RISK ASSESSMENT & MANAGEMENT PLAN

INTRODUCTION

Mining and allied activities are associated with several potential hazards to both the employees and the public at large. A worker in a mine should be able to work under conditions which are adequately safe and healthy. At the same time, the environmental conditions should be such as not to impair his working efficiency. This is possible only when there is adequate safety in both opencast and underground mines. Hence, mine safety is one of the most essential aspects of any working mine. Indeed safety of the mine and the employees is taken care of by the Mines Act, 1952.

Opencast method is the safest method of working a coal deposit. It is totally free from strata movement, roof control and ventilation problems. Normally in opencast coalmines, no major disaster affecting nearby residents is foreseen. Further, the number of persons and the associated danger to life and property is drastically reduced. However, accidents inside the mines affecting work force cannot be ruled out.

The present proposal is to extract the underground galleries by opencast method of working; hence some of the activities are definitely involved with risk. Some of the project specific likely hazards during mining operations for RG OC-III EXTN PHASE-II Project are

1. Formation of pot hole/cavity
2. Sliding
3. HEMM Movement
4. Electricity
5. Inundation
6. Fires
7. Lighting
8. Drilling
9. Blasting
10. Health Hazards
11. Storage, Handling and Disposal of Hazardous Waste

The hazards identified for this project under the different mechanisms and the control & action plan to be taken are furnished hereunder

Identified Hazards	Mechanism	Control	Action
(1)	(2)	(3)	(4)
1. Formation of Pot holing / cavities	Partition reduced due to old under ground falls and also due to heavy blastings.	A) When ever the active OC workings reaches top of the coal seam or 15 mtrs. parting over the galleries, those areas must be identified as critical zones and physical parting must be verified after each and every blast. B) Partition over the under ground galleries must be verified by drilling test holes and ensure a minimum physical parting of 8.00 mtrs. over the galleries after blasting and before deploying men and machinery.	For the purpose of parting verification, safe excavation of blasted material after blasting the following procedure shall be followed. Physical parting over the galleries may be verified by putting test holes through blasted material wherever possible. If not arrange for marking of the galleries over the blasted material and ensure the men and machinery are engaged only over solid pillars and those galleries the parting over which is verified immediately after excavation. Or Excavation of blasted material may be done by engaging backhoe over the blasted material with same level loading arrangement and avoid movement of men and machinery over the unproved parting of the galleries after blasting. While drilling test holes for proving the physical parting over the galleries after blasting the code of practice for working over "DANGER ZONE" should be followed.
Formation of Pot holing / cavities	Partition reduced due to burning of gallery top by under ground fire.	a) Identify the galleries, pillars under fire. b) Drown the fire galleries with water if possible. c) Where ever drowning is not possible blanket the galleries under fire with suitable material in such a way that air breathing is totally stopped. d) Where ever b & c are	a) Regular inspection of quarry and identifying the galleries under fire. b) To study the details of the location of the galleries under fire over the plans and asses the possibility of drowning either by increasing the existing water level or by pumping water from surrounding areas.

		not possible for any reason compact the galleries and arrange continuous water spraying and excavate as early as possible.	c) Where ever drowning is not possible arrange for blanketing either by dumping OB transported from other places or by blasting OB of the same bench/place and use the same for compacting the galleries and arrange pipe line for continuous water spraying on the fire material. d) For compaction adopting the procedure standing order for drilling, demarcation, blasting and compaction over the danger zone and critical zone also code practice for fire fighting and danger zone issued by Colliery manager.
	Partition reduced due to excavation.	a) Before conducting any blasting over the galleries ensure that a minimum of 8 mtrs. solid parting is left against the roof of the gallery. b) Excavation should be limited above 8 mtrs of parting over any un compacted gallery. c) Where ever the parting over the galleries is less than 8 mtrs. compaction of the galleries should be done and no men and machinery should be allowed except for	a) Verify the physical parting over the galleries before each and every blast and limit the drilling to leave a minimum parting of 8 mtrs. against the roof of the gallery. b) Collect information about the solid parting against the roof of the gallery below blasted material. Excavation should be limited to lift only blasted material leaving a minimum parting of 8 mtrs. against roof of the gallery. c) Gallery demarcation should be arranged and compaction of galleries should be done as per the laid down procedure in the standing order issued for the purpose.

		drilling and compaction as per the stipulated code of practices.	
	Parting failure due to accumulation of water/seepage of water over or through weak or cracked strata.	a) Flooding of coal bench with water from surrounding areas should be avoided. b) Accumulation of rain water on coal benches should be avoided. c) Fire fighting / water spraying persons over coal benches must take position only on solid pillars.	a) Proper drainage for surrounding areas water and formation of bund around the coal benches if necessary should be arranged and the same must be verified during and after heavy rain. b) Levelling of the coal bench in such a way that catchment water will flow out immediately without accumulation. c) When ever it is necessary for fire fighting in critical zone and danger zone, gallery demarcation should be arranged. It is to be ensured that the persons engaged for the above purpose are always standing over solid pillars.
2. SLIDINGS	Sliding of OB or coal due to more height of the bench than the digging height of the machine.	a) The height of the benches shall be planned in such a way that they match the digging height of the shovels. b) Not to deploy the shovels where the bench height is more than its digging height. c) No bench shall be allowed to merge with another bench, resulting in increase of bench height. d) Overall pit slope shall not exceed 45^0	a) Drilling should be done in such a way that the bench height will not be more than the digging height of the shovel. b) The excess height of the blasted material should be reduced to match the digging height of the shovel Further where ever the soft layers at the bottom of the bench the same may be reduced by dozing to match the digging height of the shovel. c) Progress of any bench towards a top bench should be stopped at a distance of equal to the height of bench. d) Surveyor should ensure

			frequently
SLIDINGS	Sliding Of OB / Coal While Excavation Near Fault Plane.	a) No bench shall be worked parallel to fault planes. b) Proper benching of the fault plane is to be done in such a way that the height of the fault plane is not more than the digging height of the shovel. c) Cleaning of top and hade portions of the fault planes must be ensured, when ever the shovel works near fault plane.	a) A plan indicating all the faults position running over the different benches should be maintained and same may be indicated in the parting plan supplied to operation staff and the marking of the same in the field should be ensured always. b) Benches shall be planned always at right angles or oblique to the fault plane but definitely not parallel to the fault plane. c) Whenever a bench is being moved towards a fault plane from down throw side, it must be extended beyond the fault plane on to the up throw side to a distance sufficient for benching of the fault plane. d) While working lower benches in such a way that height of the fault plane is not more than the digging height of the shovel at any stage of excavation.
	Sliding of Material Left Against Fault Plane.	a) Not to leave any material that may slide against any fault plane as a final operation.	a) When ever the excavation is progressing towards a fault plane the benches must be planned in such a way that they extend beyond the fault plane to enable proper benching of the fault plane, while the excavations proceeds down below and the bottom most bench also touches the fault **or** b) A minimum distance equal to twice the throw of the fault plane must be maintained between any bench and fault

			plane.
SLIDINGS	Sliding of dump slopes/edges	a) While the benches are approaching towards the dump slopes care shall be taken to leave safe margin against the slope. b) To protect the dump from getting water charged	a) A minimum width equal to the height of the dump shall be maintained between the toe of the dump and the line of the excavation. Excavation limit lines with dust /flags shall be maintained to that effect. b) No water shall be allowed to accumulate / stock over any dump top particularly near the edge of the dumps
SLIDINGS	Sliding of dump slopes/edges	a) Not to allow excess dump heights or merging of any two dump decks. The height of each deck is limited to 30 m and overall dump height shall not exceed 90m for RG OC-III Expansion Phase-II project, both internal and external b) Not to allow any Dumpers /Tippers to move over the un consolidated the dump edge/slope	a) Top of the dumps up to the edges shall be thoroughly compacted to prevent any possible ingress of rain water and also to provide a gentle slope towards toe drains. Individual dump deck height shall be maintained around 30 mtrs. Merging of any two dump decks in any case is not allowed. b) No movement of Dumpers /Tippers is allowed over the edge of un consolidated dump/dump having excess height. However HEMM can be allowed up to a distance of 3.00 mtrs. from the edge of consolidated dump with the provision of a berm at the edge of the dump as required by law.
	Fall of hot material or ash on men and machinery while excavating fiery material.	a) Not to allow any men and machinery over and below any dump edge / slope which is on fire b) No hot/fiery material shall be handled with any machine as it is.	a) No men and machinery shall be engaged over and below any dump edge/slope which is on fire except for the purpose of fire fighting by following the specified code of practice formulated for this purpose. b) Thorough quenching of hot/fiery material shall be

			done before it is handled.
3. HEMM movement	i) Failure of vehicle stability resulting toppling.	a) Ensure placement and movement of HEMM only on the stable and level ground. b) To provide IDEAL conditions, Loading, Hauling and unloading points for HEMM	a) Level and compact the blasted material before allowing any HEMM to ply over it. b) Not to allow any HEMM movement with in a distance of 5 m from the edge of blasted/loose bench. c) Provide stable and level ground at loading point for placement of HEMM. d) Berms shall be provided on both sides of the elevated haul roads as required by law. e) Ensure super elevation at curves of haul roads. f) Arrange level and stable platforms with suitable size of berms as required by law at unloading point with the help of dozer. g) Always ensure a minimum height of 1 ½ feet safety girder at the crusher unloading point. h) Unloading of material shall be done over the unstable dumps at a distance of minimum 3.00 mtrs. from the edge. i) No un loading activity shall be allowed without a spotter with whistle, flag/light for guiding on elevated flat form
		a) Run the HEMM with in permissible speed limits. b) Using good quality tyres	a) Ensure by surprise checks it required that the HEMM is remains with in the speed limits as specified by the Manager. b) Arrange speed locking over HEMM where ever it is possible. a) Replace worn out tyres in time with good quality tyres.

			b) Not to use re treated tyres in front sides in any case.
	Run over by vehicles/HEMM	a) Persons/conveyance vehicles to maintain a safe distance on haul roads and 50 mtrs at loading and unloading points from working HEMM. b) Prevent unauthorised drivers.	a) To develop awareness among employees to maintain a minimum distance of 30 mtrs. on haul roads and 50 mtrs. at loading and un loading points from moving and working HEMM. b) Insist all Operators/drivers to wear identity cards while they are on duty. c) Verify the validity of driver's licensee of operators and drivers before authorisations and issue identity cards. d) Verify the HEMM operations as per the allotment by surprise checks also check up the details of drivers/operators and confirm.
		a) Persons to maintain a safe distance from moving vehicles. b) Prevent boarding/alighting the moving vehicles.	a) To ensure no person shall be allowed to enter with in a distance of 30 mtrs of moving vehicles. b) To stop any vehicle/HEMM persons must use whistle/red flags/red light before going near to the machines for any reason. c) Develop awareness among the employees not to board/light from the moving vehicles/HEMM.
		a) Persons shall not be allowed to take rest under/by the side of parked vehicles/HEMM. b) Prevent sleeping of persons in mine premises.	a) Develop awareness among all the employees not to take rest under/by the side of parked vehicles/HEMM. b) Educate all the operators/drivers to verify the surroundings including underneath

			the machine/vehicle for possible presence of any person before starting the same. c) Create awareness among all the employees not to sleep while on duty in mine premises
	Slidings of dumpers/tippers/ dozers at dump edge.	a) Restrict the deck height to 30 mtrs. Only. b) No HEMM shall be allowed to work over the edge of any unconsolidated dump.	a) To ensure deck height doesn't exceed 30 mtrs. under any circumstances. Ensure sufficient size of berm at the edge of the dump always as required by law. b) Not to allow any HEMM over the edge of any unconsolidated dump. To deploy a spotter for guidance the tippers/dumpers at unloading point on elevated platform.
	Simultaneous operations at loading and un loading points. For this purpose the following are considered as (separate) individual operations. i) Drilling ii) Charging and blasting iii) Dozing iv) Grading v) Loading vi) Un loading	a) Not to allow more than one operations at the face at a time.	a) To maintain a minimum distance of 50 mtrs. between the places of i) Drilling and loading ii) Charging and loading. b) To maintain a minimum distance of 15 mtrs between drilling and charging operations. c) Except as above no two operations shall be allowed to under go at a time at one place. d) To maintain a minimum distance of 15 mtrs. between loading tippers/ dumpers and dozer at unloading point.
	Crossing 3 way / 4 way junctions.	a) Not to allow traffic in more than one direction at a time at junctions.	a) To engage a signal men at all the junctions. b) To ensure traffic controlling by surprise checks.

	Un authorised riding on HEMM	a) Not to allow un authorised persons to ride on HEMM b) To provide sufficient no. of suitable and comfortable conveyance vehicles to all the workmen, available at their reach when ever they want to move.	a) Educate all the employees about the danger involved in riding HEMM. Check the unauthorised riding on HEMM by surprise inspections. Ensure even authorised person also travel by sitting in the cabin having pillion. b) Ensure sufficient no. of suitable and comfortable conveyance vehicle is available. Ensure their availability at the reach of the persons whenever they required moving.
	Spillage of boulders from loaded tippers/dumpers	a) Avoid over loading of tippers/dumpers. b) To control speed of the vehicles. c) To avoid sharp curves.	a) Educate all the operators not to over load the dumpers / tippers. b) Ensure the loading is up to the brim level of the tippers/dumpers. c) Ensure strict implementation of code traffic rules. d) Haul roads shall be formed without sharp curves. Where ever mild curves are inevitable suitable super elevation shall be provided
	Stoppage of HEMM /vehicles on active haul roads due to break-down.	a) Break down equipment from active haul roads must be attended immediately and repair/remove at the earliest possible. b) To provide protection against break down equipment an active haul roads.	a) To keep emergency steering mechanism in order. So that operator himself can remove the equipment. Immediate information to Engineers /Technicians about the break down machine on active haul roads. b) Engineers/Technicians must repair/remove the equipment at the earliest possible. Till the equipment is repaired or removed protection against hitting by running equipment shall

			be provided on both sides by dumping OB heaps. To arrange red flags and lights on both traffic sides of the breakdown equipment
4. Electricity	Switching on power when persons are at work Dragging of cable by hoisted body of dumper, where the Transmission lines / cables cross the haul roads.	Shut down procedure shall be strictly implemented. Identification of cables and switches shall be displayed. Transmission lines / cables shall only be laid on 12 Meter height towers, as required by Indian Electricity Rules 1956	Supervisors having valid electrical supervisory certificate only shall be deployed on the jobs. Planning shall be done in initial stages for laying of 12m height towers.
5. Inundation	Jallaram Vagu is flowing in between the edge of the quarry and dump	Sufficient depth and width of the nallah should be maintained. Nallah diversion should be done as per the guidelines given by the I&CAD dept.	Shift In charge to inspect the surface drainage system at weekly Periodicity to arrest any possibility of water entry to the quarry.
	Catchment Area water during Rains	All around the dumps drains are to be prepared to collect the rain water from the catchments of the dumps. In case of any siltation or damage, the drain may cause water entry into the quarry. Desiltation is being done every year before onset of monsoon and when ever required during monsoon. Sufficient height bund shall be maintained all along the edge of the quarry to prevent inadvertent entry of water A berm with dimensions of not less than two metres height and 2 metres width at the top shall be made in trapezium shape all along the edge of each deck to prevent erosion of dumps and gully formation. The terrace shall be kept free of obstructions (OB	Periodical inspection of the drains by competent person is arranged after every rain with a minimum interval of one week. Sufficient capacity pumps shall be maintained.

		heaps), sloped in bye and maintained with uniform gradient for free flow of water in order to avoid accumulation of water leading to gully formation and dump slides. Plantation shall be done over and around OB dumps to ensure stability of slopes and prevention of dust generation by wind action. Inflow of water, which varies from a minimum of 5400m^3/ day to a maximum of 17,300m^3/ day for the present catchment area of RG OC-III EXPN PHASE-II.	
	Water accumulated in Underground galleries	Galleries shall be tested for water, through test holes. Monitoring of Under Ground water level is being done on daily basis and a record kept for the purpose is being maintained. The water level contour is marked on water danger plan. The water level monitoring record and water danger plan are used for the purpose of controlled de-watering to avoid spontaneous heating in the exposed UG galleries.	Surveyor shall maintain the record of Under Ground water level as per survey on daily basis and up date water danger plan periodically to assess the quantity of water in the sump.
6. Fires	Fire in underground galleries and coal stock yards	Well laid down pipeline with sufficient pressure to quench the fire shall be maintained as the water is available in under ground galleries. Coal will be lifted on first dumped first dispatched basis. Water pipe line with sufficient water pressures to fight with theses fires will be laid around the coal stock yard	A suitable provision has to be made for this purpose and a separate Fire Fighting Organization with trained personnel shall be maintained for fighting these fires.

7. Lighting	Insufficient lighting at work places	Working places shall be illuminated as per the standards fixed by DGMS Circular No.1 of 1976 All persons shall wear radium jackets in during dark hours. All persons shall possess Cap Lamps in dark hours. All persons shall have whistles.	Engineer and electrical supervisor shall ensure the lighting as per the DGMS circular

8. Drilling

- Transportation of drill machine and placement for drilling at site: While transporting drill machine, its mast must be lowered, even with in the drilling area on inclined plane (High gradients) to avoid toppling of drill machine.
- Position of drill machine on inclined planes: For positioning on inclined planes (High gradients), wedges must be used under jack pads for levelling of the drill machine.
- Change of Drill barrels (Drill rods): Ensure proper holding of drill barrels, while loading / unloading (Attachment /Detaching) on the drill mast.
- Prior Marking of drill holes as per the designed pattern shall be taken up to ensure proper blasting.
- Always ensure the partition between underground galleries and drilling site before deploying the drills.

9. Blasting

Opencast operations involve heavy blasting in overburden and coal. Proper precautions by posting guards, siren etc. will be taken at the time of blasting. Men and machinery will be withdrawn to safer place before blasting. Blasting will be done in between shifts. Proper care in storage, transport and handling of explosives will be taken to ensure safety in blasting operations.

Controlled blasting will be adopted to reduce ground vibration and noise levels. Whenever the mine boundary approaches the danger zone of 300m from villages/dwellings/structures etc., controlled blasting and vibration study will be conducted by any scientific agency for relaxation of danger zone. Ground vibrations will be minimised by selecting proper blasting technique. It is therefore suggested that charge / hole be restricted as per distance from villages. Safety zone as required by statute will also be ensured.

In addition to the above, the following will be considered in general for reduction of ground vibrations.

- Blasting design and initiation pattern such that the maximum charge per delay is within the stipulated range.
- Wherever possible, the progress of detonating holes, through delay intervals, should progress away from the structures to be protected.
- Burden and spacing will be to the requirement.
- Avoid blasting during cloudy days and when the wind is blowing towards structures.

The blast parameters during mining operation will be established after actual field trial blasting considering the local geo-mining conditions.

For the controlled blasting operations, the following will be considered in general:

- Distance between blasting point and the structure to be protected will be earmarked.
- A free face will always be maintained.
- In multi row blasting, greater relief will be provided between rows using suitable delay intervals.
- Proper use of different type of relay / delay detonator for proper sequencing of the blast will be used.
- All loose debris will be cleared off the blasting site.
- If required, all the holes will be suitably muffled before blasting to control the fly rock.

10. Health Hazards

Occupational safety and health is very closely related to productivity and good employer – employee relationship. This subject is dealt with strictly as per circulars and orders of DGMS including the Mine Rules and Coal Mines Regulations, 1957. Some of the measures proposed for occupational safety and health have been listed below:

- Effective dust removal system in the crusher house
- Provision of wet drilling
- Provision of rest shelters for mine workers with amenities like drinking water, fans, toilets etc.
- Provision of personal protection devices to the workers.

- Rotation of workers, if necessary, exposed to noise to reduce exposure time
- Closed control room in crusher house with proper ventilation.
- Dust suppression of haul road and dumps
- First - Aid facilities in the mining area
- Provision of communication network between pit working areas and manager.
- Provision of alarm system at working areas
- Training of personnel including contract workmen in Mines Vocational Training Centres to inculcate safety consciousness through modules, video clippings slogans and posters and introduction of safety awards
- Safe design of height, width and slope of working benches of OB & coal, overall pit slope kept less than 45°.
- Safe design for formation of OB dumps, over all dump slopes kept below 28^0 degrees.
- Safe design of haul roads.
- Provision of fire fighting equipment
- Safe storage of explosives and other inflammable substances.
- Regular / periodical monitoring of mine environment to ensure the efficacy of various protective measures.
- Initial and Periodical medical examination for the employees.

The Risk Management Plan (RMP) prepared for the mine under the provisions of DGMS Circular and Recommendations of 9^{th} National Safety Conference will be implemented to tackle risks associated with each and every operation (s).

11. Storage, Handling and Disposal of Hazardous Waste

Hazardous waste generated such as used oil, waste oil, empty oil drums, batteries, non-ferrous scrap etc. Explosives, HSD oil, Hydraulic oils shall be handle, storage, disposed, transport as per Hazardous Waste (Handling & Management) rules and CPCB guidelines.

- The waste generated shall be disposed as per HWM rules within 90 days from date of generation to authorized recycler.
- The handling, transport and storage of explosives shall be as per Indian Explosive Act.

- Transportation and storage of explosive shall be as per the approved code of practice.
- Flammable, ignitable, reactive and non-compatible wastes shall be stored separately and never stored in the same storage shed.
- Adequate storage capacity (i.e. 50 % of the annual capacity of the hazardous waste incinerator) shall be provided in the premises.
- Storage area shall be provided with the flameproof electrical fittings and strictly adhered to.
- Adequate fire fighting systems shall be provided for the storage area, along with the areas in the facility.
- There should be at least 15 meter distance between the storage sheds.
- Loading and unloading of wastes in storage sheds shall only be done under the supervision of the well trained and experienced staff.
- Fire break of at least 4 meter between two blocks of stacked drums shall be provided in the storage shed. One block of drum should not exceed 300 MT of waste.
- Minimum of 1 meter clear space shall be left between two adjacent rows of pallets in pair for inspection.
- The storage and handling shall have at least two routes to escape in the event of any fire in the area.
- In order to have appropriate measures to prevent percolation of spills, leaks etc. to the soil and ground water, the storage area should be provided with concrete floor.
- Measures shall be taken to prevent entry of runoff into the storage area. The Storage area shall be designed in such a way that the floor level is at least 150 mm above the maximum flood level.
- The storage area floor should be provided with secondary containment such as proper slopes as well as collection pit so as to collect leakages/spills etc.
- All the storage yards should be provided with proper peripheral drainage system connected with the sump so as to collect any accidental spills in roads or within the storage yards as well as accidental flow due to fire fighting.

- The stacking of drums in the storage area should be restricted to three high on pallets (wooden frames). Necessary precautionary measures should be taken so as to avoid stack collapse. However, for waste having flash point less than 65.5 °C, the drums shall not be stacked more than one height.
- Drums containing wastes stored in the storage area shall be labelled properly indicating mainly type, quantity, characteristics, source and date of storing etc.
- The storage areas shall be inspected daily for detecting any signs of leaks or deterioration if any. Leaking or deteriorated containers should be removed and ensured that such contents are transferred to a sound container.
- In case of spills / leaks/dry adsorbents/cotton should be used for cleaning instead of water.
- Proper slope with collection pits be provided in the storage area so as to collect the spills/leakages.
- Proper records with type of waste received, characteristics as well as the location of the wastes that have been stored in the facility need to be maintained.

DISASTER MANAGEMENT PLAN

Disaster Management Plan, a general plan of action for use in the event of inundation, fire, high wall failure, dump failure or any other dangerous occurrence or in the time of emergency. The DMP will have three stages:-

- Information Stage
- Assessment Stage
- Action Stage

Information Stage:

Any person employed in a mine observes / discovers any dangerous incident; he shall immediately inform to Man Way Clerk (Attendance Clerk) or the nearest official(s) available who shall inform to the man Way Clerk and Manager or senior most official in his absence.

The Man way Clerk shall immediately inform the Manager or senior most mine official in his absence, inform the rescue station and collect information regarding place of accident/occurrence, number of persons involved and nature of help required. He should record the above information with name of the person who informed and the exact time and pass on the same to the manager. He should not leave the place for any purpose what so ever.

The Manager shall inform the Project Officer, General Manager and Nodal officer to initiate DMP and also rush to the spot / mine if he is at out of project premises. Personally assess the gravity of situation by contacting the frontline supervisors / witness available or through wireless set.

Nodal officer shall rush to the mine and inform: CGM (Safety), All Directors, So to C&MD, DGMS authorities, District Magistrate and Collector, Supdt. of Police, Mine/Area level representative and recognized union delegates, local dispensary, Chief medical officer, all area departmental heads.

Assessment Stage:

The role and functions of following persons will be envisaged in the detailed DMP available during operation.

- Role of Mining Sirdar, Overmen and Foremen
- Role of Manager, Project Officer and Area General Manager
- Role of in-charge at operations or at place accident.
- Function of core committees
- Function of support committees
- Functions of surface control room

Supporting Committees:

The composition, functions, infrastructure required for core and supporting committees, etc. will be envisaged in the detailed DMP available during operation.

- Public Relations committee
- Catering committee
- Medical committee
- Men and material management committee
- Transport committee
- Survey committee
- Casualty committee
- Security committee
- Cash committee
- Accommodation committee.

Action Stage:

Action stage deals with the functions of Disaster Management Committee (DMC) and duties of following personnel.

- Director, DMP
- Area General Manager
- CGM (Safety)
- CGM/GM (E&M)
- GM (Personnel)

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