ENVIRONMENTAL STATEMENT
IN
FORM-V

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

(2019-2020)

FOR
CLUSTER NO. – 6

(GROUP OF MINES**)**

Sodepur Area
Eastern Coalfields Limited

Prepared at

Regional Institute – I

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CMPDI

ISO 9001:2015 Company

ENVIRONMENTAL STATEMENT FORM – V

Environmental statement for the financial year ending 31st March, 2020

Cluster No. – 6

FOR THE YEAR: 2019-20

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CHAPTER – I

INTRODUCTION

1.1 GENESIS:

The Gazette Notification vide G.S.R No. 329 (E) dated 13th March, 1992 and subsequently renamed to 'Environmental Statement' vide Ministry of Environment & Forests (MOEF), Govt. of India gazette notification No. G.S.R No. 386 (E) Dtd. 22nd April'93 reads as follows.

"Every person carrying on an industry, operation or process requiring consent under section 25 of the Water Act, 1974 or under section 21 of the Air Act, 1981 or both or authorisation under the Hazardous Waste Rules, 1989 issued under the Environmental Protection Act, 1986 shall submit an Environmental Audit Report for the year ending 31st March in Form V to the concerned State Pollution Control Board on or before the 30th day of September every year."

In compliance with the above and in fulfillment of condition laid out in the Environment Clearance granted by MoEF&CC, the work of Environmental Statement for Cluster No. 6 was entrusted to CMPDI by GM (Environment and Forest), Eastern Coalfields Limited.

1.2 DESCRIPTION OF THE MINES CLUSTER:

Prior to 2014 – 15, a large number of taken over mines from pre – nationalization period, mostly underground mines, in the old coalfields of Raniganj and Jharia did not have environmental clearance from the MoEF&CC and were operating on the basis of "Consents' received from the respective PCBs. It was felt that if these mines could be brought under the ambit of EC, several measures for environmental protection and pollution control could be put in place. However, the work of obtaining EC for such mines, individually, would have taken a lot of time. To circumvent the problem, it was mooted that since the environmental problems being faced were of regional nature and not confined to individual mines alone, cluster/groups of such mines could be identified for preparing cluster-wise integrated EIA & EMPs, addressing such environmental concerns comprehensively and ensuring effective co-ordination of environmental control measures within each cluster. 13 such clusters were identified in the Raniganj Coalfield of ECL and EC has been obtained on the cluster approach for 12 such clusters. Cluster of Mines No. 6 is one of the clusters for which EC has been granted vide letter no. J-11015/385/2010-IA-II.(M) dated 16th January, 2015 for a combined peak capacity of 2.25 MTY and within a ML area of 4775 Ha.

Cluster No. 6 is located in the western part of Raniganj Coalfield between latitudes 23^0 38" to 23^0 43" and longitudes 86^0 48" to 86^0 58" in the Burdwan district of West Bengal. The mines within the cluster are situated towards west of Asansol Township and IISCO, Burnpur. Eastern Railway grand chord line and G.T. Road run along the cluster boundary on the north east side. Damodar River forms the boundary of the cluster on the south-west. The mines are administratively under Sodepur Area of ECL.

Location of Cluster No. 6 is shown in plate no. – 1.

The composition of the cluster is tabulated as under:

Sl. No.	Name of the Mine	Lease Area (Ha)	Peak Production Capacity (MTY)	Mine Life (Years)	Production during 2019-20 (MT)
1	Dhemomain UG	1623	0.21	> 50	0.045
2	Sodepur UG	808	0.15	> 10	0.021
	Sodepur OC Patch (10 Ha)		0.15	2	-
3	Narsamuda UG	265	0.19	> 10	0.055
4	Patmohana UG	544	0.12	> 40	0.033
	Patmohana OC Patch (7.5 Ha)		0.10	1	-
5	Chinakuri-I UG	414	0.08	> 50	0.0
6	Chinakuri-III UG	216	0.20	> 25	0.060
	Chinakuri-III OC Patch (7.2 Ha)		0.10	1	-
7	Bejdih UG	242	0.10	> 20	0.030
8	Methani UG	348	0.20	> 20	0.040
	Methani OC Patch (10.5 Ha)		0.15	$1^1/_2$	-
9	Sheetalpur UG	315	0.50	> 30	0.0
Total		**4775.0**	**2.25**		**0.284**

1. **Dhemomain UG**
   At present in Dhemomain UG, Pit no. 15 west level development district is running with 2 nos. of SDLs. In Dhemomain incline, 4 Dip development district is running with 2 nos. of SDLs.

2. **Sodepur UG & OC**
   Mine has suspended production since 15.01.2020.
   Shovel-dumper combination will be used for the proposed OC patch.

3. **Narsamuda UG**
   At present, development of 2 districts is being carried out using Bord & Pillar method using 2 nos. of SDLs in each development district i.e., 52L and 48L.

4. **Patmohana UG & OC**
   At present, 23W level district is running.
   Shovel-dumper combination will be used for the proposed OC patch.

5. **Chinakuri – I UG**
   At present, there is no mining activity.

6. **Chinakuri – III UG & OC**
   At present, one depillaring district panel no. 37 with 2 SDLs is running anf 12 no. L development district with 1 SDL and 1 UDM is running.
   Shovel-dumper combination will be used for the proposed OC patch.

7. **Bejdih UG**
   At present, 7 dip development district with 37L development and 41L development with 2 nos. of SDLs are operating in the mine.

8. Methani UG & OC

The peak capacity of the mine will be 0.20 MTY which may be achieved occasionally by better utilization of resources and favourable geo-mining condition.

The normative target production of the OCP patch with a life of 1 & ½ years will be 0.12 MTY. However, the peak capacity of the OCP patch will be 0.15 MTY which may be achieved occasionally by better utilization of resources and favourable geo-mining condition.

Seam	Thickness (m)	Outlet	Grade	Method of Work	Mechanisation with no. of SDL/LHDLW set/CM
1. B.D.Seam (R-V)	2.79	Pit.1	"B"	Dep. with L.S. Method	Manual

Shovel-dumper combination will be used for the proposed OC patch.

9. Sheetalpur UG

This mine is presently closed.

1.3 ENVIRONMENTAL SCENARIO:

CMPDI has been engaged to carry out routine Environmental monitoring of the clusters. The monitoring is carried out every fortnight by collecting 24 – hour samples for ambient air at 7 all - weather stations, 3 pre-monsoon stations and 2 post-monsoon stations (based on local meteorology) and compared with NAAQS, 2009 and GSR 742 (E) dated 25.09.2000 for quality. The details of the sampling stations are given below:

Cluster 6		
Station Code	**Type of Station**	**Name of Station**
6A1	Permanent Air Station	Chhotadhemo Primary School
6A2	Permanent Air Station	Sodepur Area Guest House
6A3	Permanent Air Station	Mithani Colliery Office
6A4	Permanent Air Station	Kali Mandir, Narsamuda Colliery
6A5	Permanent Air Station	Environment Department, Borachak House, ECL
6A6	Post monsoon Air Station	Parbelia Colliery Office
6A7	Post monsoon Air Station	Sub Post Office, Surya Nagar
6A8	Pre monsoon Air Station	Electric Store, Mouthdih Colliery
6A9	Pre monsoon Air Station	DGMS Office, Sitarampur
6A10	Pre monsoon Air Station	Morichkota Village
6A11	Permanent Air Station	Managers' Office, Chinakuri Pit No. 1 & 2
6A12	Permanent Air Station	CDS Building, Chinakuri Pit No. - 3

9 nos. of samples of mine water are collected and analysed every fortnight (for 5 parameters i.e., pH, TDS, TSS, COD and O&G) and compared with the MoEF Schedule – VI for discharge of effluents into land / streams. A complete analysis of the mine discharge samples which includes heavy metals and salts is carried out twice every year. Day-time workplace noise level is recorded at 8 locations from the mine pit top (in case of UG mine) and workshop present within the cluster. Groundwater level in the cluster area is monitored by taking measurements at 3 earmarked dugwells in the months of January, May, August and November every year. Samples of groundwater from these wells, which are also utilized by the local population for drinking and other domestic purposes, are analysed once in a year during May and compared with the IS 10500: 2012 standards for drinking water quality.

Location of the monitoring stations of air, noise & water are shown in Plate- II.

The environmental monitoring results for 24 fortnights ending 31st March, 2020 are appended as Annexures – I, II, III & IV. The environmental monitoring results for the year 2019-20 are summarized below:

AMBIENT AIR QUALITY

The PM_{10} concentration was found in the range of 75.8 to 447.8 µg/m^3 and has exceeded the limits on 33 occasions out of 243 samples analsyed during the year as per the standards. The $PM_{2.5}$ concentration was found in the range of 5.4 to 117.6 µg/m^3 and has exceeded the limits on 32 occasions out of 243 samples analsyed during the year as per NAAQS, 2009. The SO_2 concentration remained below 10.0 µg/m^3 and NO_X concentration was in the range of 11.6 to 22.6 µg/m^3 and was thus well within the limits as per the standards.

ENVIRONMENTAL STANDARDS:

Environmental Standards for Ambient Air Quality (AAQ):

Station Category	*Environmental standard for Raniganj Coalfield vide MOEF, Govt. of India, Gazette Notification No. GSR 742 (E) dated 25.09.2000 for 24 hourly samples at 500 meters from dust generating point*			*National Ambient Air Quality Standards (NAAQS), 2009 for industrial, residential and rural areas for 24 hours samples*
	Pollutant Concentration (µg/m^3)			
	PM_{10}	**SO_2**	**NO_x**	**$PM_{2.5}$**
Industrial	300.0	120.0	120.0	60.0
Residential	100.00	80.0	80.0	

WATER UTILISATION, QUALITY & GROUNDWATER LEVEL

Ground water percolates into working area from the surrounding aquifers. The mine is dewatered regularly to maintain dry working conditions. This mine discharge water is partly utilized for dust suppression by sprinkling at coal faces and on haul roads and the remainder is discharged onto adjoining cultivable lands for irrigation purposes. Part-B of the Environmental Statement proforma contains the detailed break-up of water consumption.

The analysis results for the mine discharge water reveal that most of the parameters are within permissible limits prescribed by MoEF&CC as General Standards Schedule – VI for Class-'A' effluent (Effluent discharged into inland surface water) and IS 10500:2012 for groundwater standards.

In order to assess the impact of mining on the groundwater level, a network of 3 dugwells has been identified for monitoring of groundwater level in the months of January, May, August and November every year. Samples from these wells are collected and analysed during May every year and compared with IS 10500:2012 standards for drinking water.

Mine water and ground water analysis results are given in Annexure-III.

Well water level results are given in Annexure – IV.

NOISE LEVEL

The work-place day time noise level was found in the range of 57.4 to 71.4 dB(A). The noise level recorded is within the permissible limits prescribed by MoEF&CC.

Noise Level Standard as per Noise Pollution (Regulation and Control) Rules, 2000 for different station categories is given below:

Station Category	**Limits for noise (Leq dB (A))**	
	Day Time (6am-10pm)	Night Time (10pm-6am)
Industrial	75.0	70.0
Commercial	65.0	55.0
Residential	55.0	45.0

CHAPTER - II
ENVIRONMENTAL STATEMENT FORM– V

Environmental statement for the financial year ending March, 2020

PART – A

SL. NO.	HEADING	PARTICULARS
(I)	**NAME AND ADDRESS OF THE PROJECT**	
i	Dhemomain UG	PO-: Sitarampur PS-: South Asansol Dis-: Paschim Bardhaman
ii	Sodepur UG & OC	P.O.:- Sundarchak P.S,:-Kulti District-: Paschim Bardhaman
iii	Narsamuda UG	P.O.:- Mithani P.S,:-Hirapur District-: Paschim Bardhaman
iv	Patmohana UG & OC	P.O-:Patmohna P.S.- Hirapur District-Paschim Bardhaman
v	Chinakuri – I UG	P.O.:- Sunderchak P.S,:-Kulti District-: Paschim Baradhaman
vi	Chinakuri – III UG & OC	
vii	Bejdih UG	P.O.:- Mithani P.S,:- Kulti District-: Pachim Bardhaman
viii	Methani UG & OC	Mithani, P.O & P.S: Kulti, District-: Paschim Bardhaman
ix	Sheetalpur UG	Agent, Sheetalpur UG, Dist. – Burdwan, W.B.
(II)	**INDUSTRY CATEGORY**	All mines in the cluster fall in red category
(III)	**PRODUCTION CAPACITY**	2.25 MTY
(IV)	**YEAR OF ESTABLISHMENT**	All the UG mines in the cluster are taken over mines from pre-nationalization period. OC patches are yet to start production.
(V)	**DATE OF THE LAST ENVIRONMENTAL STATEMENT SUBMITTED**	13.09.2019

PART – B
WATER AND RAW MATERIAL CONSUMPTION
(I) WATER CONSUMPTION (Cu.m/day)
1. Dhemomain UG

Sl. No.	Particulars	2018-19	2019-20
	A. MINING (Dust suppression, Firefighting and Others)	55.0	55.0
	B. COOLING (in radiators of trucks/HEMM)	Nil	0.0
	C. DOMESTIC		
	Colony (Mine water and PHE supply)	2900.0	2900.0
	TOTAL	**2955.0**	**2955.0**

Name of Product	Process water consumption per unit of product output (l/day/te)	
	2018-19	**2019-20**
Coal	1.30	1.23

2. Sodepur UG & OC

Sl. No.	Particulars	2018-19	2019-20
	A. MINING (Dust suppression, Firefighting and Others)	55.0	55.0
	B. COOLING (in radiators of trucks/HEMM)	Nil	0.0
	C. DOMESTIC		
	Colony (Mine water and PHE supply)	2050.0	280.0
	TOTAL	**2105.0**	**335.0**

Name of Product	Process water consumption per unit of product output (l/day/te)	
	2018-19	**2019-20**
Coal	1.54	2.58

3. Narsamuda UG

Sl. No.	Particulars	2018-19	2019-20
	A. MINING (Dust suppression, Firefighting and Others)	55.0	55.0
	B. COOLING (in radiators of trucks/HEMM)	Nil	0.0
	C. DOMESTIC		
	Colony (Mine water and PHE supply)	1002.0	1002.0
	TOTAL	**1057.0**	**1057.0**

Name of Product	Process water consumption per unit of product output (l/day/te)	
	2018-19	**2019-20**
Coal	0.89	0.99

4. Patmohana UG & OC

Sl. No.	Particulars	2018-19	2019-20
	A. MINING (Dust suppression, Firefighting and Others)	55.0	55.0
	B. COOLING (in radiators of trucks/HEMM)	Nil	0.0
	C. DOMESTIC		
	Colony (Mine water and PHE supply)	220.0	930.0
	TOTAL	**275.0**	**985.0**

Name of Product	Process water consumption per unit of product output (l/day/te)	
	2018-19	**2019-20**
Coal	1.38	1.68

5. Chinakuri – I UG

Sl. No.	Particulars	2018-19	2019-20
	A. MINING (Dust suppression, Firefighting and Others)	Nil	0.0
	B. COOLING (in radiators of trucks/HEMM)	Nil	0.0
	C. DOMESTIC		
	Colony (Mine water and PHE supply)	977.0	980.0
	TOTAL	**977.0**	**980.0**

Name of Product	Process water consumption per unit of product output (l/day/te)	
	2018-19	**2019-20**
Coal	No production	

6. Chinakuri – III UG & OC

Sl. No.	Particulars	2018-19	2019-20
	A. MINING (Dust suppression, Firefighting and Others)	55.0	48.0
	B. COOLING (in radiators of trucks/HEMM)	Nil	0.0
	C. DOMESTIC		
	Colony (Mine water and PHE supply)	1260.0	1260.0
	TOTAL	**1315.0**	**1308.0**

Name of Product	Process water consumption per unit of product output (l/day/te)	
	2018-19	**2019-20**
Coal	0.96	0.80

7. Bejdih UG

Sl. No.	Particulars	2018-19	2019-20
	A. MINING (Dust suppression, Firefighting and Others)	55.0	55.0
	B. COOLING (in radiators of trucks/HEMM)	Nil	0.0
	C. DOMESTIC		
	Colony (Mine water and PHE supply)	51.0	51.0
	TOTAL	**106.0**	**106.0**

Name of Product	Process water consumption per unit of product output (l/day/te)	
	2018-19	**2019-20**
Coal	2.03	1.93

8. Methani UG & OC

Sl. No.	Particulars	2018-19	2019-20
	A. MINING (Dust suppression, Firefighting and Others)	55.0	55.0
	B. COOLING (in radiators of trucks/HEMM)	Nil	0.0
	C. DOMESTIC		
i	35Colony (Mine water and PHE supply)	703.0	665.0
	TOTAL	**758.0**	**720.0**

Name of Product	Process water consumption per unit of product output (l/day/te)	
	2018-19	**2019-20**
Coal	2.17	1.43

(II) RAW MATERIAL CONSUMPTION :

1. Dhemomain UG

Name of raw material	Name of products	Consumption of raw material (per unit of product output)	
		During previous financial year (2018-19)	**During current financial year (2019-20)**
1. Explosive	Coal	0.52 kg/te	0.54 kg/te
2. Diesel		0.53 l/te	0.61 l/te
3. Lubricants		0.03 l/te	0.11 l/te

2. Sodepur UG & OC

Name of raw material	Name of products	Consumption of raw material (per unit of product output)	
		During previous financial year (2018-19)	**During current financial year (2019-20)**
1. Explosive	Coal	0.26 kg/te	0.34 kg/te
2. Diesel		0.32 l/te	0.29 l/te
3. Lubricants		46 litres*	0.02 l/te

*consumption for the whole year is given

3. Narsamuda UG

Name of raw material	Name of products	Consumption of raw material (per unit of product output)	
		During previous financial year (2018-19)	**During current financial year (2019-20)**
1. Explosive	Coal	0.50 kg/te	0.43 kg/te
2. Diesel		0.59 l/te	0.48 l/te
3. Lubricants		0.02 l/te	0.02 l/te

4. Patmohana UG & OC

Name of raw material	Name of products	Consumption of raw material (per unit of product output)	
		During previous financial year (2018-19)	During current financial year (2019-20)
1. Explosive	Coal	0.10 kg/te	0.07 kg/te
2. Diesel		0.32 l/te	0.35 l/te
3. Lubricants		0.02 l/te	0.02 l/te

5. Chinakuri – III UG & OC

Name of raw material	Name of products	Consumption of raw material (per unit of product output)	
		During previous financial year (2018-19)	During current financial year (2019-20)
1. Explosive	Coal	0.06 kg/te	0.30 kg/te
2. Diesel		90 litres*	90 litres*
3. Lubricants		0.03 l/te	0.03 l/te

*consumption for the whole year is given

6. Bejdih UG

Name of raw material	Name of products	Consumption of raw material (per unit of product output)	
		During previous financial year (2018-19)	During current financial year (2019-20)
1. Explosive	Coal	0.45 kg/te	0.40 kg/te
2. Diesel		0.32 l/te	62 litres*
3. Lubricants		51 litres*	50 litres*

*consumption for the whole year is given

7. Methani UG & OC

Name of raw material	Name of products	Consumption of raw material (per unit of product output)	
		During previous financial year (2018-19)	During current financial year (2019-20)
1. Explosive	Coal	0.47 kg/te	0.49 kg/te
2. Diesel		0.32 l/te	50 litres*
3. Lubricants		0.01 l/te	0.01 l/te

*consumption for the whole year is given

PART – C
POLLUTION GENERATED

Mine	Pollution	Quantity of pollutants discharged (mass/day)	Concentrations of pollutants in discharges	Percentage variation from prescribed standards with reasons
Dhemomain UG	WATER*	Average concentration of 30.28 mg/l. Mine water discharged is 4413.0 KL/day. Hence, total load is 133.62 kg/day.	1. Mine water discharge Analysis results are given in Annexure-III. 2. The main air pollutant is suspended PM_{10} and $PM_{2.5}$. The air quality results are appended as Annexure-I.	1. 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.) 2. Ambient air quality results show that the values of PM_{10}, $PM_{2.5}$, SO_2 and NO_x are within the prescribed standards as per the standards.
	AIR**	Total pollutant load of PM_{10} is 6.77 kg/day while it is 0.96 kg/day for $PM_{2.5}$.		
Sodepur UG & OC	WATER*	-		
	AIR**	Total pollutant load of PM_{10} is 2.03 kg/day while it is 0.29 kg/day for $PM_{2.5}$.		
Narsamuda UG	WATER*	Average concentration of 31.0 mg/l. Mine water discharged is 3300.0 KL/day. Hence, total load is 102.30 kg/day.		
	AIR**	Total pollutant load of PM_{10} is 9.01 kg/day while it is 1.28 kg/day for $PM_{2.5}$.		
Patmohana UG & OC	WATER*	-		
	AIR**	Total pollutant load of PM_{10} is 3.20 kg/day while it is 0.45 kg/day for $PM_{2.5}$.		
Chinakuri – I UG	WATER*	Average concentration of 35.58 mg/l. Mine water discharged is 3552.0 KL/day. Hence, total load is 126.38 kg/day.		
	AIR**	-		
Chinakuri – III UG & OC	WATER*	Average concentration of 32.18 mg/l. Mine water discharged is 2827.0 KL/day. Hence, total load is 90.97 kg/day.		
	AIR**	Total pollutant load of PM_{10} is 1.80 kg/day while it is 0.24 kg/day for $PM_{2.5}$.		
Bejdih UG	WATER*	Average concentration of 29.62 mg/l. Mine water discharged is 7.0 KL/day. Hence, total load is 0.21 kg/day.		
	AIR**	Total pollutant load of PM_{10} is 2.91 kg/day while it is 0.41 kg/day for $PM_{2.5}$.		
Mithani UG & OC	WATER*	-		
	AIR**	Total pollutant load of PM_{10} is 3.87 kg/day while it is 0.55 kg/day for $PM_{2.5}$.		

*Water discharged from the mine contains pollutants in the form of suspended solids (mostly fine coal dust).

**PM_{10} and $PM_{2.5}$ estimation has been done using empirical formula by using Emission Factors derived from S&T studies done by CMPDI.

PART – D
HAZARDOUS WASTE
(As specified under Hazardous Waste (Management and Handling) Rules, 1989)

1. Dhemomain UG

Hazardous waste	Total quantity		Disposal method
	During previous financial year (2018-19)	During current financial year (2019-20)	
A) From process			
i)Used oil	-	-	
ii)Lead-Acid Batteries			
a. Automobile batteries	1* No.	5* No.	Dealt in Part – F
b. Cap-lamp batteries	1000* Nos.	700* Nos.	
iii) Used Cotton waste	Nil	Nil	
iv) Metal Scrap	Nil	Nil	

*for entire Sodepur Area

2. Sodepur UG & OC

Hazardous waste	Total quantity		Disposal method
	During previous financial year (2018-19)	During current financial year (2019-20)	
A) From process			
i)Used oil	-	-	
ii)Lead-Acid Batteries			
a. Automobile batteries	1* No.	5* No.	Dealt in Part – F
b. Cap-lamp batteries	1000* Nos.	700* Nos.	
iii) Used Cotton waste	Nil	Nil	
iv) Metal Scrap	Nil	Nil	

*for entire Sodepur Area

3. Narsamuda UG

Hazardous waste	Total quantity		Disposal method
	During previous financial year (2018-19)	During current financial year (2019-20)	
A) From process			
i)Used oil	-	-	
ii)Lead-Acid Batteries			
a. Automobile batteries	1* No.	5* No.	Dealt in Part – F
b. Cap-lamp batteries	1000* Nos.	700* Nos.	
iii) Used Cotton waste	Nil	Nil	
iv) Metal Scrap	Nil	Nil	

*for entire Sodepur Area

4. Patmohana UG & OC

Hazardous waste	Total quantity		Disposal method
	During previous financial year (2018-19)	During current financial year (2019-20)	
A) From process			
i)Used oil	-	-	
ii)Lead-Acid Batteries			
a. Automobile batteries	1* No.	5* No.	Dealt in Part – F
b. Cap-lamp batteries	1000* Nos.	700* Nos.	
iii) Used Cotton waste	Nil	Nil	
iv) Metal Scrap	Nil	Nil	

*for entire Sodepur Area

5. Chinakuri – I UG

Hazardous waste	Total quantity		Disposal method
	During previous financial year (2018-19)	During current financial year (2019-20)	
A) From process			
i)Used oil	-	-	
ii)Lead-Acid Batteries			
a. Automobile batteries	1* No.	5* No.	Dealt in Part – F
b. Cap-lamp batteries	1000* Nos.	700* Nos.	
iii) Used Cotton waste	Nil	Nil	
iv) Metal Scrap	Nil	Nil	

*for entire Sodepur Area

6. Chinakuri – III UG & OC

Hazardous waste	Total quantity		Disposal method
	During previous financial year (2018-19)	During current financial year (2019-20)	
A) From process			
i)Used oil	-	-	
ii)Lead-Acid Batteries			
a. Automobile batteries	1* No.	5* No.	Dealt in Part – F
b. Cap-lamp batteries	1000* Nos.	700* Nos.	
iii) Used Cotton waste	Nil	Nil	
iv) Metal Scrap	Nil	Nil	

*for entire Sodepur Area

7. Bejdih UG

Hazardous waste	Total quantity		Disposal method
	During previous financial year (2018-19)	During current financial year (2019-20)	
A) From process			
i)Used oil	-	-	
ii)Lead-Acid Batteries			
a. Automobile batteries	1* No.	5* No.	Dealt in Part – F
b. Cap-lamp batteries	1000* Nos.	700* Nos.	
iii) Used Cotton waste	Nil	Nil	
iv) Metal Scrap	Nil	Nil	

*for entire Sodepur Area

8. Methani UG & OC

Hazardous waste	Total quantity		Disposal method
	During previous financial year (2018-19)	During current financial year (2019-20)	
A) From process			
i)Used oil	-	-	
ii)Lead-Acid Batteries			
a. Automobile batteries	1* No.	5* No.	Dealt in Part – F
b. Cap-lamp batteries	1000* Nos.	700* Nos.	
iii) Used Cotton waste	Nil	Nil	
iv) Metal Scrap	Nil	Nil	

*for entire Sodepur Area

Approximate values may be given where actual values are not available.

Note: a) The detail of used oil is to be given to concerned Pollution Control Board in Form-13 as per time mentioned in HW (M & H), Amendment Rules, 2003.

b) The detail of disposal of Lead Acid batteries is to be given to concerned State Pollution Control Board in Form-VIII as per time mentioned in Batteries (M&H) Rules, 2001.

PART – E
SOLID WASTE

Particulars	Name of Mine	Total quantity (In Million Cu.m)	
		During previous financial year (2018-19)	During current financial year (2019-20)
a) From process (Mining)	Sodepur OC	OC patches are yet to start production and hence, there is no solid waste generation from process (mining)	
	Patmohana OC		
	Chinakuri – III OC		
	Methani OC		
b) From pollution control facilities	Sodepur OC		
	Patmohana OC		
	Chinakuri – III OC		
	Methani OC		
c) Quantity recycled or reutilized back filled	Sodepur OC		
	Patmohana OC		
	Chinakuri – III OC		
	Methani OC		

PART – F

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

Hazardous waste generated is given in the table of PART-D which has been deposited at area store disposal stock yard.

Cap lamp batteries are received from HQ Central Stores and stored in Area Store. From Area Store, they are supplied to unit cap lamp room as per allocation by technical HOD of Area. At unit cap lamp room they are stored in racks with cap lamp number.

HEMM batteries are stored in Area stores.

Metal scraps are declared and report is sent to HQ. The scraps are then auctioned and sold through HQ.

Used oil is brought from various mines and is re-used for lubricating coal tub.

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:**

- Surfacing of all service roads/permanent roads by asphalt.
- The un-metalled roads is kept free of ruts, potholes, etc.
- Regular maintenance of HEMM engines to limit emission of harmful exhaust fumes.
- Physical removal of dust from the roads.
- Greenbelts around quarry, industrial sites, service building area besides avenue plantation along roads.
- Fixed Water Sprinkler has been installed at Chinakuri Railway Siding.
- Plantation will be carried out as per the programme and availability of land.

2.0 **WATER POLLUTION CONTROL MEASURES:**

(for Mine/CHP/Workshop/Colony discharge water)

- Treatment facility for domestic effluent water is available in Ranisayer colony.
- There is no workshop in the mines. Effluent water mainly consists of mine discharge.
- 2 nos. of sedimentation tank is available for entire Sodepur area. These are sedimentation tanks are available in Bejdih and the other in Dhemomain, Sodepur Area.
- Filter plants are available in different mines for supplying filtered mine water to the attached colonies.
- Slow sand filter have been provided at Dhemomain, Sodepur and Narsamuda collieries. Pressure filter is established at Chinakuri – III colliery.
- Regular monitoring of mine discharge water and groundwater is being carried out by CMPDI.

3.0 **NOISE POLLUTION CONTROL MEASURES:**

- Regular maintenance of machines and other equipment at Bunker and workshop including mine fan.
- Providing green belt around core activity area, along road side in colony and in other vacant space.
- All HEMM & light vehicles are provided with silencers.
- Noise monitoring is being carried out regularly.

4.0 **LAND RESOURCE MANAGEMENT:**

- OC patches are yet to start production and as such there was no OB generation during 2019 – 20.

PART – H

ADDITIONAL INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION.

The following are the additional investment proposals for environmental protection:

- The Environmental monitoring of the project will be continued fortnightly as per the guidelines of Ministry of Environment and Forest (MOEF).
- Necessary Consent for discharge may be taken from Competent Authority.
- Various activities are being carried out under CSR head like construction of community halls for local usage, water supply schemes in nearby villages, classrooms, etc. for improving the living conditions of the local areas.

PART – I

ANY OTHER PARTICULAR IN RESPECT OF ENVIRONMENTAL PROTECTION AND ABATMENT OF POLLUTION.

The Environmental Monitoring is carried out fortnightly for the project by CMPDI, RI-I as per the guideline of Ministry of Environment and Forest & Climate Change (MoEF&CC) and based on the result thereof; colliery takes necessary action if needed.

Annexure – I

AMBIENT AIR QUALITY

Station No.	Station Name	Month	Fortnight	Date of Sampling	PM_{10}	$PM_{2.5}$	SO_2	NO_X
6A1	Chhottadhemo Primary School	April	First	03-Apr-19	96	37.5	<10.0	12.6
6A1	Chhottadhemo Primary School	April	Second	17-Apr-19	96.4	37.6	<10.0	17.5
6A1	Chhottadhemo Primary School	May	First	09-May-19	96.2	36.8	<10.0	18.4
6A1	Chhottadhemo Primary School	May	Second	31-May-19	96.8	37.2	<10.0	19.6
6A1	Chhottadhemo Primary School	June	First	12-Jun-19	97	37.9	<10.0	17.5
6A1	Chhottadhemo Primary School	June	Second	21-Jun-19	91.4	37.3	<10.0	18.3
6A1	Chhottadhemo Primary School	July	First	05-Jul-19	89	33.3	<10.0	15.4
6A1	Chhottadhemo Primary School	July	Second	29-Jul-19	88.1	33	<10.0	15.2
6A1	Chhottadhemo Primary School	August	First	07-Aug-19	85.3	32	<10.0	14.9
6A1	Chhottadhemo Primary School	August	Second	29-Aug-19	83.4	31.8	<10.0	14.6
6A1	Chhottadhemo Primary School	Sept	First	11-Sep-19	78.8	30.5	<10.0	14.2
6A1	Chhottadhemo Primary School	Sept	Second	25-Sep-19	76.1	29.6	<10.0	13.7
6A1	Chhottadhemo Primary School	October	First	09-Oct-19	88.2	30.2	<10.0	14.4
6A1	Chhottadhemo Primary School	October	Second	16-Oct-19	93.4	30.6	<10.0	14.5
6A1	Chhottadhemo Primary School	November	First	07-Nov-19	99.8	30.9	<10.0	14.6
6A1	Chhottadhemo Primary School	November	Second	26-Nov-19	104.2	31.2	<10.0	14.4
6A1	Chhottadhemo Primary School	December	First	06-Dec-19	110.2	40.5	<10.0	14.8
6A1	Chhottadhemo Primary School	December	Second	20-Dec-19	112.2	42.3	<10.0	14.9
6A1	Chhottadhemo Primary School	January	First	14-Jan-20	114.2	44	<10.0	15.5
6A1	Chhottadhemo Primary School	January	Second	17-Jan-20	112.2	44	<10.0	15.7
6A1	Chhottadhemo Primary School	February	First	03-Feb-20	119.2	44.5	<10.0	15.8
6A1	Chhottadhemo Primary School	February	Second	19-Feb-20	118.7	44.6	<10.0	15.7
6A1	Chhottadhemo Primary School	March	First	04-Mar-20	120.2	44.5	<10.0	15.8
6A1	Chhottadhemo Primary School	April	First	11-Sep-19	78.8	30.5	<10.0	14.2
6A1	Chhottadhemo Primary School	April	Second	11-Sep-19	78.8	30.5	<10.0	14.2
6A10	Marichkota Village	April	First	04-Apr-19	91.8	38.9	<10.0	12.8
6A10	Marichkota Village	April	Second	16-Apr-19	91.6	38.2	<10.0	14.1
6A10	Marichkota Village	May	First	09-May-19	91.9	39.1	<10.0	16.5
6A10	Marichkota Village	May	Second	23-May-19	92	38.7	<10.0	17.1
6A10	Marichkota Village	June	First	12-Jun-20	93.4	37.7	<10.0	15.3
6A10	Marichkota Village	June	Second	20-Jun-19	88.6	37.4	<10.0	16.5
6A10	Marichkota Village	July	First	08-Jul-19	87.4	32.4	<10.0	14.4
6A10	Marichkota Village	July	Second	29-Jul-19	86.3	31.7	<10.0	14
6A10	Marichkota Village	August	First	07-Aug-19	84.2	30.8	<10.0	13.8
6A10	Marichkota Village	August	Second	28-Aug-19	83.3	30.5	<10.0	13.6
6A10	Marichkota Village	Sept	First	11-Sep-19	77.6	29.2	<10.0	13.2
6A10	Marichkota Village	Sept	Second	26-Sep-19	75.8	29	<10.0	13.1
6A10	Marichkota Village	April	First	11-Sep-19	77.6	29.2	<10.0	13.2
6A10	Marichkota Village	April	Second	11-Sep-19	77.6	29.2	<10.0	13.2
6A11	Manager's Office, Chinakuri pit no.1 & 2	April	First	01-Apr-19	127.6	51.5	<10.0	19.7
6A11	Manager's Office, Chinakuri pit no.1 & 2	April	Second	16-Apr-19	128.8	50.7	<10.0	22.3
6A11	Manager's Office, Chinakuri pit no.1 & 2	May	First	15-May-19	125.7	51.2	<10.0	21.5
6A11	Manager's Office, Chinakuri pit no.1 & 2	May	Second	22-May-19	124.1	50.7	<10.0	22.6
6A11	Manager's Office, Chinakuri pit no.1 & 2	June	First	12-Jun-20	122	48.6	<10.0	19.8
6A11	Manager's Office, Chinakuri pit	June	Second	21-Jun-19	114	48.5	<10.0	20.5

Station No.	Station Name	Month	Fortnight	Date of Sampling	PM_{10}	$PM_{2.5}$	SO_2	NO_X
	no.1 & 2							
6A11	Manager's Office, Chinakuri pit no.1 & 2	July	First	04-Jul-19	110.2	38.2	<10.0	15.2
6A11	Manager's Office, Chinakuri pit no.1 & 2	July	Second	29-Jul-19	107.3	37.6	<10.0	15.6
6A11	Manager's Office, Chinakuri pit no.1 & 2	August	First	07-Aug-19	103.6	36.2	<10.0	15.3
6A11	Manager's Office, Chinakuri pit no.1 & 2	August	Second	28-Aug-19	101.7	35.9	<10.0	15.2
6A11	Manager's Office, Chinakuri pit no.1 & 2	Sept	First	11-Sep-19	97.2	33.7	<10.0	14.9
6A11	Manager's Office, Chinakuri pit no.1 & 2	Sept	Second	26-Sep-19	95.8	32.8	<10.0	14.2
6A11	Manager's Office, Chinakuri pit no.1 & 2	October	First	09-Oct-19	100.4	33.1	<10.0	15.2
6A11	Manager's Office, Chinakuri pit no.1 & 2	October	Second	17-Oct-19	105.2	33.3	<10.0	15.4
6A11	Manager's Office, Chinakuri pit no.1 & 2	November	First	05-Nov-19	111.6	34.9	<10.0	15.6
6A11	Manager's Office, Chinakuri pit no.1 & 2	November	Second	26-Nov-19	115.2	34.8	<10.0	15.8
6A11	Manager's Office, Chinakuri pit no.1 & 2	December	First	04-Dec-19	152.2	56.7	<10.0	16
6A11	Manager's Office, Chinakuri pit no.1 & 2	December	Second	20-Dec-19	155.2	58.3	<10.0	16.2
6A11	Manager's Office, Chinakuri pit no.1 & 2	January	First	13-Jan-20	156.2	61.9	<10.0	16.5
6A11	Manager's Office, Chinakuri pit no.1 & 2	January	Second	17-Jan-20	155.2	61.9	<10.0	16.6
6A11	Manager's Office, Chinakuri pit no.1 & 2	February	First	03-Feb-20	161.4	62.4	<10.0	16.7
6A11	Manager's Office, Chinakuri pit no.1 & 2	February	Second	28-Feb-20	162.5	62.8	<10.0	16.8
6A11	Manager's Office, Chinakuri pit no.1 & 2	March	First	05-Mar-20	164.5	62.4	<10.0	16.7
6A11	Manager's Office, Chinakuri pit no.1 & 2	March	Second	20-Mar-20	165.2	61.8	<10.0	16.8
6A11	Manager's Office, Chinakuri pit no.1 & 2	April	First	11-Sep-19	97.2	33.7	<10.0	14.9
6A11	Manager's Office, Chinakuri pit no.1 & 2	April	Second	11-Sep-19	97.2	33.7	<10.0	14.9
6A12	CDS Building, Chinakuri pit no.3	April	First	01-Apr-19	130.5	52.5	<10.0	22.3
6A12	CDS Building, Chinakuri pit no.3	April	Second	16-Apr-19	131.4	51.6	<10.0	18.6
6A12	CDS Building, Chinakuri pit no.3	May	First	15-May-19	132.5	52.3	<10.0	20.7
6A12	CDS Building, Chinakuri pit no.3	May	Second	22-May-19	133	52.6	<10.0	21.4
6A12	CDS Building, Chinakuri pit no.3	June	First	12-Jun-19	134.6	49.7	<10.0	21.3
6A12	CDS Building, Chinakuri pit no.3	June	Second	21-Jun-19	124.6	49.3	<10.0	22.5
6A12	CDS Building, Chinakuri pit no.3	July	First	04-Jul-19	119.1	40.5	<10.0	17.8
6A12	CDS Building, Chinakuri pit no.3	July	Second	30-Jul-19	115.2	39.8	<10.0	17.7
6A12	CDS Building, Chinakuri pit no.3	August	First	08-Aug-19	111.1	38	<10.0	17.1
6A12	CDS Building, Chinakuri pit no.3	August	Second	29-Aug-19	110.2	37.6	<10.0	16.8
6A12	CDS Building, Chinakuri pit no.3	Sept	First	11-Sep-19	101.4	34.8	<10.0	15.7
6A12	CDS Building, Chinakuri pit no.3	Sept	Second	27-Sep-19	100.1	33.3	<10.0	15.1

Station No.	Station Name	Month	Fortnight	Date of Sampling	PM_{10}	$PM_{2.5}$	SO_2	NO_X
6A12	CDS Building, Chinakuri pit no.3	October	First	09-Oct-19	105.2	33.8	<10.0	16
6A12	CDS Building, Chinakuri pit no.3	October	Second	17-Oct-19	110.4	34.2	<10.0	16.1
6A12	CDS Building, Chinakuri pit no.3	November	First	06-Nov-19	114.1	35.2	<10.0	16.2
6A12	CDS Building, Chinakuri pit no.3	November	Second	21-Nov-19	118.7	35.4	<10.0	16.4
6A12	CDS Building, Chinakuri pit no.3	December	First	04-Dec-19	175.8	69.8	<10.0	16.5
6A12	CDS Building, Chinakuri pit no.3	December	Second	20-Dec-19	178.4	70.4	<10.0	16.7
6A12	CDS Building, Chinakuri pit no.3	January	First	14-Jan-20	179.6	72.7	<10.0	17.4
6A12	CDS Building, Chinakuri pit no.3	January	Second	17-Jan-20	178.4	72.7	<10.0	17.2
6A12	CDS Building, Chinakuri pit no.3	February	First	03-Feb-20	182.7	73.1	<10.0	17.8
6A12	CDS Building, Chinakuri pit no.3	February	Second	28-Feb-20	183.5	73.9	<10.0	17.9
6A12	CDS Building, Chinakuri pit no.3	March	First	05-Mar-20	184.9	73.1	<10.0	17.8
6A12	CDS Building, Chinakuri pit no.3	March	Second	20-Mar-20	185.4	74.9	<10.0	17.9
6A12	CDS Building, Chinakuri pit no.3	April	First	11-Sep-19	101.4	34.8	<10.0	15.7
6A12	CDS Building, Chinakuri pit no.3	April	Second	11-Sep-19	101.4	34.8	<10.0	15.7
6A2	Sodpur Area Guest House	April	First	08-Apr-19	94.6	42.4	<10.0	14.3
6A2	Sodpur Area Guest House	April	Second	16-Apr-19	95	41.7	<10.0	15.8
6A2	Sodpur Area Guest House	May	First	15-May-19	96.4	41.8	<10.0	16.3
6A2	Sodpur Area Guest House	May	Second	22-May-19	96.2	41.2	<10.0	17.3
6A2	Sodpur Area Guest House	June	First	12-Jun-19	96	40.8	<10.0	15.3
6A2	Sodpur Area Guest House	June	Second	21-Jun-19	90.4	40.2	<10.0	16.5
6A2	Sodpur Area Guest House	July	First	05-Jul-19	89.2	33.6	<10.0	15.1
6A2	Sodpur Area Guest House	July	Second	29-Jul-19	88	32.8	<10.0	14.8
6A2	Sodpur Area Guest House	August	First	07-Aug-19	86.1	31.7	<10.0	14.5
6A2	Sodpur Area Guest House	August	Second	29-Aug-19	84.1	31.4	<10.0	14.2
6A2	Sodpur Area Guest House	Sept	First	11-Sep-19	82.1	30.2	<10.0	13.8
6A2	Sodpur Area Guest House	Sept	Second	26-Sep-19	80.2	29.4	<10.0	13.3
6A2	Sodpur Area Guest House	October	First	09-Oct-19	82.1	30	<10.0	13.9
6A2	Sodpur Area Guest House	October	Second	18-Oct-19	89.2	30.2	<10.0	14
6A2	Sodpur Area Guest House	November	First	05-Nov-19	248.1	86.3	<10.0	14.2
6A2	Sodpur Area Guest House	November	Second	20-Nov-19	215.8	69.2	<10.0	14.3
6A2	Sodpur Area Guest House	December	First	05-Dec-19	236	80.8	<10.0	14.5
6A2	Sodpur Area Guest House	December	Second	20-Dec-19	196.4	61.98	<10.0	14.7
6A2	Sodpur Area Guest House	January	First	13-Jan-20	274	88	<10.0	15.1
6A2	Sodpur Area Guest House	January	Second	17-Jan-20	196.4	88	<10.0	15.2
6A2	Sodpur Area Guest House	February	First	03-Feb-20	234.1	24	<10.0	15.3
6A2	Sodpur Area Guest House	February	Second	19-Feb-20	256.3	12	<10.0	15.5
6A2	Sodpur Area Guest House	March	First	04-Mar-20	108.6	24	<10.0	15.3
6A2	Sodpur Area Guest House	April	First	11-Sep-19	82.1	30.2	<10.0	13.8
6A2	Sodpur Area Guest House	April	Second	11-Sep-19	82.1	30.2	<10.0	13.8
6A3	Mithani Colliery office	April	First	02-Apr-19	124.2	49.5	<10.0	20.6
6A3	Mithani Colliery office	April	Second	26-Apr-19	126	48.9	<10.0	18.7
6A3	Mithani Colliery office	May	First	15-May-19	127.4	48.5	<10.0	21.6
6A3	Mithani Colliery office	May	Second	23-May-19	126	48.9	<10.0	22.1
6A3	Mithani Colliery office	June	First	11-Jun-19	127.6	49.3	<10.0	22.5
6A3	Mithani Colliery office	June	Second	20-Jun-19	120	48.4	<10.0	21.5
6A3	Mithani Colliery office	July	First	05-Jul-19	114.3	38.1	<10.0	16.6
6A3	Mithani Colliery office	July	Second	31-Jul-19	110.2	37.1	<10.0	16.4
6A3	Mithani Colliery office	August	First	08-Aug-19	107.1	36.1	<10.0	15.6
6A3	Mithani Colliery office	August	Second	29-Aug-19	105.8	35.8	<10.0	15.3
6A3	Mithani Colliery office	Sept	First	12-Sep-19	102.3	33.6	<10.0	14.9
6A3	Mithani Colliery office	Sept	Second	27-Sep-19	99.1	31.9	<10.0	13.9
6A3	Mithani Colliery office	October	First	09-Oct-19	108.6	32.4	<10.0	15

Station No.	Station Name	Month	Fortnight	Date of Sampling	PM_{10}	$PM_{2.5}$	SO_2	NO_X
6A3	Mithani Colliery office	October	Second	18-Oct-19	112..4	32.6	<10.0	15.2
6A3	Mithani Colliery office	November	First	07-Nov-19	117.2	33	<10.0	15.3
6A3	Mithani Colliery office	November	Second	21-Nov-19	124.3	33.5	<10.0	15.4
6A3	Mithani Colliery office	December	First	05-Dec-19	145.4	50.3	<10.0	15.6
6A3	Mithani Colliery office	December	Second	23-Dec-19	148.4	52.6	<10.0	15.7
6A3	Mithani Colliery office	January	First	14-Jan-20	152.4	54.9	<10.0	15.8
6A3	Mithani Colliery office	January	Second	27-Jan-20	148.4	54.9	<10.0	16.1
6A3	Mithani Colliery office	February	First	04-Feb-20	159.2	55.8	<10.0	16.2
6A3	Mithani Colliery office	February	Second	27-Feb-20	160.2	56.7	<10.0	16.6
6A3	Mithani Colliery office	March	First	04-Mar-20	327.9	55.8	<10.0	16.2
6A3	Mithani Colliery office	March	Second	20-Mar-20	447.8	47.6	<10.0	16.6
6A3	Mithani Colliery office	April	First	12-Sep-19	102.3	33.6	<10.0	14.9
6A3	Mithani Colliery office	April	Second	12-Sep-19	102.3	33.6	<10.0	14.9
6A4	Kali Mandir, Narsamuda Colliery	April	First	05-Apr-19	112.8	49.1	<10.0	18.7
6A4	Kali Mandir, Narsamuda Colliery	April	Second	26-Apr-19	115.2	49.7	<10.0	20.6
6A4	Kali Mandir, Narsamuda Colliery	May	First	14-May-19	117.6	49.3	<10.0	20.7
6A4	Kali Mandir, Narsamuda Colliery	May	Second	23-May-19	120.5	50.1	<10.0	21.6
6A4	Kali Mandir, Narsamuda Colliery	June	First	11-Jun-19	123.3	50.7	<10.0	21.4
6A4	Kali Mandir, Narsamuda Colliery	June	Second	20-Jun-19	115.5	50.1	<10.0	22.3
6A4	Kali Mandir, Narsamuda Colliery	July	First	05-Jul-19	110.2	37.5	<10.0	16.2
6A4	Kali Mandir, Narsamuda Colliery	July	Second	31-Jul-19	108.1	36.8	<10.0	16
6A4	Kali Mandir, Narsamuda Colliery	August	First	08-Aug-19	108.2	35.2	<10.0	15.8
6A4	Kali Mandir, Narsamuda Colliery	August	Second	29-Aug-19	106.2	35	<10.0	15.4
6A4	Kali Mandir, Narsamuda Colliery	Sept	First	12-Sep-19	100.6	33.4	<10.0	14.8
6A4	Kali Mandir, Narsamuda Colliery	Sept	Second	25-Sep-19	100.8	32.2	<10.0	14.1
6A4	Kali mandir, Narsumada Colliery	October	First	11-Oct-19	109.5	32.5	<10.0	15.1
6A4	Kali mandir, Narsumada Colliery	October	Second	18-Oct-19	114.2	32.8	<10.0	15.3
6A4	Kali mandir, Narsumada Colliery	November	First	07-Nov-19	119.1	33.1	<10.0	15.4
6A4	Kali mandir, Narsumada Colliery	November	Second	20-Nov-19	126	33.8	<10.0	15.5
6A4	Kali mandir, Narsumada Colliery	December	First	05-Dec-19	155.6	54.2	<10.0	15.7
6A4	Kali mandir, Narsumada Colliery	December	Second	23-Dec-19	152.8	58.9	<10.0	15.8
6A4	Kali mandir, Narsumada Colliery	January	First	14-Jan-20	159 .4	56.6	<10.0	15.9
6A4	Kali mandir, Narsumada Colliery	January	Second	27-Jan-20	152.8	56.6	<10.0	16
6A4	Kali mandir, Narsumada Colliery	February	First	04-Feb-20	163.1	57.3	<10.0	16.4
6A4	Kali mandir, Narsumada Colliery	February	Second	27-Feb-20	163.8	57.9	<10.0	16.7
6A4	Kali mandir, Narsumada Colliery	March	First	04-Mar-20	151	57.3	<10.0	16.4
6A4	Kali mandir, Narsumada Colliery	March	Second	20-Mar-20	262.9	5.4	<10.0	16.7
6A4	Kali Mandir, Narsamuda Colliery	April	First	12-Sep-19	100.6	33.4	<10.0	14.8
6A4	Kali Mandir, Narsamuda Colliery	April	Second	12-Sep-19	100.6	33.4	<10.0	14.8
6A5	Env. Dept. Barachak House	April	First	04-Apr-19	89.8	36.9	<10.0	13.4
6A5	Env. Dept. Barachak House	April	Second	25-Apr-19	90.4	36.3	<10.0	12.7
6A5	Env. Dept. Barachak House	May	First	06-May-19	92	38.5	<10.0	15.8
6A5	Env. Dept. Barachak House	May	Second	31-May-19	92.7	38.1	<10.0	16.4
6A5	Env. Dept. Barachak House	June	First	11-Jun-19	93.2	38.6	<10.0	16.8
6A5	Env. Dept. Barachak House	June	Second	18-Jun-19	87.4	38.1	<10.0	15.8
6A5	Env. Dept. Barachak House	July	First	08-Jul-19	87.1	33.4	<10.0	15.4
6A5	Env. Dept. Barachak House	July	Second	31-Jul-19	86.1	32.7	<10.0	14.9
6A5	Env. Dept. Barachak House	August	First	07-Aug-19	84	31.3	<10.0	14.6
6A5	Env. Dept. Barachak House	August	Second	30-Aug-19	83.1	31	<10.0	14.5
6A5	Env. Dept. Barachak House	Sept	First	11-Sep-19	80	30.5	<10.0	14
6A5	Env. Dept. Barachak House	Sept	Second	27-Sep-19	83.1	29.6	<10.0	13.4
6A5	En. Dept. Barachak House	October	First	10-Oct-19	84.6	30.1	<10.0	14.1

Station No.	Station Name	Month	Fortnight	Date of Sampling	PM_{10}	$PM_{2.5}$	SO_2	NO_X
6A5	En. Dept. Barachak House	October	Second	16-Oct-19	89.2	30.3	<10.0	14.3
6A5	En. Dept. Barachak House	November	First	06-Nov-19	223.2	71.8	<10.0	14.6
6A5	En. Dept. Barachak House	November	Second	21-Nov-19	205.6	117.6	<10.0	14.8
6A5	En. Dept. Barachak House	December	First	11-Dec-19	309	51.93	<10.0	15.1
6A5	En. Dept. Barachak House	December	Second	23-Dec-19	248.8	92.43	<10.0	15.2
6A5	En. Dept. Barachak House	January	First	08-Jan-20	2 54.0	80.9	<10.0	15.3
6A5	En. Dept. Barachak House	January	Second	27-Jan-20	248.8	80.9	<10.0	15.4
6A5	En. Dept. Barachak House	February	First	04-Feb-20	191.7	43.7	<10.0	15.5
6A5	En. Dept. Barachak House	February	Second	18-Feb-20	259.8	14	<10.0	15.7
6A5	En. Dept. Barachak House	March	First	05-Mar-20	132.8	43.7	<10.0	15.5
6A5	Env. Dept. Barachak House	April	First	11-Sep-19	80	30.5	<10.0	14
6A5	Env. Dept. Barachak House	April	Second	11-Sep-19	80	30.5	<10.0	14
6A6	Parbelia Colliery Office	October	First	10-Oct-19	109.8	34	<10.0	15.5
6A6	Parbelia Colliery Office	October	Second	16-Oct-19	114.2	34.4	<10.0	15.8
6A6	Parbelia Colliery Office	November	First	06-Nov-19	117.2	35.5	<10.0	15.8
6A6	Parbelia Colliery Office	November	Second	22-Nov-19	123.2	35.9	<10.0	16.2
6A6	Parbelia Colliery Office	December	First	05-Dec-19	174.4	67.3	<10.0	16.5
6A6	Parbelia Colliery Office	December	Second	26-Dec-19	172.4	69.1	<10.0	16.7
6A6	Parbelia Colliery Office	January	First	15-Jan-20	178.2	70.8	<10.0	17.2
6A6	Parbelia Colliery Office	January	Second	16-Jan-20	172.4	70.8	<10.0	17.3
6A6	Parbelia Colliery Office	February	First	13-Feb-20	183.5	71.2	<10.0	17.9
6A6	Parbelia Colliery Office	February	Second	18-Feb-20	182.7	71	<10.0	17.8
6A6	Parbelia Colliery Office	March	First	05-Mar-20	187.6	71.2	<10.0	17.9
6A7	Sub-Postoffice, Suryanagar	October	First	10-Oct-19	84.4	31.7	<10.0	14.2
6A7	Sub-Postoffice, Suryanagar	October	Second	17-Oct-19	91.2	31.9	<10.0	14.3
6A7	Sub-Postoffice, Suryanagar	November	First	07-Nov-19	96.4	32.1	<10.0	14.4
6A7	Sub-Postoffice, Suryanagar	November	Second	21-Nov-19	100	32.4	<10.0	14.5
6A7	Sub-Postoffice, Suryanagar	December	First	05-Dec-19	108.4	39.2	<10.0	14.7
6A7	Sub-Postoffice, Suryanagar	December	Second	24-Dec-19	110.4	40.5	<10.0	14.8
6A7	Sub-Postoffice, Suryanagar	January	First	14-Jan-20	114.8	41.3	<10.0	15
6A7	Sub-Postoffice, Suryanagar	January	Second	16-Jan-20	110.4	41.3	<10.0	15.2
6A7	Sub-Postoffice, Suryanagar	February	First	13-Feb-20	116.3	41.8	<10.0	15.4
6A7	Sub-Postoffice, Suryanagar	February	Second	28-Feb-20	115.8	41.6	<10.0	15.2
6A7	Sub-Postoffice, Suryanagar	March	First	05-Mar-20	117.9	41.8	<10.0	15.4
6A8	Elecric Store, Mouthdi Colliery	April	First	05-Apr-19	106.8	39.3	<10.0	16.4
6A8	Elecric Store, Mouthdi Colliery	April	Second	23-Apr-19	108.2	39.2	<10.0	18.4
6A8	Elecric Store, Mouthdi Colliery	May	First	09-May-19	112.6	39.7	<10.0	22.6
6A8	Elecric Store, Mouthdi Colliery	May	Second	21-May-19	118.9	38.2	<10.0	20.3
6A8	Elecric Store, Mouthdi Colliery	June	First	12-Jun-20	120.2	37.6	<10.0	20.6
6A8	Elecric Store, Mouthdi Colliery	June	Second	20-Jun-19	110.8	37.2	<10.0	21.5
6A8	Elecric Store, Mouthdi Colliery	July	First	05-Jul-19	108.1	36.2	<10.0	16.7
6A8	Elecric Store, Mouthdi Colliery	July	Second	30-Jul-19	107	35.3	<10.0	16.4
6A8	Elecric Store, Mouthdi Colliery	August	First	08-Aug-19	104.2	34.8	<10.0	16
6A8	Elecric Store, Mouthdi Colliery	August	Second	27-Aug-19	102.6	34.5	<10.0	15.8
6A8	Elecric Store, Mouthdi Colliery	Sept	First	10-Sep-19	96.1	33.4	<10.0	14.9
6A8	Elecric Store, Mouthdi Colliery	Sept	Second	27-Sep-19	92.3	32.7	<10.0	14.5
6A8	Elecric Store, Mouthdi Colliery	April	First	10-Sep-19	96.1	33.4	<10.0	14.9
6A8	Elecric Store, Mouthdi Colliery	April	Second	10-Sep-19	96.1	33.4	<10.0	14.9
6A9	DGMS Office, Sitarampur	April	First	04-Apr-19	92.7	40.1	<10.0	11.6
6A9	DGMS Office, Sitarampur	April	Second	26-Apr-19	93.2	39.6	<10.0	13.8
6A9	DGMS Office, Sitarampur	May	First	09-May-19	94.2	38.7	<10.0	17.9
6A9	DGMS Office, Sitarampur	May	Second	21-May-19	95.3	38.1	<10.0	16.2

Station No.	Station Name	Month	Fortnight	Date of Sampling	PM_{10}	$PM_{2.5}$	SO_2	NO_X
6A9	DGMS Office, Sitarampur	June	First	11-Jun-20	96.2	37.9	<10.0	14.7
6A9	DGMS Office, Sitarampur	June	Second	18-Jun-20	89.1	37.1	<10.0	15.4
6A9	DGMS Office, Sitarampur	July	First	08-Jul-19	88	33.8	<10.0	15.3
6A9	DGMS Office, Sitarampur	July	Second	30-Jul-19	87.2	33.1	<10.0	15.1
6A9	DGMS Office, Sitarampur	August	First	08-Aug-19	84.9	32.4	<10.0	15
6A9	DGMS Office, Sitarampur	August	Second	30-Aug-19	82.5	32	<10.0	14.9
6A9	DGMS Office, Sitarampur	Sept	First	12-Sep-19	78.2	31.2	<10.0	13.8
6A9	DGMS Office, Sitarampur	Sept	Second	26-Sep-19	77.1	30.8	<10.0	13.4
6A9	DGMS Office, Sitarampur	April	First	12-Sep-19	78.2	31.2	<10.0	13.8
6A9	DGMS Office, Sitarampur	April	Second	12-Sep-19	78.2	31.2	<10.0	13.8

HEAVY METAL ANALYSIS IN AIR

Station No.	Station Name	Month	Fortnight	Date of Sampling	Arsenic (ng/m^3)	Cadmium ($\mu g/m^3$)	Chromium ($\mu g/m^3$)	Mercury ($\mu g/m^3$)	Nickel (ng/m^3)	Lead ($\mu g/m^3$)
6A1	Chhottadhemo Primary School	Sept	First	11-Sep-19	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A1	Chhottadhemo primary School	March	First	04-Mar-20	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A10	Marichkota Village	Sept	First	11-Sep-19	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A11	Manager's Office, Chinakuri pit no.1 & 2	Sept	First	11-Sep-19	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A11	Manager's Office, Chinakuri pit no.1 & 2	March	First	05-Mar-20	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A12	CDS Building, Chinakuri pit no.3	Sept	First	11-Sep-19	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A12	CDS Building, Chinakuri pit no.3	March	First	05-Mar-20	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A2	Sodpur Area Guest House	Sept	First	11-Sep-19	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A2	Sodepur Guest House	March	First	04-Mar-20	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A3	Mithani Colliery office	Sept	First	12-Sep-19	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A3	Mithani Colliery office	March	First	04-Mar-20	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A4	Kali Mandir, Narsamuda Colliery	Sept	First	12-Sep-19	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A4	Kali mandir, Narsumada Colliery	March	First	04-Mar-20	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A5	Env. Dept. Barachak House	Sept	First	11-Sep-19	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A5	En. Dept. Barachak House	March	First	05-Mar-20	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A6	Parbelia Colliery	March	First	05-Mar-20	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A7	Sub-Postoffice, Suryanagar	March	First	05-Mar-20	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A8	Elecric Store, Mouthdi Colliery	Sept	First	10-Sep-19	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A9	DGMS Office, Sitarampur	Sept	First	12-Sep-19	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005
6A1	Chhottadhemo Primary School	Sept	First	11-Sep-19	<0.005	<0.001	<0.01	<0.001	<0.10	<0.005

Environmental standards:

National Ambient Air Quality Standards (NAAQS), 2009 for residential, industrial and rural areas for 24 hourly/yearly samples:

Heavy Metal	Arsenic (As) (ng/m^3)	Cadmium (Cd) ($\mu g/m^3$)	Chromium (Cr) ($\mu g/m^3$)	Mercury (Hg) ($\mu g/m^3$)	Nickel (Ni) (ng/m^3)	Lead (Pb) ($\mu g/m^3$)
Concentration	6	Not specified	Not specified	Not specified	20	0.5

Annexure – II

NOISE LEVEL

Cluster No.	Station No.	Station Name	Month	Fortnight	Date of Sampling	Noise Level dB(A)
6	6N1	Pit-top Dhemomain UG	June	First	14-Jun-19	64.5
6	6N1	Pit-top Dhemomain UG	August	First	08-Aug-19	67.5
6	6N1	Pit-top Dhemomain UG	November	First	06-Nov-19	65.2
6	6N1	Pit-top Dhemomain UG	February	First	04-Feb-20	64.1
6	6N2	Pit-top Sodepur UG	June	First	14-Jun-19	66.7
6	6N2	Pit-top Sodepur UG	August	First	06-Aug-19	62.6
6	6N2	Pit-top Sodepur UG	November	First	05-Nov-19	62.1
6	6N2	Pit-top Sodepur UG	February	First	03-Feb-20	57.5
6	6N3	Pit-top Narsamuda UG	June	First	12-Jun-19	67.3
6	6N3	Pit-top Narsamuda UG	August	First	07-Aug-19	64.2
6	6N3	Pit-top Narsamuda UG	November	First	07-Nov-19	63.9
6	6N3	Pit-top Narsamuda UG	February	First	04-Feb-20	63.1
6	6N4	Pit-top Patmohana UG	June	First	12-Jun-19	68.4
6	6N4	Pit-top Patmohana UG	August	First	08-Aug-19	66.4
6	6N4	Pit-top Patmohana UG	November	First	07-Nov-19	65.4
6	6N4	Pit-top Patmohana UG	February	First	04-Feb-20	63.2
6	6N5	Pit-top Chinakuri I UG	June	First	12-Jun-19	62.9
6	6N5	Pit-top Chinakuri I UG	August	First	07-Aug-19	62.8
6	6N5	Pit-top Chinakuri I UG	November	First	05-Nov-19	62.2
6	6N5	Pit-top Chinakuri I UG	February	First	03-Feb-20	64.1
6	6N6	Pit-top Chinakuri III UG	June	First	13-Jun-19	71.4
6	6N6	Pit-top Chinakuri III UG	August	First	08-Aug-19	63.7
6	6N6	Pit-top Chinakuri III UG	November	First	06-Nov-19	63.4
6	6N6	Pit-top Chinakuri III UG	February	First	03-Feb-20	64.2
6	6N7	Pit-top Bejdih UG	June	First	13-Jun-19	66.5
6	6N7	Pit-top Bejdih UG	August	First	07-Aug-19	62.1
6	6N7	Pit-top Bejdih UG	November	First	06-Nov-19	61.8
6	6N7	Pit-top Bejdih UG	February	First	03-Feb-20	64.4
6	6N8	Pit-top Methani UG	June	First	11-Jun-19	69.2
6	6N8	Pit-top Methani UG	August	First	08-Aug-19	63.2
6	6N8	Pit-top Methani UG	November	First	07-Nov-19	62.7
6	6N8	Pit-top Methani UG	February	First	04-Feb-20	65.2
6	6N9	Pit-top Sheetalpur UG	June	First	11-Jun-19	63.6

Annexure – III

Effluent Water Quality for 5 parameters

Station No	Station Name	Month	Fortnight	Date of Sampling	pH	TSS	TDS	O&G	COD
6MW1	Dhemomain UG	April	First	04-Apr-19	8.8	24	758	<2.0	24
6MW1	Dhemomain UG	April	Second	26-Apr-19	8.3	20	784	<2.0	24
6MW1	Dhemomain UG	May	First	09-May-19	8.2	22	798	<2.0	28
6MW1	Dhemomain UG	May	Second	23-May-19	8.3	30	762	<2.0	36
6MW1	Dhemomain UG	June	First	11-Jun-19	8.1	26	808	<2.0	20
6MW1	Dhemomain UG	June	Second	21-Jun-19	8.3	30	834	<2.0	2 8
6MW1	Dhemomain UG	July	First	08-Jul-19	8.2	34	738	<2.0	24
6MW1	Dhemomain UG	July	Second	30-Jul-19	8.2	36	792	<2.0	28
6MW1	Dhemomain UG	August	First	09-Aug-19	8.1	32	744	<2.0	32
6MW1	Dhemomain UG	August	Second	29-Aug-19	8.2	30	694	<2.0	36
6MW1	Dhemomain UG	Sept	Second	26-Sep-19	8.3	34	722	<2.0	32
6MW1	Dhemomain UG	October	First	11-Oct-19	8.1	28	718	<2.0	20
6MW1	Dhemomain UG	October	Second	17-Oct-19	8.1	30	726	<2.0	32
6MW1	Dhemomain UG	November	First	08-Nov-19	8.1	32	730	<2.0	36
6MW1	Dhemomain UG	November	Second	21-Nov-19	8.1	28	726	<2.0	24
6MW1	Dhemomain UG	December	First	05-Dec-19	8.1	38	718	<2.0	32
6MW1	Dhemomain UG	December	Second	23-Dec-19	8.1	32	726	<2.0	32
6MW1	Dhemomain UG	January	First	14-Jan-20	8.1	36	722	<2.0	32
6MW1	Dhemomain UG	January	Second	28-Jan-20	8.1	30	740	<2.0	32
6MW1	Dhemomain UG	February	First	04-Feb-20	8	32	751	<2.0	28
6MW1	Dhemomain UG	February	Second	27-Feb-20	8	32	711	<2.0	32
6MW3	Narsamuda UG	April	First	04-Apr-19	7.6	26	656	<2.0	12
6MW3	Narsamuda UG	April	Second	26-Apr-19	7.4	22	690	<2.0	16
6MW3	Narsamuda UG	May	First	06-May-19	7.4	18	734	<2.0	20
6MW3	Narsamuda UG	May	Second	22-May-19	7.6	22	722	<2.0	16
6MW3	Narsamuda UG	June	First	11-Jun-19	7.7	24	356	<2.0	28
6MW3	Narsamuda UG	June	Second	20-Jun-19	7.6	22	456	<2.0	20
6MW3	Narsamuda UG	July	First	06-Jul-19	7.6	28	694	<2.0	20
6MW3	Narsamuda UG	July	Second	30-Jul-19	7.5	30	388	<2.0	24
6MW3	Narsamuda UG	August	First	07-Aug-19	7.7	34	702	<2.0	28
6MW3	Narsamuda UG	August	Second	30-Aug-19	7.4	36	732	<2.0	40
6MW3	Narsamuda UG	Sept	Second	26-Sep-19	7.5	36	738	<2.0	44
6MW3	Narsamuda UG	October	First	11-Oct-19	8.2	32	734	<2.0	24
6MW3	Narsamuda UG	October	Second	19-Oct-19	7.7	34	742	<2.0	36
6MW3	Narsamuda UG	November	First	08-Nov-19	8.1	30	746	<2.0	32
6MW3	Narsamuda UG	November	Second	26-Nov-19	7.5	30	742	<2.0	28
6MW3	Narsamuda UG	December	First	05-Dec-19	8.1	32	746	<2.0	36
6MW3	Narsamuda UG	December	Second	24-Dec-19	7.5	36	750	<2.0	28
6MW3	Narsamuda UG	January	First	14-Jan-20	8.1	40	754	<2.0	36
6MW3	Narsamuda UG	January	Second	27-Jan-20	7.5	44	736	<2.0	24
6MW3	Narsamuda UG	February	First	04-Feb-20	8	36	747	<2.0	36
6MW3	Narsamuda UG	February	Second	27-Feb-20	7.6	40	738	<2.0	48
6MW3	Narsamuda UG	March	Second	20-Mar-20	8	28	702	<2.0	30
6MW4	Patmohana UG	April	First	04-Apr-19	8.3	28	706	<2.0	16
6MW4	Patmohana UG	April	Second	26-Apr-19	8.7	22	752	<2.0	28
6MW4	Patmohana UG	May	First	06-May-19	8.1	20	784	<2.0	16
6MW4	Patmohana UG	May	Second	22-May-19	8.4	20	766	<2.0	24
6MW4	Patmohana UG	June	First	12-Jun-19	8.1	18	832	<2.0	40

Station No	Station Name	Month	Fortnight	Date of Sampling	pH	TSS	TDS	O&G	COD
6MW4	Patmohana UG	June	Second	21-Jun-19	8.2	20	752	<2.0	24
6MW4	Patmohana UG	July	First	08-Jul-19	8.2	22	746	<2.0	32
6MW4	Patmohana UG	July	Second	29-Jul-19	8.2	24	684	<2.0	36
6MW4	Patmohana UG	August	First	07-Aug-19	8.6	22	734	<2.0	32
6MW4	Patmohana UG	August	Second	30-Aug-19	8.5	24	756	<2.0	32
6MW4	Patmohana UG	Sept	Second	27-Sep-19	8.3	24	754	<2.0	36
6MW4	Patmohana UG	October	First	09-Oct-19	7.4	20	750	<2.0	28
6MW4	Patmohana UG	October	Second	18-Oct-19	8.1	20	758	<2.0	40
6MW4	Patmohana UG	November	First	08-Nov-19	7.5	22	762	<2.0	24
6MW4	Patmohana UG	November	Second	26-Nov-19	8.1	20	758	<2.0	20
6MW4	Patmohana UG	December	First	05-Dec-19	7.5	28	750	<2.0	28
6MW4	Patmohana UG	December	Second	20-Dec-19	8.1	32	758	<2.0	32
6MW4	Patmohana UG	January	First	13-Jan-20	7.5	34	762	<2.0	28
6MW4	Patmohana UG	January	Second	27-Jan-20	8.1	30	742	<2.0	28
6MW4	Patmohana UG	February	First	04-Feb-20	7.6	40	764	<2.0	24
6MW4	Patmohana UG	February	Second	27-Feb-20	8.1	36	721	<2.0	32
6MW5	Chinakuri I UG	April	First	04-Apr-19	7.2	22	364	<2.0	32
6MW5	Chinakuri I UG	April	Second	23-Apr-19	7.4	32	324	<2.0	40
6MW5	Chinakuri I UG	May	First	09-May-19	7.4	30	324	<2.0	32
6MW5	Chinakuri I UG	May	Second	23-May-19	7.9	32	348	<2.0	40
6MW5	Chinakuri I UG	June	First	12-Jun-19	7.9	36	796	<2.0	28
6MW5	Chinakuri I UG	June	Second	18-Jun-19	7.7	38	322	<2.0	20
6MW5	Chinakuri I UG	July	First	05-Jul-19	7 .85	44	358	<2.0	28
6MW5	Chinakuri I UG	July	Second	30-Jul-19	7.7	40	346	<2.0	32
6MW5	Chinakuri I UG	August	First	08-Aug-19	7.9	44	326	<2.0	36
6MW5	Chinakuri I UG	August	Second	28-Aug-19	7.3	40	318	<2.0	28
6MW5	Chinakuri I UG	Sept	Second	26-Sep-19	7.5	40	342	<2.0	22
6MW5	Chinakuri I UG	October	First	10-Oct-19	7.4	40	346	<2.0	32
6MW5	Chinakuri I UG	October	Second	17-Oct-19	7.8	30	348	<2.0	36
6MW5	Chinakuri I UG	November	First	05-Nov-19	8.2	67	903	<2.0	28
6MW5	Chinakuri I UG	November	Second	21-Nov-19	8.1	23	627	<2.0	16
6MW5	Chinakuri I UG	December	First	04-Dec-19	7.9	25	688	<2.0	24
6MW5	Chinakuri I UG	December	Second	20-Dec-19	7.3	30	657	<2.0	8
6MW5	Chinakuri I UG	January	First	13-Jan-20	8.4	28	777	<2.0	32
6MW5	Chinakuri I UG	January	Second	17-Jan-20	7.6	40	768	<2.0	32
6MW5	Chinakuri I UG	February	First	03-Feb-20	8.2	32	77 3	<2.0	48
6MW5	Chinakuri I UG	February	Second	19-Feb-20	8.2	34	749	<2.0	20
6MW6	Chinakuri III UG	April	First	05-Apr-19	7.6	20	770	<2.0	28
6MW6	Chinakuri III UG	April	Second	26-Apr-19	7.6	42	810	<2.0	48
6MW6	Chinakuri III UG	May	First	09-May-19	7.6	38	824	<2.0	44
6MW6	Chinakuri III UG	May	Second	23-May-19	8	22	802	<2.0	32
6MW6	Chinakuri III UG	June	First	11-Jun-19	7.8	24	684	<2.0	20
6MW6	Chinakuri III UG	June	Second	18-Jun-19	7.6	28	746	<2.0	36
6MW6	Chinakuri III UG	July	First	05-Jul-19	7.7	34	856	<2.0	36
6MW6	Chinakuri III UG	July	Second	29-Jul-19	7.6	32	714	<2.0	28
6MW6	Chinakuri III UG	August	First	08-Aug-19	7.3	36	834	<2.0	24
6MW6	Chinakuri III UG	August	Second	28-Aug-19	7	32	816	<2.0	24
6MW6	Chinakuri III UG	Sept	Second	27-Sep-19	7.1	34	786	<2.0	28
6MW6	Chinakuri III UG	October	First	10-Oct-19	8.3	28	790	<2.0	36
6MW6	Chinakuri III UG	October	Second	18-Oct-19	7.9	28	794	<2.0	20

Station No	Station Name	Month	Fortnight	Date of Sampling	pH	TSS	TDS	O&G	COD
6MW6	Chinakuri III UG	November	First	07-Nov-19	8.1	26	794	<2.0	32
6MW6	Chinakuri III UG	November	Second	21-Nov-19	7.7	22	798	<2.0	28
6MW6	Chinakuri III UG	December	First	04-Dec-19	8.1	36	782	<2.0	20
6MW6	Chinakuri III UG	December	Second	27-Dec-19	8.1	38	790	<2.0	28
6MW6	Chinakuri III UG	January	First	14-Jan-20	8.1	42	778	<2.0	28
6MW6	Chinakuri III UG	January	Second	17-Jan-20	8.1	38	760	<2.0	36
6MW6	Chinakuri III UG	February	First	05-Feb-20	8.1	44	781	<2.0	40
6MW6	Chinakuri III UG	February	Second	27-Feb-20	8.1	40	762	<2.0	36
6MW6	Chinakuri III UG	March	Second	20-Mar-20	8.1	24	752	<2.0	28
6MW7	Mauthdihi UG	April	First	05-Apr-19	7.4	24	794	<2.0	36
6MW7	Mauthdihi UG	April	Second	23-Apr-19	7.3	28	768	<2.0	32
6MW7	Mauthdihi UG	May	First	06-May-19	7.3	20	800	<2.0	24
6MW7	Mauthdihi UG	May	Second	24-May-19	7.8	20	788	<2.0	16
6MW7	Mauthdihi UG	June	First	11-Jun-19	7.4	16	716	<2.0	24
6MW7	Mauthdihi UG	June	Second	18-Jun-19	7.4	18	658	<2.0	24
6MW7	Mauthdihi UG	July	First	06-Jul-19	7.5	26	812	<2.0	24
6MW7	Mauthdihi UG	July	Second	29-Jul-19	7. 27	30	584	<2.0	36
6MW7	Mauthdihi UG	August	First	07-Aug-19	7.9	34	794	<2.0	40
6MW7	Mauthdihi UG	August	Second	27-Aug-19	7.2	36	784	<2.0	20
6MW7	Mauthdihi UG	Sept	Second	27-Sep-19	7.1	32	718	<2.0	26
6MW7	Mauthdihi UG	October	First	09-Oct-19	8.2	26	714	<2.0	40
6MW7	Mauthdihi UG	October	Second	17-Oct-19	7.5	26	722	<2.0	24
6MW7	Mauthdihi UG	November	First	08-Nov-19	8.1	28	726	<2.0	36
6MW7	Mauthdihi UG	November	Second	26-Nov-19	7.7	26	730	<2.0	32
6MW7	Mauthdihi UG	December	First	07-Dec-19	8.1	28	714	<2.0	28
6MW7	Mauthdihi UG	December	Second	27-Dec-19	8.1	32	722	<2.0	32
6MW7	Mauthdihi UG	January	First	13-Jan-20	8	36	722	<2.0	32
6MW7	Mauthdihi UG	January	Second	18-Jan-20	8.1	40	752	<2.0	32
6MW7	Mauthdihi UG	February	First	05-Feb-20	8.1	40	727	<2.0	28
6MW7	Mauthdihi UG	February	Second	27-Feb-20	8	28	754	<2.0	24
6MW8	Bejdih UG	April	First	05-Apr-19	8.6	22	732	<2.0	16
6MW8	Bejdih UG	April	Second	25-Apr-19	8.7	22	712	<2.0	16
6MW8	Bejdih UG	May	First	09-May-19	8	22	754	<2.0	16
6MW8	Bejdih UG	May	Second	22-May-19	8.2	22	732	<2.0	24
6MW8	Bejdih UG	June	First	12-Jun-19	8.1	42	736	<2.0	48
6MW8	Bejdih UG	June	Second	20-Jun-19	8.2	24	754	<2.0	16
6MW8	Bejdih UG	July	First	05-Jul-19	8.3	26	676	<2.0	20
6MW8	Bejdih UG	July	Second	30-Jul-19	8.2	28	712	<2.0	16
6MW8	Bejdih UG	August	First	07-Aug-19	8.3	24	654	<2.0	20
6MW8	Bejdih UG	August	Second	27-Aug-19	8.4	28	668	<2.0	32
6MW8	Bejdih UG	Sept	Second	27-Sep-19	8.2	32	634	<2.0	34
6MW8	Bejdih UG	October	First	11-Oct-19	7.3	30	630	<2.0	44
6MW8	Bejdih UG	October	Second	19-Oct-19	8.1	34	638	<2.0	28
6MW8	Bejdih UG	November	First	08-Nov-19	7.5	36	642	<2.0	40
6MW8	Bejdih UG	November	Second	26-Nov-19	8.1	32	638	<2.0	36
6MW8	Bejdih UG	December	First	07-Dec-19	7.6	30	630	<2.0	24
6MW8	Bejdih UG	December	Second	24-Dec-19	7.6	34	638	<2.0	24
6MW8	Bejdih UG	January	First	13-Jan-20	7.5	28	648	<2.0	36
6MW8	Bejdih UG	January	Second	18-Jan-20	7.6	34	622	<2.0	20
6MW8	Bejdih UG	February	First	05-Feb-20	7.5	32	638	<2.0	16

Station No	Station Name	Month	Fortnight	Date of Sampling	pH	TSS	TDS	O&G	COD
6MW8	Bejdih UG	February	Second	27-Feb-20	7.6	40	648	<2.0	20
6MW9	Methani UG	April	First	05-Apr-19	7.8	24	810	<2.0	20
6MW9	Methani UG	April	Second	25-Apr-19	7.2	20	792	<2.0	24
6MW9	Methani UG	May	First	09-May-19	7.5	22	800	<2.0	20
6MW9	Methani UG	May	Second	24-May-19	7.7	18	816	<2.0	12
6MW9	Methani UG	June	First	12-Jun-19	7.8	22	800	<2.0	20
6MW9	Methani UG	June	Second	21-Jun-19	8	26	798	<2.0	28
6MW9	Methani UG	July	First	06-Jul-19	7.8	28	824	<2.0	32
6MW9	Methani UG	July	Second	30-Jul-19	7.9	30	804	<2.0	36
6MW9	Methani UG	August	First	08-Aug-19	7.5	32	784	<2.0	32
6MW9	Methani UG	August	Second	29-Aug-19	7.5	30	754	<2.0	36
6MW9	Methani UG	Sept	Second	26-Sep-19	7.4	24	782	<2.0	34
6MW9	Methani UG	October	First	10-Oct-19	8.1	28	786	<2.0	32
6MW9	Methani UG	October	Second	19-Oct-19	7.7	30	778	<2.0	32
6MW9	Methani UG	November	First	07-Nov-19	8.1	32	784	<2.0	28
6MW9	Methani UG	November	Second	26-Nov-19	7.4	24	412	<2.0	8
6MW9	Methani UG	December	First	07-Dec-19	7.1	28	490	<2.0	16
6MW9	Methani UG	December	Second	23-Dec-19	7.8	39	292	<2.0	16
6MW9	Methani UG	January	First	14-Jan-20	7.5	32	583	<2.0	20
6MW9	Methani UG	January	Second	18-Jan-20	8.1	38	572	<2.0	24
6MW9	Methani UG	February	First	04-Feb-20	7.8	36	553	<2.0	20
6MW9	Methani UG	February	Second	19-Feb-20	7.8	34	546	<2.0	28
6MW9	Methani UG	March	Second	21-Mar-20	7.6	27	581	<2.0	20

Note: All parameters in mg/l unless otherwise specified

Effluent Water Quality Standards (MoEF Schedule – VI Standards)

Parameters	pH	TSS	TDS	Oil & Grease	COD
Limit	5.5-9.0	100	Not Specified	10	250

Annexure – III

Effluent Water Quality for full parameters (29 parameters), September'19

Cluster	6	6	6	6	6	6	6	6	**Effluent Water (MOEF Schedule-VI Standard)**
Station No	6MW7	6MW6	6MW5	6MW3	6MW1	6MW4	6MW8	6MW9	
Station Name	Mauthdihi UG	Chinakuri III UG	Chinakuri I UG	Narsamuda UG	Dhemomain UG	Patmohana UG	Bejdih UG	Methani UG	
Month	September	September	September	September	September	September	September	September	
Fortnight	First	First	First	First	First	First	First	First	
Date of Sampling	12-Sep-19	12-Sep-19	13-Sep-19	12-Sep-19	13-Sep-19	13-Sep-19	13-Sep-19	12-Sep-19	
Colour	4	5	5	3	5	4	5	4	Unobjectionable
Odour	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable
TSS	24	30	28	32	16	26	22	32	100.0
pH	8.13	8.32	7.83	8.29	8.13	7.49	7.48	8.10	5.5-9.0
Temperature (Deg C)	30.2	29.6	29.3	28.6	29.3	28.5	30.3	29.2	Shall not exceed 5 ^{0}C above the receiving water temp
Oil & Grease	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	10.0
Total Residual Chlorine	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	1.0
Ammonical Nitrogen	0.78	0.54	0.67	0.69	0.51	0.72	0.52	0.48	50.0
Total Kjeldahi Nitrogen	1.52	1.64	1.72	1.64	1.59	1.79	1.62	1.54	100.0
Free Amonia	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	5.0
BOD	10	6	8	6	6	8	10	8	30.0
COD	20	32	28	28	32	24	40	44	250.0
Arsenic	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.2
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.1
Hexavalent Chromium	0.02	0.03	0.02	0.04	0.03	0.02	0.03	0.04	0.1
Total Chromium	0.06	0.07	0.07	0.08	0.08	0.06	0.06	0.08	2.0
Copper	<0.03	0.04	0.03	0.03	0.03	0.04	0.03	0.03	3.0
Zinc	0.03	0.03	0.02	0.03	0.03	0.03	0.04	0.04	5.0
Selenium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.05
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	3.0
Fluoride	0.38	0.40	0.32	0.30	0.64	0.26	0.32	0.42	2.0
Dissolved Phosphate	1.50	1.48	1.40	1.62	1.64	1.66	1.74	1.66	5.0
Sulphide	0.005	0.006	0.005	0.006	0.005	0.005	0.005	0.005	2.0
Phenolics	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.0
Manganese	0.20	0.24	0.22	0.22	0.24	0.20	0.22	0.20	2.0
Iron	0.14	0.12	0.10	0.14	0.12	0.12	0.10	0.12	3.0
Nitrate Nitrogen	3.4	4.2	3.8	3.8	3.8	2.4	3.8	3.6	10.0
Cadmium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003
Total Dissolved Solids	698	780	324	642	784	742	734	748	Not Specified

Note: All units in mg/l unless otherwise specified

Effluent Water Quality for full parameters (29 parameters), March'20

Cluster	6	6	6	6	6	6	6	6	**Effluent Water (MOEF Schedule-VI Standard)**
Station No	6MW1	6MW4	6MW3	6MW6	6MW7	6MW8	6MW9	6MW5	
Station Name	Dhemomain UG	Patmohana UG	Narsamuda UG	Chinakuri III UG	Mauthdihi UG	Bejdih UG	Methani UG	Chinakuri I UG	
Month	March	March	March	March	March	March	March	March	
Fortnight	First	First	First	First	First	First	First	First	
Date of Sampling	4-Mar-20	4-Mar-20	4-Mar-20	5-Mar-20	5-Mar-20	5-Mar-20	4-Mar-20	13-Mar-20	
Colour	3	3	4	5	4	4	4	5	Unobjectionable
Odour	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable
TSS	20	26	30	26	28	24	26	32	100.0
pH	8.02	7.56	8.05	8.04	8.06	7.63	7.85	8.44	5.5-9.0
Temperature (Deg C)	29.3	27.1	28.2	28.3	29.4	30.2	29.3	29.1	Shall not exceed 5 ^{0}C above the receiving water temp
Oil & Grease	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	10.0
Total Residual Chlorine	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	1.0
Ammonical Nitrogen	0.78	0.52	0.48	0.84	0.92	0.59	0.48	0.72	50.0
Total Kjeldahi Nitrogen	1.32	1.32	1.49	1.75	1.72	1.52	1.48	1.69	100.0
Free Amonia	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	5.0
BOD	18	12	12	14	16	8	12	10	30.0
COD	40	32	28	36	40	20	32	32	250.0
Arsenic	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.2
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.1
Hexavalent Chromium	0.02	0.03	0.03	0.03	0.02	0.02	0.03	0.02	0.1
Total Chromium	0.06	0.07	0.06	0.08	0.06	0.07	0.07	0.05	2.0
Copper	0.03	0.04	0.03	0.04	0.03	0.04	0.02	0.03	3.0
Zinc	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	5.0
Selenium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.05
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	3.0
Fluoride	0.60	0.28	0.34	0.44	0.34	0.34	0.40	0.36	2.0
Dissolved Phosphate	1.66	1.74	1.64	1.52	1.52	1.70	1.68	1.44	5.0
Sulphide	0.005	0.005	0.005	0.005	0.005	0.007	0.006	0.007	2.0
Phenolics	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.0
Manganese	0.20	0.22	0.20	0.24	0.20	0.18	0.20	0.20	2.0
Iron	0.10	0.14	0.12	0.10	0.10	0.12	0.14	0.12	3.0
Nitrate Nitrogen	4.4	3.4	3.6	3.8	4.2	4.6	2.6	3.4	10.0
Cadmium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003
Total Dissolved Solids	756	764	715	740	754	627	586	752	Not Specified

Note: All units in mg/l unless otherwise specified

Annexure – III

GROUNDWATER QUALITY

Cluster No.	6	6	6	**Indian Drinking Water Standard (IS-10500:2012)**	
Station No.	6GW3	6GW1	6GW2		
Station Name	Dugwell near Mazumder Industries in Sarmara village	Dugwell at chhotta dhemo village near Kamala	Dugwell near Chinakuri village		
Month	May'18	May'18	May'18		
Fortnight	Second	Second	Second		
Date of sampling	15-May-19	15-May-19	15-May-19	**Acceptable Limit**	**Permissible Limit**
Colour,Haze n unit Max	4	2	3	5.0	15.0
Odour	Unobjectionable	Unobjectionable	Unobjectionable	Agreeable	Agreeable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity,N TU Max	3	1	2	1.0	5.0
pH	7.41	8.12	7.55	6.5-8.5	No relaxation
Total Hardness	246	134	232	200.0	600.0
Iron	<0.06	<0.06	<0.06	0.30	No relaxation
Chlorides	157	35	134	250.0	1000.0
Res Free chlorine	0.03	0.04	0.05	0.20	1.0
Dissolved Solids	952	296	906	500.0	2000.0
Calcium	88	48	84	75.0	200.0
Copper	<0.03	<0.03	<0.03	0.05	1.5
Manganese	<0.02	<0.02	<0.02	0.1	0.3
Sulphate	128	33	92	200.0	400.0
Nitrate	23.20	1.84	7.70	45.0	No relaxation
Fluoride	0.79	0.30	0.64	1.0	1.5
Selenium	<0.002	<0.002	<0.002	0.01	No relaxation
Arsenic	<0.002	<0.002	<0.002	0.01	0.05
Lead	<0.005	<0.005	<0.005	0.01	No relaxation
Zinc	0.04	0.03	0.03	5.0	15.0
Hex Chromium	<0.01	<0.01	<0.01	0.05	No relaxation
Boron	<0.20	<0.20	<0.20	0.5	1.0
Coliforms (MPN)	NIL	Nil	Nil	Shall not be detectable in any 100 ml sample	
Phenolics	<0.001	<0.001	<0.001	0.001	0.002
Alkalinity	208	256	140	200.0	600.0
Cadmium (Cd)	<0.0005	<0.0005	<0.0005	0.003	No relaxation

Note: All units in mg/l unless otherwise specified

Annexure – IV

Groundwater Level

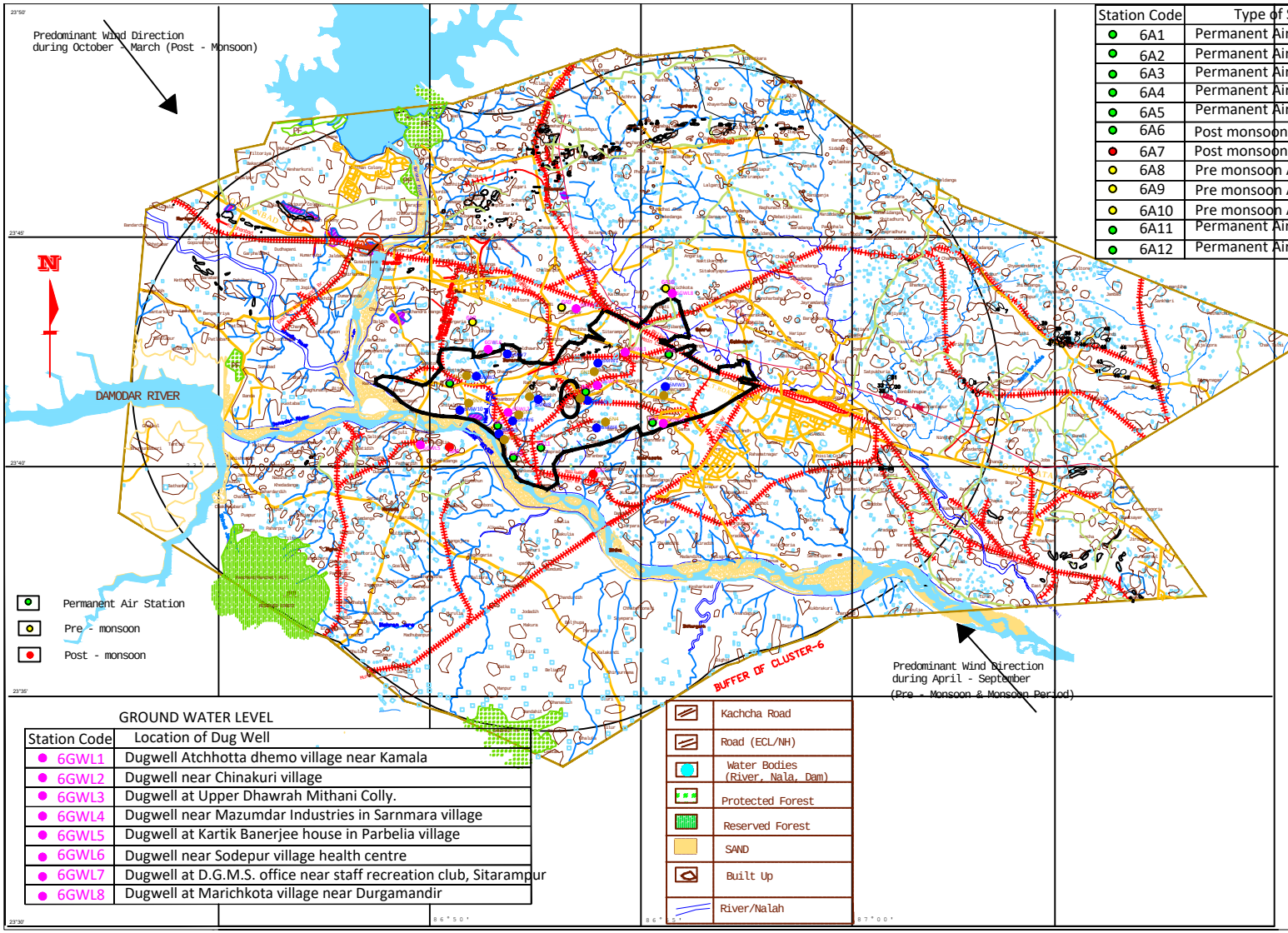
Cluster No.	Station No.	Station Name	Month	Fortnight	Date of Sampling	Ground Water Level BGL (mtr)
6	6GW1	Dugwell atchhotta dhemo village near Kamala	May	First	15-May-19	8.35
6	6GW2	Dugwell near Chinakuri village	May	First	15-May-19	5.95
6	6GW3	Dugwell at upper Dhawra Mithani colliery	May	First	15-May-19	9.30
6	6GWL1	Dugwell atchhotta dhemo village near Kamala	August	First	30-Aug-19	5.45
6	6GWL1	Dugwell atchhotta dhemo village near Kamala	November	First	29-Nov-19	4.40
6	6GWL1	Dugwell atchhotta dhemo village near Kamala	January	First	18-Jan-20	5.00
6	6GWL2	Dugwell near Chinakuri village	August	First	29-Aug-19	5.40
6	6GWL2	Dugwell near Chinakuri village	November	First	26-Nov-19	5.50
6	6GWL2	Dugwell near Chinakuri village	January	First	13-Jan-20	4.60
6	6GWL3	Dugwell at upper Dhawra Mithani colliery	August	First	30-Aug-19	4.05
6	6GWL3	Dugwell at upper Dhawra Mithani colliery	November	First	26-Nov-19	3.10
6	6GWL3	Dugwell at upper Dhawra Mithani colliery	January	First	18-Jan-20	4.30

Piezometer water level for the month of September, 2019

Sl. No.	Station Code	Location of Piezometer	Date of measurement	Water level (in Meters) Below Ground Level
1	6/SO/BP-02	Sodepur (Bejdih Colliery)	25-Sep-19	74.80
2	6/SO/SP-03	Sodepur (Sodepur colliery)	25-Sep-19	18.80

Outline of Cluster no. 6 shown on the map of Asansol Subdivision

Location Map : Plate – 1



Station Code	Type of Station	Name of Station
6A1	Permanent Air Station	Chhotadhemo Primary School
6A2	Permanent Air Station	Sodepur Area Guest House
6A3	Permanent Air Station	Mithani Colliery Office
6A4	Permanent Air Station	Kali Mandir, Narsamuda Colliery
6A5	Permanent Air Station	Environment Department, Borachak H
6A6	Post monsoon Air Station	Parbelia Colliery Office
6A7	Post monsoon Air Station	Sub Post Office, Surya Nagar
6A8	Pre monsoon Air Station	Electric Store, Mouthdih Colliery
6A9	Pre monsoon Air Station	DGMS Office, Sitarampur
6A10	Pre monsoon Air Station	Morichkota Village
6A11	Permanent Air Station	Managers' Office, Chinakuri Pit No. 1 &
6A12	Permanent Air Station	CDS Building, Chinakuri Pit No. - 3

NOISE SAMPLING STATIONS

Station Code	Name of Station (Workplace)
6N1	Dhemomain UG
6N2	Sodepur UG
6N3	Narsamuda UG
6N4	Patmohana UG
6N5	Chinakuri I UG
6N6	Chinakuri III UG
6N7	Bejdih UG
6N8	Methani UG
6N9	Sheetalpur UG

MINE/ EFFLUENT WATER STATIONS

Station Code	Mine/Effluent Water Station
6MW1	Dhemomain UG
6MW3	Narsamuda UG
6MW4	Patmohana UG
6MW5	Chinakuri I UG
6MW6	Chinakuri III UG
6MW7	Mouthdih UG
6MW8	Bejdih UG
6MW9	Methani UG

GROUND WATER LEVEL

Station Code	Location of Dug Well
6GWL1	Dugwell Atchhotta dhemo village near Kamala
6GWL2	Dugwell near Chinakuri village
6GWL3	Dugwell at Upper Dhawrah Mithani Colly.
6GWL4	Dugwell near Mazumdar Industries in Sarnmara village
6GWL5	Dugwell at Kartik Banerjee house in Parbelia village
6GWL6	Dugwell near Sodepur village health centre
6GWL7	Dugwell at D.G.M.S. office near staff recreation club, Sitarampur
6GWL8	Dugwell at Marichkota village near Durgamandir

2 KMS

PLATE NO 2

EASTERN COALFIELDS LIMITED	JOB NO 111690
ENVIRONMENTAL STATEMENT FOR CLUSTER NO. 6	
Location of Sampling Stations OF CLUSTER NO. 6	
CMPDI	1 OF 1