

In compliance with Rule 14 of E(P) Rules, 1986
under section 6 and 25 of the E(P)Act, 1986
(29 of 1986)



THE SINGARENI COLLIERIES COMPANY LIMITED
(A GOVT COMPANY)
ENVIRONMENT DEPARTMENT
MANDAMARRI AREA

FOR
KASIPET UG MINE
OF MANDAMARRI AREA
(For financial year ending of 31st March 2023)
MANDAMARRI AREA

FOR
KASIPET UG MINE
OF MANDAMARRI AREA
(For financial year ending of 31st March 2023)



THE SINGARENI COLLIERIES COMPANY LIMITED
(A Government company)
MANDAMARRI AREA

Kasipet UG Mine
Mandamarri – 504 231
Mancherial District
Telangana

Phone : 08736 256495
Email : env_mmr@scclmines.com

Ref: MMR/ENV/R/001/2023/ 164

Date: 29.09.2023

To
The Member Secretary,
Telangana State Pollution Control Board,
Paryavaran Bhavan,
A-3, Industrial Estate,
Sanath Nagar,
HYDERABAD – 500 018.

Dear Sir,

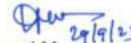
Subject : Environment Statement of **Kasipet UG mine of Mandamarri Area, SCCL** for the financial 2022 - 23 in Form – V (Rule No. 14 of the Environment (Protection) Rules, 1986 – Reg.

CFO No: Consent Order No. 210822208198, Date: 21.10.2022.

With reference to the above, please find enclosed the Environment Statement of Kasipet UG mine of Mandamarri area, SCCL for the financial year 2022 - 23 in Form – V (Rule No.14 of the E (P) Rules, 1986), in compliance of the consent order cited.

This is for your information and further necessary action.

Yours sincerely,


General Manager
Mandamarri Area.

The Singareni Collieries Co.Ltd.,
General Manager
The Singareni Collieries Co. Ltd.
MANDAMARRI AREA
P.O. KALYANI KHANI- 504 231.
Mancherial (Dist), Telangana.

- Cc:
1. Joint Chief Environmental Engineer,
Zonal Office, 25-35/11, Tulasi Reddy Complex,
2nd Floor, Opp: Mandal Office,
Post: Ramachandrapuram,
Dist: MEDAK – 502032.
 2. The Environmental Engineer,
6-2-166/A, Subhash Nagar,
TS Pollution Control Board,
Regional Office, NIZAMABAD – 503002.
 3. GM(ENV), Corporate



MANDAMARRI AREA
Environment Statement of Kasipet UG Mine for the financial
Year ending the 31st March 2023

1. Introduction:

The Singareni Collieries Company Limited (SCCL) is a joint undertaking of State and Central governments. SCCL is the only Coal producer in the entire South India. The coal mining activities are spread over 6 Districts of Telangana State in Godavari Valley Coalfield. The Company functions as 11 administrative areas in 3 Regions comprising of 24 UG mines and 19 Opencast mines. Productions achieved in SCCL during 2022-23 financial year is 67.14 Million Tonnes.

Kasipet UG mine falls in Mandamarri area of Bellampalli region in Mancherla District. In addition, two opencast mines namely Ramakrishnapur Opencast Project phase-1, Kalyankhani Opencast Project and another Underground mines namely Kalyankhani No.1 incline, Kalyankhani No.5 incline, RK-1A incline, Kasipet-2 incline and Shantikhani Longwall Project are in operation in Mandamarri area. Besides supporting facilities such as Stores, Area workshop and coal handling plant also exist.

2. About Kasipet UG mine :

2.1 Location:

Kasipet mine falls in Pranahitha coal belt of Godavari valley coal field in Mancherla District of Telangana state. The mine area falls between East Longitudes E 79^o 25' 43" to E 79^o 27' 03" and North Latitudes 19^o 00' 24" to N 19^o 02' 22" covered in survey of India Topo sheet no.56M/8.

The Project is located near Somagudem town in Kasipet Mandal of Mancherla District, Telangana State.

2.2 Communication:

Mandamarri area is being an industrially developed belt is well connected by both road and rail to all important places within the Telangana State. A branch railway line from Hyderabad – Nagpur Highway is about to 4.5Kms.

Topography:

The buffer area of the proposed project is flanked by beveled cuesta type hill range intervening depressions and Reserve Forest on southwestern, western, northwestern sides. Isolated hillocks are on the East, Northeast and Northern sides.

2.3. Climate:

The area experiences a sub – tropical climate with three distinct seasons, a hot dry summer from April to mid June, with occasional thunder showers, a good monsoon spreading from mid June to the end of September and mild winter from October and February.

2.4. Township:

The employees of the project were provided residential accommodation in common townships namely Somagudem town.

2.5. Environmental clearance & Consent For Operation:

The MoEF accorded environmental clearance vide its letter number. J-11015/168/2006-IA.II (M), GoI, MoEF, Dated 26-07-2007. The project is having valid CFO obtained from TSPCB vide consent order number.210822208198, Date: 21.10.2022.

3. A brief note on different processes involved in underground mining operations and allied activities:

➤ UNDER GROUND MINING:

The process of underground mining includes cutting into the coal deposit and removing it from the coal face through long wall method or continuous miner in mechanized mines where as a Board and Pillar mining method, the coal is blasted using explosives and lifted into tubs manually or mechanically through SDLs or LHDs into mine cars/tubs in below ground. The loaded tubs with coal are transported to tippler through rope haulage in underground and tipped into underground bunkers. From the bunkers the coal is again transported into pit head storage bunkers on surface by belt/haulage system into surface tippler by which, the coal is gravitationally loaded into Lorries and transported to coal screening plants. After screening of coal into different sizes at CSP/CHP the coal is dispatched to different consumers through railway wagons and trucks. The Bord and Pillar method can leave up to 55% of the coal in underground place, due to the remaining pillars that hold up the roof; however some of these pillars can be removed towards the end of the mining operation during the retreat from the mine. For long wall mining, the entire coal face can be removed as hydraulic supported hold up the roof of the mine. Once the coal is removed, the supports can be removed and the roof of the mine is allowed to collapse it is called caving method where as the roof is stowed with sand it is called stowing method.

[FORM – V]
 (Rule No. 14 of the Environment (Protection) Rules, 1986)
 Environmental Statement for the financial year ending the
 31st March, 2023

PART – A

Sl. No	DESCRIPTION	
01	Name and address of the owner/occupier of the industry Operation or process	CH. SRINIVAS, GENERAL MANAGER, The Singareni Collieries Company Limited, Mandamarri area, Kalyankhani -Post Mancherial – District, TELANGANA STATE PIN: 504231, Tel. No: 08736-256523
02	Industry Category	Coal Mining(Red, Non- Hazardous)
03	Production Capacity – Units	180000 tonnes per Annum
04	Year of establishment	1994
05	Date of the last environmental statement submitted	24.09.2022.

PART – B

Water and Raw Material Consumption

- (1) Water consumption m³/day:
 Process
 Cooling
 Domestic

Name of the products	Process Water consumption per unit of product out put	
	During the previous financial year 2021-22	During the previous financial year 2022-23
Domestic	1125 KLD	1310 KLD
Industrial	850 KLD	420 KLD

1. Substituted by Rule 2 (b) of the Environment (protection) Amendment Rules, 1993 notified vide G.S.R 3'6 (E) dated 22.04.1993

Raw Material Consumption: Enclosed as annexure-I

Name of raw materials	Name of products	Consumption of raw material per unit of output	
		During the previous financial year 2021-22	During the current year 2022-23
	Coal	--	--

- Industry may use codes if disclosing details of raw material would violate contractual obligations, otherwise all industries have to name the raw material used.

PART – C

Pollution discharged to environment/unit of output

(Parameter as specified in the consent issued)

(1) Pollution	Quantity of pollutants Discharged (mass/day)	Concentration of pollutants in discharges (mass/volume)	Percentage of variation from prescribed standards with reasons
(a) Air	Enclosed as Annexure –II		
(b) Water	Enclosed as Annexure-III		

PART – D

Hazardous Waste

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

Hazardous Waste	Total Quantity (Kg)	
	During the previous financial year 2021-22	During the current financial year 2022-23
(a) From Process	Not applicable	
(b) From pollution control facility	Not applicable	

PART – E

Solid Waste

Solid Waste	Total Quantity (Tonnes)	
	During the previous financial year 2021-22	During the financial year 2022-23
(a) From process	355 tonnes of shale and sand stone generated from the mine.	233 tonnes of shale and sand stone generated from the mine.
(b) From Pollution Control facility		
(c):		
1) Quantity recycled or re-utilized within the unit	355 Tonnes	233 Tonnes
2) Solid	Nil	Nil
3) Disposed	Nil	Nil

Note: In Under Ground mining, no chemical or manufacturing process is involved, the rock/soil lying above the coal seams is removed and dumped in external dump area or de-coaled area to facilitate extraction of coal.

PART – F

Please specify the characterization (in terms of composition and quantum) of hazardous as well as solid waste and indicate disposal practice adopted for both these categories of wastes.

Characterization of Solid Wastes and Disposal Practice:

Solid waste generated at the underground mine is mainly stone, clay and shale. These waste materials are picked out from the coal by manually at the picking platforms when coal is passing on slow moving belts. After picking, these wastes are being transported by trucks and dumped for filling in low lying areas.

PART – G

Impact of the pollution abatement measures are taken on conservation of natural resources and on the cost of production.

Post project monitoring for air and water quality is being carried out as per the MoEF guidelines of coal mines vide GSR 742 (E) dated 25.09.2000. The post project monitoring data of air and water quality data are enclosed as **Annexure - II & V**. Expenditure towards the environmental protection for the year 2022-23 is furnished as below:

ENVIRONMENTAL EXPENDITURE FROM APRIL 2022 TO MARCH 2023

S. No	Description	Expenditure (In Rs.)
1	Air pollution prevention & Control measures (free gas supply of workers)	2367982
2	Water prevention & Control measures	3982151
3	Plantation (block & avenue)	678149
4	Water spraying arrangements	140120
5	Water cess	-
6	CFO Fee	-
	Grand Total:	7168402

PART – H

Additional measures/investment has been taken up for environmental protection including abatement of pollution and also prevention of pollution.

1. Provision of quarters along with civil amenities.
2. Provision of play grounds, recreation and cultural centers and clubs.
3. Incentives for family planning and population control.
4. Communication facilities like telephone, telex, fax and internet etc. were provided.
5. Provisional of LP Gas cylinders to all the Company Employees on **free of cost**.
6. Construction of community latrines (Sulabh Toilets) to work persons who are residing outside the company quarters.
7. Green belt development is being taken up in mine premises, in large blocks of stabilized subsidized areas, townships, CSP, Workshops, along mine colony roads and around fan houses.
8. Asphaltting of the entire colony roads and mine are being taken up in the phased manner to reduce dust generation.
9. Noise source in the mining activity is at the mines and CSP, Proper care is being taken to reducing noise levels by proper lubrication of machinery, restricting falling height of coal at CSP and lining the sides wherever necessary and Green belt development around noise generating sources.
10. Mist and dry fog dust control system is being maintained at CSP and also water spraying with water tankers along roads is provided in three shifts regularly.

PART – I

Any other particulars for improving the quality of the environment:

1. Oil & Grease trap is constructed in area workshop.
2. 30 Nos. of Rain water harvesting pits have been constructed in departments, colonies, schools, and Roadsides etc.
3. Compost pits are being used at mines and colonies for disposal of Bio-degradable solid wastes.
4. Colony development committees are being formed to educate the people towards clean & green.
5. Awareness towards plastic hazards, water and energy conservation is being brought among workmen and students through posters, pamphlets slogans and by conducting Quiz, Essay and Elocution competitions.
6. Parks and gardens developed in the colonies.
7. Clubs, libraries and swimming pool is being maintained in the colonies.
8. Paper and plastic waste is being collected from colonies, mines and depts. and disposed for recycling.
9. 40 nos. hand bore wells has been provided in the surrounding villages for drinking purpose.
10. Distribution of fruit bearing plants, shady and flower plants in the surrounding villages on free of cost.
11. Total 2 nos solar power plants has been installed at Mandamarri area.
 - a) 1 no. 15MW capacity solar power plant at Muthyampalli village, Kasipet Mandal, Mancherial district near Kasipet mine.
 - b) 1 no 28 MW capacity solar power plant at Mandamarri town, Mancherial district near Kalyankhani no.5 incline.


Agent/Project Officer
KK Group of Mines
Agent
KK Group of Mines

Water consumption details:

Table No:1

Sl. No	Description	Quantity in KLD
1	Average quantity of water pumped out of the mine	5615
2	Water used for dust suppression	50
3	Water used for stowing	330
4	Water used for plantation	40
5	Water supplied for nearest township/village for domestic purpose	1310
6	Excess water let out in seasonal nallah for agriculture purpose	2520
7	Point of discharge (as per CFO)	5650 KLD
8	Discharge as per Consent from TSPCB	Mine discharge water after treatment: 5650KLD Domestic Wastewater: 130 KLD

RAW MATERIAL CONSUMPTION DETAILS

Annexure -I

No chemical process is involved in the process of coal mining as in cases of other industries like chemicals, metals, alloys etc. However, the following raw materials have been used in the process of coal extraction, transportation, handling, running and maintenance of various plant and machinery used in the project.

S. No	Description of the item	Unit/per annum	Total
1	Steel	MTN	7.87
2	Explosives	KG	61675
	Detonators	NO	128091
	Nonels	MTR	NIL
	Detonating Fuse	MTR	NIL
3	Lubricants:		
	i) Oils	LTR	21249
	ii) Grease	KGS	364
	iii) Diesel	LTR	6187
4	Cement	BAG	1320

Air Pollution Control Measures:

- Adequate water spraying arrangements have been made at all working coal faces and galleries. Water spraying is regularly done at loading and unloading places of tippers and bunkers at pit head on surface.
- Water spraying is regularly done by tractor mounted water tanker exclusively engaged to serve the purpose.
- As on date 37.22 ha of Block plantation is done.
- The underground workings of the mine are well ventilated by adequate ventilation arrangements. The requirements and standards specified in this regard by Director General of Mines Safety (DGMS) circulars.

Water pollution control Measures:

- The mine discharge water which may contain coal fines needs sedimentation before discharge into the natural water course / open land. The treatment facilities such as sedimentation, filtration and chlorination was provided for mine discharge, so as to conform to the effluent standards as prescribed by the MoEF&CC.
- The effluents from service building is being collected by a sewage system and treatment by means of septic tanks and soak pits. Sewage is discharging after treatment.
- Sewage is being treated by Sewage Treatment Plants which were constructed at Pranhitha Colony, Nagarjuna Colony and Area Hospital Ramakrishnapur at Mandamarri Area. septic tank followed by soak pit for existing townships in Mandamarri area.

Annexure-II

Air quality monitoring data

The summary of the Air Quality monitoring Data from April, 2022 to March, 2023 as follows:
Air Monitoring Locations

Station Code	Name of the Stations	Latitude	Longitude
CA5	Kasipet-1 Incline Site Office	N 19° 02' 03.4"	E 79° 25' 50.0"
BA12	Peddanapalli	N 19° 01' 52.3"	E 79° 27' 46.5"
BA13	Komatichenu	N 19° 02' 26.8"	E 79° 25' 05.2"
BA14	Gundlapadu	N 19° 02' 27.5"	E 79° 26' 20.3"
BA15	Kasipeta Village	N 19° 01' 47.2"	E 79° 25' 50.7"
BA18	Mamidigudem	N 19° 00' 17.1"	E 79° 26' 48.2"
BA19	Kasipeta	N 19° 01' 47.2"	E 79° 25' 50.7"

**Summary of Ambient Air Quality Data Monitoring of Kasipet-1 Incline Site Office, Mandamarri area for
April 2022 - March 2023**

Location code	Name of the location	PM ₁₀ (mg/m ³)			PM _{2.5} (mg/m ³)			SO ₂ (mg/m ³)			NO ₂ (mg/m ³)		
Coal mine standards (commenced after 25.09.2000), GSR 742(E), Dated 25.09.2000		250			-			120			120		
CA5	Kasipet-1 Incline Site Office	159.0	175.0	165.3	55.5	67.2	61.4	13.1	15.6	14.2	16.0	18.7	17.2

**Summary of Ambient Air Quality Data Monitoring of Kasipet 1 Mine, Mandamarri area for
April 2022 – March 2023**

Location code	Name of the location	PM ₁₀ (µg/m ³)			PM _{2.5} (µg/m ³)			SO ₂ (µg/m ³)			NO ₂ (µg/m ³)		
NAAQ Standards, CPCB Dated: 18.11.2009		100			60			80			80		
Buffer Zone		Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
BA13	Komatichenu village	35.0	45.0	40.4	16.4	22.9	20.2	7.8	10.3	8.9	10.8	13.6	11.9
BA14	Gundlapadu village	34.0	46.0	37.9	16.1	22.4	18.3	6.7	9.5	7.7	9.7	12.0	10.5
BA15	Kasipet village	40.0	53.0	45.1	20.7	29.1	24.2	7.0	9.0	8.0	10.2	12.3	11.1
BA18	Mamidigudem	32.0	41.0	35.9	16.4	22.0	18.1	7.2	9.0	8.1	10.1	12.2	11.1

Ambient Air Quality at Kasipet Pit Office (CA5)

Area : Mandamarri **Nature of Area** : Core Zone
Period of Monitoring : April 2022 to March 2023 **Sampling Duration** : 24hrs period

S.No.	Date of Sampling	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)
Coal mine standards, GSR 742(E), Dated 25.09.2000		250	-	120	120
1.	02.04.2022	172	62.9	16.0	19.8
2.	19.04.2022	175	67.2	15.4	18.9
3.	03.05.2022	178	67.7	15.8	18.3
4.	17.05.2022	174	64.4	16.5	19.2
5.	02.06.2022	169	60.5	16.8	19.9
6.	17.06.2022	165	59.5	17.1	20.3
7.	02.07.2022	161	58.5	15.9	19.2
8.	18.07.2022	156	55.9	15.3	18.3
9.	02.08.2022	160	59.5	15.8	18.7
10.	17.08.2022	164	59.0	16.2	19.5
11.	02.09.2022	169	64.4	15.8	18.1
12.	17.09.2022	169	64.4	15.2	18.7
13.	03.10.2022	160	57.4	15.9	19.0
14.	18.10.2022	165	59.0	16.1	19.5
15.	02.11.2022	169	61.0	16.6	19.9
16.	17.11.2022	164	63.9	16.1	18.9
17.	02.12.2022	170	66.1	17.0	19.9
18.	17.12.2022	175	69.4	17.4	20.3
19.	03.01.2023	169	65.5	16.8	19.6
20.	17.01.2023	173	71.2	16.0	19.1
21.	02.02.2023	178	68.3	16.7	19.9
22.	17.02.2023	166	63.9	15.6	18.7
23.	02.03.2023	175	71.2	16.2	19.1
24.	17.03.2023	170	69.4	16.8	19.8
Min		156	55.9	15.2	18.1
Max		178	71.2	17.4	20.3
Average		168.5	63.7	16.2	19.2

Ambient Air Quality at Peddanapalli (BA12)

Area : Mandamarri **Nature of Area** : Buffer Zone
Period of Monitoring : April-2022 to March-2023 **Sampling Duration** : 24hrs period

S.No.	Date of Sampling	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)
Coal mine standards, GSR 742(E), Dated 25.09.2000		250	-	120	120
1.	04.10.2022	40	22.2	8.1	11.8
2.	19.10.2022	42	21.8	8.7	12.3
3.	03.11.2022	44	22.0	9.2	12.7
4.	18.11.2022	46	22.6	9.7	13.3
5.	03.12.2022	48	23.5	10.3	13.6
6.	19.12.2022	51	26.1	10.9	14.0
7.	04.01.2023	53	26.5	10.1	13.4
8.	18.01.2023	56	27.5	10.5	13.0
9.	03.02.2023	51	23.8	9.5	12.7
10.	18.02.2023	47	23.5	8.7	11.6
11.	03.03.2023	52	26.5	9.3	12.4
12.	18.03.2023	48	23.5	9.9	12.9
Min		40	21.8	8.1	11.6
Max		56	27.5	10.9	14
Average		48.1	24.1	9.5	12.8

Ambient Air Quality at Komatichenu Village (BA13)

Area : Mandamarri **Nature of Area** : Buffer Zone
Period of Monitoring : April-2022 to March-2023 **Sampling Duration** : 24hrs period

S.No.	Date of Sampling	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)
NAAQ Standards, CPCB Dated : 18.11.2009		100	60	80	80
1.	02.04.2022	53	21.8	9.4	13.1
2.	19.04.2022	56	26.8	10.1	13.5
3.	03.05.2022	58	27.8	10.4	14.1
4.	17.05.2022	59	28.8	11.2	14.5
5.	02.06.2022	48	22.9	11.4	15.0
6.	17.06.2022	44	21.4	10.7	13.9
7.	02.07.2022	40	21.8	10.2	14.0
8.	18.07.2022	42	22.9	9.8	13.2
9.	02.08.2022	45	22.4	9.0	12.7
10.	17.08.2022	48	24.8	9.7	13.0
11.	02.09.2022	46	22.2	10.1	13.5
12.	19.09.2022	46	22.2	9.7	12.8
13.	04.10.2022	47	23.5	10.0	13.3
14.	19.10.2022	50	25.9	10.4	13.9
15.	03.11.2022	52	26.1	11.0	14.1
16.	18.11.2022	49	26.8	11.6	14.7
17.	03.12.2022	53	26.5	12.1	15.1
18.	19.12.2022	48	22.2	11.2	14.8
19.	04.01.2023	50	23.3	11.6	14.2
20.	18.01.2023	55	27.0	11.0	14.8
21.	03.02.2023	50	23.5	10.5	13.8
22.	18.02.2023	43	22.0	10.0	13.1
23.	03.03.2023	48	23.5	10.6	14.0
24.	18.03.2023	41	21.2	11.0	14.3
Min		40	21.2	9	12.7
Max		59	28.8	12.1	15.1
Average		48.7	24.0	10.5	13.8

Ambient Air Quality at Gundlapadu Village (BA14)

Area : Mandamarri **Nature of Area** : Buffer Zone
Period of Monitoring : April 2022 to March 2023 **Sampling Duration** : 24hrs period

S.No.	Date of Sampling	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)
NAAQ Standards, CPCB Dated : 18.11.2009		100	60	80	80
1.	02.04.2022	52	23.1	8.3	11.9
2.	19.04.2022	53	22.0	9.1	12.1
3.	03.05.2022	50	21.8	9.7	12.3
4.	17.05.2022	53	22.2	8.8	11.9
5.	02.06.2022	57	28.6	8.3	11.7
6.	17.06.2022	54	27.3	9.3	12.1
7.	02.07.2022	45	26.8	8.6	11.8
8.	18.07.2022	41	22.0	8.4	12.1
9.	02.08.2022	47	23.8	9.2	12.5
10.	17.08.2022	44	22.0	9.8	12.8
11.	02.09.2022	48	27.0	8.5	11.7
12.	17.09.2022	48	27.0	9.4	12.1
13.	03.10.2022	46	24.0	8.2	11.6
14.	18.10.2022	41	22.2	8.8	11.9
15.	02.11.2022	45	22.6	9.4	12.4
16.	17.11.2022	43	22.2	9.1	12.8
17.	02.12.2022	47	23.3	9.9	13.1
18.	17.12.2022	44	22.6	8.9	11.8
19.	03.01.2023	48	22.2	9.3	12.2
20.	17.01.2023	51	23.5	9.7	12.8
21.	02.02.2023	46	23.1	8.6	11.9
22.	17.02.2023	41	21.8	7.9	11.1
23.	02.03.2023	45	23.1	8.4	11.7
24.	17.03.2023	47	23.3	8.9	12.1
	Min	41	21.8	7.9	11.1
	Max	57	28.6	9.9	13.1
	Average	47.3	23.6	8.9	12.1

Ambient Air Quality at Kasipet Village (BA15)

Area : Mandamarri **Nature of Area** : Buffer Zone
Period of Monitoring : April-2022 to March-2023 **Sampling Duration** : 24hrs period

S.No.	Date of Sampling	PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)
NAAQ Standards, CPCB Dated : 18.11.2009		100	60	80	80
1.	02.04.2022	51	22.2	11.6	14.7
2.	19.04.2022	48	21.8	11.0	14.2
3.	04.05.2022	52	23.3	10.8	13.6
4.	18.05.2022	55	22.9	9.7	13.2
5.	02.06.2022	53	23.3	9.1	12.3
6.	17.06.2022	55	23.5	10.2	13.4
7.	02.07.2022	47	26.5	9.4	12.9
8.	18.07.2022	44	23.5	9.1	11.8
9.	02.08.2022	40	23.8	9.6	12.3
10.	17.08.2022	43	22.2	9.9	12.9
11.	03.09.2022	45	23.3	9.3	12.4
12.	19.09.2022	45	23.3	8.7	11.8
25.	04.10.2022	44	22.6	9.0	12.2
26.	19.10.2022	48	23.8	9.4	12.7
27.	03.11.2022	45	22.2	9.9	13.0
28.	18.11.2022	47	23.5	10.3	13.9
29.	03.12.2022	52	25.9	10.9	14.3
30.	19.12.2022	49	23.8	10.2	13.5
31.	04.01.2023	54	27.0	11.1	14.3
32.	18.01.2023	57	27.3	10.6	13.5
33.	03.02.2023	52	26.1	10.2	13.9
34.	18.02.2023	45	23.3	9.9	12.7
35.	03.03.2023	49	24.0	10.4	13.3
36.	18.03.2023	43	22.0	10.9	13.8
Min		40	21.8	8.7	11.8
Max		57	27.3	11.6	14.7
Average		48.4	23.7	10.0	13.1

Ambient Air Quality at Mamidigudem Village (BA18)

Area : Mandamarri **Nature of Area** : Buffer Zone
Period of Monitoring : April-2022 to March-2023 **Sampling Duration** : 24hrs period

S.No.	Date of Sampling	PM ₁₀ ($\mu\text{g}/\text{m}^3$)	PM _{2.5} ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)
NAAQ Standards, CPCB Dated : 18.11.2009		100	60	80	80
1.	02.04.2022	48	21.4	9.1	11.8
2.	19.04.2022	50	21.2	8.5	11.3
3.	03.05.2022	51	22.4	8.9	12.0
4.	17.05.2022	49	21.4	7.9	11.5
5.	02.06.2022	46	21.6	8.5	11.9
6.	17.06.2022	41	21.2	8.8	12.5
7.	02.07.2022	39	22.0	8.0	11.6
8.	18.07.2022	37	18.0	7.9	10.9
9.	02.08.2022	41	20.9	8.3	11.2
10.	17.08.2022	43	21.8	8.8	11.9
Min		37	18	7.9	10.9
Max		51	22.4	9.1	12.5
Average		44.5	21.1	8.4	11.6

Annexure-III

Effluent monitoring data

Effluent Quality Monitoring from April 2022 to March 2023 as follows:

Effluents sampling locations

Sl.No.	Sample code	Name of the Location	Latitude	Longitude
1.	EW12	Kasipeta Mine Discharge	N 19° 02' 03"	E 79° 25' 51.4"

Characteristics of Effluents – Kasipeta Mine Discharge (EW12)

Sl. No.	Date of Sampling	pH	TSS at 105°C	TDS at 180°C	COD	BOD	Oil & Grease
Unit		--	mg/L	mg/L	mg/L	mg/l	mg/L
Test Method		4500-H ⁺ B	2540-D	2540-C	5220-D	IS 3025	5520-B
	MoEF GSR 742 (E) and GSR 801(E) Effluent Standards for coal mines	5.5 to 9.0	100	--	250	30	10
1.	08.04.2022	7.8	15	1027	19	3.0	1.0
2.	25.04.2022	7.8	17	853	12	2.0	<1
3.	09.05.2022	7.4	26	692	16	2.0	<1
4.	23.05.2022	7.6	23	798	12	2.1	<1
5.	08.06.2022	7.7	19	973	19	2.0	1.0
6.	24.06.2022	7.4	27	1139	23	3.0	1.2
7.	11.07.2022	7.8	16	1015	16	2.3	<1
8.	25.07.2022	7.5	15	801	12	2.1	<1
9.	08.08.2022	7.3	18	1054	12	1.8	<1
10.	25.08.2022	7.6	22	905	23	2.7	1.2
11.	15.09.2022	7.6	21	922	12	2.0	<1
12.	30.09.2022	7.6	15	1015	19	2.6	<1
13.	15.10.2022	7.9	18	654	15	1.6	<1
14.	31.10.2022	8.0	23	851	23	2.6	<1
15.	15.11.2022	8.2	14	793	27	3.1	1
16.	29.11.2022	7.5	21	921	23	2.6	<1
17.	09.12.2022	6.9	34	778	19	2.1	<1
18.	30.12.2022	7.3	20	903	12	1.9	<1
19.	09.01.2023	7.5	15	1034	15	1.9	<1
20.	23.01.2023	7.3	21	881	12	1.8	<1
21.	08.02.2023	7.7	19	721	12	1.9	<1
22.	28.02.2023	7.5	16	844	19	2.7	<1
23.	15.03.2023	7.6	21	1077	23	2.2	<1
24.	25.03.2023	8.1	26	958	20	2.1	<1

Annexure-IV**Noise quality monitoring data****Noise Monitoring Locations**

Station Code	Name of the Stations	Latitude	Longitude
Core Zone			
CN8	Kasipet-1 Pit Office	N 19° 03' 26.2"	E 79° 25' 17.5"
Buffer Zone			
BN7	Kasipeta Village	N 19° 01' 47.2"	E 79° 25' 50.7"
BN8	Muthyampalli Village	N 19° 01' 36.8"	E 79° 26' 14.0"

Summary of Noise Levels

Location Code	Monitoring stations	Standard limits of Noise		April 1 st Fortnight			April 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet Pit Office	75	70	02.04.2022	59.6	49.3	19.04.2022	58.9	48.7
Buffer Zone									
BN7	Kasipet Village	55	45	02.04.2022	49.1	38.5	19.04.2022	48.7	38.6
BN8	Muthyampalli Village	55	45	08.04.2022	49.5	39.7	25.04.2022	49.1	38.9

Location Code	Monitoring stations	Standard limits of Noise		May 1 st Fortnight			May 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet Pit Office	75	70	03.05.2022	58.1	48.3	17.05.2022	58.6	47.9
Buffer Zone									
BN7	Kasipet Village	55	45	03.05.2022	48.9	39.3	17.05.2022	49.4	39.6
BN8	Muthyampalli Village	55	45	07.05.2022	49.6	39.4	21.05.2022	48.7	39.2

Location Code	Monitoring stations	Standard limits of Noise		June, 1 st Fortnight			June, 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet Pit Office	75	70	02.06.2022	59.1	48.2	17.06.2022	58.9	48.6
Buffer Zone									
BN7	Kasipet Village	55	45	02.06.2022	49.9	38.8	17.06.2022	49.1	38.3
BN8	Muthyampalli Village	55	45	07.06.2022	48.4	38.5	22.06.2022	49.2	38.2

Location Code	Monitoring stations	Standard limits of Noise		July 1 st Fortnight			July 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet Pit Office	75	70	02.07.2022	57.8	47.9	18.07.2022	57.0	47.3
BN7	Kasipet Village	55	45	02.07.2022	48.6	37.4	18.07.2022	48.4	37.5
BN8	Muthyampalli Village	55	45	08.07.2022	48.2	37.8	23.07.2022	47.3	37.4

Location Code	Monitoring stations	Standard limits of Noise		August 1 st Fortnight			August 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet Pit Office	75	70	02.08.2022	57.8	47.8	18.08.2022	58.2	48.0
Buffer Zone									
BN7	Kasipet Village	55	45	02.08.2022	48.6	38.3	18.08.2022	48.7	38.9
BN8	Muthyampalli Village	55	45	08.08.2022	48.4	37.8	16.08.2022	48.8	38.2

Location Code	Monitoring stations	Standard limits of Noise		September 1 st Fortnight			September 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet Pit Office	75	70	02.09.2022	59.9	48.5	17.09.2022	58.1	47.6
Buffer Zone									
BN7	Kasipet Village	55	45	03.09.2022	48.4	37.9	19.09.2022	47.9	37.2
BN8	Muthyampalli Village	55	45	02.09.2022	47.8	38.7	17.09.2022	48.2	38.0

Location Code	Monitoring stations	Standard limits of Noise		October 1 st Fortnight			October 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet-1 Pit Office	75	70	03.10.2022	58.6	48.1	18.10.2022	59.1	48.9
Buffer Zone									
BN7	Kasipeta Village	55	45	04.10.2022	47.1	38.4	19.10.2022	48.0	37.7
BN8	Muthyampalli Village	55	45	03.10.2022	48.7	38.6	18.10.2022	49.0	39.1

Location Code	Monitoring stations	Standard limits of Noise		November 1 st Fortnight			November 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet-1 Pit Office	75	70	02.11.2022	59.6	49.1	17.11.2022	58.9	49.5
Buffer Zone									
BN7	Kasipeta Village	55	45	03.11.2022	47.9	37.1	18.11.2022	47.4	38.2
BN8	Muthyampalli Village	55	45	01.11.2022	49.7	39.5	16.11.2022	48.9	38.7

Location Code	Monitoring stations	Standard limits of Noise		December 1 st Fortnight			December 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet-1 Pit Office	75	70	02.12.2022	58.1	48.6	17.12.2022	57.6	48.2
Buffer Zone									
BN7	Kasipeta Village	55	45	03.12.2022	48.0	38.6	19.12.2022	48.4	37.9
BN8	Muthyampalli Village	55	45	02.12.2022	48.1	38.0	17.12.2022	48.8	38.6

Location Code	Monitoring stations	Standard limits of Noise		January 1 st Fortnight			January 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet-1 Pit Office	75	70	03.01.2023	57.0	47.3	17.01.2023	57.6	47.8
Buffer Zone									
BN7	Kasipeta Village	55	45	04.01.2023	47.9	37.5	18.01.2023	47.1	37.0
BN8	Muthyampalli Village	55	45	03.01.2023	47.7	37.4	17.01.2023	48.1	37.9

Location Code	Monitoring stations	Standard limits of Noise		February 1 st Fortnight			February 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet-1 Pit Office	75	70	02.02.2023	58.2	48.3	17.02.2023	58.9	48.9
Buffer Zone									
BN7	Kasipeta Village	55	45	03.02.2023	47.8	38.1	18.02.2023	48.1	38.6
BN8	Muthyampalli Village	55	45	02.02.2023	48.6	38.4	17.02.2023	49.1	38.7

Location Code	Monitoring stations	Standard limits of Noise		March 1 st Fortnight			March 2 nd Fortnight		
				Noise levels in dB (A)					
		Day time	Night time	Date of Sampling	Leq Day	Leq Night	Date of Sampling	Leq Day	Leq Night
Core Zone									
CN8	Kasipet-1 Pit Office	75	70	02.03.2023	59.5	49.2	17.03.2023	59.9	49.8
Buffer Zone									
BN7	Kasipeta Village	55	45	03.03.2023	48.8	38.2	18.03.2023	49.1	39.1
BN8	Muthyampalli Village	55	45	02.03.2023	49.7	39.1	17.03.2023	49.0	39.7

Surface Water quality monitoring data

Surface Water Sampling Locations

Sl. No.	Sampling code	Date of Sampling		Sampling Location	Latitude	Longitude
		1 st Quarter	2 nd Quarter			
1	SW-7	14.11.2022	23.01.2023	Devapur Vagu U/S	N 19°02'30.7"	E 79°22'44.3"
2	SW-8	14.11.2022	23.01.2023	Devapur Vagu D/S	N 19°01'41.5"	E 79°25'56.1"

Physico-Chemical and Bacteriological Characteristics of Surface Water

Physico-Chemical and Bacteriological Characteristics of Surface Water as per CPCB Water Quality Criteria

Sl. No	Parameters	Unit	Test Method	CPCB Water Quality Criteria					RESULT			
				Class A	Class B	Class C	Class D	Class E	SW-7 Devapur Vagu U/S		SW-8 Devapur Vagu D/S	
									1 st Quarter	2 nd Quarter	1 st Quarter	2 nd Quarter
1	pH	-	4500-H ⁺ B	6.5-8.5	6.5-8.5	6.0-9.0	6.5-8.5	6.0-8.5	8.2	8.1	8.1	8.1
2	Electrical Conductivity	µmhos/cm	2510-B	-	-	-	-	2250 µmhos/cm	572	817	574	726
3	Dissolved Oxygen (DO)	mg/L	4500-O.C	6 mg/l or more	5 mg/l or more	4 mg/l or more	4 mg/l or more	-	6.3	6.0	6.1	6.2
4	Bio chemical Oxygen Demand (3 days 27° C)	mg/L	IS: 3025	2 mg/l or less	3 mg/l or less	3 mg/l or less	-	-	3.2	2.7	3.4	2.1
5	Total Coliforms	MPN/100mL	9221B	50 or less	500 or less	5000 or less	-	-	220	220	220	140
6	Free Ammonia (as N)	mg/L	4500-NH ₃ -F	-	-	-	1.2 mg/L or less	-	BDL	BDL	BDL	BDL
7	Boron as B	mg/L	3120-B	-	-	-	-	Less than 2 mg/L	0.19	0.14	0.14	0.15
8	SAR	-	-	-	-	-	-	Less than 26	1.07	1.69	0.95	1.51

Physico-Chemical Characteristics of Surface Water at Selected Locations in the Study Area

S. No	Parameters	Unit	Test Method	SW-7		SW-8	
				Devapur Vagu U/S		Devapur Vagu D/S	
				1 st Quarter	2 nd Quarter	1 st Quarter	2 nd Quarter
1.	Colour	Hazen	2120. B	5	5	5	5
2.	Odour	TON	2150. B	No odour observed	No odour observed	No odour observed	No odour observed
3.	Temperature	°C	2550. B	24.8	25.0	25.2	25.1
4.	Turbidity	NTU	2130. B	2.1	1.5	1.4	1.2
5.	Total Dissolved Solids at 180° C	mg/L	2540.C	336	475	339	422
6.	Total Suspended Solids at 105° C	mg/L	2540. D	34	19	21	21
7.	Chemical Oxygen Demand	mg/L	5220. D	24	24	28	20
8.	Chlorides as Cl ⁻	mg/L	4500-Cl ⁻ .B	50	80	48	67
9.	Sulphates as SO ₄ ²⁻	mg/L	4500-SO ₄ ²⁻ .E	29	49	28	38
10.	Fluoride as F ⁻	mg/L	4500-F ⁻ .C	0.64	0.66	0.71	0.63
11.	Calcium as Ca	mg/L	3500-Ca.B	42	58	48	44
12.	Magnesium as Mg	mg/L	3500-Mg.B	24	25	26	30
13.	Sodium as Na	mg/L	3500-Na.B	35	61	33	53
14.	Potassium as K	mg/L	3500-K.B	0.8	3.1	0.7	3
15.	Nitrites as NO ₂	mg/L	4500-NO ₂ ⁻ .B	0.39	0.29	0.39	0.29
16.	Nitrates as NO ₃	mg/L	4500-NO ₃ ⁻ .B	16	16	16	15.9

S. No	Parameters	Unit	Test Method	SW-7		SW-8	
				Devapur Vagu U/S		Devapur Vagu D/S	
				1 st Quarter	2 nd Quarter	1 st Quarter	2 nd Quarter
17.	Total Phosphates	mg/L	4500-P-D	BDL	BDL	BDL	BDL
18.	Ammonical Nitrogen as NH ₃ -N	mg/L	4500-NH ₃ -C	BDL	BDL	BDL	BDL
19.	Phenolic compounds as C ₆ H ₅ OH	mg/L	5530-D	BDL	BDL	BDL	BDL
20.	Oil & Grease	mg/L	5520. B	<1	<1	<1	<1
21.	Carbonates as CO ₃	mg/L	2320. B	nil	nil	nil	nil
22.	Bi-carbonates as HCO ₃	mg/L	2320. B	196	270	213	265
23.	Fecal Coliforms	MPN/100mL	9221 E	11	21	24	11
24.	Zinc as Zn	mg/L	3120. B	0.08	0.11	0.12	0.17
25.	Iron as Fe	mg/L	3120. B	0.37	0.38	0.32	0.63
26.	Arsenic as As	mg/L	3120. B	BDL	BDL	BDL	BDL
27.	Lead as Pb	mg/L	3120. B	BDL	BDL	BDL	BDL
28.	Cadmium as Cd	mg/L	3120. B	BDL	BDL	BDL	BDL
29.	Total Chromium as Cr	mg/L	3120. B	BDL	BDL	BDL	BDL
30.	Nickel as Ni	mg/L	3120. B	BDL	BDL	BDL	BDL
31.	Copper as Cu	mg/L	3120-B	BDL	BDL	BDL	BDL
32.	Selenium as Se	mg/L	3120-B	BDL	BDL	BDL	BDL

Ground Water quality monitoring data

Groundwater Sampling Locations

Sl. No.	Sampling code	Date of Sampling		Sampling Location	Latitude	Longitude
		1 st Quarter	2 nd Quarter			
1	GW-7	14.11.2022	23.01.2023	Kasipet	N 19°01'47.0"	E 79°25'50.7"
2	GW-8	14.11.2022	23.01.2023	Muthyampalli	N 19°01'36.8"	E 79°26'14.0"

Physico-Chemical, Bacteriological Characteristics of Groundwater Collected within the Study Area

Organoleptic and Physical Parameters

S. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-7 Kasipet		GW-8 Muthyampalli	
						1 st Quarter	2 nd Quarter	1 st Quarter	2 nd Quarter
1.	Colour	Hazen	2120. B	5	15	<5	<5	<5	<5
2.	Odour	TON	2150. B	Agreeable	Agreeable	Agree.	Agree.	Agree.	Agree.
3.	pH	-	4500-H ⁺ B	6.5 to 8.5	No relaxation	7.5	7.4	7.2	7.0
4.	Taste	FTN	2160. B	Agreeable	Agreeable	Agree.	Agree.	Agree.	Agree.
5.	Turbidity	NTU	2130. B	1	5	0.37	0.35	0.41	0.29
6.	Total Dissolved Solids at 180° C	mg/L	2540.C	500	2000	1082	573	1628	1288

General Parameters Concerning Substances Undesirable in Excessive Amounts

S. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-7 Kasipet		GW-8 Muthyampalli	
						1 st Quarter	2 nd Quarter	1 st Quarter	2 nd Quarter
1.	Calcium as Ca	mg/L	3500-Ca.B	75	200	92	48	168	96
2.	Magnesium as Mg	mg/L	3500-Mg.B	30	100	53	33	92	68
3.	Chlorides as Cl-	mg/L	4500-Cl-.B	250	1000	123	93	369	357
4.	Sulphates as SO42-	mg/L	4500-SO42-.E	200	400	200	79	332	120
5.	Fluoride as F-	mg/L	4500-F-.C	1.0	1.5	1.7	1.3	1.3	0.84
6.	Nitrates as NO3	mg/L	4500-NO3-.B	45	No relaxation	68	28	75	55
7.	Total Alkalinity as CaCO3	mg/L	2320. B	200	600	575	320	495	540
8.	Total Hardness as CaCO3	mg/L	2340. C	200	600	450	257	800	520
9.	Sulphide as H2S	mg/L	4500-S2-F&D	0.05	No relaxation	BDL	BDL	BDL	BDL
10.	Total Ammonia-N	mg/L	IS 3025 (Part 34)	0.5	No relaxation	BDL	BDL	BDL	BDL
11.	Phenolic compounds as C6H5OH	mg/L	5530-D	0.001	0.002	BDL	BDL	BDL	BDL
12.	Residual free chlorine	mg/L	4500-Cl-.B	0.2	1.0	BDL	BDL	BDL	BDL
13.	Mineral oil	mg/L	IS:3025 (part 39)	0.5	No relaxation	absent	absent	absent	absent
14.	Anionic Detergents (as MBAS)	mg/L	IS:13428:2005K	0.2	1.0	<0.2	<0.2	<0.2	<0.2
15.	Aluminium as Al	mg/L	3120-B	0.03	0.2	0.09	BDL	BDL	BDL
16.	Barium as Ba	mg/L	3120. B	0.7	No relaxation	0.16	0.21	0.18	0.18
17.	Boron as B	mg/L	3120-B	0.5	2.4	0.17	BDL	0.11	0.14
18.	Iron as Fe	mg/L	3120-B	1.0	No relaxation	0.35	0.65	0.56	0.39
19.	Zinc as Zn	mg/L	3120-B	5	15	0.15	0.09	0.11	0.20
20.	Copper as Cu	mg/L	3120-B	0.05	1.5	BDL	BDL	BDL	BDL
21.	Manganese as Mn	mg/L	3120-B	0.1	0.3	BDL	BDL	BDL	BDL
22.	Selenium as Se	mg/L	3120-B	0.01	No relaxation	BDL	BDL	BDL	BDL
23.	Silver as Ag	mg/L	3120. B	0.1	No relaxation	BDL	BDL	BDL	BDL

Parameters Concerning Toxic Substances

S.No	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-7 Kasipet		GW-8 Muthyampalli	
						1 st Quarter	2 nd Quarter	1 st Quarter	2 nd Quarter
1.	Cadmium as Cd	mg/L	3120-B	0.003	No relaxation	BDL	BDL	BDL	BDL
2.	Cyanide as CN-	mg/L	4500-CN-F	0.05	No relaxation	BDL	BDL	BDL	BDL
3.	Lead as Pb	mg/L	3120-B	0.01	No relaxation	BDL	BDL	BDL	BDL
4.	Molybdenum as Mo	mg/L	3120. B	0.07	No relaxation	BDL	BDL	BDL	BDL
5.	Nickel as Ni	mg/L	3120-B	0.02	No relaxation	BDL	BDL	BDL	BDL
6.	Total Arsenic as As	mg/L	3120-B	0.01	0.05	BDL	BDL	BDL	BDL
7.	Total Chromium as Cr	mg/L	3120-B	0.05	No relaxation	BDL	BDL	BDL	BDL
8.	Mercury as Hg	µg/L	3500-Hg.B	0.001	No relaxation	BDL	BDL	BDL	BDL
9.	Pesticides: α-BHC, β-BHC, γ-BHC, δ-BHC, o, p-DDT, p, p' -DDT, Endosulfan, β- Endosulfan, Aldrin, Dieldrin	µg/L	6630. D	Absent	0.001	ND	ND	ND	ND
	2,4-D, Carbaryl (Carbonate) Malathion Methyl Parathion Anilophos, Chloropyriphos	Qualitative analysis	6630. D	Absent	0.001	ND	ND	ND	ND
10.	Polyaromatic Hydrocarbons (PAH's): Acenaphthene, Acenaphthylene, Anthracene, B(a)A, B(a)P, B(b)F, B(k)F, Pyrene, Dibenz (a,h) anthracene, Fluoranthene, Fluorene, Indeno (1,2,3-(d) Pyrene, Naphthalene, Phenanthrene, Pyrene, Methyl Naphthalene	µg/L	6440.C	--	--	ND	ND	ND	ND

Bacteriological Quality of Drinking Water

S. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-7 Kasipet		GW-8 Muthyampalli	
						1 st Quarter	2 nd Quarter	1 st Quarter	2 nd Quarter
1	Total Coliforms	MPN/100 mL	9221B	-	-	<1.8	<1.8	<1.8	<1.8
2	Fecal Coliforms	MPN/100 mL	9221 E	-	-	<1.8	<1.8	<1.8	<1.8