



MAINTENANCE MANUAL

(Version 05)

MAHANADI COALFIELDS LIMITED

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APPROVAL

This manual describes the maintenance arrangements for the available infrastructures of Mahanadi Coalfields Limited (MCL) complying with the requirements of international standards - ISO 9001:2015, ISO 14001:2015 ISO 45001:2018 and ISO 50001:2011

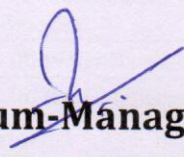
The contents of this manual are hereby approved, authorized, and released for the use of all concerned in MCL. Any future change(s) in this manual shall also be issued only after my specific approval.

This manual now supersedes the Version 04 of maintenance manual of MCL issued on 22/03/2018.

All user shall also exercise necessary care to prevent unauthorized use, loss, damage, and/or illegibility of this manual.

Place: Sambalpur.

Date: 22-04-2021


Chairman-cum-Managing Director
Mahanadi Coalfields Limited

1.0 DISTRIBUTION LIST

Copy	Copy Holder	For use of.....	Distributed Chapters
MM – 0	Nodal Officer (IMS), HQ, MCL	As corporate master copy, and for the use of CMD, Directors, and external auditors.	All
MM – 1	Central Library, HQ, MCL	All concerned in MCL HQ, Ranchi.	
MM – 2	Area GM, Basundhara-Garjanbahal Area	All concerned in the Area & its units.	
MM – 3	Area GM, Ib Valley Area	All concerned in the Area & its units.	
MM – 4	Area GM, Lakhanpur Area	All concerned in the Area & its units.	
MM – 5	Area GM, Orient Area	All concerned in the Area & its units.	
MM – 6	Area GM, Bharatpur Area	All concerned in the Area & its units.	
MM – 7	Area GM, Hingula Area	All concerned in the Area & its units.	
MM – 8	Area GM, Jagannath Area	All concerned in the Area & its units.	
MM – 9	Area GM, Kaniha Area	All concerned in the Area & its units.	
MM – 10	Area GM, Lingraj Area	All concerned in the Area & its units.	
MM – 11	Area GM, Talcher Area	All concerned in the Area & its units.	
MM-12	AREA GM, Mahalaxmi Area	All concerned in the Area & its units	
MM – 13	GM, Central Repair Workshop, Talcher	All concerned in the Workshop.	Approval, 1.0, 2.0, MA.1 to MA.7, MD.1 to MD.4, ME.1 to ME.2 and MF.1 to MF.8
MM – 14	GM, CWS, Ib- Valley	All concerned in the Workshop	
MM – 15	CMS In charge, Central Hospital, Talcher	All concerned in the Hospital.	Approval, 1.0, 2.0, MA.1, MA.2, MA.4, MA.5, MA.6, ME.1 to ME.2 and MF.3 to MF.8
MM – 16	CMS In charge, Central Hospital, Ib-Valley		
MM – 17	GM, Mines Rescue Station, Orient Area, Ib-Valley	All concerned in the Rescue Station.	Approval, 1.0, 2.0, MA.1 to MA.7, MC.6

[The above copy holders may distribute copies for awareness/training within their functional domains – refer procedure under section 7.5.D of IMM of MCL.]

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MA.1 OFFICE BUILDINGS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under the Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL.

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Sweeping and/or mopping of entire office premises, parking areas, etc. Cleaning of toilets with disinfectant De-dusting of office furniture Watering of gardens and pot-plants Disposing of garbage from offices Checking of lighting arrangements 	Overseer, E&M Foreman
WEEKLY: <ul style="list-style-type: none"> Washing of office floors, parking areas, etc. Cleaning of drains Checking of electrical fittings, power distribution panels Upkeep of gardens and pot-plants Checking of pumps, plumbing/pipe fittings 	Overseer, E&M Foreman
EVERY 6 MONTHS: <ul style="list-style-type: none"> Checking all wirings and junction boxes Cleaning of water tanks 	Civil, E&M Engineer
EVERY YEAR: <ul style="list-style-type: none"> Refurbishing gardens and pot-plants Distempering of office buildings Repairing of drainage, sewage, walls, windows, doors Renovation of lawn 	Civil Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Repairing broken window panes, walls, floor 	Civil Engineer
EVERY 4 YEARS: <ul style="list-style-type: none"> Road carpeting 	Civil Engineer



MA.2 STORES COMPLEX

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under the Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Sweeping and/or mopping of stores premises Cleaning of toilets with disinfectant De-dusting of storage sheds, shelves, & furniture Disposing of office wastes Checking of lighting arrangements Checking of exhaust fans 	Overseer, E&M Foreman
WEEKLY: <ul style="list-style-type: none"> Washing of floors and/or vacuum cleaning Cleaning of storage sheds, shelves Checking of electrical fittings/panels/boards Checking of pumps, plumbing/pipe fittings 	Overseer, E&M Foreman
EVERY YEAR: <ul style="list-style-type: none"> Cleaning of drains Checking of shutters, shutter spring tensioning, and locking arrangement Checking of industrial/exhaust fans Checking all wirings and junction boxes Cleaning of storage shelves, sheds, rooms, etc. Checking of stores sheds/buildings for seepages 	Civil, E&M Engineer
EVERY 3 YEARS: <ul style="list-style-type: none"> Distempering of stores buildings 	Civil Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Repairing of drainage, sewage, walls, windows, doors, shelves, etc. Repairing broken window panes, walls, floor 	Civil Engineer

MA.3 WORKSHOP SHEDS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under the Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Sweeping of sheds and pathways Cleaning of toilets with disinfectant De-dusting of shed, office furniture Disposing of scraps and waste-materials Checking of lighting arrangements 	Overseer, E&M Foreman
WEEKLY: <ul style="list-style-type: none"> Cleaning/washing of shed-floors, walls and roofs Checking of electrical fittings, power distribution panels Checking of pumps, plumbing/pipe fittings 	Overseer, E&M Foreman
HALF YEARLY: <ul style="list-style-type: none"> Checking of shutters, shutter spring tensioning, and locking arrangement Cleaning of water tanks 	Civil, E&M Engineer
EVERY YEAR: <ul style="list-style-type: none"> Cleaning of drains and grease traps Scrubbing of shed floor Checking of pumps, plumbing/pipe fittings Checking all wirings and junction boxes Repairing broken window panes, walls, floor, roof of sheds Checking of industrial/exhaust fans Checking of shutters, shutter spring tensioning, and locking arrangement Cleaning of water tanks 	Civil, E&M Engineer
EVERY 2 YEARS: <ul style="list-style-type: none"> Painting of sheds/buildings Mechanical checking of trusses beams and columns 	Civil, E&M Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Repairing broken window panes, walls, floor, roof of sheds, drainage, sewage, walls, windows and doors Cleaning of oil spillages with saw dust 	Civil, E&M Engineer

MA.4 GUEST HOUSES

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under the Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Sweeping and/or mopping of entire premises Cleaning of utensils and cutlery Cleaning of kitchens and toilets with disinfectant De-dusting of room and lounge furniture Checking and, if required, changing of room linen Watering of gardens and pot-plants Disposing of garbage, Cleaning of drains Checking of lighting arrangements Checking of plumping and sanitary installations Checking of air-conditioning systems 	Overseer, E&M Foreman
WEEKLY: <ul style="list-style-type: none"> Washing of floors, parking areas, etc. Checking of air-conditioners, electrical fittings and power distribution panels Upkeep of gardens and pot-plants 	Overseer, E&M Foreman
EVERY 6 MONTHS: <ul style="list-style-type: none"> Checking all wirings and junction boxes Cleaning of water tanks 	Civil and E&M Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Repairing broken window panes, walls, floor 	Civil Engineer
EVERY YEAR: <ul style="list-style-type: none"> Refurbishing gardens and pot-plants Overhauling of air-conditioning systems Distempering of guesthouse building Repairing of drainage, sewage, walls, windows, doors Renovation of lawn 	Civil and E&M Engineer
EVERY 4 YEARS: <ul style="list-style-type: none"> Road carpeting 	Civil Engineer

MA.5 DG SETS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Cleaning of DG set and the floor around it Checking of engine oil level Checking of radiator coolant level Checking of fuel, and refueling as needed Checking for any abnormal sound of engine and other parts/components and adjusting if required Checking of oil pressure and temperature meters for proper functioning Cleaning of spilled oils/lubricants/dry leaves etc. Checking of coupling and adjusting if required Checking of V-belt Checking of input voltage and frequency Checking of output voltage Checking of electrical switches and circuits and earthing 	E&M Foreman
WEEKLY: <ul style="list-style-type: none"> Tightening of all nuts and bolts Greasing of all moving parts 	E&M Foreman
HALF YEARLY: <ul style="list-style-type: none"> Changing engine oil and filters Checking of all electrical fittings, wiring Checking alignment Checking carbon brushes and other electronic parts, replacing, if needed Checking of armature and the stator 	E&M Engineer

MA.6 CANTEENS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Washing of canteen and kitchen floors Cleaning of kitchens and toilets with disinfectant Cleaning of utensils and cutlery Cleaning of food counters, dining chairs and tables Checking all drains and their outlets Disposing of garbage Checking of air-cooler system if any Checking of lighting arrangements 	Overseer, E&M Foreman
WEEKLY: <ul style="list-style-type: none"> Checking gas pipes and stoves for leakage Checking of electrical fittings and power distribution panels Checking of plumbing/pipe fittings 	Overseer, E&M Foreman
EVERY 6 MONTHS: <ul style="list-style-type: none"> Checking all wirings and junction boxes Cleaning of water tanks Cleaning of drinking water cooling and storage system 	Civil, E&M Engineer
EVERY YEAR: <ul style="list-style-type: none"> Distempering of canteen building 	Civil, E&M Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Repairing of broken windowpanes, walls, floor Repairing of drainage, sewage, walls, windows, doors etc. 	Civil Engineer

MA.7 TRAINING INSTITUTES / CENTERS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Sweeping and/or mopping of entire premises Cleaning of toilets with disinfectant De-dusting of office and class room furniture Watering of gardens and pot-plants Disposing of garbage from offices Checking of lighting arrangements Checking of air-conditioning systems, if any 	Overseer, E&M Foreman
WEEKLY: <ul style="list-style-type: none"> Washing of floors Checking of training equipment for fitness Checking of electrical fittings and power distribution panels Upkeep of gardens and pot-plants Checking of pumps, plumbing/pipe fittings 	Overseer, E&M Foreman
EVERY 6 MONTHS: <ul style="list-style-type: none"> Cleaning of water tanks Checking all wirings and junction boxes 	Civil, E&M Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Repairing broken window panes, walls, floor 	Civil Engineer
EVERY YEAR: <ul style="list-style-type: none"> Overhauling of air-conditioning systems, if any Refurbishing gardens and pot-plants Distempering of CETI / VTC buildings Repairing of drainage, sewage, walls, windows, doors Renovation of lawns 	Civil, E&M Engineer

MB.1 MINING MACHINERIES

A. Mining Machinery deployment:

- Mine Managers of all mines maintain the lists of all mining machinery deployed in their mines as on 1st April of every year.
- The deployment of the machines, however, changes constantly for different production requirements.
- These lists are updated every year for each mine in accordance with CMPDI's annual mine capacity assessments.

B. Maintenance Arrangements of Deployed mining machinery:

1. The maintenance of these equipment is done as per the recommendation of the respective OEM/Manufacturer/Supplier as mentioned in the Maintenance / Operation / Shop manual.
2. The concerned functionaries prepares and uses maintenance checklists for different maintenance frequencies based on the maintenance schedules and methods as mentioned in the respective OEM Maintenance / Operation / Shop manual and also on the operational conditions/facilities of the mine.
3. During all these maintenance activities, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that workplace conditions, proper and safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
4. Recording of the maintenance is done in the maintenance registers and /or the log books for the respective equipment.
5. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
6. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities mentioned in the OEM/Manufacturer/Supplier Maintenance/Operation/Shop manual and other terms referring to section 8.4 of the Integrated Management System Manual.



MC.1 MINE DEWATERING PUMPS & PIPELINE SYSTEM

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking for abnormal sounds and vibrations, and repairing if required • Checking the coupling bolts, guards, and coupling fluid level; tightening/ topping up if required • Checking leakages and free-mobility of couplings • Checking foundation bolts and tightening if needed • Checking leakages from the pumps and pipelines, and repairing and/or replacing packing, as required • Checking voltage of electrical power supply in each phase • Checking the foot valves and strainers, and cleaning if required 	E&M Fitter, Foreman
WEEKLY: <ul style="list-style-type: none"> • Checking pump and motor bearings condition, sleeve condition, gland condition, coupling, by-pass cooling system, priming funnel, bed-plate, and test cock • Checking of earth leakage relay, cable bushing at entry box, and starter system • Greasing all designated points of the pumps, especially the pump-bearings • Checking of pontoon frame, drum, bed-plate fixing channel, etc., if pontoon mounted pumps are deployed 	E&M Fitter, Foreman
MONTHLY: <ul style="list-style-type: none"> • Checking the valves and repairing/changing as required • Replacement of gland packing as needed 	E&M Fitter, Foreman
QUARTERLY: <ul style="list-style-type: none"> • Checking for wear and tear of all moving parts, and protective guards around moving parts • Checking electrical connections of all pump-motor switches • Checking earth connection, continuity of motors and switchgear 	E&M Fitter, Foreman
EVERY YEAR: <ul style="list-style-type: none"> • Checking foundation bolts and tightening if needed • Overhauling of pump starters (contactors and isolators) • Checking of delivery, and overhauling if low • Checking of pump-motor alignment • Painting of pumps and pump houses 	E&M Engineer



MC.2 SUB-STATIONS AND SWITCHGEARS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Checking transformers for any abnormal rise in winding and oil temperature, & unusual sound, checking all meters, indicating lamps and replacing if required Checking oil level in OCBs and the outdoor bus bar Checking visually (and cleaning as required) all field switches, transformers and sub-station equipment for dust/grime/oil/grease/water accumulation near electrical terminals/junctions 	Electrical Fitter, Foreman
WEEKLY: <ul style="list-style-type: none"> Checking lighting arrangements Checking of all relays, trip coils, PT, CT, rectifier, earthing, voltmeters, ammeters, and kiosk (cabinet) condition in field switches Checking color of ach agent in breather cap of transformers Cleaning and blowing of all panels/switchgear and sub-station equipment Checking of batteries (sp. gravity and voltage) Testing insulation on OH lines 	Electrical Fitter, Foreman
MONTHLY: <ul style="list-style-type: none"> Checking earthing resistance (not more than 1 ohm) and earth continuity in transformers, trans-switches, and other equipment Checking of switches, contacts of all OCBs/ACBs/MCBs for any heating Checking oil level and oil insulation in transformers Checking of all relays in transformers and insulation on OH lines 	Electrical Fitter, Foreman
QUARTERLY: <ul style="list-style-type: none"> Checking all the preventive circuits for their proper working (e.g., earth leakage, overload) in transformers & panel-boards Checking insulation resistance of transformers, dielec strength of transformer oil Checking of IR value, checking of all bus-bars for durability of connections and checking of all CTs, PTs, & IDMT relays 	Electrical Fitter, Foreman
PRE AND POST MONSOON: <ul style="list-style-type: none"> Checking overhead lines and poles (pre and post monsoon), changing of insulators Checking of gang switches, jumpers and earth-wires and changing if required Checking of lightning arrestors & their earth-connections, and mechanical working of ACB/ OCB/MCB Cutting of trees/bushes/shrubs below overhead lines & poles 	Electrical Fitter, Foreman
EVERY YEAR: <ul style="list-style-type: none"> Painting of all electrical equipment 	Electrical Fitter, Foreman
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Checking and erecting the stay, checking the line tension, and tensioning as needed. Checking post/pin/shackle insulator, and replacing as needed Ensuring compliance of all related provisions of Indian Electricity Rules while taking power shut-downs, and re-charging of power lines 	Electrical Fitter, Foreman

MC.3 SURVEY EQUIPMENT

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking zero-errors before use • Checking (before use) measurement errors through close-traverse/collimation method • Cleaning every equipment before use • Checking visually for damages/corrosion of any part/component of the devices • Cleaning the dials and meters for clear visibility of readings • Clean the storage shelves and boxes/bags of all survey equipment 	Surveyor
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> • Arrange for calibration, adjustments, and repairs of all survey equipment 	Survey Officer

MC.4 WEIGHBRIDGES

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL.

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking routine functioning of weighbridge • Checking of load cell system • Greasing all designated points of the weighbridge • Ensuring that the seal put by calibrating agency is not disturbed • Checking of electronic circuits for continuity and accuracy • Checking for wear and tear of all moving parts • Checking electrical wirings and connections • Checking all nuts and bolts; tightening if needed 	E&M and/or E&T Foreman
WEEKLY: <ul style="list-style-type: none"> • Checking of load cells and sensors and cleaning/ repairing as required • Checking of structural bolts 	E&M and/or E&T Foreman
MONTHLY: <ul style="list-style-type: none"> • Checking electronic circuits and displays and repairing if required • Checking of main structural joints • Checking of load cell mountings 	E&M and/or E&T Foreman
EVERY YEAR: <ul style="list-style-type: none"> • Arranging for servicing/overhauling of weighbridge as needed • Calibration, adjustment and repairs as needed • Painting of weighbridge 	E&M, Civil Engineer



MC.5 BELT CONVEYOR SYSTEMS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL.

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Checking the pre-start warning devices and audio-visual signals Checking the pull-chord and belt-sway switch functioning Ensuring that nip points of head, tail and tension pulleys have proper guard Checking the bearing blocks for heating, etc., checking of magnetic separator, metal detector, skirt rubber, belt tensioning and repair of transfer chutes and scrappers Checking all main and return idlers and greasing/repairing of all moving parts of conveyors, checking of hold-back system functioning, dust-extraction and suppression system Cleaning of muck/dirt etc. from return side to keep belt and idlers free to move 	E&M Fitter, Foreman
WEEKLY: <ul style="list-style-type: none"> Checking all electrical connections; circuit testing terminal and panel blowing Checking the gear boxes for proper oil level and topping up if required Checking level of hydraulic fluids in fluid couplings and topping up if required Checking the alignment of belt conveyors and repairing as required Checking and adjustment of belt scrappers, and rip detector blades Checking of belt swaying and adjusting as needed 	E&M Fitter, Foreman
MONTHLY: <ul style="list-style-type: none"> Checking and repair/adjustment of drive pulleys Ensuring pilot circuit adequacy in starters for power to pull chord switch, adjustment of thyristor panel, checking the sequential control of conveyors Checking of conveyor structure (frames, etc.), belt joints and repairing if required 	E&M Fitter, Foreman
EVERY YEAR: <ul style="list-style-type: none"> Servicing the circuits for pre-start warning devices and audio-visual signals, pilot circuits, checking IR values of electrical installations Re-alignment of gear boxes 	E&M Fitter, Foreman
EVERY 5 YEARS: <ul style="list-style-type: none"> Overhauling of gear box, replacement of bearings, conveyor belts, take-up rope, roller frame 	E&M Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Checking the stringers, walkways and ladders, nuts and bolts of main and tail pulley installations, conveyor frames and foundation Replacing of oil in gear boxes and fluid couplings, replacing take-up rope and sheave pulley Replacing rubber liners of sliding zones and scrappers Checking of LT and HT brakes 	E&M Fitter, Foreman



MC.6 CRUSHERS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Integrated Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management Manual.
2. The recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.1 of Integrated Management Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL.

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking of bearing and counter shaft temperature • Checking for abnormal sound • Oiling/greasing all moving parts as needed • Arranging for cleaning of muck/dirt etc. from over and around the equipment 	E&M Fitter, Foreman
WEEKLY: <ul style="list-style-type: none"> • Checking the gear boxes for proper oil level and topping up if required • Checking the level of hydraulic fluids in fluid couplings and topping up if required • Checking of V-belt condition • Checking the alignment of motor and adjusting as required • Checking of dust-extraction and suppression system and ventilation system 	E&M Fitter, Foreman
MONTHLY: <ul style="list-style-type: none"> • Checking of tensioning device • Checking of tooth-size of crushing ring and comb plate • Checking all electrical connections; circuit testing terminal and panel blowing • Checking for wear and tear of all moving parts 	E&M Fitter, Foreman
EVERY YEAR: <ul style="list-style-type: none"> • Checking and tightening of foundation bolts as needed • Painting of installations as needed 	E&M Fitter, Foreman
EVERY 5 YEARS: <ul style="list-style-type: none"> • Overhauling of crusher 	E&M Fitter, Foreman
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> • Ensuring gap adjustment as per coal-size requirement • Greasing open pair of super-gear pinion 	E&M Fitter, Foreman



MC.7 RECIPROCATING FEEDERS, APRON FEEDERS AND PLOUGH FEEDERS

- During all these maintenance activities listed below, the concerned functionaries -
 - Ensure 'proper operations' as described under Integrated Operational Manual;
 - Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management Manual.
- The recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
- The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management Manual), based on actual consumption pattern.
- If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management Manual.
- Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL.

RECIPROCATING FEEDERS

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Checking for abnormal sounds and vibrations, and repairing if required Greasing all designated points of the equipment, e.g. bearings, bushings, eccentric discs Checking side-coal spillage and rectifying if needed Checking of tripping devices, etc. Checking leakages and free-mobility of couplings Checking of gear boxes and their oil-level 	E&M Fitter, Foreman
MONTHLY: <ul style="list-style-type: none"> Checking foundation bolts, Plummer block bolts, pins and bushes of arm; tightening if needed Checking of motor alignment Checking configuration of eccentric discs Checking of dust-extraction and suppression system and ventilation system 	E&M Fitter, Foreman
QUARTERLY: <ul style="list-style-type: none"> Checking for wear and tear of all moving parts, and protective guards around moving parts, e.g. bearings and pinions, V-belts, V-belt pulleys Checking all electrical connections 	E&M Fitter, Foreman
EVERY YEAR: <ul style="list-style-type: none"> Painting of the installation as needed Checking foundation structures, cams and shafts, R&P gates above feeder 	E&M Foreman, Engineer

APRON FEEDERS

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY (BEFORE STARTING): <ul style="list-style-type: none"> Checking for no material build-up or piling around the machine Checking for free rotation of carrying and return roller Checking visually the pans and chain links and fasteners/looseners for cracks Checking of bearing and drive/tail shaft temperature Checking of drive chain and sprockets/bull and spur gear Checking the clearance between pan and skirt Greasing all designated points of the equipment, especially bearings if needed Checking of gear boxes and couplings, and their oil-level 	E&M Fitter, Foreman



MAINTENANCE ACTIVITY	RESPONSIBILITY
WEEKLY: <ul style="list-style-type: none"> Greasing all plummer blocks 	E&M Fitter, Foreman
MONTHLY: <ul style="list-style-type: none"> Removing all material on the feeder and running for 15 min at no load Checking drive & teeth condition, tail wheel assembly and take-up assembly Checking all the moving parts and measure no-load current Checking chain tension; and tightening of deck assembly Checking bearing condition, and greasing of bearing blocks etc. Checking gap between pan-bottom and top of supporting rails Checking the condition of apron pans and replace if needed Checking all nuts and bolts of crawler chain and tightening if needed Checking of dust-extraction and suppression system and ventilation system Checking all electrical connections 	E&M Fitter, Foreman
EVERY YEAR: <ul style="list-style-type: none"> Painting of the installation as needed Replacing chute &/or liner, back plate liner, side plate liner, and carrying/return idlers as needed 	E&M Foreman, Engineer
EVERY 5 YEARS: <ul style="list-style-type: none"> Overhauling of feeder, including replacement of rollers, rails, etc. as needed Replacement of mother plate of discharge chute 	

PLOUGH FEEDER

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Checking for no material build-up or piling around the machine Checking for free movement of the equipment and checking visually for cracks Discharge cylinder and chute checking Checking of cable trolley movement Checking the clearance between pan and skirt Greasing all designated points of the equipment, especially bearings if needed Checking leakages of hydraulic oil Checking of planetary gear box and travel gear box and their oil-level Checking of dust-extraction and suppression system and ventilation system 	E&M Fitter, Foreman
MONTHLY: <ul style="list-style-type: none"> Checking of hydraulic float switch, oil temperature meter, pipe joints, main pressure meter, filter (main and return), arms, side guard, arm-speed variation, oil cooler/radiator, pilot pressure meter Checking all electrical connections and equipment, and limit switches (weekly) Checking condition of travel motor, hydraulic motor, LCS panel, cable tray, cable trolley, cable Removing all waste/undesirable material on the feeder Checking all the moving parts and skirt rubber, and measure no-load current Checking all nuts and bolts and tightening if needed Checking pump, filter condition, oil pressure; checking of proportionate valve 	E&M Fitter, Foreman
HALF YEARLY: <ul style="list-style-type: none"> Greasing all the designated points and checking the bearing condition; replacing filters if needed Checking all electrical connections Checking arm and arm fasteners 	E&M Foreman, Engineer
EVERY YEAR: <ul style="list-style-type: none"> Painting of the installation as needed 	

MC.8 FEEDERS BREAKERS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under the Integrated Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management Manual.
2. The recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking for abnormal sounds and vibrations, and repairing if required • Checking of motors for heating and dust accumulation • Checking for hydraulic oil level/leakages, replace damaged hoses and top-up as needed • Checking the conveyor chain tensioning • Checking of T-head pins, shear-pins, pin-links, block-links, base plates, pick-holders, picks, triplex/duplex chains, high/low speed couplings, foundation bolts, breaking bolts, chain sput rings • Checking of top and bottom idlers and frames, tail and discharge end drums, coupling belt drive, belt joints and belt alignment, walk-way and structure condition • Checking of gear boxes and their oil-level • Greasing all designated points especially bearings, drive shaft bearings, take-up shaft bearings • Checking of water sprays and cleaning of belts • Cleaning of muck/dust on and under belt/chain conveyors 	E&M Fitter, Foreman
WEEKLY: <ul style="list-style-type: none"> • General checking of drive shaft assembly, crusher roll assembly, take-up shaft assembly, conveyor chain assembly, hydraulic system • Checking rollers and flight bars and changing if damaged • Checking of belt joints, belt drive unit, conveyor drums, top/bottom idlers and frames, opening chute drums • Checking of bunker liner plate and structure, skit board and scraper assembly, couplings, tyres • Checking of switches, VCBs, distribution panels, control panels, motors • Checking leakages and free-mobility of fluid couplings 	E&M Fitter, Foreman
MONTHLY: <ul style="list-style-type: none"> • Checking foundation bolts and tightening if needed • Checking of drive shaft, crusher roll, triplex chain, low-speed coupling, duplex chain, staffa motor, take-up shaft, sliding system, hydraulics system, RLF element condition, picks and pick-holders, etc. • Checking of siren, tripping devices, etc. • Checking of motor alignment 	E&M Fitter, Foreman



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MAINTENANCE ACTIVITY	RESPONSIBILITY
<ul style="list-style-type: none">• Checking wear of hopper liners, base plates and repairing/ replacing as needed• Checking chain conveyor carrying and return plates• Checking chain tension, flight-bars nuts and bolts tightness• Condition of shear-pins/T-head pins of chain conveyor• Checking condition of sprockets (monthly) and bearings (fortnightly)• Checking and cleaning of stoppers for Plummer blocks, conveyor/crusher reducers, crusher motor• Checking return line filter element and replacing if choked	E&M Fitter, Foreman
QUARTERLY: <ul style="list-style-type: none">• Checking for wear and tear of all moving parts, and protective guards• Checking all electrical connections and insulation• Checking of motor bearing condition	E&M Foreman, Engineer
YEARLY: <ul style="list-style-type: none">• Painting of the installation as needed	



MC.9 MINE RESCUE APPARATUS/ EQUIPMENT

A. Available Mine Rescue Apparatus/ Equipment:

- Heads of all mine rescue setups maintain the lists of all mine rescue apparatus/equipment available in their mine rescue setup as on 1st April of every year.
- These lists are updated every year for each mine rescue setup.

B. Maintenance Arrangements of Available Mine Rescue Apparatus/Equipment:

1. The concerned head of each mine rescue setup prepares and uses maintenance checklists/log books/registers for different maintenance frequencies (e.g., daily, weekly, quarterly, monthly, etc.) on the basis of -
 - a. Maintenance schedules and methods as under respective OEM-manual/part-manual; and
 - b. Schedule – IV of Mines Rescue Rules - 1985
2. The allocation of responsibilities/authorities for maintenance activities are defined under respective checklists/logbooks/testing registers of the rescue apparatus/ equipment.
3. During all these maintenance activities, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that workplace conditions, proper and safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
4. The recording of the maintenance is done in the maintenance registers and /or the log books for the respective equipment.
5. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
6. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities mentioned in the OEM/Manufacturer/Supplier Maintenance/Operation/Shop manual and other terms referring to section 8.4 of the Integrated Management System Manual.



MD.1 ANCILLARY EQUIPMENTS USED IN MINES/WORKSHOPS

1. During the maintenance activities of these ancillary equipment, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that workplace conditions, proper and safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under respective maintenance registers.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities mentioned in the OEM/Manufacturer/Supplier Maintenance/Operation/Shop manual and other terms referring to section 8.4 of the Integrated Management System Manual.

SL.NO.	DESCRIPTION OF ANCILLARY EQUIPMENT	MAINTENANCE ACTIVITIES
1	Washing Platforms	The maintenance of these equipment is done as per the recommendation of the respective OEM/Manufacturer/Supplier and are usually mentioned in the Maintenance / Operation / Shop manual.
2	Compressor	
3	Hydraulic Jacks, Pullers, Presses.	
4	EOT Cranes / Mobile Cranes	
5	Welding Generators / Transformers	
6	Gas Cutting / Brazing Sets	
7	Fixed and Hand Grinders	
8	Auto Transformers	
9	Mechanical Jacks	
10	Lead Acid Batteries and chargers	
11	Machining Equipment (e.g., Lathes, Radial & Pillar Drills, Milling Machines, Shapers)	
12	Hose Crimping Machines	
13	Chemical Cleaning Plant	
14	Tyre handlers	
15	Torque wrenches and other tools & tackles	
16	Heating chambers	
17	Engine/Transmission test bench	
18	All measuring equipment used in workshops.	



MD.2 WATER SUPPLY ARRANGEMENTS

(Pumps, Storage tanks, Pipelines, etc. for Domestic and Industrial water supply)

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Checking leakages from the water pumps and pipelines, and repairing or replacing their packing if required. Greasing all designated points of pumps and motors, especially bearings. Lubricating all movable parts with oil. Checking leakages and free-mobility of couplings 	E&M Foreman, Overseer
MONTHLY: <ul style="list-style-type: none"> Checking for wear and tear of all moving parts of pumps, and motors. Checking and adjusting pump alignment. Checking all electrical equipment, wiring/ connections. Checking and tightening all foundation bolts. Cleaning of water reservoirs, storage tanks etc. 	E&M and Civil Engineer
EVERY YEAR: <ul style="list-style-type: none"> Distempering of buildings, sheds, etc. Overhauling of pumps and motors. Replacement of all the damaged pipelines. Repair of all the water reservoirs, tanks etc. 	E&M and Civil Engineer

MD.3 TIME OFFICES AND REST SHELTERS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Cleaning of office premises De-dusting of office furniture Disposing of garbage from offices 	Overseer, E&M Foreman
MONTHLY: <ul style="list-style-type: none"> Washing of office floors 	Overseer, E&M Foreman
EVERY YEAR: <ul style="list-style-type: none"> Distempering of office buildings 	Civil, E&M Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Checking of electrical power connections, switches, wiring, lighting arrangements, junction boxes etc. Repairing broken window panes, walls, floor Repairing of drainage, walls, windows, doors Checking of plumbing/pipe fittings 	Civil, E&M Engineer

MD.4 DIESEL FILLING STATIONS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Cleaning and de-greasing of filling station floor and diesel pumps De-dusting of office furniture Disposing of garbage and oily wastes from station Checking of electrical power distribution system Checking of lube oils/greasing of pumps Ensuring that calibration seal is not damaged Checking of fan-belts for adjustment as needed Checking of lighting arrangements 	Overseer, E&M Foreman
MONTHLY: <ul style="list-style-type: none"> Washing of filling station floor Checking of all electrical fittings and equipment 	Overseer, E&M Foreman
EVERY YEAR: <ul style="list-style-type: none"> Cleaning of drains Checking all wirings and junction boxes Repairing broken window panes, walls, floor Overhauling of diesel pump sets 	Civil, E&M Engineer
EVERY 3 YEARS: <ul style="list-style-type: none"> Distempering of filling station Repairing of drainage, walls, windows, doors 	Civil, E&M Engineer

MD.1.0 HAUL ROADS AND DRAINS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking all permanent haul roads for damage along edges and pot-holes, and arranging repairs • Removal of coal/OB spillages and other hindrances along haul roads if any • Ensuring regular water-sprinkling by mobile/fixed sprinklers/tankers • Cleaning of drains if choked 	Mining and Civil Engineer, Overman, and Overseer
MONTHLY/AS AND WHEN NEEDED: <ul style="list-style-type: none"> • Checking haul road gradient (1 in 16; or 1 in 10 on ramps; all roads sloping towards adjoining drains) and load-bearing capacity, and repairing/re-grading/dozing • Checking haul road surface condition, and arranging for grading/re-surfacing • Compacting on all haul roads that have hard-OB/ gravel/stone-chips/murram carpeting/surfacing • Ensuring a berm of at least 1 m height along outer edges (free face side) of haul roads • Checking all drains for damages, and arranging repairs/re-cutting of the drains 	Mining and Civil Engineer
EVERY YEAR: <ul style="list-style-type: none"> • Ensuring strengthening of permanent haul roads, including re-surfacing with murram/gravel/stone-chips, and bitumen layering, etc., as required • Arranging cleaning and/or re-cutting of drains where needed, especially before monsoon • Arranging repair/re-construction of culverts as required, especially before monsoon • Cleaning and repairing of sedimentation ponds, especially before monsoon • Cleaning all culverts under haul roads for unhindered water-flow 	Civil Engineer



MD.1.U CAP LAMPS AND SAFETY LAMPS ROOMS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking of cap lamp & safety lamp cleaning reagents and replenishing • Checking distilled water and battery acid supply and replenishing • Cleaning the battery charger and its terminals • Checking the charger belt condition • De-dusting and cleaning of storage shelves, cap lamp racks & furniture • Disposing of wastes • Checking of lighting arrangements • Checking of exhaust fans • Sweeping and mopping of the floor • Cleaning of toilets with disinfectant 	Cap Lamp and Safety Lamp Room In charge
WEEKLY: <ul style="list-style-type: none"> • Washing of floors • Cleaning of storage shelves and cap lamp racks and charging terminals • Checking of electrical fittings/panels/boards • Checking of plumbing/pipe fittings • Checking the insulation value of battery charger • Checking the battery charger belt condition and replacing if required • Checking the wire and clamp condition and replacing if necessary 	Cap Lamp and Safety Lamp Room In charge
EVERY YEAR: <ul style="list-style-type: none"> • Cleaning of drains • Checking of shutters, windows, doors and locking arrangement • Checking of exhaust fans • Checking all wirings and junction boxes • Checking of cap lamp charging terminals and replacing if required • Cleaning of storage shelves, cap lamp racks, charging terminals, rooms, etc. • Checking of building/rooms for seepages 	Civil, E&M Engineer
EVERY 3 YEARS: <ul style="list-style-type: none"> • Distempering of the rooms 	Civil Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> • Repairing of drainage, sewage, walls, windows, doors, shelves, etc. • Repairing broken window panes, walls, floor 	Civil Engineer



MD.2.U METHANOMETERS, CAP LAMPS & SAFETY LAMPS

1. During all these maintenance activities listed below, the concerned functionalities -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Check whether methanometer battery is fully charged and leakage free before issuing Check whether methanometer is functional and undamaged before issuing Issue and receive methanometer only to/from authorized personnel with recording Check cap lamp battery for leakages and arrange repairs before issuing them Check cap lamp cable and harness for damages and repair as needed Check battery acid/distilled water level and top-up if needed Issue and receive cap lamps with recording Check safety lamp wire-gauzes and oil containers for leakages and repair before issuing Check safety lamp glass and replace if cracked or loose Check safety lamp oil level and top-up if needed Check safety lamp against air current and repair if it blows-out in air current Issue and receive safety lamps only to authorized personnel with recording 	Cap Lamp and Safety Lamp Room In charge, E&M Foreman
WEEKLY: <ul style="list-style-type: none"> Check whether methanometer is functional and undamaged Check cap lamp and its battery functioning and repair if needed Check safety lamp functioning and repair if needed Check safety lamp wire-gauzes, glass, and oil containers and repair if needed 	Cap Lamp and Safety Lamp Room In charge, E&M Foreman
EVERY YEAR: <ul style="list-style-type: none"> Check every methanometer, cap lamp and safety lamp and repair/replace as needed 	E&M Engineer, Cap Lamp and Safety Lamp Room In charge
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Check every methanometer, cap lamp and safety lamp and repair/replace as needed 	E&M Engineer, Cap Lamp and Safety Lamp Room In charge



MD.3.U PIT HEAD BATHS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Sweeping and/or mopping of premises Cleaning of toilets with disinfectant De-dusting of storage shelves, & furniture Disposing of wastes Checking of lighting arrangements Checking of exhaust fans 	Overseer, E&M Foreman
WEEKLY: <ul style="list-style-type: none"> Washing of floors Cleaning of storage shelves and furniture Checking of electrical fittings/panels/boards Checking of pumps, plumbing/pipe fittings 	Overseer, E&M Foreman
EVERY YEAR: <ul style="list-style-type: none"> Cleaning of drains Checking of shutters, shutter spring tensioning, and locking arrangement Checking of exhaust fans Checking all wirings and junction boxes Cleaning of storage shelves, rooms, etc. Checking of the buildings for seepages 	Civil, E&M Engineer
EVERY 3 YEARS: <ul style="list-style-type: none"> Distempering of the buildings 	Civil Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Repairing of drainage, sewage, walls, windows, doors, shelves, etc. Repairing broken window panes, walls, floor 	Civil Engineer



MD.4.U WINDER HOUSE COMPLEX

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking of attachment of winding rope to the drum • Checking of depth indicator • Checking of every part of the suspension gear in the shaft including cages/other means of conveyance and their gates • Checking of every external part of the winding apparatus • Checking of brakes of winding engine 	E&M Engineer
WEEKLY: <ul style="list-style-type: none"> • Checking of each winding rope by passing the rope at a speed not exceeding one meter second • Checking of external part of the winding engine • Checking of guides and signaling arrangements fitted on the shaft • Checking of pumps, plumbing/pipe fittings 	E&M Engineer
EVERY MONTH: <ul style="list-style-type: none"> • Cleaning of rope to remove any encrusted dirt, grease at all places particularly liable to deterioration • Checking of circumference of the rope and notify if there is any reduction • Checking of superficial condition of the wires as to wear, corrosion, brittleness and fracture and notify if not OK • Checking of each winding rope by passing the rope at a speed not exceeding 0.5 meters per second 	E&M Engineer
EVERY YEAR: <ul style="list-style-type: none"> • Check the condition of internal parts of the winding engine 	E & M Engineer



MD.5.U STOWING PLANTS AND PIPES

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking for abnormal sounds/vibrations of pumps, and repairing if required • Checking the coupling bolts, guards of pumps; tightening if required • Checking leakages and free-mobility of couplings • Checking foundation bolts and tightening if needed • Checking leakages from the pumps and pipelines, and repairing and/or replacing packing, as required • Checking sand availability and replenishing as needed • Checking for free flow of sand from bunker through chute into mixing plant • Checking voltage of electrical power supply in each phase • Checking the foot valves and strainers, and cleaning if required 	E&M Fitter, Foreman
WEEKLY: <ul style="list-style-type: none"> • Checking pump/motor bearings condition, sleeve condition, gland condition, coupling, by-pass cooling system, priming funnel, bed-plate, and test cock • Checking of earth leakage relay, cable at entry box, and starter system • Greasing all designated points of the pumps, especially the pump-bearings • Checking of sand mixing plant and repairing as needed • Cleaning of debris and pebbles extricated from sand during mixing for stowing 	E&M Fitter, Foreman
MONTHLY: <ul style="list-style-type: none"> • Checking the valves and repairing/changing as required • Checking and cleaning of sand bunker • Replacement of gland packing as needed 	E&M Fitter, Foreman
QUARTERLY: <ul style="list-style-type: none"> • Checking for wear and tear of all moving parts, and protective guards around moving parts • Checking and cleaning of sand bunker • Checking electrical connections of all pump-motor switches • Checking earth connection, continuity of motors and switchgear 	E&M Fitter, Foreman
EVERY YEAR: <ul style="list-style-type: none"> • Checking foundation bolts and tightening if needed • Overhauling of pump starters (contactors and isolators) • Checking of delivery pipes and repairing as needed • Checking of pump-motor alignment • Painting of pumps and stowing plant 	E&M Engineer

MD.6.U VENTILATION FANS – MAIN, AUXILIARY, BOOSTER

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking of condition of bearing of fan motor • Visually check the condition of fan belt • Checking for any abnormal sounds from fan motor while running • Checking of clearance between fan blade and casing • Checking ventilation door for leakages • Greasing of motor bearings 	E&M Engineer
WEEKLY: <ul style="list-style-type: none"> • Checking of fan evasee for any dumping of debris/obstruction • Checking of water in manometer tubes and top up if required • Checking for leakages in manometer tubes 	E&M Engineer
EVERY YEAR: <ul style="list-style-type: none"> • Check the condition of condition internal parts of the fan motor 	E & M Engineer

MD.7.U UG ROADWAYS / TUNNELS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Checking of roof supports especially at zones having weak-roofs, fault planes and slips; and strengthening the supports if needed Checking of conveyor and haulage roadways and cleaning them as needed Checking of ventilation arrangements Disposing of wastes Cleaning and checking of manholes along sides in traveling roadways Checking of lighting arrangements 	Overman, Foreman
WEEKLY: <ul style="list-style-type: none"> Checking of roof supports and replacing weakened supports Checking of electrical fittings/panels/boards/cables Checking of doors and repairing if needed 	Overman, Foreman
EVERY YEAR: <ul style="list-style-type: none"> Checking all wirings, cables and junction boxes Checking of roof and sides and dressing as needed 	E&M Engineer, Under Manager
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> White-washing of walls of traveling roadways 	SH (Mining)

MD.8.U UG WATER DAMS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
WEEKLY: <ul style="list-style-type: none"> Checking of dam wall for leakages and arranging repairs if needed Checking of pressure against the dam wall as needed 	Overman, Mining Sirdar
EVERY YEAR: <ul style="list-style-type: none"> Checking of dam wall for leakages and arranging repairs if needed 	Under Manager
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Repairing of seepages, leakages and cracks in the walls, etc. Repairing of lighting arrangement if needed 	Civil Engineer



MD.9.U UG VENTILATION STOPPINGS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking of ventilation stoppings for leakages of air and repairing as needed • Checking of condition of temporary stoppings and repairing as needed • Disposing of wastes • Checking of lighting arrangements if any 	Overman, Mining Sirdar
EVERY MONTH: <ul style="list-style-type: none"> • Checking of ventilation stoppings for leakages of air and repairing as needed • Whitewashing of stoppings made from brickwork and corrugated sheets • Checking and repairing of drainage arrangement across stoppings 	Under Manager, Civil Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> • Repairing of brickwork and corrugated sheets as needed 	Civil Engineer

MD.10.U UG ROOF SUPPORTS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking all wooden and steel chock and cogs supports and repairing as needed • Checking of wooden and steel props and strengthening them as needed • Removal of coal and other debris from around the supports 	Overman, Mining Sirdar
MONTHLY/AS AND WHEN NEEDED: <ul style="list-style-type: none"> • Checking of roof bolts and tightening them as needed • Checking for signs of weakness in supports due to increased weight from super-incumbent strata and repairing them as required • Disposal of wastes from repairing of supports 	Under Manager
EVERY YEAR: <ul style="list-style-type: none"> • Repairing of cogs, chocks, props, etc., and/or replacing them with steel arch supports if needed 	SH (Mining)

ME.1 TRANSPORT VEHICLES (Trucks, Buses, SUV, Cars, Pick-up Vans, etc.)

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. The maintenance of these equipment is done as per the recommendation of the respective OEM/Manufacturer/Supplier and are usually mentioned in the Maintenance / Operation / Shop manual.
3. Recording of the maintenance is done in the maintenance registers/log books of the respective vehicles.
4. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
5. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities mentioned in the OEM/Manufacturer/Supplier Maintenance/Operation/Shop manual and other terms referring to section 8.4 of the Integrated Management System Manual.
6. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Surface washing of the vehicle before deployment • Checking of fuel, and refueling at designated filling stations • Checking of radiator water/coolant level, brake oil level, and engine oil level; topping up if required • Checking brake, clutch and gear functioning, checking horn and lights' functioning • Checking visually the tyre air pressure, nuts of all wheels • Checking for any abnormal sound of engine, other parts/components, adjusting if required • Trial run of vehicles, as needed 	Drivers, E&M Fitters
WEEKLY: <ul style="list-style-type: none"> • Checking of gear oil and gear box, differential, rear carriage (daala) • Greasing of moving parts • Checking of battery and cleaning of terminals, filling of distilled water, etc., as needed 	Drivers, E&M Fitters
MONTHLY (depending on running hours/kms): <ul style="list-style-type: none"> • Washing of the vehicle thoroughly on ramp • Checking and changing (if needed) engine oil, diesel/petrol filter, oil filter, air filter • Checking brake, clutch and gear functioning, adjusting steering system • Tightening nuts/bolts of chassis, suspension, axle, fan-belt, etc. • Checking air pressure in tyres. • Greasing all moving parts 	Drivers, E&M Foremen
EVERY 6 MONTHS (depending on running hours/kms): <ul style="list-style-type: none"> • Checking engine tuning, and adjusting as needed • Checking of all electrical fittings, wiring, head lights, taillights, turning indicators, alternator, self-starter, wind-screen wiper, etc. • Checking wheel alignment and balancing • Checking brakes and changing brake-shoe if required • Checking all nuts and bolts for tightness • Hub greasing, and gear and differential oil changing • Checking and repairing of all sub-assemblies, engine, gear-box, steering box, clutch system, suspension, differential, etc., if required 	E&M Engineers

ME.2 TELEPHONE AND WIRELESS COMMUNICATION SYSTEMS

(Telephone exchanges, Telephone lines, Junction/distribution boxes, Telephone sets, Wireless relay towers, Walkie-talkie sets, UPS and Battery backups)

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking of telephone exchanges for their proper functioning • Checking of battery-backups and/or UPS • Card level checking of sub-systems • Checking of UHF equipment • Checking of 2/15 wireless systems 	E&T Fitters & Foreman
MONTHLY: <ul style="list-style-type: none"> • Checking of telephone lines and the connections at distribution boxes • Checking of telephone exchanges, cleaning, and repairing of cards as required • Repairing of telephone sets and cables as required • Checking and repairing (as needed) of all walkie-talkie wireless communication sets • Checking of lighting arrangements • Checking of battery back-ups, e.g., water level in batteries, terminal connections, battery charging, contactors and switches of charger, charger displays and alarms, etc. • Checking of UPS systems • Checking of air-conditioning system 	E&T Fitters and Foreman
EVERY YEAR: <ul style="list-style-type: none"> • Checking and overhauling/servicing of all telephone exchanges • Checking and repair of wireless relay towers • Overhauling of air-conditioning and UPS systems 	E&M/E&T Engineer



MF.1 EFFLUENT TREATMENT PLANTS

(Effluent pump, Bar screens, Oil/grease chambers, Flocculators, Chemical tanks, Sedimentation tanks, and Electrical switchgear)

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> • Checking leakages from the pumps and pipelines, and repairing or replacing packing • Greasing all designated points of pumps and flocculators, especially bearings • Cleaning of bar screens and flocculators • Checking the water-flow valves and channels • Checking leakages and free-mobility of couplings • Checking the pump foot valves and strainers, and cleaning if required. 	E&M Foreman, Overseer
MONTHLY: <ul style="list-style-type: none"> • Checking for wear and tear of all moving parts of pumps and flocculators • Checking alignment of pumps and adjusting if required • Repairing/changing water-flow valves as required • Checking all electrical equipment, wiring/ connections • Checking and tightening all foundation bolts • Cleaning of water-flow channels, chemical tanks, and sedimentation tanks • Cleaning of water reservoirs and bar screens 	E&M and Civil Engineer
EVERY YEAR: <ul style="list-style-type: none"> • Distempering of buildings, sheds, etc. • Overhauling of pumps and flocculators 	E&M, Civil Engineer

MF.2 SEWAGE TREATMENT PLANTS

(Sewage pump, Bar screens, Aerators, Clarifiers, Sludge pumps, Sludge drying bed, and Electrical Switchgear)

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Checking leakages from the sewage and sludge pumps and pipelines, and repairing or replacing their packing Greasing all designated points of pumps and clarifiers, especially bearings Lubricating aerators with oil Cleaning of bar screens Checking leakages and free-mobility of couplings 	E&M Foreman, Overseer
MONTHLY: <ul style="list-style-type: none"> Checking for wear and tear of all moving parts of pumps, aerators, and clarifiers Checking and adjusting pump alignment Checking all electrical equipment, wiring/ connections Checking and tightening all foundation bolts Cleaning of water reservoirs 	E&M and Civil Engineer
EVERY YEAR: <ul style="list-style-type: none"> Distempering of buildings, sheds, etc. Overhauling of pumps, aerators and clarifier Replacement of sand in sludge drying bed 	E&M, Civil Engineer

MF.3 HOSPITALS/ DISPENSARIES

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Sweeping and/or mopping all check-up rooms, wards, dressing rooms, pharmacy, store, & offices using suitable disinfectants, e.g., phenyl, formalin, etc. Collecting (in separate bins) and disposing off biodegradable & non-biodegradable dispensary wastes as per MoEF guidelines. Cleaning of toilets and drains with disinfectant Cleaning and disinfecting of check-up rooms and ward furniture 	Overseer, E&M Fitter and Sanitary Inspector
WEEKLY: <ul style="list-style-type: none"> Washing of office floors. Disinfecting dispensary premises with anti-mosquito chemicals and other germicides Checking of electrical fittings Upkeep of gardens and pot-plants Checking of plumbing/pipe fittings 	Overseer, E&M Fitter and Sanitary Inspector
MONTHLY: <ul style="list-style-type: none"> Cleaning of drains 	Overseer
EVERY YEAR: <ul style="list-style-type: none"> Distempering of dispensary building Cleaning of water tanks 	Civil Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Checking all wirings and junction boxes Repairing broken window panes, walls, floor Repairing of drainage, sewage, walls, windows, doors 	Overseer, E&M Fitter

MF.4 RESIDENTIAL COMPLEXES / UTILITIES

(Residential quarters, Colony roads, Water supply pumps and pipelines, Garbage dump/yards, Sanitation/sewage system, etc.)

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Disposing of garbage from garbage pit Checking of lighting arrangement 	Overseer, E&M Foreman
WEEKLY: <ol style="list-style-type: none"> a. Sweeping of common areas in residential blocks, parking areas, roads, etc. b. Cleaning of drains c. Checking of street lights 	Overseers, E&M Foreman
MONTHLY: <ul style="list-style-type: none"> Checking of telephone lines and distribution boxes 	E&T Foreman
HALF YEARLY: <ul style="list-style-type: none"> Checking of pumps, plumbing/pipe fittings Cleaning of water tanks 	Overseers, E&M Foreman
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Checking of lighting arrangements Checking of electrical fittings, wirings, power distribution panels, junction boxes Repairing broken window panes, walls, floor 	Overseers, E&M Foreman
EVERY YEAR: <ul style="list-style-type: none"> White-washing of miners quarters Repairing of drainage, sewage, walls, windows, doors. 	Civil, E&M Engineer
EVERY 2 YEARS: <ul style="list-style-type: none"> Distempering of buildings Renovation of lawns 	Civil Engineer

MF.5 COMMUNITY COMPLEXES / UTILITIES

(For all community complexes and utilities maintained by the Mines, e.g., Bank/Post office buildings, Officers'/workers' Clubs, Parks, Gardens, Market-complexes, etc.)

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> Sweeping / mopping of entire premises, including roads, library, clubs etc. Cleaning of toilets with disinfectant De-dusting of furniture Watering of gardens and pot-plants Disposing of garbage Checking of lighting arrangements 	Overseer, E&M / E&T Foreman
WEEKLY: <ul style="list-style-type: none"> Washing of floors, parking areas, etc. Cleaning of drains 	Overseer
MONTHLY: <ul style="list-style-type: none"> Checking of electrical fittings, power distribution panels, and transformers Upkeep of gardens & pot-plants; and grass cutting Checking of telephone lines, sets and junction boxes 	Overseer, E&M / E&T Foreman
EVERY 6 MONTHS: <ul style="list-style-type: none"> Refurbishing gardens and pot-plants Cleaning of water tanks 	Overseer
AS AND WHEN REQUIRED: <ul style="list-style-type: none"> Repairing broken window panes, walls, floor 	Overseer
EVERY YEAR: <ul style="list-style-type: none"> Checking all wirings and junction boxes Checking of pumps, plumbing/pipe fittings Distempering of buildings Repairing of drainage, sewage, walls, windows, doors 	Civil, E&M Engineer
EVERY 4 YEARS: <ul style="list-style-type: none"> Road carpeting 	Civil Engineer

MF.6 FIRE FIGHTING SET-UP

(Fire extinguishers installed in Office and Utility buildings and HEMM)

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
WEEKLY: <ul style="list-style-type: none"> • Checking availability of sand in fire buckets where installed • Checking of availability of water for fire-fighting • Checking of fire-extinguishers for any damages, etc. • Checking of fire-extinguishers installed on HEMMs for any damages, etc. 	Overseer
WHEN SCHEDULED: <ul style="list-style-type: none"> • Refilling of fire-extinguishers just before expiry of their fillings. 	Safety Officer



MF.7 OFFICE SUPPORT EQUIPMENT

(Computer Systems, Scanners, Multi-Media Projectors, Photocopiers, Fax Machines, etc.)

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none"> De-dusting of office equipment, etc. Checking of power connections/ lighting arrangements 	Overseer, E&M Foreman
WEEKLY: <ul style="list-style-type: none"> Proper cleaning of equipment and its accessories Checking of electrical fittings, power distribution panels 	Overseer, E&M Foreman
MONTHLY: <ul style="list-style-type: none"> Cleaning/de-dusting of the equipment Checking of proper functioning of the equipment Checking of electrical connections Checking of lighting arrangements Arranging repairs through the authorized agency if required (If the equipment is on AMC, even then the above activities should be undertaken)	Concerned User of the equipment

MF.8 SEWAGE DRAINS

1. During all these maintenance activities listed below, the concerned functionaries -
 - a. Ensure 'proper operations' as described under Operational Manual;
 - b. Ensure that proper workplace conditions, safe infrastructure and congenial working atmosphere are maintained as described in section 7.1 of the Integrated Management System Manual.
2. Recording of the maintenance is done under 'measurement book' for contractual works, and/or respective 'maintenance registers' for departmental work.
3. The inventory of required spares/materials is maintained through periodic purchases by respective Section/department against approved budgets (ref section 8.4 of Integrated Management System Manual), based on actual consumption pattern.
4. If this maintenance is through service contract, the terms/specifications under the contract are drawn considering the activities listed below and other terms referring to section 8.4 of the Integrated Management System Manual.
5. Maintenance activities are to be done as per the undermentioned frequency or the existing/prevaling norm of the MCL/CIL

MAINTENANCE ACTIVITY	RESPONSIBILITY
DAILY: <ul style="list-style-type: none">• Checking all sewage drains and clearing any jamming of drains in offices sites• Cleaning sewage drains and spraying with bleaching powder thoroughly to protect against foul odor, germs, and mosquitoes	Overseer, Civil Engineer
AS AND WHEN REQUIRED: <ul style="list-style-type: none">• Cleaning septic tanks as required• Repairing of sewage drains, tanks, as required	



Thousands of years ago
GREEN turned **BLACK**
 deep inside mother Earth.
 And today,
 we mine with a thought
 to return **GREEN** back to Her

Some of our efforts in a bid to turn Coalfields into GreenFields are...

- Planted over 5.15 million trees in and around MCL's command area in Odisha
- Became the 1st company to introduce the eco-friendly Surface Miner in 1999, which completely eliminates drilling, blasting and crushing operations in mining of coal
- Installations of Mobile Water Sprinklers, Fixed Automatic Sprinklers, Instant Showering Systems and Mist Spraying arrangements at CHP to reduce air pollution
- Industrial waste water is treated through Mine Discharge Treatment Plant while sedimentation ponds, oil & grease traps in workshop and domestic effluent treatment plant in colonies help minimise pollution

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