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## Task 20—Inspect Mainline Valves

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### 1.0 Task Description

This task involves performing an inspection to ensure a valve is in good working order, which means the valve's performance meets all the necessary functions. The task also includes verification that the proper security controls are in place.

This task begins with identification of the valve to be inspected. This task ends with completion of required documentation.

The performance of this covered task may require the performance of other covered tasks such as:

- Operate Valves Remotely on a Liquid Pipeline System (Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (Reference Task 63.4).

### 2.0 Knowledge Component

This task will confirm that valves will operate as intended for system operations. An individual performing this task must have knowledge of:

- How to determine valve types. Common types of valves include:
  - ball,
  - gate,
  - butterfly,
  - plug,
  - globe.
- How to determine valve actuator/operator types. Common types of valve actuators/operators include:
  - mechanical/hand,
  - hydraulic,
  - electronic,
  - pneumatic.
- DOT regulatory and Operator valve inspection requirements.

Terms applicable to this task:

#### functionality test

This test consists of a partial or full opening or closing of the valve within operational parameters, either locally and/or remotely as applicable.

Abnormal operating conditions (AOC) associated with the performance of this task include:

AOC Recognition	AOC Reaction
Unexpected release or discharge of product.	Notify the appropriate personnel to take actions as required.
Damage to valve or valve component.	Notify the appropriate personnel to take actions as required.
Valve is not functioning properly.	Notify the appropriate personnel to take actions as required.

### 3.0 Skill Component

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To demonstrate proficiency of this task, an individual must perform the following steps:

Step	Action	Explanation
1	Identify the valve to be inspected and confirm that the valve is correctly labeled.	This step confirms that the valve is identified and labeled consistent with the Operator's documentation.
2	Notify the control center, local operations (if applicable), and any affected personnel prior to performing inspection.	This step confirms that the inspection has been scheduled and communicated and that the operational status has been confirmed.
3	Inspect the valve security and access control.	This step verifies appropriate control and accessibility of valve, e.g., gates, fences, signs, barbed wire, locks, manhole covers, chains, doors, or valve enclosures.
4	Inspect the condition of the valve.	This step confirms that there are no visible leaks, damage, or corrosion of the valve, components, or flanges.
5	Inspect the valve position indicator.	This step confirms that the position indicator is intact, operational, and correctly identifies valve position.
6	Perform functional testing to check all modes of operation of the valve as per applicable procedures, including remote operation if capable.	This step confirms that the valve is in proper working order. NOTE Performance of this step requires a person to be qualified to operate the valve.
7	Reestablish proper valve status.	This step confirms that the valve is in the proper operating position.
8	Reestablish proper security and access controls.	This step confirms that the valve and/or valve site are secured against unauthorized access and operation.
9	Notify the control center, local operations (if applicable), and any affected personnel per the Operator's procedures.	This communication provides notification to personnel that the valve inspection is complete.
10	Document the inspection results as per the Operator's procedures.	Documentation provides historical data for future maintenance of the valve.

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## **Task 21.1—Repair Valve Actuator/Operator, Pneumatic**

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### **1.0 Task Description**

This task involves disassembly, diagnosis of component failure, repair or replacement, and reassembly of a pneumatic valve actuator.

This task begins with the identification of the valve actuator to be repaired. This task ends with the completion of the required documentation.

The performance of this covered task may require the performance of other covered tasks such as:

- Adjust Actuator/Operator, Pneumatic (Reference Task 19.6).
- Operate Valves Remotely on a Liquid Pipeline System (Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (Reference Task 63.4).

### **2.0 Knowledge Component**

This task addresses the repair of a pneumatic actuator according to the applicable procedures and is conducted to maintain the integrity and function of the valve actuator.

An individual performing this task must have knowledge of:

- Applicable manufacturer and/or operator procedures for the equipment being repaired.
- How to determine valve types. Common types of valves include:
  - ball,
  - gate,
  - butterfly,
  - plug,
  - globe.
- Pneumatic MOV (motor operated valve) actuator types.

Terms applicable to this task:

#### **function test**

Operate the valve to assure that it is performing its intended function as designed; This may include manually operating the valve or by the use of mechanical assistance such as an actuator/operator.

#### **hand clutch**

A mechanical means of disengaging the motor drive and engaging the hand wheel.

#### **travel switch**

A switch designed to cut-off air automatically at or near the limit of travel of a moving object.

#### **mechanical stop**

A fixed or adjustable rigid mechanical device that prevents a valve actuator/operator from exceeding a fixed limit in the open or closed position.

#### **seat**

The part of a valve against which a closure element (gate, plug, ball, or clapper) makes contact contributing to a tight shut-off.

**NOTE** In many ball and gate valves, the seat is a floating member containing a soft seating element (usually an O-ring).

#### **valve actuator**

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A valve component that converts hydraulic, pneumatic, or electrical energy into mechanical motion to open and close a valve.

#### **valve operator**

A mechanical valve component that utilizes motion to open and close a valve.

Abnormal operating conditions (AOC) associated with the performance of this task include:

<b>AOC Recognition</b>	<b>AOC Reaction</b>
Unexpected valve movement.	Return the valve to the proper position, if safe to do so. Immediately notify the control center (or appropriate field personnel) and execute applicable procedures.
Unexpected release or discharge of product.	Notify the appropriate personnel to take actions as required.
Damage to valve or valve component.	Notify the appropriate personnel to take actions as required.

### **3.0 Skill Component**

To demonstrate proficiency of this task, an individual must perform the following steps:

<b>Step</b>	<b>Action</b>	<b>Explanation</b>
1	Identify the valve actuator to be repaired.	This step confirms that the valve actuator is identified.
2	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any test if required by the Operator's procedures.	This step confirms that the repair has been scheduled and communicated and that the operational status has been confirmed.
3	Verify the proper isolation of the valve and actuator prior to repair or disassembly.	The valve actuator should be placed in local control to prevent remote operation of the valve. Operation of the valve must not adversely affect operations.
4	Diagnose and disassemble the actuator following applicable procedures.	Follow applicable manufacturer's and/or Operator's procedures for the actuator.
5	Repair or replace worn or damaged parts.	Follow applicable manufacturer's and/or Operator's procedures for the actuator.
6	Reassemble the actuator per applicable procedures.	Follow the manufacturer's instructions for the applicable actuator.
7	Perform a function test to ensure proper actuator operation and integrity.	This step ensures that the pneumatic source does not leak and the actuator operates properly.
8	Adjust actuator/operator (if required).	Follow the manufacturer's recommendations and/or the Operator's procedures.
9	Reestablish the proper actuator status.	This step confirms that the actuator performs in all modes of operation.
10	Reestablish proper access controls.	Return the valve to normal operating status.
11	Perform the necessary notifications upon completion of the repair.	This communication provides notification to personnel that the valve repair is complete.
12	Document the repair results per the Operator's procedures.	Documentation provides historical data for future maintenance of the valve.

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## Task 21.2—Disassemble/Reassemble Valves

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### 1.0 Task Description

This task involves the disassembly and reassembly of valves, diagnosis of valve component failure, and repair or replacement of parts.

This task begins with the identification of the valve to be disassembled and reassembled. This task ends with the completion of required documentation.

The performance of this covered task may require the performance of other covered tasks such as:

- Operate Valves Remotely on a Liquid Pipeline System (Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (Reference Task 63.4).

This task does not include but may lead to the performance of other covered tasks such as:

- Conduct Pressure Test (Reference Task 41).

### 2.0 Knowledge Component

This task addresses the assembly/disassembly of a valve according to the applicable procedures and is conducted to maintain the integrity and function of the valve.

An individual performing this task must have knowledge of:

- How to determine valve types. Common types of valves include:
  - ball,
  - gate,
  - butterfly,
  - plug,
  - globe.
- Applicable manufacturer and/or operator procedures for the equipment being repaired.

Terms applicable to this task:

#### function test

Operate the valve to assure that it is performing its intended function as designed; this may include manually operating the valve or by the use of mechanical assistance such as an actuator/operator.

Abnormal operating conditions (AOC) associated with the performance of this task include:

AOC Recognition	AOC Reaction
Unexpected release or discharge of product.	Notify the appropriate personnel to take actions as required.
Damage to valve or valve component.	Notify the appropriate personnel to take actions as required.
Valve is not functioning properly.	Notify the appropriate personnel to take actions as required.

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### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:

Step	Action	Explanation
1	Identify the valve to be disassembled and reassembled and confirm that it is correctly labeled.	This step confirms that the valve is identified and labeled consistent with the Operator's documentation.
2	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any test if required by the Operator's procedures.	This step confirms that the repair has been scheduled and communicated and that the operational status has been confirmed.
3	Verify that the valve has been isolated according to applicable procedures.	This step prevents release of hazardous energy and ensures worker safety.
4	Disassemble the valve according to applicable procedures.	Follow applicable manufacturer and/or Operator procedures for the valve.
5	Diagnose and repair or replace worn or damaged parts per the applicable procedures.	Follow applicable manufacturer and/or Operator procedures for the valve.
6	Reassemble the valve according to applicable procedures.	Follow applicable manufacturer and/or Operator procedures for the valve.
7	Perform a function test to ensure proper valve operation and integrity.	This step ensures that the valve operates properly and does not leak after reassembly. The individual must follow applicable manufacturer and/or Operator procedures for the valve.
8	Perform the necessary notifications upon completion of the valve repair.	This communication provides notification to personnel that the valve repair is complete.
9	Document the repair results as per the Operator's procedures.	Documentation provides historical data for future maintenance of the valve.

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## **Task 21.3—Perform Internal Inspection of Valves**

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### **1.0 Task Description**

This task involves the on-site internal inspection of a valve body and its components.

This task begins with verification of the valve identifier. The task ends with completion of the required documentation.

The performance of this covered task may require the performance of other covered tasks such as:

- Operate Valves Remotely on a Liquid Pipeline System (Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (Reference Task 63.4).

This task does not include but may lead to the performance of other covered tasks such as:

- Disassemble/Reassemble Valves (Reference Task 21.2).

### **2.0 Knowledge Component**

The purpose of this task is to inspect the valve and associated internal components to identify operational issues and make arrangements for necessary repairs.

An individual performing this task must have knowledge of:

- Applicable manufacturer and/or operator procedures for the equipment being assembled or disassembled.

Terms applicable to this task:

**body or body cavity**

The principle pressure-containing part of a valve in which the closure element and seals are located.

**drain and vent plug**

A mechanical device used to vent or bleed off internal valve body pressure.

**packing**

The pliable sealing material inserted into a valve stem stuffing box, which when compressed by a gland provides a tight seal about the stem.

**seat**

The part of the valve against which the closure element (gate, plug, ball, or clapper) makes contact contributing to a tight shut-off. In many ball and gate valves, the seat is a floating member containing a soft seating element (usually an O-ring).

Abnormal operating conditions (AOC) associated with the performance of this task include:

<b>AOC Recognition</b>	<b>AOC Reaction</b>
Unexpected release or discharge of product.	Notify the appropriate personnel to take actions as required.
Damage to valve or valve component.	Notify the appropriate personnel to take actions as required.

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### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:

Step	Action	Explanation
1	Verify the valve identifier.	This step confirms that the valve is identified and labeled consistent with the Operator's documentation.
2	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any test if required by the Operator's procedures.	This step confirms that the repair has been scheduled and communicated and that the operational status has been confirmed.
3	Verify that the valve has been isolated according to applicable procedures.	The valve actuator should be placed in local control to prevent remote operation of the valve. Operation of the valve must not adversely affect operations.
4	Inspect the valve and components.	The individual must follow the manufacturer's recommendations and/or the Operator's procedures. Inspection can include: <ul style="list-style-type: none"><li>-components for condition and acceptable tolerances;</li><li>-condition of seals/elastomers;</li><li>-proper installation of seat/stem seals;</li><li>-valve stem and nut/seats and seat pockets/seals for the extent of wear;</li><li>-condition of closure device (gate, ball, plug, etc.);</li><li>-fasteners (torqued to specified limits); and</li><li>-condition of valve body and coatings.</li></ul>
5	Perform the necessary notifications upon completion of inspection.	This communication provides notification to personnel that the valve inspection is complete.
6	Document the inspection results per Operator's procedures.	Documentation provides historical data for future maintenance of the valve.



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## **Task 21.4—Repair Valve Actuator/Operator, Hydraulic**

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### **1.0 Task Description**

This task involves the disassembly, diagnosis of component failure, repair or replacement, and reassembly of a hydraulic valve actuator.

This task begins with the identification of the valve actuator to be repaired. The task ends with the completion of the required documentation.

The performance of this covered task may require the performance of other covered tasks such as:

- Adjust Actuator/Operator, Hydraulic (Reference Task 19.7).
- Operate Valves Remotely on a Liquid Pipeline System (Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (Reference Task 63.4).

### **2.0 Knowledge Component**

This task addresses the repair of a hydraulic actuator according to the applicable procedures and is conducted to maintain the integrity and function of the valve actuator.

An individual performing this task must have knowledge of:

- How to determine valve types. Common types of valves include:
  - ball,
  - gate,
  - butterfly,
  - plug,
  - globe.
- Hydraulic MOV (motor operated valve) actuator types.
- Applicable manufacturer and/or operator procedures for the equipment being repaired.

Terms applicable to this task:

#### **function test**

Operate the valve to assure that it is performing its intended function as designed; this may include manually operating the valve or by the use of mechanical assistance such as an actuator/operator.

#### **travel switch**

A switch designed to cut-off hydraulic power at or near the limit of travel of a moving object.

#### **mechanical stop**

A fixed or adjustable rigid mechanical device that prevents a valve actuator/operator from exceeding a fixed limit in the open or closed position.

#### **seat**

The part of the valve against which the closure element (gate, plug, ball, or clapper) makes contact contributing to a tight shut-off.

**NOTE** In many ball and gate valves, the seat is a floating member containing a soft seating element (usually an O-ring).

#### **valve actuator**

A valve component that converts hydraulic, pneumatic, or electrical energy into mechanical motion to open and close a valve.

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### **valve operator**

A mechanical valve component that utilizes motion to open and close a valve.

Abnormal operating conditions (AOC) associated with the performance of this task include:

<b>AOC Recognition</b>	<b>AOC Reaction</b>
Unexpected valve movement.	Return the valve to the proper position, if safe to do so. Immediately notify the control room or (appropriate operations personnel) and execute applicable procedures.
Unexpected release or discharge of product.	Notify the appropriate personnel to take actions as required.
Damage to valve or valve component.	Notify the appropriate personnel to take actions as required.

## **3.0 Skill Component**

To demonstrate proficiency of this task, an individual must perform the following steps:

<b>Step</b>	<b>Action</b>	<b>Explanation</b>
1	Verify the valve identifier.	This step confirms that the valve is identified and labeled consistent with the operator's documentation.
2	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any test if required by the Operator's procedures.	This step confirms that the repair has been scheduled and communicated and that the operational status has been confirmed.
3	Verify the proper isolation of the valve and actuator prior to repair or disassembly.	The valve actuator should be placed in local control to prevent remote operation of the valve. Operation of the valve must not adversely affect operations.
4	Diagnose and disassemble the actuator following applicable procedures.	Follow applicable manufacturer and/or Operator procedures for the valve.
5	Repair or replace worn or damaged parts.	Follow applicable manufacturer and/or Operator procedures for the valve.
6	Reassemble the actuator per applicable procedures.	Follow applicable manufacturer and/or Operator procedures for the valve.
7	Perform a functionality test to validate actuator operation and integrity.	Confirm the valve actuator operates properly.
8	Adjust actuator/operator.	Follow the manufacturer's recommendations and/or the Operator's procedures.
9	Reestablish the proper actuator status.	This step confirms that the actuator performs in all modes of operation.
10	Reestablish proper access controls.	Return the valve to normal operating status.
11	Notify the control center, local operations (if applicable), and any affected personnel per the Operator's procedures.	This communication provides notification to personnel that the valve actuator repair is complete.
12	Document the repair results per the Operator's procedures.	Documentation provides historical data for future maintenance of the valve.

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## **Task 21.5—Repair Valve Actuator/Operator, Electric**

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### **1.0 Task Description**

This task involves the disassembly, diagnosis of component failure, repair or replacement, and reassembly of an electric valve actuator.

This task begins with the identification of the valve actuator to be repaired. This task ends with the completion of the required documentation.

The performance of this covered task may require the performance of other covered tasks such as:

- Adjust Actuator/Operator, Electric (Reference Task 19.5).
- Operate Valves Remotely on a Liquid Pipeline System (Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (Reference Task 63.4).

### **2.0 Knowledge Component**

This task addresses the repair of an electric actuator according to the applicable procedures and is conducted to maintain the integrity and function of the valve actuator.

An individual performing this task must have knowledge of:

- Applicable manufacturer and/or operator procedures for the equipment being repaired.
- How to determine valve types. Common types of valves include:
  - ball,
  - gate,
  - butterfly,
  - plug,
  - globe.
- Electric MOV (motor operated valve) actuator types.

Terms applicable to this task:

#### **function test**

Operate the valve to assure that it is performing its intended function as designed; this may include manually operating the valve or by the use of mechanical assistance such as an actuator/operator.

#### **hand clutch**

A mechanical means of disengaging the motor drive and engaging the hand wheel.

#### **limit switch**

A switch designed to cut off power automatically at or near the limit of travel of a moving object controlled by electrical means.

#### **mechanical stop**

A fixed or adjustable rigid mechanical device that prevents a valve actuator/operator from exceeding a fixed limit in the open or closed position.

#### **seat**

The part of a valve against which a closure element (gate, plug, ball, or clapper) makes contact contributing to a tight shut-off.

**NOTE** In many ball and gate valves, the seat is a floating member containing a soft seating element (usually an O-ring).

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#### **torque switch**

A switch designed to sense the amount of torque being applied to a machine by an electric motor and to cut off power if torque exceeds a preset limit, preventing damage to the motor.

#### **valve actuator**

A valve component that converts hydraulic, pneumatic, or electrical energy into mechanical motion to open and close a valve.

Abnormal operating conditions (AOC) associated with the performance of this task include:

<b>AOC Recognition</b>	<b>AOC Reaction</b>
Unexpected valve movement.	Return the valve to the proper position, if safe to do so. Immediately notify the control room (or appropriate operations personnel) and execute the applicable procedures.
Unexpected release or discharge of product.	Notify the appropriate personnel to take actions as required.
Damage to valve or valve component.	Notify the appropriate personnel to take actions as required.

### **3.0 Skill Component**

To demonstrate proficiency of this task, an individual must perform the following steps:

<b>Step</b>	<b>Action</b>	<b>Explanation</b>
1	Identify the valve actuator to be repaired.	This step confirms that the valve is identified and labeled consistent with the Operator's documentation.
2	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any test if required by the Operator's procedures.	This step confirms that the repair has been scheduled and communicated and that the operational status has been confirmed.
3	Verify the proper isolation of the valve and actuator prior to repair or disassembly.	The valve actuator should be placed in local control to prevent remote operation of the valve. Operation of the valve must not adversely affect operations.
4	Diagnose and disassemble the actuator following applicable procedures.	Follow applicable manufacturer and/or Operator procedures.
5	Repair or replace worn or damaged parts.	Follow applicable manufacturer and/or Operator procedures.
6	Reassemble the actuator.	Follow applicable manufacturer and/or Operator procedures.
7	Perform a functionality test to ensure proper actuator operation and integrity.	This step ensures that the actuator operates properly.
8	Adjust actuator/operator.	Follow the manufacturer's recommendations and/or the operator's procedures.
9	Reestablish the proper actuator status.	This step confirms that the actuator performs in all modes of operation.
10	Notify the control center, local operations (if applicable), and any affected personnel per the operator's procedures.	This communication provides notification to personnel that the valve actuator repair is complete.

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11	Document the repair results per the Operator's procedures.	Documentation provides historical data for future maintenance of the valve.
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## **Task 31—Inspect and Calibrate Overfill Protective Devices**

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### **1.0 Task Description**

This task consists of the inspection and calibration activities performed on an overfill protective device (OPD) installed on a tank to ensure that the equipment is functioning properly and is adequate for the intended purpose.

This task begins with notification to the control center, local operations (if applicable), and/or affected personnel that OPD inspection and calibration activities are to commence. This task ends with the completion of the appropriate documentation per Operator's procedure.

This task may lead to the performance of other covered tasks such as:

- Test Overfill Protective Devices (Reference Task 30).

### **2.0 Knowledge Component**

The primary purpose of this task is to verify that an OPD is maintained and operates correctly and at the desired level in order to prevent the loss of containment of hazardous liquids due to the overfilling of a breakout storage tank or other containment vessel. The OPD initiates a high-priority level alarm to the control center. After receipt of the alarm, the control center takes appropriate and immediate actions to prevent an actual overfill beyond operational limits.

An individual performing this task must have knowledge of:

- The various types of overfill protection devices, systems, and associated equipment and their principles of operation.
- Methods of inspection and calibration of OPDs.
- Calibration equipment and tools:
  - multimeter,
  - measurement equipment,
  - displacement test mediums.
- Tank/vessel construction types:
  - fixed roof,
  - internal floating,
  - external floating,
  - underground.
- Alarms:
  - location,
  - activation,
  - shutdown sequence of activated alarms.
- Device set point:
  - threshold at which switch activates.

Terms applicable to this task:

**calibration**

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The process of testing and adjusting, if needed, a device to ensure that it can be relied on to deliver predictable, accurate results that meet quality/tolerance standards.

#### **set point**

Liquid level at which switch and/or signal activates an alarm, notification, and/or automated action.

Abnormal operating conditions (AOC) associated with the performance of this task include:

<b>AOC Recognition</b>	<b>AOC Reaction</b>
Liquid level is found to be at an unexpected high or low level.	Notify control center or appropriate personnel of level status.
Unintentional activation or shutdown of system devices.	Take appropriate action such as disabling OPD output signals to mitigate the situation. Notify control center or appropriate personnel that are monitoring the facility.
Observed structural damage to tank, tank roof, and/or other components.	Notify/inform appropriate Operator personnel of the condition.
Debris or freestanding product on roof.	Notify/inform appropriate Operator personnel of the condition.

### **3.0 Skill Component**

To demonstrate proficiency of this task, an individual must perform the following steps:

<b>Step</b>	<b>Action</b>	<b>Explanation</b>
1	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any inspection or calibration activity, per Operator's procedures.	The control center and local operations (if applicable) must be notified that inspection or calibration activities will be performed on the OPD and to communicate the device status.
2	Obtain OPD set point value.	Refer to operator's documentation to determine proper set point value.
3	Determine required calibration equipment.	Consult device manufacturer manual and Operator procedures to determine type of calibration equipment needed.
4	Verify the device identifier.	Ensure that the proper device is located. If the identifier is missing, replace per Operator's specifications.
5	Inspect internal and external components of the OPD and associated equipment per manufacturer recommendations and Operator procedures: -physical/mechanical condition, -corrosion, -electrical connections.	Confirms condition and functionality. If maintenance, repair, or replacement is required, make appropriate notifications per Operator's procedure.
6	Verify device set point.	This step validates that the set point obtained in Step 2 matches the device. The set point is the point that an alarm will be activated based on the liquid level in the tank.
7	Adjust device, if required, according to manufacturer's recommendations. Repeat procedure to achieve calibration and establish repeatability.	Refer to Operator's procedures to determine proper set point value and calibration.

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8	Test OPD to verify the alarm is received by the control center and/or local operations.	Confirms operability of OPD and that the correct alarm tag is received. NOTE This is a separate OQ task. Refer to Task 30—Test Overfill Protective Devices.
9	Reset and confirm that OPD has returned to a normal operating condition.	This step verify the alarms have been cleared appropriately.
10	Verify all devices such as valves that might have operated as part of a shutdown or relief flow system have returned to normal operating condition. (If applicable.)	This step verifies the system has returned to normal operation.
11	Notify control center, local operations, and any affected personnel that the inspection/calibration is complete and has ended.	This communication provides notice that the device is operable and that the system is ready or has returned to normal operation.
12	Document inspection and calibration results as required by Operator's procedures.	Documentation provides historical data for future testing of the device.





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## Task 20—Inspect Mainline Valves

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### 1.0 Task Description

This task involves performing an inspection to ensure a valve is in good working order, which means the valve's performance meets all the necessary functions. The task also includes verification that the proper security controls are in place.

This task begins with identification of the valve to be inspected. ~~This task~~ ends with completion of required documentation.

The performance of this covered task may require the performance of other covered tasks such as ~~the following~~:

- Operate Valves Remotely on a Liquid Pipeline System (~~reference~~ Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (~~reference~~ Reference Task 63.4).

### 2.0 Knowledge Component

This task will confirm that valves will operate as intended for system operations. An individual performing this task must have knowledge of ~~the following~~:

- How to determine valve types. Common types of valves include:
  - ball,
  - gate,
  - butterfly,
  - plug,
  - globe.
- How to determine valve actuator/operator types. Common types of valve actuators/operators include:
  - mechanical/hand,
  - hydraulic,
  - electronic,
  - pneumatic.
- DOT regulatory and ~~operator~~ Operator valve

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inspection requirements. Terms applicable to this

task ~~are as follows:~~

**functionality test**

This test consists of a partial or full opening or closing of the valve within operational parameters, either locally and/or remotely as applicable.

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Abnormal operating conditions (AOC) ~~AOCs~~ associated with the performance of this task include ~~the~~ following:

<u>AOC Recognition</u>	<u>AOC Reaction</u>
<u>Unexpected release or discharge of product.</u>	<u>Notify the appropriate personnel to take actions as required.</u>
<u>Damage to valve or valve component.</u>	<u>Notify the appropriate personnel to take actions as required.</u>
<u>Valve is not functioning properly.</u>	<u>Notify the appropriate personnel to take actions as required.</u>

<u>AOC Recognition</u>	<u>AOC Reaction</u>
<i><u>This section intentionally left blank.</u></i>	<i><u>This section intentionally left blank.</u></i>

### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:

Step	Action	Explanation
1	Identify the valve to be inspected and confirm that the valve is correctly labeled.	This step confirms that the valve is identified and labeled consistent with the <u>operator's-Operator's</u> documentation.
2	<u>Notify the control center, local operations (if applicable), and any affected personnel prior to performing inspection. Make proper notifications.</u>	This step confirms that the inspection has been scheduled and communicated and that the operational status has been confirmed.
3	Inspect the valve security and access control.	This step verifies appropriate control and accessibility of valve, e.g., gates, fences, signs, barbed wire, locks, manhole covers, chains, doors, or valve enclosures.
4	Inspect the condition of the valve.	This step confirms that there are no visible leaks, damage, or corrosion of the valve, components, or flanges.
5	Inspect the valve position indicator.	This step confirms that the position indicator is intact, operational, and correctly identifies valve position.
6	Perform functional testing to check all modes of operation of the valve as per applicable procedures, including remote operation if capable.	This step confirms that the valve is in proper working order. NOTE Performance of this step requires a person to be qualified to operate the valve.
7	Reestablish proper valve status.	This step confirms that the valve is in the proper operating position.
8	Reestablish proper security and access controls.	This step confirms that the valve and/or valve site are secured against unauthorized access and operation.
9	<u>Notify the control center, local operations (if applicable), and any affected personnel per the eOperator's procedures. Perform the necessary notifications upon completion of the inspection.</u>	<u>This communication provides notification to personnel that the valve inspection is complete.</u>
10	Document the inspection results as per the <u>operator's-Operator's</u> procedures.	<u>Documentation provides historical data for future maintenance of the valve.</u>

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## Task 21.1—Repair Valve Actuator/Operator, Pneumatic

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### 1.0 Task Description

This task involves disassembly, diagnosis of component failure, repair or replacement, and reassembly of a pneumatic valve actuator.

This task begins with the identification of the valve actuator to be repaired. This task ~~and~~ ends with the completion of the required documentation.

The performance of this covered task may require the performance of other covered tasks such as ~~the following~~:

- Adjust Actuator/Operator, Pneumatic (~~reference~~ Reference Task 19.6).
- Operate Valves Remotely on a Liquid Pipeline System (~~reference~~ Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (~~reference~~ Reference Task 63.4).

### 2.0 Knowledge Component

This task addresses the repair of a pneumatic actuator according to the applicable procedures and is conducted to maintain the integrity and function of the valve actuator.

An individual performing this task must have knowledge of ~~the following~~:

- Applicable manufacturer and/or operator procedures for the equipment being repaired.
- How to determine valve types. Common types of valves include:
  - ball.
  - gate.
  - butterfly.
  - plug.
  - globe.
- Pneumatic MOV (motor operated valve) actuator types.

Terms applicable to this task are as follows:

**function test**

Operate the valve to assure that it is performing its intended function as designed; This may include manually operating the valve or by the use of mechanical assistance such as an actuator/operator.

**hand clutch**

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A mechanical means of disengaging the motor drive and engaging the hand wheel.

**travel switch**

A switch designed to cut-off air automatically at or near the limit of travel of a moving object.

**mechanical stop**

A fixed or adjustable rigid mechanical device that prevents a valve actuator/operator from exceeding a fixed limit in the open or closed position.

**seat**

The part of a valve against which a closure element (gate, plug, ball, or clapper) makes contact contributing to a tight shut-off.

Note: In many ball and gate valves, the seat is a floating member containing a soft seating element (usually an O-ring).

**valve actuator**

A valve component that converts hydraulic, pneumatic, or electrical energy into mechanical motion to open and close a valve.

**valve operator**

A mechanical valve component that utilizes motion to open and close a valve.

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—Terms applicable to this task are as follows.

**functionality test**

A test to ensure the actuator operates properly and does not leak after reassembly. Abnormal

operating conditions (AOC) AOCs associated with the performance of this task include the

following:

AOC Recognition	AOC Reaction
Unexpected valve movement.	Return the valve to the proper position, if safe to do so. Immediately notify the <u>control center (or appropriate field personnel)</u> <del>operator</del> and execute applicable <del>emergency</del> procedures.
Unexpected release or discharge of product <del>related to task performance</del> .	Notify the appropriate personnel to take actions as required.
Damage to valve or valve component.	Notify the appropriate personnel to take actions as required.

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### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:-

Step	Action	Explanation
1	Identify the valve actuator to be repaired.	This step confirms that the valve actuator is identified.
2	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any test if required by the <del>operator's</del> <u>Operator's</u> procedures.	This step confirms that the repair has been scheduled and communicated and that the operational status has been confirmed.
3	Verify the proper isolation of the valve and actuator prior to repair or disassembly.	<u>The valve actuator should be placed in local control to prevent remote operation of the valve. Operation of the valve must not adversely affect operations.</u>
4	Diagnose and disassemble the actuator following applicable procedures.	<del>The individual must follow applicable manufacturer's and/or operator's</del> <u>Operator's</u> procedures for the <del>valve</del> <u>actuator</u> .
5	Repair or replace worn or damaged parts.	<del>The individual must follow applicable manufacturer's and/or operator's</del> <u>Operator's</u> procedures for the <del>valve</del> <u>actuator</u> .
6	Reassemble the actuator per applicable procedures.	<del>The individual must follow the manufacturer's instructions for the applicable</del> <u>valve</u> <u>actuator</u> .
7	Perform a <del>functionality</del> <u>leak</u> test to ensure proper actuator operation and integrity.	This step ensures that the pneumatic source does not leak and the actuator operates properly.
8	Adjust actuator/operator <del>(if required)</del> .	<u>Follow the manufacturer's recommendations and/or the</u> <del>Operator's</del> <u>Operator's</u> procedures. <u>NOTE – Performance of this step requires a person to be qualified to adjust the actuator.</u>
9	Reestablish the proper actuator status.	This step confirms that the actuator performs in all modes of operation.
10	<del>Reestablish proper access controls. Reestablish proper security and access controls.</del>	<u>Return the valve to normal operating status. This step confirms that the valve and/or valve site are secured against unauthorized access and operation.</u>
11	Perform the necessary notifications upon completion of the repair.	<u>This communication provides notification to personnel that the valve repair is complete.</u>
12	Document the repair results per the <del>operator's</del> <u>Operator's</u> procedures.	<u>Documentation provides historical data for future maintenance of the valve.</u>

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## Task 21.2—Disassemble/Reassemble Valves

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### 1.0 Task Description

This task involves the disassembly and reassembly of valves, diagnosis of valve component failure, and repair or replacement of parts.

This task begins with the identification of the valve to be disassembled and reassembled. This task-and ends with the completion of required documentation.

The performance of this covered task may require the performance of other covered tasks such as the following:

- Operate Valves Remotely on a Liquid Pipeline System (reference Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (reference Reference Task 63.4).

This task does not include but may lead to the performance of other covered tasks such as the following:

- Conduct Pressure Test (reference Reference Task 41).

### 2.0 Knowledge Component

This task addresses the assembly/disassembly of a valve according to the applicable procedures and is conducted to maintain the integrity and function of the valve.

An individual performing this task must have knowledge of the following:

- How to determine valve types. Common types of valves include:
  - ball,
  - gate,
  - butterfly,
  - plug,
  - globe.
- Applicable manufacturer and/or operator procedures for the equipment

being repaired. Terms applicable to this task are as follows:

#### **function test**

Operate the valve to assure that it is performing its intended function as designed; this may include manually operating the valve or by the use of mechanical assistance such as an actuator/operator.  
**functionality test**

~~A test to ensure the valve operates properly and does not leak after reassembly.~~



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Abnormal operating conditions (AOC) AOCs associated with the performance of this task

include the following:

AOC Recognition	AOC Reaction
Unexpected release or discharge of product <del>related to task performance.</del>	Notify the appropriate personnel to take actions as required.
Damage to valve or valve component.	Notify the appropriate personnel to take actions as required.
<u>Valve is not functioning properly.</u>	<u>Notify the appropriate personnel to take actions as required.</u>

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### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:-

Step	Action	Explanation
1	Identify the valve to be disassembled and reassembled and confirm that it is correctly labeled.	This step confirms that the valve is identified and labeled consistent with the <del>operator's</del> <u>Operator's</u> documentation.
2	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any test if required by the <del>operator's</del> <u>Operator's</u> procedures.	This step confirms that the repair has been scheduled and communicated and that the operational status has been confirmed.
3	Verify that the valve has been isolated according to applicable procedures.	This step prevents release of hazardous energy and ensures worker safety.
4	Disassemble the valve <del>following</del> <u>according to</u> applicable procedures.	<del>The individual must f</del> <u>Follow</u> applicable manufacturer and/or <del>operator</del> <u>Operator</u> procedures for the valve.
5	Diagnose and repair or replace worn or damaged parts per the applicable procedures.	<del>The individual must f</del> <u>Follow</u> applicable manufacturer and/or <del>operator</del> <u>Operator</u> procedures for the valve.
6	Reassemble the valve <del>per</del> <u>according to</u> applicable procedures.	<del>The individual must f</del> <u>Follow</u> applicable manufacturer and/or <del>operator</del> <u>Operator</u> procedures for the valve.
7	Perform a functional <del>ity</del> test to ensure proper valve operation and integrity.	This step ensures that the valve operates properly and does not leak after reassembly. The individual must follow applicable manufacturer and/or <del>operator</del> <u>Operator</u> procedures for the valve.
8	Perform the necessary notifications upon completion of the valve repair.	<u>This communication provides notification to personnel that the valve repair is complete.</u>
<u>9</u>	<u>Document the repair results as per the</u> <u>e</u> <u>Operator's procedures.</u>	<u>Documentation provides historical data for future maintenance of the valve.</u>

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## **Task 21.3—Perform Internal Inspection of Valves**

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### **1.0 Task Description**

This task involves the on-site internal inspection of a valve body and its components.

This task begins with verification of the valve identifier. The task ends with completion of the required documentation.

The performance of this covered task may require the performance of other covered tasks such as:

- Operate Valves Remotely on a Liquid Pipeline System (Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (Reference Task 63.4).

This task does not include but may lead to the performance of other covered tasks such as:

- Disassemble/Reassemble Valves (Reference Task 21.2).

### **2.0 Knowledge Component**

The purpose of this task is to inspect the valve and associated internal components to identify operational issues and make arrangements for necessary repairs.

An individual performing this task must have knowledge of:

- Applicable manufacturer and/or operator procedures for the equipment being assembled or disassembled.

Terms applicable to this task:

**body or body cavity**

The principle pressure-containing part of a valve in which the closure element and seals are located.

**drain and vent plug**

A mechanical device used to vent or bleed off internal valve body pressure.

**packing**

The pliable sealing material inserted into a valve stem stuffing box, which when compressed by a gland provides a tight seal about the stem.

**seat**

The part of the valve against which the closure element (gate, plug, ball, or clapper) makes contact contributing to a tight shut-off. In many ball and gate valves, the seat is a floating member

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containing a soft seating element (usually an O-ring).

Abnormal operating conditions (AOC) associated with the performance of this task include:

AOC Recognition	AOC Reaction
Unexpected release or discharge of product.	Notify the appropriate personnel to take actions as required.
Damage to valve or valve component.	Notify the appropriate personnel to take actions as required.

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### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:

Step	Action	Explanation
1	Verify the valve identifier.	This step confirms that the valve is identified and labeled consistent with the Operator's documentation.
2	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any test if required by the Operator's procedures.	This step confirms that the repair has been scheduled and communicated and that the operational status has been confirmed.
3	Verify that the valve has been isolated according to applicable procedures.	The valve actuator should be placed in local control to prevent remote operation of the valve. Operation of the valve must not adversely affect operations.
4	Inspect the valve and components.	The individual must follow the manufacturer's recommendations and/or the Operator's procedures. Inspection can include: <ul style="list-style-type: none"><li>— components for condition and acceptable tolerances;</li><li>— condition of seals/elastomers;</li><li>— proper installation of seat/stem seals;</li><li>— valve stem and nut/seats and seat pockets/seals for the extent of wear;</li><li>— condition of closure device (gate, ball, plug, etc.);</li><li>— fasteners (torqued to specified limits);</li><li>— condition of valve body and coatings.</li></ul>
5	Perform the necessary notifications upon completion of inspection.	This communication provides notification to personnel that the valve inspection is complete.
6	Document the inspection results per Operator's procedures.	Documentation provides historical data for future maintenance of the valve.

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## **Task 21.4—Repair Valve Actuator/Operator, Hydraulic**

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### **1.0 Task Description**

This task involves the disassembly, diagnosis of component failure, repair or replacement, and reassembly of a hydraulic valve actuator.

This task begins with the identification of the valve actuator to be repaired. The task ends with the completion of the required documentation.

The performance of this covered task may require the performance of other covered tasks such as:

- Adjust Actuator/Operator, Hydraulic (Reference Task 19.7).
- Operate Valves Remotely on a Liquid Pipeline System (Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (Reference Task 63.4).

### **2.0 Knowledge Component**

This task addresses the repair of a hydraulic actuator according to the applicable procedures and is conducted to maintain the integrity and function of the valve actuator.

An individual performing this task must have knowledge of:

- How to determine valve types. Common types of valves include:
  - ball,
  - gate,
  - butterfly,
  - plug,
  - globe.
- Hydraulic MOV (motor operated valve) actuator types.
- Applicable manufacturer and/or operator procedures for the equipment being repaired.

Terms applicable to this task:

#### **function test**

Operate the valve to assure that it is performing its intended function as designed; this may include manually operating the valve or by the use of mechanical assistance such as an actuator/operator.

#### **travel switch**

A switch designed to cut-off hydraulic power at or near the limit of travel of a moving object.

#### **mechanical stop**

A fixed or adjustable rigid mechanical device that prevents a valve actuator/operator from exceeding a fixed limit in the open or closed position.



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**seat**

The part of the valve against which the closure element (gate, plug, ball, or clapper) makes contact contributing to a tight shut-off.

Note: In many ball and gate valves, the seat is a floating member containing a soft seating element (usually an O-ring).

**valve actuator**

A valve component that converts hydraulic, pneumatic, or electrical energy into mechanical motion to open and close a valve.

**valve operator**

A mechanical valve component that utilizes motion to open and close a valve.

Abnormal operating conditions (AOC) associated with the performance of this task include:

AOC Recognition	AOC Reaction
Unexpected valve movement.	Return the valve to the proper position, if safe to do so. Immediately notify the control room or (appropriate operations personnel) and execute applicable procedures.
Unexpected release or discharge of product.	Notify the appropriate personnel to take actions as required.
Damage to valve or valve component.	Notify the appropriate personnel to take actions as required.

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### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:

Step	Action	Explanation
1	Verify the valve identifier.	This step confirms that the valve is identified and labeled consistent with the operator's documentation.
2	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any test if required by the Operator's procedures.	This step confirms that the repair has been scheduled and communicated and that the operational status has been confirmed.
3	Verify the proper isolation of the valve and actuator prior to repair or disassembly.	The valve actuator should be placed in local control to prevent remote operation of the valve. Operation of the valve must not adversely affect operations.
4	Diagnose and disassemble the actuator following applicable procedures.	Follow applicable manufacturer and/or Operator procedures for the valve.
5	Repair or replace worn or damaged parts.	Follow applicable manufacturer and/or Operator procedures for the valve.
6	Reassemble the actuator per applicable procedures.	Follow applicable manufacturer and/or Operator procedures for the valve.
7	Perform a functionality test to validate actuator operation and integrity.	Confirm the valve actuator operates properly.
8	Adjust actuator/operator.	Follow the manufacturer's recommendations and/or the Operator's procedures.
9	Reestablish the proper actuator status.	This step confirms that the actuator performs in all modes of operation.
10	Reestablish proper access controls.	Return the valve to normal operating status.
11	Notify the control center, local operations (if applicable), and any affected personnel per the Operator's procedures.	This communication provides notification to personnel that the valve actuator repair is complete.
12	Document the repair results per the Operator's procedures.	Documentation provides historical data for future maintenance of the valve.

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## Task 21.5—Repair Valve Actuator/Operator, Electric

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### 1.0 Task Description

This task involves the disassembly, diagnosis of component failure, repair or replacement, and reassembly of an electric valve actuator.

This task begins with the identification of the valve actuator to be repaired. This task and ends with the completion of the required documentation.

The performance of this covered task may require the performance of other covered tasks such as the following:

- Adjust Actuator/Operator, Electric (reference Reference Task 19.5).
- Operate Valves Remotely on a Liquid Pipeline System (reference Reference Task 43.4).
- Operate Valves Locally on a Liquid Pipeline System (reference Reference Task 63.4).

### 2.0 Knowledge Component

This task addresses the repair of an electric actuator according to the applicable procedures and is conducted to maintain the integrity and function of the valve actuator.

An individual performing this task must have knowledge of the following:

— Applicable manufacturer and/or operator procedures for the equipment  
being repaired.

— How to determine valve types. Common types of valves include:

- ball,
- gate,
- butterfly,
- plug,
- globe.

— Electric MOV (motor operated valve) actuator types.

Terms applicable to this task are as follows:

#### **function test**

Operate the valve to assure that it is performing its intended function as designed; this may include manually operating the valve or by the use of mechanical assistance such as an actuator/operator.

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**hand clutch**

A mechanical means of disengaging the motor drive and engaging the hand wheel.

**limit switch**

A switch designed to cut off power automatically at or near the limit of travel of a moving object controlled by electrical means.

**mechanical stop**

A fixed or adjustable rigid mechanical device that prevents a valve actuator/operator from exceeding a fixed limit in the open or closed position.

**seat**

The part of a valve against which a closure element (gate, plug, ball, or clapper) makes contact contributing to a tight shut-off.

Note: In many ball and gate valves, the seat is a floating member containing a soft seating element (usually an O-ring).

**torque switch**

A switch designed to sense the amount of torque being applied to a machine by an electric motor and to cut off power if torque exceeds a preset limit, preventing damage to the motor.

**valve actuator**

A valve component that converts hydraulic, pneumatic, or electrical energy into mechanical motion to open and close a valve.

~~— Terms applicable to this task are as follows.~~

**functionality test**

~~A test to ensure the actuator operates properly and does not leak after reassembly.~~

Abnormal operating conditions (AOC) AOCs associated with the performance of this task include ~~the following:~~

AOC Recognition	AOC Reaction
Unexpected valve movement.	Return the valve to the proper position, if safe to do so. Immediately notify the control room (or appropriate operations personnel) and execute the applicable <del>emergency</del> procedures.
Unexpected release or discharge of product <del>related to task performance.</del>	Notify the appropriate personnel to take actions as required.
Damage to valve or valve component.	Notify the appropriate personnel to take actions as required.

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### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:-

Step	Action	Explanation
1	Identify the valve actuator to be repaired.	<del>This step confirms that the valve is identified and labeled consistent with the operator's documentation.</del> This step confirms that the valve actuator is identified.
2	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any test if required by the <del>operator's</del> Operator's procedures.	This step confirms that the repair has been scheduled and communicated and that the operational status has been confirmed.
3	Verify the proper isolation of the valve and actuator prior to repair or disassembly.	The valve actuator should be placed in local control to prevent remote operation of the valve. Operation of the valve must not adversely affect operations.
4	Diagnose and disassemble the actuator following applicable procedures.	The individual must follow applicable manufacturer and/or <del>operator</del> Operator procedures.
5	Repair or replace worn or damaged parts.	The individual must follow applicable manufacturer and/or <del>operator</del> Operator procedures.
6	Reassemble the actuator.	The individual must follow applicable manufacturer and/or <del>operator</del> Operator procedures.
7	Perform a functionality test to ensure proper actuator operation and integrity.	This step ensures that the <del>electric source does not leak and the</del> actuator operates properly.
8	Adjust actuator/operator.	Follow the manufacturer's recommendations and/or the operator's procedures. NOTE – Performance of this step requires a person to be qualified to adjust the actuator.
9	Reestablish the proper actuator status.	This step confirms that the actuator performs in all modes of operation.
<del>10</del>	<del>Reestablish proper security and access controls.</del>	<del>This step confirms that the valve and/or valve site are secured against unauthorized access and operation.</del>
<del>11</del> 1410	<del>Notify the control center, local operations (if applicable), and any affected personnel per the operator's procedures. Perform the necessary notifications upon completion of the repair.</del>	This communication provides notification to personnel that the valve actuator repair is complete.
1421	Document the repair results per the <del>operator's</del> Operator's procedures.	Documentation provides historical data for future maintenance of the valve.

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## **Task 31—Inspect and Calibrate Overfill Protective Devices**

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### **1.0 Task Description**

This task consists of the inspection and calibration activities performed on an overfill protective device (OPD) installed on a tank to ensure that the equipment is functioning properly and is adequate for the intended purpose.

This task begins with notification to the control center, local operations (if applicable), and/or affected personnel that OPD inspection and calibration activities are to commence. This task ends with the completion of the appropriate documentation per Operator's procedure.

This task may lead to the performance of other covered tasks such as:

- Test Overfill Protective Devices (Reference Task 30).

### **2.0 Knowledge Component**

The primary purpose of this task is to verify that an OPD is maintained and operates correctly and at the desired level in order to prevent the loss of containment of hazardous liquids due to the overfilling of a breakout storage tank or other containment vessel. The OPD initiates a high-priority level alarm to the control center. After receipt of the alarm, the control center takes appropriate and immediate actions to prevent an actual overfill beyond operational limits.

An individual performing this task must have knowledge of:

- The various types of overfill protection devices, systems, and associated equipment and their principles of operation.
- Methods of inspection and calibration of OPDs.
- Calibration equipment and tools:
  - multimeter,
  - measurement equipment,
  - displacement test mediums.
- Tank/vessel construction types:
  - fixed roof,
  - internal floating,
  - external floating,
  - underground.
- Alarms:
  - location,
  - activation,



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- shutdown sequence of activated alarms.
- Device set point:
  - threshold at which switch activates.

Terms applicable to this task:

**calibration**

The process of testing and adjusting, if needed, a device to ensure that it can be relied on to deliver predictable, accurate results that meet quality/tolerance standards.

**set point**

Liquid level at which switch and/or signal activates an alarm, notification, and/or automated action.

Abnormal operating conditions (AOC) associated with the performance of this task include:

AOC Recognition	AOC Reaction
Liquid level is found to be at an unexpected high or low level.	Notify control center or appropriate personnel of level status.
Unintentional activation or shutdown of system devices.	Take appropriate action such as disabling OPD output signals to mitigate the situation. Notify control center or appropriate personnel that are monitoring the facility.
Observed structural damage to tank, tank roof, and/or other components.	Notify/inform appropriate Operator personnel of the condition.
Debris or freestanding product on roof.	Notify/inform appropriate Operator personnel of the condition.

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### 3.0 Skill Component

To demonstrate proficiency of this task, an individual must perform the following steps:

Step	Action	Explanation
1	Notify control center, local operations (if applicable), and any affected personnel, prior to performing any inspection or calibration activity, per Operator's procedures.	The control center and local operations (if applicable) must be notified that inspection or calibration activities will be performed on the OPD and to communicate the device status.
2	Obtain OPD set point value.	Refer to operator's documentation to determine proper set point value.
3	Determine required calibration equipment.	Consult device manufacturer manual and Operator procedures to determine type of calibration equipment needed.
4	Verify the device identifier.	Ensure that the proper device is located. If the identifier is missing, replace per Operator's specifications.
5	Inspect internal and external components of the OPD and associated equipment per manufacturer recommendations and Operator procedures: — physical/mechanical condition, — corrosion, — electrical connections.	Confirms condition and functionality. If maintenance, repair, or replacement is required, make appropriate notifications per Operator's procedure.
6	Verify device set point.	This step validates that the set point obtained in Step 2 matches the device. The set point is the point that an alarm will be activated based on the liquid level in the tank.
7	Adjust device, if required, according to manufacturer's recommendations. Repeat procedure to achieve calibration and establish repeatability.	Refer to Operator's procedures to determine proper set point value and calibration.
8	Test OPD to verify the alarm is received by the control center and/or local operations.	Confirms operability of OPD and that the correct alarm tag is received. NOTE This is a separate OQ task. Refer to Task 30—Test Overfill Protective Devices.
9	Reset and confirm that OPD has returned to a normal operating condition.	This step verify the alarms have been cleared appropriately.
10	Verify all devices such as valves that might have operated as part of a shutdown or relief flow system have returned to normal operating condition. (If applicable.)	This step verifies the system has returned to normal operation.
11	Notify control center, local operations, and any affected personnel that the inspection/calibration is complete and has ended.	This communication provides notice that the device is operable and that the system is ready or has returned to normal operation.
12	Document inspection and calibration results as required by Operator's procedures.	Documentation provides historical data for future testing of the device.