removing tags.
6.	Explain the use of a Red Tag.
7.	Explain the use of a Danger Tag.
8.	Explain the use of a Caution Tag.
9.	Explain the use of an Information (Info) Tag.
10.	Explain the use of a Notification Tag.
11.	Describe the clearance process from preparing a clearance to returning equipment to service.
12.	Explain the use of the electrical bus mimic board.

Clearance and Tagging Process

Objective 1 Describe the purpose of the Clearance and Tagging process at DCP.

Introduction Protecting the safety of personnel performing work on equipment in the plant is a fundamental requirement at DCP. Similar to all other power plants we have a lockout / tagout program to remove equipment from service and protect the workers.

This process is controlled by a computer software program called the “Shift Operation Management System” or eSOMS for short. eSOMS will be discussed in further detail later in the lesson.

Purpose DCP refers to the process of removing equipment from service for work as a “clearance” (clearing the equipment for work). The primary purpose of clearances and their associated tags is to remove (isolate) the source of energy from plant equipment to protect people and/or equipment during maintenance and testing.

Need to know

A clearance is a method to identify what tags in a tagout are specifically needed to protect you on your job. A single clearance only deals with the components that must be “tagged out” for you to perform your particular job. Clearances are simply electronic “paperwork” that identifies which tags are protecting you and provides signature controls for the work. These electronic signatures control the job from the creation of the clearance until the job is finished and the equipment is realigned for returning it to service.

The signatures on Clearances also:

- Authorize work
 - Track and control the alignment of plant systems (configuration control)
 - Control the removal from service of plant equipment for tagging
 - Control the return to service of plant equipment after tagging
-

Continued on next page

Clearance and Tagging Process, Continued

Control
Need to know

Clearances and their associated **tags are controlled by Operations**. This includes removing the system from service, repositioning of valves or breakers, tagging the necessary components, removing tags when work is complete, and realigning plant equipment.

The **Clearance Holder** is the Supervisor who is supervising the work. The Clearance Holders are typically maintenance foremen and they actually control their clearance by an electronic signature “lock” in the eSOMS program which prevents anyone from operating the equipment or removing the tags that are protecting you.

Practice

What is the primary purpose of the clearance and tagging process at DCPD?

- A. Control the placement of temporary equipment.
- B. Explain how to correctly disassemble, assemble or repair plant equipment.
- C. Authorize Notification sticker removal.
- D. Remove (isolate) energy from plant equipment to protect people and/or equipment during maintenance.**

Practice

What is a secondary function of the clearance and tagging process?

- A. Identify locations for QC hold points.
- B. Authorize work on plant equipment.**
- C. Maintain inventory of plant equipment.
- D. Describe how to perform work on a piece of plant equipment.

Tagouts, Clearances, and Tags

Objective 2 Describe the relationship between Tagouts, Clearances and Tags.

Introduction In the eSOMS computer software we utilize a system where there is typically a single tagout for a unit.

- A **tagout** is a list of components that will be positioned and tagged in order to remove energy (electricity, steam etc.) from the equipment that you need to work on.
- Each tagged component would typically only have one tag on it.
- When a clearance is requested to perform work and we need to have a tag on a particular component, we do not hang a new tag if the component already has a tag on it that has removed it from service. Instead the clearance will identify which tags are needed for your work and the maintenance foreman (or Clearance Holder) places an electronic “signature” lock on that tag.

In this manner we can have a single tag on a valve and have 20 different jobs (clearances) that have electronic locks preventing that tag from being removed. This “tag sharing” ability provides the following benefits:

- Fewer tags are hung by Operations
 - Clearances are created to more closely match work scope
-

Example It may be easier to think of "tagging sharing" as when you were younger and called "dibbs" on something. You probably had another family member or friend call "dibbs" at the same time. In "tag sharing" everyone can have "dibbs" on the same tag. That tag cannot be removed until everyone who called "dibbs" says it can be removed. If just one clearance holder still wants a tag, then it stays in place to protect their workers on their job.

The way we call "dibbs" on a tag is to make sure that the tag is listed on your electronic clearance.

Continued on next page

Tagouts, Clearances, and Tags, Continued

Tagouts

Need to know

Tagouts serve the function of identifying which components in the plant have danger tags and which work (clearances) are relying on that tag. So, essentially the tagout keeps track of all tags on a unit as well as which clearances are sharing the same tags. The tagout also identifies the status of all clearances and whether they have been activated and are in use.

Nice to know

There are typically three tagouts per fuel cycle; one for Unit 1, one for Unit 2, and one for common clearance points for both units.

The numbering scheme for a tagout includes the Unit and fuel cycle number:

- 0C14 (Common Unit components)
- 1C14 (Unit 1)
- 2C14 (Unit 2)

Following the end of each refueling outage, a new tagout will be written for the new cycle and the old tagout will be archived (retired).

Most of you won't be directly working with tagouts; however, the tagout number is important because it will appear on all clearances and tags.

Clearances

Need to know

Clearances can be thought of as a "section" of the Tagout or a selection of only the tags you personally need to protect you on your job. Clearances control removing equipment from service and the hanging of new tags, if the component isn't already tagged out.

Each work order requiring worker protection is tied to a clearance and its identified components that need to be tagged for protection.

Prior to work being performed Operations and the clearance holder (Maintenance) shall ensure a clearance "walkdown" is performed to (verify) all the tagged components on a clearance are in the proper cleared position. (Do not operate any plant equipment, just report problems if found.) The clearance paperwork from eSOMS will be used to perform this check.

Continued on next page

Tagouts, Clearances, and Tags, Continued

Tags
Need to know

Individual tags are assigned to each clearance point (tagged component) for worker protection. (Remember, if there is already a tag on the component then your clearance may be sharing the electronic lock on that tag.)

There are basically 3 major types of tags associated with eSOMS used at DCP, they are:

- Danger Tags
- Caution Tags
- Information Tags

Let's look at each tag and what they are normally used for.

Danger tags are red and say Danger on them. They prevent operation of the equipment and therefore are there to protect workers and/or prevent damage to equipment.

Caution tags are yellow and say Caution on them. Caution tags are warning tags. They do not prevent operation of a component; they simply warn you of some consequence that may happen if you operate the component.

(Remember, only operators can operate plant equipment.) Therefore caution tags are primarily there to protect plant equipment and are not used when the concern is protecting you the worker, during a job.

Information Tags are white with a green border and are simply information tags that provide some kind of information about a component. They are not designed to protect either personnel or equipment. There are no tag numbers on information tags.

Each tag is assigned a unique serial number that will not be duplicated. Remember, there is normally one tagout per unit and tags are often SHARED with other clearances under the same tagout.

The following picture shows the numbering scheme of a typical tag:



This is the 245th tag hung under tagout 1C14. The tag will also identify what piece of component it is hung on and the position of the component.

NOTE THAT THE ACTUAL CLEARANCE NUMBER IS NOT INCLUDED IN THE TAG NUMBER.

Continued on next page

Tagouts, Clearances, and Tags, Continued

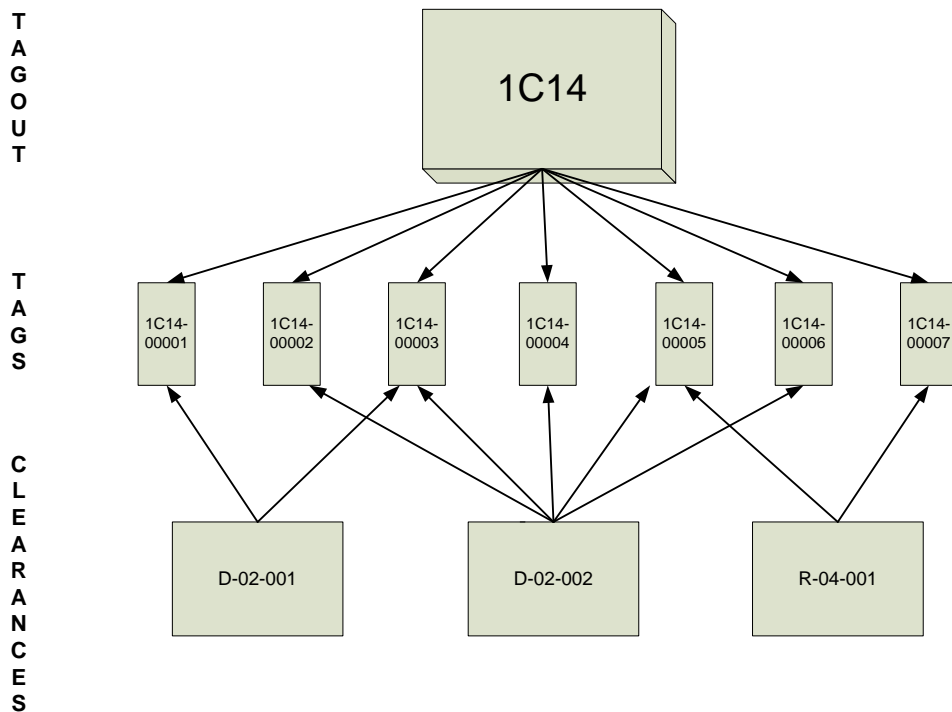
Overview
Nice to Know

It is not a good idea to put large tags on control boards or panels because they would block labeling and reading gages so there are a few other items that we call tags to discuss. In addition to the primary tags already discussed, we have the following tags:

- Control Board Danger Tags (sticker type)
- Control Board Caution Tags (sticker type)
- Control Board Information Tags (sticker type)
- Control Board Out Of Service Tags

Tag Sharing
Need to Know

The basic illustration below shows the relationship between tagouts, clearances, and tags: (Remember a single tagout covers all the tags on that unit.)



You also need to remember that the clearance is just an electronic signature lock on a group of tags.

Continued on next page

Tagouts, Clearances, and Tags, Continued

Tag Sharing Example

The above drawing illustrates an example of “tag sharing”.

- Tag 1C14-00003 is shared with clearance D-02-001 and D-02-002.
 - If clearance D-02-002 is processed for removal (work complete), only tags 1C14-00002 and 1C14-00004, and 1C14-00006 will be removed because the other tags in the clearance (1C14-00003 & 1C14-00005) are still being used by another clearance to protect workers on a different job.
-

Numbering System Need to Know

Tagout numbers are short. They simply identify the Unit number and which fuel cycle the unit is on. For Example: 1C15

Tag numbers are very simple to identify. They identify the tagout number and which tag they are in the tagout. For example: 1C15-0100 would be the 100th tag for unit 1 for refueling cycle 15.

Identifying clearance numbers is a little more complicated. For example: R-02-005

- The first number tells you what this clearance was written for (in this example for a refueling outage):
(D) - Type of clearance:
 - D = Daily work
 - F = Forced Outage
 - R = Refueling Outage
 - S = SFM Configuration Control
- The second number is the system number. All systems in the plant have their own number assigned to identify them (in this example (02) - is the System number
- (005) - Sequential number of clearances that have been created for this system (in this case this is the 5th).

Note that the clearance number does not include the (1C15) tagout number as part of the number.

Continued on next page

Tagouts, Clearances, and Tags, Continued

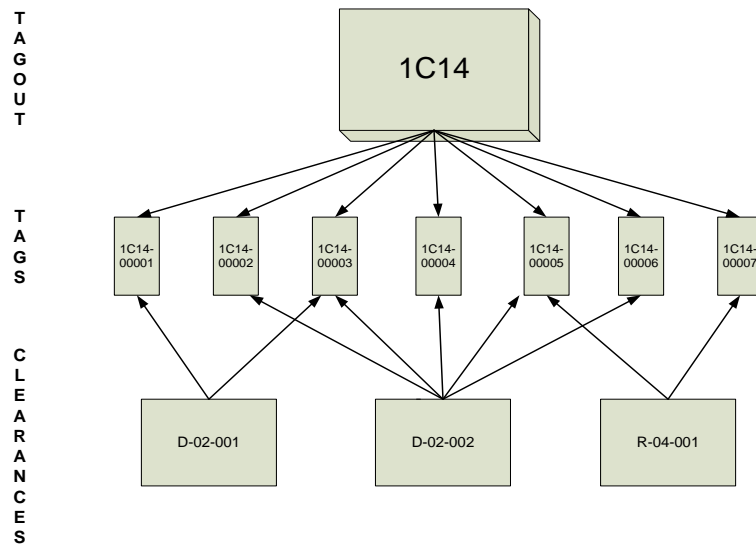
Practice What controls ALL of the tags on a Unit during a given fuel cycle?

- A. **Tagout**
- B. Clearance
- C. Temporary Lift
- D. Work Activity

Practice Which of the following types of information is NOT found on a Danger Tag?

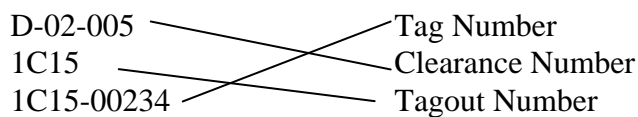
- A. Position of Component
- B. Tag Serial Number
- C. **Clearance Number**
- D. Component Description

Practice Using the drawing below, which one of the tags is shared by clearances D-02-001 and D-02-002?



The correct answer is tag IC14-00003

Practice Match the following:



Locating a Clearance in eSOMS

Objective 3 Describe the method to log into eSOMS, view and print a clearance.

Introduction Viewing a clearance electronically in the eSOMS program may be necessary to check the status of a clearance. Operators will need to print a hard copy of a clearance in order to hang tags and position components. If you work for Maintenance you will also need a hard copy to “walkdown” the clearance to ensure all the tags are in place.

Remember, if you have never logged into eSOMS before, have your foreman or supervisor help you the first time.

Need to Know Anyone that can access eSOMS should be able to view and print clearance information. We don't expect all workers to become an expert at using this software, however, we do expect you to be able to find a clearance and identify its status. If you are not familiar with how to start the eSOMS program, ask your foreman or supervisor for assistance.

Continued on next page

Locating a Clearance in eSOMS, Continued

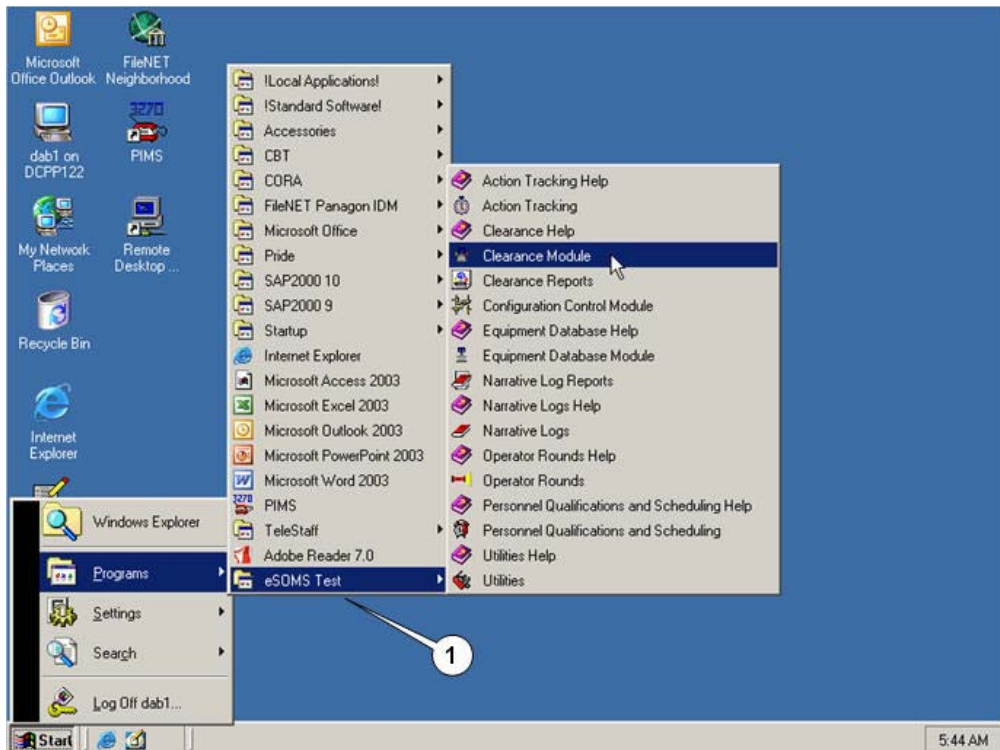
Starting eSOMS
Need to know

Starting:

On your computer click on: Start > Programs > eSOMS > Clearance Module

- Use the menu path to access the Clearance Module. Two versions of eSOMS will be available - one for training and one for real use. Menu path selections will determine the version being used. The example menu path selection uses 'eSOMS Test' as the selected version. In the real world, a choice will be available for training or real use.

Note: The Clearance Module can also be opened via a desktop icon if available.



Continued on next page

Locating a Clearance in eSOMS, Continued

Need to Know

Logging in:

1. Enter your “Login ID” and “Password”. (If you do not have network access ask your supervisor for help.)
2. Click the OK button.

Note: If you click the Cancel button while changing users, the eSOMS program will close for security reasons



eSOMS SUITE

Copyright © Ventyx, Inc.
All rights reserved

The computer program is protected by copyright law and international treaties. Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.

TECH-ASSIST Ventyx▶

Login ID: Ok

Password: Cancel

OLE

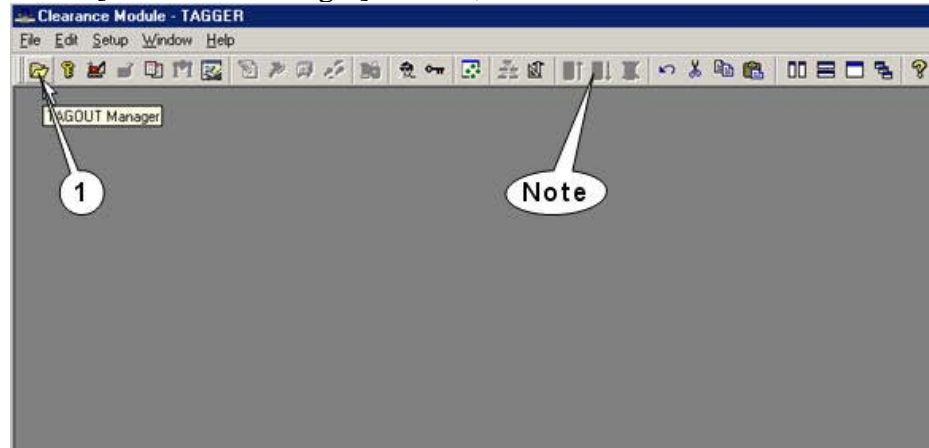
Continued on next page

Locating a Clearance in eSOMS, Continued

Finding a Clearance
Nice to know

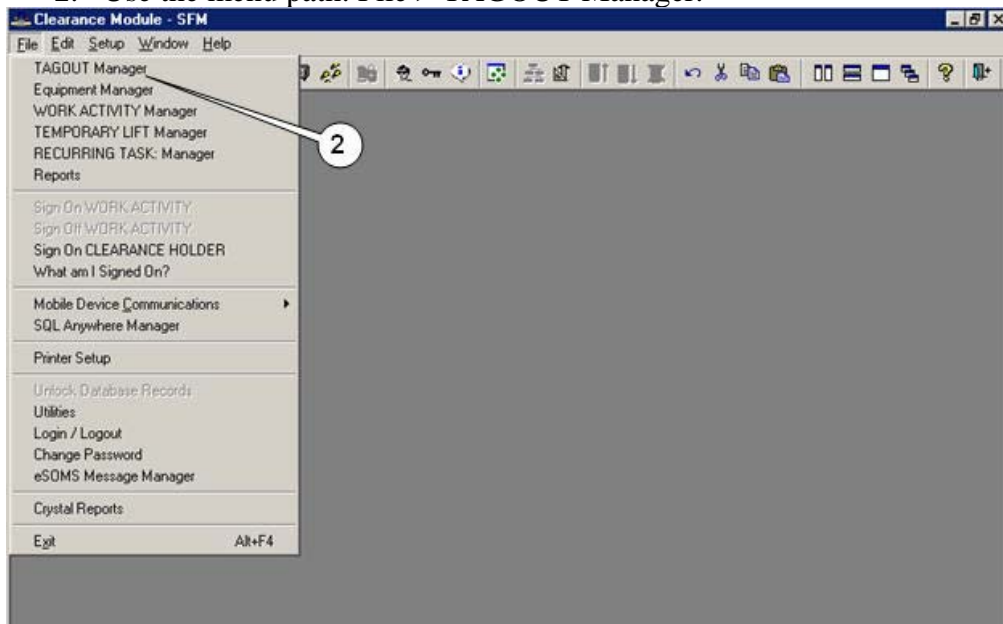
Opening the Tagout Manager

- If the screen initially comes up blank.
1. Click the TAGOUT Manager button to open the “Clearance Module – user – [TAGOUT Manager]” screen,



OR

2. Use the menu path: File > TAGOUT Manager.



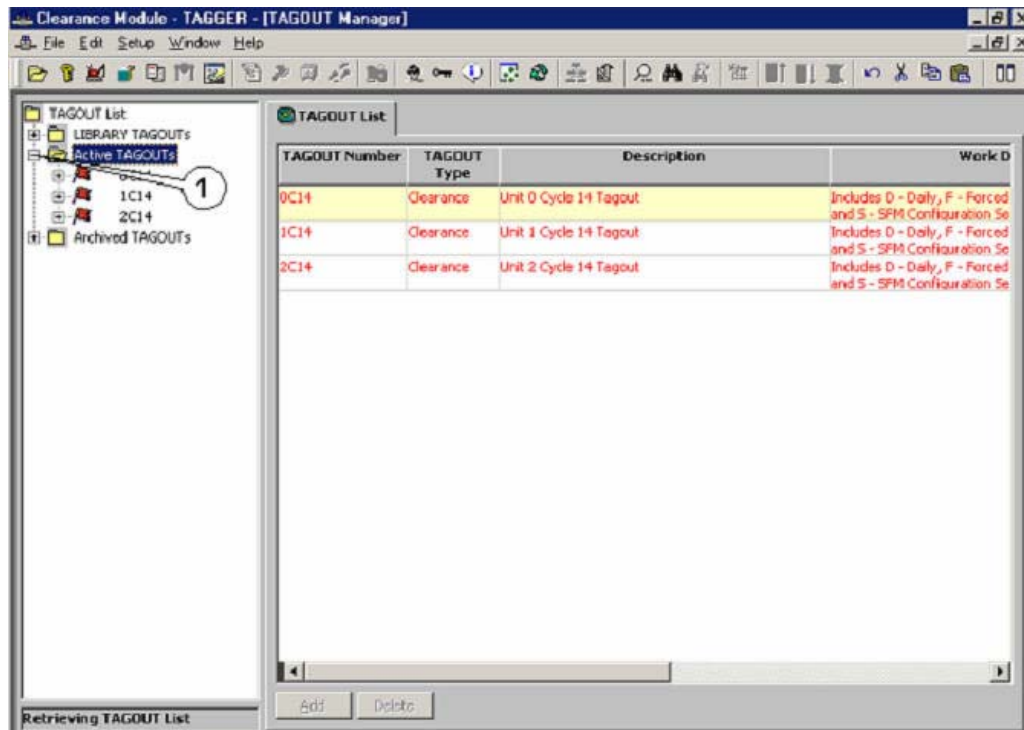
Continued on next page

Locating a Clearance in eSOMS, Continued

Nice to Know **Opening the Active Tagouts (& Clearances) Folder**

The TAGOUT Manager may be used to view lists of Library, Active, and Archived Tagouts. We are only concerned with the Active Folder.

Active Folder – Contains active tagouts & all clearances currently being prepared or used to control work. Note: This does not mean that all the clearances in the folder are "ACTIVE".



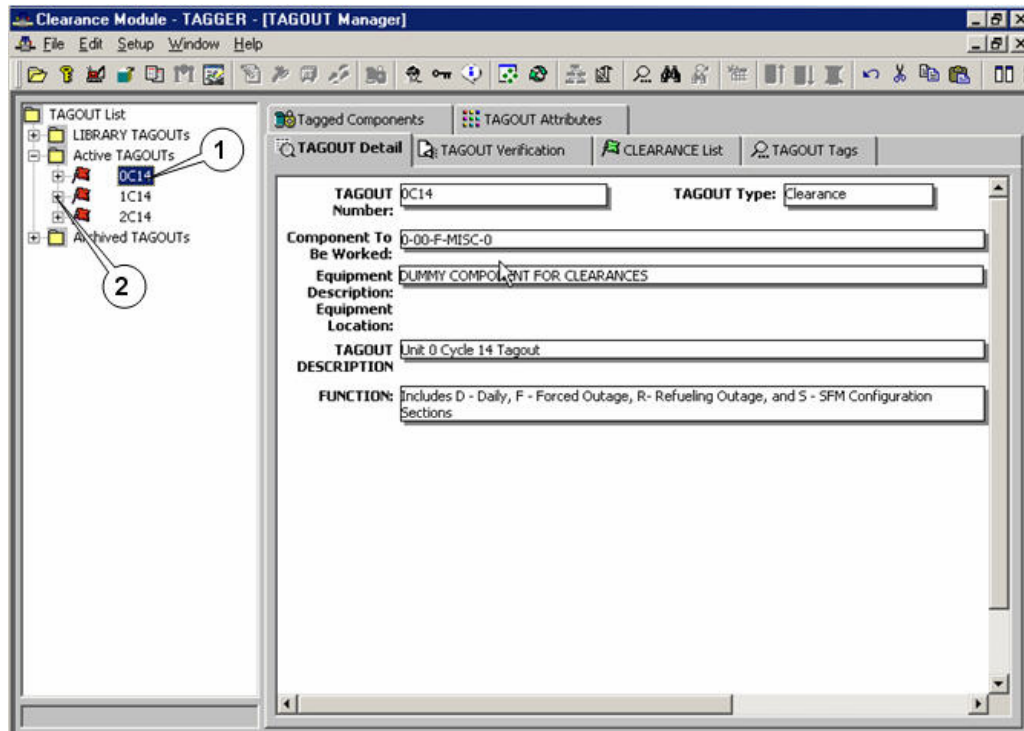
Continued on next page

Locating a Clearance in eSOMS, Continued

Nice to Know

Displaying the Active Tagouts

- Click on plus sign for “Active TAGOUTS” to expand its tree and show a list of all tagouts in effect at the time.
- Normally there will be three Active Tagouts; one per unit and one for common components.




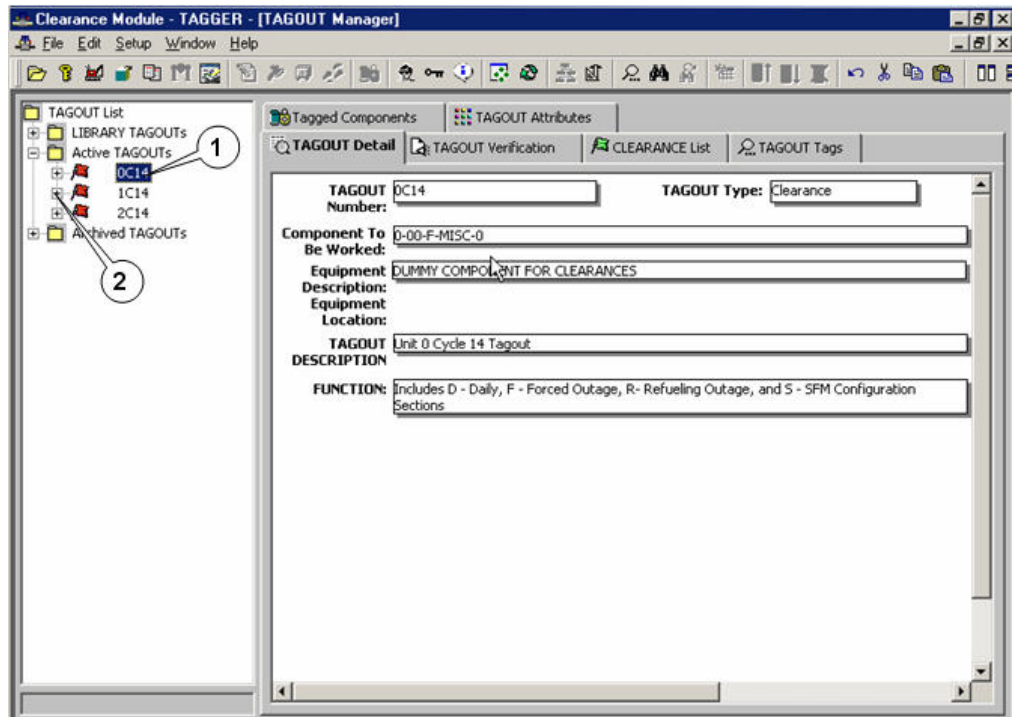
Continued on next page

Locating a Clearance in eSOMS, Continued

Nice to Know

Review Tagout Details

1. Click Tagout Number to display its information.
Note: The information for the selected Tagout can be displayed by clicking the desired tab.
2. Click on plus sign  for the desired tagout folder to display the available clearances.



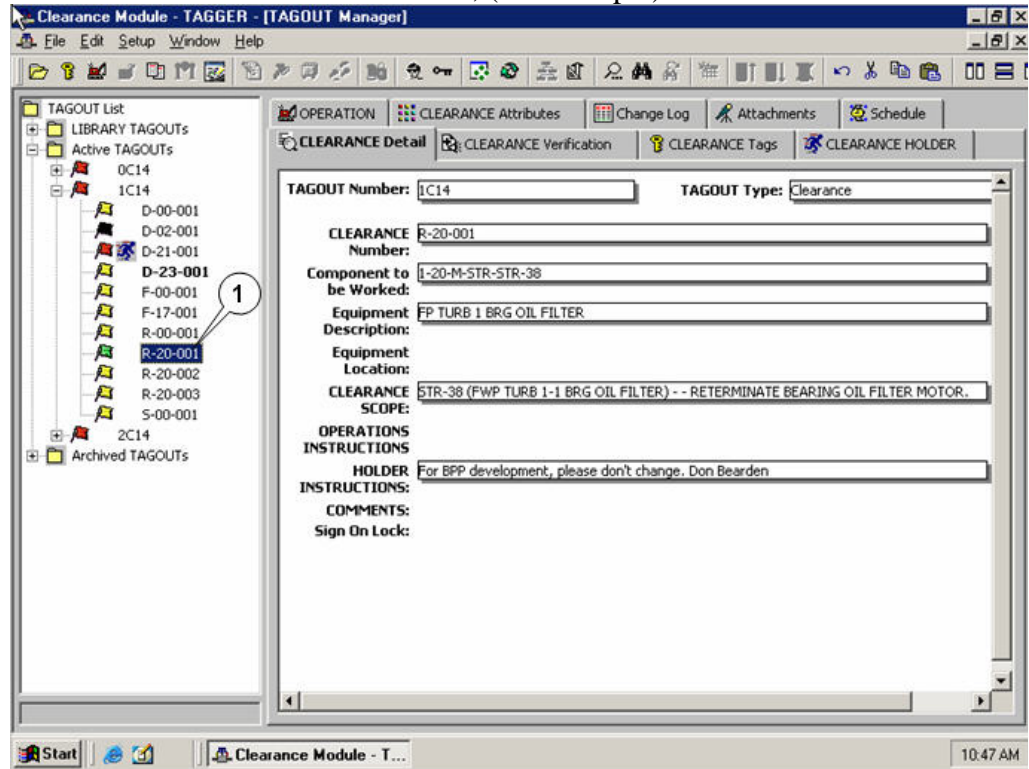
Continued on next page

Locating a Clearance in eSOMS, Continued

Finding a Clearance
Nice to know

Find & Review Desired Clearance

- Click the Clearance Number, (for example) to view clearance.



Continued on next page

Locating a Clearance in eSOMS, Continued

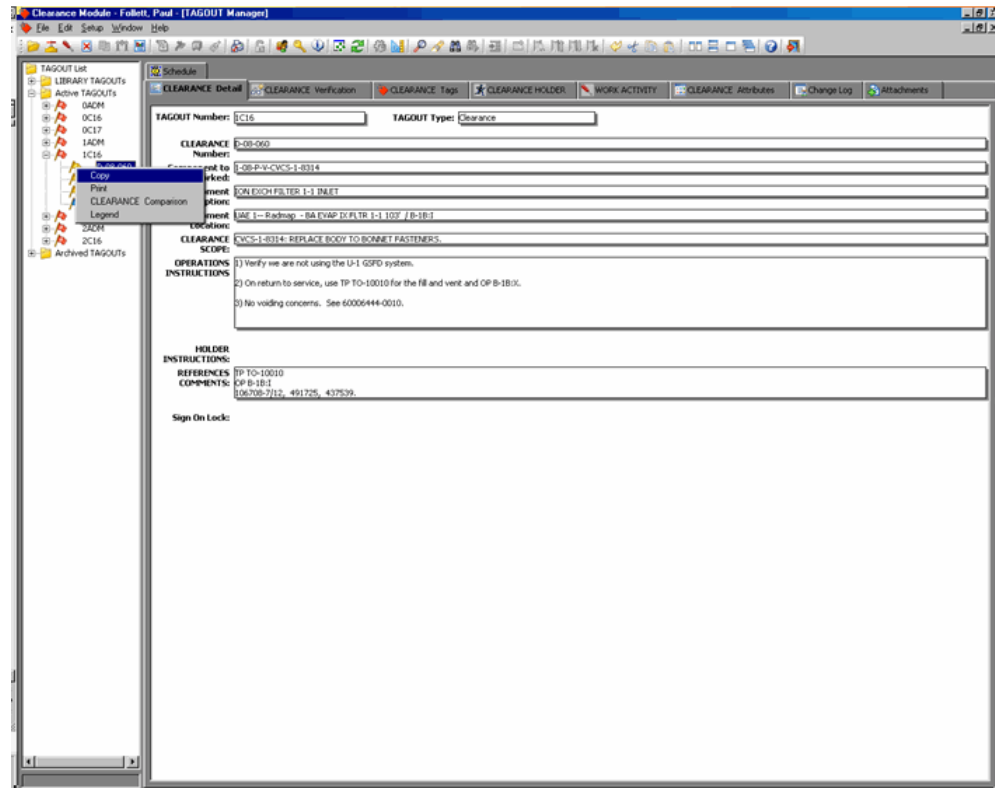
Reading and Printing a Clearance

Need to know

Printing the Desired Clearance

1. Clicking on the clearance number and right clicking on the mouse also allows you to print the clearance.

Note: It may take several seconds after closing the Select Default Printer dialog box before the Print dialog box or a waiting hourglass appears.



Practice

Who has the ability to view and print a clearance?

- A. Anyone that has been granted access to log into eSOMS**
- B. Operations Personnel only
- C. Clearance Coordinators only
- D. PG & E employees only

Practice

Under which folder would you normally find a clearance assigned to your work activity?

- A. Library
- B. Active**
- C. Archive

Clearances

Objective 4 Given a copy of a clearance, determine the status of that clearance.

Introduction We expect all workers to be able to identify if a clearance is active and in place to protect you before you start working. Therefore you need to be able to look at the electronic screen and be able to recognize the status of your clearance. (It really isn't that difficult.)

Clearance Cover Sheet
Nice to know The clearance Cover Sheet contains information about the clearance and what it is designed for. This includes instructions to the person who will be the clearance holder, instructions for Operations, and a list of work activities that the clearance was written for.

Clearance Verification
Need to know A clearance in eSOMS changes status many times from the time it is first created, to the point where the work and the clearance are completed.

Status of a clearance and what it means to you:

- Prepared (clearance created in eSOMS)
- Reviewed (verified correct by a second person)
- Approved (operations authorization to hang tags)
- Active (work may be performed)
- Off (Operation in process of removing tags –no craft work allowed)
- Complete (verified tags removed)

To identify the status of a clearance, simply look down the user columns to see the last name that has been entered electronically. Then look straight across to the status of the line where that last signature was entered. That **IS** the status of your clearance. Remember, the only status that allows craft to perform work is **ACTIVE**.

The following verification levels are indicated on the clearance:

Continued on next page

Clearances, Continued

You can tell the status of the clearance by seeing if there is a name listed as a user for a given status. (The status of this clearance is APPROVED.)

CLEARANCE Verification:

Status	Description	User	Verification Date
PREPARED	Prepared	McReady, Michael	06/16/2006 12:05
REVIEWED	Reviewed	Oberon, Ralph S	06/16/2006 12:09
APPROVED	Authorized	Blackstone, Arthur	06/16/2006 12:10
ACTIVE	Tags Verified Hung		00/00/0000 00:00
ACTIVE	Removal Prepared		00/00/0000 00:00
ACTIVE	Removal Reviewed		00/00/0000 00:00
OFF	Removal Authorized		00/00/0000 00:00
COMPLETE	Tags Verified Removed		00/00/0000 00:00

Clearance Tag List

Nice to know

The Clearance Tag List can be found in eSOMS and shows all tags assigned to a particular clearance. (This includes new tags needed as well as tags already in place that will be shared with other clearances.) It also contains information on what the operators need to do to restore the equipment to normal operational status.

Clearance Holder List

Nice to know

If desired, a list of Clearance Holders (maint supervisors) for a given clearance can also be printed. (Remember, the Clearance Holder is the maintenance supervisor who is placing their electronic signature “lock” in eSOMS on the clearance and therefore the tags needed for the clearance.) Normally you will have one Clearance Holder but it is possible to have several.

Continued on next page

Clearances, Continued

Practice

What is the status of the following clearance?

- A. Prepared
- B. Approved**
- C. Active
- D. Complete

CLEARANCE Coversheet
TAGOUT: 1C14
CLEARANCE: R-08-001
Component to be Worked:
 1-08-E-MTR-CVCS-1-LCV-112B
 LCV-112B* VOL CONT TK OUTLET VLV 1

CLEARANCE SCOPE:
 Work on Motor

OPERATIONS INSTRUCTIONS
 Training Clearance.

HOLDER INSTRUCTIONS:
 Holder to sign on.

COMMENTS:
 Training only.

CLEARANCE Attributes:

Attribute Description	Attribute Value
Sealed Valves	No
Fire Protection Review	
Chemistry Review	
Rad Protection Review	
Engineering Review	
Other Review	
Bus - Train	Non-vital
Risk Management Actions	NOTrip or PRA risk management required
Train Level SSC (TLS)	None

WORK ACTIVITY List:

CLEARANCE Verification:

Status	Description	User	Verification Date
PREPARED	Prepared	Bearden, Donald A	05/31/2006 08:47
REVIEWED	Reviewed	CLRCOOR	05/31/2006 08:47
APPROVED	Authorized	SFM	05/31/2006 08:48
ACTIVE	Tags Verified Hung		00/00/0000 00:00
ACTIVE	Removal Prepared		00/00/0000 00:00
ACTIVE	Removal Reviewed		00/00/0000 00:00
OFF	Removal Authorized		00/00/0000 00:00
COMPLETE	Tags Verified Removed		00/00/0000 00:00

PACIFIC GAS AND ELECTRIC
DIABLO CANYON POWER PLANT

05/31/2006 09:31

Tagging Requirements

Objective 5 Describe the general requirements for hanging and removing tags.

Introduction The physical and electrical boundaries of a clearance are identified by the tags identified on a clearance. Danger tags represent a “hands off” message to everyone. Any other tags should represent a “hands off” message to anyone who does not have explicit permission to operate the equipment.

General Requirements
Need To Know

The general requirements for hanging and removing DCPD tags are specified in procedure OP2.ID2 (Tagging Requirements) and are as follows:

1. Multiple tags may be hung on a single component. (Remember, although multiple tags are allowed, typically you will only find one tag on a component.)
2. When hanging a tag, if a conflict develops regarding the position of a device, the tag already hanging **SHALL** govern. (In other words, if placing a second tag on a component and the new tag identifies the component should be repositioned –**DON’T DO IT!!!**)
3. A tag hierarchy (importance level) is used to resolve conflicts that develop when multiple tags are hung on a single component. The hierarchy from highest to lowest is:
 - Red Tag (Maintenance Red Tags to be discussed in next objective)
 - Danger Tag
 - Caution Tag
 - Information Tag
 - Out of Service Tag
4. Plastic tag holders or weather resistant tags should be used when hung outdoors for long time periods, during adverse weather conditions.
5. Tags **SHALL NOT** be erased or otherwise defaced.
6. Tags associated with a clearance may be temporarily removed when authorized by the clearance procedure. (To be covered later.)
7. Tags placed on or near a control device **SHALL** be placed or modified so they do **NOT** obscure indications, labels, or other operator visual aids. The tags **SHALL** be placed so that it is clear to which device the tags belong.

Continued on next page

Tagging Requirements, Continued

Practice

Identify the correct tag hierarchy, from highest to lowest.

- A. Caution Tag, Information Tag, Danger Tag.
 - B. Red Tag, Caution Tag, Danger Tag.
 - C. Red Tag, Danger Tag, Caution Tag.**
 - D. Danger Tag, Caution Tag, Red Tag.
-

Red Tags

Objective 6 Explain the use of a Red Tag.

Use of Red Tags

Nice to know

A red tag is a maintenance tag, which the clearance holder ensures is hung. The tag acts as a warning tag that a job is still in progress. A (maintenance) red tag is not an actual part of the clearance. It is a separate tag designed to ensure maintenance workers that danger tags won't be accidentally removed.

- (Maintenance) red tags don't control the position of a component; they simply warn an operator who may have been sent out to remove tags that there is a problem.
 - If an operator encounters a (maintenance) red tag while removing danger tags, they will immediately stop and contact control room supervision for guidance.
 - Just like Danger tags, Red tags represent a "hands off" message to everyone.
 - Red Tags are used by Clearance Holders (maintenance supervisors) and workers to provide personnel protection by ensuring that a clearance point and/or danger tag will not be violated.
-

Description

Need to know

The Red Tag consists of two parts - the main body and an identically numbered stub. Both portions shall be filled in by the maintenance group using the clearance. The Clearance Holder is responsible to ensure that a red tag is hung.

Both the (maintenance) red tag and the danger tag are red in color. When we are talking about a tag to protect workers as part of a clearance we will call it a danger tag. When we refer to a tag as a red tag we are talking about a (maintenance) red tag which has been placed on a component by the worker or foreman.

General Guidelines

Need to know

- At least one red tag **SHALL** be hung anytime a craft performs work associated with a clearance containing DANGER tags.
 - Red tags **SHALL** only be hung on active clearance points (tagged locations) associated with the holder's clearance. This is important. Be sure the point you are hanging the Red Tag on is associated with your clearance.
 - Red tags **SHALL** be filled out with the name of the tag holder and the clearance, procedure, or work order activity number.
-

Continued on next page

Red Tags, Continued

Effect
Need to know

When a Red Tag is attached to a component, the component shall NOT be operated, and the tag associated with the clearance shall not be removed.

Hanging Guidelines
Need to know

- A Red Tag is only hung after the clearance boundaries have been established, the tags identified on the clearance have been hung, and the clearance is **ACTIVE**. (Remember, craft can only perform work if the clearance is **ACTIVE**.)
- When only one Red Tag is hung it is normally placed on the most significant clearance point.
- The Clearance Holder should make sure the Red Tags are hung and tracked as follows:
 - Attach Red Tag to one or more clearance points
 - Record the tag in the work activity package or on form 69-11636, "Configuration Documentation Sheet."
 - Detach the red tag stub.
 - The Red Tag stubs should be retained until the work is complete:
 - By the Clearance Holder
 - By the assigned craft, or
 - Attached to the work package associated with the clearance.

Tag Removal
Need to know

The Clearance Holder should ensure the red tags are removed as follows:

- Red tags may only be removed after the red tag stub holder releases the matching stub to the Clearance Holder after the completion of a job or Temporary Lift. (A temporary lift is when a clearance is temporarily removed for some activity, such as a pump rotational check after reconnecting power to the motor.)
- Record the removal of the tag in the work order activity package or on Form 69-11636, "Configuration Documentation Sheet."

IMPORTANT!!!

In an emergency situation when the plant equipment must be placed in service, the Shift Foreman (SFM) may remove the Red Tag after verifying all associated work activities are stopped and all workers are clear, and system integrity is verified. Subsequently, the SFM **SHALL** inform the tag holder. It is important to note that the SFM's responsibility in this situation shall not be delegated to another person.

Continued on next page

Red Tags, Continued

Lesson Learned When sent to remove Danger Tags in accordance with clearances, Operators have found components with the Red Tags still hanging. Operators must resolve all Red Tag discrepancies before the Danger Tag can be removed. This is an obvious procedure violation and causes a lot of wasted time.

Always ensure that your Red Tag has been pulled prior to “signing off “ (removing the clearance holders electronic signature lock) on a Clearance or accepting a Temporary Lift.

Practice What is the minimum number of Red Tags that must be hung anytime a craft performs work associated with a clearance containing Danger tags?

- A. 0
- B. 1**
- C. 2
- D. 3

Practice Who can remove a Red Tag without having control of its stub?

- A. Any qualified Clearance Holder.
- B. The Team Leader for the crew.
- C. Operations, as long as all Danger tags are removed.
- D. The Shift Foreman, but only in an emergency.**

Danger Tags

Objective 7 Explain the use of a Danger Tag.

Uses of Danger Tags
Need to know

Danger Tags shall be used to maintain personnel safety by tagging devices to:

- Isolate sources of liquid, steam, or gas.
- Isolate electrical power.

This places equipment in a safe condition for maintenance, repair, or testing.

Description
Nice to know

Danger tags or Control Board Danger stickers both have the same impact. Regardless of which form is used, the meaning stays the same. At a minimum, a Danger Tag shall be filled out with the following information:

- The description or number of the device to which the tag will be attached.
- The name of the tag holder. (Control Room Shift Foreman)
- The tag serial number.
- The component position.

Tagging
Need to know

Danger Tags are hung as specified by the approved clearance. **Operations personnel hang Danger Tags** associated with clearances. (Although some procedures and Loop tests specifically deal with hanging Danger tags for other than clearance purposes, these uses are beyond the scope of this lesson.)

In rare cases, the craft can hang and remove Danger Tags in accordance with sign-off steps in an approved procedure or loop test. These tags are not associated with a clearance.

Danger Tags should not be used to clear (tag) a valve in the open position. (If needed, this would be done with the use of a caution tag.) (An open valve is not isolating anything and therefore not protecting personnel.)

Continued on next page

Danger Tags, Continued

<p>Effect Need to know</p>	<p>A component tagged with a Danger Tag shall not be operated or adjusted except to apply force to the component's handle in the direction of the required position.</p> <p>In the past system isolation has been lost by attempting to perform unauthorized adjustments to stop leakage.</p> <p>If you are not an operator, you don't operate plant equipment.</p> <p>Remember, a danger tag is only protecting people if the equipment with the tag on it remains in the plant. Never take a component to the shop if it has a danger, caution, or maintenance red tag on it. Most components going to the shop should have no tags on them.</p>
<p>Additional Guidelines Need to know</p>	<p>The following guidelines apply to Danger Tags:</p> <ul style="list-style-type: none"> • A Danger Tag is normally placed on the source of power. Danger Tags are used on control switches only when there is no other method for isolating the energy source. • All plant equipment must be properly tagged immediately after it is cleared (removed from service). Installation of the Danger Tag prevents further operation, which helps maintain configuration control.
<p>Tag Removal Nice to know</p>	<p>Danger Tags are only removed as specified by an approved clearance, procedure, or loop test.</p>
<p>O/E</p>	<p>There have been several instances where a tagged component was removed from a system for maintenance. The problem occurs when the component is replaced without the tag attached. This is a serious violation of the clearance that could lead to personnel injury. If you want to remove a tagged component, be sure to get the tag processed for removal first. Do NOT remove any component with a Caution, Danger, or Red tag hanging on it.</p>
<p>No Danger Tags Required Nice to know</p>	<p>Maintenance activities controlled by procedures or loop tests that are of minimal personnel safety risk do not require Danger tagging. Examples include:</p> <ul style="list-style-type: none"> • Transmitter calibration • Gauge replacement • Filter change

Continued on next page

Danger Tags, Continued

Practice

Which of the following is a valid use of a Danger tag?

- A. **Tagging a breaker open.**
 - B. Tagging a valve open.
 - C. Tagging a valve for removal.
 - D. Tagging a breaker closed.
-

Practice

A component tagged with a Danger tag shall **NOT** be operated by:

- A. anyone, except QC Inspectors.
 - B. maintenance personnel unless needed for testing.
 - C. **anyone.**
 - D. anyone, except test engineers.
-

Caution Tags

Objective 8 Explain the use of a Caution Tag.

Uses of Caution Tags
Need to know

Caution Tags are used to:

- Designate open vents and drains on clearances.
- Control plant equipment configuration in accordance with surveillance test procedures, operating procedures, or work orders.
- Tag valves that will be manipulated by Maintenance.

Note: If the valve must be closed as a clearance boundary for personnel protection, a Danger Tag must be used.

Description
Need to know

When the Caution Tag is used as a sticker, it is called a Control Board Caution sticker. Regardless of which way it is used, the meaning stays the same.

Caution Tags should be filled out with the following information:

- The description or number of the device to which the tag is to be attached.
- The name of the person who initiated the tag. (Control Room Shift Foreman, if tag a point on a clearance.)
- The tag serial number, procedure, loop test, or work order activity number.
- The required position.

Control Board Caution stickers (because of their size) may not contain all the information found on Caution Tags.

Tagging
Need to know

Caution Tags shall be hung, removed, and documented by an approved clearance, procedure, loop test, or a work order activity. The controlling document has sign off signatures for installation and removal. For example:

- Operations personnel hang caution tags involved with clearances.
- Maintenance personnel hang caution tags involved with instrumentation work.
- Engineering personnel may hang caution tags designated in special or surveillance test procedures.

Remember, if the tag is part of a clearance it is always hung by operators.

Continued on next page

Caution Tags, Continued

Effect
Need to know

Components with Caution Tags should not be operated except upon specific instructions from the person named on the tag.

Additional Guidelines
Need to know

The following are additional guidelines for Caution Tags:

- A Caution Tag must "**NOT**" be used when a Danger Tag is required for personnel safety.
- Control Board Caution Stickers should be hung on control board devices to indicate which plant equipment has been cleared or otherwise removed from service.

Practice

Which of the following is an IMPROPER use of a Caution tag?

- A. Identifying cleared equipment in the Control Room.
- B. Tagging air supplies to control valves that will be manipulated by maintenance.
- C. Maintain personnel safety by tagging devices to isolate electrical power, liquid, steam, or gas.**
- D. Identifying or designating any open vent valves and drain valves within a clearance boundary.

Information (Info) Tags

Objective 9 Explain the use of an Information (Info) Tag.

Uses of Info Tags
Need to know The Information Tag is used to provide general information regarding the status of equipment. They are meant to be used for short term, abnormal situations. If the information is of long term significance, a more permanent method of conveying the information should be used such as a procedure change or a lamicoid.

Information Tags shall NOT be used in place of a Danger Tag, Caution Tag, or Notification Tag. (Notification tags from SAP will be discussed next.)

Description
Nice to know An Information Tag should be filled out with the following information:

- The date hung.
- The name of the person who is hanging the tag. For temporary workers, it would be a good idea to also include your foreman's name.
- The number of the document that lists the hanging and removal of the tag, when applicable.
- A legibly printed message.

Tagging
Need to know An Information Tag hung on installed plant equipment should be documented with an approved procedure, clearance, Notification, loop test, or work activity that documents the hanging and removal of the Information Tag.

Information tags may be hung by anyone who needs to provide information regarding the status of equipment.

Effect
Need to know Hanging an Information Tag merely provides information. If there is a reason the component should not be operated, an Information Tag is NOT the correct tag to use.

Continued on next page

Information (Info) Tags, Continued

Additional Guidelines

Nice to know

Information tags are often used within shops to track information about components being repaired. Use of information tags on these components that are not installed in the plant or on tools and materials stored within the plant is not within the scope of this lesson.

Out of Service (OOS) Stickers

Nice to know

Another format of the Information tag is the Out of Service (OOS) sticker. This sticker is generally used to identify an indicating device that is cleared, being tested, or unreliable. On clearances, the sticker is usually affixed on control board instrument indicators and sometimes used at local indicators. Instrumentation loop tests and procedures usually address and track the use of OOS stickers.

Practice

Information tags are used for the following:

- A. Replace caution tags in some situations.
 - B. Provide general information regarding the status of equipment**
 - C. Maintain personnel safety for work activities.
 - D. Replace Danger tags, if Red tags are used.
-

Notification Tags

Objective 10 Explain the use of a Notification Tag.

Introduction At Diablo Canyon we use software from a company called SAP to control
Nice to know and manage our work at the plant.

In SAP software they use a term called "Notification" to describe the electronic form that is used to report problems. Their idea is that if you find a problem that needs attention or a component that needs repairs then you need to notify someone of the problem you discovered. Therefore they say if you need to notify someone of a problem or issue then you need to fill out the electronic notification form.

Use of Notification Tags A Notification is an electronic form in SAP that is often created to indicate
Need to know that some kind of repair, modification, or test needs to be made to some piece of equipment or to a facility (normally) inside the power block (the plant itself).

Notification Tags are used to indicate that a Notification has been initiated for the tagged equipment. **This tag should be hung by the person who initiates the Notification.**

Tagging The fact that the Notification Tag has been hung shall be indicated on the
Nice to know Notification by filling out the section provided for that purpose. Be sure to include the location(s) of the Notification tag on the equipment. If you do not have access to SAP then request your foreman or supervisor to do this for you.

Removal Any Notification tags attached to equipment or Notification stickers on
Need to know control boards shall be removed after the problem has been resolved, but prior to closure of the Notification.

In most cases, **the Notification tag should be removed by the person who has corrected the problem** (e.g., technician, mechanic, foreman, planner, engineer). In all cases, the person closing the Notification shall ensure that all Notification tags and stickers have been removed.

Continued on next page

Information (Info) Tags, Continued

Practice

Who normally removes Notification tags?

- A. Clearance Holder.
 - B. The person who initiated the Notification.
 - C. Shift Foreman.
 - D. The person who corrects the problem.**
-

Clearance Process

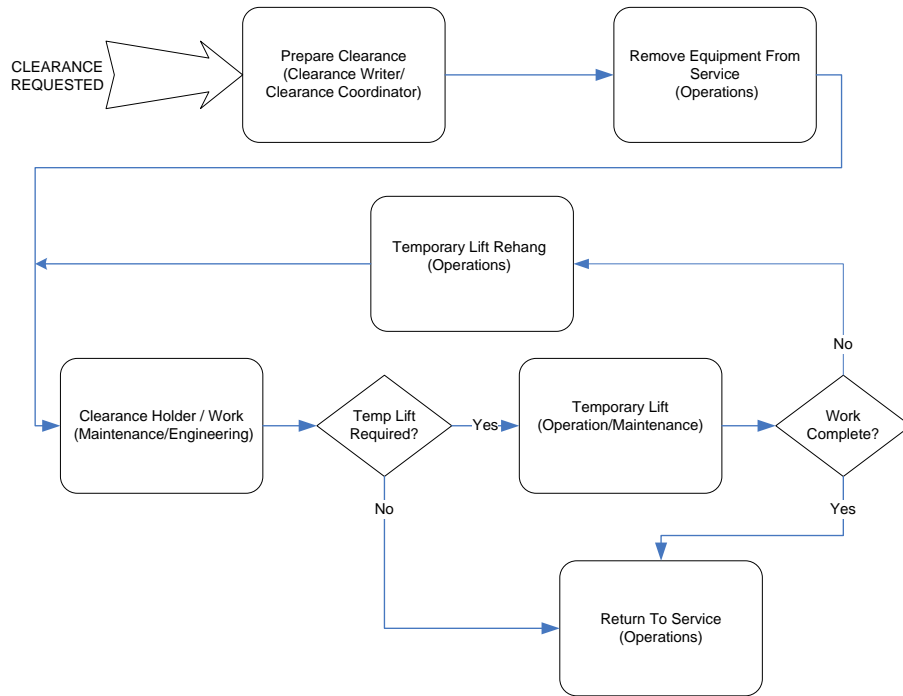
Objective 11 Describe the clearance process from preparing a clearance to returning equipment to service.

Introduction The clearance process is designed to ensure that work and testing are performed in a safe, orderly, and controlled manner. Most of the actions required in the clearance process are performed by Operations personnel. The performance of these duties may vary among members of the Operation crew:

- Shift Manager (SM) – Individual who has overall command and control of the plant (both Units.)
- Shift Foreman (SFM) - Individual who has overall command and control of the Unit (there is one SFM for each Unit.)
- Work Control Foreman (WCF) – SFM qualified individual who directs work being performed out of the Work Control Center in the 119’ elevation of the Turbine Building. (There is one WCF.)
- Work Control Lead (WCL) – Reports to the WCF and coordinates the work performed by Operators.

Clearance Process Overview

The flowchart below provides an overview of the clearance process:



Continued on next page

Clearance Process, Continued

Clearance Process An overview of the clearance process is described in the table below.

Process

Need to know

Stage	Description
1.	Prepare Clearance – qualified individuals (Clearance Writers and Clearance Coordinators) create the clearance and have it second checked by another qualified person.
2	Remove From Service – once the clearance is created it is reviewed and approved, operators remove the equipment from service & hang tags, then the clearance is taken to active.
3	Clearance Holder/Work (Typically a Maintenance Foreman) – Once the clearance is active the clearance holder walks down the clearance verifying that components are properly positioned and tags are properly hung. Maintenance Red tags are also hung during the clearance walkdown. Work is performed. After the completion of all work, Red Tags are removed and the Clearance Holder Signs Off of the Clearance.
4	Revision - If it is determined during the walkdown or at any time performing work that a change to the clearance boundaries is required, the Clearance Holder should contact the Clearance Coordinator and request a clearance revision.
5	Temporary Lift - The Temporary Lift process removes clearance tags from cleared equipment and returns equipment to service as necessary to perform testing without having to Report Off of the clearance. Temporary Lifts should only be used when the Clearance Holder thinks that work will be required following the testing of equipment.
6	Return To Service - After all Clearance Holders signed "on" to a clearance have signed "off", the clearance is prepared and approved for removal, the Operators remove all tags not shared with another clearance and return the equipment to service.

Continued on next page

Clearance Process, Continued

Practice

Your Maintenance Foreman has just learned that Operations has just completed hanging their clearance and it has been taken to "ACTIVE." What, if anything, would normally be done prior to performing work?

- A. Remove the equipment from service and hang the DANGER tags.
 - B. Perform the work per the Work Order; a Walk Down is not required.
 - C. Initiate a Temporary Lift to perform post maintenance testing.
 - D. Walk down the clearance and hang the Red Tag(s).**
-

Practice

What is the next step in the clearance process after the clearance is approved?

- A. The equipment is removed from service and the tags hung.**
 - B. Work is performed.
 - C. Red tag(s) are hung.
 - D. Equipment is returned to service and the tag(s) removed.
-

Using the Electrical Bus Mimic Board

Objective 12 Explain the use of the electrical bus mimic board.

Introduction During outages, 4kV and 480v electrical busses are cleared for maintenance (de-energized). This maintenance often includes testing the breakers. Many of the individual load breakers have Danger Tags on them because they are associated with a clearance. Prior to testing these breakers, the tags must be moved. The purpose of the electrical bus mimic board is to provide a place to move and track these tags, using the process described below.

An Operations Bus Mimic Board Clearance Holder will be responsible for overall coordination of use of the mimic board.

Description
Need to Know The Mimic Board is a large portable peg board with numerous hooks. Each hook is numbered to correspond to a breaker number. It is placed in the bus room when it is to be used.

- If a breaker is to be removed then all the tags located on the breaker must be moved to the mimic bus (pegboard) which acts as a place holder until the breaker is returned from the shop.
 - When the breaker is returned, the process is reversed and the tags are removed from the mimic bus (pegboard) and returned to the breaker. There is a detailed process to ensure that these tag transfers are done safely and correctly.
-

Continued on next page

Using the Electrical Bus Mimic Board, Continued

Bus Mimic Board Tags Need to Know

In order to use the Bus Mimic board Operations first deenergizes and clears the power bus that is supplying the breaker cubicle.

Operations is responsible for all removal and replacement of tags back to load breakers or the load center once breakers have been tested or returned from the shop.

Remember, you cannot test a breaker or take it to the shop to be refurbished if it has a danger tag, caution tag, or maintenance red tag attached.

Practice

During outages, a Mimic Bus boards is used:

- A. to provide temporary power while a bus is tested.
 - B. as a marked up drawing in the OPS Work Control Center.
 - C. as a special bus to calibrate Test Equipment.
 - D. as a peg board to hang tags to allow testing of bus breakers.**
-

Recent Industry & DCPD Clearance Events

O/E

Craft began work on wrong component.

- While beginning work on AIR-I-2-RV-158 replacement, the Craft inadvertently went to AIR-I-2-RV-353.
- At this point the Craft proceeded to unthread the relief valve and noticed air leaking past the inlet threads. The valve was then tightened back up.
- After reviewing the OVID and clearance, it was determined that the Craft had gone to the wrong component.
- The inlet was snoop checked, with no visible leakage at normal operating pressure.

There have been several significant plant events where personnel have worked on the incorrect component after a clearance has been hung. In more than one case, workers either disconnected electrical circuits that were not cleared, or breached a system when the process was not cleared. The potential consequences of this event are significant. Several people were in jeopardy of serious injury. Therefore, it is very important to **verify** the system or component being worked is the one that has a proper and safe clearance. One of the best methods is to perform an **effective Pre Job Brief** prior to starting work on a cleared component.

Some other important lessons can be drawn from these events:

- Do not proceed in the face of uncertainty. If you are not sure of exactly what you are expected to do, or something just doesn't seem right, ASK QUESTIONS.
- Maintain a questioning attitude. Even the best people can make mistakes. You must approach each task with the same level of scrutiny, whether you are first on the scene, taking over from someone else, or paired up with others.
- Consistently use self-verification. In this event, several people missed an opportunity to identify that the wrong component was being worked.

Continued on next page

Recent Industry & DCPD Clearance Events, Continued

Valve Adjustment

The OPS Support Team was asked to help reduce seat leakage on a valve that was leaking by on Component Cooling Water (CCW) header. The valve was danger tagged closed. The valve was closed as far as possible with the hand wheel. It was decided to adjust the valve limits by adjusting the limit nut two flats at a time, and the limit nut was moved up by 10 flats. The leakage rate was improving so it was decided to move one more flat. After this move, the valve flipped past its seat, over to the other side, and was leaking by at a rapid rate into the CCW pump room.

As a result of this event, procedure OP2.ID2, Tagging Requirements, was revised to clarify management expectations for adjusting danger tagged components. The procedure now states, "Equipment that is tagged with Danger Tags Shall NOT be operated or adjusted except to apply force to the component handle in the direction of the required position." This does not allow any adjustment to a component other than applying force to the hand wheel.

Component Removal

Workers removed a section of pipe that included a valve with a Caution Tag and a Red Tag. This component was a clearance point.

There have been several instances where tagged components were removed from a system for maintenance. This is a serious violation of the clearance process that could lead to personnel injury. If a component is Danger, Caution or Red tagged, DO NOT remove it. Contact your supervisor or the clearance office for assistance in removing the tags first.

Wrong Position

During a walk down of a clearance a breaker was found closed with a Danger tag hanging. The breaker's cleared position should have been open.

OP2.ID1, Clearances, has unambiguous requirements for verification of clearance points. No matter what the clearance is for, clearance points must be checked to ensure they are being hung on the correct component and the component is in the correct position. Self verification techniques should always be used.

Continued on next page

Recent Industry & DCPD Clearance Events, Continued

Wrong Use of Danger Tag

Clearance 1C14-R-16-001 was prepared and reviewed with the makeup water pump recirc isolation valve (MU-0-705), danger tagged “OPEN”. The valve should have been danger tagged “CLOSED” to provide an adequate boundary. Maintenance had reported on the clearance and started work when they were stopped by an Operator in the field after discovering water still coming from a drain valve.

The clearance in question was initially prepared in January, with a couple of revisions and the final Independent Verification (2nd check) completed very shortly before the start of 1R14.

The **time pressure** to complete the independent verification may have led to short cuts in using our human performance tools in verifying the clearance was correct.

Subsequent investigation led to the conclusion that the additional training was needed to emphasize the normal use of Danger and Caution Tags.

O/E

Red tag hung on wrong component

- Quality Verification identified a red tag (tag 050986) hanging on valve 2-04-P-V-MS-2-95.
- THE VALVE NUMBER WRITTEN ON THE TAG WAS 2-04-P-V-MS-2-94.
- Both MS-2-94 and MS-2-95 were on the Clearance.
- Work had not yet started on the activity.

Performance Improvement

Good self verification techniques would have prevented this event.

A number of errors associated with the hanging of Red tags occurred during 2R13.

Continued on next page

Recent Industry & DCPD Clearance Events, Continued

O/E

Maintenance work performed without Reporting "On" Clearance

- Electrical maintenance was performing work in the containment.
- To save dose, an Operator and a Maintenance worker went into Containment together and the Maintenance worker performed the independent verification of the clearance.
- The Maintenance worker was told in his tailboard to notify his foreman when the clearance was hung so that it could be Reported On.
- Based on communications with the Operator, he mistakenly thought that the Operator would report "on" the clearance and did not notify his foreman as he was briefed to do.
- After completion of work, the Work Control Foreman discovered that the clearance had not been Reported "On" and notified the Maintenance Foreman, who Reported "On" and then Reported "Off" the clearance.
- This was the only work being performed under the clearance and the maintenance technicians did hang a red tag.

It is very important that the clearance is signed on by the Clearance Holder before starting work as this ensures that Operations does not report off the clearance.

Review of the Lesson

Objectives The following objectives were discussed in the lesson:

Number	Objective Text
1.	Describe the purpose of the Clearance Module, including the tagout manager, clearance and tagging process at DCPD.
2.	Describe the relationship between tagouts, clearances, and tags.
3.	Describe the method to log into eSOMS, view and print a clearance.
4.	Given a copy of a clearance, determine the status of that clearance.
5.	Describe the general requirements for hanging and removing tags.
6.	Explain the use of a Red Tag.
7.	Explain the use of a Danger Tag.
8.	Explain the use of a Caution Tag.
9.	Explain the use of an Information (Info) Tag.
10.	Explain the use of a Notification Tag.
11.	Describe the clearance process from preparing a clearance to returning equipment to service.
12.	Explain the use of the electrical bus mimic board.

Summary/Conclusion

Summary This lesson has been designed to help familiarize you with an overview of the clearance process and the various types of tags used to tag components at DCPD.

Understanding the tagging requirements at DCPD is vital to maintaining a safe working environment.

Clearance and tagging procedures are designed to protect personnel and equipment. Our clearance system will only work if all of us follow procedures, are constantly aware of our working conditions, and watch for signals that may indicate an unsafe working condition.

Completion Criteria

**Completion
Criteria**

The student must achieve a score of $\geq 70\%$ on a on-line test.

End of lesson