Verify Isolation before work begins and use the specified life protecting equipment

Isolations, Mechanical & Electrical, shall be applied and recorded before any work is started. Removal of the isolations shall also be checked and recorded on completion of the work. To comply with this rule ensure that:

- Required level of isolation has been identified before the work is started (when Permit to Work raised)
- Isolation is compliant with the relevant procedures
- All isolation are recorded on the appropriate Certificates and attach to the Permit to Work
- Mark the isolations on As-Built drawings and attach to the Permit
- Locked Open / Locked Close registers are maintained
- Isolations are witnessed and check against isolation plan
- Isolations are applied by competent personnel
- Isolations are proven before the work site is released and work started
- Approval for any changes to isolation during execution of the work is obtained and recorded
- All isolations are removed and checked against the marked up As-Built drawings
- Pre start-up inspections is carried out
Verify Isolation before work begins and use the specified life protecting equipment - Clip

**Internal:**

**External:**
Verify Isolation before work begins and use the specified life protecting equipment

- Mechanical isolations shall comply with PR-1076 – Isolation of Process Equipment and be recorded on the Mechanical Isolation Certificate

- Electrical isolations shall comply with PR-1947 – Electrical Safety Rules and be recorded on the Electrical Isolation Certificate

- Locked Open and Locked Closed valves shall comply to PR-1086 – Locked Open / Locked Closed and Spectacle Blind Control and be recorded on the respective registers as well as on the Mechanical Isolation Certificate

- The ‘Pro-Lock’ system shall be used to secure valves that must not be operated when forming part of an isolation boundary
• Under normal circumstances ‘valves’ alone shall not be considered as ‘positive’ isolation for ‘major’ work on hydrocarbon systems.

• Double block and bleed isolation shall be used as a minimum isolation when swinging spectacle spades & blinds on ‘live’ hydrocarbon systems containing H2S.

• Actuated valves isolated in the fail safe condition shall have the motive energy source physically disconnected i.e. Air, hydraulics, electrical etc.

• For electrical isolation to be considered ‘positive’ either the control fuses should be removed or the circuit breaker ‘racked’ out.

• Positive isolation of a tank or vessel for entry requires all nozzles to be spaded or blinded.
All Activities conducted in electrical equipment that belong to PDO or under PDO premises are controlled by the following Electrical Safety Documents:

- Electrical isolation/ De-isolation
- Electrical Permit To Work
- Limitation of Access
- Sanction For Testing
No HV SWITCHING shall be carried out without the agreement of the Control Person (CP).

In normal circumstances all HV SWITCHING shall be carried out only after a written APPROVED SWITCHING PROGRAMME has been agreed.

The remote opening and closing of HV circuit breakers may be carried out by unaccompanied suitably authorized operators.

All other HV SWITCHING shall be carried out by an AEP who shall be accompanied during the SWITCHING operations. If a CIRCUIT MAIN EARTH is to be applied using portable EARTHING leads then the AEP carrying out this SWITCHING shall be accompanied by a CEP.

When operating pole mounted switchgear by mechanical means from ground level, the operator shall wear rubber gloves of an APPROVED type and an APPROVED safety helmet.

Making LIVE or DEAD by signal or prearranged understanding after an agreed time interval is forbidden.
Precautions to be taken before Working on or Testing High Voltage Apparatus:

No person shall undertake any repairs, maintenance, alterations, cleaning or testing on HV APPARATUS until such parts of that APPARATUS are:

a) Switched off from all points of supply, made DEAD and proven DEAD

b) ISOLATED and all steps taken to secure with SAFETY PADLOCKS from all points of supply. The keys for the SAFETY PADLOCKS shall be placed in a KEY SAFE or another APPROVED security method shall be used.

c) Connected to EARTH at all points of disconnection from HV supplies to such APPARATUS or between such points and the points of work or testing.

d) Screened where necessary to prevent DANGER and DANGER NOTICES attached.

e) Released for work by the issue of an ELECTRICAL PERMIT-TO-WORK to a CEP who shall be accompanied by another CEP during the progress of the work. OR Released for testing by the issue of a SANCTION-FOR-TEST to an AEP who shall be accompanied by another AEP or CEP during the progress of the testing.

f) And the person receiving the ELECTRICAL PERMIT-TO-WORK or SANCTION-FOR-TEST is made fully aware of the nature and extent of the work or testing to be done.

g) Any work on LIVE HV conductors or insulators shall be carried out under the LIVE LINE WORKING Rules in Section 8.0 or LIVE LINE WASHING Rules in Section 9.0.
No person shall carry out any repairs, maintenance, alterations or cleaning on LV APPARATUS until such parts of that APPARATUS are:-

a) Switched off from all possible points of supply and made DEAD.

b) ISOLATED from all possible points of supply by opening circuit breakers/switches and by removing fuses or links.

c) The operating handles of these circuit breakers/switches shall have been, where practicable, locked in the 'open' position with SAFETY PADLOCKS or similar type locking devices and CAUTION NOTICES attached at all points of ISOLATION.

d) Screened where necessary to prevent DANGER, and DANGER NOTICES attached to draw attention to LIVE APPARATUS near to the point of work.

e) Proved DEAD with an APPROVED voltage testing device suitable for the rated voltage of the circuit. The voltage testing device shall be checked before and after use to check it is working correctly.

f) EARTHED, where necessary, by an AEP, with LV EARTHS

g) Released for work to the CEP when the above precautions are complete.

h) The CEP who is to be in charge of the work, is made fully aware of the nature and extent of the work to be done, and understands the precautions that he and his WORKING PARTY shall take to avoid DANGER from LIVE APPARATUS.
In mid-2010 an incident occurred in PDO during a shutdown which caused a ‘flash’ explosion in a pipe resulting in burning injuries to two workers.

Although not the prime cause of the incident, incorrectly applied isolation did contribute to the nature of the incident by allowing hydrocarbon impregnated liquids to accumulate in the pipework.

The incident and the subsequent investigation highlighted ‘shortfalls’ in PDO isolation control which have been corrected, effectively ensuring the chances of this type of incident happening in the future are much reduced.
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Supervisor Tips

- Pose Question to your group
- Allow 5 minutes for discussion on each Question
- Summarize what you have heard before moving to the next Question
- Split big groups up into smaller discussion teams
- Take your time
- Encourage everyone to take part
- Look for real examples from your own workplace
- Find and use real examples of incidents related to this rule from your site
- Link the discussion to real work on site involving the people in the tool box talk
As the Permit Applicant you want to carry out work in the process area. When will you propose the isolations required to undertake the work?

a. Prior to starting the work
b. When the Permit is handed to the Area Authority for Validation
c. When the Permit to Work is raised  
   **Correct answer**
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**Question**

What type of isolation is required to be in place to swing spectacle blinds on a ‘live’ hydrocarbon systems containing H2S?

a. Single tight valve
b. Double block and bleed  **correct answer**
c. Shutdown, depressurise and gas free first
‘Positive’ electrical isolation requires:

a. Turning off the electrical power
b. Disconnecting the starter
c. Removal of control fuses and / or racking out the circuit breaker **correct answer**

Verify Isolation before work begins and use the specified life protecting equipment
Verify Isolation before work begins and use the specified life protecting equipment.

Answer the following questions:

- What is a Safety Padlock?
- What electrical document shall be used for work on isolated and earthed transformer?
- What is an Electric Shock?
- How to protect from Electric Shock?