THE SINGARENI COLLIERIES COMPANY LIMITED
(A GOVERNMENT COMPANY)
Registered Office
Kothagudem Collieries (P.O) - 507 101, Bhadradri Kothagudem Dist, Telangana State
CIN: U10102TG1920SGC000571

Environment Dept., Srirampur Area
PO:Srirampur Colony-504 303, Dist. Mancherial, Telangana State

Phone No: 08736-238039.
Fax No : 08736-238222.
e-mail:env_srp@scclmines.com
website:www.scclmines.com

Ref.No: SRP/ENV/U-004/2024/188 Date: 30.08.2024

To
The Member secretary,
Telangana State Pollution Control Board,
Paryavaran Bhavan,
A-3, Industrial Estates,
Sanath Nagar,
HYDERABAD.

Sir,

Sub: Submission of Environmental Statement in Form - V of RK-5 Inc. of Srirampur Area of S.C.C.L for the year 2023-24 – Reg.
Ref: Rule: 14 of Environment Protection Rules, 1986.

*****

With reference to the cited above, please find enclosed herewith Environmental Statement in Form – V of RK-5 Inc. of Srirampur Area of S.C.Co.Ltd. for the year 2023-24.

Thanking you,

Yours Sincerely,

Office of the General Manager S.C.C.L. SRIRAMPUR

General Manager
Srirampur Area.
General Manager
SRIRAMPUR

Encl: As above.

C.c.: The Joint Chief Environmental Engineer,
Telangana State Pollution Control Board,
Zonal Office, Sangareddy District – 502 302.

: The Environmental Engineer,
Telangana State Pollution Control Board,
Regional Office, Nizamabad – 503 002.

: GM(Env.), Kgm.

THE SINGARENI COLLIERIES COMPANY LIMITED
(A Government Company)
SRIRAMPUR AREA

ENVIRONMENTAL STATEMENT OF RAVINDRA KHANI No. 5 INCLINE FOR THE YEAR 2023-24.

Name of the Project: RavindraKhani No. 5 Incline
Name of the Area: Srirampur Area **District**: Mancherial.

1.1Introduction:

The Singareni Collieries Company Ltd., (SCCL) has been exploiting coal for 134 years in the Pranahita - Godavari valley Coal field in the South Indian State of Telangana. Over the years, the Company had expanded its mining activity in KomaramBheem (Asifabad), Mancherial, Peddapalli, Jaya Shankar Bhoopalapalli, BhadradriKothagudem and Khammam (New) districts of Telangana State.

The Company's mining activity is divided into three regions vizRamagundam, Bellampally and Kothagudem and each region is also sub-divided into areas for administrative convenience. Srirampur area is one of the areas of the BellampalliRegion.

1.2 Srirampur Area:

Srirampur Area is well connected by road to Mancherial located at 8.5 KM and has well established communication system like telephone, telex etc. Srirampur Area is located in industrially backward area. As a direct benefit of mining activity about 8,085 persons (including OC Mines) are employed at mine level and another 1118 persons at area level. Assuming an indirect employment of 5 persons for every person directly employed , 46015 persons are getting benefited.

There are 7 Underground mines in this area viz SRP-1, SRP-3&3A, RK-5, RK-6, RK-7, RK-NT and IK-1A Inclines. There are two opencast mines (SRP OC-II EXPANSION PROJECT& IK OCP) in this area. The production from these mines (including OC Mines) during the year 2023-24 is 59,06,089Tonnes of coal.

1.3 Brief Description of the Mine / Project:

RavindraKhani No. 5 (RK-5) Incline is a working mine located in Srirampur Area of Bellampalli region. RK-5 Incline is lying in between North Latitude of N 18°52' 48'' to 18°53' 56'' and East Longitude of E 79°30' 08'' to 79°30' 50'' in Survey of India Top sheet No. 56M/8. The mine is located around 12km from Mancherial Railway station on Kazipet – Ballarsha line of South Central Railway in Mancherial (New) District of Telangana State, and it is at distance of 255 KM from Hyderabad. RK-5 Incline is located in the central part of Somagudem – Indaram coal belt. Mine take area is lying at a distance of 5Km from Rajiv Rahadari i.e., Mancherial to Hyderabad high way.

RK-5 Incline started on 11.08.1974. RK-5 Incline is covered under North Godavari Mining Lease (5389.00 Ha), which was granted vide GO. MS. No.III, dated 20.1.1962 to an extent of 29.52 sq. miles (7646 Ha), valid up to 31.12.1984. Later, renewal was granted vide G.O.MS. No.158, valid for a period of ten years up to

21.05.2010 to an extent of 53.89 sq. km (5389.00 ha). Applied for renewal and was granted vide G.O.Ms. No: 01, dtd.12.01.2015, valid for a period of 20 years from 22.05.2010 to 21.05.2030. Consent for Operation (CFO) has been obtained for this mine from T.S. Pollution Control Board with a production capacity of 0.5 Million Tonnes per Annum. At present the mine is working with SDLs and conventional Board and Pillar method.

FORM – V (Rule No.14 of EPR'1986)

PART – A

General:

Sl.No	Item	Details
1.	Name and address of Owner / Occupier of the Industry / Operation or process.	General Manager, Srirampur Area, The Singareni Collieries Company Limited, Srirampur – 504 303
2.	Industry category	Red Non-Hazardous (Coal Mine)
3.	Production capacity	0.5MTPA
4.	Year of Establishment	11.08.1974
5.	Date of last environmental Statement submitted.	19.09.2023

Sl.No.	Item	2022-23	2023-24
1.	Total coal production (in Lakh tones)	2.81	2.77
2.	Total men on roll (as on 31st March 2024)	1244	1,325

PART – B

Water and raw material consumption.

(A) Water Consumption:

Sl. No	Description	Water consumption during the year 2022-23(KLD)	Water consumption during the year 2023-24 (KLD)
1	Total Mine Water Pumped out to surface	2560.00	1032
2.	**Water consumption :**		
A.	**Domestic:**		
	a) Water used for drinking/bathing and other industrial requirement	40.00	25
	b) Water supplied for nearest township/village for domestic purpose/CHP	1000 .00	465

	Sub – Total	**1040.00**	**490**
B.	**Industrial :**		
	a) Water used for plantation	20.00	20
	b) Water used for dust suppression	20.00	20
	c) Water used for stowing	NIL	Nil
	Sub - Total	**40.00**	**40**
	Total Water consumption:	**1080.00**	**530**
3	Excess water let out	1480	502

(B) Raw material consumption of RK-5 Inc.:

Sl. No	Description of the Material	Unit	Consumed during the year	
			2022-23	**2023-24**
1	i) Explosives(Permitted)	Kgs	156821	1,49,196
	ii) Explosives (others)	Kgs	0	0
2	i) Delay detonators	Nos.	344100	3,43,350
	ii) Ordinary detonators	Nos.	22450	26,800
3	Timber (all types)	Cu.m	336.50	389.00
4	Tub Lubricant oils	Ltrs.	0	0
5	Gear oils & other lubricant oils.	Ltrs.	11130	11,340
6	Hydraulic oils	Ltrs.	21985	16,590
7	Transformer oils	Ltrs.	0	0
8	Kerosene	Ltrs.	0	0
9	H.S.D.Oil	Ltrs.	3197	1,417
10	Petrol	Ltrs.	300	260
11	Engine oil	Ltrs.	0	0
12	Cement	Bags	1920	1,230
13	Paint Enamel	Ltrs.	524	272
14	Paint red-oxide	Ltrs.	140	120
15	Grease	Kgs	0	574
16	Tub paints	Ltrs.	0	0

17	Girders	Tons	0	4,425
18	Rails	Tons	34.94	37.14
19	Roof bolts and nuts	Nos	67.070	62,300
20	Channels	Tons	0.400	0
21	Dog nails	Kgs	3850.52	4,392.209
22	Tub pedestals	Nos	200	440
23	Flat Iron	Tons	0	0
24	G.I Pipes	Mtrs	139.0	0
25	C.I Pipes	Mtrs	-	0
26	Fosrock capsules	Nos	266660	1,39,730
27	Drill roads	Nos	1238	1,136
28	Drill bits	Nos	17829	14,066
29	Coal baskets	Nos	0	20
30	Conveyor belt	Mtrs	0	0
31	Haulage rope	Mtrs	13500	4,500
32	Cap lamp batteries	Nos	-	115

Note: Raw material consumption like explosives, diesel oil and others are dependent upon the stripping ratio, Inclination of the seams, nature of rock strata, distance to coal handling plant from the mine, method of working and technology adopted etc., hence raw material consumption varies from mine to mine and time to time.

PART – C

Pollution discharged to environment / unit of output.

A. Water pollution Source & Control Measures:

(a) **Water pollution sources:**

The source of water pollution is mine discharge water, contaminated water from workshops and domestic waste water.

(b) **Water pollution control:**

The following control measures are being taken up at the mine to control the water pollution.

i) The mine discharge water is being reutilized after necessary treatment for dust suppression, plantation, domestic use etc.
ii) The excess mine discharge water is being treated in settling tanks before discharge into natural drains.
iii) The domestic sewage from the mine is being treated in septic tank followed by soak pit.
iv) An effective sewerage system is being maintained to treat the colony effluents by constructing Sewage Treatment Plant at Naspur Colony with Capacity of 3 MLD.
v) Post-project water quality monitoring is being carried out by outside agency [M/s Environment Protection Training and Research Institute (EPTRI)

Hyderabad (CPCB recognized and NABL accredited laboratory)] as per the frequency stipulated by MoEF&CC for coal mining industry. The water quality monitoring reports are enclosed as **Annexure - I.**

B. Air pollution Source & Control Measures:

(a) Source of air pollution:

The activities contributing to the air pollution are mine exhaust air, transportation of coal, men & material, coal handling operations like screening, crushing, etc., The major pollutants are suspended particulate matter, dust and oxides of Nitrogen.

(b) Air Pollution Control:

i) Water spraying arrangements have been made under ground at all working places, loading points and transfer points.

ii) Arrangements have been made for water spraying on the surface conveyor belt.

iii) At CHP, water spraying has been arranged at Conveyor transfer points and at loading points and the conveyor belts have been provided with covered structure.

iv) Surface is kept free of fine coal dust heaps.

v) Coal transport route has been black topped from the mine to CHP. Internal roads have also been black topped.

vi) Avenue plantation has been developed along Coal Transportation Road.

CONTROL OF EMISSION OF NOXIOUS GASES:

The measures taken for mitigating the noxious gases are as follows:

i) Coal transportation trucks and other vehicles are periodically maintained.

ii) Notice boards have been displayed on the surface; advising persons to avoid burning of coal/wood/oil grease impregnated waste cotton/garbage etc., in the mine premises as a method of disposal.

iii) Blasting operations at underground is carried out with delay action detonators and ultra safe P5 explosives, which helps in mitigating the emission of gases from explosives.

iv) Stocks of coal are not allowed to be kept on surface of the mine. If any heap has to be kept for sometimes, water spraying is done over it to control oxidation of coal.

v) Burning of firewood and coal for domestic purpose in colonies has been stopped due to usage of L.P Gas being distributed free of cost by the company to all the employees.

1. Total manpower of the mine as on 31.03.2024: 1325.

2. Total L.P Gas connections to the workers as on 31.03.2024: 1203.

vi) Post-project air quality monitoring is being carried out by outside agency [M/s Environment Protection Training and Research Institute (EPTRI) Hyderabad (CPCB recognized and NABL accredited laboratory)] as per the frequency stipulated by MoEF&CC vide GSR 742 (E) for coal mining industry and all the necessary precautions are being taken to maintain the concentration of critical parameters well within the stipulated standards. The air quality monitoring reports are enclosed as **Annexure- II**.

C. Noise pollution Source & Control Measures:

(a) Source of Noise pollution:

The source of noise pollution is due to coal dispatch arrangements and surface mine ventilation fan.

(b) Noise pollution Control Measures:

i. The main mechanical ventilators are provided with evasee which dampens the noise.

ii. To dampen the noise levels at CHP, impact rollers are provided at transfer points.

iii. Height of fall is minimized at all coal transfer points and internal lining of bins and chutes are done.

iv. In the high noise intensity working areas / zones earmuffs or earplugs or any other suitable personal protective equipment is being provided to the workmen.

v. Regular noise level monitoring is being done periodically for taking corrective action, wherever required.

vi. Extensive plantation of green belt and vegetation along the roads and around the offices to create a barrier or screen between the source and the receiver so that the noise is absorbed and the exposure level is minimized.

vii. Cushioning belt liners under the tipplers are being provided under tippler resting pads to reduce the noise while tripling the tubs.

viii. Post-project Noise quality monitoring is being carried out by outside agency [M/s Environment Protection Training and Research Institute (EPTRI) Hyderabad (CPCB recognized and NABL accredited laboratory)] at the Mine pit office and surrounding villages as per the frequency stipulated by MoEF&CC for coal mining industry. The noise monitoring reports are enclosed as **Annexure - III.**

PART – D

Hazardous wastes:

The main categories of wastes generated are Metal scrap, used oils, used batteries etc. at Area Workshop. Waste materials are auctioned through M – Junction by e-Auction and disposed to S.P.C.B authorized parties on as is where basis is.

PART – E

Land degradation and Solid waste:

Land degradation:

Due to extraction of coal by underground method, surface land gets affected due to subsidence. The following measures are taken to minimize damage to land due to subsidence –

1. Subsidence is monitored periodically and records maintained as per requirements of DGMS Circular No.12 of 1962.

2. Sand stowing is being adopted wherever required.

3. Crack filling is carried out whenever required.

4. Plantation is taken-up in stabilized areas with suitable species to bind the soil.

Solid Waste:

Solid waste generated is mainly Shale / Sand Stone separated from coal at the Coal Handling Plants, Ferrous/ non-ferrous scrap at the Mines, Workshops and wooden scrap generated at Timber Yards.

Waste Management:

1. Solid waste generated from CHP is transported by trucks to low-lying area in the Townships and used for land filling.

2. Old haulage rope is re-used for roof stitching in underground mines.

3. Old haulage rope and tub frames are used for fencing arrangements.

4. Waste timber is used as sleepers for under ground haulage track.

Solid waste generated and re-cycled / sold / disposed quantity for the year **2023-24** as compared to the previous year **2022-23** at Srirampur Area.

Sl. No.	**Description**	**Total Quantity**	
		During the year 2022-23	**During the year 2023-24**
I.	(a) Solid waste generated out from CSP (Shale & Stone) (in Tonnes)	12,222.300	8689.81
	(b) Garbage generated from Colonies. (in Cu. Mtrs.)	1907	3,905
II.	Quantity recycled	Nil	NIL
III.	Sold.	Nil	NIL
IV.	Disposal	(i) All the rejects at CHP are dumped in the here marked shale dump yard.	(i) All the rejects at CHP are dumped in the here marked shale dump yard.
		(ii) Garbage is disposed off in low-lying areas of the Company	(ii) Garbage is disposed off in low-lying areas of the Company.

PART – F

Characterization of solid waste and disposal practice:

Solid waste generated at Coal Handling Plant is stone, clay and shale. These waste materials are picked out from the coal manually at the picking platforms at the CHP, while coal moves on conveyor belts. After picking, these wastes are stored in the bunkers. From bunkers these solid wastes are transported by trucks for dumping in low-lying areas in the townships.

PART – G

Impact of pollution control measures taken on conservation of natural resources and on cost of production.

1) All the water will be treated in slow sand filter beds before letting it out into the natural drains / streams. Part of this treated water is used for plantations.

2) Water spraying arrangements are made and regular tuning of vehicles is done to control air pollution.

3) 11,567 Nos. of saplings have been planted till now in the premises of RK – 5 incline to control pollution and create green environment.

4) The annual revenue expenditure for implementation of environmental management plan in the RK-5 Incline is estimated at Rs.122.81 Lakhs i.e., Rs.24.99 per tonne of coal produced in the EIA/EMP.

Expenditure towards the Environmental protection for the year **2023-24** as compared to the previous year **2022-23**

Sl. No.	**Description**	**Revenue expenditure** (in Rs.)	
		2022-23	**2023-24**
1.	Air Pollution (Prevention & Control)	98087.04	604436.72
2.	Water Pollution (Prevention & Control)	108452	463211
3.	Land Development	0	0
4.	Plantation	93506.5	178780
5.	Plant & Machinery for Environment protection.	30000	0
6.	Consultancy payments / scientific studies.	0	0
7.	OB reclamation / Subsidence stabilization	571863	469183
8.	Environmental Awareness / Environmental education.	1500	1500
9.	Noise & Blast vibrations	43353.3	36516.48
10.	Others.	0	1000
	Total Expenditure	**679481.3**	**1754627.2**

Annual Revenue expenditure is Rs.6.33 per tonne of coal produced during the year 2023-24 This is excluding the cost of power, wages, stores and cess charges.

PART – H

Additional measures / investment proposals for environmental protection including abatement of pollution.

1. Provision of quarters along with civil amenities.

2. Provision of playgrounds, recreation and cultural centers and clubs.

3. Incentives for family planning and population control.

4. Communication facilities like road, telephone, bus services etc.

5. Provision of LPG cylinders as fuel to company employees at free of cost.

6. Construction of community latrines (Sulabh toilets) to the general public.

7. Green belt development has been taken up in mine premises, townships, CSP, Workshops and along mine colony roads.

8. Asphalting of the entire colony roads and mine is being taken up in a phased manner to reduce dust generation.

9. Proper care is being taken to reduce noise levels by proper lubrication of machinery, restricting falling height of coal at CHP and lining the sides of conveyor system wherever necessary and Green belt development around noise generating sources.

PART – I

Other particulars for improving the quality of the environment:

1. Employees are being educated in protecting environment by conducting environmental awareness week and quiz competitions during World Environment day and World Environment Protection day.

2. Vana mahotsavam is being organized every year and mass plantation is being taken up on a single day as per the guidance of the TSPCB.

3. For improving ground water levels 32 Nos. of Rainwater harvesting structures are constructed in the Srirampur area.

4. Compost pits are being used at mines for disposal of Bio-degradable solid wastes.

Agent,

RK-5 & 6 Group of Mines,
The S.C.Co.Ltd.,
Srirampur Area.

MONITORING DATA OF RAVINDRA KHANI – 5 (RK-5) INCLINE FOR THE PERIOD APRIL, 2023 TO MARCH, 2024.

List of Annexures:

Sl.No.	Description	Annexure No.
1	Ambient Air Quality monitoring data	I
2	Effluents, Surface & Ground Water Quality monitoring data.	II
3	Noise level monitoring data	III
4	Attitude of Phreatic Surface & Piezometric Levels	IV
5.	Meteorological data	V

ANNEXURE –I

POST PROJECT AMBIENT AIR QUALITY MONITORING DATA FOR THE PERIOD FROM APRIL, 2023 TO MARCH, 2024 FOR RK-5 INCLINE.

❖ Location of the Ambient Air Quality monitoring Station : Top of the Residential house, RK-5 Incline

Sl. No.	Station Name	Date of Sampling	Parameters (µg/Cu.Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
1.	Top of the Manager office room, RK-5 Inc(CA1)	04.04.2023	198	54.6	14.4	21
		24.04.2023	220	57.1	12.4	17.8
		05.05.2023	215	56.4	13.7	21.6
		22.05.2023	225	58.6	14.1	19.8
		05.06.2023	230	58.4	15.2	20.7
		22.06.2023	181	52.1	13.1	21.1
		07.07.2023	71	26.8	7.8	14.2
		22.07.2023	150	45.3	13.9	16.9
		07.08.2023	156	43.6	10.6	16.8
		22.08.2023	168	56.3	11.4	19.5
		07.09.2023	135	45.6	8.6	16.4
		22.09.2023	124	45.2	8.5	16.4
		09.10.2023	151	47.3	11.6	17.2
		21.10.2023	144	52.6	12.7	18.3
		06.11.2023	194	50.6	13.6	18.4
		20.11.2023	191	51.2	9.6	15.4
		06.12.2023	157	50.6	10.3	14.1
		22.12.2023	170	54.4	11.8	15.6
		06.01.2024	149	60.4	11.4	14.8
		22.01.2024	155	61.6	10.1	15.7
		08.02.2024	172	57.4	11.7	14.2
		22.02.2024	139	54.6	13.5	17.4
		07.03.2024	142	49.2	9.8	14.1
		22.03.2024	142	48.9	10.1	14.6
	Minimum		**71.0**	**26.8**	**7.8**	**14.1**
	Maximum		**230.0**	**61.6**	**15.2**	**21.6**
	Average		**165.8**	**51.6**	**11.7**	**17.2**
	98% Percentile		**227.7**	**61.0**	**14.8**	**21.4**
Coal mine standards, GSR 742(E), dtd.25.09.2000			**250**	**--**	**120**	**120**

❖ Location of the Ambient Air
Quality monitoring Station : Top of the Residential house, MudiguntaVillage

Sl. No	Station Name	Date of Sampling	Parameters (µg/Cu.Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Mudigunta Village(BA1)	04.04.2023	76	41.7	14.1	19.1
		24.04.2023	73	38.8	11.2	14.6
		05.05.2023	68	36.2	9.2	13.8
		22.05.2023	77	45.8	12.1	16.7
		05.06.2023	70	37.4	10.7	14
		22.06.2023	82	35.8	8.4	14.6
		07.07.2023	35	16.1	7.7	12.1
		22.07.2023	65	29.2	8.1	12.9
		07.08.2023	81	32.1	8.4	14.1
		22.08.2023	86	42.5	8.4	13.4
		07.09.2023	68	30.5	10.6	16.1
		22.09.2023	62	32.1	9.6	14.3
		09.10.2023	74	32.1	11.2	18.3
		21.10.2023	68	30.1	9.6	15.2
		06.11.2023	81	36.4	9.4	14.3
		20.11.2023	61	23.4	9.6	16.4
		06.12.2023	72	37.1	8.5	12
		22.12.2023	84	46.4	9.7	15.6
		06.01.2024	69	37.4	9.3	11.7
		22.01.2024	75	38.4	8.7	11.9
		08.02.2024	70	36.6	9.5	12.6
		22.02.2024	77	39.4	8.9	12.9
		07.03.2024	82	43.6	8.3	13.1
		22.03.2024	55	38.2	8.6	13.3
	Minimum		**35.0**	**16.1**	**7.7**	**11.7**
	Maximum		**86.0**	**46.4**	**14.1**	**19.1**
	Average		**71.3**	**35.7**	**9.6**	**14.3**
	98% Percentile		**85.1**	**46.1**	**13.2**	**18.7**
NAAQ Standards, CPCB dtd.18.11.2009			**100**	**60**	**80**	**80**

❖ Location of the Ambient Air
Quality monitoring Station : Top of the Residential house, Krishna Colony.

Sl. No.	Station Name	Date of Sampling	Parameters (µg/ Cu. Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
3.	Krishna Colony(BA2)	04.04.2023	80	42.1	13.1	18.4
		24.04.2023	78	45.1	12	16.4
		05.05.2023	72	43.9	11.5	15.9
		22.05.2023	80	47.2	14.2	17.9
		05.06.2023	76	40.2	11.5	15.9
		22.06.2023	91	41.2	9.6	15.7
		07.07.2023	39	18.7	8.2	13.1
		22.07.2023	57	25.1	7.8	16
		07.08.2023	74	39.5	9.6	15.6
		22.08.2023	79	39.5	9.2	14.6
		07.09.2023	76	35.1	11.1	18.4
		22.09.2023	74	35.6	10.1	15.8
		09.10.2023	63	28.4	10.6	17.2
		21.10.2023	54	24.3	7.2	13.4
		06.11.2023	76	32.7	10.1	16.7
		20.11.2023	58	21	11.4	17.3
		06.12.2023	69	38.2	9.2	13.3
		22.12.2023	73	38.9	8.5	12.9
		06.01.2024	52	30.1	10.5	14.4
		22.01.2024	59	33.4	8.3	11.6
		08.02.2024	84	41.4	8.8	11.5
		22.02.2024	66	35.8	9.2	12.7
		07.03.2024	69	38.8	9	13.7
		22.03.2024	72	39.7	8.3	13
	Minimum		**39.00**	**18.70**	**7.20**	**11.50**
	Maximum		**91.00**	**47.20**	**14.20**	**18.40**
	Average		**69.63**	**35.66**	**9.96**	**15.06**
	98% tile		**87.78**	**46.23**	**13.69**	**18.40**
	NAAQ Standards, CPCB dtd.18.11.2009		**100**	**60**	**80**	**80**

❖ Location of the Ambient Air Quality monitoring Station : Top of the Residential House, Kankur village

Sl. No.	Station Name	Date of Sampling	Parameters (µg/Cu. Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
4.	Kankur Village(BA3)	04.04.2023	73	39.2	12.9	17.8
		24.04.2023	75	40.2	13.7	18.9
		05.05.2023	79	37.8	10.1	14.7
		22.05.2023	82	44.9	11.7	15.6
		05.06.2023	71	38.1	9.6	13.5
		22.06.2023	80	36.2	11.8	18.4
		07.07.2023	32	18.1	8.6	14.2
		22.07.2023	63	30.1	10.3	16.4
		07.08.2023	62	30.1	7.6	13.7
		22.08.2023	81	41.7	10.6	16.7
		07.09.2023	63	25.4	9.4	15.2
		22.09.2023	68	30.1	7.6	13.4
		09.10.2023	68	29.1	9.4	15.4
		21.10.2023	71	32.8	8.4	14.1
		06.11.2023	69	31.9	9.5	17.1
		20.11.2023	67	26.8	12.5	18.1
		06.12.2023	84	45.4	8.8	12.7
		22.12.2023	69	39.5	9.1	13.3
		06.01.2024	55	29.2	8.1	14.4
		22.01.2024	65	36.4	9.2	13.6
		08.02.2024	82	43.8	8.1	12.2
		22.02.2024	71	38.6	10.4	13.5
		07.03.2024	59	33.9	8.3	12
		22.03.2024	79	41.5	9.8	13.1
	Minimum		**32.00**	**18.10**	**7.60**	**12.00**
	Maximum		**84.00**	**45.40**	**13.70**	**18.90**
	Average		**69.50**	**35.03**	**9.81**	**14.92**
	98% tile		**83.08**	**45.17**	**13.33**	**18.67**
	NAAQ Standards, CPCB dtd.18.11.2009		**100**	**60**	**80**	**80**

❖ Location of the Ambient Air
Quality monitoring Station : Top of the Residential House, Srirampur Colony

Sl. No.	Station Name	Date of Sampling	Parameters (µg/Cu. Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
5.	Srirampur Colony(BA4)	06.04.2023	83	47.1	10.8	15.4
		26.04.2023	81	43.1	9.4	17.4
		08.05.2023	76	41.8	12.1	16.4
		24.05.2023	84	48.5	12..6	18.1
		07.06.2023	80	43.7	11.7	17.4
		24.06.2023	76	32.8	10.4	16.9
		10.07.2023	52	20.4	10	16.2
		25.07.2023	46	20.1	9.1	15.4
		09.08.2023	89	42.3	8.7	15.1
		24.08.2023	85	46.9	12.7	19.2
		09.09.2023	81	39.5	12.3	18.5
		24.09.2023	81	41.3	9.4	16.7
		11.10.2023	86	41.7	11.7	17.3
		25.10.2023	82	38.4	10.3	16.7
		08.11.2023	73	34.7	10.1	18.2
		22.11.2023	81	40.1	9.8	16.7
		08.12.2023	59	34.9	8.5	12.7
		25.12.2023	84	43.7	11.5	15.9
		09.01.2024	61	34.5	7.7	14.1
		24.01.2024	64	35.2	8.8	13.2
		10.02.2024	60	33.5	7.7	12.8
		24.02.2024	68	36.5	8.2	12.6
		09.03.2024	62	34.5	8.7	13.9
		26.03.2024	85	45.6	10.1	14
	Minimum		**46.00**	**20.10**	**7.70**	**12.60**
	Maximum		**89.00**	**48.50**	**12.70**	**19.20**
	Average		**74.13**	**38.37**	**9.99**	**15.87**
	98% tile		**87.62**	**47.86**	**12.52**	**18.88**
	NAAQ Standards, CPCB dtd.18.11.2009		**100**	**60**	**80**	**80**

I. POST PROJECT WATER QUALITY MONITORING DATA FOR THE PERIOD FROM APRIL, 2023 TO MARCH, 2024 FOR RK-5 INCLINE.

❖ Location of the water
Quality monitoring Station : RK-5 incline mine discharge (filter bed outlet)

Sl. No.	Station name	Date of sampling	Concentration in mg/Liter (Except pH)					
			pH (at 25^0 C)	TSS At 105^0 C	TDS (At 180^0 C)	COD	BOD	Oil & Grease
1.	RK-5 Incline Mine discharge (EW1)	15.04.2023	7.6	14	688	20	1.7	<1
		29.04.2023	7.9	18	710	12	2.2	<1
		15.05.2023	7.8	15	821	19	2.1	<1
		31.05.2023	7.5	21	942	12	2	1
		15.06.2023	7.7	19	786	16	1.9	<1
		30.06.2023	7.3	28	891	15	1.9	<1
		15.07.2023	8.2	31	762	23	2	<1
		31.07.2023	7.7	16	810	12	2.6	<1
		14.08.2023	7.9	37	778	16	3.2	<1
		31.08.2023	7.5	27	956	27	4.1	<1
		15.09.2023	8.1	19	684	19	2.2	1
		29.09.2023	7.6	23	719	24	3.1	<1
		13.10.2023	7.4	35	842	12	2.8	<1
		31.10.2023	7.6	27	658	20	3.4	<1
		15.11.2023	7.2	18	743	16	2.8	<1
		30.11.2023	7.9	24	811	23	3.1	<1
		15.12..2023	7.7	32	694	28	4.2	1
		30.12.2023	7.4	20	797	31	4.2	<1
		13.01.2024	7.8	28	871	12	2.8	<1
		31.01.2024	7.6	17	725	19	3.2	<1
		15.02.2024	7.7	24	936	24	4.1	<1
		29.02.2024	7.2	21	682	27	3.1	<1
		15.03.2024	7.5	30	715	23	2.2	<1
		30.03.2024	7.2	18	877	19	3.6	<1
	Minimum		**7.20**	**14.00**	**658.00**	**12.00**	**1.70**	**1.00**
	Maximum		**8.20**	**37.00**	**956.00**	**31.00**	**4.20**	**1.00**
	Average		**7.63**	**23.42**	**787.42**	**19.54**	**2.85**	**1.00**
	98% tile		**8.15**	**36.08**	**949.56**	**29.62**	**4.20**	**1.00**
MoEF GSR 742(E) and GSR 801(E) Effluent standards for coal mines			**6.5-8.5**	**100**	**2100**	**250**	**100**	**10**
Test Method			**4500H$^+$B**	**2540-D**	**2540-C**	**5220-D**	**IS 3025**	**2540-C**

❖ Location of the water
Quality monitoring Station : Naspur Colony sewage (STP out let).

Sl. No.	Station name	Date of sampling	Concentration in mg/Liter (Except pH)					
			pH (at 25^0 C)	TSS At 105^0 C	TDS (At 180^0 C)	COD	BOD	Oil & Grease
2.	Naspur colony sewage (STP Out let).	15.04.2023	7.8	22	947	56	11.3	1
		29.04.2023	7.7	29	1044	31	10.2	<1
		15.05.2023	7.5	19	998	23	8.1	1.6
		31.05.2023	7.9	27	829	19	5.2	<1
		15.06.2023	7.6	35	685	27	8.8	1
		30.06.2023	7.4	45	655	50	4.3	<1
		15.07.2023	7.8	61	997	38	7.1	<1
		31.07.2023	7.4	59	1015	56	13.3	1
		14.08.2023	7.9	49	895	52	14.2	<1
		31.08.2023	7.2	67	818	47	10.2	<1
		15.09.2023	7.7	58	756	39	11.2	<1
		29.09.2023	7.9	46	910	44	12.4	1
		13.10.2023	7.5	52	896	35	7.2	<1
		31.10.2023	7.9	45	958	56	8.3	<1
		15.11.2023	7.6	39	825	40	9.2	<1
		30.11.2023	7.8	58	987	51	13.2	<1
		15.12.2023	7.3	49	863	48	12.2	<1
		30.12.2023	7.7	41	799	31	11.4	<1
		13.01.2024	7.5	45	1095	52	14.4	<1
		31.01.2024	7.8	63	964	49	10.2	1.4
		15.02.2024	7.5	53	829	44	13.2	<1
		29.02.2024	7.9	79	1196	67	14.2	2
		15.03.2024	7.8	56	997	47	10.6	<1
		30.03.2024	7.3	67	893	43	2.4	<1
	Minimum		**7.20**	**19.00**	**655.00**	**19.00**	**2.40**	**1.00**
	Maximum		**7.90**	**79.00**	**1196.00**	**67.00**	**14.40**	**2.00**
	Average		**7.64**	**48.50**	**910.46**	**43.54**	**10.12**	**1.29**
	98% tile		**7.90**	**73.48**	**1149.54**	**61.94**	**14.31**	**1.95**
MoEF GSR 742(E) and GSR 801(E) Effluent standards for coal mines			**6.5-8.5**	**100**	**2100**	**250**	**100**	**10**
Test Method			**4500H$^+$B**	**2540-D**	**2540-C**	**5220-D**	**IS 3025**	**2540-C**

❖ Location of the water
Quality monitoring Station : Area Workshop Effluent (Grease outlet)

Sl. No.	Station name	Date of sampling	Concentration in mg/Liter (Except pH)					
			pH (at 25^0 C)	TSS At 105^0 C	TDS (At 180^0 C)	COD	BOD	Oil & Grease
3.	Area Workshop Effluent (Grease trap out let)	15.04.2023	7.3	69	992	44	12.3	3.4
		29.04.2023	7.9	54	981	48	8.4	3.2
		15.05.2023	8	37	869	59	17.2	2
		31.05.2023	7.6	65	1021	43	9.1	1.8
		15.06.2023	7.3	29	1172	51	15.8	1.4
		30.06.2023	7.1	67	1268	31	10.8	4
		15.07.2023	7.5	81	1033	55	11.1	2.8
		31.07.2023	8.1	79	1148	60	10.3	2.4
		14.08.2023	7.7	88	1212	52	14.2	3.2
		31.08.2023	8.1	63	981	47	9.2	3.6
		15.09.2023	7.3	71	1025	39	12.6	3
		29.09.2023	7.5	59	964	52	13.3	4.2
		13.10.2023	7.7	67	1124	59	11.6	4.8
		31.10.2023	8.1	49	1097	44	10.4	2.8
		15.11.2023	7.8	61	1192	56	8.6	4.6
		30.11.2023	7.4	53	1014	51	12.8	3.8
		15.12.2023	7.7	68	995	40	10.6	4.2
		30.12.2023	7.5	39	1136	47	11.2	5
		13.01.2024	7.8	67	1212	56	15.2	4.8
		31.01.2024	7.6	72	1098	67	14.4	5.6
		15.02.2024	7.9	88	1085	52	10.2	4.2
		29.02.2024	7.9	79	1196	67	14.2	2
		15.03.2024	7.6	62	1044	59	12.8	<1
		30.03.2024	7.2	57	966	47	22.4	2.2
	Minimum		**6.90**	**14.00**	**586.00**	**11.00**	**1.50**	**1.00**
	Maximum		**8.20**	**98.00**	**1960.00**	**119.00**	**28.40**	**5.80**
	Average		**7.63**	**45.69**	**1037.60**	**40.81**	**9.21**	**2.20**
	98% tile		**8.20**	**96.57**	**1827.38**	**95.57**	**27.60**	**5.53**
MoEF GSR 742(E) and GSR 801(E) Effluent standards for coal mines			**6.5-8.5**	**100**	**2100**	**250**	**100**	**10**
Test Method			**4500H$^+$B**	**2540-D**	**2540-C**	**5220-D**	**IS 3025**	**2540-C**

Surface Water Sampling Locations

Sl. No.	Sampling code	Date of Sampling		Sampling Location	Latitude	Longitude
		1st Quarter	2nd Quarter			
1	SW-1	28.04.2023	02.08.2023	Godavari River Upstream (near Sitharampalli)	N 18˚ 49’ 33.5”	E 79˚ 28’ 21.5”
2	SW-2	28.04.2023	02.08.2023	Godavari River Downstream (Shettipalli)	N 18˚ 53’ 41.8”	E 79˚ 40’ 32.6”

Groundwater Sampling Locations

Sl. No.	Sampling code	Date of Sampling		Sampling Location	Latitude	Longitude
		1st Quarter	2nd Quarter			
1	GW-1	28.04.2023	02.08.2023	Kankur Village	N 18˚ 53’ 11.4”	E 79˚ 32’ 44.4”
2	GW-2	28.04.2023	02.08.2023	Mudigunta Village	N 18˚ 53’ 08.3”	E 79˚ 32’ 46.3”

Physico-Chemical and Bacteriological Characteristics of Surface Water

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

S.No	Parameters	Unit	Test Method	CPCB Water Quality Criteria					RESULT			
									SW-1 Godavari River Upstream		SW-2 Godavari River Downstream	
				Class A	Class B	Class C	Class D	Class E	1st Quarter	2nd Quarter	1st Quarter	2nd 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	8.0	8.1	8.0	8.2
2	Electrical Conductivity	µmhos/cm	2510-B	-	-	-	-	2250 µmhos/cm	1455	379	1070	348
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	-	6.9	5.9	6.6	5.2
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	-	-	1.6	2.2	2.2	2.4
5	Total Coliforms	MPN/100mL	9221B	50 or less	500 or less	5000 or less	-	-	94	110	140	110
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	0.16	0.08	0.28	0.21
8	SAR	-	-	-	-	-	-	Less than 26	1.14	0.92	1.12	0.72

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

S. No	Parameters	Unit	Test Method	SW-1 Godavari River Upstream		SW-2 Godavari River Downstream	
				1st Quarter	2nd Quarter	1st Quarter	2nd 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	ºC	2550. B	25.1	25.2	25.0	25.3
4.	Turbidity	NTU	2130. B	0.26	2.5	0.44	7.3
5.	Total Dissolved Solids at 180º C	mg/L	2540.C	865	223	626	204
6.	Total Suspended Solids at 105º C	mg/L	2540. D	17	41	11	37
7.	Chemical Oxygen Demand	mg/L	5220. D	4	16	8	20
8.	Chlorides as Cl^-	mg/L	4500-Cl^-.B	260	31	197	29
9.	Sulphates as SO_4^{2-}	mg/L	4500-SO_4^{2-}.E	106	32	86	30
10.	Fluoride as F^-	mg/L	4500-F^-.C	0.52	0.45	0.41	0.38
11.	Calcium as Ca	mg/L	3500-Ca.B	84	26	80	28
12.	Magnesium as Mg	mg/L	3500-Mg.B	51	21	47	22
13.	Sodium as Na	mg/L	3500-Na.B	167	26	97	21
14.	Potassium as K	mg/L	3500-K.B	33.7	1.2	11.8	2.4
15.	Nitrites as NO_2	mg/L	4500-NO_2^-.B	BDL	0.09	BDL	0.11
16.	Nitrates as NO_3	mg/L	4500-NO_3^-.B	43	4.24	10.3	4.22
17.	Total Phosphates	mg/L	4500-P-D	BDL	0.02	BDL	BDL
18.	Ammonical Nitrogen as NH_3-N	mg/L	4500-NH_3 –C	BDL	BDL	BDL	BDL
19.	Phenolic compounds as C_6H_5OH	mg/L	5530-D	BDL	BDL	BDL	BDL

S. No	Parameters	Unit	Test Method	SW-1 Godavari River Upstream		SW-2 Godavari River Downstream	
				1st Quarter	2nd Quarter	1st Quarter	2nd Quarter
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	180	120	135	95
23.	Fecal Coliforms	MPN/100mL	9221 E	11	4.5	17	4.5
24.	Zinc as Zn	mg/L	3120. B	0.11	0.19	0.10	0.29
25.	Iron as Fe	mg/L	3120. B	0.58	0.61	0.35	0.58
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

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-1 Kankur Village		GW-2 Mudigunta Village	
						1st Quarter	2nd Quarter	1st Quarter	2nd 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	7.3	7.4	7.4
4.	Taste	FTN	2160. B	Agreeable	Agreeable	Agree.	Agree.	Agree.	Agree.
5.	Turbidity	NTU	2130. B	1	5	0.35	0.61	0.42	0.59
6.	Total Dissolved Solids at 180^{o}C	mg/L	2540.C	500	2000	535	712	652	761

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-1 Kankur Village		GW-2 Mudigunta Village	
						1st Quarter	2nd Quarter	1st Quarter	2nd Quarter
1.	Calcium as Ca	mg/L	3500-Ca.B	75	200	53	99	54	97
2.	Magnesium as Mg	mg/L	3500-Mg.B	30	100	50	66	52	57
3.	Chlorides as Cl-	mg/L	4500-Cl-.B	250	1000	62	167	124	169
4.	Sulphates as SO42-	mg/L	4500-SO42- .E	200	400	78	51	88	88
5.	Fluoride as F-	mg/L	4500-F-.C	1.0	1.5	0.75	0.77	0.79	0.68
6.	Nitrates as NO3	mg/L	4500-NO3-.B	45	No relaxation	43	45	37	44
7.	Total Alkalinity as CaCO3	mg/L	2320. B	200	600	325	310	310	300
8.	Total Hardness as CaCO3	mg/L	2340. C	200	600	344	520	354	477
9.	Sulphide as H_2S	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:13428:2005 K	0.2	1.0	<0.2	<0.2	<0.2	<0.2
15.	Aluminium as Al	mg/L	3120-B	0.03	0.2	BDL	0.06	0.08	BDL
16.	Barium as Ba	mg/L	3120. B	0.7	No relaxation	0.28	00.18	0.17	0.24

17.	Boron as B	mg/L	3120-B	0.5	2.4	0.07	0.12	BDL	0.09
18.	Iron as Fe	mg/L	3120-B	1.0	No relaxation	0.60	0.38	0.55	0.28
19.	Zinc as Zn	mg/L	3120-B	5	15	0.17	BDL	0.25	BDL
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-1 Kankur Village		GW-2 Mudigunta Village	
						1st Quarter	2nd Quarter	1st Quarter	2nd 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, Carboryl (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,	µg/L	6440.C	--	--	ND	ND	ND	ND

	Fluorene, Indeno (1,2,3-(d) Pyrene, Naphthalene, Phenanthrene, Pyrene, Methyl Naphthalene								

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-1 Kankur Village		GW-2 Mudigunta Village	
						1st Quarter	2nd Quarter	1st Quarter	2nd 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

Surface Water Sampling Locations

Sl. No.	Sampling code	Date of sampling		Sampling Location	Latitude	Longitude
		1st Quarter	2nd Quarter			
1.	SW-1	07.11.2023	28.12.2023	Godavari River Upstream (near Sitharampalli)	N 18° 49' 33.5"	E 79° 28' 21.5"
2.	SW-2	07.11.2023	28.12.2023	Godavari River Downstream (Shettipalli)	N 18° 53' 41.8"	E 79° 40' 32.6"

Groundwater Sampling Locations

Sl. No.	Sampling code	Date of sampling		Sampling Location	Latitude	Longitude
		1st Quarter	2nd Quarter			
1.	GW-1	07.11.2023	28.12.2023	Kankur Village	N 18° 53' 11.4"	E 79° 32' 44.4"
2.	GW-2	07.11.2023	28.12.2023	Mudigunta Village	N 18° 53' 08.3"	E 79° 32' 46.3"

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-1 Godavari River Upstream		SW-2 Godavari River Downstream	
									1st Quarter	2nd Quarter	1st Quarter	2nd 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	8.5	8.1	8.1	8.4
2	Electrical Conductivity	µmhos /cm	2510-B	-	-	-	-	2250 µmhos/cm	652	870	445	495
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	-	5.8	5.1	5.6	5.3
4	Bio chemical	mg/L	IS: 3025	2 mg/l	3 mg/l	3 mg/l	-	-	2.8	3.0	2.8	2.8

	Oxygen Demand (3 days 27^{o} C)			or less	or less	or less						
5	Total Coliforms	MPN/ 100mL	9221 B	50 or less	500 or less	5000 or less	-	-	240	240	220	170
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	0.06	BDL	0.11	0.08
8	SAR	-	-	-	-	-	-	Less than 26	1.44	1.31	1.17	1.34

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

S. No	**Parameters**	**Unit**	**Test Method**	**SW-1** Godavari River Upstream		**SW-2** Godavari River Downstream	
				1st Quarter	2nd Quarter	1st Quarter	2nd 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	ºC	2550. B	25.4	25.2	25.3	25.2
4	Turbidity	NTU	2130. B	2.64	10.3	3.11	1.74
5	Total Dissolved Solids at 180^{o} C	mg/L	2540.C	380	512	262	290
6	Total Suspended Solids at 105^{o} C	mg/L	2540. D	14	10	10	8
7	Chemical Oxygen Demand	mg/L	5220. D	8	16	12	16
8	Calcium as Ca	mg/L	3500-Ca.B	42	62	32	30
9	Magnesium as Mg	mg/L	3500-Mg.B	30	49	17	23
10	Sodium as Na	mg/L	3500-Na.B	50	57	33	40

S. No	Parameters	Unit	Test Method	SW-1 Godavari River Upstream		SW-2 Godavari River Downstream	
				1st Quarter	2nd Quarter	1st Quarter	2nd Quarter
11	Potassium as K	mg/L	3500-K.B	2.6	6.1	2.9	3.3
12	Chlorides as Cl^-	mg/L	4500-Cl^-.B	60	76	36	48
13	Sulphates as SO_4^{2-}	mg/L	4500-SO_4^{2-}.E	55	85	43	52
14	Fluoride as F^-	mg/L	4500-F^-.C	0.7	0.7	0.9	0.7
15	Nitrates as NO_3	mg/L	4500-NO_3^-.B	0.7	0.11	0.44	0.45
16	Nitrites as NO_2	mg/L	4500-NO_2^-.B	BDL	0.03	BDL	BDL
17	Total Phosphates	mg/L	4500-P-D	0.03	0.64	0.02	0.32
18	Ammonical Nitrogen as NH_3-N	mg/L	4500-NH_3-C	BDL	BDL	BDL	BDL
19	Phenolic compounds as C_6H_5OH	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	215	280	145	140
23	Fecal Coliforms	MPN/100mL	9221 E	13	13	11	14
24	Zinc as Zn	mg/L	3120. B	0.15	0.13	0.09	0.18
25	Iron as Fe	mg/L	3120. B	0.75	0.46	0.46	0.59
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

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

Organoleptic and Physical Parameters

Sl. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-1 Kankur Village		GW-2 Mudigunta Village	
						1st Quarter	2nd Quarter	1st Quarter	2nd Quarter
1.	Colour	Haze n	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	8.4	7.4	8.2	7.5
4.	Taste	FTN	2160. B	Agreeable	Agreeable	Agree.	Agree.	Agree.	Agree.
5.	Turbidity	NTU	2130. B	1	5	0.4	0.16	0.6	0.72
6.	Total Dissolved Solids at 180° C	mg/L	2540.C	500	2000	286	564	289	592

General Parameters Concerning Substances Undesirable in Excessive Amounts

Sl. No.	Psarameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in absence of alternate source	RESULT			
						GW-1 Kankur Village		GW-2 Mudigunta Village	
						1st Quarter	2nd Quarter	1st Quarter	2nd Quarter
1.	Calcium as Ca	mg/L	3500-Ca.B	75	200	30	58	32	50
2.	Magnesium as Mg	mg/L	3500-Mg.B	30	100	25	42	28	35
3.	Chlorides as Cl-	mg/L	4500-Cl-.B	250	1000	38	97	40	81
4.	Sulphates as SO42-	mg/L	4500-SO42- .E	200	400	48	69	46	75
5.	Fluoride as F-	mg/L	4500-F-.C	1.0	1.5	0.7	0.6	0.8	1.1
6.	Nitrates as NO3	mg/L	4500-NO3-.B	45	No relaxation	1.1	38	0.77	27
7.	Total Alkalinity as CaCO3	mg/L	2320. B	200	600	165	290	160	315
8.	Total Hardness as CaCO3	mg/L	2340. C	200	600	178	318	195	269
9.	Sulphide as H_2S	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	BDL	BDL	0.08	0.07
16.	Barium as Ba	mg/L	3120. B	0.7	No relaxation	0.21	0.17	0.16	0.14
17.	Boron as B	mg/L	3120-B	0.5	2.4	BDL	0.21	0.05	0.09
18.	Iron as Fe	mg/L	3120-B	1.0	No relaxation	0.85	0.44	0.6	0.38

19.	Zinc as Zn	mg/L	3120-B	5	15	BDL	BDL	BDL	BDL
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

Sl. No.	**Parameters**	**Unit**	**Test Method**	**IS: 10500 Requirement (Acceptable Limit)**	**IS: 10500 Permissible Limit in absence of alternate source**	**RESULT**			
						GW-1 Kankur Village		**GW-2** Mudigunta Village	
						1st Quarter	2nd Quarter	1st Quarter	2nd 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, Carboryl (Carbonate) Malathion Methyl Parathion Anilophos, Chloropyriphos	Qualitative Analysis	6630. D	Absent	0.001	ND	ND	ND	ND
10.	**Polyaromatic Hydrocarbons (PAH's):** Acenaphthene,	µg/L	6440.C	--	--	ND	ND	ND	ND

	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								

Bacteriological Quality of Drinking water

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

ANNEXURE- III

NOISE LEVEL MONITORING DATA FOR THE PERIOD FROM APRIL, 2023 TO MARCH, 2024 AROUND RK-5 INCLINE

Fortnight	RK-5 Incline			Mudigunta village			Kankur village		
	Date	L_{day}	L_{night}	Date	L_{day}	L_{night}	Date	L_{day}	L_{night}
Apr-I	05.04.2023	67.1	55.7	05.04.2023	42.4	33.8	05.04.2023	47.8	33.4
Apr-II	25.04.2023	66.7	54.8	25.04.2023	41.7	34.5	25.04.2023	44.6	36.1
May-I	08.05.2023	64.2	58.1	08.05.2023	39.8	33.1	08.05.2023	43.1	35.4
May-II	23.05.2023	68.1	57	23.05.2023	43.1	36.9	23.05.2023	41.9	34.4
Jun-I	07.06.2023	63.1	58.2	07.06.2023	39.2	34.6	07.06.2023	42.6	37.4
Jun-II	23.06.2023	65.8	53.6	23.06.2023	43.6	36.2	23.06.2023	45.6	39.5
Jul-I	08.07.2023	68.3	61.3	08.07.2023	46.9	39.2	08.07.2023	50.3	39.5
Jul-II	24.07.2023	69.5	60.4	24.07.2023	42.6	31.3	24.07.2023	46.9	38.5
Aug-I	08.08.2023	65.8	53.1	08.08.2023	49.8	40.1	08.08.2023	50.1	39.5
Aug-II	23.08.2023	68.2	56.8	23.08.2023	48.2	38.1	23.08.2023	45.1	32.1
Sep-I	08.09.2023	62.3	51.1	09.09.2023	39.5	32	09.09.2023	41.2	32.1
Sep-II	23.09.2023	65.8	57.1	23.09.2023	43.1	35.7	23.09.2023	47.1	40.2
Oct –I	10.10.2023	68.2	57.2	10.10.2023	42.5	36.7	10.10.2023	48.2	36.4
Oct -II	24.10.2023	65.2	56.4	24.10.2023	50.1	37.1	24.10.2023	46.8	35.1
Nov –I	07.11.2023	63.4	51.6	07.11.2023	43.1	36.4	07.11.2023	47.6	40.3
Nov-II	21.11.2023	68.4	60.4	21.11.2023	42.5	31.2	21.11.2023	48.2	30.5
Dec –I	07.12.2023	69.1	51	07.12.2023	50.6	37.8	07.12.2023	48.4	38.1
Dec-II	23.12.2023	58.7	48.5	23.12.2023	43	35.9	23.12.2023	41.1	36.2
Jan–I	07.01.2024	55.6	45.4	08.01.2024	42.5	34.2	08.01.2024	41.5	28.4
Jan –II	22.01.2024	52.9	47.1	23.01.2024	40.2	38.8	23.01.2024	41.9	33.2
Feb-I	08.02.2024	52.7	40.5	09.02.2024	43.9	36.9	09.02.2024	38.8	25.7
Feb-II	22.02.2024	50.8	42.8	23.02.2024	40.8	34.4	23.02.2024	44.5	36.5
Mar-I	07.03.2024	54.4	45.5	08.03.2024	48.5	32.8	08.03.2024	31.6	29.2
Mar-II	22.03.2024	45.4	36.2	23.03.2024	44.2	37.6	23.03.2024	49.2	39.3
	AVERAGE	**62.49**	**52.49**		**43.83**	**35.64**		**44.75**	**35.29**
Limits		**75**	**70**		**75**	**70**		**55**	**45**

ANNEXURE-IV

ATTITUDE OF PHREATIC SURFACE IN SRIRAMPUR AREA

Well No.	Name of the Village	Location	Owner's name	Type of well	Total depth(m)	MP (m)	Dia (m)	Depth to water (m)		
									2023	2024
1	Arunakka Nagar	Near GM Office,18°51'18.38" N, 79°30'40.68"E	N.Lingaiah	DW	9.40	1.00	1.00	Winter	3.84	4.38
								Pre monsoon	5.27	5.20
								Monsoon	1.64	
								Post monsoon	2.49	
2	RK6 Colony	Near Shiva temple, 18°52'15.84" N, 79°30'14.37"E	Q.No.SA-13	DW	10.00	1.20	1.20	Winter	1.74	2.52
								Pre monsoon	3.53	3.70
								monsoon	0.81	
								Post monsoon	1.53	
3	RK6 Colony	Kurmawada, 18°52'13.25" N, 79°30'2.96"E	Karre Posham	DW	6.50	1.00	1.00	Winter	2.96	1.87
								Pre monsoon	1.90	2.18
								Monsoon	1.28	
								Post monsoon	1.63	
5	S.R.Puram	Naspur X Road,18°51'22.27" N, 79°28'51.28"E	Aasami Rajamallamma	DW	13.50	1.20	1.20	Winter	6.18	6.24
								Pre monsoon	7.82	7.85
								Monsoon	4.29	
								Post monsoon	4.68	
6	Setharampalli	OnthewaytoIntakewell, 18°50'31.72" N, 79°28'34.46"E	Surimella Lachanna	DW	8.50	1.00	1.00	Winter	2.92	3.76
								Pre monsoon	4.47	5.80
								Monsoon	2.23	
								Post monsoon	2.87	
								Winter	10.31	10.55

Well No.	Name of the Village	Location	Owner's name	Type of well	Total depth(m)	MP (m)	Dia (m)	Depth to water (m)		
									2023	2024
7	Setharampalli	On the way toTallapalli, 18°50'37.91" N, 79°29'0.81"E	M. Gopaiah	DW	15.00	1.20	1.20	Pre monsoon	13.30	13.00
								Monsoon	5.00	
								Post monsoon	7.25	
8	Tallapalli	Roadside,18°49'55.62" N, 79°29'28.15"E	Rukum Ramaiah	DW	9.10	3.00	3.00	Winter	2.08	2.96
								Pre monsoon	2.17	3.09
								Monsoon	2.03	
								Post monsoon	2.05	
9	Tallapalli	Towards OC,18°50'3.60"N, 79°29'34.41"E	B.Rajaiah	DW	10.50	1.20	1.20	Winter	5.97	6.80
								Pre monsoon	9.97	7.15
								Monsoon	4.40	
								Post monsoon	6.15	
10	Singapuram	Opp.Panchayat office, 18°49'26.43" N, 79°30'11.09"E	Nammala Srinivasu	DW	7.40	3.20	3.20	Winter	3.18	AB
								Pre monsoon	4.17	AB
								Monsoon	1.83	
								Post monsoon	2.54	
12	Ramaraopet	Near bridge, 18°49'17.80" N, 79°30'48.89"E	Gunta Chadraiah	DW	7.00	1.30	1.30	Winter	5.22	4.85
								Pre monsoon	5.67	5.60
								Monsoon	1.08	
								Post monsoon	3.53	
14	Indaram	Opp.Essar petrol bunk, 18°49'13.91" N, 79°31'39.44"E	A.Rajamallu	DW	11.50	3x4	3X4	Winter	6.17	5.60
								Pre monsoon	3.60	6.53
								Monsoon	3.44	
								Post monsoon	3.46	
18	Tekumatla	Along the road,18°48'48.52" N, 79°32'37.20"E	Ricemill (Kamalakar)	DW	11.50	1.60	1.60	Winter	9.74	8.50
								Pre monsoon	11.37	11.40
								Monsoon	7.68	
								Post monsoon	8.21	
19	Tekumatla	Along the road,18°48'40.20" N,	V.Ramireddy	DW	11.00	1.00	1.00	Winter	3.88	4.00
								Pre monsoon	5.07	4.70

Well No.	Name of the Village	Location	Owner's name	Type of well	Total depth(m)	MP (m)	Dia (m)	Depth to water (m)		
									2023	2024
		79°32'50.84"E						Monsoon	3.10	
								Post monsoon	3.19	
20	Indaram	On the way to Tekumatla, 18°49'11.71" N, 79°31'59.03"E	Govt.Well	DW	9.30	2.00	2.00	Winter	4.86	4.26
								Pre monsoon	7.37	7.30
								monsoon	3.73	
								Post monsoon	4.10	
21	Indaram	Side of HP petrol bunk, 18°49'39.46" N, 79°31'39.96"E	M.Uppalaiah	DW	8.00	1.20	1.20	Winter	6.33	6.19
								Pre monsoon	6.40	6.45
								Monsoon	2.01	
								Post monsoon	2.81	
22	Rasulpalli	Near busstop,18°50'33.40" N, 79°33'8.13"E	Madhukar	DW	8.00	1.00	1.00	winter	2.98	2.85
								Pre monsoon	3.05	3.00
								monsoon	1.48	
								Post monsoon	2.44	
23	Mudikunta	Near Village junction, 18°51'43.69" N, 79°33'18.11"E	G.Rajaiah	DW	11.40	1.20	1.00	Winter	5.08	6.20
								Pre monsoon	5.51	8.20
								Monsoon	2.70	
								Post monsoon	3.28	
25	Kankur	SC Colony,18°51'54.46" N, 79°33'14.21"E	Govt.well/ Reguntla Mallesh	DW	10.00	2.30	2.30	Winter	6.82	2.63
								Pre monsoon	2.85	3.00
								Monsoon	2.00	
								Post monsoon	2.47	
26	Jaipur	Near busstop,18°50'41.33" N, 79°34'43.27"E	Behind AE off.	DW	12.00	1.00	1.00	Winter	2.99	3.45
								Pre monsoon	3.80	3.96
								Monsoon	0.88	
								Post monsoon	1.21	
28	VenkataRaopalli	Opp.to Primary School, 18°52'5.81"N, 79°34'39.14"E	Private well	Ag.W	14.00	1.80	1.80	Winter	2.09	3.00
								Pre monsoon	3.12	4.15
								Monsoon	0.58	
								Post monsoon	2.04	

Well No.	Name of the Village	Location	Owner's name	Type of well	Total depth(m)	MP (m)	Dia (m)	Depth to water (m)		
									2023	2024
29	Mittapalli	Villagecenter,18°51'27.99" N, 79°33'42.81"E	Gaddam Suresh goud	DW	8.00	1.00	1.00	Winter	5.73	5.33
								Pre monsoon	4.39	4.44
								Monsoon	1.83	
								Post monsoon	4.10	
30	Elkanti	Villagecenter,18°48'4.46" N, 79°34'26.10"E	Jalampalli Poshamallu (GDK10A-Maz.)	DW	10.00	2.40	2.40	Winter	6.72	4.40
								Pre monsoon	9.70	8.20
								Monsoon	1.70	
								Post monsoon	2.73	
31	Ponnaram	Opp.toTSSWR School, 18°55'26.88" N, 79°32'31.76"E	Penchal Anjanna	DW	8.00	1.00	1.00	Winter	3.40	3.83
								Pre monsoon	4.67	4.71
								Monsoon	2.08	
								Post monsoon	3.11	
32	Gudipalli	Along the main road, 18°54'4.14"N, 79°32'25.41"E	Velpula Sampath	Ag.W	11.00	5.00	5.00	Winter	6.91	6.98
								Pre monsoon	7.67	7.71
								Monsoon	3.38	
								Post monsoon	5.73	
33	Gangipalli	Primary school road, 18°48'31.31" N, 79°35'4.60"E	Opp.NaredlaMallareddy /Pusala Rajeswari	DW	10.00	1.50	1.50	Winter	4.63	7.56
								Pre monsoon	Dry	5.28
								Monsoon	4.75	
								Post monsoon	4.88	
36	Shetpalli	Near Hanuman temple, 18°46'55.54" N, 79°34'28.86"E	Rangu Kittaiah	DW	8.00	2.00	2.00	Winter	6.87	3.75
								Pre monsoon	4.10	6.50
								monsoon	3.02	
								Post monsoon	3.21	
37	Jaipur	Opp.toPostoffice, 18°50'45.19" N, 79°35'10.70"E	Beeskula Mallaiah	DW	10.00	1.50	1.50	Winter	6.96	6.82
								Pre monsoon	7.02	7.72
								Monsoon	4.08	
								Post monsoon	4.49	
38	Jaipur	Hanmanwada,18°50'56.36" N,	Bhuneni Rajaiah,Near	DW	10.00	2.00	2.00	Winter	6.86	7.56
								Pre monsoon	8.30	8.35

Well No.	Name of the Village	Location	Owner's name	Type of well	Total depth(m)	MP (m)	Dia (m)	Depth to water (m)		
									2023	2024
		79°35'5.14"E	Gram panchayath					Monsoon	6.19	
								Post monsoon	6.28	
39	Narwa	Village entrance, 18°51'12.25" N, 79°33'49.75"E	Salluri Poshaiah/ SCCL Employee	DW	12.00	2.00	2.00	Winter	8.81	8.82
								Pre monsoon	10.50	10.69
								Monsoon	6.08	
								Post monsoon	7.75	
40	Gudipalli	Opp to SC Colony, 18°54'6.84"N, 79°32'12.90"E	Govt well/Open land	DW	10.00	3.00	3.00	Winter	6.54	6.50
								Pre monsoon	dry	8.10
								Monsoon	3.23	
								Post monsoon	5.18	
41	VenkataRaopal li	Villagecenter,18°52'6.46" N, 79°34'33.74"E	Kishtaiah	DW	12.00	5.00	5.00	Winter	6.28	7.50
								Pre monsoon	7.67	8.00
								Monsoon	3.39	
								Post monsoon	4.05	
42	Narsingapur	Near Hanuman temple, 18°47'17.08" N, 79°35'17.18"E	Dhanthula Prabhakar	DW	12.00	1.00	1.00	Winter	5.39	6.25
								Pre monsoon	8.28	8.28
								Monsoon	2.74	
								Post monsoon	3.45	
43	Bejjala	Village Centre, 18°46'11.73" N, 79°34'53.69"E	Thota Bapu, Adj.to Gram panchayath	DW	10.00	3.00	3.00	Winter	4.91	4.30
								Pre monsoon	5.93	6.12
								Monsoon	2.56	
								Post monsoon	3.78	
44	Kistapur	Near Hanuman temple, 18°44'53.49" N, 79°38'7.81"E	Dhanda Krishna Reddy	DW	8.00	1.00	1.00	Winter	4.10	4.64
								Pre monsoon	dry	5.00
								Monsoon	3.35	
								Post monsoon	3.90	
45	Maddulapalli	Villagecenter,18°47'2.53"N, 79°36'12.36"E	SandhanaveniBal aiah/ SCCL Employee	DW	9.00	2.00	2.00	Winter	5.99	3.74
								Pre monsoon	6.47	6.41
								Monsoon	0.88	

Well No.	Name of the Village	Location	Owner's name	Type of well	Total depth(m)	MP (m)	Dia (m)	Depth to water (m)		
									2023	2024
								Post monsoon	1.38	
46	Polampalli	Indirama colony, 18°50'25.66" N, 79°39'8.63"E	Dharshinala Madhukar	DW	7.50	1.00	1.00	Winter	4.64	3.54
								Pre monsoon	4.80	5.00
								Monsoon	1.80	
								Post monsoon	3.24	
47	Bhimaram	Along thehigh way, 18°50'51.85" N, 79°40'38.25"E	Minde Rayamallu	DW	11.00	3.60	3.60	Winter	4.18	WD
								Pre monsoon	WD	WD
								Monsoon	NA	
								Post monsoon	WD	
48	Bhimaram	Padmashali wada, 18°51'10.60" N, 79°40'18.97"E	Kokkula Ramulu	DW	9.00	1.16	1.15	Winter	2.08	2.00
								Pre monsoon	2.20	2.53
								Monsoon	1.18	
								Post monsoon	1.93	
49	Kothagudem	Adj.to Road,18°51'47.07" N, 79°40'31.14"E	OldNursaryArea	Ag.W	5.50	4.00	4.00	Winter	1.88	2.85
								Pre monsoon	2.41	3.32
								Monsoon	1.18	
								Post monsoon	1.99	
50	Kazipalli	Village Entrance,18°55'26.98" N, 79°38'44.18"E	KommuDeven der	DW	7.00	2.00	2.00	Winter	5.51	5.80
								Pre monsoon	6.27	6.32
								Monsoon	3.10	
								Post monsoon	4.84	
51	Dampur	Gollawada, 18°54'45.59" N, 79°37'52.25"E	KoriviThirupath i	DW	10.50	1.90	1.90	Winter	4.57	4.30
								Pre monsoon	6.47	4.60
								monsoon	2.64	
								Post monsoon	3.89	
52	Reddipalli	Village center,18°55'22.45" N, 79°37'12.10"E	KudenthaNela mma	DW	10.00	2.50	2.50	Winter	3.54	4.41
								Pre monsoon	3.97	4.60
								monsoon	2.64	
								Post monsoon	2.08	
53	Dharmaram	Village center,18°55'29.90" N, 79°36'52.94"E	SanthoshamSriram Reddy	DW	10.00	2.45	2.45	Winter	2.08	3.18
								Pre monsoon	3.22	4.03
								Monsoon	2.77	

Well No.	Name of the Village	Location	Owner's name	Type of well	Total depth(m)	MP (m)	Dia (m)	Depth to water (m)		
									2023	2024
								Post monsoon	1.80	
54	Theegalpahad	Opp.to Bharat petroleum bunk, 18°51'23.15" N, 79°29'24.72"E	Md.Rahman S/o Kaleel	DW	10.00	2.00	2.00	Winter	3.18	3.20
								Pre monsoon	4.37	5.60
								Monsoon	2.36	
								Post monsoon	3.11	
55	Mudikunta	Village center, 18°51'42.63" N, 79°33'16.24"E	Padala ShankaraiahS/o Gattaiah	DW	15.00	2.20	2.20	Winter	5.10	3.35
								Pre monsoon	11.07	10.50
								Monsoon	2.70	
								Post monsoon	3.65	
56	Mancherial	Opp.Sunnam battiwada, 18°51'47.99" N, 79°27'25.30"E	Pesara Rayalingu	DW	15.00	2.20	2.20	Winter	8.91	8.45
								Pre monsoon	8.45	8.60
								Monsoon	4.19	
								Post monsoon	6.80	

Note: MP: Measuring point ,WD: Well Damaged.

Well No.:4,11,13,15,16,17,24,27,34&35 were Abandoned.

.

ATTITUDE OF PIEZOMETRIC SURFACE AROUND SRIRAMPUR OC-II EXPANSION PROJECT

Piezometric well no.	Location	Depth (m)	Dia. (m)	Measuring point (m)	Depth to water (m)	
					Winter 2024	Pre monsoon 2024
SRP_OCP.I PW-5	About 500 m south of the quarry and 150m north of Indaram Tank (N18^{0}49'35.43" – E 79^{0}30'57.60")	208	0.10	0.30	2.74	4.53
SRP_OCP.II PW-7	Near Singapur village (N18^{0}49'46.47" – E 79^{0}30'25.52")	50	0.10	0.20	AB	AB
SRP_OCP.II PW-8	Near Project Office sub-station. About 125m from N side of quarry surface limit. (N18^{0}51'4.12" – E 79^{0}29'39.90")	50	0.10	0.40	22.98	23.80
SRP_OCP.II PW-10	Road to SRP bus stand, about 300m from N side of quarry surface limit (N18^{0}51'7.10" – E 79^{0}30'11.26")	50	0.1	0.50	15.90	17.07
*SRP_CSIRO PW-11	West side External dump area, Near to Thallapalli village. (N18^{0}49'54.731" – E 79^{0}29'11.085	50	0.1	0.2	NA	NA
*SRP_CSIRO PW-12	West side External dump area. Near to Thallapalli village (N18^{0}49'50.573" - E 79^{0}29'06.202")	50	0.1	0.2	2.00	2.65
*SRP_CSIRO PW-13	West side External dump area. Road to Godavari river (N18^{0}49'45.286" – E 79^{0}29'06.811")	50	0.1	0.2	3.25	4.22
*SRP_CSIRO PW-14	West side External dump area. Road to Godavari River (N18^{0}49'32.305" – E 79^{0}28'50.154")	50	0.1	0.2	4.55	6.48

Note: Piezometric well No.- SRP OCP-PW_1, 2, 3, 4 and 6,7 & 9 were abandoned.
WD: Well damaged, *NA: Not Approachable.

ATTITUDE Of PHREATIC SURFACE IN GODAVARI VALLEY COAL FIELD

Area: **Chennur**

Well No.	Name of the Village	Location	Owners Name	Type of well	Total depth (m)	MP (m)	Dia (m)	D T W (m)	
								Winter-2024	Pre monsoon-2024
5	Chennur	Srinagar Colony, 18°51'16.48" N, 79°46'56.91"E	Devaiah	DW	8.50	0.50	1.20	4.98	7.40
8	Chennur	Behind Theatre, 18°51'26.69" N, 79°47'19.96"E	Ashok Goud	DW	10.00	0.60	1.30	WD	WD
10	Shivalingapur (Chennurloca	18°51'39.30"N, 79°47'31.03"E	Ch. Rangaiah	DW	7.80	0.70	2.00	6.74	6.90
12	Chennur	ChennurG.P .Kothagudem, 18°51'33"N, 79°47'05"E	SunkariLingaiah	DW	10.00	G.L.	1.20	9.95	9.91
13	Chennur	Jendawada, 18°51'37.68" N, 79°47'49.81"E	Monitoring by TSGWD	DW	10.00	G.L.	1.20	2.44	3.50
14	Chennur	Villagecenter, 18°51'25.57" N, 79°48'4.09"E	Towards Godavari River road	DW	11.00	0.50	2.00	4.32	6.90
15	Kistampet	Opp. ZPHS School, 18°50'52.81" N, 79°45'14.11"E	BeraChiranjeevi	DW	7.00	0.55	3.60	3.73	4.10

16	Ellakkapet	TowardsLambadipalliroad,18°51' 24.53" N, 79°45'45.78"E	Opp.toCheruvu	Ag. W	10.00	GL	8.00	3.41	3.57
17*	Shivalingapur(village)	Entranceofthevillage, 18°52'55"N, 79°47'51"E	Govt.well/ C/o MekalaGattakka	DW	8.00	0.50	1.90	4.64	7.40
18	Buddaram	Endofthevillage, 18°54'51.82" N, 79°42'50.66"E	Near Nursery	Ag.W	9.50	0.40	2.70	8.82	9.00
19	Kotapalli	TowardsVemanapalli 18°57'20.76" N, 79°47'24.35"E	KashettiRamanna	DW	11.00	0.50	1.50	2.35	2.41

Note:-MP: Measuring point, Observation

well No.: From 1 to 4,6,7,9 &11 were Abandoned

*****Observation wellNo.17was shifted about 300m distance towards West.

Block / Mine : **IKOCP** Area: **Srirampur**

PiezometricWell No.	**Location**	**Depth(m)**	**Dia(m)**	**MP (m)**	**Depth to water(m)**	
					Winter-2024	**Pre Monsoon-2024**
IKOCP-PW1	On the way to PO office, adj. to coal transport road,Dip side of theproject.3057126.41,949693.45	250	0.10	1.35	15.00	16.56
IKOCP-PW2	Near Indaramvillage, On the way To PO office adj. to coal transport road, Dip side of the project.3056296.11,950728.54	250	0.10	1.35	28.14	30.16

ANNEXURE – V

MICRO-METEOROLOGICAL DATA OF SRIRAMPUR AREA FROM APRIL, 2023 TO MARCH, 2024.

Month	PredominantWinddirection	WindSpeed(m/s)			Temperature(ºC)			RelativeHumidity(%)			Rainfall(mm)	
		Mean	Max	Calm %	Mean	Max	Min	Mean	Max	Min	Total	HourlyHighest
April, 2023	SW	2.4	6.9	14.17	25.6	46.6	33.0	35.4	79.1	8.3	0.0	0.0
May, 2023	SW	1.8	6.1	29.97	35.0	47.8	20.9	23.7	73.0	8.2	63.5	22.3
June2023	NW	1.9	6.7	22.22	32.2	45.1	23.7	48.1	93.5	18.7	76.6	18.2
July, 2023	NW	2.1	6.0	8.33	28.6	44.3	20.2	67.1	99.5	16.4	615	52.8
August, 2023	N-NE	1.7	6.1	26.48	29.9	39.8	19.3	67.4	99.7	20.8	69.2	6.0
September, 2023	S	1.6	5.0	15.42	28.2	40.6	18.9	46.6	99.8	19.0	194.2	23.3
October, 2023	NW	1.4	5.1	9.41	27.7	39.8	23.3	44.4	70.1	12.1	0.0	0.0
November, 2023	SE	1.0	6.5	16.11	28.8	41.4	24.3	45.0	74.3	18.4	1.9	0.9
December, 2023	S	1.8	5.5	8.20	22.8	33.3	13.8	45.2	77.3	9.4	0.0	0.0
January, 2024	SW	1.8	4.4	11.40	24.2	33.7	16.1	43.1	75.2	42.5	0.0	0.0
February, 2024	SE	1.8	6.0	13.51	27.0	34.7	18.1	33.7	69.9	36.4	0.0	0.0
March, 2024	SE	1.7	5.0	22.31	28.4	39.4	20.6	43.0	99.9	9.0	0.0	0.0
	Total:										**1020.4**	