CENTRAL COALFIELDS LIMITED
HAZARIBAG AREA
OFFICE OF THE PROJECT OFFICER
PAREJ EAST OCP

Ref.No. PO/PEOCP/2019/ 5204

Dated: 23/10/19

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 Parej 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.

Encl: 1) Soft copy of above report.

Yours Faithfully

23/10/19
Project Officer
Parej East OCP
PROJECT OFFICER
PAREJ EAST PROJECT

Copy to:
1. **RO, JSPCB, Hazaribagh**
2. **GM(H),Charhi**
3. **Area Environment Engineer (H), Charhi**
4. **PE(Civil),Parej East OCP**

Rf
Bodi
18/11/19

JHARKHAND STATE POLLUTION CONTROL BOARD
झारखण्ड
JSPCB
RANCHI

CENTRAL COALFIELDS LIMITED
HAZARIBAG AREA
OFFICE OF THE PROJECT OFFICER
PAREJ EAST OCP

Ref.No. PO/PEOCP/2019/ 5204 **Dated:** 23/10/19

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23/10/19
Project Officer
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PAREJ EAST PROJECT

Copy to:
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2. **GM(H),Charhi**
3. **Area Environment Engineer (H), Charhi**
4. **PE(Civil),Parej East OCP**

Chairman

Regional Office
JSPCB, Hazaribagh

ENVIRONMENTAL STATEMENT

IN

FORM V

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

of

PAREJ EAST OPEN CAST PROJECT

for

2018-19

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

September, 2019

EXECUTIVE SUMMARY

E-1 This annual Environmental Statement has been prepared as per the Gazette Notification No. G.S.R. 329(E) dated 13th March, 1992, the Ministry of Environment, Forest & Climate Change, Government of India.

E-2 Parej East Opencast Project of Central Coalfields Ltd. is situated in the southern sector of Parej Block in the West Bokaro coalfields in Hazaribagh District of Jharkhand state. The project location and other surface features are given in the plan annexed as Annexure.

E-3 The Parej East Opencast Project is a new mine started in 1993. The planned capacity of the project is 1.75 MTY. The expected life of the project is 29 yr. The production in the project was started in 1993-94.

E-4 The environmental monitoring was carried out quarterly as per the guide lines of Ministry of Environment, Forest & Climate Change (MoEF&CC).The environmental monitoring results for four quarters of 2013-14 are appended as Annexure.

E-5 Ambient air quality is 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 opencast mining.

E-6 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 dust suppression, industrial supply (in workshop etc.)

E-7 The noise levels recorded are generally below permissible limits prescribed by the Ministry of Environment, Forest & Climate Change (MoEF&CC). There is no continuous high level sound frequency of impulsive nature.

E-8 Raw material used in coal mining activities are explosive and POL for machines and automobiles. The consumption is detailed in part-B of Statement Form.

E-9 Hazardous wastes is not being produced either from mining operation or from any pollution control facilities.
Solid waste produced from mining activities is overburden (OB) material.

E-10 Regular measures are being taken to control air, water and noise pollutions discussed in detail in part-G, H & I of Environmental Statement form-V.
Also, measures will be taken for implementation of the Environmental Management Plan for the project.

Chapter - 1

PROJECT DESCRIPTION

1.1 INTRODUCTION:

Parej East Opencast Project of Central Coalfields Limited is situated in the southern sector of Parej Block in the West Bokaro coalfields in Hazaribagh District of Jharkhand State. The Parej East Opencast Project is a new mine started in 1993. The planned capacity of the project is 1.75 MTY. The expected life of the project is 29 yr. The production in the project started in 1993-94.

1.2 LOCATION & COMMUNICATION:

The project area is bounded by latitudes 23^{o} 48' 20" and 23^{o} 50' 30" N& longitudes 85^{o} 30' 50" and 85^{o} 33' 50" E. Parej East block is approachable by 12 Kms long metalled road from Charhi village which lies on NH-33, connecting Ranchi and Hazaribagh.

Ranchi road railway station on Gomoh-charhi north loopline of Eastern Railway is about 35 Kms by road from this project. Danea railway station of South-Eastern Railway on Gomoh- Barkakana loopline located near the foot of Lugu hill,is about 21 Kms away from the block connected by CCL road.

The project location and other surface features are given in the plan annexed in Annexure.

1.3 SALIENT FEATURES OF THE PROJECT:

As per the PR of Parej East Opencast for 1.75 Mty capacities, the total geological reserve estimated as 41.45 MT. The average stripping ratio is 2.77 cum/te. For this opencast, Shovel-dumper combination is the proposed mining technology.

The expected life of the project is 29 years. The production in the project is started in 1993-94. The total land required for the project is estimated to be 369.80 ha, out of which 57.58 ha is forest land.

1.4 TOPOGRAPHY & DRAINAGE:

Parej East block area is characterised by gently undulating topography with occasional mounds and with a number of local drains. There are no. of hillocks in the study area. Lugu hill is located on S-W side of the study area. The elevation varies from +428.00m above MSL.

Chutua nallah and other seasonal nallahs crossing the area flows towards east finally joining the easterly flowing Bokaro river which controls the drainage of the area. Bokaro River flows close to the project area on the southern side and Chutua nalla flows on the northern side of the project.

1.5 EMP STATUS

A comprehensive Environmental Management Plan (EMP) for this project was formulated and was approved by the Ministry of Environment, Forest and Climate Change (MoEF&CC) in Nov.'92.

ENVIRONMENTAL STATEMENT FORM-V

Environmental Statement for the financial year ending 31st March 2016

PART-A

i.	**Name and address of the owner/occupier of the industry/operation or process**	**:**	Parej East Open Cast Project Project Officer Parej
ii.	**Industry Category**	**:**	**Red**
iii.	**Production Capacity**	**:**	**1.75 mty**
iv.	**Date of last Environmental Statement Report Submitted**	**:**	September 2018

PART–B

WATER AND RAW MATERIAL CONSUMPTION

1. WATER CONSUMPTION (m^3/ day)

i.	**Mining** **a. Haul road dust suppression** **b. Workshop** **c. Fire Fighting** **d. Other (Service building etc)**	
ii.	**Cooling**	
iii.	**Domestic**	

Name of product	**Water consumption per unit of product**	
	During financial year (2014-15)	During financial year (2015-16)
1. ROM coal	0.17 Cum./te	0.17 Cum./te

2. RAW MATERIAL CONSUMPTION

Name of raw material	Name of products	Consumption of raw materials (per unit of output)	
		During financial year (2014-15)	During financial year (2015-16)
Explosive			
POL			
HSD			

PART–C

POLLUTION DISCHARGED TO ENVRONMENT/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	i.About 169 lts/day mine effluent discharged outside. ii.Workshop 7.0 lts/day iii.Colony 90.00 lts./day.The analysis results are given in Annexure		The analysis results reveal that most of the parameters are below permissible limits prescribed by MoEF as General Standards for Class 'A' effluent (Effluent discharged into inland surface water).
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.		Ambient air quality results show that SO_2, NO_X values were within prescribed limits.
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.		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 Waste	**Total Quantity (kg)**	
	During financial year (2015-16)	During financial year (2014-15)
(a) From process		
(b) From pollution control facilities		

PART–E

SOLID WASTES

Solid Waste	**Total Quantity in million cubic metre.**	
	During financial year (2015-16)	During financial year (2014-15)
(a)From Process (Mining) Overburden	1.85 M m^3	1.85 M. m^3
(b) From pollution control facilities	Nil	Nil
(c)Quantity recycled or reutilized	During both financial year, the entire volume of OB has been used for refilling the decoaled area of the quarry.	

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 is not being produced either from mining operation or from any pollution control facilities.

2. **SOLID WASTES:**

During opencast mining, overburden produced as sold wastes temporarily as these materials are used for land reclamation. During the year 2012-13, 3.857 M Cum of overburden was generated. The overburden materials are more or less homogeneous comprising mainly hard rock, sand, silt and clay & gravel.

3. **DISPOSAL PRACTICE:**

Presently, the O.B material is being filled in de-coaled area of quarry. The external O.B dump of previous years is in the formation stage and will be completed within the five years as per the EMP.

At the end of mining operation the total O.B to be removed has been estimated about 114.78 M cum, of which 11.35 M cum is proposed to be accommodated externally over an area of 76 ha and remaining would be back filled in the de-coaled area.

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. 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.
ii. Water sprinkling on coal stock.
iii. Plantation along the haul road and in other vacant space.
iv. All necessary precautions will be taken during drilling, blasting, loading & transporting operations.

2. WATER POLLUTION CONTROL MEASURES:

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

i. The mine water discharge outside only in the rainy season, which is allowed to settle in sump before discharge. Some of the mine water is also used for haul road dust suppression, in workshop & in the mine.
ii. The catch drains has 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 the settling ponds.
iii. An Oil & grease trap and settling ponds are provided in the workshop to prevent water pollution.
iv. Colony & other service buildings are provided with septic tank & soak pit. Also, a sedimentation lagoon is provided for domestic waste water.
v. A garland drain is provided around the quarry to collect the surface run-off. This also prevents storm water to enter in to the quarry area.

3. NOISE POLLUTION CONTROL MEASURES:

i. Blasting operation is carried out between 12.30 PM to 3.00 PM
ii. Regular maintenance of HEMMs, CHP and other equipment.
iii. Use of HEMMs with sound proof cabin.
iv. Providing green belt around noise generating centers.

4. MEASURES FOR RECLAMATION OF LAND

At present, overburden generated during mining is being used as re-filling material in De-coaled area of quarry. After the external dump of previous years as well as internal dumps reached its final stage, it is proposed to start technical and biological reclamation of the external dumps.

At the end of mining operation, some decoaled area will remain empty, which would be used for storing rain water. The presence of such a water body will help in increasing the moisture content of soil of adjacent area and ultimately it would promote the growth of vegetation.

PART–H

ADDITIONAL INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION

Following are the additional proposals:

i. The Environmental monitoring of the project will be continued quarterly as per the guidelines of Ministry of Environment, Forest and Climate Change (MoEF&CC).
ii. Environmental Statement report will be prepared for each financial year ending 31st March.
iii. The Air and water consent will be taken from Jharkhand State Pollution Control Board, Ranchi each year.

PART-I

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

i. A comprehensive Environmental Management Plan (EMP) has been prepared by Regional Institute-III of CMPDI and approved by MoEF&CC.

ii. The measures are being taken for implementation of Environmental Management Plan (EMP) of the project.

iii. Presently, to control fugitive dust on haul road arrangement has been made for automatic water sprinkler along the haul road for 1.0 km distance.

iv. Also, drilling & blasting operations are carried in controlled manner to reduce the dust.

TEST REPORT

06/18 Test Report No. 1525	**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:** **Parej(East)** **Stations:** Dhurkusmar Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	**Parameters (in µg/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)	
Apr-18 1st FN	06/04/18-07/04/18	17/04/18	17/04/18-23/04/18	384	119	66	< 25	< 6	East Sunny
Apr-18 2nd FN	20/04/18-21/04/18	02/05/18	02/05/18-07/05/18	313	103	66	< 25	< 6	East Sunny
May-18 3rd FN	06/05/18-07/05/18	16/05/18	16/05/18-22/05/18	287	132	60	< 25	< 6	East Sunny
May-18 4th FN	21/05/18-22/05/18	01/06/18	01/06/18-06/06/18	170	85	41	< 25	< 6	East Sunny
Jun-18 5th FN	08/06/18-09/06/18	19/06/18	19/06/18-23/06/18	115	70	46	< 25	< 6	South Cloud
Jun-18 6th FN	22/06/18-23/06/18	02/07/18	02/07/18-07/07/18	153	71	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.

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

TEST REPORT

06/18 Test Report No. 1526	**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:** **Parej(East)** **Stations:** Banjee Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Apr-18 1st FN	06/04/18-07/04/18	17/04/18	17/04/18-23/04/18	286	93	56	< 25	< 6	East Sunny
Apr-18 2nd FN	21/04/18-22/04/18	02/05/18	02/05/18-07/05/18	271	82	37	< 25	< 6	East Sunny
May-18 3rd FN	06/05/18-07/05/18	16/05/18	16/05/18-22/05/18	224	88	38	< 25	< 6	East Sunny
May-18 4th FN	21/05/18-22/05/18	01/06/18	01/06/18-06/06/18	197	94	51	< 25	< 6	East Sunny
Jun-18 5th FN	08/06/18-09/06/18	19/06/18	19/06/18-23/06/18	164	88	42	< 25	< 6	South Cloud
Jun-18 6th FN	22/06/18-23/06/18	02/07/18	02/07/18-07/07/18	244	81	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.

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

TEST REPORT

06/18 Test Report No. 1527	**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:** **Parej(East)** **Stations:** New Residence Colony

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Apr-18 1st FN	07/04/18-08/04/18	17/04/18	17/04/18-23/04/18	145	74	33	< 25	< 6	East Sunny
Apr-18 2nd FN	21/04/18-22/04/18	02/05/18	02/05/18-07/05/18	161	68	35	< 25	< 6	East Sunny
May-18 3rd FN	07/05/18-08/05/18	16/05/18	16/05/18-22/05/18	345	114	62	< 25	< 6	East Sunny
May-18 4th FN	22/05/18-23/05/18	01/06/18	01/06/18-06/06/18	160	70	33	< 25	< 6	East Sunny
Jun-18 5th FN	09/06/18-10/06/18	19/06/18	19/06/18-23/06/18	174	70	30	< 25	< 6	South Cloud
Jun-18 6th FN	23/06/18-24/06/18	02/07/18	02/07/18-07/07/18	243	73	31	< 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.

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. 1528	**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:** **Parej(East)** **Stations:** Bapugutu Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	**Parameters (in µg/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)	
Apr-18 1st FN	07/04/18-08/04/18	17/04/18	17/04/18-23/04/18	194	81	47	< 25	< 6	East Sunny
Apr-18 2nd FN	21/04/18-22/04/18	02/05/18	02/05/18-07/05/18	254	83	42	< 25	< 6	East Sunny
May-18 3rd FN	07/05/18-08/05/18	16/05/18	16/05/18-22/05/18	203	90	44	< 25	< 6	East Sunny
May-18 4th FN	22/05/18-23/05/18	01/06/18	01/06/18-06/06/18	189	74	35	< 25	< 6	East Sunny
Jun-18 5th FN	09/06/18-10/06/18	19/06/18	19/06/18-23/06/18	187	94	48	< 25	< 6	South Cloud
Jun-18 6th FN	23/06/18-24/06/18	02/07/18	02/07/18-07/07/18	177	81	39	< 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.
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Dy. Technical Manager
Env. Lab., CMPDI(HQ)

TEST REPORT

06/18 Test Report No. 1529	**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:** **Parej(East)** **Stations:** P.O.Office

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Apr-18 1st FN	07/04/18-08/04/18	17/04/18	17/04/18-23/04/18	234	128	66	< 25	< 6	East Sunny
Apr-18 2nd FN	22/04/18-23/04/18	02/05/18	02/05/18-07/05/18	318	174	74	< 25	< 6	East Sunny
May-18 3rd FN	07/05/18-08/05/18	16/05/18	16/05/18-22/05/18	454	165	75	< 25	< 6	East Sunny
May-18 4th FN	22/05/18-23/05/18	01/06/18	01/06/18-06/06/18	200	78	34	< 25	< 6	East Sunny
Jun-18 5th FN	09/06/18-10/06/18	19/06/18	19/06/18-23/06/18	162	85	43	< 25	< 6	South Cloud
Jun-18 6th FN	23/06/18-24/06/18	02/07/18	02/07/18-07/07/18	253	74	37	< 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.

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

TEST REPORT

06/18 Test Report No. 1530	Job No. 094318021	Year	FY2018-19
Type of Sample:	Noise	Quarter Ending	Jun-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: Parej (East)**

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	06/04/18	20/04/18	06/05/18	21/05/18	08/06/18	22/06/18
Dhurkusmar Village	45.2	50.4	52.3	48.6	44.2	52.2
Date of recording	06/04/18	21/04/18	06/05/18	21/05/18	08/06/18	22/06/18
Banjee Village	44.9	49.5	52.7	48.1	44.1	52.3
Date of recording	07/04/18	21/04/18	07/05/18	22/05/18	09/06/18	23/06/18
New Residence Colony	46.2	49.8	52.6	49.2	44.7	52.1
Date of recording	07/04/18	21/04/18	07/05/18	22/05/18	09/06/18	23/06/18
Bapughutu Village	44.1	49.2	53.6	48.6	43.9	52.6
Date of recording	07/04/18	22/04/18	07/05/18	22/05/18	09/06/18	23/06/18
P.O.Office	51.9	48.6	53.9	49.1	51.9	53.9
Date of recording	07/04/18	22/04/18	07/05/18	22/05/18	09/06/18	23/06/18
Parej Village	46.3	49.6	51.7	48.2	44.3	50.2
Date of recording	07/04/18	22/04/18	07/05/18	22/05/18	09/06/18	23/06/18
Pump House	48.7	50.1	52.3	50.2	48.1	51.6

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*

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TEST REPORT

06/18 Test Report No. 1531	**Job No. 094318021**	**Year**	FY2018-19
Type of Sample:	**Effluent Water**	Quarter Ending	Jun-18
Customer	CCL		
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval		
Testing Protocol:	**MOEF -SCH-VI STANDARDS, Class 'a'**		
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: Parej East** **Stations:** Mine Quarry Water

Analysis Results of FN Effluent Water							
Parameters →				**COD**	**O & G**	**pH value**	**TSS**
Detection Limit				**4**	**2**	**0.2**	**10**
MOEF -SCH-VI, STANDARDS, Class 'A'				**250**	**10**	**5.5 to 9.0**	**100**
Month	Date of Sampling	Date of Receipt of Sample	Date of Analysis	**Value in mg/l, except pH**			
Apr-18 1st FN	11/04/18	18/04/18	18/04/18-02/05/18	340	<2.00	7.96	924
Apr-18 2nd FN	25/04/18	02/05/18	02/05/18-26/05/18	44	<2.00	8.02	24
May-18 3rd FN	12/05/18	16/05/18	16/05/18-09/06/18	72	<2.00	7.89	84
May-18 4th FN	26/05/18	01/06/18	01/06/18-22/06/18	32	<2.00	7.51	26
Jun-18 5th FN	13/06/18	18/06/18	18/06/18-30/06/18	24	<2.00	8.4	26
Jun-18 6th FN	26/06/18	02/07/18	02/07/18-10/07/18	32	<2.00	8.01	28
BIS Standard & Method				APHA, 22nd Edition, Closed Reflux, Titrimetric	IS 3025/39:1991, R : 2003, Partition Gravimetric	IS-3025/11:1983, R-1996, Electrometric	IS 3025/17:1984, R :1996, Gravimetric

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TEST REPORT

06/18 Test Report No. 1532	**Job No. 094318021**	**Year**	FY2018-19
Type of Sample:	**Effluent Water**	Quarter Ending	Jun-18
Customer	CCL		
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval		
Testing Protocol:	**MOEF -SCH-VI STANDARDS, Class 'a'**		
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: Parej East** **Stations:** Exv. Workshop Effluent

Analysis Results of FN Effluent Water							
Parameters →				**COD**	**O & G**	**pH value**	**TSS**
Detection Limit				**4**	**2**	**0.2**	**10**
MOEF -SCH-VI, STANDARDS, Class 'A'				**250**	**10**	**5.5 to 9.0**	**100**
Month	Date of Sampling	Date of Receipt of Sample	Date of Analysis	**Value in mg/l, except pH**			
Apr-18 1st FN	11/04/18	18/04/18	18/04/18-02/05/18	220	2	8.25	402
Apr-18 2nd FN	25/04/18	02/05/18	02/05/18-26/05/18	36	<2.00	8.05	38
May-18 3rd FN	12/05/18	16/05/18	16/05/18-09/06/18	820	4	7.66	1206
May-18 4th FN	26/05/18	01/06/18	01/06/18-22/06/18	240	<2.00	8.31	274
Jun-18 5th FN	13/06/18	18/06/18	18/06/18-30/06/18	240	2	8.19	328
Jun-18 6th FN	26/06/18	02/07/18	02/07/18-10/07/18	280	2	7.45	878
BIS Standard & Method				APHA, 22nd Edition, Closed Reflux, Titrimetric	IS 3025/39:1991, R : 2003, Partition Gravimetric	IS-3025/11:1983, R-1996, Electrometric	IS 3025/17:1984, R :1996, Gravimetric

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TEST REPORT

06/18 Test Report No. 1533	**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:** **Parej (East)**

Stations: **Date of Sampling:**

1. U/S Bokaro River 11/04/18
2. D/S Bokaro River 11/04/18
3. Chutua Nala 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	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2	2	2		2.00	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
3	Cadmium(as Cd), mg/l, Max	<0.0005	0.0053	<0.0005		0.0005	APHA, 22nd Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	276	282	28		2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<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		0.10	IS 3025/381989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	1.25	1.31	0.55		0.02	APHA, 22nd Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01	<0.01		0.01	APHA, 22nd Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	<0.02	<0.02	<0.02		0.06	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
10	Lead (as Pb), mg/l, Max	0.030	0.029	<0.005		0.005	APHA, 22nd Edition AAS-GTA
11	Nitrate (as NO_3), mg/l, Max	12.80	13.78	2.61		0.50	APHA, 22nd Edition, UV-Spectrophotometric
12	pH value	7.98	7.99	7.68		0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C_6H_5OH), mg/l, Max	<0.001	<0.001	<0.001		0.001	APHA, 22nd Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002		0.002	APHA, 22nd Edition AAS-GTA
15	Sulphate (as SO_4) mg/l, Max	542	618	14		2.00	APHA, 22nd Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	1522	1532	286		25.00	IS 3025 /16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	26	24	24		10.00	IS 3025 /17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	0.03	0.02	<0.01		0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame

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TEST REPORT

06/18 Test Report No. 1534	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:** **Parej (East)**

Stations: **Date of Sampling:**

1. Dhurkusmar Well water 11/04/18
2. Banjee Village Well Water 11/04/18
3. Bapughutu Village Tube Well Water 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, 22nd Edition ,Carmine
2	Cadmium (as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	0.0005	0.003	APHA, 22nd Edition, AAS-GTA
3	Calcium (as Ca), mg/l, Max	24	32	19.2	1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	32	28	20	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	0.35	0.35	0.25	0.02	1.0	APHA, 22nd Edition , SPADNS
7	Free Residual Chlorine, mg/l, Min	0.03	0.03	<0.02	0.02	0.2	APHA, 22nd 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, 22nd 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	26.21	25.41	13.41	0.5	45	APHA, 22nd Edition, UV-Spectrophotometric
13	Odour	Agrreable	Agrreable	Agrreable	Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
14	pH value	6.81	7.26	6.36	0.2	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
15	Phenolic compounds (as C_6H_5OH), mg/l, Max	<0.001	<0.001	<0.001	0.001	0.001	APHA, 22nd Edition,4-Amino Autipyrine
16	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	APHA, 22nd Edition, AAS-GTA
17	Sulphate (as SO_4) mg/l, Max	8	5	5	2.00	200	APHA, 22nd Edition. Turbidity
18	Total Alkalinity (c_aco_3), mg/l, Max	52	124	64	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	0.09	0.09	0.04	0.05	IS-3025/52:2003, AAS-Flame
21	Total Dissolved Solids, mg/l, Max	160	240	116	25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (c_aco_3), mg/l, Max	88	176	72	4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	1.1	1.2	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

09/18 Test Report No. 1525	**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:** **Parej(East)** **Stations:** Dhurkusmar Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Jul-18 1st FN	06/07/18-07/07/18	16/07/18	16/07/18-20/07/18	211	80	42	< 25	< 6	South Rain
Jul-18 2nd FN	21/07/18-22/07/18	01/08/18	01/08/18-07/08/18	187	89	58	< 25	< 6	East Cloud
Aug-18 3rd FN	04/08/18-05/08/18	16/08/18	16/08/18-21/08/18	158	76	39	< 25	< 6	West Cloud
Aug-18 4th FN	21/08/18-22/08/18	04/09/18	04/09/18-10/09/18	116	67	33	< 25	< 6	East Rain
Sep-18 5th FN	07/09/18-08/09/18	17/09/18	17/09/18-25/09/18	149	77	28	< 25	< 6	East Rain
Sep-18 6th FN	22/09/18-23/09/18	01/10/18	01/10/18-06/10/18	162	81	42	< 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.
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TEST REPORT

09/18 Test Report No. 1526	**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:** **Parej(East)** **Stations:** Banjee Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	**Parameters (in µg/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)	
Jul-18 1st FN	06/07/18-07/07/18	16/07/18	16/07/18-20/07/18	455	131	72	< 25	< 6	South Rain
Jul-18 2nd FN	21/07/18-22/07/18	01/08/18	01/08/18-07/08/18	164	89	45	< 25	< 6	East Cloud
Aug-18 3rd FN	04/08/18-05/08/18	16/08/18	16/08/18-21/08/18	212	97	43	< 25	< 6	West Cloud
Aug-18 4th FN	21/08/18-22/08/18	04/09/18	04/09/18-10/09/18	180	95	46	< 25	< 6	East Rain
Sep-18 5th FN	07/09/18-08/09/18	17/09/18	17/09/18-25/09/18	113	65	30	< 25	< 6	East Rain
Sep-18 6th FN	22/09/18-23/09/18	01/10/18	01/10/18-06/10/18	174	73	36	< 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.
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TEST REPORT

09/18 Test Report No. 1527	**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:** **Parej(East)** **Stations:** New Residence Colony

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Jul-18 1st FN	07/07/18-08/07/18	16/07/18	16/07/18-20/07/18	158	69	36	< 25	< 6	South Cloud
Jul-18 2nd FN	22/07/18-23/07/18	01/08/18	01/08/18-07/08/18	147	75	28	< 25	< 6	East Cloud
Aug-18 3rd FN	04/08/18-05/08/18	16/08/18	16/08/18-21/08/18	111	94	58	< 25	< 6	West Cloud
Aug-18 4th FN	22/08/18-23/08/18	04/09/18	04/09/18-10/09/18	160	87	47	< 25	< 6	East Rain
Sep-18 5th FN	08/09/18-09/09/18	17/09/18	17/09/18-25/09/18	126	76	34	< 25	< 6	East Rain
Sep-18 6th FN	22/09/18-23/09/18	01/10/18	01/10/18-06/10/18	186	65	30	< 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.
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TEST REPORT

09/18 Test Report No. 1528	**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:** **Parej(East)** **Stations:** Bapugutu Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Jul-18 1st FN	07/07/18-08/07/18	16/07/18	16/07/18-20/07/18	271	142	47	< 25	< 6	South Cloud
Jul-18 2nd FN	22/07/18-23/07/18	01/08/18	01/08/18-07/08/18	166	82	39	< 25	< 6	East Cloud
Aug-18 3rd FN	04/08/18-05/08/18	16/08/18	16/08/18-21/08/18	178	67	37	< 25	< 6	West Cloud
Aug-18 4th FN	22/08/18-23/08/18	04/09/18	04/09/18-10/09/18	167	82	38	< 25	< 6	East Rain
Sep-18 5th FN	08/09/18-09/09/18	17/09/18	17/09/18-25/09/18	122	61	30	< 25	< 6	East Rain
Sep-18 6th FN	22/09/18-23/09/18	01/10/18	01/10/18-06/10/18	184	85	35	< 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.
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TEST REPORT

09/18 Test Report No. 1529	**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:** **Parej(East)** **Stations:** P.O.Office

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Jul-18 1st FN	07/07/18-08/07/18	16/07/18	16/07/18-20/07/18	273	142	74	< 25	< 6	South Cloud
Jul-18 2nd FN	22/07/18-23/07/18	01/08/18	01/08/18-07/08/18	186	91	59	< 25	< 6	East Cloud
Aug-18 3rd FN	04/08/18-05/08/18	16/08/18	16/08/18-21/08/18	227	121	59	< 25	< 6	West Cloud
Aug-18 4th FN	22/08/18-23/08/18	04/09/18	04/09/18-10/09/18	134	78	39	< 25	< 6	East Rain
Sep-18 5th FN	08/09/18-09/09/18	17/09/18	17/09/18-25/09/18	193	90	48	< 25	< 6	East Rain
Sep-18 6th FN	22/09/18-23/09/18	01/10/18	01/10/18-06/10/18	157	80	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.

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Env. Lab., CMPDI(HQ)

TEST REPORT

09/18 Test Report No. 1530	**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: Parej (East)**

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	06/07/18	21/07/18	04/08/18	21/08/18	07/09/18	22/09/18
Dhurkusmar Village	47.2	52.2	49.5	52.3	48.6	47.4
Date of recording	06/07/18	21/07/18	04/08/18	21/08/18	07/09/18	22/09/18
Banjee Village	46.9	52.3	49.7	52.1	48.2	47.7
Date of recording	07/07/18	22/07/18	04/08/18	22/08/18	08/09/18	22/09/18
New Residence Colony	47.1	52.1	50.1	52.2	49.1	46.8
Date of recording	07/07/18	22/07/18	04/08/18	22/08/18	08/09/18	22/09/18
Bapughutu Village	45.7	52.6	49.5	52.1	49.2	48.1
Date of recording	07/07/18	22/07/18	04/08/18	22/08/18	08/09/18	22/09/18
P.O.Office	50.2	53.9	51.8	52.8	50.6	50.7
Date of recording	07/07/18	22/07/18	04/08/18	22/08/18	08/09/18	22/09/18
Parej Village	45.2	50.2	50.2	51.6	51.2	48.7
Date of recording	07/07/18	22/07/18	04/08/18	22/08/18	08/09/18	22/09/18
Pump House	49.9	51.6	50.4	53.3	50.4	47.4

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*

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Env. Lab., CMPDI(HQ)

TEST REPORT

09/18 Test Report No. 1531	**Job No. 094318021**	**Year**	FY2018-19
Type of Sample:	**Effluent Water**	Quarter Ending	Sep-18
Customer	CCL		
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval		
Testing Protocol:	**MOEF -SCH-VI STANDARDS, Class 'a'**		
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:** **Parej East** **Stations:** Mine Quarry Water

Analysis Results of FN Effluent Water							
Parameters →				**COD**	**O & G**	**pH value**	**TSS**
Detection Limit				**4**	**2**	**0.2**	**10**
MOEF -SCH-VI, STANDARDS, Class 'A'				**250**	**10**	**5.5 to 9.0**	**100**
Month	Date of Sampling	Date of Receipt of Sample	Date of Analysis	**Value in mg/l, except pH**			
Jul-18 1st FN	11/07/18	16/07/18	16/07/18-03/08/18	16	<2.00	7.73	26
Jul-18 2nd FN	26/07/18	01/08/18	01/08/18-20/08/18	44	<2.00	8.21	24
Aug-18 3rd FN	09/08/18	16/08/18	16/08/18-03/08/18	28	<2.00	7.54	28
Aug-18 4th FN	28/08/18	03/09/18	03/09/18-18/03/18	88	<2.00	8.03	164
Sep-18 5th FN	11/09/18	17/09/18	17/09/18-08/10/18	24	<2.00	7.2	30
Sep-18 6th FN	25/09/18	01/10/18	01/10/18-15/10/18	32	<2.00	7.95	32
BIS Standard & Method				APHA, 22nd Edition, Closed Reflux, Titrimetric	IS 3025/39:1991, R : 2003, Partition Gravimetric	IS-3025/11:1983, R-1996, Electrometric	IS 3025/17:1984, R :1996, Gravimetric

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TEST REPORT

09/18 Test Report No. 1532	**Job No. 094318021**	**Year**	FY2018-19
Type of Sample:	**Effluent Water**	Quarter Ending	Sep-18
Customer	CCL		
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval		
Testing Protocol:	**MOEF -SCH-VI STANDARDS, Class 'a'**		
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: Parej East** **Stations:** Exv. Workshop Effluent

Analysis Results of FN Effluent Water							
Parameters →				**COD**	**O & G**	**pH value**	**TSS**
Detection Limit				**4**	**2**	**0.2**	**10**
MOEF -SCH-VI, STANDARDS, Class 'A'				**250**	**10**	**5.5 to 9.0**	**100**
Month	Date of Sampling	Date of Receipt of Sample	Date of Analysis	**Value in mg/l, except pH**			
Jul-18 1st FN	11/07/18	16/07/18	16/07/18-03/08/18	20	<2.00	7.6	24
Jul-18 2nd FN	26/07/18	01/08/18	01/08/18-20/08/18	68	<2.00	7.73	22
Aug-18 3rd FN	09/08/18	16/08/18	16/08/18-03/08/18	1180	6	7.51	2796
Aug-18 4th FN	28/08/18	03/09/18	03/09/18-18/03/18	84	4.8	6.95	96
Sep-18 5th FN	11/09/18	17/09/18	17/09/18-08/10/18	64	4.6	7.03	52
Sep-18 6th FN	25/09/18	01/10/18	01/10/18-15/10/18	20	2.4	7.71	24
BIS Standard & Method				APHA, 22nd Edition, Closed Reflux, Titrimetric	IS 3025/39:1991, R : 2003, Partition Gravimetric	IS-3025/11:1983, R-1996, Electrometric	IS 3025/17:1984, R :1996, Gravimetric

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TEST REPORT

09/18 Test Report No. 1533	**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:** **Parej (East)**

Stations: **Date of Sampling:**

1. U/S Bokaro River 12/07/18
2. D/S Bokaro River 12/07/18
3. Chutua Nala 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	0.003		0.002	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2	2	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	APHA, 22nd Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	18	14	82		2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<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		0.10	IS 3025/381989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.41	0.5	1.11		0.02	APHA, 22nd Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01	<0.01		0.01	APHA, 22nd Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	0.29	0.36	<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	APHA, 22nd Edition AAS-GTA
11	Nitrate (as NO_3), mg/l, Max	2.92	2.79	9.26		0.50	APHA, 22nd Edition, UV-Spectrophotometric
12	pH value	8.29	7.5	8.19		0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C_6H_5OH), mg/l, Max	<0.001	<0.001	<0.001		0.001	APHA, 22nd Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002		0.002	APHA, 22nd Edition AAS-GTA
15	Sulphate (as SO_4) mg/l, Max	16	14	258		2.00	APHA, 22nd Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	158	146	734		25.00	IS 3025 /16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	28	26	26		10.00	IS 3025 /17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	<0.01	<0.01	<0.01		0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame

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TEST REPORT

09/18 Test Report No. 1534	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**	Date of Reporting:	
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:** **Parej (East)**

Stations: **Date of Sampling:**

1. Dhurkusmar Well water 12/07/18
2. Banjee Village Well Water 12/07/18
3. Bapughutu Village Tube Well Water 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, 22nd Edition ,Carmine
2	Cadmium (as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	0.0005	0.003	APHA, 22nd Edition, AAS-GTA
3	Calcium (as Ca), mg/l, Max	121.6	107.2	91.2	1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	114	116	116	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	0.47	0.47	0.36	0.02	1.0	APHA, 22nd Edition , SPADNS
7	Free Residual Chlorine, mg/l, Min	0.02	0.02	<0.02	0.02	0.2	APHA, 22nd 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, 22nd 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	30.48	30.04	30.21	0.5	45	APHA, 22nd Edition, UV-Spectrophotometric
13	Odour	Agreeable	Agreeable	Agreeable	Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
14	pH value	7.74	8.24	8.33	0.2	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
15	Phenolic compounds (as C_6H_5OH), mg/l, Max	<0.001	<0.001	<0.001	0.001	0.001	APHA, 22nd Edition,4-Amino Autipyrine
16	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	APHA, 22nd Edition, AAS-GTA
17	Sulphate (as SO_4) mg/l, Max	69	81	70	2.00	200	APHA, 22nd Edition. Turbidity
18	Total Alkalinity (c_aco_3),, mg/l, Max	164	140	124	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	0.17	0.1	0.09	0.04	0.05	IS-3025/52:2003, AAS-Flame
21	Total Dissolved Solids, mg/l, Max	648	578	594	25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (c_aco_3), mg/l, Max	380	332	348	4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	1.1	1.2	1	1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	0.02	<0.01	<0.01	0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame

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TEST REPORT

12/18 Test Report No. 1528	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:** **Parej(East)** **Stations:** Dhurkusmar Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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	06/10/18-07/10/18	15/10/18	15/10/18-23/10/18	163	87	50	< 25	< 6	East Sunny
Oct-18 2nd FN	23/10/18-24/10/18	01/11/18	01/11/18-09/11/18	308	146	68	< 25	< 6	East Sunny
Nov-18 3rd FN	05/11/18-06/11/18	16/11/18	16/11/18-24/11/18	237	82	39	< 25	< 6	East Sunny
Nov-18 4th FN	21/11/18-22/11/18	03/12/18	03/12/18-11/12/18	308	118	65	< 25	< 6	East Sunny
Dec-18 5th FN	06/12/18-07/12/18	17/12/18	17/12/18-25/12/18	147	57	25	< 25	< 6	East Sunny
Dec-18 6th FN	21/12/18-22/12/18	01/01/19	01/01/19-09/01/19	206	75	36	< 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.

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

TEST REPORT

12/18 Test Report No. 1529	**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:** **Parej(East)** **Stations:** Banjee Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	**Parameters (in µg/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	06/10/18-07/10/18	15/10/18	15/10/18-23/10/18	143	78	37	< 25	< 6	East Sunny
Oct-18 2nd FN	23/10/18-24/10/18	01/11/18	01/11/18-09/11/18	231	64	32	< 25	< 6	East Sunny
Nov-18 3rd FN	05/11/18-06/11/18	16/11/18	16/11/18-24/11/18	193	69	30	< 25	< 6	East Sunny
Nov-18 4th FN	21/11/18-22/11/18	03/12/18	03/12/18-11/12/18	144	79	38	< 25	< 6	East Sunny
Dec-18 5th FN	07/12/18-08/12/18	17/12/18	17/12/18-25/12/18	216	73	37	< 25	< 6	East Sunny
Dec-18 6th FN	21/12/18-22/12/18	01/01/19	01/01/19-09/01/19	125	53	30	< 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.

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TEST REPORT

12/18 Test Report No. 1530	**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:** **Parej(East)** **Stations:** New Residence Colony

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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	07/10/18-08/10/18	15/10/18	15/10/18-23/10/18	178	93	55	< 25	< 6	East Sunny
Oct-18 2nd FN	24/10/18-25/10/18	01/11/18	01/11/18-09/11/18	137	77	34	< 25	< 6	East Sunny
Nov-18 3rd FN	06/11/18-07/11/18	16/11/18	16/11/18-24/11/18	218	83	52	< 25	< 6	East Sunny
Nov-18 4th FN	22/11/18-23/11/18	03/12/18	03/12/18-11/12/18	176	88	48	< 25	< 6	East Sunny
Dec-18 5th FN	07/12/18-08/12/18	17/12/18	17/12/18-25/12/18	174	63	33	< 25	< 6	East Sunny
Dec-18 6th FN	22/12/18-23/12/18	01/01/19	01/01/19-09/01/19	286	94	54	< 25	< 6	East Sunny

Note:
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Env. Lab., CMPDI(HQ)

TEST REPORT

12/18 Test Report No. 1531	**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:** **Parej(East)** **Stations:** Bapugutu Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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	07/10/18-08/10/18	15/10/18	15/10/18-23/10/18	219	86	49	< 25	< 6	East Sunny
Oct-18 2nd FN	24/10/18-25/10/18	01/11/18	01/11/18-09/11/18	264	93	54	< 25	< 6	East Sunny
Nov-18 3rd FN	06/11/18-07/11/18	16/11/18	16/11/18-24/11/18	192	72	31	< 25	< 6	East Sunny
Nov-18 4th FN	22/11/18-23/11/18	03/12/18	03/12/18-11/12/18	211	90	52	< 25	< 6	East Sunny
Dec-18 5th FN	07/12/18-08/12/18	17/12/18	17/12/18-25/12/18	128	56	28	< 25	< 6	East Sunny
Dec-18 6th FN	22/12/18-23/12/18	01/01/19	01/01/19-09/01/19	193	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.
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*Out of NABL scope.

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TEST REPORT

12/18 Test Report No. 1532	**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:** **Parej(East)** **Stations:** P.O.Office

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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	07/10/18-08/10/18	15/10/18	15/10/18-23/10/18	157	79	33	< 25	< 6	East Sunny
Oct-18 2nd FN	24/10/18-25/10/18	01/11/18	01/11/18-09/11/18	231	156	73	< 25	< 6	East Sunny
Nov-18 3rd FN	06/11/18-07/11/18	16/11/18	16/11/18-24/11/18	206	122	44	< 25	< 6	East Sunny
Nov-18 4th FN	22/11/18-23/11/18	03/12/18	03/12/18-11/12/18	231	128	61	< 25	< 6	East Sunny
Dec-18 5th FN	08/12/18-09/12/18	17/12/18	17/12/18-25/12/18	221	135	59	< 25	< 6	East Sunny
Dec-18 6th FN	22/12/18-23/12/18	01/01/19	01/01/19-09/01/19	231	113	57	< 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.

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

TEST REPORT

12/18 Test Report No. 1533	Job No. 094318021	Year	FY2018-19
Type of Sample:	Noise	Quarter Ending	Dec-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: Parej (East)**

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	06/10/18	23/10/18	05/11/18	21/11/18	06/12/18	21/12/18
Dhurkusmar Village	48.6	48.2	47.4	48.6	47.6	52.6
Date of recording	06/10/18	23/10/18	05/11/18	21/11/18	06/12/18	21/12/18
Banjee Village	48.2	48.6	50.2	48.2	50.3	52.9
Date of recording	07/10/18	24/10/18	06/11/18	22/11/18	07/12/18	22/12/18
New Residence Colony	49.1	48.1	51.3	49.1	51.5	50.5
Date of recording	07/10/18	24/10/18	06/11/18	22/11/18	07/12/18	22/12/18
Bapughutu Village	49.2	49.1	52.1	49.2	52.3	51.9
Date of recording	07/10/18	24/10/18	06/11/18	22/11/18	07/12/18	22/12/18
P.O.Office	50.5	48.6	50.3	50.6	50.5	49.9
Date of recording	07/10/18	24/10/18	06/11/18	22/11/18	07/12/18	22/12/18
Parej Village	51.3	48.1	47.1	51.2	47.3	51.8
Date of recording	07/10/18	24/10/18	06/11/18	22/11/18	07/12/18	22/12/18
Pump House	50.2	51.1	49.1	50.4	49.4	51.3

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*

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TEST REPORT

12/18 Test Report No. 1534	Job No. 094318021	Year	FY2018-19
Type of Sample:	**Effluent Water**	Quarter Ending	Dec-18
Customer	CCL		
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval		
Testing Protocol:	**MOEF -SCH-VI STANDARDS, Class 'a'**		
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:** **Parej East** **Stations:** Mine Quarry Water

Analysis Results of FN Effluent Water							
Parameters →				**COD**	**O & G**	**pH value**	**TSS**
Detection Limit				**4**	**2**	**0.2**	**10**
MOEF -SCH-VI, STANDARDS, Class 'A'				**250**	**10**	**5.5 to 9.0**	**100**
Month	Date of Sampling	Date of Receipt of Sample	Date of Analysis	**Value in mg/l, except pH**			
Oct-18 1st FN	08/10/18	15/10/18	15/10/18-08/11/18	48	<2.00	8.09	20
Oct-18 2nd FN	27/10/18	31/10/18	31/10/18-24/11/18	32	<2.00	8.09	38
Nov-18 3rd FN	12/11/18	16/11/18	16/11/18-30/11/18	20	<2.00	8.04	24
Nov-18 4th FN	26/11/18	03/12/18	03/12/18-17/12/18	24	<2.00	7.94	22
Dec-18 5th FN	11/12/18	17/12/18	17/12/18-04/01/19	24	<2.00	7.71	26
Dec-18 6th FN	00/01/00	00/01/00	00/01/00-00/01/00	0	0	0	0
BIS Standard & Method				APHA, 22nd Edition, Closed Reflux, Titrimetric	IS 3025/39:1991, R : 2003, Partition Gravimetric	IS-3025/11:1983, R-1996, Electrometric	IS 3025/17:1984, R :1996, Gravimetric

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TEST REPORT

12/18 Test Report No. 1535	**Job No. 094318021**	**Year**	FY2018-19
Type of Sample:	**Effluent Water**	Quarter Ending	Dec-18
Customer	CCL		
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval		
Testing Protocol:	**MOEF -SCH-VI STANDARDS, Class 'a'**		
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: Parej East** **Stations:** Exv. Workshop Effluent

Analysis Results of FN Effluent Water							
Parameters →				**COD**	**O & G**	**pH value**	**TSS**
Detection Limit				**4**	**2**	**0.2**	**10**
MOEF -SCH-VI, STANDARDS, Class 'A'				**250**	**10**	**5.5 to 9.0**	**100**
Month	Date of Sampling	Date of Receipt of Sample	Date of Analysis	**Value in mg/l, except pH**			
Oct-18 1st FN	08/10/18	15/10/18	15/10/18-08/11/18	52	2.2	8.1	74
Oct-18 2nd FN	27/10/18	31/10/18	31/10/18-24/11/18	84	2.8	8.01	114
Nov-18 3rd FN	12/11/18	16/11/18	16/11/18-30/11/18	180	2.6	7.56	264
Nov-18 4th FN	26/11/18	03/12/18	03/12/18-17/12/18	320	2.4	7.76	276
Dec-18 5th FN	11/12/18	17/12/18	17/12/18-04/01/19	96	<2.00	7.82	264
Dec-18 6th FN	00/01/00	00/01/00	00/01/00-00/01/00	0	0	0	0
BIS Standard & Method				APHA, 22nd Edition, Closed Reflux, Titrimetric	IS 3025/39:1991, R : 2003, Partition Gravimetric	IS-3025/11:1983, R-1996, Electrometric	IS 3025/17:1984, R :1996, Gravimetric

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TEST REPORT

12/18 Test Report No. 1536	**Job No. 094318021**	**Year**	**2018-19**
Type of Sample:	**Effluent Water**	Quarter Ending	**Dec.'18**
Customer / W. O. no. & Date:	CCL	Date of Receipt of Sample:	01.01.19
Mode of Receipt of Sample:	Picked up sample by laboratory	Date of Analysis:	01.01.19-04.02.19
Testing Protocol:	**MOEF -SCH-VI STANDARDS, Class 'a'**	Date of Reporting:	04.02.19
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 : Parej East**

Station: **Date of Sampling:**

1. Mine Quarry Water 31/12/2018
2. Exv. Workshop Effluent 31/12/2018
3.

Sl.No.	Parameter	Sampling Stations			Detection Limit	MOEF -SCH-VI STANDARDS Class 'A'	BIS Standard & Method
		1	2	3			
1	Ammonical Nitrogen, mg/l, Max	0.12	0.10		0.02	50.0	IS 3025/34:1988, R : 2009, Nessler's
2	Arsenic (as As), mg/l, *Max*	<0.002	<0.002		0.002	0.2	IS 3025/37:1988 R : 2003, AAS-VGA
3	B.O.D (3 days 27°C), mg/l, Max	2.00	2.00		2.00	30.0	IS 3025 /44:1993,R:2003 3 day incubation at 27°C
4	Cadmium(as Cd), mg/l, Max	<0.0005	<0.0005		0.0005	2.0	APHA, 22nd Edition, AAS-GTA
5	COD, mg/l, Max	44	40		4.00	250.0	APHA, 22nd Edition, Closed Reflux, Titrimetric
6	Copper (as Cu), mg/l, *Max*	<0.03	<0.03		0.03	3.0	IS 3025/42: 1992 R : 2009, AAS-Flame
7	Dissolved Phosphate, mg/l, Max	0.35	0.40		0.30	5.0	APHA, 22nd Edition Molybdovanadate
8	Fluoride (as F) mg/l, *Max*	1.70	1.60		0.02	2.0	APHA, 22nd Edition, SPADNS
9	Free Ammonia, mg/l, Max	<0.02	<0.02		0.02	5.0	IS:3025/34:1988, Nesseler's
10	Hexavalent Chromium, mg/l, Max	<0.01	<0.01		0.01	0.1	APHA, 22nd Edition, Diphenylcarbohydrazide
11	Iron (as Fe), mg/l, *Max*	<0.06	<0.06		0.06	3.0	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
12	Lead (as Pb), mg/l, *Max*	<0.005	<0.005		0.005	0.1	APHA, 22nd Edition, AAS-GTA
13	Manganese(as Mn), mg/l, Max	<0.02	<0.02		0.02	2.0	IS-3025/59:2006, AAS-Flame
14	Nickel (as Ni), mg/l, *Max*	0.01	<0.01		0.01	3.0	IS-3025/54:2003, AAS-Flame
15	Nitrate Nitrogen, mg/l, *Max*	4.13	0.50		0.50	10.0	APHA, 22nd Edition, UV-Spectrphotometric
16	Oil & Grease, mg/l, Max	<2.00	<2.00		2.00	10.0	IS 3025/39:1991, R : 2003, Partition Gravimetric
17	pH value	8.26	8.27		0.2	5.5 to 9.0	IS-3025/11:1983, R-1996, Electrometric
18	Phenolic compounds (as C_6H_5OH),mg/l, *Max*	<0.001	<0.001		0.001	1.0	APHA, 22nd Edition 4-Amino Antipyrine
19	Selenium (as Se), mg/l, *Max*	<0.002	<0.002		0.002	0.05	APHA, 22nd Edition, AAS-GTA
20	Sulphide (as SO_3), mg/l, Max	<0.005	<0.005		0.005	2.0	APHA, 22nd Edition Methylene Blue
21	Temperature (°C)	24.4	24.4		Shall not exceed 5^0 C above the receiving temp.		IS-3025/09:1984, Thermometeric
22	Total Chromium (as Cr), mg/l, *Max*	<0.04	<0.04		0.04	2.0	IS-3025/52:2003, AAS-Flame
23	Total Kjeldahl Nitrogen, mg/l, Max	2.80	<1.00		1.00	100.0	IS:3025/34:1988, Nesseler's
24	Total Residual Chlorine, mg/l, Max	<0.02	<0.02		0.02	1.0	APHA, 22nd Edition, DPD
25	Total Suspended Solids, mg/l, Max	42	36		10.00	100.0	IS 3025/17:1984, R :1996, Gravimetric
26	Zinc (as Zn), mg/l, *Max*	0.13	0.04		0.01	5.0	IS 3025 /49 : 1994, R : 2009, AAS-Flame

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Env. Lab., CMPDI(HQ)

TEST REPORT

12/18 Test Report No. 1537	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:** **Parej (East)**

Stations: **Date of Sampling:**

1. U/S Bokaro River 09/10/18
2. D/S Bokaro River 09/10/18
3. Chutua Nala 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	0.003		0.002	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2	2	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	APHA, 22nd Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	26	24	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	IS 3025 /42 : 1992 R : 2009, AAS-Flame
6	Disolved Oxygen, min.	6.3	6.3	6.3		0.10	IS 3025/381989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.87	0.88	0.81		0.02	APHA, 22nd Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01	<0.01		0.01	APHA, 22nd Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	0.29	0.36	<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	APHA, 22nd Edition AAS-GTA
11	Nitrate (as NO_3), mg/l, Max	14.49	12.94	10.37		0.50	APHA, 22nd Edition, UV-Spectrophotometric
12	pH value	8.17	8.12	8.00		0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C_6H_5OH), mg/l, Max	<0.001	<0.001	<0.001		0.001	APHA, 22nd Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002		0.002	APHA, 22nd Edition AAS-GTA
15	Sulphate (as SO_4) mg/l, Max	200.09	199.67	70.62		2.00	APHA, 22nd Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	368	374	152		25.00	IS 3025 /16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	32	22	24		10.00	IS 3025 /17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	<0.01	<0.01	<0.01		0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame

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TEST REPORT

12/18 Test Report No. 1538	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**	Date of Reporting:	
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:** **Parej (East)**

Stations: **Date of Sampling:**

1. Dhurkusmar Well water 09/10/18
2. Banjee Village Well Water 09/10/18
3. Bapughutu Village Tube Well Water 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, 22nd Edition ,Carmine
2	Cadmium (as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	0.0005	0.003	APHA, 22nd Edition, AAS-GTA
3	Calcium (as Ca), mg/l, Max	116.8	76.8	36.8	1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	52	52	10	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	0.75	0.79	0.26	0.02	1.0	APHA, 22nd Edition , SPADNS
7	Free Residual Chlorine, mg/l, Min	0.02	0.02	<0.02	0.02	0.2	APHA, 22nd 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, 22nd 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	74.69	160.54	65.79	0.5	45	APHA, 22nd Edition, UV-Spectrophotometric
13	Odour	Agreeable	Agreeable	Agreeable	Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
14	pH value	8.06	8.33	8.29	0.2	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
15	Phenolic compounds (as C_6H_5OH), mg/l, Max	<0.001	<0.001	<0.001	0.001	0.001	APHA, 22nd Edition,4-Amino Autipyrine
16	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	APHA, 22nd Edition, AAS-GTA
17	Sulphate (as SO_4) mg/l, Max	128	62	1.041	2.00	200	APHA, 22nd Edition. Turbidity
18	Total Alkalinity (c_aco_3),, mg/l, Max	180	132	64	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	0.17	0.1	0.09	0.04	0.05	IS-3025/52:2003, AAS-Flame
21	Total Dissolved Solids, mg/l, Max	690	478	176	25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (c_aco_3), mg/l, Max	488	320	148	4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	1.1	1.2	1.1	1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	0.02	<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. 1525	**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:** **Parej(East)** **Stations:** Dhurkusmar Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Jan-19 1st FN	07/01/19-08/01/19	16-01-2019	16/01/19-22/01/19	253	88	46	< 25	< 6	East Sunny
Jan-19 2nd FN	24/01/19-25/01/19	01-02-2019	01/02/19-09/02/19	309	141	70	< 25	< 6	West Sunny
Feb-19 3rd FN	05/02/19-06/02/19	15-02-2019	15/02/19-25/02/19	169	75	31	< 25	< 6	East Sunny
Feb-19 4th FN	20/02/19-21/02/19	28-02-2019	28/02/19-08/03/19	240	82	36	< 25	< 6	East Sunny
Mar-19 5th FN	05/03/19-06/03/19	18-03-2019	18/03/19-26/03/19	179	71	36	< 25	< 6	East Sunny
Mar-19 6th FN	20/03/19-21/03/19	01-04-2019	01/04/19-09/04/19	166	64	31	< 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.

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

TEST REPORT

03/19 Test Report No. 1526	**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:** **Parej(East)** **Stations:** Banjee Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Jan-19 1st FN	07/01/19-08/01/19	16-01-2019	16/01/19-22/01/19	312	131	66	< 25	< 6	East Sunny
Jan-19 2nd FN	25/01/19-26/01/19	01-02-2019	01/02/19-09/02/19	171	62	29	< 25	< 6	West Sunny
Feb-19 3rd FN	05/02/19-06/02/19	15-02-2019	15/02/19-25/02/19	126	59	26	< 25	< 6	East Sunny
Feb-19 4th FN	20/02/19-21/02/19	28-02-2019	28/02/19-08/03/19	251	92	47	< 25	< 6	East Sunny
Mar-19 5th FN	05/03/19-06/03/19	18-03-2019	18/03/19-26/03/19	156	61	33	< 25	< 6	East Sunny
Mar-19 6th FN	20/03/19-21/03/19	01-04-2019	01/04/19-09/04/19	143	52	24	< 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.
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TEST REPORT

03/19 Test Report No. 1527	**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:** **Parej(East)** **Stations:** New Residence Colony

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Jan-19 1st FN	08/01/19-09/01/19	16-01-2019	16/01/19-22/01/19	189	75	39	< 25	< 6	East Sunny
Jan-19 2nd FN	25/01/19-26/01/19	01-02-2019	01/02/19-09/02/19	126	51	24	< 25	< 6	West Sunny
Feb-19 3rd FN	06/02/19-07/02/19	15-02-2019	15/02/19-25/02/19	221	89	39	< 25	< 6	East Sunny
Feb-19 4th FN	21/02/19-22/02/19	28-02-2019	28/02/19-08/03/19	112	57	22	< 25	< 6	East Sunny
Mar-19 5th FN	06/03/19-07/03/19	18-03-2019	18/03/19-26/03/19	126	64	37	< 25	< 6	North Sunny
Mar-19 6th FN	22/03/19-23/03/19	01-04-2019	01/04/19-09/04/19	176	68	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.
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TEST REPORT

03/19 Test Report No. 1528	**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:** **Parej(East)** **Stations:** Bapugutu Village

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Jan-19 1st FN	08/01/19-09/01/19	16-01-2019	16/01/19-22/01/19	276	94	57	< 25	< 6	North Sunny
Jan-19 2nd FN	25/01/19-26/01/19	01-02-2019	01/02/19-09/02/19	145	65	29	< 25	< 6	West Sunny
Feb-19 3rd FN	06/02/19-07/02/19	15-02-2019	15/02/19-25/02/19	304	159	63	< 25	< 6	East Sunny
Feb-19 4th FN	21/02/19-22/02/19	28-02-2019	28/02/19-08/03/19	226	94	47	< 25	< 6	East Sunny
Mar-19 5th FN	06/03/19-07/03/19	18-03-2019	18/03/19-26/03/19	161	78	37	< 25	< 6	North Sunny
Mar-19 6th FN	22/03/19-23/03/19	01-04-2019	01/04/19-09/04/19	158	58	26	< 25	< 6	East Sunny

Note:
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TEST REPORT

03/19 Test Report No. 1529	**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:** **Parej(East)** **Stations:** P.O.Office

Month	Date of Sampling	Date of receipt of sample	Date of analysis	Parameters (in µg/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)	
Jan-19 1st FN	08/01/19-09/01/19	16-01-2019	16/01/19-22/01/19	428	193	74	< 25	< 6	North Sunny
Jan-19 2nd FN	27/01/19-28/01/19	01-02-2019	01/02/19-09/02/19	331	141	67	< 25	< 6	West Sunny
Feb-19 3rd FN	06/02/19-07/02/19	15-02-2019	15/02/19-25/02/19	220	113	64	< 25	< 6	East Sunny
Feb-19 4th FN	21/02/19-22/02/19	28-02-2019	28/02/19-08/03/19	279	118	50	< 25	< 6	East Sunny
Mar-19 5th FN	06/03/19-07/03/19	18-03-2019	18/03/19-26/03/19	268	143	62	< 25	< 6	North Sunny
Mar-19 6th FN	22/03/19-23/03/19	01-04-2019	01/04/19-09/04/19	235	103	51	< 25	< 6	East Sunny

Note:

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TEST REPORT

03/19 Test Report No. 1530	**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: Parej (East)**

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	07-01-2019	24-01-2019	05-02-2019	20-02-2019	05-03-2019	20-03-2019
Dhurkusmar Village	47.6	51.5	48.9	52.1	44.9	52.3
Date of recording	07-01-2019	25-01-2019	05-02-2019	20-02-2019	05-03-2019	20-03-2019
Banjee Village	50.4	51.6	49.1	52.9	44.8	52.4
Date of recording	08-01-2019	25-01-2019	06-02-2019	21-02-2019	06-03-2019	22-03-2019
New Residence Colony	51.5	49.8	48.7	53.3	44.1	52.6
Date of recording	08-01-2019	25-01-2019	06-02-2019	21-02-2019	06-03-2019	22-03-2019
Bapughutu Village	52.4	51.7	48.5	52.2	44.2	52.2
Date of recording	08-01-2019	27-01-2019	06-02-2019	21-02-2019	06-03-2019	22-03-2019
P.O.Office	50.5	50.4	54.8	53.9	52.9	53.7
Date of recording	08-01-2019	27-01-2019	06-02-2019	21-02-2019	06-03-2019	22-03-2019
Parej Village	47.4	51.2	51.4	51.5	51.4	52.4
Date of recording	08-01-2019	27-01-2019	06-02-2019	21-02-2019	06-03-2019	22-03-2019
Pump House	49.3	50.8	49.5	51.4	51.8	53.1

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*

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TEST REPORT

03/19 Test Report No. 1531	**Job No. 094318021**	**Year**	FY2018-19
Type of Sample:	**Effluent Water**	Quarter Ending	Mar-19
Customer	CCL		
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval		
Testing Protocol:	**MOEF -SCH-VI STANDARDS, Class 'a'**		
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:** **Parej East** **Stations:** Mine Quarry Water

Analysis Results of FN Effluent Water							
Parameters →				**COD**	**O & G**	**pH value**	**TSS**
Detection Limit				**4**	**2**	**0.2**	**10**
MOEF -SCH-VI, STANDARDS, Class 'A'				**250**	**10**	**5.5 to 9.0**	**100**
Month	Date of Sampling	Date of Receipt of Sample	Date of Analysis	**Value in mg/l, except pH**			
Jan-19 1st FN	09/01/19	16/01/19	16/01/19-05/02/19	40	<2.00	8.06	52
Jan-19 2nd FN	31/01/19	01/02/19	01/02/19-28/02/19	44	<2.00	8.04	46
Feb-19 3rd FN	12/02/19	15/02/19	15/02/19-16/03/19	24	<2.00	8.03	28
Feb-19 4th FN	26/02/19	01/03/19	01/03/19-23/03/19	52	<2.00	8.16	68
Mar-19 5th FN	13/03/19	18/03/19	18/03/19-03/04/19	32	<2.00	7.96	38
Mar-19 6th FN	27/03/19	01/04/19	01/04/19-15/04/19	24	<2.00	8.11	30
BIS Standard & Method				APHA, 22nd Edition, Closed Reflux, Titrimetric	IS 3025/39:1991, R : 2003, Partition Gravimetric	IS-3025/11:1983, R-1996, Electrometric	IS 3025/17:1984, R :1996, Gravimetric

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TEST REPORT

03/19 Test Report No. 1532	**Job No. 094318021**	**Year**	FY2018-19
Type of Sample:	**Effluent Water**	Quarter Ending	Mar-19
Customer	CCL		
Mode of Receipt of Sample:	Jointly picked up sample by laboratory at quarterly interval		
Testing Protocol:	**MOEF -SCH-VI STANDARDS, Class 'a'**		
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: Parej East** **Stations:** Exv. Workshop Effluent

Analysis Results of FN Effluent Water							
Parameters →				**COD**	**O & G**	**pH value**	**TSS**
Detection Limit				**4**	**2**	**0.2**	**10**
MOEF -SCH-VI, STANDARDS, Class 'A'				**250**	**10**	**5.5 to 9.0**	**100**
Month	Date of Sampling	Date of Receipt of Sample	Date of Analysis	**Value in mg/l, except pH**			
Jan-19 1st FN	09/01/19	16/01/19	16/01/19-05/02/19	44	<2.00	8.21	46
Jan-19 2nd FN	31/01/19	01/02/19	01/02/19-28/02/19	88	<2.00	7.76	124
Feb-19 3rd FN	12/02/19	15/02/19	15/02/19-16/03/19	288	5.6	6.79	324
Feb-19 4th FN	26/02/19	01/03/19	01/03/19-23/03/19	20	5.6	7.07	22
Mar-19 5th FN	13/03/19	18/03/19	18/03/19-03/04/19	24	5.6	8.26	28
Mar-19 6th FN	27/03/19	01/04/19	01/04/19-15/04/19	104	5.8	7.59	186
BIS Standard & Method				APHA, 22nd Edition, Closed Reflux, Titrimetric	IS 3025/39:1991, R : 2003, Partition Gravimetric	IS-3025/11:1983, R-1996, Electrometric	IS 3025/17:1984, R :1996, Gravimetric

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TEST REPORT

03/19 Test Report No. 1533	**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:** **Parej (East)**

Stations: **Date of Sampling:**

1. U/S Bokaro River 11-01-2019
2. D/S Bokaro River 11-01-2019
3. Chutua Nala 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	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2.2	2.2	2.2		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	APHA, 22nd Edition AAS-GTA
4	Chlorides (as Cl), mg/l, Max	22	24	18		2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<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		0.10	IS 3025/381989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.58	0.52	0.96		0.02	APHA, 22nd Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01	<0.01		0.01	APHA, 22nd Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	<0.06	<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	APHA, 22nd Edition AAS-GTA
11	Nitrate (as NO_3), mg/l, Max	7.44	9.04	14.53		0.50	APHA, 22nd Edition, UV-Spectrophotometric
12	pH value	8	7.74	8.14		0.2	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C_6H_5OH), mg/l, Max	<0.001	<0.001	<0.001		0.001	APHA, 22nd Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002		0.002	APHA, 22nd Edition AAS-GTA
15	Sulphate (as SO_4) mg/l, Max	52	48	68		2.00	APHA, 22nd Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	192	188	294		25.00	IS 3025 /16:1984 R : 2006, Gravimetric
17	Total Suspended Solids, mg/l, Max	22	24	24		10.00	IS 3025 /17:1984, R :1996, Gravimetric
18	Zinc (as Zn), mg/l, Max	0.02	0.02	0.02		0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame

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TEST REPORT

03/19 Test Report No.1534	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**	Date of Reporting:	
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:** **Parej (East)**

Stations: **Date of Sampling:**

1. Dhurkusmar Well water 11-01-2019
2. Banjee Village Well Water 11-01-2019
3. Bapughutu Village Tube Well Water 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, 22nd Edition ,Carmine
2	Cadmium (as Cd), mg/l, Max	<0.0005	<0.0005	<0.0005	0.0005	0.003	APHA, 22nd Edition, AAS-GTA
3	Calcium (as Ca), mg/l, Max	179.2	153.6	36.8	1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	48	44	54	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	0.75	0.79	0.26	0.02	1.0	APHA, 22nd Edition , SPADNS
7	Free Residual Chlorine, mg/l, Min	<0.02	<0.02	<0.02	0.02	0.2	APHA, 22nd 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, 22nd 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	17.72	44.30	124.04	0.5	45	APHA, 22nd Edition, UV-Spectrophotometric
13	Odour	Agreable	Agreable	Agreable	Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
14	pH value	8.26	8.14	8.13	0.2	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
15	Phenolic compounds (as C_6H_5OH), mg/l, Max	<0.001	<0.001	<0.001	0.001	0.001	APHA, 22nd Edition,4-Amino Autipyrine
16	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	APHA, 22nd Edition, AAS-GTA
17	Sulphate (as SO_4) mg/l, Max	196	228	72	2.00	200	APHA, 22nd Edition. Turbidity
18	Total Alkalinity (c_aco_3),, mg/l, Max	96	132	68	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	854	914	294	25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (c_aco_3), mg/l, Max	604	628	140	4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	1.1	1.2	1.1	1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	0.08	0.03	0.02	0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame

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