



With us you are Number One

**ENGEN**

# LOTO

**SP 33  
LOCK OUT TAG OUT**

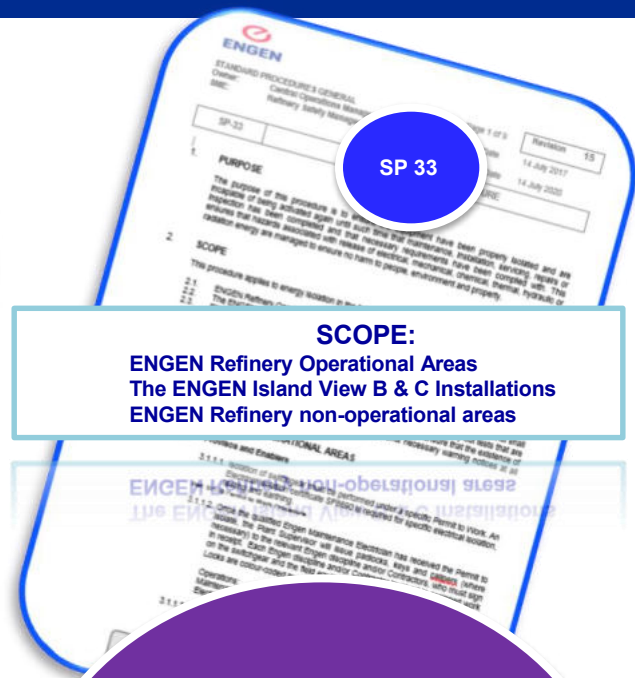
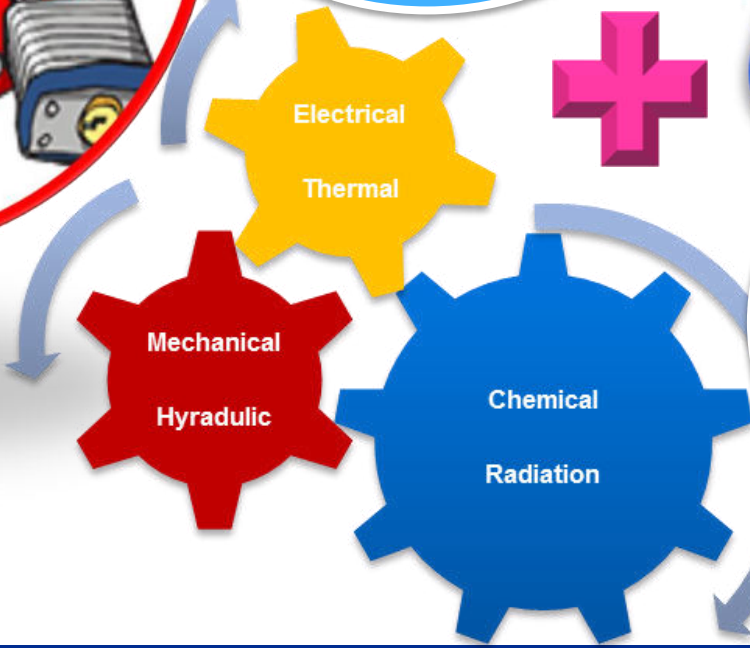


**PETRONAS**

# PURPOSE



**PURPOSE**  
To manage the hazards associated with release of energy from:



**SCOPE:**  
ENGEN Refinery Operational Areas  
The ENGEN Island View B & C Installations  
ENGEN Refinery non-operational areas

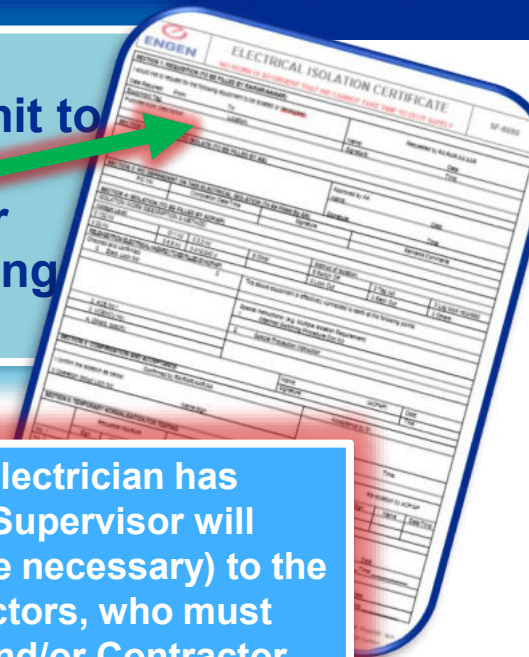
to ensure no harm to people, environment and property.

# PROCEDURE FOR OPERATIONAL AREAS



1

Isolation of switchgear must be performed under a specific Permit to Work. An Electrical isolation certificate SF6690 is required for specific electrical isolation, testing and earthing.

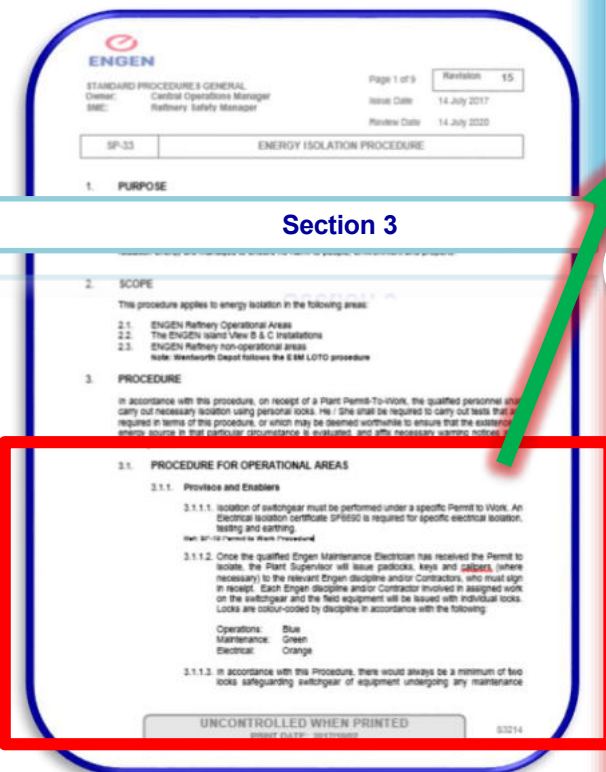


## Section 3

2

Once the qualified Engen Maintenance Electrician has received the Permit to isolate, the Plant Supervisor will issue padlocks, keys and calipers (where necessary) to the relevant Engen discipline and/or Contractors, who must sign in receipt. Each Engen discipline and/or Contractor involved in assigned work on the switchgear and the field equipment will be issued with individual locks. Locks are colour-coded by discipline in accordance with the following:

Operations: Blue  
Maintenance: Green  
Electrical: Orange





# PROCEDURE Cont.....

The qualified Engen Maintenance Electrician will test that the equipment has been effectively isolated and take additional precautions to ensure that the equipment cannot be energised by doing one or more of the following:

- ✓ Disconnecting the outgoing supply.
- ✓ Removing main fuses.
- ✓ Removing contactor heads.
- ✓ Racking out switchgear and locking shutters.
- ✓ Ensuring that the door of the switchgear cannot be opened without using special tools or keys whilst locked out.
- ✓ In case of Distribution Boards, using special locking out devices to padlock the circuit breaker in the off position.

Once the switchgear has been isolated, the Operator will affix his lock to the switch, after which the qualified Engen Maintenance Electrician and each of the other Engen disciplines and/or Contractors involved will affix their locks





# PROCEDURE Cont.....

After Isolation the Operator must return his/her key to the Plant Supervisor who will secure in lock out cabinet under lock and key where it will remain for the duration of the task.



Each person assigned to work on the isolated equipment must keep the key to their lock on their person at all times.



At the end of the shift, if the task is **NOT** completed, the key must be returned to the Plant Supervisor who will secure in the lockout cupboard.

The permit sign-off must note the incomplete status and the fact that the key has been returned.

Before starting work the next day, the Engen discipline and/or Contractor must retrieve the key from the Plant Supervisor

Verify that the switchgear is still isolated.

Thereafter, the Artisan may be issued with a new work permit once again listing the lock numbers.



# WORK COMPLETION & RESTORING POWER

Once an Engen discipline and/or Contractor has completed their assigned work on the equipment



1

They may remove the lock, in consultation with the PT and the qualified Engen Maintenance Electrician

2

A separate Permit to insert the lock must be issued. Permit sign-off must be completed and ensure formal hand-back of the lock and key to the responsible Plant Supervisor on duty.



PERMIT TO WORK  
DO NOT TAKE TIME TO DO IT SAFELY

NO WORK IS SO URGENT THAT WE CANNOT TAKE TIME TO DO IT SAFELY

Sign off PTW

3

A separate Permit to remove the lock must be issued. Permit sign-off must be completed and ensure formal hand-back of the lock and key to the responsible Plant Supervisor on duty.

# WORK COMPLETION & RESTORING POWER



4

Once all assigned work on the equipment is completed, the PT and the qualified Engen Maintenance Electrician in consultation with the Plant Supervisor can remove their locks and restore the power supply to the equipment.



5

The qualified Engen Maintenance Electrician must be issued with a work permit to remove their lock and restore the power supply.



6

The PT and qualified Engen Maintenance Electrician then return their locks to the Plant Supervisor who verifies that all work permits and locks issued have been signed back.



Once the records are verified, the Plant Supervisor in consultation with the area Maintenance

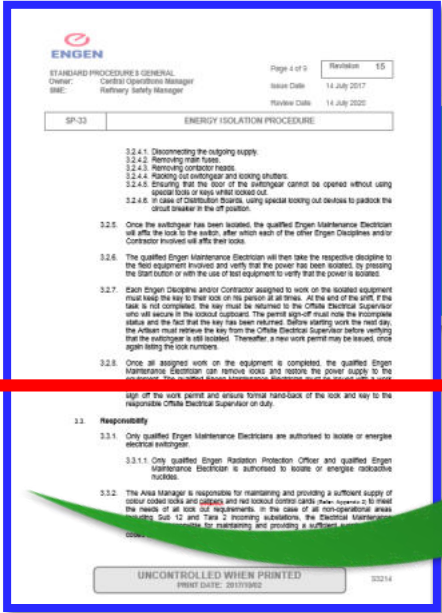
Supervisor authorizes the PT to commission the field equipment and test-run it

# RESPONSIBILITY



**ONLY**

See Section 3



Qualified Engen Maintenance Electricians are authorised to isolate or energise switch gear  
Qualified Engen Radiation Protection Officer and qualified Engen Maintenance Electrician are authorised to isolate or energise radioactive nuclides

Lock and key to be maintained in a secure locked cabinet with access controlled and restricted to the Plant Supervisor and Area Specialist only.  
 Cabinet must remain locked at all times



Area Managers are responsible for maintaining and providing sufficient supply of colour coded locks and callipers and red lockout control cards

Responsibility of the Area Manager or a designated person to control and maintain records of issues of locks and keys

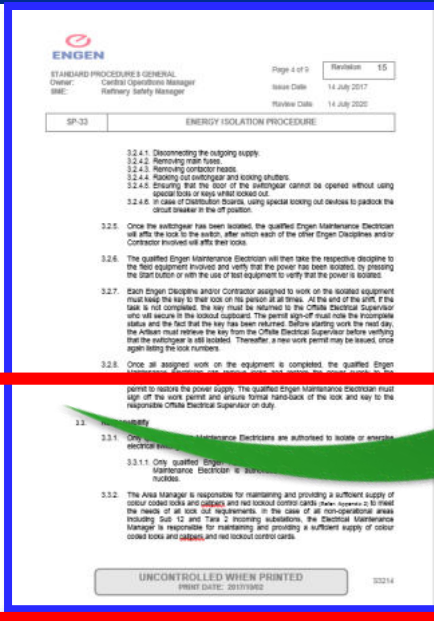


Each Plant Supervisor to carry cabinet key on person with Area Specialist holding spare.

The cabinet must remain locked at all times

there will be no spare key maintained in the Plant Supervisors drawer or general key cabinet

# RESPONSIBILITY



See Section 3

It is the responsibility of the PT, after placing the lock on the switchgear, to return his/her key to the Plant Supervisor who will secure in the designated lock out cabinet under lock and key where it will remain for the duration of the task

In the case of maintenance, the radioactive nuclide will be locked out using Mechanical, Operations & a Radiation lock



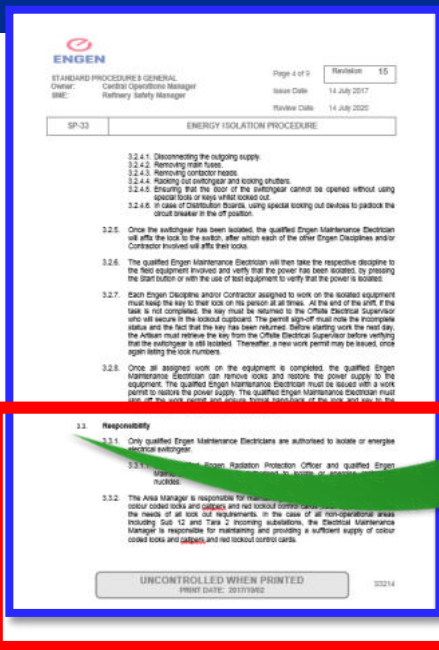
It is the responsibility of the qualified Engen Maintenance Electrician and each Engen Discipline and/or Contractor assigned to work on the isolated equipment to:

Keep Key on their person at all times.

Return it to the Plant Supervisor at the end of the shift if the job is NOT complete



# RESPONSIBILITY



See Section 3

It is the responsibility of the Plant Supervisor to ensure that keys, handed back to him at the end of shift, by each Engen Discipline and Contractor are **secured** in the designated lock out cabinet and that access to the cabinet is strictly controlled by him/her (the Plant Supervisor).



It is the responsibility of the Offsite Electrical Supervisor to ensure that records of all electrical switchgear, locks and key issues, for Non Operational areas are maintained in a Master Lock-out Record Book in the Offsite Central Shops Supervisor's Office



Keys, on return to him at the end of shift, by each Engen Discipline and Contractor, must be secured in the designated lock out cabinet and access to the cabinet is strictly controlled by him/her.

# RESPONSIBILITY

See Section 3

It is the responsibility of the qualified Engen Maintenance Electrician performing the lockout to ensure that all details on the lockout control card are completed satisfactorily both at time of issue and at time of return

For afterhours permit requirements for Non Operational Areas, the Refinery Shift Manager will assist.

It is the responsibility of the Plant Supervisor to ensure that operators are performing checks on Electrical Lock Out system every week to ensure the integrity of the area Electrical Lock Out system.

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Issue Date	14 July 2017	
Revision Date	14 July 2020	

ISOLATION PROCEDURE

- 3.2.3. Disconnecting the outgoing supply.
- 3.2.4. Removing main fuse.
- 3.2.4.1. Removing outgoing fuses.
- 3.2.4.2. Locking out switchgear and locking shutters.
- 3.2.4.3. Ensuring that the door of the switchgear cannot be opened without using special tools or keys which cannot be used.
- 3.2.4.4. In case of distribution boards, using special locking out devices to padlock the circuit breaker in the off position.
- 3.2.5. Once the switchgear has been isolated, the qualified Engen Maintenance Electrician will affix the lock to the station, after which each of the other Engen Disciplines and/or Contractor involved will affix their locks.
- 3.2.6. The qualified Engen Maintenance Electrician will then take the respective discipline to the lock equipment involved and verify that the power has been isolated, by pressing the start button or with the use of test equipment to verify that the power is isolated.
- 3.2.7. Each Engen Discipline and/or Contractor assigned to work on the isolated equipment must keep the key to their lock on his person at all times. At the end of the shift, if the task is not completed, the key must be returned to the Offsite Electrical Supervisor who will secure it in the lockout cupboard. The permit sign-off must note the incomplete status and the fact that the key has been returned. Before starting work the next day, the Allowman must retrieve the key from the Offsite Electrical Supervisor before verifying that the switchgear is still isolated. Thereafter, a new work permit may be issued, once again listing the lock numbers.
- 3.2.8. Once all assigned work on the equipment is completed, the qualified Engen Maintenance Electrician can remove locks and restore the power supply to the equipment. The qualified Engen Maintenance Electrician must be issued with a work permit to restore the power supply. The qualified Engen Maintenance Electrician must:

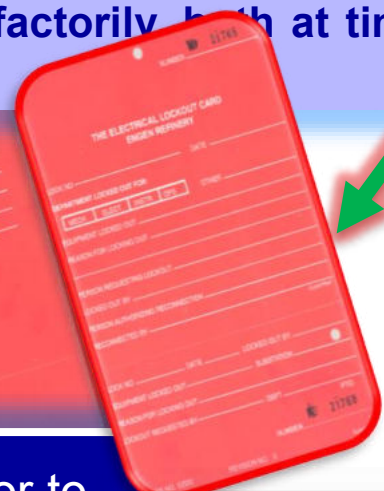
11. Responsibility

- 3.3.1. Only qualified Engen Maintenance Electricians are authorised to isolate or energise electrical switchgear.
- 3.3.1.1. Only qualified Engen Radiation Protection Officer and qualified Engen Maintenance Electrician is authorised to isolate or energise radioactive modules.
- 3.3.2. The Area Manager is responsible for maintaining and providing a sufficient supply of colour coded locks and cables and not locked control cards. New locks must meet the needs of all lock out requirements. In the case of all non-operational areas including Sub 12 and Train 2 incoming substations, the Electrical Maintenance Manager is responsible for maintaining and providing a sufficient supply of colour coded locks and cables and not locked control cards.

UNCONTROLLED WHEN PRINTED

PRINT DATE: 20170702

30214



Area:	Date checked:	Shift:	Checked By:
EN2 1	Equipment Locked Out	Date Locked Out	Date Locked In
EN2 2			
EN2 3			
EN2 4			
EN2 5			
EN2 6			
EN2 7			
EN2 8			
EN2 9			
EN2 10			
EN2 11			
EN2 12			
EN2 13			
EN2 14			
EN2 15			
EN2 16			
EN2 18			

Operator's Signature: \_\_\_\_\_  
Plant Supervisor's Signature: \_\_\_\_\_

Department: Operations/Control Ops Document Owner: Control Ops Manager Ref. Proc#: 4103  
Date Issued: 27 March 2015 Page 1 of 3 Version Number: 03

SF 4103



# Thank you

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