ENVIRONMENTAL STATEMENT

(Form – V)

Under Rule – 14 of Environment Protection Rules, 1986
And Amendment, 1993
Of

Kulda Opencast Mine

For the year 2022-23

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 M. R. Das, Project Officer Kulda 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)	: 21.00 MTPA (20,999,949.84Te)
iv)	Year of establishment	: 07-12-2007
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	3533
b	Dust Suppression at CHP	-
c	Dust Suppression at Siding	-
d	Fire Fighting	280
e	Workshop	186
f	Others	33
2.	Domestic	721
3.	**Total in kℓ/ day**	**4753 Kl/day**

Name of the Product	Water Consumption per unit of product (ℓ/ t)	
	2021-22	**2022-23**
Coal	93.77	82.61

(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)	1.118	1.001
Petrol (ℓ/ t)	0.000	0.000
Lubricants (ℓ/ t)	0.003	0.003
Electricity (Units/ t)	0.352	0.294
Explosives (kg/ t)	0.241	0.188

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 : Final outlet of ETP (Annual Average)					
	Not possible to quantify	**Mine Effluent**	**OGT Outlet**	**STP Outlet**	The environmental parameters are within permissible limits.
TSS (mg/ℓ)		37.75	-	-	
BOD mg/ℓ)		N.A.	-	-	
COD (mg/ℓ)		29.50	-	-	
pH		07.68	-	-	
O & G (mg/ℓ)		<4.00	-	-	
Air (Ambient air quality of one station-Annual average) station : External CT road					
SPM (µg/m^3)	Not possible to quantify	169.79			The environmental parameters are within permissible limits.
PM_{10} (µg/m^3)		86.12			
SO_2 (µg/m^3)		18.41			
NO_x (µg/m^3)		13.02			
$PM_{2.5}$(µg/m^3)		34.90			

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	7600 Ltrs	32 Te
ii. Oil soaked filters & Sludge from ETP	242 Nos. (Filter only)	5 Te
(b) From pollution control facilities:		
i. Oil/ Oil imulsion recovery from Oil & Grease Trap	8.8 L	9.1 L
ii. Oily sludge	-	0.92
iii. Chemical Waste(if any)	-	-

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)	15.355 Mm^3	15.355 Mm^3
(b) From pollution control facilities (STP & Sed-Pond Sludge)	-	-
(c) 1- Quantity recycled or re-utilized (OB back-filled)	15.355 Mm^3 (0.028 Mm^3 of top soil spread in internal dump, 15.327 Mm^3 dumped in int. dump).	12.910 Mm^3 (0.14 Mm^3 of top soil spread in internal dump, 12.77 Mm^3 dumped in int. dump).
2- Sold	-	-
3- Disposed	-	-

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. (Te) (from W/Shop)	32 Te	Transferred to regional store from where it is auctioned to authorized agency.
Oil soaked filters and sludge from ETP (Te) (from W/Shop)	5 Te	Stored in impervious container
Oil & Grease (L) (from ETP/ OGT)	9.1 Ltrs	Transferred to regional store from where it is auctioned to authorized agency.
Oily Sludge (te.) (from ETP/ OGT)	0.92 Te	Stored in impervious container
Oil imulsion	-	-
Chemical Waste if any (kg)	-	-
Battery (nos.)	9 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)	0.14 Mm^3	Spread in internal dump as a part of Technical reclamation.
OB (m^3)	12.77 Mm^3	The OB is dumped in int. dump.
STP & Sed-Pond Sludge	-	-

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

	Area (ha.)	OB Volume/ Nos. of Plants
1) External OB dump	69.04 Ha	38.36 Mm^3
2) Excavated land	313.35 Ha	Total OB = 99.969 Mm^3
3) Land affected (1+2)	382.39 Ha	-
4) Backfilled (out of 2)	142.74 Ha	60.62 Mm^3 in internal dump & 0.753Mm^3 in embankment
5) Land physically reclaimed (out of 3)	22.89 Ha	-
6) Land biologically reclaimed (out of 3)	22.89 Ha *	57,225 plants

*****The biologically reclaimed area 22.89 Ha includes external dump area of 4.55 Ha.

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	Static Fog Canons, mobile fog canon, mist sprayers, fixed sprinklers, & mobile tanker are deployed.
2	Biological reclamation of land.	Provided	
3	Green belt around mine & infrastructures.	Provided	3,86,691 no. of plants has been planted in and around mine (progressive)
4	Drills fitted with dust control devices.	Provided	
5	Dust suppression/ dust extraction system to be provided in CHP.	Provided	
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	Provided	Drains have been constructed.

	combination.		
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.	Provided	Septic tank and soak pit combination provided.
5	Workshop effluents will be treated in oil & grease trap & sedimentation tank.	Provided	
6	Zero discharge from mine shall be maintained.	Provided	Zero discharge system is being maintained.
7	Piezometers shall be installed for measurement of under-ground water depth and its quality.	Provided	1.MIP 12: Project office, Kulda, Balinga 2.MIP 14: Primary school campus, Kulda 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.	Provided	
2	**Physical Reclamation of OB Dump:** Proper reshaping and re-grading 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. 5.85** per Tonne of Coal.

Part – H

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

Head	Amount Rs. (approx)
ETP & OGT maintenance	20,00,000.00
Dust suppression (Contractual + Departmental)	13,00,000.00
Garland drains & check dams	2,00,000.00
Development & Maintenance of saplings at nursery	5,00,000.00
Consents	1,80,00,000.00
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.)	2,00,000.00
Plantation over an area of 10 ha	4,00,00,000.00
CAAQMS AMC cost	15,65,850.00
Total	6,56,65,850.00

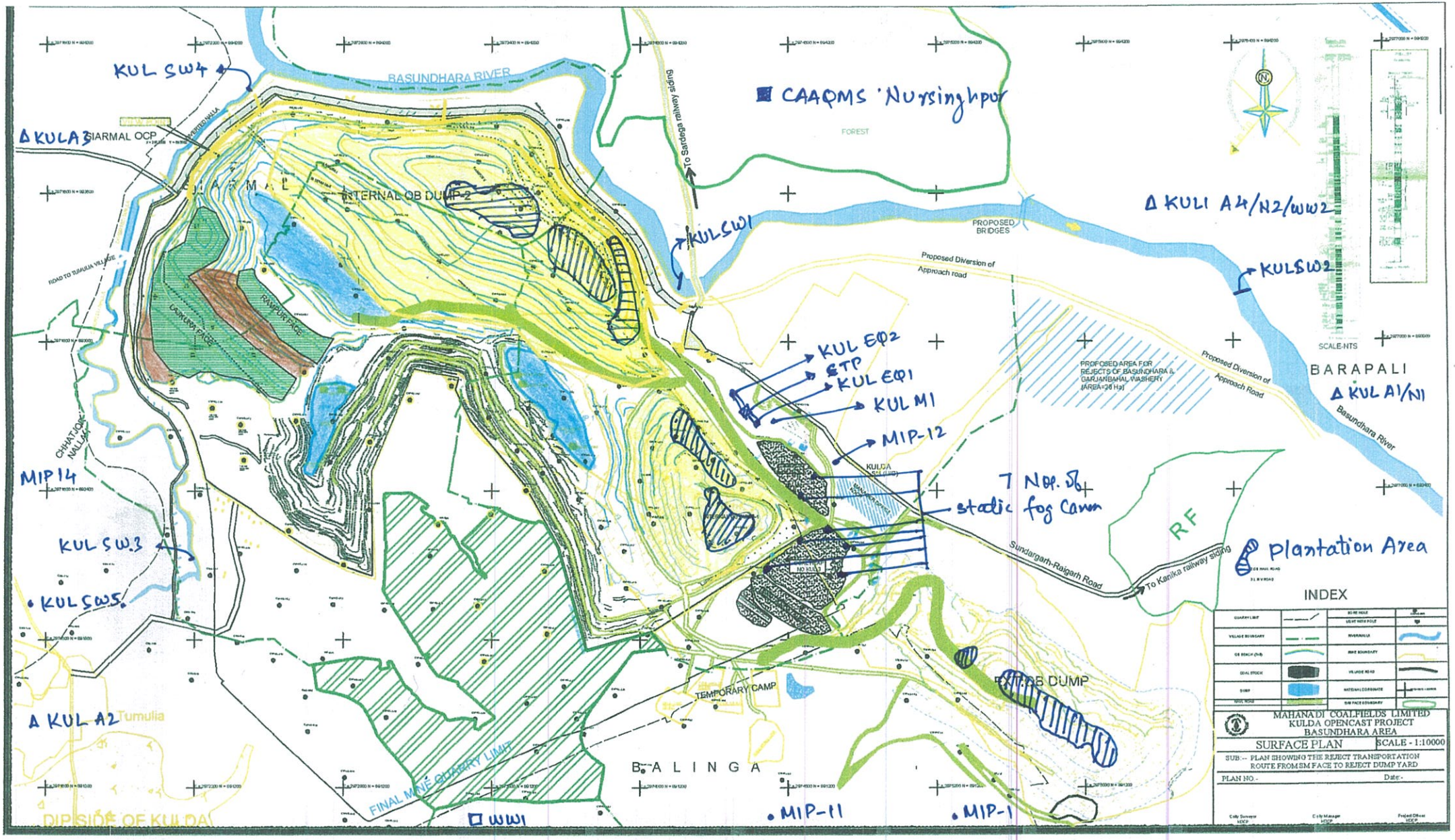
Part – I

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.

MAP SHOWING INFRASTRUCTURE & MONITORING STATION OF KULDA OCP



6/9/23

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