

*Safe Operating
Procedure
(SOP)*

P.C.Sahoo,
Sr. Manager (Mining),
MCL, Bharatpur Area.



Few Words

The major mineral producing countries across the world have successfully adopted the concept of 'Self regulation'. Indian mining also gradually shifting from the existing prescriptive legislation to a goal setting legislation meant for self regulation. The mines Act- 1952 and rules, regulations made there under prescribe to prepare & implement code of practice for different Jobs, equipments & activities. The 10th Conference on safety in mines also suggests implementation of safe operating procedures (SOP).

Sample SOP are compiled in this booklet for self use. Hope it will be helpful for our own use in implementing the SOPs.

(P.C.SAHOO)
Sr. Manager(Mining),
Bharatpur Area.

CONTENTS

WELDING

TYRE HANDLING & FITTING

TREATMENT OF ELECTRIC SHOCK

SURFACE MINER

STORAGE AND TRANSPORT OF EXPLOSIVES

ROAD SALE TIPPERS

PILFERAGE OF EXPLOSIVE

PERSONAL PROTECTIVE EQUIPMENT

OUT SOURCING

OB IN DUMP YARD

MACHINERY

MACHINE GUARDING

LADDER SAFETY

HAND SAFETY

GUIDELINES FOR ROAD SALE

GENERAL SHOP EQUIPMENT

Fireworks Display

FLAMABLE LIQUIDS

FIRE IN DUMPYARD

FIRE FIGHTING- SCHEME

FIRE FIGHTING

EXPLOSIVE & BLASTING

EMERGENCY RESPONSE PLAN

ELECTRICAL WORKS

DUMPER BRAKE & TEST PROCEDURE

DRAG LINE- GENERAL

DRAG LINE

DO'S & DON'T'S OF ELECTRICAL

DG SET

CRYOGENIC MATERIAL

CRANE OPERATOR

CONTRACTUAL DRIVERS

CONTRACTOR WORKER

COMPUTER USE

CHP

COMPRESSED AIR

ATTENDANCE OF CONTRACTUAL WORKERS

WELDING



Safety glasses must be worn at all times in addition to welding mask.



Long and loose hair must be contained.



Appropriate footwear with substantial uppers must be worn.



Close fitting/protective clothing to cover arms and legs must be worn.



Respiratory protection devices may be required for some operations.



Oil free leather gloves and spats must be worn when welding.



Rings and jewellery must not be worn.



A welding mask with correct grade lens must be worn.

PRE-OPERATIONAL SAFETY CHECKS

1. Ensure no slip/trip hazards are present in workspaces and walkways.
2. Ensure the work area is clean and clear of grease, oil, and any flammable materials.
3. Keep the welding equipment and work area dry to avoid electric shocks.
4. Ensure the gloves are dry and free from holes to avoid electric shocks.
5. Ensure electrode holder and work leads are in good condition.
6. Ensure fume extraction unit is on before beginning welding operation.
7. Ensure other people are protected from flashes by closing curtain to welding bay or by erecting screens.
8. Faulty equipment must not be used. Immediately report suspect equipment.

OPERATIONAL SAFETY CHECKS

1. Keep welding leads as short as possible and coil them to minimise inductance.
2. Ensure the electrode holder has no electrode in it before turning on the welding machine.
3. Ensure current is correctly set according to electrode selection.
4. Do not use bare hands and never wrap electrode leads around yourself.
5. When welding is finished or interrupted, remove electrode stub from holder and switch off power source.

[Go to Contents](#)

HOUSEKEEPING

1. Switch off the machine and fume extraction.
2. Hang up electrode holder and welding cables and leave the work area in a safe, clean and tidy state.

POTENTIAL HAZARDS

- Electric shock
- Fume
- Radiation burns to eyes or body
- Body burns due to hot or molten materials
- Flying sparks
- Fire

PRECAUTIONS TO BE TAKEN DURING WELDING WORK

1. Before taking up the welding job, foreman/ Supervisor will take written permission from the concern Engineer.
2. After getting written permission, the foreman/ Supervisor will arrange for the following (Extinguishing devices) at the site of welding.
 - a) Fire extinguisher Co2 type
 - b) Fire extinguisher DCP Type
 - c) Arrangement of continuous supply of water.
 - d) Sand bed to prepared beneath the welding site & wetted.
 - e) Fire bucket with sand:-

During electric welding / Has cutting work at CHP Area if Continuing piped water supply is not available a tanker full of water is to be kept near the welding site. In case of non-availability of the above he will report to the Concern Engineer /CSO to make it available prior to welding /Gas Cutting work

- 3.The Foreman /Supervisor will deploy only designated/ Competent person for welding work.
4. The Foreman /Supervisor will ensure that the welder & welder Helper wear all safety requisite like welding gloves, welding goggles, welding apron, welding shin guard.
5. Before welding the area of welding to be wetted thoroughly by water &the fine coal dust should be removed from welding/ Gas cutting site (work site)

[Go to Contents](#)

6. Only insulated welding Cable shall be used. Properly earthing to be done & securely tightened. During welding earthing through Structures should be avoided & earth core to be taken directly to the welding site.
7. The welding / Gas cutting job should be done exclusively under the supervision of Concern Foreman/ Engineer.
8. after welding/ Gas cutting the welding area and the surrounded area should be thoroughly wetted by water.
9. The Concern Foreman/ Engineer should thoroughly inspect the work site & surrounding for any teach of hot material/ Fire after welding/ Gas cutting work.
10. After Completion of welding/ Gas Cutting work the welding M/c & Gas set (DA & Oxygen) are to be removed to a Safe site / store room.
11. The site of welding shall be inspected for heated material after 08 hours of welding i.e.in next shift.
12. The Concern Foreman / Supervisor / Engineer shall enter the day to day welding / Gas cutting job in bound page register kept for the purpose &duly sing & countersuing from the Colliery Engineer.

[Go to Contents](#)

Tyre handling & fitting.

The following safety precaution shall be observed while fitting tyre in dumpers and other heavy tyre mounted vehicles.

- 1) Fitting of tyre in dumpers and other HEMM shall be done under the direct supervision of Foreman/Engineer.
- 2) The concerned engineer shall decide who and how many people shall do the job. Only required number of persons shall be present near the place of tyre fitting.
- 3) Tyre handler shall be used for handling of heavy tyres.
- 4) Tyre should be opened in deflated condition. So that the lock ring does not come out.
- 5) The sectional profile of wheel locking ring shall match with the groove of the wheel rim.
- 6) Concerned Engineer shall check the locking ring of HEMM tyres once in a week.
- 7) These information shall be recorded in a bound paged register.
- 8) While fitting a new locking ring it is to be seen that the ring fits in the groove of the rim.
- 9) While inflating tyre it should be kept inside the cage. No body should be in front of the cage while in flatting.

Treatment of Electricity Shock

Remember :

- Act at once - delay is Fatal.
- Death from electric shock is rarely instantaneous.
- Heart Fibrillations (Heart Muscle Tremors) persist as long as 30 minutes after an Electric Shock. Therefore life can be saved by Immediate Artificial Respiration.
- Send for but never wait for a Doctor.
- Continue Artificial Respiration for four hours after apparent death.

Release from contact :

Switch off current immediately or send someone to do so. Do not attempt to remove a person from contact with high voltage unless suitable articles insulated for the system voltage are used for this purpose. When attempting to force a person from contact with low or medium voltage, use rubber gloves, boots, mat or insulated stick, but if these are not available, use a loop of rope, cap or coat to drag the person free. Whatever is used should be dry and nonconducting.

After release :

Lay the victim on a dry firm surface and remove any foreign material from the mouth. Feel the breathing . If there is no sign of breathing or restlessness start artificial respiration immediately. Do not lose any time, and if possible send for the Doctor and Ambulance. Check that the jaws are lifted and head tilted back so that the mouth and throat are clear. Check the pulse and continue respiration till the pulse is felt. Keep the patient warm and allow him to get the fresh air.

[Go to Contents](#)

SURFACE MINER

GENERAL

- ◆ The surface miner shall be maintained at all times in safe and good working condition.
- ◆ The surface miner and all its accessories shall as far as possible be constructed of fire proof material.
- ◆ All instruments including hour counter, temperature gauge, battery charging indicator including pressure gauge and all warning devices shall be kept maintained in good working order.
- ◆ The Electronic cutting depth control system shall function affectively and be maintained in good working order at all times.
- ◆ Water spraying system shall be maintained in good working order.
- ◆ Padding and other shields shall be effectively used for reducing the sound and to protect the operator and the general public from excessive noise.
- ◆ The braking and/ or emergency stopping mechanism shall be regular examined and adjusted whenever necessary.
- ◆ None of the safety features provided with the machine shall be altered or by-passed.

DESIGN OF PIT FOR THE SURFACE MINER

- ◆ Pits for deployment for face miner shall be so designed that adequate slope for drainage of water out of the working area to prevent flooding is maintained at all the stages of operation.
- ◆ Layout and sequence of slices to be cut by the surface miner shall be so designed that ultimate pit slope is maintained within safe limits at all the stages of operation up to the maximum designed depth of the pit.

ELECTRIC SYSTEM

- ◆ Automatic fire protection system shall be in operation.
- ◆ Fire extinguishers shall be examined and maintained in working order .
- ◆ Clean and filtered water in adequate quantity for dust suppression shall be kept filled up in the tank at all times during the operation and at intervals and also as and when required.
- ◆ Ear muffs shall be kept available in the cabin of the surface miner and shall be worn by all persons whenever the noise level exceeds 90db.

[Go to Contents](#)

- ◆ Ensure that all safety guards and cover plates including panel doors, belt guards and belt shields are correctly placed in position and securely bolted.
- ◆ Ensure that all the lights are properly working if the machine is to be operated after the day light hours.
- ◆ Effective means of two way communication shall be provided between the machine operator and the dumper or other transportation system by using coded signal.

PER-START PRECAUTIONS:

- ◆ Look for any placards /tags on the machine like 'OUT OF ORDER'' 'UNDER REPAIRS' etc. In case, such tags are seen anywhere in the entire system do not start the machine.
- ◆ A competent person shall examine the machine at the beginning of every shift.
- ◆ Ensure that all walk-ways and ladders are kept clean, free from oil, grease or other spillage material.
- ◆ The wind shield shall be kept clean.
- ◆ Before starting the machine it shall be ensured that no person or any other obstacles are within the working radius of the machine and a pre-start warning signal shall also be given.

OPERATION

- ◆ The machine shall be operated by a person who has been properly trained and found to be competent and also aware of all safety precaution.
- ◆ The operator shall be authorized in writing by the Manager.
- ◆ Dust suppression system must be continuously operated to ensure dust free environment.
- ◆ The machine shall not be operated on a gradient higher than the one recommended by the manufacturer while operating on sloping surface.
- ◆ Unauthorized persons shall not be allowed to ride or be present in the vicinity of the machine.

SHUTTING OFF:

- ◆ Ensure that all conveyor belts are emptied.
- ◆ Discharge boom shall be lowered to the normal.
- ◆ All controls shall be in off or neutral position.

[Go to Contents](#)

Thank You for previewing this eBook

You can read the full version of this eBook in different formats:

- HTML (Free /Available to everyone)
- PDF / TXT (Available to V.I.P. members. Free Standard members can access up to 5 PDF/TXT eBooks per month each month)
- Epub & Mobipocket (Exclusive to V.I.P. members)

To download this full book, simply select the format you desire below

