

CENTRAL COALFIELDS LIMITED
HAZARIBAG AREA
OFFICE OF THE PROJECT OFFICER
TAPIN SOUTH OCP

Ref.No. PO/TSOCP/2019/ 631

Dated: 01/11/19

To
The Member Secretary
Jharkhand State Pollution Control Board
T.A. Division, HEC, Dhurva

Subject: Submission of yearly statement for the year of 2018-19 in respect of Tapin South OCP.

Dear Sir,

With reference to the above, this is to inform you that yearly statement report is being submitted to you incorporating all the details sought for in the above mentioned letter.

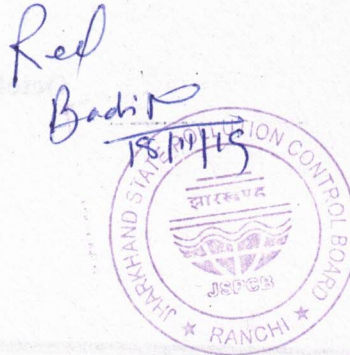
Yours Faithfully

[Signature]
01/11/19

Project Officer
Tapin South OCP

Copy to:

1. RO, JSPCB, Hazaribagh
2. GM(H), Charhi
3. Area Environment Engineer (H), Charhi
4. PE(Civil), Tapin South OCP



CENTRAL COALFIELDS LIMITED
HAZARIBAG AREA
OFFICE OF THE PROJECT OFFICER
TAPIN SOUTH OCP

Ref.No. PO/TSOCP/2019/ 631-

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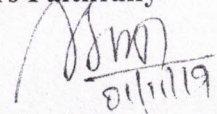
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Regional Office

JSPCB, Hazaribagh

ENVIRONMENTAL STATEMENT

IN

FORM V

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

of

TAPIN SOUTH
(Open Cast Mine)



for

2018-19

CENTRAL COALFIELDS LIMITED
OFFICE OF THE GENERAL MANAGER
HAZARIBAGH AREA, CHARHI
JHARKHAND-825336

October, 2019

EXECUTIVE SUMMARY

- E-1** This Environmental Statement Report has been prepared as per gazette notification no. G.S.R. 329 (E) dated 13th March 1992 laid down by Ministry of Environment & Forest. The Environmental Audit has been subsequently renamed to "Environmental Statement" vide MOEF gazette notification no. G.S.R. 386 (E) dated 22nd April 1993.
- E-2** Tapin South Expansion OCP is located in North Western part of West Bokaro Coalfield in Hazaribagh District of Jharkhand.
- E-3** The Environmental Monitoring was carried out quarterly as per the guide line of Ministry of Environment & Forest (MOEF). The environmental monitoring results for four quarter are appended as annexure.
- E-4** Ambient air quality was monitored to study the level of air pollution. The main air pollutant is Suspended Particulate Matter (SPM). It is difficult to quantify the amount of air pollutants generated due to mining. However, the results show that SPM, SO_x & NO_x values are generally below permissible limits prescribed by Ministry of Environment & Forest (MOEF).
- E-5** Water is not directly used during mining for coal production. It percolates into working area during mining operation. However, water is consumed for other purposes, mainly for domestic supply, industrial supply, and fire fighting and dust suppression.
- E-6** The noise levels recorded are generally below permissible limits prescribed by Ministry of Environment & Forest (MOEF). There is no continuous high level sound frequency of impulsive nature.
- E-7** Regular measures are being taken to control air, water & noise pollutions discussed in detail in parts-G, H & I of the Statement Form. Also, measures for implementation of the Environmental Management Plan for the project are being taken.

CHAPTER-1

PROJECT DESCRIPTION

1.1 INTRODUCTION

Tapin South OCP is a taken over mine. At the time of nationalization, it was producing about 0.20 MTY of coal from a number of small quarries. An Interim Feasibility Report was prepared for Tapin South Opencast Project in September, 1975 and approved by the Board of Directors of CIL on 31st March 1976 at a capital investment of Rs 4.99 Crs. The rated capacity of the mine was 0.60 MTY.

1.2 Location & Communication:

Tapin South Expansion OCP is located in North Western part of West Bokaro Coalfield in Hazaribagh District of Jharkhand. It is bounded by latitude 23049'27"N and 23050'00"N and longitude 85028'17"E and 85029'27"E. The block is situated on the Ghato More- Phusri – Kedla – Laiyo road joining NH-33 at Charhi. The Project is approachable by 4 km long metaled road via Charhi and connects Ranchi and Hazaribagh. Hazaribagh (25 Km), Ranchi (90km) and Dhanbad (144 Km) are well connected by road. Nearest railhead is Ranchi-Road Railway Station at a distance of 30 km from the block. Danea Railway Station is also about 30 km from this project.

1.3 TOPOGRAPHY & DRAINAGE:

The Tapin South Block is characterized by gently undulating topography with depression and sand stone ridges. The general slope of the area is from north to south. Most of the small channels criss cross the area flow from north to south finally joining the Bokaro river. The block is situated on the northern bank of Bokaro River. The maximum and minimum elevation of the block is 429.55m and 395.09m above MSL respectively, while average elevation is around 415m. The HFL is recorded as 381.65 m.

The drainage of the block is controlled by easterly flowing Bokaro River which flows through the center of the coalfield. The tributary Jharna Nala flowing from north to south joins Bokaro River.

CHAPTER - II

ENVIRONMENTAL STATEMENT FORM -V

Environmental Statement for the financial year

Ending March, 2019

PART - A

- (i) Name and Address of the mine. : TAPIN SOUTH OPEN CAST PROJECT
: PROJECT OFFICER
Place : Tapin
Post : Tapin
District : Hazaribagh, JHARKHAND
- (ii) Industry Category : Primary (Red).
- (iii) Production Capacity : 0.317 MTY
- (iv) Date of last Env. Statement Report : September, 2018

PART - B

WATER AND RAW MATERIAL CONSUMPTION

I. Water consumption (M³/ day)

a. Mining		
i.	Haul road dust suppression	60
ii.	Workshop	0.0
iii.	Fire Fighting	0
iv.	Others (Service Building etc.)	2
b. Domestic		300

WATER CONSUMPTION PER UNIT OF PRODUCT

Name of Product	Water Consumption per Unit of Product	
	During financial year (2018-19)	During financial year (2017-18)
1. ROM Coal	0.407 Cubic metre/per tonnes coal	Nil

II. RAW MATERIAL CONSUMPTION:

Sl.No.	Name of raw material	Name of products	Consumption of raw material (per unit of output)	
			During the financial year (2018-19)	During the financial year (2017-18)
1	Explosive	Coal	4.01 kg/te of Coal	Nil
2	HSD	Coal	6.45 lts/te of coal	Nil

PART – C**POLLUTION DISCHARGED TO ENVIRONMENT/UNIT OF OUTPUT****(PARAMETERS SPECIFIED IN THE CONSENT ISSUED)**

Pollutions	Quantity of pollution generated (mass/day)	Concentration of Pollutants discharged (mass/volume)	Percentage variation from prescribed standards with reasons
WATER	Water discharged from: (a) Mine-0 cum./day (b) Workshop-0 cum./day (c) Colony-0 cum /day	NA	NA
AIR	It is difficult to quantify the amount of air pollutants. The main air pollutant is suspended particulate matter (SPM). The air quality results are appended as Annexure	Analysis results are given in Annexure	Ambient air quality results show that SO ₂ , NO _x , & SPM level are well within prescribed standards.
Noise	The high noise in mining area owes its origin in and around excavation & material handling sites. There is no continuous sound frequency of impulsive nature. Ambient noise quality report is appended as Annexure.	Analysis results are given in Annexure	Noise Quality Report shows the results are within permissible limits.

PART - D
HAZARDOUS WASTES

(As specified under Hazardous Waste/Management and Handling Rules, 1989)

Hazardous Wastes	Total quantity	
	During the financial year (2018-19)	During the financial year (2017-18)
a) From process	Nil	Nil
b) From pollution control facilities	NIL	NIL
c) From material handling process	Burnt oil -420lts Battery recovered- 2	

PART - E
SOLID WASTES

	Total Quantity (in M m³)	
	During the financial year (2018-19)	During the financial year (2017-18)
a) From process (Mining) Overburden	Nil	Nil
b) From pollution control facilities	NIL	NIL
c) Quantity recycled or reutilized	Most of O.B. material is being used for back-filling. Top soil is being preserved and it is used for reclamation of OB dump.	

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

1. **Hazardous wastes:** Hazardous wastes are not being produced either from mining operation or from any pollution control facilities.

2. **Solid Waste:** During Opencast mine Overburden and top soil are produced as solid wastes. Overburden produced during 2018-19 was 0.54767 M cubic metre produced.
3. **Disposal Practice:** Presently, the O.B. material is being used for re-filling of de-coaled area of quarry and top soil is being used on old dump for reclamation.

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, following pollution control measures have been implemented:-

1.0 AIR POLLUTION CONTROL MEASURES:

The following measures have been taken to control air pollution:

- (i) Regular sprinkling of water on haul roads and other roads.
- (iii) Plantation along the haul road and in other vacant spaces.
- (iv) Water sprinkling on coal stock.
- (v) All necessary precautions will be taken during drilling, blasting, loading and transporting operations.

2.0 WATER POLLUTION CONTROL MEASURES:

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

- (i) The mine water is allowed to settle in sump before discharge into natural water body. Some portions of mine water is also used for haul road dust suppression and industrial use like in workshop and domestic supply after treatment.
- ii) A system of open drain exists within the leasehold area to collect the storm runoff from paved area, road, roof top, etc. & lead them to natural drains directly.
- iii) Garland drain is provided around the quarry to collect the surface run-off. This also prevents storm water to enter into the quarry area.
- iv) The catch drains have been constructed around the foot of the O.B. dumps in order to collect surface run-off water from the dumps and convey them to settling ponds.
- v) Colony and other service buildings are provided with septic tank and soak pit. Also, water is supplied after filtration and disinfection for domestic use.

3. NOISE POLLUTION CONTROL MEASURES:

- i. Plantation barriers have been developed around residential locations & are proposed around other noise prone area.
- ii. Efforts are being made to keep HEMMs properly maintained so as to produce least noise.
- iii. Blasting operation is carried out between 12.30 PM to 3.00 PM.
- iv. Use of HEMMs with sound proof cabin.

PART - H

ADDITIONAL INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION

The following are the additional investment proposal for environmental protection:

- (a) The environmental monitoring of the project will be continued quarterly as per guidelines of MOEF&CC.
- (b) All residential quarters constructed for the Project has been provided with septic latrines and effluents are disposed off in soak pits.
- (c) The air and water consent will be taken from Jharkhand State Pollution Control Board, Ranchi each year.
- (d) Environmental statement report will be prepared for each financial year.

PART - I

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

- The Environmental monitoring is carried out quarterly for the project by CMPDI as per the guide lines of the Ministry of Environment & Forest (MOEF&CC).
- The Environmental Statement for the project is to be prepared yearly.
- Ambient air quality, quality of effluent discharged from the mine and noise level all conform to the prescribed limits.
- Presently, to control fugitive dust on haul road, arrangement has been made for regular water sprinkling along the haul road.

TEST REPORT

06/18 Test Report No. 1548	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Jun-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** P.O.Office

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)/TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Apr-18 1st FN	10/04/18-11/04/18	17/04/18	17/04/18-23/04/18	410	209	91	< 25	< 6	East Sunny
Apr-18 2nd FN	24/04/18-25/04/18	02/05/18	02/05/18-07/05/18	349	278	94	< 25	< 6	East Sunny
May-18 3rd FN	10/05/18-11/05/18	16/05/18	16/05/18-22/05/18	179	74	32	< 25	< 6	East Sunny
May-18 4th FN	25/05/18-26/05/18	01/06/18	01/06/18-06/06/18	233	126	73	< 25	< 6	East Sunny
Jun-18 5th FN	11/06/18-12/06/18	19/06/18	19/06/18-23/06/18	183	92	41	< 25	< 6	South Cloud
Jun-18 6th FN	26/06/18-27/06/18	02/07/18	02/07/18-07/07/18	348	169	81	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept. '2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov. '2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope.

TEST REPORT

06/18 Test Report No. 1549	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Jun-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** Pump House

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Apr-18 1st FN	10/04/18-11/04/18	17/04/18	17/04/18-23/04/18	156	87	38	< 25	< 6	East Sunny
Apr-18 2nd FN	25/04/18-26/04/18	02/05/18	02/05/18-07/05/18	233	76	39	< 25	< 6	East Sunny
May-18 3rd FN	10/05/18-11/05/18	16/05/18	16/05/18-22/05/18	157	75	33	< 25	< 6	East Sunny
May-18 4th FN	25/05/18-26/05/18	01/06/18	01/06/18-06/06/18	161	80	32	< 25	< 6	East Sunny
Jun-18 5th FN	11/06/18-12/06/18	19/06/18	19/06/18-23/06/18	147	70	33	< 25	< 6	South Cloud
Jun-18 6th FN	26/06/18-27/06/18	02/07/18	02/07/18-07/07/18	267	73	34	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept. '2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov. '2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope

TEST REPORT

06/18 Test Report No. 1550	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Jun-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** GVT Center

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Apr-18 1st FN	11/04/18-12/04/18	17/04/18	17/04/18-23/04/18	195	85	36	< 25	< 6	East Sunny
Apr-18 2nd FN	25/04/18-26/04/18	02/05/18	02/05/18-07/05/18	628	342	114	< 25	< 6	East Sunny
May-18 3rd FN	11/05/18-12/05/18	16/05/18	16/05/18-22/05/18	672	341	119	< 25	< 6	East Sunny
May-18 4th FN	26/05/18-27/05/18	01/06/18	01/06/18-06/06/18	245	139	66	< 25	< 6	East Sunny
Jun-18 5th FN	11/06/18-12/06/18	19/06/18	19/06/18-23/06/18	232	111	57	< 25	< 6	South Cloud
Jun-18 6th FN	26/06/18-27/06/18	02/07/18	02/07/18-07/07/18	335	165	76	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov.'2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope .

TEST REPORT

06/18 Test Report No. 1551	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Jun-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** Weighbridge near Chowk

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)/TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Apr-18 1st FN	11/04/18-12/04/18	17/04/18	17/04/18-23/04/18	577	215	89	< 25	< 6	East Sunny
Apr-18 2nd FN	25/04/18-26/04/18	02/05/18	02/05/18-07/05/18	285	155	71	< 25	< 6	East Sunny
May-18 3rd FN	11/05/18-12/05/18	16/05/18	16/05/18-22/05/18	502	238	72	< 25	< 6	East Sunny
May-18 4th FN	26/05/18-27/05/18	01/06/18	01/06/18-06/06/18	261	146	69	< 25	< 6	East Sunny
Jun-18 5th FN	11/06/18-12/06/18	19/06/18	19/06/18-23/06/18	144	69	33	< 25	< 6	South Cloud
Jun-18 6th FN	26/06/18-27/06/18	02/07/18	02/07/18-07/07/18	609	304	131	< 25	6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov.'2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope.

TEST REPORT

06/18 Test Report No. 1552	Job No. 094318021	Year	FY2018-19
Type of Sample:	Noise	Quarter Ending	Jun-18
Customer	CCL		
Testing Protocol:	<i>'The noise pollution (Regulation and Control), Rules,2000</i>		
Remarks:			

TEST RESULT

The sample has been tested with the following results:-

Area : **Hazaribagh** **Project:** **Tapin South OCP**

Station Name	Noise Level					
	Apr-18 1st FN	Apr-18 2nd FN	May-18 3rd FN	May-18 4th FN	Jun-18 5th FN	Jun-18 6th FN
Date of recording	10/04/18	24/04/18	10/05/18	25/05/18	11/06/18	26/06/18
P.O.Office	52.5	50.1	52.1	48.6	49.1	52.2
Date of recording	11/04/18	25/04/18	11/05/18	26/05/18	11/06/18	26/06/18
GVT Center	46.9	50.4	53.3	50.1	49.2	52.6

<i>Ambient Air Quality Standards in respect of Noise as per 'The noise pollution (Regulation and Control), Rules,2000</i>		
Time Frame	Limits in dB(A) Leq	
	Day Time 6.00 AM to 10.00 PM	Night Time 10.00 PM to 6.00 AM
<i>Industrial Area</i>	75	70
<i>Commercial Area</i>	65	55
<i>Residential area</i>	55	45
<i>Silence Zone</i>	50	40

TEST REPORT

06/18 Test Report No. 1553	Job No. 094318021	Year	FY2018-19
Type of Sample:	Surface Water	Quarter Ending	Jun-18
Customer	CCL	Date of Receipt:	17/04/18
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval	Date of Analysis:	17.04.18-13.07.18
Testing Protocol:	-	Date of Reporting:	13/07/18
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

TEST RESULT

The sample has been tested with the following results:-

Area :	Hazaribagh	Project:	Tapin South OCP
Stations:	1. U/S of Jharna Nala 2. D/S of Jharna Nala 3. U/S Bokaro River 4. D/S Bokaro River		Date of Sampling: 11/04/18 11/04/18 11/04/18 11/04/18

Sl.No	Parameter	Sampling Stations				Detection Limit	BIS Standard & Method
		1	2	3	4		
1	Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	<0.002	0.002	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2	2	2	4.4	2.00	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
3	Cadmium(as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	APHA, 22 nd Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	28	30	200	280	2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03	<0.03	<0.03	0.03	IS 3025 /42 : 1992 R : 2009, AAS-Flame
6	Disolved Oxygen, min.	6.3	6.3	6.3	6.1	0.10	IS 3025/38:1989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.54	0.65	1.25	1.52	0.02	APHA, 22 nd Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01	<0.01	<0.01	0.01	APHA, 22 nd Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	<0.02	<0.02	<0.02	<0.02	0.06	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
10	Lead (as Pb), mg/l, Max	<0.005	<0.005	0.032	0.026	0.005	APHA, 22 nd Edition AAS-GTA
11	Nitrate (as NO ₃), mg/l, Max	1.64	2.57	13.51	13.56	0.50	APHA, 22 nd Edition, UV-Spectrophotometric
12	pH value	8.22	7.49	7.36	7.93	0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	<0.001	<0.001	<0.001	<0.001	0.001	APHA, 22 nd Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	<0.002	0.002	APHA, 22 nd Edition AAS-GTA
15	Sulphate (as SO ₄) mg/l, Max	16	11	565	592	2.00	APHA, 22 nd Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	258	276	1516	1504	25.00	IS 3025 /16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	28	22	26	46	10.00	IS 3025 /17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	0.01	<0.01	<0.01	0.02	0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame

Note: 1) This Report refers to the values obtained at the time of testing and results related to the items tested
2) This Report cannot be reproduced in part or full without written permission of the management.
3) Liability for return of samples ceases as samples cannot be retained for retests.
4) This is computer generated report and requires no signature.

Dy. Technical Manager
Env. Lab., CMPDI(HQ)

TEST REPORT

06/18 Test Report No. 1554	Job No. 094318021	Year	FY2018-19
Type of Sample:	Drinking Water	Quarter Ending	Jun-18
Customer	CCL	Date of Receipt:	17/04/18
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval	Date of Analysis:	17.04.18-13.07.18
Testing Protocol:	IS:10500 Drinking Water Standards	Date of Reporting:	13/07/18
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

TEST RESULT

The sample has been tested with the following results:-

Area :**Hazaribagh****Project:****Tapin South OCP****Stations:**

1. Bore Well at Filter Plant
2. Bore Well at Old C Type
3. Clear Water at Filter Plant

Date of Sampling:**11/04/18****11/04/18****11/04/18**

Sl.No	Parameter	Sampling Stations			Detection Limit	IS:10500 Standards	Standard / Test Method
		1	2	3			
1	Boron (as B), mg/l, Max	<0.20	<0.20	<0.20	0.20	0.5	APHA, 22 nd Edition, Carmine
2	Cadmium (as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	0.0005	0.003	APHA, 22 nd Edition, AAS-GTA
3	Calcium (as Ca), mg/l, Max	65.6	64	32	1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	32	32	42	2.00	250	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03	<0.03	0.03	0.05	IS 3025/42 : 1992 R : 2009, AAS-Flame
6	Fluoride (as F) mg/l, Max	1.94	1.78	1.68	0.02	1.0	APHA, 22 nd Edition, SPADNS
7	Free Residual Chlorine, mg/l, Min	<0.02	<0.02	0.02	0.02	0.2	APHA, 22 nd Edition, DPD
8	Iron (as Fe), mg/l, Max	<0.02	<0.02	<0.02	0.06	0.3	IS 3025 /53 : 2003, R : 2009, AAS-Flame
9	Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	0.005	0.01	APHA, 22 nd Edition, AAS-GTA
10	Manganese (as Mn), mg/l, Max	<0.06	<0.06	<0.06	0.02	0.1	IS-3025/59:2006,AAS-Flame
11	Nickel (as Ni), mg/l, Max	<0.01	<0.01	<0.01	0.01	0.02	IS-3025/54:2003, AAS-Flame
12	Nitrate (as NO ₃), mg/l, Max	0.47	0.70	2.86	0.5	45	APHA, 22 nd Edition, UV-Spectrophotometric
13	Odour	Agreeable	Agreeable	Agreeable	Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
14	pH value	7.21	7.17	7.22	0.2	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
15	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	<0.001	<0.001	<0.001	0.001	0.001	APHA, 22 nd Edition, 4-Amino Antipyrine
16	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	APHA, 22 nd Edition, AAS-GTA
17	Sulphate (as SO ₄) mg/l, Max	117	21	33	2.00	200	APHA, 22 nd Edition. Turbidity
18	Total Alkalinity (CaCO ₃), mg/l, Max	224	208	136	4.00	200	IS-3025/23:1986, Titration
19	Total Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	IS 3025/ 37:1988 R : 2003, AAS-VGA
20	Total Chromium (as Cr), mg/l, Max	0.05	0.06	0.05	0.04	0.05	IS-3025/52:2003, AAS-Flame
21	Total Dissolved Solids, mg/l, Max	384	312	244	25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (CaCO ₃), mg/l, Max	232	204	144	4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	0.9	0.8	0.7	1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	<0.01	<0.01	<0.01	0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame

Note: 1) This Report refers to the values obtained at the time of testing and results related to the items tested
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TEST REPORT

09/18 Test Report No. 1548	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Sep-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** P.O.Office

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Jul-18 1st FN	10/07/18-11/07/18	16/07/18	16/07/18-20/07/18	270	151	71	< 25	< 6	South Rain
Jul-18 2nd FN	25/07/18-26/07/18	01/08/18	01/08/18-07/08/18	141	76	36	< 25	< 6	East Cloud
Aug-18 3rd FN	02/08/18-03/08/18	16/08/18	16/08/18-21/08/18	153	80	39	< 25	< 6	West Cloud
Aug-18 4th FN	25/08/18-26/08/18	04/09/18	04/09/18-10/09/18	152	97	52	< 25	< 6	East Rain
Sep-18 5th FN	10/09/18-11/09/18	17/09/18	17/09/18-25/09/18	180	69	33	< 25	< 6	East Rain
Sep-18 6th FN	24/09/18-25/09/18	01/10/18	01/10/18-06/10/18	161	87	44	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov.'2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope.

TEST REPORT

09/18 Test Report No. 1549	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Sep-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** Pump House

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Jul-18 1st FN	10/07/18-11/07/18	16/07/18	16/07/18-20/07/18	313	164	51	< 25	< 6	South Rain
Jul-18 2nd FN	25/07/18-26/07/18	01/08/18	01/08/18-07/08/18	152	76	36	< 25	< 6	East Cloud
Aug-18 3rd FN	02/08/18-03/08/18	16/08/18	16/08/18-21/08/18	136	76	37	< 25	< 6	West Cloud
Aug-18 4th FN	25/08/18-26/08/18	04/09/18	04/09/18-10/09/18	153	88	41	< 25	< 6	East Rain
Sep-18 5th FN	10/09/18-11/09/18	17/09/18	17/09/18-25/09/18	139	70	31	< 25	< 6	East Rain
Sep-18 6th FN	24/09/18-25/09/18	01/10/18	01/10/18-06/10/18	144	72	32	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept. '2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov. '2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope

TEST REPORT

09/18 Test Report No. 1550	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Sep-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** GVT Center

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Jul-18 1st FN	11/07/18-12/07/18	16/07/18	16/07/18-20/07/18	267	111	58	< 25	< 6	South Rain
Jul-18 2nd FN	26/07/18-27/07/18	01/08/18	01/08/18-07/08/18	160	88	39	< 25	< 6	East Cloud
Aug-18 3rd FN	02/08/18-03/08/18	16/08/18	16/08/18-21/08/18	141	67	33	< 25	< 6	West Cloud
Aug-18 4th FN	26/08/18-27/08/18	04/09/18	04/09/18-10/09/18	166	84	40	< 25	< 6	East Rain
Sep-18 5th FN	11/09/18-12/09/18	17/09/18	17/09/18-25/09/18	164	77	31	< 25	< 6	East Rain
Sep-18 6th FN	25/09/18-26/09/18	01/10/18	01/10/18-06/10/18	173	93	43	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov.'2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope .

TEST REPORT

09/18 Test Report No. 1551	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Sep-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** Weighbridge near Chowk

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)/TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Jul-18 1st FN	11/07/18-12/07/18	16/07/18	16/07/18-20/07/18	235	126	69	< 25	< 6	South Rain
Jul-18 2nd FN	26/07/18-27/07/18	01/08/18	01/08/18-07/08/18	209	114	53	< 25	< 6	East Cloud
Aug-18 3rd FN	03/08/18-04/08/18	16/08/18	16/08/18-21/08/18	222	98	51	< 25	< 6	West Cloud
Aug-18 4th FN	26/08/18-27/08/18	04/09/18	04/09/18-10/09/18	135	77	37	< 25	< 6	East Rain
Sep-18 5th FN	11/09/18-12/09/18	17/09/18	17/09/18-25/09/18	240	102	61	< 25	< 6	East Rain
Sep-18 6th FN	25/09/18-26/09/18	01/10/18	01/10/18-06/10/18	137	79	38	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept. '2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov.'2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope.

TEST REPORT

09/18 Test Report No. 1552	Job No. 094318021	Year	FY2018-19
Type of Sample:	Noise	Quarter Ending	Sep-18
Customer	CCL		
Testing Protocol:	'The noise pollution (Regulation and Control), Rules,2000		
Remarks:			

TEST RESULT

The sample has been tested with the following results:-

Area : **Hazaribagh** **Project:** **Tapin South OCP**

Station Name	Noise Level					
	Jul-18 1st FN	Jul-18 2nd FN	Aug-18 3rd FN	Aug-18 4th FN	Sep-18 5th FN	Sep-18 6th FN
Date of recording	10/07/18	25/07/18	02/08/18	25/08/18	10/09/18	24/09/18
P.O.Office	48.1	52.2	49.4	54.2	50.2	48.8
Date of recording	10/07/18	26/07/18	02/08/18	26/08/18	11/09/18	25/09/18
GVT Center	49.9	52.6	51.4	53.2	52.6	48.2

Ambient Air Quality Standards in respect of Noise as per 'The noise pollution (Regulation and Control), Rules,2000		
Time Frame	Limits in dB(A) Leq	
	Day Time 6.00 AM to 10.00 PM	Night Time 10.00 PM to 6.00 AM
Industrial Area	75	70
Commercial Area	65	55
Residential area	55	45
Silence Zone	50	40

TEST REPORT

09/18 Test Report No. 1553	Job No. 094318021	Year	FY2018-19
Type of Sample:	Surface Water	Quarter Ending	Sep-18
Customer	CCL	Date of Receipt:	16/07/18
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval	Date of Analysis:	16.07.18-14.09.18
Testing Protocol:	-		
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

TEST RESULT

The sample has been tested with the following results:-

Area :**Hazaribagh****Project:****Tapin South OCP****Stations:**

1. U/S of Jharna Nala
2. D/S of Jharna Nala
3. U/S Bokaro River
4. D/S Bokaro River

Date of Sampling:**12/07/18****12/07/18****12/07/18****12/07/18**

Sl.No	Parameter	Sampling Stations				Detection Limit	BIS Standard & Method
		1	2	3	4		
1	Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	<0.002	0.002	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2	2	2	4.2	2.00	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
3	Cadmium(as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	APHA, 22 nd Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	18	18	14	14	2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03	<0.03	<0.03	0.03	IS 3025 /42 : 1992 R : 2009, AAS-Flame
6	Disolved Oxygen, min.	6.3	6.3	6.3	6.1	0.10	IS 3025/38:1989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.71	0.65	0.52	0.44	0.02	APHA, 22 nd Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01	<0.01	<0.01	0.01	APHA, 22 nd Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	<0.06	<0.06	0.43	0.35	0.06	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
10	Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	<0.005	0.005	APHA, 22 nd Edition AAS-GTA
11	Nitrate (as NO ₃), mg/l, Max	1.28	1.42	2.92	3.32	0.50	APHA, 22 nd Edition, UV-Spectrophotometric
12	pH value	8	8.36	8.21	8.13	0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	<0.001	<0.001	<0.001	<0.001	0.001	APHA, 22 nd Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	<0.002	0.002	APHA, 22 nd Edition AAS-GTA
15	Sulphate (as SO ₄) mg/l, Max	128	124	13	14	2.00	APHA, 22 nd Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	342	344	148	166	25.00	IS 3025 /16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	22	22	22	52	10.00	IS 3025 /17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	<0.01	<0.01	0.01	<0.01	0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame

TEST REPORT

09/18 Test Report No. 1554	Job No. 094318021	Year	FY2018-19
Type of Sample:	Drinking Water	Quarter Ending	Sep-18
Customer	CCL	Date of Receipt:	16/07/18
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval	Date of Analysis:	16.07.18-14.09.18
Testing Protocol:	IS:10500 Drinking Water Standards		
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

TEST RESULT

The sample has been tested with the following results:-

Area :**Hazaribagh****Project:****Tapin South OCP****Stations:**

1. Bore Well at Filter Plant
2. Bore Well at Old C Type
3. Clear Water at Filter Plant

Date of Sampling:**12/07/18****12/07/18****12/07/18**

SL.No	Parameter	Sampling Stations			Detection Limit	IS:10500 Standards	Standard / Test Method
		1	2	3			
1	Boron (as B), mg/l, Max	<0.20	<0.20	<0.20	0.20	0.5	APHA, 22 nd Edition, Carmine
2	Cadmium (as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	0.0005	0.003	APHA, 22 nd Edition, AAS-GTA
3	Calcium (as Ca), mg/l, Max	112	128	67.2	1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	112	112	22	2.00	250	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03	<0.03	0.03	0.05	IS 3025/42 : 1992 R : 2009, AAS-Flame
6	Fluoride (as F) mg/l, Max	0.34	0.36	2.19	0.02	1.0	APHA, 22 nd Edition, SPADNS
7	Free Residual Chlorine, mg/l, Min	<0.02	<0.02	0.02	0.02	0.2	APHA, 22 nd Edition, DPD
8	Iron (as Fe), mg/l, Max	<0.06	<0.06	<0.06	0.06	0.3	IS 3025 /53 : 2003, R : 2009, AAS-Flame
9	Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	0.005	0.01	APHA, 22 nd Edition, AAS-GTA
10	Manganese (as Mn), mg/l, Max	<0.02	<0.02	<0.02	0.02	0.1	IS-3025/59:2006,AAS-Flame
11	Nickel (as Ni), mg/l, Max	<0.01	<0.01	<0.01	0.01	0.02	IS-3025/54:2003, AAS-Flame
12	Nitrate (as NO ₃), mg/l, Max	30.21	29.95	0.21	0.5	45	APHA, 22 nd Edition, UV-Spectrophotometric
13	Odour	Agreeable	Agreeable	Agreeable	Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
14	pH value	8.16	8.19	8.51	0.2	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
15	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	<0.001	<0.001	<0.001	0.001	0.001	APHA, 22 nd Edition, 4-Amino Antipyrine
16	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	APHA, 22 nd Edition, AAS-GTA
17	Sulphate (as SO ₄) mg/l, Max	64	67	11	2.00	200	APHA, 22 nd Edition, Turbidity
18	Total Alkalinity (CaCO ₃), mg/l, Max	120	128	92	4.00	200	IS-3025/23:1986, Titration
19	Total Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	IS 3025/ 37:1988 R : 2003, AAS-VGA
20	Total Chromium (as Cr), mg/l, Max	0.14	0.1	0.13	0.04	0.05	IS-3025/52:2003, AAS-Flame
21	Total Dissolved Solids, mg/l, Max	560	598	284	25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (CaCO ₃), mg/l, Max	352	360	196	4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	1	1	0.9	1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	<0.01	<0.01	<0.01	0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame

Note: 1) This Report refers to the values obtained at the time of testing and results related to the items tested
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3) Liability for return of samples ceases as samples cannot be retained for retests.
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TEST REPORT

12/18 Test Report No. 1553	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Dec-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** P.O.Office

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Oct-18 1st FN	08/10/18-09/10/18	15/10/18	15/10/18-23/10/18	315	110	73	< 25	< 6	East Sunny
Oct-18 2nd FN	26/10/18-27/10/18	01/11/18	01/11/18-09/11/18	224	131	63	< 25	< 6	East Sunny
Nov-18 3rd FN	10/11/18-11/11/18	16/11/18	16/11/18-24/11/18	419	244	91	< 25	< 6	East Sunny
Nov-18 4th FN	25/11/18-26/11/18	03/12/18	03/12/18-11/12/18	275	138	69	< 25	< 6	East Sunny
Dec-18 5th FN	10/12/18-11/12/18	17/12/18	17/12/18-25/12/18	383	206	84	< 25	< 6	East Sunny
Dec-18 6th FN	25/12/18-26/12/18	01/01/19	01/01/19-09/01/19	371	241	79	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept. '2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov. '2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope.

TEST REPORT

12/18 Test Report No. 1554	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Dec-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** Pump House

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter (PM ₁₀ + >PM ₁₀)/TPM	Particulate Matter (PM ₁₀)	*Particulate Matter (PM _{2.5})	Sulphur Dioxide (SO ₂)	Nitrogen Oxides (as NO ₂)	
Oct-18 1st FN	08/10/18-09/10/18	15/10/18	15/10/18-23/10/18	178	83	46	< 25	< 6	East Sunny
Oct-18 2nd FN	26/10/18-27/10/18	01/11/18	01/11/18-09/11/18	202	85	53	< 25	< 6	East Sunny
Nov-18 3rd FN	10/11/18-11/11/18	16/11/18	16/11/18-24/11/18	210	74	38	< 25	< 6	East Sunny
Nov-18 4th FN	25/11/18-26/11/18	03/12/18	03/12/18-11/12/18	226	96	53	< 25	< 6	East Sunny
Dec-18 5th FN	10/12/18-11/12/18	17/12/18	17/12/18-25/12/18	212	78	39	< 25	< 6	East Sunny
Dec-18 6th FN	25/12/18-26/12/18	01/01/19	01/01/19-09/01/19	328	122	66	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov.'2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope

TEST REPORT

12/18 Test Report No. 1555	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Dec-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** GVT Center

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Oct-18 1st FN	09/10/18-10/10/18	15/10/18	15/10/18-23/10/18	190	98	52	< 25	< 6	East Sunny
Oct-18 2nd FN	27/10/18-28/10/18	01/11/18	01/11/18-09/11/18	342	159	72	< 25	< 6	East Sunny
Nov-18 3rd FN	11/11/18-12/11/18	16/11/18	16/11/18-24/11/18	235	130	33	< 25	< 6	East Sunny
Nov-18 4th FN	26/11/18-27/11/18	03/12/18	03/12/18-11/12/18	246	134	73	< 25	< 6	East Sunny
Dec-18 5th FN	11/12/18-12/12/18	17/12/18	17/12/18-25/12/18	261	137	55	< 25	< 6	East Sunny
Dec-18 6th FN	26/12/18-27/12/18	01/01/19	01/01/19-09/01/19	298	148	60	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept. '2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov. '2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope .

TEST REPORT

12/18 Test Report No. 1556	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Dec-18
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** Weighbridge near Chowk

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Oct-18 1st FN	09/10/18-10/10/18	15/10/18	15/10/18-23/10/18	148	73	46	< 25	< 6	East Sunny
Oct-18 2nd FN	27/10/18-28/10/18	01/11/18	01/11/18-09/11/18	246	125	62	< 25	< 6	East Sunny
Nov-18 3rd FN	11/11/18-12/11/18	16/11/18	16/11/18-24/11/18	649	304	124	< 25	< 6	East Sunny
Nov-18 4th FN	26/11/18-27/11/18	03/12/18	03/12/18-11/12/18	328	157	85	< 25	< 6	East Sunny
Dec-18 5th FN	11/12/18-12/12/18	17/12/18	17/12/18-25/12/18	271	148	61	< 25	< 6	East Sunny
Dec-18 6th FN	26/12/18-27/12/18	01/01/19	01/01/19-09/01/19	404	194	68	< 25	7	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov.'2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope.

TEST REPORT

12/18 Test Report No. 1557	Job No. 094318021	Year	FY2018-19
Type of Sample:	Noise	Quarter Ending	Dec-18
Customer	CCL		
Testing Protocol:	<i>'The noise pollution (Regulation and Control), Rules,2000</i>		
Remarks:			

TEST RESULT

The sample has been tested with the following results:-

Area : **Hazaribagh** **Project:** **Tapin South OCP**

Station Name	Noise Level					
	Oct-18 1st FN	Oct-18 2nd FN	Nov-18 3rd FN	Nov-18 4th FN	Dec-18 5th FN	Dec-18 6th FN
Date of recording	08/10/18	26/10/18	10/11/18	25/11/18	10/12/18	25/12/18
P.O.Office	50.3	49.2	51.2	50.2	51.5	50.7
Date of recording	09/10/18	27/10/18	11/11/18	26/11/18	11/12/18	25/12/18
GVT Center	52.7	50.1	54.1	52.6	54.4	51.7

<i>Ambient Air Quality Standards in respect of Noise as per 'The noise pollution (Regulation and Control), Rules,2000</i>		
Time Frame	Limits in dB(A) Leq	
	Day Time 6.00 AM to 10.00 PM	Night Time 10.00 PM to 6.00 AM
<i>Industrial Area</i>	75	70
<i>Commercial Area</i>	65	55
<i>Residential area</i>	55	45
<i>Silence Zone</i>	50	40

TEST REPORT

12/18 Test Report No. 1558	Job No. 094318021	Year	FY2018-19
Type of Sample:	Surface Water	Quarter Ending	Dec-18
Customer	CCL	Date of Receipt:	15/10/18
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval	Date of Analysis:	15.10.18-22.01.19
Testing Protocol:	-		
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

TEST RESULT

The sample has been tested with the following results:-

Area :**Hazaribagh****Project:****Tapin South OCP****Stations:**

1. U/S of Jharna Nala
2. D/S of Jharna Nala
3. U/S Bokaro River
4. D/S Bokaro River

Date of Sampling:**09/10/18****09/10/18****09/10/18****09/10/18**

Sl.No	Parameter	Sampling Stations				Detection Limit	BIS Standard & Method
		1	2	3	4		
1	Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	<0.002	0.002	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2	2	2	3.2	2.00	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
3	Cadmium(as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	APHA, 22 nd Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	12	12	24	24	2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03	<0.03	<0.03	0.03	IS 3025 /42 : 1992 R : 2009, AAS-Flame
6	Disolved Oxygen, min.	6.3	6.3	6.3	6.2	0.10	IS 3025/38:1989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.82	0.76	1	0.94	0.02	APHA, 22 nd Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01	<0.01	<0.01	0.01	APHA, 22 nd Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	<0.06	<0.06	0.43	0.35	0.06	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
10	Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	<0.005	0.005	APHA, 22 nd Edition AAS-GTA
11	Nitrate (as NO ₃), mg/l, Max	6.69	7.44	12.94	13.11	0.50	APHA, 22 nd Edition, UV-Spectrophotometric
12	pH value	8.06	8.04	8.15	7.87	0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	<0.001	<0.001	<0.001	<0.001	0.001	APHA, 22 nd Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	<0.002	0.002	APHA, 22 nd Edition AAS-GTA
15	Sulphate (as SO ₄) mg/l, Max	12.29	12.91	187.8	185.92	2.00	APHA, 22 nd Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	114	122	386	364	25.00	IS 3025 /16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	26	32	24	54	10.00	IS 3025 /17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	<0.01	<0.01	0.01	<0.01	0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame

Note: 1) This Report refers to the values obtained at the time of testing and results related to the items tested
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3) Liability for return of samples ceases as samples cannot be retained for retests.
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TEST REPORT

12/18 Test Report No. 1559	Job No. 094318021	Year	FY2018-19
Type of Sample:	Drinking Water	Quarter Ending	Dec-18
Customer	CCL	Date of Receipt:	15/10/18
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval	Date of Analysis:	15.10.18-22.01.19
Testing Protocol:	IS:10500 Drinking Water Standards		
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

TEST RESULT

The sample has been tested with the following results:-

Area :**Hazaribagh****Project:****Tapin South OCP****Stations:**

1. Bore Well at Filter Plant
2. Bore Well at Old C Type
3. Clear Water at Filter Plant

Date of Sampling:

09/10/18

09/10/18

09/10/18

SL.No	Parameter	Sampling Stations			Detection Limit	IS:10500 Standards	Standard / Test Method
		1	2	3			
1	Boron (as B), mg/l, Max	<0.20	<0.20	<0.20	0.20	0.5	APHA, 22 nd Edition, Carmine
2	Cadmium (as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	0.0005	0.003	APHA, 22 nd Edition, AAS-GTA
3	Calcium (as Ca), mg/l, Max	48	43.2	27.2	1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	20	16	16	2.00	250	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03	<0.03	0.03	0.05	IS 3025/42 : 1992 R : 2009, AAS-Flame
6	Fluoride (as F) mg/l, Max	1.79	2.15	0.58	0.02	1.0	APHA, 22 nd Edition, SPADNS
7	Free Residual Chlorine, mg/l, Min	<0.02	<0.02	0.03	0.02	0.2	APHA, 22 nd Edition, DPD
8	Iron (as Fe), mg/l, Max	<0.06	<0.06	<0.06	0.06	0.3	IS 3025 /53 : 2003, R : 2009, AAS-Flame
9	Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	0.005	0.01	APHA, 22 nd Edition, AAS-GTA
10	Manganese (as Mn), mg/l, Max	<0.02	<0.02	<0.02	0.02	0.1	IS-3025/59:2006,AAS-Flame
11	Nickel (as Ni), mg/l, Max	<0.01	<0.01	<0.01	0.01	0.02	IS-3025/54:2003, AAS-Flame
12	Nitrate (as NO ₃), mg/l, Max	0.69	6.33	17.90	0.5	45	APHA, 22 nd Edition, UV-Spectrophotometric
13	Odour	Agreeable	Agreeable	Agreeable	Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
14	pH value	8.1	8.2	8.17	0.2	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
15	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	<0.001	<0.001	<0.001	0.001	0.001	APHA, 22 nd Edition, 4-Amino Antipyrine
16	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	APHA, 22 nd Edition, AAS-GTA
17	Sulphate (as SO ₄) mg/l, Max	54	132	42	2.00	200	APHA, 22 nd Edition, Turbidity
18	Total Alkalinity (CaCO ₃), mg/l, Max	84	68	48	4.00	200	IS-3025/23:1986, Titration
19	Total Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	IS 3025/ 37:1988 R : 2003, AAS-VGA
20	Total Chromium (as Cr), mg/l, Max	0.14	0.1	0.13	0.04	0.05	IS-3025/52:2003, AAS-Flame
21	Total Dissolved Solids, mg/l, Max	294	332	174	25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (CaCO ₃), mg/l, Max	192	176	104	4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	1.1	1	0.8	1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	<0.01	<0.01	<0.01	0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame

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TEST REPORT

03/19 Test Report No. 1548	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Mar-19
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area **Hazaribagh** **Project:** **Tapin South OCP** **Stations:** P.O.Office
:

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)/TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Jan-19 1st FN	10/01/19-11/01/19	16-01-2019	16/01/19-22/01/19	405	215	80	< 25	< 6	East Sunny
Jan-19 2nd FN	29/01/19-30/01/19	01-02-2019	01/02/19-09/02/19	270	113	66	< 25	< 6	East Sunny
Feb-19 3rd FN	09/02/19-10/02/19	15-02-2019	15/02/19-25/02/19	227	105	50	< 25	< 6	East Sunny
Feb-19 4th FN	24/02/19-25/02/19	28-02-2019	28/02/19-08/03/19	317	158	65	< 25	< 6	East Sunny
Mar-19 5th FN	09/03/19-10/03/19	18-03-2019	18/03/19-26/03/19	280	113	41	< 25	< 6	East Sunny
Mar-19 6th FN	25/03/19-26/03/19	01-04-2019	01/04/19-09/04/19	268	107	50	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept. '2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov. '2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope.

TEST REPORT

03/19 Test Report No. 1549	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Mar-19
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area **Hazaribagh** **Project:** **Tapin South OCP** **Stations:** Pump House
:

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Jan-19 1st FN	10/01/19-11/01/19	16-01-2019	16/01/19-22/01/19	216	82	51	< 25	< 6	East Sunny
Jan-19 2nd FN	30/01/19-31/01/19	01-02-2019	01/02/19-09/02/19	224	81	43	< 25	< 6	East Sunny
Feb-19 3rd FN	09/02/19-10/02/19	15-02-2019	15/02/19-25/02/19	156	61	28	< 25	< 6	East Sunny
Feb-19 4th FN	24/02/19-25/02/19	28-02-2019	28/02/19-08/03/19	226	86	48	< 25	< 6	East Sunny
Mar-19 5th FN	09/03/19-10/03/19	18-03-2019	18/03/19-26/03/19	119	51	24	< 25	< 6	East Sunny
Mar-19 6th FN	25/03/19-26/03/19	01-04-2019	01/04/19-09/04/19	134	56	28	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept. '2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov. '2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope

TEST REPORT

03/19 Test Report No. 1550	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Mar-19
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area **Hazaribagh** **Project:** **Tapin South OCP** **Stations:** GVT Center
:

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)/TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Jan-19 1st FN	11/01/19-12/01/19	16-01-2019	16/01/19-22/01/19	313	150	58	< 25	< 6	East Sunny
Jan-19 2nd FN	30/01/19-31/01/19	01-02-2019	01/02/19-09/02/19	230	117	52	< 25	< 6	East Sunny
Feb-19 3rd FN	11/02/19-12/02/19	15-02-2019	15/02/19-25/02/19	319	154	66	< 25	< 6	East Sunny
Feb-19 4th FN	25/02/19-26/02/19	28-02-2019	28/02/19-08/03/19	247	112	46	< 25	< 6	East Sunny
Mar-19 5th FN	10/03/19-11/03/19	18-03-2019	18/03/19-26/03/19	247	120	46	< 25	< 6	East Sunny
Mar-19 6th FN	26/03/19-27/03/19	01-04-2019	01/04/19-09/04/19	312	127	61	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept.'2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov.'2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope .

TEST REPORT

03/19 Test Report No. 1551	Job No. 094318021	Year	FY2018-19
Type of Sample	Ambient Air	Quarter Ending	Mar-19
Customer	CCL		
Mode of Receipt of Sample:	Joint sampling with customer		
Sampling Protocol:	IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution		
Remarks & Observation:	All samplers placed 1.5 m above ground level		

TEST RESULT

The sample has been tested with the following results:-

Area : Hazaribagh **Project:** Tapin South OCP **Stations:** Weighbridge near Chowk

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in $\mu\text{g}/\text{m}^3$)					Wind Direction (from) & Weather
				*Total Particulate Matter ($\text{PM}_{10} + >\text{PM}_{10}$)TPM	Particulate Matter (PM_{10})	*Particulate Matter ($\text{PM}_{2.5}$)	Sulphur Dioxide (SO_2)	Nitrogen Oxides (as NO_2)	
Jan-19 1st FN	11/01/19-12/01/19	16-01-2019	16/01/19-22/01/19	381	179	68	< 25	< 6	East Sunny
Jan-19 2nd FN	30/01/19-31/01/19	01-02-2019	01/02/19-09/02/19	404	209	83	< 25	< 6	East Sunny
Feb-19 3rd FN	11/02/19-12/02/19	15-02-2019	15/02/19-25/02/19	225	112	54	< 25	< 6	East Sunny
Feb-19 4th FN	25/02/19-26/02/19	28-02-2019	28/02/19-08/03/19	271	130	62	< 25	< 6	East Sunny
Mar-19 5th FN	10/03/19-11/03/19	18-03-2019	18/03/19-26/03/19	216	106	57	< 25	< 6	East Sunny
Mar-19 6th FN	26/03/19-27/03/19	01-04-2019	01/04/19-09/04/19	315	118	51	< 25	< 6	East Sunny

Note:

1. Gazette Notification no. G.S.R 742(E) dt.25th Sept. '2000 is enclosed along for reference applicable in core zone.
2. Gazette Notification no. G.S.R 826 (E) dt.Nov. '2009 is enclosed for reference applicable in buffer zone.

*Out of NABL scope.

TEST REPORT

03/19	Test Report No. 1552	Job No. 094318021	Year	FY2018-19
Type of Sample:		Noise	Quarter Ending	Mar-19
Customer		CCL		
Testing Protocol:		The noise pollution (Regulation and Control), Rules,2000		
Remarks:				

TEST RESULT

The sample has been tested with the following results:-

Area : **Hazaribagh** **Project:** **Tapin South OCP**

Station Name	Noise Level					
	Jan-19 1st FN	Jan-19 2nd FN	Feb-19 3rd FN	Feb-19 4th FN	Mar-19 5th FN	Mar-19 6th FN
Date of recording	10-01-2019	29-01-2019	09-02-2019	24-02-2019	09-03-2019	25-03-2019
P.O.Office	51.4	48.6	54.9	54.9	51.1	52.3
Date of recording	11-01-2019	30-01-2019	11-02-2019	25-02-2019	09-03-2019	25-03-2019
GVT Center	54.3	49.8	48.2	53.7	50.3	52.3

Ambient Air Quality Standards in respect of Noise as per 'The noise pollution (Regulation and Control), Rules,2000		
Time Frame	Limits in dB(A) Leq	
	Day Time 6.00 AM to 10.00 PM	Night Time 10.00 PM to 6.00 AM
Industrial Area	75	70
Commercial Area	65	55
Residential area	55	45
Silence Zone	50	40

TEST REPORT

03/19	Test Report No. 1553	Job No. 094318021	Year	FY2018-19
Type of Sample:	Surface Water	Quarter Ending	Mar-19	
Customer	CCL	Date of Receipt:	16-01-2019	
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval	Date of Analysis:	16.01.19-16.03.19	
Testing Protocol:	-			
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent			

TEST RESULT

The sample has been tested with the following results:-

Area :**Hazaribagh****Project:****Tapin South OCP****Stations:****Date of Sampling:**

1. U/S of Jharna Nala
2. D/S of Jharna Nala
3. U/S Bokaro River
4. D/S Bokaro River

11-01-2019**11-01-2019****11-01-2019****11-01-2019**

Sl.No	Parameter	Sampling Stations				Detection Limit	BIS Standard & Method
		1	2	3	4		
1	Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	<0.002	0.002	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2.2	2.4	2.4	12.2	2.00	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
3	Cadmium(as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	APHA, 22 nd Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	26	24	24	26	2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03	<0.03	<0.03	0.03	IS 3025 /42 : 1992 R : 2009, AAS-Flame
6	Disolved Oxygen, min.	6.3	6.3	6.3	6.3	0.10	IS 3025/38:1989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.76	0.74	0.8	0.88	0.02	APHA, 22 nd Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01	<0.01	<0.01	0.01	APHA, 22 nd Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	0.08	0.08	<0.06	<0.06	0.06	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
10	Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	<0.005	0.005	APHA, 22 nd Edition AAS-GTA
11	Nitrate (as NO ₃), mg/l, Max	4.08	3.90	3.72	4.25	0.50	APHA, 22 nd Edition, UV-Spectrophotometric
12	pH value	7.46	7.55	7.51	8.03	0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	<0.001	<0.001	<0.001	<0.001	0.001	APHA, 22 nd Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	<0.002	0.002	APHA, 22 nd Edition AAS-GTA
15	Sulphate (as SO ₄) mg/l, Max	76	72	74	82	2.00	APHA, 22 nd Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	184	184	186	198	25.00	IS 3025 /16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	22	26	28	46	10.00	IS 3025 /17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	0.01	0.02	0.03	0.01	0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame

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TEST REPORT

03/19 Test Report No. 1554	Job No. 094318021	Year	FY2018-19
Type of Sample:	Drinking Water	Quarter Ending	Mar-19
Customer	CCL	Date of Receipt:	16-01-2019
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval	Date of Analysis:	16.01.19-16.03.19
Testing Protocol:	IS:10500 Drinking Water Standards		
Remarks & Observation:	Samples received in 2 ltr plastic Jerri cane, Colour as observed is transparent		

TEST RESULT

The sample has been tested with the following results:-

Area :**Hazaribagh****Project:****Tapin South OCP****Stations:**

1. Bore Well at Filter Plant
2. Bore Well at Old C Type
3. Clear Water at Filter Plant

Date of Sampling:**11-01-2019****11-01-2019****11-01-2019**

SL.No	Parameter	Sampling Stations			Detection Limit	IS:10500 Standards	Standard / Test Method
		1	2	3			
1	Boron (as B), mg/l, Max	<0.20	<0.20	<0.20	0.20	0.5	APHA, 22 nd Edition, Carmine
2	Cadmium (as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	0.0005	0.003	APHA, 22 nd Edition, AAS-GTA
3	Calcium (as Ca), mg/l, Max	144	140.8	174.4	1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	60	60	52	2.00	250	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03	<0.03	0.03	0.05	IS 3025/42 : 1992 R : 2009, AAS-Flame
6	Fluoride (as F) mg/l, Max	1.79	2.15	0.58	0.02	1.0	APHA, 22 nd Edition, SPADNS
7	Free Residual Chlorine, mg/l, Min	<0.02	<0.02	<0.02	0.02	0.2	APHA, 22 nd Edition, DPD
8	Iron (as Fe), mg/l, Max	<0.06	<0.06	<0.06	0.06	0.3	IS 3025 /53 : 2003, R : 2009, AAS-Flame
9	Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	0.005	0.01	APHA, 22 nd Edition, AAS-GTA
10	Manganese (as Mn), mg/l, Max	2.58	2.62	<0.02	0.02	0.1	IS-3025/59:2006,AAS-Flame
11	Nickel (as Ni), mg/l, Max	0.01	<0.01	<0.01	0.01	0.02	IS-3025/54:2003, AAS-Flame
12	Nitrate (as NO ₃), mg/l, Max	48.73	44.30	62.02	0.5	45	APHA, 22 nd Edition, UV-Spectrophotometric
13	Odour	Agreeable	Agreeable	Agreeable	Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
14	pH value	8.21	8.27	8.22	0.2	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
15	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	<0.001	<0.001	<0.001	0.001	0.001	APHA, 22 nd Edition, 4-Amino Antipyrine
16	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	APHA, 22 nd Edition, AAS-GTA
17	Sulphate (as SO ₄) mg/l, Max	216	214	232	2.00	200	APHA, 22 nd Edition, Turbidity
18	Total Alkalinity (CaCO ₃), mg/l, Max	116	68	84	4.00	200	IS-3025/23:1986, Titration
19	Total Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	IS 3025/ 37:1988 R : 2003, AAS-VGA
20	Total Chromium (as Cr), mg/l, Max	<0.04	<0.04	<0.04	0.04	0.05	IS-3025/52:2003, AAS-Flame
21	Total Dissolved Solids, mg/l, Max	840	820	1060	25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (CaCO ₃), mg/l, Max	548	536	760	4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	1	1.2	1.1	1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	0.86	0.27	0.1	0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame

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