

ENVIRONMENTAL STATEMENT

(Form – V)

*Under Rule – 14 of Environment Protection Rules, 1986
and Amendment, 1993
of*

Garjanbahal Opencast Mine

For the year 2021-2023



Mahanadi Coalfields Ltd.

**Post: Jagruti Vihar, Burla,
Dist: Sambalpur, Orissa-768020**

FORM-V

ENVIRONMENTAL STATEMENT

Environmental statement for the financial year ending 31st Mar, 2023

Part – A

- i) Name & Address of the owner/ occupier:
of the industry operation or process
(Name of the Project Officer/ Sub-Area
Manager & Office address to be given) Shri Kanti Bhushan Chowdhury, Project Officer,
Garjanbahal OCP, PO: Basundhara,
Dist.: Sundargarh (Odisha),
Pin: 770076.
- ii) Industry Category : Primary (Coal Mining Operation)
- iii) Production Capacity (Coal production
during the year 2022-23) : 17.3 MTPA (17.29 MTe)
-
- iv) Year of establishment : 24.05.2018
- v) Date of the last Environmental
Statement submitted : 16.09.2022

Part – B

Water & Raw Material Consumption

Note: Average Water Consumption (Cu-m/ day) for the whole year is given. Raw material consumption is given per unit of coal produced.

(I) Water Consumption (Cu-m/ day):

| Ser No. | Industrial/ Mining | Consumption in Cu-m/ day |
|---------|----------------------------|--------------------------|
| 1. a | Haul Road Dust Suppression | 2362 |
| b | Dust Suppression at CHP | Not Applicable |
| c | Dust Suppression at Siding | 0 |
| d | Fire Fighting | 50 |
| e | Workshop | 15 |
| f | Others | 0 |
| 2. | Domestic | 5 |
| 3. | Total in kℓ/ day | 2432 Kℓ/day |

| Name of the Product | Water Consumption per unit of product (ℓ/ t) | |
|---------------------|--|---------|
| | 2021-22 | 2022-23 |
| Coal | 58.04 | 51.64 |

(II) Raw Material Consumption (per tonne of coal):

| Name of Raw Material | Consumption of Raw Material (per tonne of Coal produced) | |
|-----------------------|--|-------------------------|
| | 2021-22(Dept. + Contr.) | 2022-23(Dept. + Contr.) |
| H.S. Diesel (l/t) | 1.424 | 1.276 |
| Petrol (l/t) | Nil | Nil |
| Lubricants (l/t) | 0.018 | 0.015 |
| Electricity (Units/t) | 0.641 | 0.481 |
| Explosives (kg/t) | 0.132 | 0.195 |

Part – C**Pollution Discharged to Environment/ Unit of Output**

(Parameter as specified in the 'Consent' issued)

| Pollutants | Quantity of pollutants discharged (mass/ day) | Concentrations of pollutants in discharges (mass/ volume) | | | Percentage variation from prescribed standards with reasons |
|--|---|---|------------|------------|---|
| Point of examination : Mine Sump water | | | | | |
| | | Mine Effluent | OGT Outlet | STP Outlet | The environmental parameters are within permissible limits. |
| TSS (mg/l) | Not possible to quantify | -30 | - | - | |
| BOD mg/l) | | - | - | - | |
| COD (mg/l) | | 16 | - | - | |
| pH | | 7.63 | - | - | |
| O & G (mg/l) | | <4.0 | - | - | |
| Air (Ambient air quality of one station-annual average) station : Karlikachar | | | | | |
| SPM ($\mu\text{g}/\text{m}^3$) | Not possible to quantify | 162 | | | The environmental parameters are within permissible limits. |
| PM ₁₀ ($\mu\text{g}/\text{m}^3$) | | 80 | | | |
| SO ₂ ($\mu\text{g}/\text{m}^3$) | | 13.96 | | | |
| NO _x ($\mu\text{g}/\text{m}^3$) | | 19.55 | | | |
| PM _{2.5} ($\mu\text{g}/\text{m}^3$) | | 30 | | | |

Part – D**Hazardous Wastes**

As specified under Hazardous Wastes (Management & Handling) Rules, 1989.

| Hazardous Waste | Total Quantity (kg) | |
|--|---|---|
| | During the current financial year (2021-22) | During the current financial year (2022-23) |
| (a) From process : | | |
| i. Burnt Oil in Workshops | 37100 Ltrs | 43800 Ltrs |
| ii. Oil soaked filters | 1503 Nos. | 1535 Nos. |
| (b) From pollution control facilities: | | |
| i. Oil/ Oil emulsion recovery from Oil & Grease Trap | Nil | Nil |
| ii. Oily sludge | Nil | Nil |
| iii. Chemical Waste(if any) | Nil | Nil |

Part – E
Solid Wastes (other than hazardous)

| Particulars | Total Quantity | |
|---|---|---|
| | During the current financial year (2021-22) | During the current financial year (2022-23) |
| (a) From process (Top soil and Over burden) | 8.398 Mm ³ | 15.823 Mm ³ |
| (b) From pollution control facilities (STP & Sed-Pond Sludge) | Nil | Nil |
| (c) 1- Quantity recycled or re-utilized (OB back-filled) | Nil | Nil |
| 2- Sold | Nil | Nil |
| 3- Disposed | Nil | Nil |

Part – F

Please specify the characteristics (in terms of concentration & quantum) of hazardous as well as solid waste and indicate the disposal practice adopted for both these categories of wastes.

(I) Hazardous Wastes:

| Name of Hazardous Wastes | Quantity generated in the year 2022-23 | Disposal Practices |
|--------------------------------------|--|--|
| Burnt Oil, etc. (l) (from W/Shop) | 43800Ltrs | Transferred to regional store from where it is auctioned to authorized agency. |
| Oil soaked filters(kg) (from W/Shop) | 1535Nos. | Stored in impervious pit |
| Oil & Grease (kg) (from ETP/OGT) | Nil | N.A. |
| Oily Sludge (te.) (from ETP/OGT) | Nil | N.A. |
| Oil imulsion | Nil | N.A. |
| Chemical Waste if any (kg) | Nil | N.A. |
| Battery (nos.) | 18 Nos. | Transferred to regional store from where it is auctioned to authorized agency. |

Note: A detailed note on disposal practices of the above should be given separately.

(II) Solid Wastes:

| Solid Waste | Quantity generated in the year 2022-23 | Disposal Practices |
|----------------------------|--|---|
| Top Soil (m ³) | 0.204 Mm ³ | Kept in separate top soil dump for future use. |
| OB (m ³) | 15.619 Mm ³ | Dumped in internal as well as external OB dump. |
| STP & Sed-Pond Sludge | Nil | N.A. |

Land Reclamation & OB disposal – progressive till March, 2023:

| | Area (ha.) | OB Volume/ Nos. of Plants |
|---|------------|-----------------------------|
| 1) External OB dump | 47.09 Ha | 23.026 Mm ³ /Nil |
| 2) Excavated land | 150.30 Ha | 36.722 Mm ³ /Nil |
| 3) Land affected (1+2) | 197.39 Ha | Nil |
| 4) Backfilled (out of 2) | 60.61 Ha | 13.696 Mm ³ /Nil |
| 5) Land physically reclaimed (out of 3) | Nil | Nil |
| 6) Land biologically reclaimed (out of 3) | Nil | Nil |

Part – G

Impact of pollution control measures on conservation of natural resources and consequently on cost of production.

In order to carry out mining in an eco-friendly manner, a detailed Environmental Management Plan (EMP) was prepared by Regional Institute-VII of CMPDIL. The main pollution control measures suggested in EMP along with the measures implemented so far have been summarized in the Table-1.1 to 1.3.

Table – 1.1
Air Pollution Control Measures

| Sl. No. | EMP Provisions | Whether provided or not | Remarks |
|---------|---|-------------------------|--|
| 1 | Water sprinkling and grading of all roads to minimize air-borne dust from vehicles. | Provided | |
| 2 | Biological reclamation of land. | Provided | |
| 3 | Green belt around mine & infrastructures. | Provided | Greenbelt will be developed all along the mine lease area in a phased manner and the details regarding the same will be conveyed to the MoEF & CC and its Regional Office from time to time. |
| 4 | Drills fitted with dust control devices. | Provided | |
| 5 | Dust suppression/ dust extraction system to be provided in CHP. | NA | CHP does not exist. |
| 6 | Improved maintenance of plant & machinery. | Provided | |
| 7 | Mechanized coal transportation system. | Provided | |

Table – 1.2
Water Pollution Control Measures

| Sl. No. | EMP Provisions/ Additional precautions | Whether provided or not | Remarks |
|---------|---|-------------------------|--|
| 1 | Mine water is to be collected in central sump on dip side of pit. This will act as sedimentation lagoon. | Provided | |
| 2 | Run-off around reclamation area will be controlled by providing catch drains and sedimentation lagoon combination. | Provided | Drains constructed. |
| 3 | Surface run-off from external dump would be collected through a series of contour drains which would be connected to a water retention pond. The clear water from this pond will be re-utilised | Provided | |
| 4 | Domestic waste water will be treated in screens, oxidation pond/ aerated lagoon. Sanitary waste to be disposed off into septic tank & soak-pit. | - | - |
| 5 | Workshop effluents will be treated in oil & grease trap & sedimentation tank. | Provided | ETP with OGT has been newly constructed and provided with integrated HEMM workshop at Garjanbahal OCP. |
| 6 | Zero discharge from mine shall be maintained. | Maintained | |
| 7 | Piezometers shall be installed for measurement of under-ground water depth and its quality. | Provided | 1.MIP 01: Garjanbahal primary school, Garjanbahal 2.MIP 11: Primary school, Karlikachar village |

Table – 1.3
Land Reclamation

| Sl. No. | EMP Provisions | Whether provided or not | Remarks |
|---------|--|-------------------------|-------------------------------|
| 1 | Top soil Management: Proper stripping, Storage, and Relocation of top soil. | Proposed | Provided. |
| 2 | Physical Reclamation of OB Dump: Proper reshaping and regrading of top surface, Providing drainage arrangements and top soil spreading on external and internal dumps. | Under progress | All OB dumps are still active |
| 3 | Biological Reclamation: Plantation of suitable species of herbs, shrubs & indigenous trees over technically reclaimed dumps. | Provided | |

IMPACT OF POLLUTION CONTROL MEASURES ON COST OF PRODUCTION

COST OF ENVIRONMENTAL MANAGEMENT DURING 2022-23 was Rs.4.18 per Tonne of Coal.

Part – H

Additional measures/ investment proposal for environmental protection including abatement of pollution, prevention of pollution

| Head | Amount Rs. (approx) |
|--|---------------------|
| Wheel Washing System | 1,00,10,000.00 |
| Vertical Greenery System | 30,93,415.00 |
| Mechanical Road Sweeper | 14,592,178.66 |
| Fog Canon | 53,10,000.00 |
| ETP & OGT construction | 100,00,000.00 |
| Dust suppression (Contractual + Departmental) | 37,00,000.00 |
| Garland drains & check dams | 2,00,000.00 |
| Consent (SPCB) & NOC (CGWB) | 52,01,000.00 |
| Others i.e. up keeping works for aesthetic view | 7,00,000.00 |
| Departmental water tankers (Maintenance, POL cost, etc.) | 12,00,000.00 |
| Fire tender (Maintenance, POL cost, etc.) | 4,00,000.00 |
| Plantation | 2,57,25,410.00 |
| Rain water harvesting structure | 5,00,000.00 |
| Construction and maintenance of transport roads | 1,00,00,000.00 |
| Wind barrier | 3,00,00,000.00 |
| Total | 12,06,32,003.66 |

Part – I

Any other particulars for improving the quality of the environment.

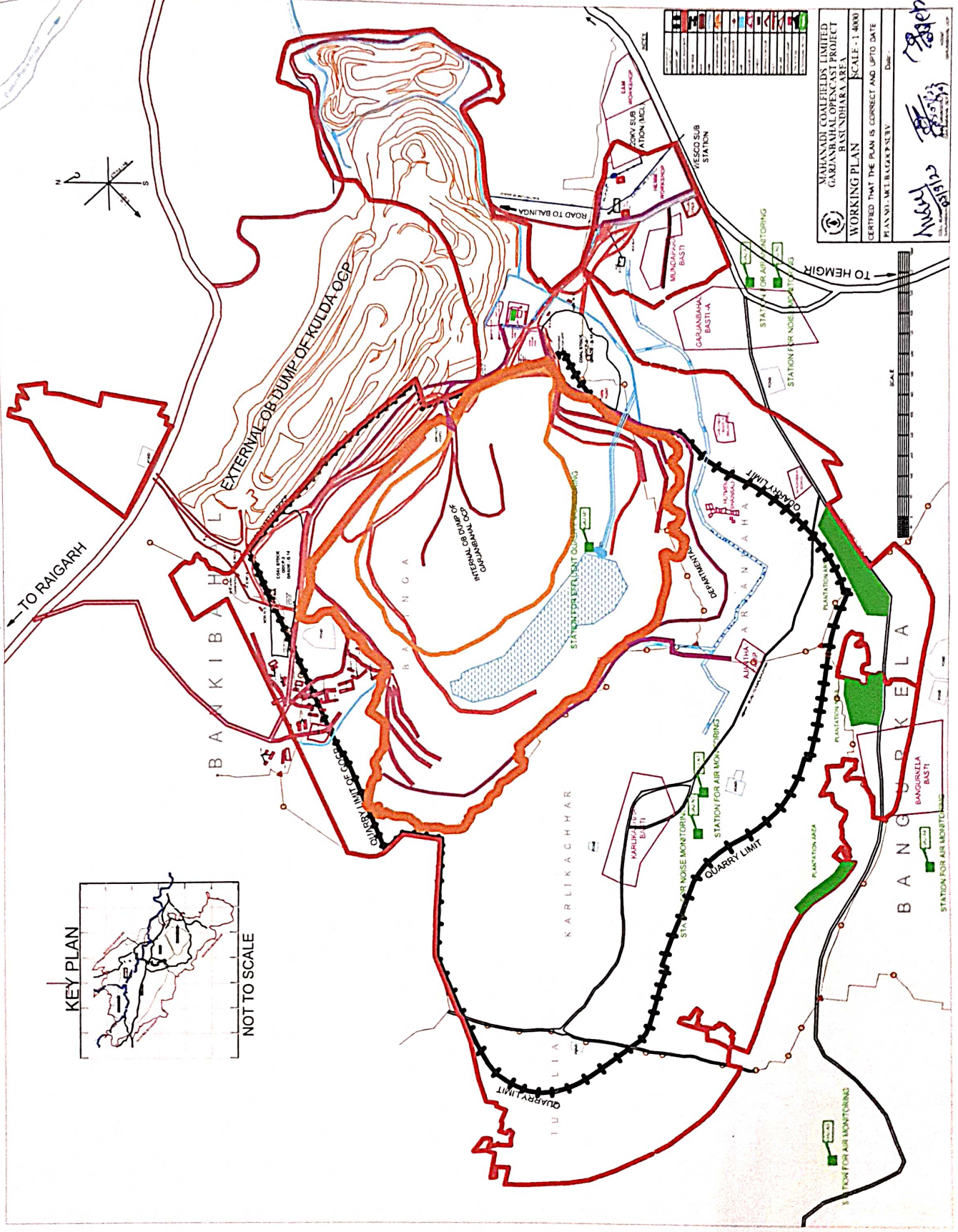
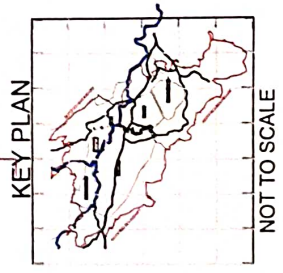
Note: Please attach a plan showing the relevant features like Present Working/ Quarry, External Dump, Back-filling, Plantation, Sedimentation Pond/ MDTP, Oil & Grease Trap/ ETP, Workshop, CHP, STP, etc. and Environmental Monitoring Stations.




Signature of the Project Officer.

(with seal)
परियोजना अधिकारी
Project Officer
Gurjanbahal OCP, MCL

PLAN FOR GARJANBAHAL OCP.



MAHARAJI COALFIELDS LIMITED
GARJANBAHAL OPENCAST PROJECT
BANSI ANDHARA AREA

WORKING PLAN
SCALE - 1:4000

CERTIFIED THAT THE PLAN IS CORRECT AND UP TO DATE

PLANNING & SURVEYING
Date: _____

(Signatures)