

TOPIC :Standard Operating Procedure for Permit to Work System

Accountability: Director Plant for Cement Manufacturing, Bulk Terminal and RMX Regional Heads

Department	[Cement Manufacturing, RMX All Regions]	Issue Date	06-04-2021
Doc No	H&S _CORP_2021_06	Revision	01

Contents

1.0	Purpose	2
2.0	Scope	2
3.0	Definitions	2
4.0	Responsibilities	3
5.0	Procedure	5
6.0	Selection, training, competency, authorisation	10
7.0	Monitoring and audit of permits	11
8.0	Records	12
9.0	Amendments	13
10.0	Appendix	13

1.0 Purpose

The purpose of this standard is to identify hazards in all aspects of work activities and ensure that specified and other high risk activities are properly controlled. Work permit will provide detail scope of the activities and preventive measures required for safe execution.

2.0 Scope

This standard applies to:

- All persons associated with ACC (employees, Contractors, clients, volunteers, visitors and associated organisations).
- Plant machinery and equipment (including equipment on hire / lease contracts)
- All activities performed in ACC and associated organizations (including but not limited to Integrated plant , Grinding unit, Bulk cement terminal and Geocycle operations)

3.0 Definitions

“Hazard” a hazard is typically defined as “anything that has the potential for harm or a potentially damaging energy source”.

“Work Permit” means a clearance granted to work in a specific area for specific task with recommended control measures for associated risk.

A “confined space” is an enclosed or partially enclosed space that is under atmospheric pressure during occupancy and is not intended or designed primarily as a place of work and which potentially has an atmosphere which contains harmful levels of contaminant or temperature extremes; or

- (a) has an oxygen deficiency or excess; or
- (b) can cause engulfment.
- (c) And has restricted means for entry and exit.

“Hot work” is defined as welding, cutting, brazing, grinding or any activity involving open flames, which may cause smoke or fire.

“Excavation work” means the making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping; management of any task requiring the penetration of the ground to a depth greater than 300 mm. This element excludes bulk excavation work being performed in quarries and stockpiles.

“Working at Heights” Work at heights greater than 1.8 meters where they could fall should be authorised through issue of work permit. Note that this specifically refers only to those situations where persons are not protected by proper platform and handrails etc.

“Isolation”: Process of “cutting off” plant and equipment from all energy sources, so that certain work can be carried out on the plant or machinery without the risk of injury from that energy source.

“Exposure to hot material, surfaces and gases”: all areas of the cement manufacturing process in which there is a potential for personnel to be exposed to hot material, surfaces and/or gases which are equal to or have the potential to exceed 150 °C / 302 °F (degrees Celsius / Fahrenheit).
Lifting & supporting loads: Lift plan is required for load more than 1.0 ton and lift/shift of 1.0

meter by use of mobile equipments (e.g. crane, hydra, chain block)

Working near water: this applies to management of any task related to working near water or other liquids which has potential to result in drowning. This includes work performed on boats, wharfs as well as activity performed near dams, ponds and opening to storage and treatment tanks

Access vicinity permit : To restrict access to electrical cables it is recommended that a safe work procedure be developed for performing work in the vicinity of overhead power lines. Written permission in the form of a permit must be included in the safe work procedure.

The purpose of the permit enables persons who have a comprehensive understanding of the dangers associated with working near overhead power lines to safely access the work area. The permit enables;

- authorisation to proceed with work
- guidance on the segregation distances between equipment and powerlines
- identification of any special requirements to control the work method
- job handover and job completion requirements to be established

“Competent Person”: is any person having the knowledge, training, experience and qualifications specific to the work or task being performed. Provided that where appropriate qualifications and training are registered in terms of the provisions of the Factories Act 1948 and Mines Act 1952, these qualifications and training shall be deemed to be the required qualifications and training.

“High Voltage” normally exceeds 1000 volts AC or 1500 volts DC

“HAC”: Holcim Asset Code.

“CCR” Central control room

“O&M Contract” Operation & Maintenance Contract

4.0 Responsibilities

Director Plant

Director plant is accountable to implement all the requirements specified in the standard below. Director plant shall delegate the responsibility (which shall be documented) to a person who has, or should have by way of their position, authority and competency to:

- Identify the processes and practices required to address the requirement of Work Permit Procedure
- Direct and guide the development and implementation of the actions to meet the documented processes.
- Monitor and review effectiveness of both the documented processes and practices
- Identify and implement corrective actions necessary to maintain compliance
- Approving of listed critical Activities

H&S Professional

- Conducting training programs on work permit procedure

- Plant H&S personnel will randomly verify 02 work permits/day to ensure system adherence and quality of risk assessment.
- H&S personnel will verify all critical jobs at site
- For non-routine jobs, the Department Head to involve Plant H&S personnel in risk assessment at the planning stage.

Permit Requester

- Conduct mandatory inspection of work area and discuss with permit issuer on the complete scope of the activity.
- Fill up the relevant sections of the permit form as a requester.
- To ensure that hazard associated with multilayer and multiple activities are considered while requesting the permit.
- Permit Requester can be any Management Staff or SFA, if he is a Front line supervisor responsible for operating and maintaining that equipment. For details refer Table 1.

Permit Issuer

- Review SOP for the task and conduct site visit to review existing risk assessment and identify additional hazards through FLRA, if any and ensure effective controls are in place.
- Check competency of manpower as per the activity requirement.
- Check condition, certification for the tools, tackles and equipments for the activity.
- Initiating lock out with support of the isolation officer and CCR as applicable.
- Ensure Try out has been carried out after isolation to ensure energies are at zero state.
- In case of group lock out, ensure placing the permit lock keys in the lock out box and application of another permit lock on the box.
- Organise tool Live Saving talk with the executing team members to communicate hazards, energy isolation & controls required to safe execution of the activity.
- Before signing the permit to work, ensure that site condition is fulfilling all the conditions and precautions specified on the permit and in respective SOP/FLRA.
- Ensure availability and effective supervision as per job requirement.
- Ensure after work completion, guards are in place, housekeeping is proper, isolation lock out returned and equipment is safe for handover.
- Ensure information about the job has been given to the Zone Owner
- Place information notes on the permits, collate the permits, close the permits and maintain record.

Permit Approver

- Discuss scope of work with the Permit Issuer prior to the approval of the Permit.
- Ensure that all relevant energies that require isolation has been indicated on the permit by permit Requester/Issuer as per Isolation Matrix
- Check additional permit requirements and precautions to be taken, if any and specify on the permit/FLRA
- Before permit gets authorised, ensure that site condition is fulfilling all the requirements
- Ensure hazards associated with multiple and multilayer activities are considered.

Isolation officer

- Ensure that the source of energies are isolated, master lock(s) and permit Requester lock(s) & tag applied
- Fill up the relevant sections of the permit form.
- Conduct testing for zero energy potential after performing the isolation.
- Put entry in the LOTOTO register at respective Sections and sign

Personal Lock Holder

- Apply personal lock before starting job which required LOTOTO
- Remove the lock whenever you are leaving the job location

CCR

- Validate that the respective equipment as per the request received through work permit are showing in stopped condition
- Ensure start of equipment after receiving the closed work permit.
- Ensure operation through local mode only when authorised in LOTOTO work permit.

Supervisor of the activity:

- Ensure all recommended controls are in place while work is in progress by monitoring of the activity
- Carry out inspection of Tools tackles and use of appropriate PPE

Zone owners (for assigned area)

- Zone owner must be informed for any PTW related job(s) performed by other dept. in his/her respective zone. Communication process must be established between the Permit approver and the Zone Owner before start of the job.
- Job can start after giving information to Zone owner who in turn can sign the document at any time during the course of the job.

5.0 Procedure

The Permit to Work procedures are designed to provide a safe system of work for personnel working on process plant equipment.

A Permit to Work (PTW) to be raised for

- Routine or Non Routine work including:
 - Maintenance and Repair
 - Stop Inspection
 - Live Testing
 - Installation
 - Alteration /Modification
 - Cleaning below equipments
 - Maintenance and repair of Vehicles (eg. Dumpers / HEMM/)

- Hot Work
- Confined Space
- Energy Isolation
- Excavation & Digging
- Work at Height (including Floor opening, Handrail removal etc.)
- Scaffolding
- Construction & Dismantling
- Lifting & supporting loads
- Working Near Water Body
- Work near Hot Material, Surfaces & Gases
- Electrical High Voltage Work
- Electrical Work
- Working on railway yard/line

Above mentioned lists are indicative and individual sites need to ensure the following

- Approved list of routine/regular activities which will be carried out with Risk assessment & subsequent preparation of SOP instead of work permits
- Breakdown and critical /hazardous activities as mentioned in the above list should be covered with PTW

3.5.2 Authorised employees responsible for issuing of the permits have the appropriate training , competency. This list of authorised employee should be prepared by operating site displayed at prominent location based on the approval of Plant Director (Refer Table 01 & indicates the eligibility criteria for authorised employee for issuing/approving PTW

4.5.2 Work Permit Process

Section 1&2

1. Permit requestor will mention the location and nature of activity, HAC/ DCS code, & Permit validity.
2. Permit requestor will conduct site inspection and ensure is safe for conducting the activity
3. Permit shall be issued with colour code as follows.

White original - by Permit Requestor to be completed and kept at site
Yellow – Copy with Permit issuer as record

Section 3 & 4

1. Permit issuer will initiate/ review and complete the process of risk assessment and SOP.
2. For non-routine jobs, the Department Head to involve Plant H&S personnel in risk assessment at the planning stage.
3. Include additional hazards and ensure effective controls in place.
4. Permit approver will review the quality of the risk assessment and controls, if the quality of risk assessments or the controls and resources for carrying out the permit is not adequate then return the permit to the issuer.
5. Approach respective Isolation Officers & CCR for Energy Isolation & Ensure Zero Energy status by tryout.
6. In case of group isolation, Isolation Officer will isolate respective energies and apply his Master Lock on Isolation Point and place key in the Group Box and apply his Master Lock on the box.
7. Permit issuer will also place his Permit Lock on the Group box and place list and keep original copy of the permit outside the box. Refer Group Isolation Flow Chart

8. Organise tool box talk to communicate hazards, energy isolation & Controls required to safely execute the job to all executing team members.
9. Job can start after giving information to Zone owner who in turn can sign the document at any time during the course of the job
10. In case of job activity extending in next shift, ensure removal of all individual locks and place the next shift Permit lock of issuer before removal of his permit lock.
11. Next shift issuer will conduct tool box talk and ensure that all individuals have placed on the box.

Section 5

1. CCR In charge will sign work permit and stop the equipment as per requested received.
2. In case of Equipment not under control of CCR and operated in local mode then only respective operator to sign the permit.
3. Issuer to get acceptance from respective supervisor of the job about the understanding of the activity and associated controls in each shift before start of the job.
4. Issuer to get concurrence to carry out this activity with the supervisor of nearby other activities
5. Equipment which is not started by the CCR, like Work shop machines, electrical equipment like HT board, transformers, EOT cranes, lighting, mines work shop equipment. The Permit Requester, after getting the permit approved from the Permit issuer and Permit Approver, will directly go to the isolation officer for carrying out the isolation activity. White (duplicate copy) of permit: to be kept at CCR/local control room except Colony and Project related permit this is to be kept at the planner.

Section 6

1. Requester/Issuer will Conduct Tool box talk and inspect tools & PPEs

Section 7

1. As per permit requirement monitoring & inspection will be carried out by respective trained & authorised person.

Section 8

Once the work is agreed to be completed by the Issuer following actions are taken:

1. All crew members remove their personal lock and tags
2. The Issuer also removes his lock and tag.
3. After activity completion, issuer/requestor will authorise the Isolation officer to de isolate the equipment and will submit the closed work permit to CCR/Local operator to restart the equipment.
4. After activity completion, ensure guards are in place, housekeeping is proper , isolation lock out returned and equipment is safe for handover.
5. Place information notes on the permits, collate the permits, close the permits and maintain record. Destroy duplicate copy of permit after closing of work permit.
6. Issuer/requester Signs off permit at Section 8

Section 9

In case of any violation/ deviation from the recommended control measures which may have potential of incident then any person can cancel permit by signature in the permit with reason.

Suspend/change a Permit to Work
Overview

There are 3 conditions which require a permit to Work to be either suspended and or cancelled. They are

- a. An emergency event
- b. A shift change and or change in Permit Requester/Authorised person
- c. Change in conditions

Emergency Event

- In the event of an emergency all work must stop.
- If possible hot work activities must be made as safe as possible given the nature and scale of the event eg.
 - All flames must be extinguished
 - All gas bottles turned off
- All persons must evacuate the work place and assemble at the assemble point.
- When the all clear is given both the Permit Requester and the Authorised person must inspect the work area and verify that the controls are still effective and resign the permit

Shift change

- Just prior to the end of shift the Permit Requester must require work to stop and the work area to be made safe.
- Workers must remove their personal lock and tag from the lock box
- The Permit issuer must sign off the permit and remove their lock and tag from the permit box
- Outgoing Permit Requester and Permit Issuer talk with incoming counterparts and ensure they are aware of conditions and issues
- Incoming Permit Issuer and Permit Requester review the risk assessment and conduct tool box talk

Change of Conditions or scope

- If during the execution of the work the Permit Requester identifies that either or both conditions have changed or the scope of work has/needs to change then they must evaluate the significance of the change.
- If changes need to be made to either the scope and or permit conditions then the work must stop and the work crew, permit Requester and Permit Issuer must all remove their lock and tag.
- Once the permit is changed or replaced the process restarts from the 1st stage

Validity of Permit

- Main Permit
 - Validity of permit will be max. for one day (03 shifts with extension by issuing annexure A separately in next two shifts)
- Continue Permit (Annexure A)
 - Annexure A shall be issued in continuation of main permit with independent risk assessment.
- Isolation & Lockout permit, Lifting Plan & Excavation Plan
 - If for activity prolonged for more than one day, permits will be changed in every 24 hr, however the isolation permit will remain same and shall be referred in every permit being used.
- Rescue Plan for Working at Height & Confined Space:
 - The rescue plan remains valid if there is no change in condition/activity however the plan to be verified in every shift and shall be referred in every permit being used.

- High Voltage Electrical Installations - Valid till main permit validity i.e. one day

Boots on Ground

- Every day, at the beginning of shift, each ACC employees must visit his/her area of responsibility or other areas and review entire operation including work permit system. He / she should review previous shift report and speak to the employees, contractor and workmen to understand the challenges (if any), ensure safe and efficient operation

Critical & High Risk job

Critical/High Risk job means where ever Permit to work (safety permit) is required

- Plant must ensure risk assessment, SOP and permits are issued after reviewing the situation at site for all activities and ensure continuous supervision
- All plant process areas must be covered under this program including mines & CPP
- A day prior to job, Critical & High Risk activities must undergo a review process. The same to be added in the shared folder on daily basis.
- Director plant office must fix a time for review of next day's critical activities and high risk activities with a relevant cross functional team (CFT) consisting of top management of plant. This is to ensure proper planning of the job where all the necessary tools/ equipment's must be available. Plant leadership must nominate one person from management team (including line function and support functions) for additional verification on site
- The critical jobs finalized the day prior, must be again be discussed and checked for preparedness in morning meeting.
- Responsible person for the job to verify the control measures before start of the job, permit requirements, ensure all work force are authorized to perform the task and are trained as required by Health and safety standards and carry out tool box talk (Life saving talks) before starting of job
- All employees of ACC are authorized to stop any unsafe act or behaviour at site. They are authorized to immediately stop the work and cancel the permit if required, until the same is corrected

Note:

There will be random check from MD, CMO, CH's and Corp H&S head on critical/high risk activities and discuss with responsible person time to time to check preparedness

6.0 Selection, Training, Competency and Authorisation

- i) A central training register/ records shall be maintained by plant HR which provides details persons who are trained as:
 - a. Permit Requester
 - b. Permit Issuer
 - c. Permit Approver
 - d. isolation officers
 - e. personal lock holders
- ii) Assessment shall be carried out in the form of practical examination after the training, where the trainees will demonstrate what they have learned. This will ensure that the person being trained has acquired the required competency.
- iii) Authorisation record to be maintain as per authorisation matrix

Table No. 01 : Competency Matrix

Role	Minimum Level to perform this role	Competency	Training
Permit Requester (N) (Equipment owner, Maintenance. Planner)	Any Management Staff or SFA if the SFA is a Front line supervisor responsible for operating and maintaining that equipment	Knowledge of SOP/ Risk Assessment / JSA / LOTOTO Minimum one year in CMU & min 6 months experience in the area of operation. Work permit training	HIRA, & Energy Isolation, & Work Permit Procedure with respective hazardous activity
Permit Issuer (N+1) (Executing function/Department)	1. Immediate supervisor of requestor (must be Management Staff), or 2. at the same level of 1 but having similar competency and authorization 3. Immediate supervisor of 1	Knowledge of SOP/ Risk Assessment / JSA / LOTOTO Minimum one year in CMU & min 01 year experience in the area of operation	HIRA, & Energy Isolation, & Work Permit Procedure
Permit Approve (N+2) (Chief of execution team)	1. Immediate supervisor of issuer (must be Management Staff), or 2. at the same level of 1 but having similar competency and authorization 3. Immediate supervisor of 1	Minimum 06 month experience	Training on Permit to work and Isolation& Lockout
Acceptance of work permit	CCR operators/Operator of equipment	Minimum 06 month experience	Training on Permit to work

Note:

- In case of O&M - Requester & Issuer may be OEM Engineers as per above competency assessment but Approver will be ACC employee
- Deviation from above prescribed requirement is subject to approval from Director Plant. In this case, requester & issuer may be same person but approver should be N2 level.

Special conditions for approval

Plant should also prepare a matrix for critical activities where Sr. Management (Director Plant/Head Plant Operations/Head Production/ Head Maintenance) approval shall be required
Example of Critical Activities;

- First Entry after Stoppage inside Preheater cyclones/Ducts, pre-calciner, Kiln, Cooler, Boilersetc(Eg: Inspection, Erecting scaffolding, or Any maintenance Job etc)
- Hot Work on inside or within 10 meter of the explosive area/ fuel storage area/inflammable material storage and handling area. Eg: Coal storage, diesel tank area, AFR storage area, Bag godown, lubrication room, LPG storage.etc)
- Preheater Cyclone Jam Removal Job
- Entering inside Diesel Storage tanks for sludge cleaning
- Scaffolding height erection/dismantling more than 20 Mtr
- Rare activities which needs significant mobilization of People/Material/Machinery e.g Kiln Tyre, Shell replacement etc
- Working inside ESP / process bag filter : (e.g Inspection & maintenance of ESP/bag filter (Tube Plate, bag Replacement)
- Working inside the Silo's (e.g Cleaning)
- Entering inside PC coal storage bins.
- Take-up pulley of conveyor belts maintenance job
- Working near the vicinity of HT lines (erection of Gantry/foot over bridge over OHE lines) orMaintenance of Transformers/ HT Breakers, MV and LV Panels, Capacitor bank, Live testing of Electrical equipment
- Any deviation in control measures mentioned in HIRA/JSA
- Lifting and shifting of material of weight more than 3 MT (eg Shifting of Girth Gear)
- Lifting operation of material (having weight more than 2T) in which lifting height is more than 10 Mtrs
- Working at Height (free fall height more than 20 mtr) or Woking near Hole/Opening (Fall Height more than 20 mtr) Eg: Lumps/ Cement deposition, cleaning of tall structures, silo's and steel structure Painting/ outer building, silo and other buildings. (Fall Height more than 20 mtrs)
- Other High Risk activities... (Based on risk perception as per plant management team)
- Note: Plant to prepare authorization matrix as per criticality and must be approved by Director Plant

7.0 Monitoring & Audit of Permits

1. Plant H&S persons will randomly verify permit to ensure system adherence and quality of risk assessment.

On observing any noncompliance same shall be recorded and permit issuer shall be notified about the noncompliance and permit shall be cancelled and consequence management will apply in this case

2. Permit authorisation will be suspended in case of violation till next training, competency assessment & authorisation.
3. The VPCs carried out shall also focus on the activities related to work permit for the purpose of measuring compliance to the following:
 - a. Permit issuing procedures
 - b. Isolation and Lockout procedures
 - c. Quality and scope of isolation and lockout in respect to the task being observed.
4. Plant H&S shall perform audits once in six months to verify the quality and effectiveness of the requirements set out in this procedure.

8.0 Records

Records generated as a result of this procedure are as follows:











Record	Location/ Custodian	Retention Time	Disposing
Training record of a) Requester, Issuer, Approver b) Authorised person for confined space Gas testing c) Isolation Officers	HR department	2 years	Shred
Competency assessment record of a) Requester, Issuer, Approver b) Authorised person for confined space Gas testing c) Isolation Officers	HR department	2 years	Shred
Authorisation record of a) Requester, Issuer, Approver b) Authorised person for confined space Gas testing c) Isolation Officers	Safety Department	2 years	Shred
Approved list of routine activities which will be carried out with Risk assessment & SOP in place of work permits a) Preventive maintenance done on running equipments b) Routine operational jobs (list of activities to be approved from Director Plant):	Safety Department	2 years	Shred
List of activities where approval will be Sr. Management only (Special condition for approval)	Safety Department	2 years	Shred
Isolation & lockout Survey	Department Head	Life of equipment	Shred
Isolation matrix (refer annexure # V)	Permit issuer & Permit	Life of equipment	Discard

	Requester, isolation officer(s)		
Isolation Register	Electrical / Mechanical / Production head	06 months	Shred
Work Permit	Permit issuer/CCR/Planner	06 months	Shred
Audit records	Safety Department	1 years	Shred
VPC, Near miss and hazard reporting Records	Safety Department	1 year	Shred

9.0 Amendments

Date	Rev	Reason for Change	Changed By
06.04.21	01	For incorporation of Reference Checklist in Permit To Work and updating the format	Corp H&S

11.0 Appendix

- 
 ACC Permit to Work Format Rev1.docx
- 
 Checklist for Permit to Work_Rev 1.xlsx
- 
 PTW Authorization Matrix Template R1.x
- 
 Energy Isolation & Lockout Permit.xls
- 
 Rescue Plan_WAH.docx
- 
 Lifting Plan_V1.doc
- 
 Scaffolding Plan.doc
- 
 Confined space rescue.docx
- 
 Group Isolation Flow Chart.docx
- 
 Access Vicinity Permit.docx