भारतीय मानक **IS 17893 : 2023**

Indian Standard

वर्क परमिट सिस्टम — रीति संहिता

Work Permit System — Code of Practice

ICS 13.100

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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards after the draft finalized by the Chemical Hazards Sectional Committee had ben approved by the Chemical Division Council.

Work permit means a certified procedure for allowing certain work to be carried out in a fixed place and during a given period of time. It is also a procedure authorizing entry to certain facilities. It provides a check list for a systematic method of risk assessment, warns the residual hazards in the job, and outlines the precautions to be taken while carrying out the job to achieve the stated objectives. It provides responsibility for the persons who are accountable for authorizing the work and ensuring that the workplace is safe. It establishes safe working conditions for carrying out any maintenance/repair/inspection work, and to serve as an official record of those established conditions as requirements agreed upon by the issuer and acceptor of the permit.

Work permit is used to authorize routine/non-routine work to be carried out. It clearly explains the precautions to be taken to ensure safety of personnel, installations and environment while performing the job.

This standard provides guidance for preparation of work permit for work areas whose activities are restrictive in nature such as 'cold work', 'hot work', 'radiography' etc. There is no international standard on this subject. During preparation of the standard, considerable assistance has been taken from the documents/checklists/ proformas already in use in India and accepted by agencies such as *Directorate of Factories Act* of various state government, AERB and etc.

The composition of the committee responsible for the formulation of this standard is listed in Annex H.

Indian Standard

WORK PERMIT SYSTEM — CODE OF PRACTICE

1. SCOPE

1.1 This standard prescribes work permit for the following work areas:

a) Cold work permit;

b) Hot work permit;

c) Confined space/vessel entry permit;

d) Excavation permit;

e) Electrical work permit;

f) Work at height permit; and

g) Radiography

1.2 In general, Work permit procedure is applicable to all restricted areas in the plant or unit. However, Work permit may not be applicable for the following areas/activities:

a) Routine welding/cutting and similar maintenance/fabrication jobs carried out inside or adjacent to any plant unit workshops and central workshops or the area demarcated/allotted by the approval of the facility in-charge;

b) Routine sampling for the purpose of laboratory analysis;

c) Canteen for cooking, preparing tea/food, etc;

d) Torches, furnaces, sparking equipment, etc located in designated locations of laboratory;

e) Collection of garbage from specified safe locations in the plant area;

f) All cold jobs in office buildings including control room buildings. However, jobs requiring electrical isolation, work at height and excavation, etc in these areas will require work permit;

g) Visual inspection by maintenance or inspection personnel of rotary or static equipment in the plant;

h) Replacement of tube light rods inside buildings. Verbal permission from shift in-charge/area in-charge is to be obtained before starting the job. Replacement of bulbs on poles inside plant areas and on roads requires permit;

j) Gardening related manual jobs like grass cutting with hand cutter, branch trimming cutting, etc around office buildings, control room buildings, plant areas, non-plant areas. However for jobs requiring electrical connection like lawn movers, mechanized hacksaw machine, and work at height like climbing on tree and excavation more than 30 cm deep will require respective work permit; and

k) Any other routine activities authorized by the facility in-charge by a separate notification.

2 GENERAL PROCEDURE FOR WORK PERMIT

2.1 The process of work permit involves adherence to specific procedures for issuance of work permit, compliance of agreed conditions in the permit during work execution and closure of permit when the job is completed.

2.2 The process involves different category of people in connection with work permit such as: issuer, acceptor/executor, area in-charge, area operator/technician, gas tester, maintenance technician/contract supervisor, etc.

2.3 The issuer is responsible for and controls the entire work permit process.

2.4 Work Permit is to be made in triplicate. The first copy is the acceptors/executors copy, and the acceptor shall display his copy at the job location to make the area personnel aware of the job in progress and is readily available for audit. The issuer retains the second copy for control of work activities and for record purpose and the third copy is for safety department.

2.5 A request for work permit comes from either the issuer or the acceptor. The issuer is normally the shift in-charge of the operations area and the acceptor is the person who carries out the work and has responsibility for the execution of work.

2.6 Before filling up necessary details in the work permit, the issuer and acceptor jointly make a risk assessment of the job and agree on the following:

a) Specific procedures to be adopted during executing the job;

b) Preparations required before the actual job is carried out; and

c) Special needs like personal protective equipment (PPE), etc.

2.7 If the work is to be continued beyond the specified hours, further continuation of work or renewal of work for next day is allowed based on approval of specific authorities and the type of work.

2.8 The work can be stopped at any moment of time if work conditions are not conducive or if the work conditions deviate from the requirements in the work permit.

2.9 Plant authorities are required to train the employees in the work permit procedures to take up various roles as identified in the procedure.

3 DETAILS OF WORK PERMITS FOR DIFFERENT WORKS

3.1 Cold Work

3.1.1 Cold Work is an activity, which is not likely to produce sufficient heat capable of igniting flammable gases. Annex A shall be followed to issue cold work permit.

3.1.2 Examples of Cold work are as follows:

a) Erection/removal of scaffolding;

b) Insulation of equipment/pipelines;

c) Painting — All painting of equipment or pipelines or buildings at temperatures below 50 ºC;

NOTE — Pressure spray painting requires a hot work permit.

d) Routine instrument repairs/troubleshooting that do not involve process isolation or work on process trips;

e) Equipment greasing and lubrication;

f) Condition monitoring of rotary equipment;

g) Tests to be carried out by maintenance personnel or any other external agency other than the operating personnel;

h) Work on equipment like DCS panel, UPS, invertors;

j) Excavation, digging, road cutting, removing soil, chipping and grading to a depth less than 30 cm deep, either using mechanical equipment or manually;

k) Work at height-any work at or above 1.8 m above ground level, where permanent platform and guard railing are not provided;

m) Hydro-jetting;

n) Online sealing (only fermenting job-no drilling);

p) Sand blasting;

q) Use of portable electric tools and appliances in areas other than plant operating areas;

r) Use of vacuum cleaners/other gadgets requiring power supply in areas other than plant operating areas; and

s) All inspection and test work performed by employees other than those assigned to operate the equipment.

3.2 Hot Work

3.2.1 Hot work is any type of work which produces heat/spark capable of igniting any flammable or combustible material**.** Annex B shall be followed to issue Hot Work Permit.

3.2.2 Examples of hot work are as follows:

a) Welding, grinding, burning, soldering, brazing, blasting, gas cutting, chipping by spark-producing tools, use of open flames, tar melting, electrical arc of any kind and any other equipment which may create a source of ignition, use of hot plates;

b) Hacksaw cutting on equipment, line or vessel of hydrocarbon services;

c) Any equipment, line or vessel which contained any explosive, corrosive or toxic material and removed from service for cleaning, repairing, maintaining, reclaiming or discarding in and around workshop to a location where “Hot Work” is already permitted;

d) Use of Non-flame proof electrical equipment like cameras, mobile phones, non-intrinsically safe radio pagers, etc use

of certain power driven tools like pneumatic concrete breaker, use of equipment operated by internal combustion engines, etc inside hazardous areas;

e) On line leak sealing (if includes hot work like drilling, etc) in pipelines and equipment, hot tapping involving welding and drilling in pipelines, and pressure spray painting; and

f) The following jobs though not qualify as hot jobs as per definition, require hot work permit:

1) Work involving radioactive sources: The isolation or restoration of a radioactive source including the use of mobile X-ray/radiography equipment.

2) Work beneath or adjacent to un-insulated electrical power cables (for example, LT, HT lines) within 3.0 m radial distance.

3.3 Confined space/Vessel entry

3.3.1 A confined space is defined as an area which is not designed for continuous human occupancy. It is large enough for a person to bodily enter in the area and perform the assigned work. It has got limited or restricted means for entry and exit and may or may not be enclosed. Annex C shall be followed to issue confined space entry permit.

3.3.2 Confined space is subjected to potential hazards, namely, accumulation of toxic or flammable gas/vapour, inert gas, oxygen deficiency (< 20 percent v/v), flooding of liquid, steam or any other hazardous substance or development of hazardous conditions.

3.3.3 Some of the examples of confined spaces are as follows:

a) Tanks, columns, reactors, oil/water sewer pits, coolers, condensers, reservoirs, pipe lines, tanker trucks, skirts of column and vessels, floating roof decks, ducts, pits, tunnels, etc; and

b) This also includes column skirts, large diameter pipelines, storage tanks, spheres, bullets, bins, silos, sumps, trenches, pits, sewers, furnaces, flare stacks, gas turbine chambers, underground service lines, work in open type vessel deeper than head level, boiler drums, surface condensers, flue ducts, Heating ventilation and air conditioning ducts, false ceilings and floors, deck of floating roof tank etc, where deficiency of oxygen or presence of toxic/flammable gases is likely and/or the access is difficult during maintenance/inspection work.

3.4 Excavation

For carrying out excavation of ground/soil below 30 cm, a separate permit that is excavation permit shall be issued. Annex D shall be followed to issue excavation permit.

3.5 Electrical Work

For carrying out electrical work, positive isolation of electrical energy of power driven equipment is essential. A separate permit that is electrical work permit shall be issued for the electrical work. Annex E shall be followed to issue electrical work permit.

3.6 Work at Height

Work Permit shall be issued for jobs involving work at height greater than 1.8 m. A separate permit that is, working at height permit shall be issued for working at height. Annex F shall be followed to issue working at height permit.

3.7 Radiography

For jobs of radiography on pipelines/equipments, isolation and restoration of radioactive source is essential. A separate permit that is radiation permit shall be issued for works related to radiography. Annex G shall be followed to issue radiation permit.

4 DETAILS AND PROCEDURE FOR WORK PERMIT FORMATS

4.1 The work permit format contains several sections and provides a checklist for the issuer and the acceptor to identify different hazards associated with the work and what precautions and procedures need to be followed in carrying out the job in a safe manner. Details of different items in the various sections of the permit are as follows:

4.1.1 *Job Particulars*

The following details relevant to the work are filled in this section:

a) Plant — The manufacturing unit or a plant or a non-process facility;

b) Area/Section — Part of the facility belonging to a plant or unit;

c) The work permit to be issued to the person/agency who are entrusted to carry out the work;

d) Date and time;

e) The work permit must bear the person(s)/employee(s) name and designation with his department/discipline. No permit should be issued directly to the contractors;

f) Equipment tag no. and equipment name — The designated number and name as per the equipment master list and easily identifiable by all people involved in the work execution;

g) Specific limitations of the work permit;

h) Specific instructions to work permit holder, if any;

j) Job description — The details of work relating to maintenance, construction, inspection, etc to be carried out. The work permit is to be worded such that it is limited to specific equipment or area only and clearly defining the job required to be done; and

k) Name of contractor — If a contractor is planned for carrying out the job, the name of the contractor is to be mentioned by the person who is executing the job.

4.1.2 *Nature of Job*

4.1.2.1 Identifying the nature of work helps to decide the appropriate precautionary measures to be taken during the work progress.

4.1.2.2 Select the nature of the job mentioned in hot work and vessel entry permit (whether the job is flame producing, spark producing or vessel entry). If it is not specified under these natures of work then select other with mentioning the activity.

4.1.3 *Checklists*

4.1.3.1 Process equipment normally handles hazardous substances under various operating conditions like high temperature and high pressure. Jobs/equipment need to be made safe from potential hazards present due to nature of work, working conditions or due to hazardous tools used before work can be started.

4.1.3.2 In cases involving road repair or excavations etc, access by emergency services may be hindered and it is necessary that these services are informed before such work is carried out.

4.1.3.3 Authorized procedures should be in place for work involving hydro jetting, hot tapping, excavation, etc and compliance of these procedures ensure safe execution of the job.

4.1.3.4 Before issuing the work permit the authorized area-in-charge must ensure that the equipment or area involved is safe to proceed with the work and no hazard could be created on the work to be done.

4.1.3.5 The following checklist identifies the various preparations required to carry out the work safely.

4.1.4 *Isolation/Blinding*

4.1.4.1 The process isolations can be achieved by the following methods:

a) By closing isolation valve tight shut and keeping drain/vent valve open between the equipment and isolation valve;

b) By closing the double block valves and keeping the in between bleed system open;

c) By closing isolation valve tight shut and inserting blind of same classification as the pipeline or the equipment;

d) By physical disconnection of pipelines attached to the equipment and blinding the open end (live end); and

e) By closing the motor operated valve (MOV) and isolating power supply to the drive motor of MOV.

4.1.4.2 Isolation methods in item (a) and (b) of **4.1.4.1** are not reliable and should not be adopted for jobs involving hot work, entry into confined space/vessel and for the services of hazardous chemicals.

4.1.4.3 Positive isolation by slip blinding (item c of **4.1.4.1**) is required for cold work if the work is to be resumed after a break or is planned for longer duration (more than one day).

4.1.4.4 All open lines have to be end blinded where equipment is to be removed from site and sent for repairs.

4.1.4.5 Effective process isolations have to be ensured by issuer depending upon nature and duration of work.

4.1.4.6 If the isolation valves are not passing, isolation by closing the valves may be sufficient for jobs like breaking lines for strainer cleaning, preventive maintenance jobs on pumps, changing of gauges on process equipment, etc. Issuer should decide whether such isolation is adequately safe or not.

4.1.4.7 Job involving hot work or entry into confined space, positive isolation by insertion of slip blinds,

or physical disconnection and blinding live ends are necessary.

4.1.5 *Isolation /"DO NOT OPERATE"TAG*

4.1.5.1 All isolations should carry isolation tags marked "DO NOT OPERATE" and a record of tagging and removal should be maintained.

4.1.5.2 All isolation tags shall be removed after completion of work and closure of the work permit.

4.1.5.3 Area operator/issuer is responsible for securely attaching the isolation tags to the equipment/valves, etc and for removing the same after the work is over.

4.1.6 *Depressurization/Draining*

For the jobs on pipelines, tanks, etc the operating department will arrange for depressurization, draining, cleaning or purging, etc. All equipment must be depressurized and made free of hydrocarbon, toxic, flammable gases by following approved procedures. It must be ensured that no traces of such material are trapped in isolated pockets.

4.1.7 *Washing/Steaming/Purging*

4.1.7.1 It may be required to decontaminate intended equipment completely by washing off with cold/hot water, steaming or purging with inert gas and/or air as necessary.

4.1.7.2 The equipment service, nature of work and requirement of safe conditions for job will determine the extent of washing/steaming and purging.

4.1.7.3 The approved procedures for washing, steaming and purging should be followed by the issuer of the permit before work can be started.

4.1.8 *Electrical Isolation and Restoration*

Procedure for electrical work permit to be followed. Electrical work permit number (with date) to be mentioned at appropriate place in the permit. Tagging to be done by all agencies as per procedure.

4.1.9 *Mechanically Blocked to Avoid Rotation*

For jobs on rotating equipments the rotor or any other rotating part must be completely stopped before working on it.

4.1.10 *Use of Non-sparking Tools Required*

To be ensured for the job on equipment/piping used for hydrocarbon service till it is totally decontaminated. For maintenance work on hydrocarbon services the requirement to be mentioned by the permit issuer.

4.1.11 Necessary arrangement for preventing ignition sources/sparks coming in contact with combustibles/hydrocarbons should be made (for example, cage using fire resistant blankets). Welding/gas cutting or grinding operations generate sparks/hot slag which spread in surrounding area and may lead to fire or explosion.

4.1.11.1 Adequate fire protection measures should be specified to avoid spread of sparks by confining work activities and arresting sparks locally. Additional fire protection measures like wetting the nearby area by spraying water or wet fire blanket can be specified.

4.1.12 Surrounding area, hot lines, valve glands, flange joints, sewer openings should be checked and covered with fire resistant blankets. If sewers/drain channels containing hazardous/flammable liquids/ vapor, steam condensate, hot liquids, etc exist near the work area, these are required to be covered effectively for the following:

a) To avoid potential exposure of the working persons to any health hazards;

b) To avoid fire hazards due to sparks/welding slag released during hot work; and

c) To avoid hazardous vapor being sucked into confined space/vessel, in case of work involving entry into confined space/vessel, etc.

4.1.12.1 Necessary temporary cross over/barricading should be provided to prevent working persons falling into drain/sewer during work.

4.1.13 *Portable Fire Extinguisher Provided*

Wherever hot work is carried out, appropriate fire extinguisher should be made available in work area.

4.1.14 *Running Water Hose Provided*

If hot work is carried out in a hazardous area, firewater hose connected to fire hydrant is to be kept ready so that it can be used when emergency arises.

4.1.15 *Return Earthing Cable Should be Provided and Welding Cable should be Insulated*

4.1.15.1 To prevent any electrical shock injury to the persons using electrical welding machine or any such equipment, these equipment must be positively earthed/grounded for return/residual current.

4.1.15.2 Electrical engineer/technician must certify that the welding machine/equipment has been properly grounded/earthed.

4.1.16 *Ladder*

Proper portable ladder provided/Suitable scaffolding to be provided-while working at height, where no permanent platforms are available, ladders, temporary fixed/moveable platforms/scaffoldings must be provided, in no case make-shift arrangement like drums, etc should be made. Specify the appropriate type of ladder to be used as per the work at height procedures. These include aluminum, wooden, FRP, trestle, roof ladder, rope ladder, telescopic and extension ladders. Scaffoldings-Specify the appropriate type of scaffolding to be used as per the work at height procedures. These include tubular scaffolding. Bamboo scaffoldings are not allowed.

4.1.17 *Scaffolding Certified for Use*

Scaffolding should be certified before use and suitable identification tags to be provided.

4.1.18 *Radioactive Source Isolation*

If radioactive source is present on or nearby equipment where maintenance work is to be performed, the radioactive source should be isolated before such a work is started. If isolation is not possible, the source must be physically removed.

4.1.19 Welding/gas cutting or grinding operations generate sparks/hot slag which spread in surrounding area and may lead to fire or explosion. Adequate fire protection measures should be specified to avoid spread of sparks by confining work activities and arresting sparks locally. Additional fire protection measures like wetting the nearby area by spraying water or wet fire blanket can be specified.

4.1.20 *Escape Route should be Checked and Cleared*

Before any work permit is issued especially for hot work, confined space/vessel entry, the issuer to ensure that safe escape route is available. There should not be any obstacles or hindrance in the escape route.

4.1.21 *Ventilation should be Ensured*

For jobs in confine spaces the additional air supply to be made using either air hose/air mover/air blower. Isolation/blinding of nearby nitrogen line is to be ensured.

4.1.22 *Proper Illumination Should be Available (24 V Flame Proof, Hand Lamp)*

For jobs in confined spaces only 24 V Flame proof hand lamp to be used. If lighting is required for any job involving release of flammable vapours or work is carried out in a hazardous area, it is mandatory to use flameproof electrical equipment. Only flameproof 24 V electric hand lamp shall be used. Use of 230 V hand lamps inside confined space/vessel is prohibited.

4.1.23 After completion of preparation for vessel entry “OK to enter Tag” is to be displayed by issuer on manhole.

4.1.24 *Stand by Person/Fireman*

A trained standby person must be always available at manhole of the tank during confined space entry. Requirement of standby fireman is to be decided by control room shift in-charge. For all work involving confined space/vessel entry, one person is required to be on guard outside the confined space/vessel, for help or in case of any distress call raised by persons working inside. It is the duty of the standby person to arrange for the rescue or raise the call for help. In case a hot work is carried out in a hazardous area, one person trained in fire-fighting should be posted near the work area. The permit issuer provides the necessary standby persons for above cases. The name of such standby persons should be mentioned in the work permit.

4.1.25 Special precaution as follows are to be taken against release of oil, gas or solven/others.

4.1.25.1 If any additional job preparations are required and are not covered in the above procedures, the same should be specified here.

4.1.25.2 One example is specification of special gadgets like fall arrest system; distress alarms, etc for work inside deep vessels and columns.

4.1.25.3 Any other special precaution and/or procedure to be followed by the person(s) doing the work must be clearly mentioned and explained.

5 PERSONAL PROTECTION EQUIPMENT

All employees are required to wear safety helmet, safety goggles, hand gloves and safety shoes as personal protection equipment (PPE) in their work areas. Additional PPEs are to be specified by the issuer depending upon nature of work and hazards involved in the work. The agency undertaking the job will do arrangement for protective appliances.

5.1 Hand Gloves

Persons are expected to use cotton hand gloves during any work activity for protection of hands from minor injuries. However, special hand gloves are specified for protection of hands from injuries due to contact with hazardous substances, electrical shock, heat or fire during work.

5.2 Ear Protection

To be used for the work in high noise areas.

5.3 Face Shield

Face shields are to be specified as additional PPE for protection of eyes and/or face against potential splash of hazardous substances/ chemicals.

5.4 Full Body Double Lifeline Safety Harness

Safety belt with lifeline is a fall arrest device. Only full body safety harness with double lifelines to be used. It is to be specified in case persons are required to work from a height of 1.8 m or above on unprotected surfaces/structures or fragile roofs. The lifeline is to be anchored with a secured structure.

5.5 Body Protection (Specify Type)

Persons are required to use appropriate protective suit for hazardous work for protection against potential splash of chemicals, excessive heat, fire, hot substances, cryogenic liquids or other hazardous substances.

The following protective suits are to be specified as necessary for safe execution of work:

a) PVC suit (with/or without hood) — For protection against potential splash of chemicals;

b) Aluminized glass fibre suit — For protection against excessive heat, fire;

c) PVC suit/hood with airline — To work in contaminated atmosphere and provide protection against contact of chemicals as well as respiratory protection; and

d) Cold suit — To work inside chambers/storage area having very low operating temperature, for protection against excessive cold temperatures.

5.6 Foot/Leg Protection

Specific foot protection (other than safety shoes) against heat, chemical splash or any other hazard to be mentioned by issuer.

5.7 Online air Breathing Apparatus

Jobs involving chemical vapors/dust must be done by wearing on line air mask. Requirement needs to be mentioned by issuer.

5.8 Airline Mask/SCBA/Cartridge Gas Mask

5.8.1 Different types of respirators are used for respiratory protection against toxic gas, vapor, fumes, etc. These are airline mask, self-contained breathing apparatus (SCBA), cartridge gas mask, etc.

5.8.2 Where a person is likely to be exposed to toxic substances during work either in open or in confined space, appropriate respiratory protection is required to be specified. Respiratory protection is also required where work environment is inert or oxygen concentration is less than 20 percent.

5.8.3 Cartridge gas mask is not suitable for use in work environment deficient in oxygen or containing inert gases. Cartridge gas masks are used as respiratory protection in environment containing low concentrations of contaminants and the concentrations are known.

5.8.4 Persons required to use respiratory equipment must be trained and validated.

5.9 Dust Mask

Dust mask is specified where persons are likely to be exposed to hazardous dust/fibrous particles.

6 GAS TEST

6.1 Gas test for oxygen content, hydrocarbon content and toxic content (if vessel/tank used for chemicals, toxic in nature) are to be carried out by the permit issuer for carrying jobs covered under hot work and vessel entry, for entry into excavated pits and vehicle entry inside plant area. The name and time of the person-carrying test shall be mentioned in the respective permits. It is proposed to carryout gas test for hydrocarbon content within 5.0 m radius of the work location for welding jobs (including drain channels (if any) and close to flange joints/valve glands of adjacent equipment). In case of spark producing activity effective arrangement for prevention of ignition sources coming into contact with combustibles/hydrocarbons should be made by providing booths/cage made of fire resistant materials.

6.2 Permissible Values of Gas Test Results

If any gas test indicates presence of flammable, toxic gas or vapor or oxygen deficiency, corrective

actions have to be taken to make conditions safe for carrying out work before issuing of work permit.

a) Oxygen content — *Min* 19.5 percent;

b) Hydrocarbon content [percent low exposure limit (LEL)]-Zero; and

c) Toxic content — Below threshold limit value (TLV) of the chemical for which the equipment/tanks being used.

NOTE — Oxygen test results greater than 23 percent indicate oxygen enrichment of the atmosphere and this condition is extremely hazardous.

6.3 Reporting of Gas Test results

6.3.1 The gas test should be done prior to issuance of work permit to the acceptor and be repeated just prior to starting of hot work, or confined space/vessel entry.

6.3.2 The results should be reported by plant personnel authorized by plant HOD/area in-charge.

6.3.3 As per the work conditions and the type of work being carried out, it is necessary to do the gas tests at regular intervals. The issuer decides the frequency of testing and the type of gases to be tested.

6.3.4 Gas tests should be done at every renewal and revalidation of the work permit.

7 APPROVALS

7.1 Upon compliance as per the points in the checklists or any other special precautions/ procedures (that is, gas test, etc) the permit will be finally approved by issuer and the job executor. Plant HOD shall authorize hot work and vessel entry permits and excavation permits. Job executor shall mention the name of contractor if contractor is performing the job.

7.2 Issuer

7.2.1 In operating plant areas the shift in-charge shall issue the permit for the area under his jurisdiction. For the jobs on pipelines the product/utility supplier shall initiate (issue) the permit if the work is to carried out up to the battery limit of receiving plant. Inside battery limit the receiving plant shall issue permit after confirming due safety precautions at suppliers end. The issuer is an employee of the company. No person can issue work permit to himself.

7.2.2 All HODs can authorize personnel working under them to issue the permit for the area under his jurisdiction. A list of employees who are authorized to issue permit shall be maintained in all plants/areas.

7.2.3 The issuer has the following responsibilities:

a) The issuer is responsible for and controls the entire work permit process;

b) The issuer shall ensure that necessary equipment preparation has been completed and adequate safety measures have been taken. He shall mention any special safety precautions and PPE to be used by way of an independent risk assessment for difficult jobs and jobs which are being done for the first time and not so frequent;

c) A separate Work permit shall be issued for equipment blinding, disconnection, erection of scaffolding/temporary work platform, etc. before a permit is issued for actual job execution;

d) The issuer of the Work permit should ensure that relevant check sheets as specified in the permit with respect to job have been identified and completed;

e) The incoming shift engineer/shift in-charge shall review the ongoing work permits and if conditions are not conducive or violated, he can stop the ongoing work;

f) The issuer is responsible for getting the approvals of plant/area in-charge before the permit is given to the acceptor; and

g) The issuer should sign the work permits that have been closed and handed over to him.

Only radiography Permit (*see* Annex G) shall be issued by supervisory employee under whom the radiography contractor is working.

7.3 Executor

7.3.1 HODs from the maintenance, inspection, construction or any other engineering services departments can authorize personnel working under them to receive the permit. A list of employees who are authorized to receive permit shall be maintained in all plants/areas. The executor is an employee of the company.

7.3.1.1 Prior to issue of work permit, the issuer and executor shall jointly inspect the job location and identify the requirements of job preparation and special PPE required for safe execution of the job.

7.3.1.2 The responsibility for safe execution of the job lies with the acceptor of the permit. He ensures

that all precautions/PPE stipulated in the permit are complied with and safe procedures are followed.

7.3.1.3 After the executor signs the permit he will hand over the permit to the technician/contractor supervisor working under him. Maintenance technician/contractor supervisor shall sign in permit and meet area operator before starting the work.

7.3.1.4 The area operator after satisfying himself that the conditions mentioned in the permit are complied with, signs the work permit and returns the permit to maintenance technician/contractor supervisor for starting the job.

7.3.1.5 The executor should display his copy of the permit at the work site for the personnel around the area to be aware of the work being executed and also for any auditor to know that a job is under progress in the area.

7.3.1.6 A toolbox talk (safety talk) has to be conducted by the acceptor to the contract workers prior to start of the job. The safety talk should emphasize the proper procedure for carrying out the job, identify any hazards involved and the precautions to be taken. When necessary, prior training sessions can be arranged as appropriate.

7.3.1.7 It is the responsibility of the executor to ensure that the contractor is made aware of the following during the execution of job:

a) The conditions identified in the work permit are compiled at all times during the execution of the work;

b) The contract worker/supervisor should inform executor and area operator, if job conditions deviate from the safe execution of the job; and

c) It is the responsibility of the contract supervisor to provide requisite PPE to the workers.

7.3.1.8 After the work is complete, the executor should ensure that the housekeeping of the area is restored to normal before signing of the permit as completed.

7.3.1.9 In case of confined space/vessel entry the executor should ensure that all men and other material have been removed from the work area before the equipment is boxed up.

7.3.1.10 In case the job is to be carried out through contractors under the supervision of plant operations personnel and no maintenance personnel are involved, the shift in-charge can issue permit to the shift engineer or the area operator. The authorization to accept the permit by the shift engineer or the area operator will be done by plant HOD or area in-charge.

7.3.1.11 Arrangement of tools, tackles, ladders and scaffolding required for the job will be the responsibility of the agency undertaking the job. It shall ensure certification of hand tools, portable electrical tools, ladders, scaffoldings etc before taking into use.

7.4 Plant/Area in Charge

For (i) hot work and confined space permit, (ii) excavation permit, authorization of plant/area in charge is required. Employees working above the level of shift in charge in the plant/non plant areas and authorized by the plant HOD will sign as plant/area in charge. HOD himself can sign as plant/area in charge for authorizing these permits.

7.5 The Area Operator

7.5.1 When the work permit is presented to the area operator by the acceptor, the area operator satisfies himself that the work conditions identified in the work permit have been complied with. He then signs in work permit and hands over the permit back to the maintenance technician/contractor supervisor for starting the work.

7.5.2 When the work is complete and the permit is to be closed, the area operator inspects the work area for the housekeeping and cleanliness and signs in the work permit and hands over the permit to the acceptor.

7.5.3 Also the incoming shift operator should review the ongoing works in his work area and give his approval for continuance of work by putting his signature in the appropriate place.

7.5.4 The area operator shall keep himself aware of the jobs being executed in his area and ensure safe conditions are maintained.

7.5.5 He shall keep watch on the jobs and take appropriate action, if any hazardous condition is developed during the course of the work. If conditions warrant, he may suspend the job, and immediately inform the shift in-charge/shift engineer.

7.5.6 The incoming area operator of the next shift is responsible for endorsing the conditions as specified in the work permit as prior to continuation of the work.

7.5.7 After the work is complete, the acceptor should ensure that the housekeeping of the area is back to normal before signing of the permit as completion.

8 INTER PLANT CLEARNACES

8.1 For the jobs on pipeline which terminates in other plant/district, the persons permitting the work should inform and consent with signature of area in-charge/shift in-charge shall be taken in each shift to ensure that line is safe for work. If a work is to be carried out on an equipment or facility which connects another plant where the safety of the job relies on isolations which are outside the control of the plant on which the work is to be carried out, the permit shall be endorsed by the shift in charges of both the plants on the permit.

8.2 For any maintenance work on outside battery limit pipelines supplying raw material, chemicals, or utilities, the owner of pipeline authorizes work on such lines and issues work permit.

8.3 Inter-plant clearances necessitating isolations at battery limits of receiving plants/facilities are required before starting any work. The receiving plants will issue separate work permits for necessary isolations to their maintenance department.

8.4 If the work area falls under the ownership of another plant/department the owner of the pipeline obtains a separate work permit from the area owner where job is required to be carried out.

8.5 In case other pipelines are running adjacent to the line where work is to be carried out, the owner of the pipeline identifies the intended pipeline clearly and displays identification marks along the pipeline before issuing a work permit. This is to avoid unintended work on any charged pipelines by mistake.

8.6 The acceptor should take necessary precautions against damage to adjacent charged pipelines during execution of work and possible situation of emergency due to sudden release of process material from nearby pipelines.

9 REVALIDATION AND RENEWALS

9.1 Validity of Work Permit

Permit shall be issued by initiator/issuer for the period till end of the shift only. In case if the job is not taken up or not completed within the same shift of issue of the permit, the permit must be renewed by endorsement of incoming shift-in-charge by incorporating/ensuring necessary changes/safety requirements. The executor shall sign and forward it to issuing authority for extension of the work permit. Validity of radiography permit shall be for single use only and duration of which shall be mentioned in permit itself.

9.2 Revalidation and Renewal of Work Permit

9.2.1 If work is to be continued without interruption beyond the approved time limits, then the work permit requires to be revalidated. If work is suspended for rest of the day and is restarted on the next day, the work permit requires renewal.

9.2.2 Work permits will be revalidated or renewed by issuer when requested by acceptor. Acceptor approaches the issuer with the acceptor's copy of work permit duly filled in with details of extension required at the back side of work permit and signed by him.

9.2.3 Revalidation/renewal of work permit will be done by issuer after a joint site inspection along with acceptor and checking the conditions in the work area and then endorsing the extension appropriately in the work permit.

9.2.4 After extension of validity/or renewal of work permit, it is required to be endorsed by area operator.

9.2.5 All signing authorities must sign the permit for extension of the permit.

9.2.6 Validity of work permit (cold work), hot work, vessel entry permit and excavation permit shall be for seven days. Upon completion of seven days new permit is to be issued.

9.3 Gas Tests Before Revalidation and Renewal of Work Permit

Necessary gas tests should be carried out at the time of revalidation/renewal of work permit. The results of the gas tests will be recorded in the appropriate columns on the backside of the permit by gas tester with his signature.

10 CLOSURES AND CANCELLATION

10.1 Closure of Work Permit

10.1.1 The permit can be extended for a total of seven calendar days maximum. For work extending beyond seven days, a new work permit has to be issued after closing the present work permit. Also if there is a break in the work for more than one calendar day, a new permit has to be issued. After completion of the job, agency undertaking the job must ensure that all tools, tackles, men and material have been removed from the place of work and the area has been made clean. Guards, gratings, railings if have been removed shall be fixed properly.

10.1.2 All signing authorities for approval must sign the permit for closure of the permit.

10.1.3 On completion of job before the time of expiry of the permit, the permit must be returned to the issuing authority with the status of the job, date and time duly marked on the permit.

10.2 Cancellation of Work permit

10.2.1 Permit shall be cancelled under the following conditions:

a) Declaration of plant/site emergency situation (fire, etc);

b) Any accident at the permit work area; and

c) Permit conditions are violated.

In the case of (a) and (b) acceptor should stop the work and cancel the permit automatically while in the case of (c) it will be by any of the signatories of the work permit or an auditor.

10.2.2 Permit can also be suspended for a short duration if the work conditions are not meeting the conditions specified in the work permit and till such time the conditions are rectified. This can be done by any of the signatories of the work permit or an authorized auditor.

11 AUDITS

11.1 Auditors authorized by the plant HOD or the HOD safety will audit the work permits. A detailed audit checklist will be developed for use by the HOD safety.

11.1.1 The purpose of audit is to ensure the following:

a) The permit preparation is adequately done keeping in mind the hazards involved;

b) The job conditions are met and the use of PPE is followed;

c) The job is carried out in a safe manner; and

d) The permit procedures are followed.

11.1.2 Some of the auditors functions are as below:

a) By examining permits in the book to see if they are filled in correctly and the right precautions have been identified;

b) By examining the actual execution of job and ensuring that it complies with what is addressed;

c) The frequency of the audit shall be random, but at least once a week;

d) Permit auditor submits a report to the sector chief/HOD of the plant. It is the responsibility of the plant HOD to take corrective actions as per the recommendations/suggestions given in the audit;

e) Permit audit findings shall be communicated to both issuer and acceptor for immediate compliance; and

f) Permits may be cancelled by the auditor at any moment if conditions are found not satisfactory/change of situation/change in agreed conditions.

12 RESPONSIBILITY

12.1 HOD Safety

12.1.1 HOD safety shall arrange to train and validate all people involved in the signing of work permit procedures. The list of such people authorized to sign in the work permit should however be prepared by the individual plant HODs and area in charge. The final authorization shall be done by the respective plant HODs/area in charge as per format attached.

12.1.2 HOD safety shall also arrange to provide training and validating people identified as auditors of these procedures. The auditors will be from the plants or safety dept.

12.1.3 He shall provide necessary training material and develop procedures for validation and authorization of various signatories to the work permit in close coordination with plant HOD and area in charge.

12.1.4 He is responsible for periodic review and updating of work permit procedures.

12.1.5 Where differences arise in the interpretation of work permit procedures, the same shall be resolved by the HOD Safety.

12.2 Plant HOD

12.2.1 Plant HOD/area in-charge shall identify all personnel involved in the work permit system and train and validate in coordination with HOD safety.

12.2.2 The plant HOD will publish the list of authorized persons in the prescribed format after due validation and training.

13 RECORDS

The original/acceptor copy of all closed permits shall be kept by the issuer for a period of at least 30 days from the closure of the permits.

ANNEX A
(*Clause* 3.1)

COLD WORK PERMIT

i) **Sl No. : _____**

ii) **Work Clearance From :** _____ h of date_____ To : _____ h of Date_____

iii) **Issued to (Department/Section/Contractor) : _____**

iv) **Exact Location of Work (Area/Unit/Equipment No. etc.) :**
_____

v) **Nearest Fire Alarm Point : _____**

vi) **Description of Work : _____**

_____

Name of Permittee : _____ **Date _____**

Sign. of Permittee : _____

A-1 THE ITEMS AS SPECIFIED IN TABLE 1 SHALL BE CHECKED BEFORE ISSUING THE PERMIT. (TICK MARK IN THE APPROPRIATE BOX. CHECKLIST ITEMS MARKED WITH ASTERISK (*) SHALL BE COMPLIED BY RECEIVER)

Table 1 Items to be Checked Before Issuing the Permit
(*Clause* A-1)

Sl.No.	Item	Done	Not Required
(1)	(2)	(3)	(4)
i)	Equipment/Work area inspected		
ii)	Surrounding area checked, cleaned and covered		
iii)	Equipment blinded/disconnected/closed/isolated/wedge opened*		
iv)	Equipment properly drained, and depressurized		
v)	Equipment electrically isolated and tagged vide Permit no. ----------		

Remarks : _____

A-2 THE ACTIVITY HAS THE FOLLOWING EXPECTED RESIDUAL HAZARDS (TICK THE RELEVANT ITEMS) AS SPECIFIED IN TABLE 2.

Table 2 Residual Hazards Associated with the Activity
(*Clause* A-2)

Sl No.	Residual Hazards Associated with the Activity	Tick []
(1)	(2)	(3)
i)	Lack of oxygen	
ii)	Combustible gases	
iii)	Toxic gases	
iv)	Steam condensate	
v)	Pyrophoric iron	
vi)	Corrosive chemicals	
vii)	Others, specify	

Remarks : _____

A-3 THE ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT (PPE) TO BE USED IN ADDITION TO STANDARD PPE (HELMET, SAFETY SHOES, HAND GLOVES, BOILER SUIT) (TICK THE RELEVANT ITEMS) AS SPECIFIED IN TABLE 3.

Table 3 Additional PPEs to be Used in Addition to Standard PPE.
(*Clause* A-3)

Sl No.	Residual Hazards Associated with the Activity	Tick
(1)	(2)	(3)
i)	Face Shield	
ii)	Goggles	
iii)	Dust respirator	
iv)	Fresh air mask	
v)	Lifeline	
vi)	Safety harness	
vii)	Compressed air set	
viii)	Earmuff	
ix)	Others (specify)	

A-4 ADDITIONAL PRECAUTIONS IF ANY: _____

_____

_____

_____

ISSUER

PERMITTEE

(RECEIVER)

Signature : _____ Date _____

Name : _____

Designation : _____Tel. No. : _____

Signature : _____ Date _____

Name : _____

Designation : _____ Tel. No. : _____

A-5 CLOSING OF THE WORK PERMIT

Receiver : Certified that the subject work has been completed/stopped and area cleared			**Issuer :** Verified that the job has been completed and area cleared and is safe from any hazard.		
Date and Time	*Name & Designation*	*Signature*	*Date and Time*	*Name and Designation*	*Signature*

A-6 GENERAL INSTRUCTIONS FOR COLD WORK PERMIT

A-6.1 The work permit shall be filled up carefully and accurately in clear handwriting ensuring that complete information is provided in all the sections/subsections and none of column is left blank. Sketches should be provided wherever possible to avoid miscommunication.

A-6.2 Appropriate safe guards and required personnel protective equipment (PPEs) shall be determined by a careful analysis of the potential hazards and the operations to be performed prior to starting the work.

A-6.3 Requirement of standby personnel from process/maintenance/contractor/fire and safety etc, if any shall be mentioned in the additional requirement.

A-6.4 In case of fire alarm all work must immediately be stopped. In case of emergency sirens, all work must be stopped and all nonessential personnel must leave work site and processed to designated areas.

A-6.5 For renewal of work clearance, the issuer shall ensure that the conditions are satisfactory for the work to continue. If the conditions have changed, it may be necessary to issue a new permit or amend the existing permit.

A-6.6 This permit shall be valid for a period of 8 hours only, unless it is renewed/extended. This clearance on the same permit can be renewed/extended up to a maximum of seven calendar days.

A-6.7 Original permit must be available at work site at all times.

A-6.8 On completion of the work, the permit shall be closed and returned to the issuer.

A-6.9 The permit shall be issued in duplicate. Original permit (yellow) shall be issued by receiver/executer and duplicate (white) shall be retained by issuer.

A-6.10 Enclose important Do's and Don'ts duly signed with each permit.

A-6.11 Safety toolbox talk has to be ensured by receiver before start of work and record for the same shall be maintained.

A-6.12 Obtain separate permit for "working at height", if required.

A-7 DO'S AND DON'TS FOR COLD WORK
(To be attached with all cold work permits)

Permit No.-

A-7.1 Do's

A-7.1.1 Ensure the availability of valid work permit before start of work.

A-7.1.2 Ensure that work permit conditions are fully complied at site.

A-7.1.3 Equipment should be properly isolated from all sources of energy before start of work.

A-7.1.4 Ensure that walkways and passages are free from all slip/trip and fall hazard.

A-7.1.5 All draining of oil should be in closed system as the draining of oil on floor will make the work area and area around the work unsafe.

A-7.1.6 Ensure proper illumination of work place while working in dark.

A-7.1.7 Ensure use of non-sparking tools in flammable areas.

A-7.1.8 Executor should ensure the quality of hand tools and their health.

A-7.1.9 Always first wedge open the flanges.

A-7.1.10 Use of proper PPE must be ensured during cold work by executor. Use of safety helmet and shoe is mandatory for all works inside plant.

A-7.1.11 While carrying out cold work inside confined space, proper ventilation and illumination should be ensured before start of job.

A-7.1.12 Electric cable should be free from joints with sound insulation. Portable electrical equipment should have no loose connections.

A-7.1.13 All portable/mobile electrical equipment should be connected with ELCB.

A-7.1.14 Executor should ensure that the lifting machine (crane), tools and tackles are properly tested and SWL and date of testing is displayed on equipment.

A-7.1.15 Barricading of the area below lifting machine (crane), chain pulley blocks etc, should be ensured before starting the job.

A-7.1.16 Gas test should be carried out before issuing cold work permit, wherever required.

A-7.1.17 Remove all scraps and unused material from site on completion of work.

A-7.1.18 Executor should know the nearest fire alarm point, fire order, fire station phone number, first-aid center phone no., nearest safety shower, escape route and location of designated assembly points and siren code before start of work.

A-7.2 Don’ts

A-7.2.1 Never stand or work under suspended loads.

A-7.2.2 Never enter work area without safety helmet and shoe.

A-7.2.3 Do not wear loose/ synthetic clothes while on work.

A-7.2.4 Do not use short cuts on work.

A-7.2.5 Do not use lamp of more than 24 V while working in confined space.

A-7.2.6 Do not run a machine without putting back the guard on its exposed moving part.

(Signature of receiver)

(Signature of issuer)

ANNEX B
(*Clauses* 3.2)

HOT WORK

i) Sl No. :

ii) Work Clearance From : _____ h of date_____ To _____ h. of Date : _____

iii) Issued to (Department/Section/Contractor) : _____

iv) Exact Location of Work (Area/Unit/Equipment No. etc) : _____

Permit Type	**Normal**		**Shut Down**		**Blanket**		**Please Tick [√] in Required Permit Type**

v) Nearest Fire Alarm Point : _____

vi) Description of Work : _____

Name of Permittee : _____ **Date :** _____

Signature of Permittee : _____

B-1 THE ITEMS AS SPECIFIED IN TABLE 1 SHALL BE CHECKED BEFORE ISSUING THE PERMIT. [PLEASE PUT TICK (√) IN THE APPROPRIATE BOX. CHECKLIST ITEMS MARKED WITH ASTERISK (*) SHALL BE COMPLIED BY RECEIVER. FOR HOT JOB IN CONFINED SPACE, SL NO. XIII) SHALL BE TICKED FOR "DONE" ONLY]

Table 4 Items to be Checked Before Issuing the Permit
(*Clause* B-1)

Sl No.	**Item**	**Done**	**Not Required**
(1)	(2)	(3)	(4)
A	**General**		
i)	Equipment/Work area inspected		
ii)	Surrounding area checked, cleaned and covered		
iii)	Sewers, manholes, etc and hot surfaces nearby covered		
iv)	Considered hazard from other operations and concerned persons alerted		
v)	Equipment blinded/disconnected/closed/isolated/ wedge opened		

Table 4 (*Continued*)

Sl No.	Item	Done	Not Required
(1)	(2)	(3)	(4)
vi)	Equipment properly drained and depressurized		
vii)	Equipment properly steamed/purged		
viii)	Equipment water flushed		
ix)	Free access for approach of fire tenders has been maintained.		
x)	Iron sulfide removed/kept wet		
xi)	Equipment electrically isolated and tagged vide permit no.		
xii)	Gas Test : HCs = % LEL; O_2 = % Toxic gas = ppm		
xiii)*	Running water hose/fire extinguisher provided. Fire water system available.		
xiv)*	Area cordoned off and precautionary tags/boards provided		
B	**For hot work/Entry to confined space**		
i)	Proper ventilation and lighting providing		
ii)	Proper means of exit/escape provided		
iii)	Standby personnel provided from process/maintenance/ contractor/fire/safety dept		
iv)	Checked for oil and gas trapped behind the lining in equipment		
v)*	Shield provided against spark		
vi)*	Portable equipment/nozzles properly grounded		
vii)*	Attendant at man way provided for entry into confined space (2 Persons)		

Table 4 (*Concluded*)

Sl No.	Item	Done	Not Required
(1)	(2)	(3)	(4)
viii)*	Adequate communication provided to stand by person		
ix)*	Trained attendant provided with rescue equipment/SCBA		
x)	Space adequately cooled for safe entry of person		
xi)	Continuous inert gas flow arranged		
xii)	Check for earthing/ELCB of any temporary electrical connections being used for welding		
xiii)*	Gas cylinders are kept outside the confined space		
xiv)*	Checked spark arrestor on mobile equipments		
xv)	Welding machine checked for safe location		
xvi)	Permit taken for working at height vide permit no.		
C	**For vessel entry**		
i)*	Approved type Spark Arrestor on the mobile equipment/vehicle provided.		

Remarks : _____

B-2 THE ACTIVITY HAS THE FOLLOWING EXPECTED RESIDUAL HAZARDS [TICK (√) THE RELEVANT ITEMS] AS SPECIFIED IN TABLE 5.

Table 5 Residual Hazards Associated with the Activity
(*Clause* B-2)

Sl No.	Residual Hazards Associated with the Activity	Tick
(1)	(2)	(3)
i)	Lack of oxygen	
ii)	Combustible gases	
iii)	Toxic gases	
iv)	Steam condensate	
v)	Pyrophoric iron	
vi)	Corrosive chemicals	
vii)	Others, specify	

Remarks : _____

B-3 THE ADDITIONAL PPEs AS SPECIFIED IN TABLE 6 SHALL BE USED IN ADDITION TO STANDARD PPEs SUCH AS HELMET, SAFETY SHOES, HAND GLOVES & BOILER SUIT [TICK (√) THE RELEVANT ITEMS].

Table 6 Additional PPEs to be Used in Addition to Standard PPE.
(*Clause* B-3)

Sl No.	Additional PPEs to be Used in Addition to Standard PPE	Tick
(1)	(2)	(3)
i)	Face shield	
ii)	Goggles	
iii)	Dust respirator	
iv)	Fresh air mask	
v)	Lifeline	
vi)	Safety harness	
vii)	Compressed air set	
viii)	Earmuff	
ix)	Others (specify)	

B-4 ADDITIONAL PRECAUTIONS IF ANY:_____

_____

_____

_____

B-5 THE DETAILS OF RECIPIENT SHOULD BE GIVEN IN A FORMAT AS SPECIFIED IN TABLE 7.

Table 7 Details of Recipients
(*Clause* B-5)

Sl No.	Recipient	Signature	Designation	Name	Date	Tel. No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)

vii) Fire Permit Signatory_____

(Issuer)

viii) Gas Safety Inspector_____

(GSI)

ix) Permittee/Receiver_____

B-6 GENERAL INSTRUCTIONS HOT WORK AND CONFINED SPACE ENTRY PERMIT

B-6.1 Work permit shall be filled up carefully and no column shall be left blank. Provide sketches, if required.

B-6.2 Appropriate safe guards and PPEs shall be determined by analysis of the potential hazards prior to starting the work.

B-6.3 In case of fire alarm all work must immediately be stopped. In case of emergency sirens, all work must be stopped and all non-essential personnel must leave work site and proceed to designated areas.

B-6.4 Only certified vehicle/engines and permitted type of electrical equipment and tools are allowed in operating areas.

B-6.5 Welding machines should be located in non-hazardous and ventilated areas.

B-6.6 Gas test is mandatory. No hot work shall be permitted unless the explosive meter reading is zero.

B-6.7 Vessel entry, where no hot work is to be carried out, shall be permitted if combustible gases are up to 5 percent of lower explosive limit [LEL]. Entry with an air-supplied mask shall be permitted with LEL of up to 20 percent. The Oxygen level shall be at least 19.5 percent volume, and the concentration of toxic gases below the threshold limits.

B-6.8 When a person is entering confined space, the receiver must keep minimum two trained attendants at the manhole or entry point.

B-6.9 For renewal of work clearance, the issuer shall ensure that the conditions are satisfactory for the work to continue. If the conditions have changed, it should be necessary to issue a new permit or amend the existing permit.

B-6.10 Permit shall be considered issued for job after “clearance renewal” is signed. This clearance on the same permit can be renewed/extended up to a maximum of seven calendar days, except in case of plant shutdown, where permit can be issued for a maximum period of 15 days. Blanket permit may be issued for a maximum period of 30 days.

B-6.11 During the registration period of permit, if job is not done for a day or more (except holidays/ sundays), receiver shall enter in prescribed register at fire station in advance about the discontinuity of job.

B-6.12 This permit must be available at work site at all times.

B-6.13 On completion of the work, the permit must be closed and submitted to F and S as record by receiver.

B-6.14 Hot work shall include welding, grinding, gas cutting, burning, open flame, soldering, shot blasting, chipping, riveting, drilling, camera flashing, power tools, IC engines, mixer machines, use of certain non-explosion proof equipment, vehicle entry or any other activities which may generate heat or spark.

B-6.15 Permit issuing authority, or any authorized officer can check the permit/stop the job and even cancel the permit on safety norms violation any time.

B-6.16 Enclose important Do’s and Don’ts duly signed with each permit.

B-6.17 All precautions given in permit must be clearly adhered by the permittee.

B-6.18 Daily toolbox talk/safety briefing to be ensured by the permittee before start of job. A register on toolbox talk shall be kept at site as record and signed by personnel associated with the work.

B-6.19 Pre-use check of portable gas testers must be done to ensure its operability by GSI before the gas test at work site.

B-7 DO’S & DON’TS FOR HOT WORK (To be attached with all hot work permits)

Permit No.-

B-7.1 Do’s

B-7.1.1 Ensure the availability of valid work permit and clearance before start of work.

B-7.1.2 Ensure that work permit conditions are fully complied at site.

B-7.1.3 Area shall be free from all flammables and combustibles and the, drains etc, where there is likelihood of presence of hydrocarbon during the course of work shall be covered and sealed.

B-7.1.4 In case of gas welding/cutting, cylinders should be kept in upright position and these should be easily identifiable by its colour.

B-7.1.5 Hose connections of gas cylinders should be checked before starting of hot job. The hoses must be free from all cuts and kinks and distinct in color (maroon for acetylene and black for oxygen).

B-7.1.6 Executor must ensure use of proper PPEs during hot work.

B-7.1.7 In case of welding/cutting, etc it should be ensured that spark is arrested at site only, especially while carrying out hot work at height.

B-7.1.8 Executer shall ensure use of flash back arrestor in gas cylinders while using oxy-acetylene sets. Use welding lighters only to light the welding torch.

B-7.1.9 While carrying out hot work inside confined space, proper ventilation and illumination should be ensured before start of job.

B-7.1.10 Electric cable shall be free from joints with sound insulation. Portable electrical equipment should have no loose connections.

B-7.1.11 All portable/mobile electrical equipment shall be connected with ELCB.

B-7.1.12 Executor shall ensure that the lifting machine (crane), tools and tackles are properly tested and SWL and date of testing is displayed on equipment.

B-7.1.13 Barricading of the area below lifting machine (crane) should be ensured before carrying out the job.

B-7.1.14 Gas test shall be carried out before issuing hot work permit and the work area must be free from hydrocarbon.

B-7.1.15 Executor shall ensure that all vehicles entering inside battery area have a chief control of explosives approved spark arrestor on exhaust. Vehicle shall move on designated route only.

(Signature of receiver)

B-7.1.16 Executor must know the nearest fire alarm point, Fire order, fire station phone number, first-aid center phone no., nearest safety shower, Escape route and location of designated assembly points and siren code before start of work.

B-7.1.17 Executor shall ensure the quality of hand tools and their health.

B-7.1.18 Ensure valve cap on cylinders during storage and transportation, if shrouds are not provided.

B-7.2 Don’ts

B-7.2.1 Never stand or work under suspended loads.

B-7.2.2 Never enter work area without safety helmet and safety shoe.

B-7.2.3 Do not wear loose/synthetic clothes while on work.

B-7.2.4 Do not use short cuts on work

B-7.2.5 Do not use lamp of more than 24 V while working in confined space.

B-7.2.6 Do not use electrode holders as cable connectors for extension of welding cable.

B-7.2.7 Never keep acetylene cylinders in horizontal condition, even if they are empty.

B-7.2.8 Never use grinder without wheel guard on abrasive wheels.

(Signature of issuer)

ANNEX C
(*Clause* 3.3)

CONFINED SPACE/VESSEL ENTRY PERMIT

C-1 PRE ENTRY CHECKLIST FOR CONFINED SPACES (TO BE FILLED UP AND COMPLIED BEFORE EACH ENTRY INTO CONFINED SPACE. THE COMPLIANCE SHALL BE FOLLOWED BY 'CONFINED SPACE ENTRY PERMIT')

i) Sl No. : _____

ii) Refinery : _____

iii) Associated Permit : Hot Work/Vehicle entry Permit( ) Cold Work Permit( ) Confined Space Entry Permit( ) Radiography Permit( ) Excavation Permit( ) Electrical isolation/Energisation Permit( ) Working at height permit( )

iv) Exact Location of Work : (Unit/ Area/ Equipment No.) : _____

_____

v) Description of Work :

vi) Expected Date and Time of Entry : _____Expected Date of Completion : _____

C-2 MAXIMUM NO. OF ENTRANTS ALLOWED : _____

C-3 THE NAME OF TRAINED ATTENDANT FOR ENTRY (TRAINING VALIDITY 1 YEAR) AS SPECIFIED IN TABLE 8

Table 8 Name of Trained Attendant for Entry
(*Clause* C-3)

Sl. No.	**Name**	**Trained on**
(1)	(2)	(3)
i)		
ii)		
iii)		
iv)		

C-4 THE NAME OF TRAINED ENTRANTS FOR ENTRY (TRAINING VALIDITY 1 YEAR) AS SPECIFIED IN TABLE 9

Table 9 Name of Trained Entrants for Entry
(*Clause* C-4)

Sl No.	Name	Trained on
(1)	(2)	(3)
i)		
ii)		
iii)		
iv)		
v)		
vi)		
vii)		
viii)		
ix)		
x)		
xi)		
xii)		
xiii)		
xiv)		
xv)		
xvi)		

C-5 COMMUNICATION FACILITY PROVIDED AND PROCEDURE ESTABLISHED : Yes (must be “yes” only).

C-6 RESCUE PROCEDURE ESTABLISHED : Yes (must be “yes” only).

C-7 ALL ELECTRICAL EQUIPMENT IS OF INTRINSICALLY SAFE/FLAMEPROOF TYPE : _____

Done ( ) To be done ( ) Not Required ( )

C-8 SAFETY SIGNS, BOARDS AND BARRIERS ARE AVAILABLE : _____

Done ( ) To be done ( ) Not Required ( )

C-9 DEBRIEFING AND KEY POINT TIPPING TO AUTHORIZED ENTRANTS : _____

Done ( ) To be done ( ) Not Required ( )

PERMITTEE/ENTRY ENGINEER

Name : …….

Designation : ……...

Signature with date : …….

C-10 THE CHECKLIST TO BE FILLED UP BY PERMIT ISSUER (GSI) AS SPECIFIED IN TABLE 10.

Table 10 Checklist to be Filled up by Permit Issuer
(*Clause* C-10)

Sl No	Item	Required	Not required	Done
(1)	(2)	(3)	(4)	(5)
I)	Energy Isolation			
i)	Pumps or lines blinded, disconnected or blocked			
ii)	Positive isolation of electrical source, with LOTO			
iii)	Other sources such as air, water, steam, gas blinded, disconnected or blocked			
II)	Ventillation			
i)*	Mechanical (must be air eductor or FLP type for inflammables)			
ii)	Natural ventilation only			
III)	Portable gas tester checked for healthiness			
IV)	Continuous gas monitoring required			

Table 10 (*Continued*)

Sl No	Item	Required	Not required	Done
(1)	(2)	(3)	(4)	(5)
V)*	PPE			
i)	Full body harness with life line provided.			
ii)	SCBA/air line available at site			
iii)	Retrieval equipment available at site.			
iv)	Dust respirator provided			
v)	Protective clothing, hand gloves, footwear, safety helmet, ear protection			
vi)	Eye/face protection			
VI)*	Hoisting equipment			
VII)*	Resuscitator-inhalator			

NOTE — Check-list marked with * shall be complied by the executer.

C-11 GAS TESTING READING AFTER OPENING OF MAN WAY

C-11.1 Flammable…….. percent Low Explosive Limit (LEL**)**

C-11.2 Oxygen……. percent by volume

C-11.3 Any other gas (specify)…… part per million (PPM)

C-12 THE SUBSEQUENT GAS TESTS AFTER PREPARATION OF EQUIPMENT AS SPECIFIED IN TABLE 11 (TO BE CONTINUED TILL THE EQUIPMENT SAFE FOR ENTRY)

Table 11 Subsequent Gas Tests After Preparation of Equipment
(*Clause* C-12)

Sl No.	Date	Time	Flammable (Percent LEL) (5 Percent LEL or less)	Oxygen (Percent by Volume) (Min. 19.5 Percent)	Any Other Gas (Specify), in ppm
(1)	(2)	(3)	(4)	(5)	(6)
i)					
ii)					
iii)					
iv)					
v)					

NOTE — The control measures and precautions appropriate for the safe entry and execution of the work in the confined space have been implemented and the persons required to work in the confined space have been advised of and understand the requirements.

ISSUER	**RECEIVER/ENTRY ENGINEER**
(Person in Direct Control)	Person/Contractor Supervisor working in confined space)
Date : …… Time : ……..	Date : …… Time : ……..
Name : ……	Name : ……
Designation : ……..	Designation : ……..
Signature : ……..	Signature : ……..

* Points shall be complied by entry engineer/ receiver and checked by issuer.

NOTES

1 Pre entry confined space checklist shall be used before every Confined space entry permit.
2 No confined space permit shall be issued, till the requirements of checklist are complied.

C-13 THE ITEMS AS SPECIFIED IN TABLE 12 SHALL BE CHECKED BEFORE ISSUING THE CLEARANCE (TO BE CHECKED WITH VALID PERMIT FOR CONFINED SPACE).

Table 12 Items to be Checked Before Issuing the Clearance
(*Clause* C-13)

Sl No.	**Item**	**Done**	**Not Required**
(1)	(2)	(3)	(4)
i)	Equipment/Work area inspected		
ii)	Surrounding area checked, cleaned and covered		
iii)	Space is free from all unwanted materials such as scraps/ debris, surplus items, left over tools and tackles and combustible materials		
iv)	Space is free from all combustible material		
v)	Space is free from all persons presence after checking and manhole cover has been engaged		
vi)	Illumination and ventilation		
vii)	The safety sign for “safe entry” has been removed from man way		
viii)	Danger sign to caution all against entry has been displayed at man way		
ix)	Additional precaution if any		

Gas Safety Inspector (GSI)

Table 12 (*Continued*)

Sl No.	Item	Done	Not Required
(1)	(2)	(3)	(4)
	Permittee/Receiver		

Signature _____ **Signature** _____

Name _____ **Name** _____

Designation _____ **Designation** _____

Tel No. _____ **Tel No.** _____

C-14 DO'S AND DON'TS FOR WORKING IN CONFINED SPACE (To be attached with all Confined Space entry permits)

Permit No.-

C-14.1 Do's

C-14.1.1 Check for valid work permit "Entry into Confined Space" before entry into confined space.

C-14.1.2 Ensure that the confined space is positively isolated from your source of energy and has been made free from harmful gases.

C-14.1.3 Proper ventilation and illumination of space must be ensured.

C-14.1.4 Wherever forced ventilation is used. The gas test should be carried out after minimum 10 min of stopping the eductor/fan/blower.

C-14.1.5 Thorough gas test must be carried out before issuing permit to ensure that there is no pocket of gas available inside and the place is safe for performing the particular task inside confined space. For entry of person the concentration of toxic gases should not exceed Threshold Limit Value (TLV) and oxygen must be minimum 19.5 percent by volume.

C-14.1.6 Use suitable respiratory protection for entry in the confined space, having oxygen deficiency or having toxic gases more than TLV.

C-14.1.7 Attendant should be available all the times at man way entry of confined space, till the work is in progress inside. The permit should be available with him and he shall maintain attendance in prescribed form.

C-14.1.8 Attendant must be in constant touch with persons working inside and know the actions to be taken for rescue/emergency handling, if so required.

C-14.1.9 The low voltage light limited to 24 V should be allowed inside confined space. All electric connection shall be provided with ELCB.

C-14.1.10 Wherever possible, lifelines with safety harness should be used for entry into confined space.

C-14.1.11 Special precautions are required for entry into inert gas atmosphere. It requires the controlled condition inside confined space as well as mandatory use of compressed breathing air supply to person going inside with alternate air supply arrangement.

C-14.1.12 Keep at least 2 access/exit for each confined space, wherever possible. The access should be unobstructed and approachable.

C-14.1.13 Use required PPE and personal gas monitors while entering inside. Use of Safety helmet and safety shoe is mandatory for all work areas. Use air mask for areas, where there is likelihood of accumulation of gas during the work such as in sewers.

C-14.1.14 The person in confined space should pass the warning signal to stand by person in case of any suffocation/difficulty for help.

C-14.1.15 Carry out regular gas test of confined spaces, where there is possibility of gas generation due to nature of work, being performed inside such as removal of sludge, hot works, etc.

C-14.2 Don'ts

C-14.2.1 Do not use light of more than 24 V inside confined space.

C-14.2.2 Do not give any other responsibility to stand by person, which may cause his absence at man way.

C-14.2.3 Do not obstruct the man ways from any side of confined space.

(Signature of receiver) **(Signature of Issuer)**

C-15 THE ATTENDANCE SHEET FOR PERSONS INSIDE CONFINED SPACE SHOULD BE AS SPECIFIED IN TABLE 13 (TO BE MAINTAINED BY ATTENDANT AT MAN WAY OF CONFINED SPACE)

Date : …….

Equipment No. : ……

Confined space permit no. : ……..

Valid upto : …….

Table 13 Attendance Sheet of Persons Inside Confined Space
(*Clause* C-15)

Sl No.	Name of Person Entering	Date of Entry	Time of Entry, h	Time of Exit ,h (Mention Date, if Changed)	Sign of Attendant
(1)	(2)	(3)	(4)	(5)	(6)
i)					
ii)					
iii)					
iv)					
v)					

NOTES

1 This attendance sheet shall be filled and maintained at man way of confined space by stand by person for all entries in confined space.

2 This will be an integral part of permit system. engineer-in-charge shall ensure that the stand by person has been imparted training for the job and he knows the job. He should remain in touch with persons inside during the job.

ANNEX D
(*Clause* 3.4)

EXCAVATION PERMIT

i) Sl No. : _____

ii) Work Clearance From : _____ h of date_____ To _____ h of Date_____

iii) Issued to (Department/Section/Contractor) : _____

iv) Exact Location of Work (Area/Unit/Equipment No. etc.) : _____

v) Name of Permittee : _____

Date : _____

Signature of Permittee : _____

vi) Please Tick the Type of Permit Required.

PERMIT TYPE	NORMAL		SHUTDOWN		CONSTRUCTION	

D-1 DETAILS OF DEPARTMENT AND EXACT LOCATION OF EXCAVATION

D-1.1 Asset Custodian Department……Date …….…….

D-1.2 Exact location of excavation……(Attach marked up drawing)

In Plant Area	Tank Dyke	Along Pipe way	Along Cable way
Across Road/Footpath	In Open Ground	Across Drainage Flume	Others

D-2 SIZE OF EXCAVATION(APPROXIMATELY).....M DEEP, ……M WIDE……M LONG

D-3 PURPOSE : ……..……...

D-4 COMMENCING DATE. : ……TIME : ……. EXPIRY DATE : ….……TIME : ……..

D-5 EXECUTING DEPARTMENT : …….. CONTRACTOR…….……..…

D-6 NAME OF PERMITTEE WITH DESIGNATION…… TELEPHONE NO ……

SIGNATURE

D-7 PERMISSION IS GRANTED AS DESCRIBED ABOVE D-1.1 TO D-6.

D-8 EXCAVATION CLEARANCE IS OBTAINED AND ATTACHED Sl No. : _____

D-9 THE ASSOCIATED PERMITS/SAFETY REQUIREMENTS AS SPECIFIED IN TABLE 14.

Table 14 Associated Permits/Safety Requirements
(*Clause* D-9)

Sl No.	Associated Permits/Safety Requirements	Tick
(1)	(2)	(3)
i)	Cold work permit	
ii)	Hot work permit	
iii)	Confined space permit (Depth > 1.2 m)	
iv)	Hand excavation only	
v)	Provide warning sign	
vi)	Provide flashing light (flameproof in case of hazardous area)	
vii)	Barricade	
viii)	Provide shoring	
ix)	Batter the sides to 45 degree or less	
x)	Provide fire extinguisher	
xi)	Provide means of access	
xii)	Excavated soil 1 m away from edge, *Min*	
xiii)	Body harness/lifeline	
xiv)	Gumboot/safety suit	
xv)	Any other (specify)	

D-10 EXPECTED RESIDUAL HAZARDS : 1…… 2……

D-11 MECHANICAL EXCAVATION ALLOWED ONLY FOR : …….

Permit Issuer Name……..…	HOD of issuing Dept. Name……...
Designation..…….....	Designation..……
Signature…….....	Signature……
Date… …….....	Date…….....

NOTES

1 The permit must be obtained one day in advance. Keep the excavation clearance attached with permit.

2 Permit must be available at site all the time during the work.

3 Permit shall be in triplicate. Original shall be for permittee, first copy for issuer and second copy for fire station.

4 The permit shall be issued normally for a period not exceeding 7 days with renewal in each shift. However for shut down units/ facilities, it can be issued for a maximum period of 15 days with renewal in each shift and for construction activities a maximum period of 30 days.

5 The PPE such as safety helmet, safety shoe, boiler suit and hand gloves is mandatory for work.

6 Daily Safety tool box talk including key point tipping to contractor personnel shall be carried out by permittee before commencement of work and the record of same shall be maintained. 0

EXCAVATION CLEARANCE	**Sl No.** : ……..
(THIS IS NOT AN EXCAVATION PERMIT)	Permittee : _____
	Signature : _____
	Name : _____
	Date : _____

D-12 EXACT LOCATION OF WORK (AREA/ UNIT/ EQUIPMENT NO. etc)……

D-13 DESCRIPTION OF WORK ……..

D-14 SKETCH OF THE AREA OF EXCAVATION ENCLOSED.

D-15 PERMISSION IS SOLICITED FROM …….H ON (DATE)……..TO……H ON (DATE)…….

D-16 SIGNATURE OF EXECUTER……. NAME AND DESIGNATION OF EXECUTOR……

D-17 UNDERGROUND POWER CABLE : Existing ( ) Not existing ( )

D-17.1 Permission Given : Yes ( ) No ( )

D-17.2 Precaution, if Any……

Signature …….. Date ……

D-18 UNDERGROUND TELECOMMUNICATION CABLE : Existing ( ) Not existing ( )

D-18.1 Permission Given : Yes ( ) No ( )

D-18.2 Precaution, if Any…….

Signature …….. Date ……

D-19 UNDERGROUND FIREWATER LINE : Existing ( ) Not existing ( )

D-19.1 Permission Given : Yes ( ) No ( )

D-19.2 Precaution, if Any…….

Signature …….. Date ……

D-20 UNDERGROUND OIL/SEWER LINE, DRINKING WATER LINE, ABOVE GROUND OPEN DRAIN : Existing( ) Not existing ( )

D-20.1 Permission Given : Yes ( ) No ( )

D-20.2 Precaution, if Any…….

Signature …….. Date ……

D-21 UNDERGROUND COMPUTER CABLE : Existing( ) Not existing ( )

D-21.1 Permission Given : Yes ( ) No ( )

D-21.2 P**Precaution, if Any**…….

Signature …….. Date ……

D-22 UNDERGROUND PRODUCT LINE, UTILITY LINE : Existing( ) Not existing ( )

D-22.1 Permission Given : Yes ( ) No ( )

D-22.2 Precaution, if Any…….

Signature …….. Date ……

D-23 UNDERGROUND INSTRUMENT CABLE : Existing( ) Not existing ( )

D-23.1 Permission Given : Yes ( ) No ( )

D-23.2 Precaution, if Any…….

Signature …….. Date ……

D-24 UNDERGROUND CATHODIC PROTECTION CABLE : Existing( ) Not existing ( )

D-24.1 Permission Given : Yes ( ) No ( )

D-24.2 Precaution, if Any…….

Signature …….. Date ……

D-25 INSTRUCTION

D-25.1 The excavation clearance is required for all excavations including road and dyke cutting. Obtaining this clearance is prerequisite for EXCAVATION PERMIT.

D-25.2 This clearance shall be obtained for a maximum period of 15 days, except at construction sites, non-operational areas, where it shall be for a maximum period of 1 month.

D-25.3 This clearance shall be kept attached with excavation permit at site.

D-25.4 The clearance shall be issued in triplicate, original for permittee, first copy for issuer and second copy for fire station. The clearance shall be initiated by executer.

D-25.5 On issue, original copy will be with executor, duplicate copy with fire station and triplicate copy with area in-charge/GSI (Gas Safety Inspector).

D-25.6 The clearance by area in-charge/GSI shall be given just before clearance by shift fire safety Officer (FSO) and registration at fire station. At last shift FSO will also check that clearances from all other dept. have been received.

D-25.7 This clearance shall be considered issued after registration at fire station.

D-25.8 When job is completed, the receiver shall collect all the copies, and enclose them with closed copy of excavation permit before handing over to permit issuer. Permit issuer in turn after closing the permit will return the same to fire station.

D-25.9 For cutting of road in addition to this clearance, format for road closure and excavation permit shall be required. The road closure format shall be filled and submitted to fire station by the executor at least one day before starting the work.

D-25.10 All road cuttings shall be properly barricaded with precautionary signs and alternate routes shall be displayed at the site by the executor.

D-25.11 Duly signed “Do’s and Don’ts during excavation work” shall be integral part of excavation permit. All points mentioned in “Do’s and Don’ts” must be complied at site.

D-26 DO’S AND DONT’S DURING EXCAVATION WORK (TO BE ATTACHED WITH ALL EXCAVATION PERMIT)

Permit No.

D-26.1 Do’s

D-26.1.1 Ensure that clearance has been obtained from various departments in prescribed form for all excavation works.

D-26.1.2 Ensure that excavation permit and clearance has been obtained for excavation work and the same is valid.

D-26.1.3 All excavations and open trenches must be barricaded around the opening. Warning lamp can be used for operating area and roads during darkness (use FLP type fixture in hazardous area).

D-26.1.4 There must be sufficient and safe means of access and escape for excavated sites.

D-26.1.5 Excavation area should be free from fumes/gases heavier than air because it may cause asphyxiation or poisoning. All excavation of depth more than 1.2 m or more should be treated as confined space and permit for entry into confined space should be obtained.

D-26.1.6 Excavation to a depth of 1 m or more shall be cut stepped back to give a suitable slope or securely held by bracing so as to avoid the danger of side to collapse.

D-26.1.7 All trenches 1.2 m or more in depth shall at all times be equipped with at least one ladder for each 30.48 m length of excavation or fraction thereof. All such ladders shall be extended from bottom of the trench to at least 1 m above the surface of the ground.

D-26.1.8 Barricading of 1 m height (with red and white band/ self-glowing caution boards) should be carried out for excavation beyond 1.5 m depth.

D-26.1.9 All cutting shall be carried out from top to bottom.

D-26.1.10 Special precautions are required for using mechanical excavators inside refinery as it requires Hot work permit to operate the same in operating areas of refinery (except on roads).

D-26.1.11 Practice to giving permission to cut half road and utilizing half road for movement of vehicle should be avoided, unless the conditions mentioned under Don'ts are complied.

D-26.1.12 Use suitable PPE as per job requirement mentioned in work permit.

D-26.1.13 Inform all incidents to your supervisor and fire station immediately.

D-26.2 Don'ts

D-26.2.1 Under no circumstances under cutting to be carried out.

D-26.2.2 Excavated earth shall not be dumped within 1 m of the edge of the excavation or depth the trench whichever is more.

D-26.2.3 Excavated earth should not be dumped on nearby pathway/approaches, on product/steam line, in front of emergency facilities such as fire hydrants/monitor, fire alarm points, inlet of foam pourers etc and on OWS man hole covers.

D-26.2.4 No vehicle should be allowed to go too close to the edge of the excavation because it may cause side collapse. Maintain at least 2 m distances from the edge of the excavation. Adequate and well-anchored stop blocks should be provided on the surface to vehicle being driven reversed into the excavation.

D-26.2.5 No mechanical excavation is to be carried out up to a depth of 1.5 m from the ground level in operating areas. In such cases manual excavation is required to be carried out up to a depth of 1.5 m from the ground level.

D-26.2.6 No one should be allowed to move on edge of excavation.

(Signature of receiver) (Signature of issuer)

ANNEX E
(*Clause* 3.5)

ELECTRICAL WORK

(OFFICE COPY) **PART-III**	**ELECTRICAL ISOLATION/ ENERGISATION PERMIT-High Tension (HT)/Low Tension(LT)**	**ELECTRICAL ISOLATION/ ENERGISATION PERMIT-HT/LT**
Sl No. : **ELECTRICAL ISOLATION/ ENERGISAT ION PERMIT-HT/LT**	Re-Energise clearance certificate for HT/LT equipment	De-energise clearance certificate for HT/LT equipment
(To be filled by operation-in-charge of working area on receipt of job completion certificate-PART-I and II)	**(To be filled by operation-in-charge of working area)**	**(To be filled by operation-in-charge of working area)**
a)Unit ……...	a) Unit ……	a) Unit……
	b) Equipment tag no. ……	b) Equipment tag no. …….
	c) Date…….....	c) Date……...
	d) Requirement emergency……...	d) Equipment not in operation…….
	e) Ordinary……..……	e) Requirement emergency……
	f) All locks and tags removed…….	f) Ordinary……..
	g) Equipment earthing found intact……..	LOTO operation performed on ‘’Local Switch’’.
	h) All clearances returned with job completion certificates……	Kindly de-energise the above equipment.
Equipment tag no. ……	All tools, equipments, manpower and unused materials have been removed and surrounding area of the said equipment has been cleaned. Kindly energise the above equipment.	
De-energized on……	Date……. Name…….	Date……. Name……

(OFFICE COPY)	**ELECTRICAL ISOLATION/**	**ELECTRICAL ISOLATION/**
PART-III	**ENERGISATION PERMIT- High Tension (HT)/Low Tension(LT)**	**ENERGISATION PERMIT-HT/LT**
Sl No. :		
ELECTRICAL ISOLATION/ ENERGISAT ION PERMIT-HT/LT	Re-energise clearance certificate for HT/LT equipment	De-energise clearance certificate for HT/LT equipment
(To be filled by operation-in-charge of working area on receipt of job completion certificate-PART-I and II)	**(To be filled by operation-in-charge of working area)**	**(To be filled by operation-in-charge of working area)**
Date and Time ……..	Time……. Designation……. (signature)	Time……. Designation……. (signature)
Name …….	**JOB COMPLETION CERTIFICATE**	**JOB COMPLETION CERTIFICATE**
	[To be filled by authorised person of electrical operation]	**[To be filled by authorised person of electrical operation]**
Signature ……..	The equipment energised after performing following checks/ activities :	The equipment de-energised after performing following checks/ activities : Isolation device is in SS No. ……. and it's ID……
	YES……NO…….N/A ……	YES.....NO.....N/A.....,.....
	a) Damaged internals of breaker/ MCC rectified	a) Equipment not in operation
	b) Temporary safety ground's removed	b) All back feeding circuits isolated
Energized on …….	c) IR value of cable/equipment : Checked-found O.K.	c) Control supply switched off
Date and Time ……	d) Each lid/cover of breaker boxed up	d) Space heater supply switched off
Name ……..	e) All LOTO of isolating device removed	e) Breaker/MCC put off and
	) Control fuse put back in place	f) Breaker racked out

(OFFICE COPY) **PART-III** **Sl No. :** **ELECTRICAL ISOLATION/ENERGISATION PERMIT-HT/LT** **(To be filled by operation-in-charge of working area on receipt of job completion certificate-PART-I and II)**	**ELECTRICAL ISOLATION/ ENERGISATION PERMIT- High Tension (HT)/Low Tension(LT)** Re-energise clearance certificate for HT/LT Equipment **(To be filled by operation-in-charge of working area)**	**ELECTRICAL ISOLATION/ ENERGISATION PERMIT-HT/LT** De-energise clearance certificate for HT/LT equipment **(To be filled by operation-in-charge of working area)**
Designation ……	g) Power fuse put back in place	g) Control fuse pulled out
Signature ……..	h) Breaker control plug put back on its base	h) Power fuse pulled out
	j) Breaker checked in test position and found O.K.	j) Back lid of breaker panel opened
	k) Trip circuit found healthy	k) Breaker/MCC intemais visually checked
	m) Breaker racked in to service position	m) Line discharged and voltage test done
	n) Control supply switched on	n) Temporary safety ground provided
	p) Space heater supply switched on	p) Breaker/MCC back/front lids closed
	q) Breaker/MCC module front door closed	q) LOTO performed on Breaker/MCC
	r) MCC [MCC module] switched on	
	Date……. Name…….	Date……. Name…….
	Time……. Designation……. (signature)	Time……. Designation……. (signature)

(OFFICE COPY)

PART-III

Sl No. :

ELECTRICAL ISOLATION/ ENERGISAT ION PERMIT-HT/LT

(To be filled by operation-in-charge of working area on receipt of job completion certificate-PART-I and II)

INSTRUCTIONS

a) This certificate shall comprise of three parts, bearing common Serial Number and shall be printed on a single page separated by two vertical perforations. The PART-I is for de-energisation, the PART-II is for re-energisation and PART-III is office copy to be retained by the department of Operation-In-Charge.

b) This Clearance certificate shall be issued in duplicate (white and pink copies). Both the copies to be given to electrical operation. On competition of the job authorized person of electrical operation shall sign on both the copies of this certificate and shall return the original white copy to the section of operation-in-charge. Electrical operation shall retain the second pink copy.

c) For any equipment, the de-energising and re-energising clearance certificates shall bear the same serial numbers. The check boxes shall be ticked only to mark the selection.

d) The issuing department of this clearance certificate should be informed immediately after de-energising/ re-energising the equipment. However, permission for any activity on the isolated equipment shall be granted by the operational-in-charge only after Authorized person of Electrical operation returns the original certifying job completion.

e) Switching off and isolation of space heater circuit shall be mandatory along with de-energisation of a motor unless specifically requested in writing by Electrical Maintenance to keep it ON.

f) After ensuring that spring is not in charged condition and damaged internals of Breaker is rectified, rack in the breaker and put the local/ remote switch in remote position.

ELECTRICAL ISOLATION/ ENERGISATION PERMIT- High Tension (HT)/Low Tension(LT)

Re-Energise clearance certificate for HT/LT equipment

(To be filled by operation-in-charge of working area)

INSTRUCTIONS

a) This certificate shall comprise of three parts, bearing common serial number and shall be printed on a single page separated by two vertical perforations. The PART I is for de-energisation, the PART II is for re-energisation and PART III is office copy to be retained by the department of operation-in-charge.

b) This clearance certificate shall be issued in dublicate. (white and pink copies). Both the copies to be given to electrical operation. On competition of the job authorised person of electrical operation shall sign on both the copies of this certificate and shall return the original white copy to the section of operation-in-charge. Electrical operation shall retain the second pink copy.

c) For any equipment, the de-energising and re-energising clearance certificates shall bear the same serial numbers. The check boxes shall be ticked only to mark the selection.

d) The issuing department of this clearance certificate should be informed immediately after de-energising/ re-energising the equipment. However, permission for any activity on the isolated equipment shall be granted by the operational-in-charge only after autorised person of electrical operation returns the original certifying job completion.

e) Switching off and isolation of space heater circuit shall be mandatory along with de-energisation of a motor unless specifically requested in writing by electrical maintenance to keep it ON.

f) Any damage observed by visual checking of breaker/switch internals shall be informed to electrical maintenance through Authorised officer of electrical operation.

ELECTRICAL ISOLATION/ ENERGISATION PERMIT-HT/LT

De-Energise clearance certificate for HT/LT equipment

(To be filled by operation-in-charge of working area)

(OFFICE COPY)	**ELECTRICAL ISOLATION/**	**ELECTRICAL ISOLATION/**
PART-III	**ENERGISATION PERMIT- High Tension (HT)/Low Tension(LT)**	**ENERGISATION PERMIT-HT/LT**
Sl No. :		
ELECTRICAL ISOLATION/ ENERGISAT ION PERMIT-HT/LT	Re-energise clearance certificate for HT /LT equipment	De-energise clearance certificate for HT/LT equipment
(To be filled by Operation-In-Charge of working area on receipt of job completion certificate-PART-I and II)	**(To be filled by operation-In-charge of working area)**	**(To be filled by operation-in-charge of working area)**

g) The nomenclature for S No. which shall be followed and printed on the clearance certificate is given as under :

"XXX/ZZZZ/YY"

where XXX : three digit book number, ZZZZ : Four digit clearance number and YY : Last two digits of current year.

h) The two stars (**) in format no. shall be replaced with abbreviated name of the respective Refineries like HR, MR, BR, GR, DR etc in the final print.

g) The nomenclature for S No. which shall be followed and printed on the clearance certificate is given as under :

"XXX/ZZZZ/YY"

where XXX : three digit book number, ZZZZ : Four digit clearance number and YY : Last two digits of current year.

h) The two stars (**) in format no. shall be replaced with abbreviated name of the respective Refineries like HR, MR, BR, GR, DR etc in the final print.

ANNEX F

(*Clause* 3.6)

PERMIT FOR WORKING AT HEIGHT

(REQUIRED FOR WORKING AT HEIGHTS OF 1.8 m & ABOVE)

F-1 THIS PERMIT AUTHORIZES FOR PROVISION OF SAFE ACCESS/PLATFORM/WORKING ARRANGEMENT AT HEIGHT FOR CARRYING OUT THE JOB.

F-2 FROM : _____ hr Date_____to _____ hr Date_____

F-3 NAME OF THE AGENCY/CONTRACTOR : _____

F-4 NAME OF THE SITE SUPERVISOR :_____

F-5 JOB/WORK ORDER NO :_____ **Location of Work :** _____

F-6 DESCRIPTION OF WORK : _____

F-7 TOTAL NO. OF WORKERS ALLOWED : _____

F-8 PERMITTEE SHALL CHECK THE FOLLOWING ITEMS FOR COMPLIANCE BEFORE SOLICITING THE PERMISSION.

Sl No.	Items	Yes	Not Req.
(1)	(2)	(3)	(4)
i)	Have scaffolds been checked and certified in prescribed form by scaffold supervisor?	( )	( )
ii)	Have scaffolds been tagged with green card duly filled and signed by scaffold supervisor?	( )	( )
iii)	Is scaffold rechecked and re-certified weekly?	( )	( )
iv)	Is scaffold erected on firm ground and sole plate and base plate have been used?	( )	( )
v)	Is the hanging baskets used of proper construction, tested and certified for the purpose?	( )	( )
vi)	Is the work platform made free of hazards of all traps/trips/slips and fall?	( )	( )
vii)	Have cat ladders, crawling boards etc been used for safe working at sloping roof?	( )	( )
viii)	Has edge protection provided against fall from roof/elevated space?	( )	( )

F-9 THE FOLLOWING ITEMS SHALL BE CHECKED FOR RISK ASSESMENT BY ISSUER AND COMPLIED BY PERMITTEE BEFORE SOLICITING THE PERMISSION.

Sl No.	Items	Yes	Not Req.
(1)	(2)	(3)	(4)
i)	Are the platforms been provided with Toe board, guardrail and area below is barricaded?	( )	( )
ii)	Checked whether safety harness and necessary arrangement for tying the life-line, fall arresters etc provided to the worker for working at height?	( )	( )
iii)	Have precautions been listed below for safe working at height for source of energy Such as electricity?	( )	( )
iv)	Is the raised work surface properly illuminated?	( )	( )
v)	Are the workers working near unguarded shafts, excavations or hot line?	( )	( )
vi)	Checked for provision of collective fall protection such as safety net?	( )	( )
vii)	Additional PPE recommended?	( )	( )
viii)	Are proper means of access to the scaffold including use of standard aluminum ladder provided?	( )	( )

F-10 ADDITIONAL PRECAUTION REQUIRED, IF ANY _____

Fire Permit Signatory (FPS)/Gas Safety Inspector(GSI) (Issuer) **Signature** _____ **Name** _____ **Desig.** _____ **Tel No.** _____	**Permittee/Receiver** **Signature** _____ **Name** _____ **Desig.** _____ **Tel No.** _____
Concerned Area Head of Department (HOD)/RSM ** **Signature and Date** _____	**Permittee HOD **** **Signature and Date** _____

** Required in case : Permit is needed beyond normal working hours (8.00 h to 17.00 h)/round the clock/Sundays and holidays.

F-11 CLOSING OF THE WORK PERMIT

Issuer : Verified that job has been completed and area cleared, and is safe from any hazards.

Date and Time : ……

Signature : ……...

Date and Time : ……

Name and Designation : ……

Signature : …….....

F-12 ADDITIONAL PRECAUTIONS

The additional precautions as specified in Table 15.

Table 15 Additional Precaution
(*Clause* F-12)

Sl No.	**Date**	**From**	**To**	**Precautions if any, Other Wise Mention "NIL"**
(1)	(2)	(3)	(4)	(5)

ISSUER	**RECEIVER**
Name of GSI/FPS : ……..	Name of Permittee : …….
Designation of GSI/FPS : …….	Designation of Permittee : ……
Signature : ……	Signature : ……
Date : ……	Date : ……

F-12 INSTRUCTIONS

F-12.1 This permit will be issued in Triplicate. GREEN COPY (ORIGINAL) and WHITE COPY (TRIPLICATE) will be for the permittee. ISSUING AUTHORITY will retain WHITE COPY (DUPLICATE). This permit shall be valid for a period of 8 h only, unless it is renewed/ extended. This clearance on the same permit can be renewed/extended up to a maximum of 7 calendar days.

F-12.2 After the completion of the job, copies of work permit should be returned to the ISSUER.

F-12.3 Items applicable must be ticked (√).

F-12.4 All works at height shall be discontinued during rain/high wind/floods.

F-12.5 Stop all jobs in case scaffold is sagging unduly, Report to EIC.

F-12.6 Metallic tubular scaffolding and standard aluminium ladders are only to be used.

F-12.7 All works must stop on instruction from permit issuing authority, permittee and officers of Fire and Safety Department or whenever unsafe condition is detected.

F-12.8 Permittee shall obtain permission from the respective disciplines.

F-12.9 Permittee to ensure the compliance of safety precaution required mentioned in permit

F-12.10 Use of approved type full body safety harness along with lifeline is must for working at height of 2.0 m and above.

F-12.11 Permit must be available at site during the work.

F-12.12 Use of safety helmet and shoe is mandatory for all work sites.

F-12.13 Permittee shall ensure that all working personnel have taken SAFETY TRAINING before start of work. Toolbox talk and key point tipping shall be given by permittee daily before start of work.

F-12.14 Sketches should be provided, if required.

F-12.15 Term “TRAP” means a gap of 1 inch or more in scaffold platform, “TRIP” means projected object on floor of work platform such as overlap of scaffold boards etc, “SLIP” means oily/slippery floor of scaffold platform and “FALL” means Fall prevention measures such as guard rail/toe guard is in place.

F-13 PRE ERECTION CHECKLIST FOR SCAFFOLDS (To be filled up and complied before erection of scaffold at site, before giving permit to start the erection)

F-13.1 Exact Location of Work : (Unit/Area/Equipment No.) : ……..

……....

…….....

F-13.2 Description of Work to be Performed : ……..

……..…

…….....

F-13.3 Expected Date and Time to Start Erection : ……

F-13.4 Expected Date of Completion : ……

F-14 MAXIMUM NO. OF PERSONS ALLOWED SCAFFOLD AFTER ERECTION : ……

F-15 TICK MARK THE ASSOSCIATED PERMIT AS SPECIFIED IN TABLE 16.

Table 16 Associated Permits
(*Clause* F-15)

Sl No.	Associated Permits	Tick Mark
(1)	(2)	(3)
i)	Hot work/entry into confined space permit	
ii)	Cold work permit	
iii)	Confined space entry permit	
iv)	Radiography permit	
v)	Excavation permit	
vi)	Electrical isolation/Energisation permit	
vii)	Working at height permit	

F-16 FOR THE SCAFFOLD SUFFICIENT QUANTITY OF MATERIALS AS SPECIFIED IN TABLE 17 ARE AVAILABLE AT SITE.

Table 17 For the Scaffold Sufficient Quantity of Materials are Available at Site
(*Clause* F-16)

Sl No.	Items	Yes	Not	Not Required (NR)
(1)	(2)	(3)	(4)	(5)
i)	Scaffold pipes, *see* NOTE 1			
ii)	Scaffold couplers, *see* NOTE 1			
iii)	Deck boards, *see* NOTE 1			
iv)	Base plate, *see* NOTE 1			
v)	Sole plate			
vi)	Toe board, *see* NOTE 2			
vii)	Reveal pin			
viii)	Standard aluminum ladder (as per IS/BS), *see* NOTE 2			
ix)	Mettle wire to fix ladder, *see* NOTE 2			
x)	Tags (red and green), *see* NOTE 1			
xi)	Toe board clip, *see* NOTE 2			
xii)	Joint pin			
xiii)	Approved full body safety harness with lanyard/life line, *see* NOTE 3			
xiv)	Double fork type lanyard with energy absorber, *see* NOTE 4			
xv)	Fall arrester			
xvi)	Safety Net			

NOTES
1 Compulsory for all scaffolds, used for working at height by persons.
2 Compulsory for scaffold of height 1.8 M and above.
3 Compulsory for 2 M and above.
4 Compulsory during scaffold erection, repair, modification and dismantling and also when ladder is not in use.

F-17 NAME OF TRAINED SCAFFOLD SUPERVISOR (TRAINING VALIDITY- 1 YEARS) AS SPECIFIED IN TABLE 18.

Table 18 Name of Trained Scaffold Supervisor (Training validity-1 years)
(*Clause* F-17)

Sl No.	Name	Trained on
(1)	(2)	(3)
i)		
ii)		
iii)		
iv)		
v)		
vi)		
vii)		
viii)		
ix)		
x)		

F-18 THE QUALITY OF SCAFFOLD MATERIALS AVAILABLE AT SITE AS SPECIFIED IN TABLE 19.

Table 19 Quality of Scaffold Materials Available at Site
(*Clause* F-18)

Sl No.	Items	Yes	No
(1)	(2)	(3)	(4)
i)	Are scaffold tubes not damaged/deformed?		
ii)	Are scaffold boards/sole plates damaged/deformed?		
iii)	Is couplers suitable type and free from defects?		
iv)	Are base plates free from defects?		
v)	Are standard metal wires available for tying ladder?		
vi)	Are standard aluminium ladder (s) free from defects, deformity and temporary repairs?		

Name and designation of site engineer / E-I-C : ……
Signature with date : ……

F-19 THE SAFETY CHECK BY ISSUER AS SPECIFIED IN TABLE 20.

Table 20 Safety Check by Issuer
(*Clause* F-19)

Sl No.	Item	Yes	No	Not Required
(1)	(2)	(3)	(4)	(5)
i)	Area inspected for erection of scaffold and found surface consolidated/hardened			
ii)	Is safety harness(s) with lanyards available and in good condition?			
iii)	Are other PPE such as fall arrester available?			
iv)	Is Safety net available?			
v)	Is 100 percent safety briefing given by Site engineer before start of work?			
vi)	Are scaffold materials properly stacked at site, without obstruction approach routs?			
vii)	Are warning signs, barricading tapes available at site?			
viii)	Is medical certificate for persons working at a height of 2 m and above available?			

Date……..Time …….Date……..Time …….

Signature :

Name……..Designation……..

Signature :

Name……..Designation……

NOTES

1 This pre erection checklist shall be filled up by executer and issuer before start erection of each scaffold. Pre-erection checklist shall be filled by E-I-C in duplicate and submit to issuer for further check. On further check by issuer, the executer shall comply with all requirements as mentioned in checklist and sign the checklist.

2 Duplicate copy shall be returned to issuer after compliance, whereas original shall be retained by executer. Check-list points marked as “NO” must be attended and addressed in this format.

F-19 CHECKLIST FOR SCAFFOLD AS SPECIFIED IN TABLE 21.

Table 21 Checklist for Scaffold
(*Clause* F-19)

Sl No.	Unit /Item	Location/Equipment/ Checkpoint	Date/Inspected Condition	Type of Scaffold/ Comments	Erectered by Action
(1)	(2)	(3)	(4)	(5)	(6)
i)	**Foundation**	Firm and even			
ii)	**Standards**	Vertical			
		Staggered joints			
		Right spacing			
		Not damaged			
iii)	**Ledgers**	Level			
		Staggered joints			
		Not loose			
		Not damaged			
iv)	**Transoms**	Right spacing			
		Not loose			
v)	**Bracing Ties**	Right support			
		None missing			
vi)	**Fittings**	Not loose			
		Right fitting			
		Not damaged			
vii)	**Ladders**	Check couplers			
		Proper angle			
		Right length			
		Properly secured			
		Separate landing			
viii)	**Guardrails**	Right extension			
		Right height			
		Right length			
ix)	**Toe-boards**	None missing			
x)	**Others**				
xi)	**General Comments**				
	Name				
	Signature				
	Date and Time				

Contractor's Supervisor/Engineer : ……
Maintenance Engineer/Civil/Mechanical/Instrumentation Engineer : ……
Name : ……..
Designation : …….
Date and time. : ……

NOTE — Contractor shall carry out further periodic inspections every seven days. Above signatories must approve any change made to the scaffold after signing this check list.

F-20 MEDICAL CERTIFICATE

F-20.1 Form for Medical Check Up for the Workman Engaged by the Contractor

(Working at Heights)

Certified that I _____ have examined Shri _____Age_____

_____ who has signed below in my presence. The details of his examination as required are given in the enclosed medical examination report. I certify that all clinical and pathological tests were done in my hospital/dispensary under my instructions and I find him fit. General and physical examinations of Shri _____ do not reveal any abnormality. He does not suffer from any acute/chronic skin disease or any contagious or infectious disease. He is medically fit to work at height of 2.0 meters and more since he is free from Vertigo, Epilepsy or Fits, general giddiness and height related disease. His B.P., Pulse, Eye sight etc are normal.

In my opinion Shri _____ is physically and mentally fit for job in

_____

_____

Signature of the workmen

Date : _____

F-20.1 Signature and Rubber Stamp of Medical Practitioner with Name

NOTE — This certificate is to be given on the letter head of the registered medical practitioner who is possessing allopathic qualification as recognized by the Indian medical council. Below the signature, the rubber stamp of the medical practitioner should be affixed. The letter head normally should contain the following :

Name of the medical practitioner : ……

Qualifications : ……

Registration number : …….

Designation : ……

Address : ……..

ANNEX G
(*Clause* 3.7)

RADIATION PERMIT

Sl No. :

(This permit is to be issued by area in-charge and registered at Fire Station)

G-1 VALID FROM : _____h Date_____ To _____ h Date_____

G-2 PERMISSION IS GRANTED TO DEPT./SECTION/CONTRACTOR : ……

G-3 NAME OF RADIOGRAPHY AGENCY : ……

G-4 NAME OF SITE SUPERVISOR (LEVEL-2 HOLDER) : …….

G-5 SPECIFIC LOCATION OF WORK : …….

G-6 NAME, DESIGN AND SIGNATURE OF PERMITTEE : ……..

Part-1 (TO BE FILLED BY RADIOGRAPHY AGENCY)
RADIATION SOURCE

Type of Radiation : X-Ray…… Gamma Ray : … Ir-192 … Co-60

No. of Source : ……... Radiation Activity (Intensity) : ……kV/Ci

MEASUREMENT OF CONTROL ON RADIATION EXPOSURE

Sl No.	**Instruments**	**Yes**	**No**	**Not Required**
(1)	(2)	(3)	(4)	(5)
i)	Collimator			
ii)	Radiation survey meter			
iii)	Film badge			
iv)	Concrete wall barrier			
v)	Pocket dosimeter			
vi)	Alarm/Lamp			

Cordon off Distance : _____ in m. Others : _____

No. of Persons involving in radiation work : …….....

Radiography site in charge : ……

Name/Signature of officer (Inspection Department) : ……

Name/Signature : …….

Part-2 CHECKED BEFORE ISSUING THE PERMIT BY ISSUER

(Please put tick [√] mark in the appropriate box)

Sl No.	Item	Done	Not Required
(1)	(2)	(3)	(4)
i)	Equipment/Work area inspected.		
ii)	Associated permit taken for the job (specify the types and permit no.).		
iii)	Area cordoned off (in case of radiography) with proper symbol.		
iv)	Proper lighting provided.		
v)	Radiation survey meter available at site.		

G-7 THE ADDITIONAL PPE AS SPECIFIED IN TABLE 22 TO BE USED IN ADDITION TO STANDARDS PPE (HELMET, SAFETY SHOES, HAND GLOVES, BOILER SUIT) (TICK THE RELEVANT ITEMS).

Table 22 Additional PPE to be Used in Addition to Standards PPE
(*Clause* G-7)

Sl No.	Additional PPE	Tick [√] Mark
(1)	(2)	(3)
i)	Face shield	
ii)	Goggles	
iii)	Dust respirator	
iv)	Fresh air mask	
v)	Lifeline	
vi)	Safety harness	
vii)	Compressed air aet	
viii)	Earmuff	
ix)	Film badge/dosimeter	
x)	Others	

G-8 ADDITIONAL PRECAUTION, IF ANY : …….....

_____

HOD/RSO (In case of working beyond office hours)	**GSI/ FPS Signature**	**Permittee/ Receiver**
Signature		**Signature**
Name : ……	**Name : ……**	**Name : ……**
**Designation : ……..... **	**Designation : …….. **	**Designation : …… **
Telephone No. : ……	**Telephone No. : ……**	**Telephone No. : …… **

G-9 SPECIAL INSTRUCTIONS

G-9.1 This permit shall be valid for a period of 8 h only, unless it is renewed/extended. This clearance on the same permit can be renewed/extended up to a maximum of seven calendar days.

G-9.2 In case of fire alarm all work must immediately be stopped. In case of emergency Sirens, all work must be stopped and all nonessential personnel must leave work site and processed to designated areas.

G-9.3 This permit must be available at work site at all times.

G-9.4 This permit is to be made in duplicate : Blue and white colour. Blue copy is issued to permittee/ executor. The white copy is to be retained by issuing authority.

G-9.5 On completion of job, area to be cleared and copies of permit to be returned to the issuer after closing of permit. The same shall be closed by issuer and kept as record.

G-9.6 All the columns in the form should be filled properly. No column should be left blank.

G-9.7 Announcement to be made and removal of nonessential persons are to be ensured from condoned off area before commencement of job. The barricading is to be done with warning tape with display of radiation hazard symbol at site by the site radiographer after carrying out the radiation survey.

G-9.8 The radiography should preferably be carried out at a time, when occupancy is least.

G-9.9 Radiation source movement within the site is to be maintained as per RSO guidelines.

G-9.10 The supervisor must be available at site during the radiography work.

G-9.11 "Level-2 holder" means "radiological safety officer" designated by the employer and who in the opinion of the competent authority is qualified to discharge the functions under Rule 22 of *Atomic Energy (Radiation Protection) Rules*, 2004.

G-9.12 The distance for barricading is decided by RSO depending upon on strength of radiation source, occupancy factor and radiation work load.

ANNEX H
(*Foreword*)

COMMITTEE COMPOSITION

Chemical Hazards Sectional Committee, CHD 07

DR DANDAMUDI USHARANI

Organization(s)	*Representative(s)*
In Personal Capacity	SHRI K. S. RAMPRASAD (***Chairperson***)
Alkali Manufacturers Association of India, Mumbai	SHRI K. SRINIVASAN SHRI H. S. DAS (*Alternate*)
Bhabha Atomic Research Centre, Mumbai	MS GARIMA SINGH SHRI NISHITH GOSH (*Alternate*)
Central Food Technological Research Institute, Mysore	DR PRASANNA VASU (*Alternate*)
Central Leather Research Institute, Chennai	DR M. SURIYANARAYANAN
Centre for Fire, Explosives and Environmental Science, Goverment of India, Ministry of Defence	SHRI S. P. DOBHAL DR AARTI BHATT (*Alternate*)
Crop Care Federation of India , New Delhi	MR P. N. KARLEKAR DR J. C. MAJUMDAR (*Alternate*)
Defence Research and Establishment, (DRDO), Gwalior	DR PRABHAT GARG DR VIRENDRA VIKRAM SINGH (*Alternate*)
Department of Chemicals and Petrochemicals, Ministry of Chemicals and Fertilizers, Goverment of India	DR VISHAL CHOUDHARY
Department of Space(ISRO), Bengaluru	SHRI MURALEEKRISHNAN R. MS LAKSHMI V. W. (*Alternate*)
Directorate General Factory Advice Service and Labour Institutes , Mumbai	SHRI H. M BHANDARI SHRI P. G. SATPUTE (*Alternate*)
Gas Industries Association	SHRI SUNIL KHER SHRI ANOOP TANDON (*Alternate*)
Hindustan Unilever Limited , Mumbai	SHRI SANJAY HARLAKA SHRI RAKESH WADALKAR (*Alternate*)
Indian Chemical Council , Mumbai	DR C. NANDI DR RAKESH KUMAR (*Alternate*)
Indian Institute of Chemical Technology, Hyderabad	DR BANKUPALLI SATYAVATHI DR SRIPADI PRABHAKARC (*Alternate*)
Indian Institute of Petroleum , Dehradun	DR NEERAJ ATRAY DR PANKAJ KUMAR KANUJIA (*Alternate*)
Indian Institute of Technology, Mumbai	PROF SANDIP ROY
Indian Institute of Technology, Chennai	DR SACHIN GUNTE
Indian Institute of Toxicology Research, Lucknow	DR D. K. PATEL DR SHEELENDRA PRATAP SINGH (*Alternate*)

Indira Gandhi Centre for Atomic Research, Kalpakkam	DR K. K. SATPATHY
Institute of Chemical Technology, Mumbai	PROF (DR) G. D. YADAV DR B. M. BHANAGE (*Alternate*)
Ministry of Environment and Forest , New Delhi	SHRI VED PRAKASH MISHRA DR DINESH RUNIWAL (*Alternate*)
National Chemical Laboratory, Pune	DR VIJAY V. BOKADE DR M. MUTHUKRISHNAN (*Alternate*)
National Institute of Occupational Health, Ahmedabad	DR B. RAVICHANDRAN
National Institute of Technology, Thrichi	PROF S. P. SIVAPIRAKASAM D SREEJITH MOHAN (*Alternate*)
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Oil Industry Safety Directorate (Min of Pet and Natural Gas), Delhi	SHRI DEVENDAR M MAHAJAN
Pesticides Manufacturer and Formulators Association of India	DR ARCHANA KUMARI DR SANDIP SINGH (*Alternate*)
Petroleum and Explosives Safety Organisation, Nagpur	SHRI M. K. JHALA DR YOGESH KHARE (*Alternate*)
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Shriram Institute for Industrial Research, Delhi	DR JAGDISH KUMAR DR DEEP SHANKAR CHATTERJEE (*Alternate*)
Tata Chemicals Ltd, Mithapur, Distt, Jamnagar	SHRI SNEHASHISH A. CHAKRABORTY SHRI D. K. THAKUR (*Alternate*)
In personal capacity (*I-4/2/6, Parijat C.H.S., Spaghetti, Sector-15, Kharghar, Navi Mumbai, 410210)*	SHRI S. SOUNDARARAJAN
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