

Letter No: OCPL/ 882

Date: 29-09-2022

To

The Member Secretary,
State Pollution Control Board, Odisha
Paribesh Bhawan, A/118
Nilakantha Nagar, Unit-VIII
Bhubaneswar-751012

Odisha Coal and Power Limited
(A Government of Odisha Compony)
CIN: U10100OR20155GC018623

Website: www.ocpl.org.in

Sub: Submission of Annual Environmental Statement in Form –V for the year 2021-2022 of Odisha Coal & Power Ltd. for Manoharpur Coal Mine Project

Ref: (i) Environmental Clearance Letter No. J-11015/139.2008-IA.II(M) dated 21.02.2014

- (ii) Environment Clearance transferred in favour of OCPL vide Letter No: J-11015/139/2008-IA-II(M) dated.30.12.2015.
- (iii) SPCB Consent to Operate (Renewal) Order No. 2851 vide letter No. 4764/IND-I-CON-6454 dated 25.03.2022 (Consent Order No. 2851)

Sir,

In reference to the letters cited above, please find enclosed the annual Environmental Statement in Form –V for the financial year 2021-2022 for Manoharpur Coal Mine Project of Odisha Coal and Power Ltd. situated at Village Manoharpur, Tehsil: Hemgir, IB Valley Coal Field in Sundargarh District, Odisha.

This is for your kind perusal.

Thanking you.

Yours faithfully,

Head of Mildes

(Manoharpur Coal Mine)

Encl: As above.

Copy to: i. Addl. Principal Chief Conservator of Forests (C), Regional Office, Eastern Region; Ministry of Environment & Forest and Climate Change (MoEF&CC); A-3, Chandrasekharpur, Bhubaneswar, Odisha - 751023

ii. The Regional Officer, State Pollution Control Board, Plot no. 370/5971, at Babubagicha (COx Colony), St. Marry Hospital Road, Jharsuguda, Odisha - 768203.

ENVIRONMENTAL STATEMENT IN FORM-V

(Under Rule-14, Environmental protection Rules, 1986)

(2021-2022)

FOR

Manoharpur Opencast Coal Mine Project (8 MTPA) of Odisha Coal and Power Limited



Odisha Coal and Power Limited, Zone-A, Ground Floor, Fortune Tower, Chandrasekharpur, Bhubaneswar-751023, Odisha

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EXECUTIVE SUMMARY

- E-1 Odisha Coal and Power Limited (OCPL) is a company incorporated under the Companies Act 2013, India. OCPL is a Government company as defined by Section 2(45) of the Companies Act, 2013, which was formed as a joint venture Company of Odisha Power Generation Corporation Limited (OPGC) and Odisha Hydro Power Corporation Limited (OHPC), with a shareholding pattern of 51% and 49% respectively. OCPL has been allocated with two coal blocks, namely Manoharpur and Dip-side of Manoharpur by Ministry of Coal (MoC), Government of India (Gol). The coal blocks are located in IB Valley Area in Sundargarh District, Odisha.
- E-2 In compliance with the Environment (Protection) Rules, 1986; Condition stipulated in EC accorded by MoEF&CC vide letter dated 21.02.2014 & 30.12.2015 (transfer of EC to OCPL), Environmental statement for Manoharpur Opencast Coal Mine Project (8 MTPA) for the FY 2021-2022 has been prepared. This report is prepared with a view to fulfil the statuary obligations laid down by Ministry of Environment, Forests and Climate Change (MoEF &CC) / State Pollution Control Board (SPCB), Odisha.

CHAPTER - I

INTRODUCTION

1.1. GENESIS:

As per condition no. xix (Part B; General Conditions) stipulated in Environmental Clearance (EC); the environmental statement for each financial year ending 31st March in Form-V is mandated to be submitted by the Project Proponent for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986 and as amended subsequently, and shall also be uploaded in the Company's web-site along with the compliance of EC conditions and shall be sent to the respective Regional Offices of the MoEF &CC by E-mail.

In compliance with the above, the work of Environmental Statement ending with 31st March, 2022 in Form-V for Manoharpur Opencast Coal Mine Project (8 MTPA) of OCPL has been prepared.

1.2. COAL BLOCK/ PROJECT DESCRIPTION:

OCPL has been allocated with two coal blocks, namely Manoharpur and Dip-side of Manoharpur by Ministry of Coal, Government of India. The coal blocks are located in IB Valley Coal Field in Sundargarh District, Odisha. Manoharpur and Dip side of Manoharpur blocks are contiguous blocks having a common boundary. Manoharpur block was fully explored and Dip side of Manoharpur block was regionally explored at the time of allocation. Later, the exploration of Dip-side of Manoharpur is completed and an Integrated Geological Report has been prepared by CMPDI. As per the approved Mining Plan (Rev III), the net geological reserve of Manoharpur & Dip-side Manoharpur coal block is 978.47 MT (within two geological blocks as per IGR). The maximum depth of the Manoharpur coal mine will be around 214m. OCPL has planned to mine the Manoharpur coal block by shovel Dumper combination for OB removal & surface miner for coal production.

1.2.1. COMMUNICATION:

Manoharpur block is about 45km away from Sundargarh along Sundargarh-Hemgir road which passes near the block. It is also connected by black top road with two

important towns of Odisha viz. Rourkela (145km) and Jharsuguda (75km). The nearest railway station is Hemgir, lying on the Mumbai-Howrah main line and is about 20 km. away from Manoharpur Block.

1.3. ENVIRONMENTAL SCENARIO:

Currently, monthly environmental monitoring i.e. Ambient Air Quality, Ambient Noise Quality, Ground Water Quality, Surface Water Quality etc. is being carried out by MoEF&CC/NABL/OSPCB accredited laboratory i.e. M/s Visiontek Consultancy Services Pvt. Ltd. in the core zone and buffer zone of the proposed project site. The monitoring reports showing the results of above mentioned environmental parameters is being submitted monthly basis to Odisha State Pollution Control Board (OSPCB). The copy of acknowledgement receipt for the latest months Jan, Feb and March'22 in this regards is attached as **Annexure 1** for your ready reference. The adequate mitigation measures to pollution such as water sprinkling, plantation, effluent treatment plant, hazardous waste storage etc. have been and will be implemented at site as per the Environment Management Plan (EMP).

Further in addition to above, we would like to submit that, the mine has commenced production of coal in October 2019 and started dispatching of same to Kanika siding of MCL by road w.e.f. 14-12-2019 and OPGC Power Plant through ACB siding w.e.f. 09.06.2021. Further, MGR network has also been commissioned in August 2021 to transport the coal from mine end to OPGC power plant (2 x 660 MW) and the coal has been transported through the wharf wall siding via MGR network to the power plant. During the FY 2021-22, approx. 5.25 MT coal has been produced from the Manoharpur Coal mine block.

CHAPTER - II

ENVIRONMENTAL STATEMENT

FORM - V

Environmental Statement for the financial year ending 31st March, 2022

PART - A

a. NAME AND ADDRESS OF THE OWNER/ OCCUPIER

.

Name

Odisha Coal and Power Limited

Address

Corporate Office: Zone A, Ground Floor, Fortune

Towers, Chandrasekharpur, Bhubaneswar - 751023

Site Office: Odisha Coal and Power Limited, Near Indian

Oil Petrol Pump, At / Po – Hemgir, Sundargarh - 770013

Place

Manoharpur Opencast Coal Mine Project

Tehsil

Hemgir

District

Sundargarh

State

Odisha

b. INDUSTRY CATEGORY

: Coal Mining - Red Category

c. PRODUCTION CAPACITY

: 8 MTPA

(Coal Production during FY 2021-22)

: 5.25 MT

d. YEAR OF ESTABLISHMENT

: 2016

e. DATE OF THE LAST ENVIRONMENTAL

: 29.09.2021

STATEMENT SUBMITTED

PART – B WATER AND RAW MATERIAL CONSUMPTION

(I) WATER CONSUMPTION (Cu. m/day):

		During	During	
		Previous Financial Year	Current Financial Year	
_		(2020-2021) m3/day	(2021-2022) m3/day	
Α	MINING	MINING (Wa	ter Utilized)	
i.	Water utilized for sprinkling			
	during excavation of Top soil and	000		
	OB (including dust suppression	330	785	
	on Haul Road)	V		
ii.	Dust Suppression (During coal	40	450	
	production)	49	452	
lii.	Fire fighting	16	550	
iv.	Workshop	12	62	
V.	Others activities	4	82	
B.	DOMESTIC PURPOSE	71	151	
	TOTAL	482	2081	

WATER CONSUMPTION PER UNIT OF PRODUCT (Litre/Tonne)

Name of	Water consumption per unit of product (ℓ/t)		
product	During Previous financial year (2020-2021)	During current financial year (2021-2022)	
ROM Coal	Coal Production – Approx. 2.001 MTPA Water Consumed (ℓ/t) – 87.92	Coal Production – Approx. 5.25 MTPA Water Consumed (l/t) – 145	

Note- Only for Production Purpose

(II) RAW MATERIAL CONSUMPTION (Per Tonne of Coal):

Sr. No.	Name of raw material	Consumption of raw material (per tonne of coal produced)	
		During Previous Financial Year	During Current Financial
		(2020-2021)	Year (2021-2022)
1,: =	Diesel (ℓ/t)	-	2.68
2.	Lubricants (ℓ/t)	0.015	0.003
3.	Explosive (kg/t)	0.75	0.79
4.	Electricity (unit/t)	0.09	0.03

PART – C
POLLUTION GENERATED

Pollution	Quantity of pollutants discharged	Concentration of Pollutants in discharges	Percentage variation from prescribed standards with reasons
	Mine Effluent – NIL as the effluent generated from the mine area was treated through the settling cum sedimentation tank (sump) within the mine site and the treated effluent was utilized for water sprinkling purpose within the mine premises.	Not Possible to Quantify	Not Monitored
WATER	Effluent Treatment Plant (ETP) – The treated effluent of ETP installed at workshop for the washing of vehicles is being recycled & reused for the same purpose.	Refer Annexure 2	#) #2 -
	Domestic Effluent -Septic tank has been provided to collect the domestic effluent.	Not Possible to Quantify	Not Monitored
AIR*	Annual Average (Ambient Boundary – OCPL Office (C	Air Quality of One Station	located within the Project
SPM		187.58 μg/m³	
PM ₁₀	Not Possible to Quantify	103.13 μg/m ³	

PM _{2.5}	57.20 μg/m³	Within the prescribed
SO _x	20.93 μg/m³	standards for the coal mines
NO _x	31.24 μg/m³	under EPA Act, 1984.

*Note: The monitored environmental parameters of ambient air quality (i.e. SPM, PM₁₀, PM_{2.5}, SO_x, NO_x) of core zone (4 locations) are within the permissible limits as prescribed under standards for coal mines; Notification No. GSR 742(E), dt. 25th September 2000. Further, the air quality parameters monitored for buffer zone (4 locations) are also well within the limits as prescribed under NAAQMS 2009. The monthly monitoring has been carried out by MoEF&CC/NABL/OSPCB accredited laboratory i.e. M/s Visiontek Consultancy Services Pvt. Ltd. in the core zone (4 locations) and buffer zone (4 locations) and the analysis reports are being regularly submitted to OSPCB (HO-BBSR and RO-JSG). The acknowledgement receipts in this regard for the 4th quarter of FY 2021-22 (Jan'22 to Mar'22) are enclosed as **Annexure 1** for your kind reference.

PART - D

HAZARDOUS WASTE

(As specified under Hazardous Waste Management and Handling Rules, 1989 & subsequent latest notification on HWM Rules, 2016)

		Total Quantity		
SI	Hazardous waste	During Previous Financial Year (2020-2021)	During Current Financial Year (2021-2022)	
	From process	From process (Machineries)	From process (Machineries)	
A.	i) Used oil / Spent oil from Machineries or workshop etc. ii) Used Batteries iii) Oil soaked filters	i) 8504 Litres ii) 60 Nos. iii) 450 Nos.	i) 15041 Litres (72 Barrels)ii) 125 Nos.iii) 1545 Nos.	
В.	From pollution control facilities i) Oily Sludge	654 kg	100 litres (from ETP)	

PART - E

SOLID WASTE

	Total quantity (In	Total quantity (In Million Cu.m)	
SI Particulars	During Previous Financial Year (2020-2021)	During Current Financial Year (2021-2022)	

a.	From process (Top Soil and Over Burden from Mining)	Total = 7.57 MCum	Total = 16.7 MCum
b.	From pollution control facilities	NIL	NIL
C.	Quantity recycled or reutilized	The excavated top soil and OB have been stored at their earmarked location as per the approved Mining Plan except few quantity of OB & top soil which were utilized in mine development activities.	their earmarked location as per the approved Mining

PART - F

PLEASE SPECIFY THE CHARACTERISTICS (IN TERMS OF CONCENTRATION AND QUANTUM) OF HAZARDOUS AS WELL AS SOLID WASTE AND INDICATE THE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTE.

(I) Hazardous Waste

Name of Hazardous waste	Quantity generated in the Year 2021-22	Disposal Practices
Used Oil / Spent Oil from machineries/ Workshop / DG sets etc.	15041 Litres (72 Barrels)	The quantity of generated used oil / spent oil was stored at site at an isolated earmarked place. Further, about 9240 litres (44 Barrels) out of total generated (i.e. 72 barrels) has been handed over to authorized vender i.e. New Lubrisales India Pvt. Ltd. for further Recycle/ Reprocess/ Reuse purpose.
Used Batteries	125 Nos.	

Oil soaked filters	1545 Nos.	Collected and stored as per
Oily Sludge	100 litres (ETP sludge)	applicable norms/standards
		as prescribed by the
		competent authorities for
		further disposal at TSDF as
		per norms.

(II) Solid Waste

Name of Hazardous waste	Quantity generated in the Year 2020-21	Disposal Practices
Top Soil and Over Burden (OB)	16.7 Mcum	The excavated top soil and OB have been stored at their earmarked location as per the approved Mining Plan except few quantity of OB which was utilized in mine development activities. Further, some portion of top soil / sub soil has been spread over the slope of the dump 1 to stabilize the dump through the grass carpeting and seedlings.

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 the following pollution control measures have been implemented at site.

1. AIR POLLUTION CONTROL MEASURES:

The following measures have been taken to control air pollution.

Sr. No.	EMP Provisions			Whether Provided or Not		Remarks						
1	Water	Sprinkling	on	haul	Provided	Total	10	nos.	of	water	tankers	of

	roads and coal transportation roads, Coal Stock yard, OB dumps etc.		capacity 28KL (1 Nos.) and 12 KL (9 Nos.) have been deployed at site for water sprinkling purpose.		
2	Development of Green Belt	Under Progress	Approx. 3797 nos. of plant species have been planted during the FY 2021-22 under the development of green belt in & around the site comprises of native species. Further, seeding and grass carpeting were carried out over the top soil / sub soil spread on slope of the dump 1 to increase the dump stability through the development of green area.		
3	Grass carpeting on top soil dump	Provided	To reduce the soil erosion from top soil dump, green area has been developed by seeding and grass carpeting over the dump. Further, the planation developed at dump area is being maintained through the proper watering as per season.		
4	Improved maintenance of plant & machinery	Provided	Maintenance of machineries / equipment's have been carried out as their maintenance schedule.		

2. WATER POLLUTION CONTROL MEASURES:

The following measures will be taken to control water pollution from mine:

Sr. No.	EMP Provisions	Whether Provided or Not	Remarks		
1	Mine water is being collected in sump provided within mine pit will also act as sedimentation lagoon.	Provided	Sump will act as sedimentation lagoon to settle sediment particles in sump.		
2	Surface run-off from OB dump is being collected through catch drains/foot drains connected to sedimentation pond. The clear water from this pond will be reutilized for dust suppression purpose.	Provided	The generated run off from OB dump has been channelized to sedimentation cum recharge pond through the garland drain provided around the OB dump and active mine pit.		
3	Domestic waste water is being treated through the mobile	Septic tank has been Provided.	The generated domestic waste water is being		

Sr. No.	EMP Provisions	Whether Provided or Not	Remarks		
	tankers via provision of septic tank.		collected to Septic Tank and will be treated through the mobile tanker facility.		
4	Effluent Treatment Plant (ETP)	50 KLD ETP has been provided at workshop area.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		

3. NOISE POLLUTION CONTROL MEASURES:

The following measures have been taken to control noise pollution from mine:

- Regular maintenance of machines and other equipment at workshop.
- ii) PUC certified vehicles have been deployed.
- iii) Developing green belt in & around the vacant spaces of mine.

4. LAND DEGRADATION CONTROL MEASURES

Backfilling of over burden in the de-coaled area is under primary stage. Adequate plantation measures will be taken up over the back filled area and land will be restored as per approved mine closure plan.

PART - H

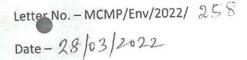
ADDITIONAL INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION

OCPL will do the necessary investment as per the Environment Management Plan approved in Environment Clearance by MoEF &CC for the abatement of pollution.

PART - I

ANY OTHER PARTICULARS IN RESPECT OF ENVIRONMENTAL PROTECTION AND ABATEMENT OF POLLUTION

As mentioned above in Chapter 1, The Environmental Monitoring is being carried out by MoEF&CC/NABL/OSPCB accredited laboratory M/s Visiontek Consultancy Services Pvt. Ltd. in the core zone and buffer zone of the proposed project site as per the guideline of MoEF &CC/CPCB and based on the result there of, company is being taking the necessary pollution preventive action, as required.





Odisha Coal and Power Limited

(A Government of Odisha Company) CIN: U10100OR2015SGC018623 Webstie: www.ocpl.org.in

To,

The Member Secretary, State Pollution Control Board (SPCB), Paribesh Bhawan, A/118, Nilkantha Nagar, Unit-VIII Bhubaneswar-751012 Odisha

Sub: Submission of Monthly Compliance Document in respect of Manoharpur Coal Mine Project of Odisha Coal and Power Limited

Dear Sir,

This has reference to the renewal of Consent to Operate (CTO) issued by your good office vide letter no. 4766/IND-I-CON-6454 dated 23.03.2021 / Consent Order No. 2851, we hereby submit the environment monitoring reports of Ambient Air Quality, Noise, Ground water, Surface water, Meteorological data etc. (Refer Annexure 1) and the details of generated solid waste i.e. Top soil / OB (Refer Annexure 2) for the Manoharpur Coal Mine Project of Odisha Coal and Power Limited for the month of February 2022.

This is for your kind perusal.

Thanking You Yours Faithfully, For Odisha Coal and Power Limited

Manoharpur Coal Mine Project

Encl: as above

CC: The Regional Officer, State Pollution Control Board (Jharsuguda), Plot No. 370/5971, At -Babubagicha (Cox Colony) St. marry Hospital Road, PO- Industrial Estate, Dist.-Jharsuguda-768203.



Letter No. - MCMP/Env/2022/ 258

Date - 28/03/2022

Odisha Coal and Power Limited (A Government of Odisha Company)

CIN: U10100OR2015SGC018623 Websile: www.ocpl.org.in

To,

The Member Secretary,
State Pollution Control Board (SPCB),
Paribesh Bhawan, A/118,
Nilkantha Nagar, Unit-VIII
Bhubaneswar-751012
Odisha

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This is for your kind perusal.

Thanking You
Yours Faithfully,
For Odisha Coal and Power Limited

Agent

Manoharpur Coal Mine Project

Encl: as above

CC: The Regional Officer, State Pollution Control Board (Jharsuguda), Plot No. 370/5971, At — Babubagicha (Cox Colony) St. marry Hospital Road, PO- Industrial Estate, Dist.-Jharsuguda-768203.



Letter No. - MCMP/Env/2022/ 1.35

Date - 14-02-2022

Odisha Coal and Power Limited

(A Government of Odisha Compony)

CIN: U10100OR20155GC015623

Website: www.ocpl.org.in

To,

The Member Secretary,
State Pollution Control Board (SPCB),
Paribesh Bhawan, A/118,
Nilkantha Nagar, Unit-VIII
Bhubaneswar-751012
Odisha

Sub: Submission of Monthly Compliance Document in respect of Manoharpur Coal Mine Project of Odisha Coal and Power Limited

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This is for your kind perusal.

Thanking You
Yours Faithfully,
For Odisha Coal and Power Limited

Agent

Manoharpur Coal Mine Project

Encl: as above

CC: The Regional Officer, State Pollution Control Board (Jharsuguda), Plot No. 370/5971, At – Babubagicha (Cox Colony) St. marry Hospital Road, PO- Industrial Estate, Dist.-Jharsuguda-768203.



Letter No. - MCMP/Env/2022/ 1,35

Date-14-02-2022



Odisha Coal and Power Limited (A Government of Odisha Compony) CIN: U101000R20155GC015623 Website: www.acpl.org.in

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To,

The Member Secretary, State Pollution Control Board (SPCB), Paribesh Bhawan, A/118. Nilkantha Nagar, Unit-VIII Bhubaneswar-751012 Odisha

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This is for your kind perusal.

Thanking You Yours Faithfully, For Odisha Coal and Power Limited

1 4 FFR 2022 Manoharpur Coal Mine Project

Encl: as above

CC: The Regional Officer, State Pollution Control Board (Jharsuguda), Plot No. 370/5971, At -Babubagicha (Cox Colony) St. marry Hospital Road, PO- Industrial Estate, Dist.-Jharsuguda-768203.



Odisha Coal and Power Limited

(A Government of Odisha Company)
CIN: U101000R2015SGC018623
Webstie: www.ocpl.org.in

Letter No. - MCMP/Env/2021/58

Date - 22-01-2022

To,

The Member Secretary,
State Pollution Control Board (SPCB),
Paribesh Bhawan, A/118,
Nilkantha Nagar, Unit-VIII
Bhubaneswar-751012
Odisha

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Agent

Manoharpur Coal Mine Project

Encl: as above

CC: The Regional Officer, State Pollution Control Board (Jharsuguda), Plot No. 370/5971, At — Babubagicha (Cox Colony) St. marry Hospital Road, PO- Industrial Estate, Dist.-Jharsuguda-768203.



Letter No. - MCMP/Env/2021/58

Date - 22-01-2022

Odisha Coal and Power Limited
(A Government of Odisha Company)
CIN: U10100OR2015SGC018623
Webstie: www.ocpl.org.in

To,

The Member Secretary,
State Pollution Control Board (SPCB),
Paribesh Bhawan, A/118,
Nilkantha Nagar, Unit-VIII
Bhubaneswar-751012
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HARSUGUDA

This is for your kind perusal.

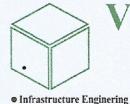
Thanking You Yours Faithfully, For Odisha Coal and Power Limited

Value Car 22.01.22 Agent

Manoharpur Coal Mine Project

Encl: as above

CC: The Regional Officer, State Pollution Control Board (Jharsuguda), Plot No. 370/5971, At — Babubagicha (Cox Colony) St. marry Hospital Road, PO- Industrial Estate, Dist.-Jharsuguda-768203.



• Water Resource Management

• Environmental & Social Study

Visiontek Consultancy Services Pvt. Ltd.

(Committed For Better Environment)

Certified for: ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 (OH&S), ISO/IEC 17025:2017

Accredited by: NABET-A Grade, MOEF & CC/CPCB & SPCB-A Grade

• Surface & Sub-Surface Investigation

• Renewable Energy

Agricultural Development

• Information Technology

• Public Health Engineering

Mine Planning & Design

Mineral/Sub-Soil Exploration
 Waste Management Services

Date: 05.05.2022

Soil Lab Mineral Lab & Microbiology Lab

Material Lab

Laboratory Services Environment Lab Food Lab

ANNEXURE 2

Ref: Envlab/22/R-2057

WASTE WATER QUALITY REPORT OF MINE

1. Name of Project : Manoharpur Open Cast Coal Mine Project

2. Name of Industry : Odisha Coal and Power Limited (OCPL), Sundargarh

W2: ETP Outlet

3. Sampling Location : W1: ETP Inlet

4. Date of Sampling : 22.04.2022

5. Date of Analysis : 23.04.2022 to 29.04.2022

6. Sample Collected By : VCSPL Representative in presence of Client's Representative

Sl. No	Parameter	Unit	Testing Methods	Inland Surface Water	Analysis Results		
				Standard Effluents Part-A	W-1	W-2	
1.	Colour and Odour	Hazen	APHA 2120 B &	5 & U/O	25 &	5 &	
		TIGEOTI	APHA 2150B	3 & 0/0	Agreeable	Agreeable	
2.	Suspended solids	mg/l	APHA 2540 D	100.0	61.0	19.0	
3.	Total Dissolved Solids	mg/l	APHA 2540 C	-	913.0	886.0	
4.	pH Value (at 25 °C)		APHA 4500H ⁺ B	5.5-9.0	6.89	6.68	
5.	Temperature	°C	APHA 2550 B	Shall not exceed 5°C above the receiving water Temp	25.8	26.1	
6.	Oil and grease	· mg/l	APHA 5520 B	10.0	5.2	ND	
7.	Ammonical Nitrogen (as NH ₃ -N)	mg/l	APHA 4500 NH ₃ F	50.0	4.8	1.2	
8.	Total Kjeldahl Nitrogen (as N)	mg/l	APHA 4500 N _{org} B	100.0	7.4	2.8	
9.	Biochemical Oxygen Demand (3 days at 27°C)	mg/l	APHA 5210 B	30.0	8.4	3.1	
10.	Chemical Oxygen Demand	mg/l	APHA 5220 C	250.0	32.0	8.0	
11.	Arsenic(as As)	mg/l	APHA 3114 B	0.2	BDL	BDL	
12.	Mercury (As Hg)	mg/l	APHA 3500 Hg	0.01	BDL	BDL	
13.	Lead (as Pb)	mg/l	APHA 3111 B,C	0.1	BDL	BDL	
14.	Cadmium (as Cd)	mg/l	APHA 3111 B,C	2.0	BDL	BDL	
15.	Hexavalent chromium (as Cr +6)	mg/l	APHA 3500Cr B	0.1	BDL	BDL	
16.	Total chromium (as Cr)	mg/l	APHA 3111 B	2.0	0.15	0.08	
17.	Copper (as Cu)	mg/l	APHA 3111 B,C	3.0	0.36	0.17	
18.	Zinc (as Zn)	mg/l	APHA 3111 B,C	5.0	0.29	0.11	
19.	Selenium (as Se)	mg/l	APHA 3114 B	0.05	BDL	BDL	
20.	Nickel (as Ni)	mg/l	APHA 3111 B	3.0	BDL	BDL	
21.	Cyanide (as CN)	mg/l	APHA 4500 CN ⁻ C,D	0.2	BDL	BDL	
22.	Fluoride (as F)	mg/l	APHA 4500 F C	2.0	1.18	1.16	
23.	Dissolved phosphates (as P)	mg/l	APHA 4500 P,D	5.0	6.28	3.74	
24.	Sulphide (as S)	mg/l	APHA 4500 S ² -D	2.0	ND	ND	
25.	Phenolic compounds (as C ₆ H ₅ OH)	mg/l	APHA 5530 B,D	1.0	BDL	BDL	
26.	Manganese (as Mn)	mg/l	APHA 3500Mn B	2.0	0.34	0.09	
27.	Iron (as Fe)	mg/l	APHA 3500Fe B	3.0	0.78	0.12	
28.	Nitrate Nitrogen (as N)	mg/l	APHA:4500 NO ₃ B	10.0	36.0	4.8	

Note: CL: Colourless, UO: Unobjectionable, ND: Not Detected.

BDL (Below Detectable Limits) Values: C6H5OH 0.05 mg l, Hg 0.002 mg l, Cd 0.003 mg l, Se 0.001 mg l, CN 0.01mg l, As 0.004 mg l, Pb 0.01

mg l, Zn 0.05 mg l, Cr 6 0.01 mg l, Ni 0.05 mg l.,



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