

PART – II

ENVIRONMENTAL PROTECTION MEASURES AS ON 30.09.2023

1. Production Details

Sl. No	Year	Coal (in MT)	
		As per EC	Actual
1.	2006-07	0.5	0.471
2.	2007-08	0.5	0.469
3.	2008-09	0.5	0.514
4.	2009-10	0.5	0.518
5.	2010-11	0.5	0.524
6.	2011-12	0.5	0.534
7.	2012-13	0.5	0.689
8.	2013-14	0.5	0.648
9.	2014-15	0.5	0.447
10.	2015-16	0.5	0.469
11.	2016-17	0.5	0.445
12.	2017-18	0.5	0.336
13.	2018-19	0.5	0.343
14.	2019-20	0.5	0.320
15.	2020-21	0.5	0.198
16.	2021-22	0.5	0.260
17.	2022-23	0.5	0.281
18.	2023-24 (apr-sep)	0.5	0.148

2. Plantation:

1	No of plants planted during last six month period	--
2	Area covered in Ha	--
3	Expenditure incurred in Rs. Lakhs (Maintenance) during the year 2023-24.	1.51
4	Total area brought under plantation so far in Ha	31.652 Ha
5	Total no of plants planted so far since inception	500
6	Species of plants planted	Eucalyptus, Gulmohar, Acascia, Jamun, Durshanam, Kanuga, Sisu, Pheltoform, Neem, Amla, Subabul, Iffa, Seethaful, Kunkudu and Guavva.
7	Seeds sown so far	--
8	Small plants planted so far	--
9	Total expenditure in Rs. lakhs -	37.863

Note: Plan along with details of year wise plantation furnished as **Figure -I.**

3. Water Balance Statement:

Sl. No	Description	Quantity in KLD
1	Average quantity of water pumped out of the mine	2515.00
2.	Water consumption :	

A.	Domestic:	
	a) Water used for drinking/bathing and other industrial requirement	40.00
	b) Water supplied for nearest township/village for domestic purpose/CHP	1000 .00
	Sub – Total	1040.00
B.	Industrial :	
	a) Water used for plantation	20.00
	b) Water used for dust suppression	20.00
	c) Water used for stowing	NIL
	Sub – Total	40.00
	Total water consumption	1080.00
3	Excess water let out	1435
4	Point of disposal (as per CFO)	i) Excess mine water: After treatment for agricultural use/ gardening. ii) Domestic: STP followed by onland use / gardening
5	Discharge Consent from TSPCB	1520.00

4. Micro-meteorological Monitoring:

Micro-meteorological station was installed at General Manager’s Office: The summary of monthly micro-meteorological data generated at Srirampur area from April, 2023 to September, 2023 is as follows:

Month	Wind Speed (m/s)			Temperature (°C)			Relative Humidity (%)			Rainfall (mm)	
	Mean	Max	Calm %	Mean	Max	Min	Mean	Max	Min	Total	Hourly Highest
April, 2023	2.4	6.9	14.17	25.6	46.6	33.0	35.4	79.1	8.3	0.0	0.0
May, 2023	1.8	6.1	29.97	35.0	47.8	20.9	23.7	73.0	8.2	63.5	22.3
June, 2023	1.9	6.7	22.22	32.2	45.1	23.7	48.1	93.5	18.7	76.6	18.2
July, 2023	2.1	6.0	8.33	28.6	44.3	20.2	67.1	99.5	16.4	615	52.8
August, 2023	1.7	6.1	26.48	29.9	39.8	19.3	67.4	99.7	20.8	69.2	6.0
September, 2023	1.6	5.0	15.42	28.2	40.6	18.9	46.6	99.8	19.0	194.2	23.3

Summary of micro-meteorological data generated for the study period (April, 2023 to September, 2023)

S.No	Parameter(s)	Min	Max	Mean
1.	Temperature (°C)	18.9	47.8	31.2
2.	Wind Speed (m/s)	Calm (%) 17.69	6.9	1.9
3.	Relative Humidity (%)	8.2	99.8	48.0
4.	Predominant Wind direction for the entire study period	South West(SW), followed by West-South West (W-SW)		
5.	Total Rainfall (mm)	1018.5mm		

5. Ambient Air Quality Monitoring:

Parameters:

In accordance with MoEF&CC Notification, GSR-742 (E), dt. 25.09.2000 and National Ambient Air Quality Standards, the concentration of Suspended Particulate Matter (PM₁₀ and PM_{2.5}), Sulphur Dioxide (SO₂) and Oxides of Nitrogen (NO_x) is being monitored at work zone locations and also in nearby villages to assess the impact of mining operations on surrounding habitation.

Respirable Dust Sampler is used for monitoring of PM₁₀, SO₂ and NO_x and Ambient Fine Dust Sampler is being used for monitoring of PM_{2.5}. SCCL is carrying out post-project environmental monitoring through EPTRI, Hyderabad, a CPCB recognized and NABL accredited laboratory. EPTRI has also established laboratories in SCCL mining areas for analyzing critical parameters in the field.

Frequency of Monitoring:

Air quality monitoring is being carried out at a frequency of once in a fortnight (24 hourly sampling) at the identified locations near the dust generating sources.

Monitoring Locations:

S.No.	Station Code	Name of the Stations	Latitude	Longitude
CORE ZONE				
1	CA1	RK-5 Incline	N 18°53' 18.6"	E 79° 30' 04.7"
BUFFER ZONE				
2	BA1	Mudigunta	N 18°51'24.7"	E 79°34'31.8"
3	BA2	Krishna Colony	N 18°52' 11.0"	E 79° 30' 20.0"
4	BA3	Kankur village	N 18°52' 56.5"	E 79° 32' 40.4"
5	BA4	Srirampur colony	N 18°51'41.6"	E 79°30'24.1"

Monitoring Data:

The summary of the monitoring from April, 2023 to September, 2023 is as follows:

(All values in $\mu\text{g}/\text{m}^3$)

Location code	Name of the location	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 ($\mu\text{g}/\text{m}^3$)			
		Min	Max	Avg	98%tile	Min	Max	Avg	98%tile	Min	Max	Avg	98%tile	Min	Max	Avg	98%tile
Core Zone																	
Coal mine standards (commenced after 25.09.2000), GSR 742(E), Dated		250				-				120				120			
CA 1	RK-5 Incline Site Office	71.0	230.0	172.75	228.90	26.80	58.60	50.00	58.56	7.80	15.20	11.98	15.02	14.20	21.60	18.52	21.49

Summary of Ambient Air Data Monitoring

Location code	Name of the location	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 ($\mu\text{g}/\text{m}^3$)			
		Min	Max	Avg	98%tile	Min	Max	Avg	98%tile	Min	Max	Avg	98%tile	Min	Max	Avg	98%tile
NAAQ Standards, CPCB Dated: 18.11.2009		100				60				80				80			
Buffer Zone																	
BA1	Mudigunta	35.0	86.0	70.25	85.12	16.10	45.80	34.85	45.07	7.70	14.10	9.88	13.66	12.10	19.10	14.64	18.57
BA2	Krishna Colony	39.0	91.0	73.0	88.58	18.70	47.20	37.77	46.74	7.80	14.20	10.66	13.96	13.10	18.40	16.14	18.40
BA3	Kankur village	32.0	82.0	69.08	81.78	18.10	44.90	34.33	44.20	7.60	18.90	15.71	18.79	13.40	18.90	15.71	18.79
BA4	Srirampur Colony	46.00	89.00	76.17	88.12	20.10	48.50	38.96	48.19	8.70	12.70	10.60	12.62	15.10	19.20	16.89	19.05

The air quality data monitored at the work zone locations and surrounding residential areas indicate that PM₁₀ concentration is within the stipulated limits at all locations. The PM_{2.5}, SO₂ and NO₂ levels are also well within the stipulated limits at all the locations. The fortnightly air quality data monitored during six months period ending 30th September, 2023 is enclosed as **Annexure-I**. SCCL is taking following control measures in the RK-5 Incline for air pollution control including reduction of particulate emissions:

Air Pollution Control Measures:

- i) Water spraying arrangements have been made in underground at all working places, loading points and transfer points.
- ii) Arrangements have been made for water spraying on the surface coal handling arrangement.
- iii) The coal produced from the mine is transported to Area CHP, where effective mist spray arrangement is provided and maintained at transfer points and at loading points and the conveyor belts have been provided with covered structure.
- iv) Cleaning of coal dust is being taken up regularly.
- 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 the Coal Transportation Road.
- vii) All the transport Lorries are optimally loaded to prevent spillage of coal and covered with Tarpaulin.

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 coal heap has to be kept for some time, water spraying is done over it to control oxidation of coal, and stone dust is spread over the coal heaps for oxidation control.
- 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.
 - Total manpower of the mine as on 30.09.2023 : 1275
 - Total L.P Gas connections to the workers as on 30.09.2023 : 1095
- vi) Post-project air quality monitoring is being carried out by outside agency (M/s Environment Protection Training and Research Institute (EPTRI) Hyderabad) 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.

6. Water Quality Monitoring:

The impact of the mining activities on the water environment was assessed by studying the quality of groundwater and surface water bodies in the study area. The sampling locations were selected considering their proximity to the project sites. A total of 8 water samples i.e., 4 samples from surface and 4 samples from groundwater were collected and analyzed for various physico-chemical and bacteriological parameters.

Post project water quality monitoring stations:**(i) Surface Water Quality Monitoring Locations:**

Sl. No	Location	Zone	Latitude	Longitude	Station Code
1.	Godavari River upstream	Buffer	N 18° 49' 33.5"	E 79° 28' 21.5"	SW1
2.	Godavari River downstream	Buffer	N 18° 53' 41.8"	E 79° 40' 32.6"	SW2

(ii) Ground Water Quality Monitoring Locations:

Sl. No	Location	Zone	Latitude	Longitude	Station Code
1.	Borewell at Kankur	Buffer	N 18° 53' 11.4"	E 79° 32' 44.4"	GW1
2.	Borewell at Mudikunta	Buffer	N 18° 53' 08.3"	E 79° 32' 46.3"	GW2

(iii) Effluents sampling locations

Sl.No.	Sample code	Name of the Location	Latitude	Longitude
1.	EW-1	RK-5 Inc. Mine discharge	N 18° 53' 18.6"	E 79° 30' 4.7"

Parameters:

The ground water quality results are compared with IS: 10500 standards of groundwater quality and surface water quality with IS 2296, 1982 and CPCB Water Quality Criteria, Class- A (Drinking Water Source without conventional treatment but after Disinfection), Class – B (outdoor bathing (organized) and Class – C (Drinking Water Source with conventional treatment and after Disinfection, Class – C (Drinking Water Source with conventional treatment and after Disinfection, Class –D propagation of wild life fisheries and Class-E (Irrigation, Industrial cooling, controlled waste disposal).

Effluent water quality monitoring involves periodical assessment of quality of mine discharge water, treated workshop effluents, CHP effluent, treated colony effluents, ground water and surface water. pH, Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Chemical Oxygen demand (COD), Bio-chemical Oxygen Demand (BOD) and Oil & Grease are being periodically monitored in effluents as per the Environmental Standards for coalmines, GSR - 742 (E) dated 25.09.2000.

All the parameters as given in Part-A of General Standards for Discharge of Environmental Pollutants, GSR 801 (E) EPA 1986 prescribed by CPCB is being analyzed for all the effluents, in addition to the above parameters, once in a year for assessing the overall quality of effluents.

Frequency of monitoring:

Monitoring of effluent water samples for four critical parameters is being done at a frequency of once in a fortnight. Effluents are also analyzed in every fortnight, whereas ground water (all parameters), surface water (all parameters) are being analyzed once in every quarter.

Monitoring Data:

The surface water, ground water quality and effluent quality data monitored during April 2023 to September, 2023 is enclosed as **Annexure-II**. The summarized data on effluent water quality in respect of six critical parameters stipulated for coal mines is furnished hereunder.

Effluent Quality Monitoring:

The summary of the monitoring from April 2023 to September, 2023 is as follows:

(All values in mg/l except pH)

Location	Zone	pH				
		Min.	Max.	Avg	98%tile	STD
RK-5 Inc. Mine discharge	Core	7.30	8.20	7.73	8.18	5.50-9.0
Location	Zone	TSS (mg/l)				
		Min.	Max.	Avg	98%tile	STD
RK-5 Inc. Mine discharge	Core	14.00	37.00	22.33	35.68	100
Location	Zone	TDS (mg/l)				
		Min.	Max.	Avg	98%tile	STD
RK-5 Inc. Mine discharge	Core	684.00	956.00	795.58	952.92	--
Location	Zone	COD (mg/l)				
		Min.	Max.	Avg	98%tile	STD
RK-5 Inc. Mine discharge	Core	12.00	27.00	17.92	26.34	250
Location	Zone	BOD (mg/l)				
		Min.	Max.	Avg	98%tile	STD
RK-5 Inc. Mine discharge	Core	1.70	4.10	2.42	3.90	30.0
Location	Zone	Oil & Grease (mg/l)				
		Min.	Max.	Avg	98%tile	STD
RK-5 Inc. Mine discharge	Core	1.00	1.00	1.00	1.00	10.0

Water Pollution Control Measures:

There is no chemical process involved, the mine discharge water may contain coal fines as such the water is being utilized for drinking and domestic purpose after treatment in slow sand filters followed by disinfections. The following control measures are being taken up at the mine to control the water pollution.

- i) The mine discharge water is being utilized for dust suppression, plantation, domestic use etc., after necessary treatment.
- 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 Sewage Treatment Plant at Naspur Colony of 3 MLD Capacity, and other colonies effluents treatment is being done with Septic tanks followed by soak pits.
- v) Post-project water quality monitoring is being carried through an outside agency [M/s Environment Protection Training and Research Institute (EPTRI) Hyderabad] as per the frequency stipulated by MoEF&CC for coal mining industry.

7. Phreatic surface monitoring: (Range of Water Table)

The Phreatic surface and peizometric levels monitoring is being carried out 4 times in a year pre-monsoon (May), Monsoon (August), Post monsoon (November) and winter (January) seasons in 25 existing wells and 6 peizometric wells in Srirampur Area. The Phreatic surface and peizometric levels monitoring from 2019 (Winter) to 2023 (Monsoon) is enclosed as **Annexure-IV**.

Water Conservation Measures:

- i) Mine water is collected in sumps in side mine and pumped out after settling.
- ii) Mine water is filtered and used for domestic, washing the machinery, Plantation and Water Spraying etc,
- iii) Ground Water levels are recorded seasonally in nearby villages. One ETP is provided area level at Area workshop to trap 70 liters of oil and grease in a year before letting out on surface water body.
- iv) Ground Water levels recorded in the nearby villages is furnished in **Annexure - IV**.
- v) All the hazardous wastes like used oil, used batteries, waste oil, empty oil barrels are being disposed off to authorized recyclers.
- vi) Details of Rain water Harvesting structures in Srirampur Area is as below:

Sl. No	Location of the Rain water Harvesting Pits	No.of Rain water Harvesting pits
1.	G.M's Office	01
2.	Area Stores	02
3.	Auto garage	02
4.	RK-8 Dispensary	01
5.	SRP Dispensary (Deccan Gramina Bank)	01
6.	SC High School, SRP(ITI College)	02
7.	CER Club, Srirampur (Pragathi Stadium)	02
8.	M&R Office, Srirampur	01
9.	MVTC, SRP	01
10.	C-2 Type Quarters, RK-8 Colony	01
11.	'C' Type Quarters, RK-8 Colony	02
12.	Dispensary, Naspur Colony	01
13.	G.T Hostel, Naspur Colony	02
14.	Community Hall, Naspur Colony	01
15.	M& R Office, Naspur Colony	02
16.	Venkateswara Temple, Naspur Colony	01
17.	Sub-station premises, Godavari Colony	01
18.	Sub-station premises, Nagarjuna Colony	01
19.	Guest House, CCC	01
20.	M & R Office, CCC	01
21.	RK-5 GLSR	01
22.	Pump House, CCC	01
23.	SRP OCP-II	03
	Total	32

8. Noise Level Monitoring :

The summary of the monitoring from April 2023 to September, 2023 is as follows:

Location	Zone	Day Time in dB(A)					Night Time in dB(A)				
		Min.	Max.	Avg.	98%tile	STD	STD	Min.	Max.	Avg.	98%tile
RK-5 Incline	Core	62.3	69.50	66.242	69.236	75	70	51.1	61.300	56.433	61.102
Kankur Village	Buffer	41.20	50.30	45.525	50.256	75	70	32.10	40.20	36.508	40.046
Mudigunta Village	Buffer	39.20	49.80	43.325	49.448	55	45	31.30	40.10	35.458	39.902

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 trippers are being provided under tripper resting pads to reduce the noise while tripping 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] at a frequency of once in a fortnight as stipulated by MoEF&CC for coal mining industry.

9. Capital and Revenue Expenditure incurred on Environment Management and Pollution Control Measures:

Sl. No	Expenditure Head	Capital Expenditure (in Rs.)			Revenue Expenditure (in Rs.)		
		Up to 2022-23	2023-24 (apr-sep)	Total	Up to 2022-23	2023-24 (apr-sep)	Total
I	Air pollution (Prevention & control)	377600	0	377600	111822258.4	47407.4	111869665.8
II	Water pollution (Prevention & Control)	0	0	0	3238777.31	260871.7	3499649.01
III	Land development	0	0	0	0	0	0
IV	Plantation	1168735	0	1168735	2765128.5	27043.5	2765128.5
V	Equipment for maintenance of environment protection	0	0	0	9695198.16	0	9695198.16
VI	Consultancy payments	714200	0	714200	0	0	0
VII	OB Reclamation / Subsidence management	0	0	0	571863	202540	774403
VIII	Environment awareness / Environment education	0	0	0	29000	1500	30500
IX	Noise & Blasting vibration	0	0	0	307338.3	18258.24	325596.5
X	Others	0	0	0	0	1000	1000
	Total	2260535	0	2260535	128429564	558620.8	128988185

10. Socio-economic Measures:

- i) Common Central Township is provided on non-coal bearing area and it is maintained with facilities such as dispensary, schools, drinking water supply, super-bazaar, recreation clubs, parks, well lighted approach roads, dust bins at various places in the colony, etc., and it is away from the mining activity.
- ii) Workmen are encouraged to undergo family planning operations by extending cash incentives and leave etc.,
- iii) Weekly vaccination for Polio, DPT, BCG, Measles, DT and Hepatitis 'B' are being given at Area Hospital and dispensaries. 1019 persons were vaccinated during the above period at area level.
- iv) Daily Street cleaning and sanitation works are looked after by Health & Civil departments in Srirampur Area. 1937.5 Cu.m of Garbage is removed from the colonies during the above period at area level.
- v) Workmen are encouraged to participate in sports and games which are conducted in Company's Pragathi Stadium at Srirampur.
- vi) Existing number of quarters for this project : 977
- vii) Infrastructure development is being taken up in the surrounding areas through specially designed programme called as surrounding Habitat Assistance Programme (SHAPE)" and CSR programme, Rs.2135.78 Lakhs has been spent in the area up to 2022-23.
- viii) Public hearing minutes compliance status enclosed as **Annexure-VII**

11. Environment Management Committee:

Unit level Environmental Management committee has been constituted with following members.

- | | |
|-----------------------------|--------------|
| 1) Agent | - Chairman. |
| 2) Area Env. Officer | - Secretary. |
| 3) Mine Manager | - Member |
| 4) Area Civil Engineer, | - Member |
| 6) Area Survey officer | - Member. |
| 7) Area Estates Manager | - Member. |
| 8) Area Forest Officer | - Member. |
| 9) Regional Hydro geologist | - Member. |

The minutes of EMC meeting held on 28.08.2023 is enclosed as **Annexure-V**

12. Land use based on satellite Imagery:

The satellite imagery of the study area around 10 km from mine site (core zone boundary) as captured by satellite. The Land use land cover in this study area is given here below.

Land use cover details of Buffer zone:

Land Use Land Cover Class	2022	
	Area in Hectares	Area Percentage
Water Bodies	1737.44	4.31
Mining Area	1550.02	3.84
Industrial Establishments	240.14	0.60
Built-up Land	2773.67	6.88
Open Forest	3008.94	7.46
Dense Forest	9432.34	23.39
Roads	944.83	2.34
Barren Land	606.35	1.50
Fallow Land	1266.50	3.14
Plantation	2893.43	7.18
Single Crop	5023.67	12.46
Double Crop	7332.42	8.18
Land with/without scrub	3515.24	8.72
TOTAL AREA	40324.99	100.00

Land use / land cover details of core zone mine lease area:

The Satellite data of the core zone of 376.24 Ha has been presented. The classified data of the Mine core zone. The extents of various Land Use/Land Cover classes pertaining to the study area.

Land Use Land Cover Class	Area in Hectares	Area in Percentage
Coal Dump	0.37	0.1
Plantations Greenbelt	34.29	9.1
Roads	4.23	1.1
Service Buildings	6.08	1.6
Dense Forest	257.38	68.4
Open Forest	72.99	19.4
Water Bodies	0.90	0.2
Total Area	376.24	100.0

Change Detection:

Land use and land cover comparison statement of Ravindra Khani – 5 Incline Underground Coal Mine Expansion Project Core Zone for 2019 and 2022.

Land Use Land Cover Class	2019		2022		Area change (in %) from 2019 to 2022**
	LULC area in Hectares (2019)	Area in Percentage	LULC area in Hectares (2022)	Area in Percentage	
Water Bodies	1589.20	3.80	1737.44	4.31	0.51
Mining Area	974.30	2.33	1550.02	3.84	1.51
Industrial Establishments	537.34	1.28	240.14	0.60	-0.68
Built-up Land	2765.7	6.61	2773.67	6.88	0.27
Open Forest	3918.20	9.36	3008.94	7.46	-1.90
Dense Forest	10136.21	24.21	9432.34	23.39	-0.82
Roads	1263.21	3.02	944.83	2.34	-0.68
Barren Land	536.43	1.28	606.35	1.50	0.22
Fallow Land	1911.33	4.57	1266.50	3.14	-1.43
Plantation	4133.65	9.87	2893.43	7.18	-2.69
Single Crop	5099.54	12.18	5023.67	12.46	0.28
Double Crop	6027.70	14.40	7332.42	8.18	-6.22
Land with/without scrub	2968.61	7.09	3515.24	8.72	1.63
Total Area	41861.42	100	40324.99	100.00	

** Positive and Negative value implies LULC specific class area (in %) correspondingly increases or decrease from 2019 to 2022. The formula used for calculating LULC changes is (% of area change. = Percentage of LULC class area for 2022 - Percentage of LULC class area for 2019).

13. Subsidence management details:

(a) Total Seam wise development details

Sl. No:	Seam	Area in Ha.	Depth (m)		Total Thickness (m)	Working thickness (m)	Remarks.
			Min.	Max.			
1.	1 A Seam	4.754	50.00	118.00	3.00 To 4.00	2.80	Non vendible certificate
2.	1 Seam	42.283	37.00	150.00	3.00 To 4.00	2.80	
3.	2 B Seam	6.787	54.40	125.00	1.20	1.20	
4.	2 A Seam	130.064	47.00	193.50	1.60	1.60	
5.	2 Seam	175.822	42.00	225.00	4.00 To 4.50	2.80	
6.	3 Seam	78.217	33.60	183.70	1.20	1.20	
7.	4 Seam	197.979	43.00	242.00	1.80	1.80	
8.	5 Seam	119.354	36.00	233.40	1.60	1.60	

(b) Total Seam wise depillaring details

Sl. No:	Seam	Area in Ha.	Depth (m)		Total Thickness (m)	Working thickness (m)	Caving/ stowing.
			Min.	Max.			
1.	1A Seam	---	---	---	3.00 To 4.00	2.80	Standing on pillar
2.	1 Seam	---	---	---	3.00 To 4.00	2.80	Standing on pillar
3.	2B Seam	---	---	---	1.20	1.20	Standing on pillar
4.	2A Seam	121.585	47.00	193.50	1.60	1.60	Caving
5.	2 Seam	165.090	42.00	225.00	4.00 To 4.50	2.80	Caving
6.	3 Seam	34.430	33.60	183.70	1.20	1.20	Caving
7.	4 Seam	132.755	43.00	242.00	1.80	1.80	Caving
8.	5 Seam	63.491	36.00	233.40	1.60	1.60	Caving

b) Total surface area effected due to subsidence so far : 166.855 Ha.

- Max. Crack width observed so far : 0.50 m
- Max. Subsidence occurred so far : 1.322 Mtrs (3&4 seams) (apr-23 to sep-23)
- Whether the vegetation effected if any : Not Affected
- if affected, give details. : Nil

c) Mode of treatment given to substantiate subsidence effect:

- Total man-shifts worked in subsidence area for crack filling : 410 (apr,23- sep,23)
- Total dozer-shifts worked for subsidence reclamation : Nil
- Area filled up with OB/ subsoil material : Nil
- Quantity of OB / Subsoil dumped : Nil
- Maximum height of dump : Nil

d) i) Expenditure incurred for last six months for subsidence treatment: Rs. 1,95,570/-
ii) Expenditure incurred for subsidence treatment so far : Rs. 75,07,601/-.




AGENT,
RK-5&6 Group of Mines.
Agent
RK-5 & 6 Group of Mines
Srirampalayam.

**MONITORING DATA OF RAVINDRA KHANI – 5 (RK-5) INCLINE FOR THE PERIOD
FROM APRIL 2023 TO SEPTEMBER - 2023**

List of Annexures:

Sl.No.	Description	Annexure No.
1	Ambient Air Quality	I
2	Surface, Ground Water & Effluents Quality.	II
3	Noise	III
4	Attitude of Phreatic Surface & Piezometric Levels	IV
5.	EMC Meeting minutes	V
6	WLCP	VI
7	Status Public hearing minutes	VII
8	Plantation plan	Fig. I
9	Ground Water Clearance	VIII
10	ESCROW	IX

POST PROJECT AMBIENT AIR QUALITY MONITORING DATA FOR THE PERIOD FROM APRIL 2023 TO SEPTEMBER – 2023 FOR RK-5 INCLINE.

- ❖ Location of the Ambient Air
Quality monitoring Station: RK-5 Incline Site Office.
- ❖ Direction (w.r.t. RK– 5 Incline.): Besides of the project.

Sl. No.	Station Name	Date of Sampling	Parameters (µg/ Cu. Mtr.)			
			PM ₁₀	PM _{2.5}	SO ₂	NO ₂
1.	RK-5 Incline Site Office	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
		Minimum			71.00	26.80
Maximum			230.00	58.60	15.20	21.60
Average			172.75	50.00	11.98	18.52
98% tile			228.90	58.56	15.02	21.49
Coal mine standards, GSR 742(E), dtd.25.09.2000 & NAAQS, dtd.18.11.2009			250	--	120	120

- ❖ Location of the Ambient Air
Quality monitoring Station: Mudigunta
Direction (Mudigunta.): South -East of the project

Sl.No	Station Name	Date of Sampling	Parameters (µg/ Cu. Mtr.)			
			PM ₁₀	PM _{2.5}	SO ₂	NO ₂
2.	Mudigunta	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
		Minimum			35.00	16.10
Maximum			86.00	45.80	14.10	19.10
Average			70.25	34.85	9.88	14.64
98% tile			85.12	45.07	13.66	18.57
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.**
- ❖ Direction (w.r.t. RK– 5 Incline.): South of the project.

Sl. No.	Station Name	Date of Sampling	Parameters (µg/ Cu. Mtr.)			
			PM ₁₀	PM _{2.5}	SO ₂	NO ₂
3.	Krishna Colony	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
	Minimum		39.00	18.70	7.80	13.10
	Maximum		91.00	47.20	14.20	18.40
	Average		73.00	37.77	10.66	16.14
	98% tile		88.58	46.74	13.96	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
- ❖ Direction (w.r.t. RK– 5 Incline.): South – East- East of the project.

Sl. No.	Station Name	Date of Sampling	Parameters (µg/Cu. Mtr.)			
			PM ₁₀	PM _{2.5}	SO ₂	NO ₂
4.	Kankur Village	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
	Minimum		32.00	18.10	7.60	13.40
	Maximum		82.00	44.90	13.70	18.90
	Average		69.08	34.33	10.33	15.71
	98% tile		81.78	44.20	13.52	18.79
	NAAQ Standards, CPCB dtd.18.11.2009		100	60	80	80

- ❖ Location of the Ambient Air
Quality monitoring Station: Top of the CER Club, Srirampur Colony.
- ❖ Direction (w.r.t. RK-5 Incline.): South west-west of the project.

Sl. No.	Station Name	Date of Sampling	Parameters (µg/Cu. Mtr.)			
			PM ₁₀	PM _{2.5}	SO ₂	NO ₂
5.	Srirampur colony	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	
	Minimum			46.00	20.10	8.70
Maximum			89.00	48.50	12.70	19.20
Average			76.17	38.96	10.60	16.89
98% tile			88.12	48.19	12.62	19.05
NAAQ Standards, CPCB dtd.18.11.2009			100	60	80	80

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
	Date of sampling								28.04.2023	28.04.2023
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	8.0
2	Electrical Conductivity	µmhos/cm	2510-B	-	-	-	-	2250 µmhos/cm	1455	1070
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	6.6
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
5	Total Coliforms	MPN/100mL	9221 B	50 or less	500 or less	5000 or less	-	-	94	140
6	Free Ammonia (as N)	mg/L	4500-NH ₃ -F	-	-	-	1.2 mg/L or less	-	BDL	BDL
7	Boron as B	mg/L	3120-B	-	-	-	-	Less than 2 mg/L	0.16	0.28
8	SAR	-	-	-	-	-	-	Less than 26	1.14	1.12

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
	Date of sampling			28.04.2023	28.04.2023
1	Colour	Hazen	2120. B	5	5
2	Odour	TON	2150. B	No odour observed	No odour observed
3	Temperature	°C	2550. B	25.1	25.0
4	Turbidity	NTU	2130. B	0.26	0.44
5	Total Dissolved Solids at 180° C	mg/L	2540.C	865	626
6	Total Suspended Solids at 105° C	mg/L	2540. D	17	11
7	Chemical Oxygen Demand	mg/L	5220. D	4	8
8	Chlorides as Cl ⁻	mg/L	4500-Cl ⁻ .B	260	197
9	Sulphates as SO ₄ ²⁻	mg/L	4500-SO ₄ ²⁻ .E	106	86
10	Fluoride as F ⁻	mg/L	4500-F ⁻ .C	0.52	0.41
11	Calcium as Ca	mg/L	3500-Ca.B	84	80
12	Magnesium as Mg	mg/L	3500-Mg.B	51	47
13	Sodium as Na	mg/L	3500-Na.B	167	97
14	Potassium as K	mg/L	3500-K.B	33.7	11.8
15	Nitrites as NO ₂	mg/L	4500-NO ₂ ⁻ .B	BDL	BDL
16	Nitrates as NO ₃	mg/L	4500-NO ₃ ⁻ .B	43	10.3
17	Total Phosphates	mg/L	4500-P-D	BDL	BDL
18	Ammonical Nitrogen as NH ₃ -N	mg/L	4500-NH ₃ -C	BDL	BDL
19	Phenolic compounds as C ₆ H ₅ OH	mg/L	5530-D	BDL	BDL
20	Oil & Grease	mg/L	5520. B	<1	<1
21	Carbonates as CO ₃	mg/L	2320. B	nil	nil
22	Bi-carbonates as HCO ₃	mg/L	2320. B	180	135
23	Fecal Coliforms	MPN/100mL	9221 E	11	17

S. No	Parameters	Unit	Test Method	SW-1 Godavari River Upstream	SW-2 Godavari River Downstream
	Date of sampling			28.04.2023	28.04.2023
24	Zinc as Zn	mg/L	3120. B	0.11	0.10
25	Iron as Fe	mg/L	3120. B	0.58	0.35
26	Arsenic as As	mg/L	3120. B	BDL	BDL
27	Lead as Pb	mg/L	3120. B	BDL	BDL
28	Cadmium as Cd	mg/L	3120. B	BDL	BDL
29	Total Chromium as Cr	mg/L	3120. B	BDL	BDL
30	Nickel as Ni	mg/L	3120. B	BDL	BDL
31	Copper as Cu	mg/L	3120-B	BDL	BDL
32	Selenium as Se	mg/L	3120-B	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
	Date of sampling					28.04.2023	28.04.2023
1.	Colour	Hazen	2120. B	5	15	<5	<5
2.	Odour	TON	2150. B	Agreeable	Agreeable	Agree.	Agree.
3.	pH	-	4500-H+B	6.5 to 8.5	No relaxation	7.5	7.4
4.	Taste	FTN	2160. B	Agreeable	Agreeable	Agree.	Agree.
5.	Turbidity	NTU	2130. B	1	5	0.35	0.42
6.	Total Dissolved Solids at 180° C	mg/L	2540.C	500	2000	535	652

General Parameters Concerning Substances Undesirable in Excessive Amounts

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
	Date of sampling					28.04.2023	28.04.2023
7.	Calcium as Ca	mg/L	3500-Ca.B	75	200	53	54
8.	Magnesium as Mg	mg/L	3500-Mg.B	30	100	50	52
9.	Chlorides as Cl-	mg/L	4500-Cl-.B	250	1000	62	124
10.	Sulphates as SO42-	mg/L	4500-SO42- .E	200	400	78	88
11.	Fluoride as F-	mg/L	4500-F-.C	1.0	1.5	0.75	0.79
12.	Nitrates as NO3	mg/L	4500-NO3-.B	45	No relaxation	43	37
13.	Total Alkalinity as CaCO3	mg/L	2320. B	200	600	325	310
14.	Total Hardness as CaCO3	mg/L	2340. C	200	600	344	354
15.	Sulphide as H2S	mg/L	4500-S2-F&D	0.05	No relaxation	BDL	BDL
16.	Total Ammonia-N	mg/L	IS 3025 (Part 34)	0.5	No relaxation	BDL	BDL
17.	Phenolic compounds as C6H5OH	mg/L	5530-D	0.001	0.002	BDL	BDL
18.	Residual free chlorine	mg/L	4500-Cl-.B	0.2	1.0	BDL	BDL
19.	Mineral oil	mg/L	IS:3025 (part 39)	0.5	No relaxation	absent	absent
20.	Anionic Detergents (as MBAS)	mg/L	IS:13428:2005K	0.2	1.0	<0.2	<0.2
21.	Aluminium as Al	mg/L	3120-B	0.03	0.2	BDL	0.08
22.	Barium as Ba	mg/L	3120. B	0.7	No relaxation	0.28	0.17
23.	Boron as B	mg/L	3120-B	0.5	2.4	0.07	BDL
24.	Iron as Fe	mg/L	3120-B	1.0	No relaxation	0.60	0.55
25.	Zinc as Zn	mg/L	3120-B	5	15	0.17	0.25
26.	Copper as Cu	mg/L	3120-B	0.05	1.5	BDL	BDL
27.	Manganese as Mn	mg/L	3120-B	0.1	0.3	BDL	BDL
28.	Selenium as Se	mg/L	3120-B	0.01	No relaxation	BDL	BDL
29.	Silver as Ag	mg/L	3120. B	0.1	No relaxation	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
Date of sampling						28.04.2023	28.04.2023
30.	Cadmium as Cd	mg/L	3120-B	0.003	No relaxation	BDL	BDL
31.	Cyanide as CN-	mg/L	4500-CN.F	0.05	No relaxation	BDL	BDL
32.	Lead as Pb	mg/L	3120-B	0.01	No relaxation	BDL	BDL
33.	Molybdenum as Mo	mg/L	3120.B	0.07	No relaxation	BDL	BDL
34.	Nickel as Ni	mg/L	3120-B	0.02	No relaxation	BDL	BDL
35.	Total Arsenic as As	mg/L	3120-B	0.01	0.05	BDL	BDL
36.	Total Chromium as Cr	mg/L	3120-B	0.05	No relaxation	BDL	BDL
37.	Mercury as Hg	µg/L	3500-Hg.B	0.001	No relaxation	BDL	BDL
38.	Pesticides: α-BHC, β-BHC, γ-BHC, δ-BHC, o,p-DDT, p,p' -DDT, Endosulfan, Endosulfan, Aldrin, Dieldrin	µg/L	6630.D	Absent	0.001	ND	ND
	2,4-D, Carbaryl (Carbonate) Malathion Methyl Parathion Anilophos, Chloropyriphos	Qualitative analysis	6630.D	Absent	0.001	ND	ND
39.	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

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
Date of sampling						28.04.2023	28.04.2023
1	Total Coliforms	MPN/100 mL	9221 B	-	-	<1.8	<1.8
2	Fecal Coliforms	MPN/100 mL	9221 E	-	-	<1.8	<1.8

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
Date of sampling									02.08.2023	02.08.2023
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	8.1	8.2
2	Electrical Conductivity	µmhos/cm	2510-B	-	-	-	-	2250 µmhos/cm	379	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	-	5.9	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	-	-	2.2	2.4
5	Total Coliforms	MPN/100mL	9221 B	50 or less	500 or less	5000 or less	-	-	110	110
6	Free Ammonia (as N)	mg/L	4500-NH ₃ -F	-	-	-	1.2 mg/L or less	-	BDL	BDL
7	Boron as B	mg/L	3120-B	-	-	-	-	Less than 2 mg/L	0.08	0.21
8	SAR	-	-	-	-	-	-	Less than 26	0.92	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
Date of sampling				02.08.2023	02.08.2023
1	Colour	Hazen	2120. B	5	5
2	Odour	TON	2150. B	No odour observed	No odour observed
3	Temperature	°C	2550. B	25.2	25.3
4	Turbidity	NTU	2130. B	2.5	7.3
5	Total Dissolved Solids at 180° C	mg/L	2540.C	223	204
6	Total Suspended Solids at 105° C	mg/L	2540. D	41	37
7	Chemical Oxygen Demand	mg/L	5220. D	16	20
8	Chlorides as Cl ⁻	mg/L	4500-Cl.B	31	29
9	Sulphates as SO ₄ ²⁻	mg/L	4500-SO ₄ ²⁻ .E	32	30
10	Fluoride as F ⁻	mg/L	4500-F.C	0.45	0.38
11	Calcium as Ca	mg/L	3500-Ca.B	26	28
12	Magnesium as Mg	mg/L	3500-Mg.B	21	22
13	Sodium as Na	mg/L	3500-Na.B	26	21
14	Potassium as K	mg/L	3500-K.B	1.2	2.4
15	Nitrites as NO ₂	mg/L	4500-NO ₂ .B	0.09	0.11
16	Nitrates as NO ₃	mg/L	4500-NO ₃ .B	4.24	4.22
17	Total Phosphates	mg/L	4500-P-D	0.02	BDL
18	Ammonical Nitrogen as NH ₃ -N	mg/L	4500-NH ₃ -C	BDL	BDL
19	Phenolic compounds as C ₆ H ₅ OH	mg/L	5530-D	BDL	BDL
20	Oil & Grease	mg/L	5520. B	<1	<1
21	Carbonates as CO ₃	mg/L	2320. B	nil	nil
22	Bi-carbonates as HCO ₃	mg/L	2320. B	120	95
23	Fecal Coliforms	MPN/100mL	9221 E	4.5	4.5

S. No	Parameters	Unit	Test Method	SW-1 Godavari River Upstream	SW-2 Godavari River Downstream
Date of sampling				02.08.2023	02.08.2023
24	Zinc as Zn	mg/L	3120. B	0.19	0.29
25	Iron as Fe	mg/L	3120. B	0.61	0.58
26	Arsenic as As	mg/L	3120. B	BDL	BDL
27	Lead as Pb	mg/L	3120. B	BDL	BDL
28	Cadmium as Cd	mg/L	3120. B	BDL	BDL
29	Total Chromium as Cr	mg/L	3120. B	BDL	BDL
30	Nickel as Ni	mg/L	3120. B	BDL	BDL
31	Copper as Cu	mg/L	3120-B	BDL	BDL
32	Selenium as Se	mg/L	3120-B	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
Date of sampling						02.08.2023	02.08.2023
40.	Colour	Hazen	2120. B	5	15	<5	<5
41.	Odour	TON	2150. B	Agreeable	Agreeable	Agree.	Agree.
42.	pH	-	4500-H+B	6.5 to 8.5	No relaxation	7.3	7.4

43.	Taste	FTN	2160. B	Agreeable	Agreeable	Agree.	Agree.
44.	Turbidity	NTU	2130. B	1	5	0.61	0.59
45.	Total Dissolved Solids at 180° C	mg/L	2540.C	500	2000	712	761

General Parameters Concerning Substances Undesirable in Excessive Amounts

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
Date of sampling						02.08.2023	02.08.2023
46.	Calcium as Ca	mg/L	3500-Ca.B	75	200	99	97
47.	Magnesium as Mg	mg/L	3500-Mg.B	30	100	66	57
48.	Chlorides as Cl-	mg/L	4500-Cl-.B	250	1000	167	169
49.	Sulphates as SO42-	mg/L	4500-SO42- .E	200	400	51	88
50.	Fluoride as F-	mg/L	4500-F-.C	1.0	1.5	0.77	0.68
51.	Nitrates as NO3	mg/L	4500-NO3-.B	45	No relaxation	45	44
52.	Total Alkalinity as CaCO3	mg/L	2320. B	200	600	310	300
53.	Total Hardness as CaCO3	mg/L	2340. C	200	600	520	477
54.	Sulphide as H2S	mg/L	4500-S2-F&D	0.05	No relaxation	BDL	BDL
55.	Total Ammonia-N	mg/L	IS 3025 (Part 34)	0.5	No relaxation	BDL	BDL
56.	Phenolic compounds as C6H5OH	mg/L	5530-D	0.001	0.002	BDL	BDL
57.	Residual free chlorine	mg/L	4500-Cl-.B	0.2	1.0	BDL	BDL
58.	Mineral oil	mg/L	IS:3025 (part 39)	0.5	No relaxation	absent	absent
59.	Anionic Detergents (as MBAS)	mg/L	IS:13428:2005K	0.2	1.0	<0.2	<0.2
60.	Aluminium as Al	mg/L	3120-B	0.03	0.2	0.06	BDL

61.	Barium as Ba	mg/L	3120. B	0.7	No relaxation	00.18	0.24
62.	Boron as B	mg/L	3120-B	0.5	2.4	0.12	0.09
63.	Iron as Fe	mg/L	3120-B	1.0	No relaxation	0.38	0.28
64.	Zinc as Zn	mg/L	3120-B	5	15	BDL	BDL
65.	Copper as Cu	mg/L	3120-B	0.05	1.5	BDL	BDL
66.	Manganese as Mn	mg/L	3120-B	0.1	0.3	BDL	BDL
67.	Selenium as Se	mg/L	3120-B	0.01	No relaxation	BDL	BDL
68.	Silver as Ag	mg/L	3120. B	0.1	No relaxation	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
Date of sampling						02.08.2023	02.08.2023
69.	Cadmium as Cd	mg/L	3120-B	0.003	No relaxation	BDL	BDL
70.	Cyanide as CN-	mg/L	4500-CN.F	0.05	No relaxation	BDL	BDL
71.	Lead as Pb	mg/L	3120-B	0.01	No relaxation	BDL	BDL
72.	Molybdenum as Mo	mg/L	3120. B	0.07	No relaxation	BDL	BDL
73.	Nickel as Ni	mg/L	3120-B	0.02	No relaxation	BDL	BDL
74.	Total Arsenic as As	mg/L	3120-B	0.01	0.05	BDL	BDL
75.	Total Chromium as Cr	mg/L	3120-B	0.05	No relaxation	BDL	BDL
76.	Mercury as Hg	µg/L	3500-Hg.B	0.001	No relaxation	BDL	BDL
77.	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
	2,4-D, Carbaryl (Carbonate) Malathion Methyl Parathion Anilophos, Chloropyriphos	Qualitative analysis	6630. D	Absent	0.001	ND	ND
78.	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

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
Date of sampling						02.08.2023	02.08.2023
1	Total Coliforms	MPN/100 mL	9221 B	-	-	<1.8	<1.8
2	Fecal Coliforms	MPN/100 mL	9221 E	-	-	<1.8	<1.8

III. POST PROJECT WATER QUALITY (EFFLUENTS) MONITORING DATA FOR THE PERIOD FROM APRIL 2023 TO SEPTEMBER 2023 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	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
		Minimum	7.30	14.00	684.00	12.00	1.70	1.00
		Maximum	8.20	37.00	956.00	27.00	4.10	1.00
		Average	7.73	22.33	795.58	17.92	2.42	1.00
		98% tile	8.18	35.68	952.92	26.34	3.90	1.00
MoEF GSR 742(E) and GSR 801(E) Effluent standards for coal mines			5.5-9.0	100	--	250	30	10
Test Method			4500H+B	2540-D	2540-C	5220-D	IS 3025	2540-C

Analysis Report of monthly summary of 3.0MLD Sewage treatment Plant – Naspur Colony from April, 2023 to September, 2023.

All Values in Mg/Liter (Except pH)

Month	Description	Characteristics of Raw Sewage				Characteristics of Aeration Water					Characteristics of Treated Water				
		pH	TSS	COD	BOD	pH	DO	MLSS	MLVSS	TDS	pH	DO	TSS	COD	BOD
Apr, 23	Min	7.8	205	205	205	7.4	1.7	3040	380	5	6.7	1.2	11	11	28
	Max	7.9	220	220	215	7.6	1.9	3220	399	3170	7.2	1.3	13	13	32
	Aver	7.85	214	211.33	209.17	7.53	1.84	3151.83	391.73	2318.50	6.94	1.25	11.87	11.67	29.87
May, 23	Min	7.7	210	205	205	7.4	1.7	2960	380	45	6.7	1.2	11	11	28
	Max	7.7	210	205	205	7.4	1.7	2960	380	45	6.7	1.2	11	11	28
	Aver	7.82	215.00	215.28	208.13	7.50	1.84	3103.63	392.00	2664.75	6.98	1.25	12.00	11.88	30.00
June, 23	Min	7.7	210	210	210	7.4	1.7	2956	382	5	6.9	1.2	11	11	28
	Max	7.9	220	220	220	7.6	1.8	3264	400	3184	7.2	1.3	13	13	32
	Aver	7.80	214.06	215.33	215.00	7.46	1.75	3134.87	394.23	2728.11	6.97	1.25	12.06	12.17	29.73
July,23	Min	7.7	210	205	205	7.4	1.7	2546	382	2452	6.8	1.2	11	11	28
	Max	7.9	220	220	220	7.6	1.9	3940	400	3102	7.1	1.3	13	13	32
	Aver	7.81	215.00	214.38	212.50	7.51	1.79	2934.13	392.26	2801.13	6.95	1.25	12.00	12.33	29.38
Aug, 23	Min	7.7	210	205	205	7.4	1.7	2590	300	2580	6.9	1.2	11	11	28
	Max	7.9	220	220	215	7.6	1.9	3342	400	3292	7.1	1.3	13	13	32
	Aver	7.79	213.67	213.75	210.00	7.47	1.79	3003.26	386.55	2924.00	6.97	1.25	12.33	11.83	30.40
Sep,23	Min	7.7	205	205	205	7.4	1.7	2760	382	2708	6.9	1.2	11	11	28
	Max	7.9	215	220	215	7.6	1.9	3168	400	3080	7.1	1.3	13	14	32
	Aver	7.79	212.00	211.33	210.00	7.47	1.82	2951.83	392.10	2897.14	6.99	1.25	11.93	12.50	30.13
	standard	-	-	-	-	-	-	-	-	--	5.5-9.0	--	100	30	250

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

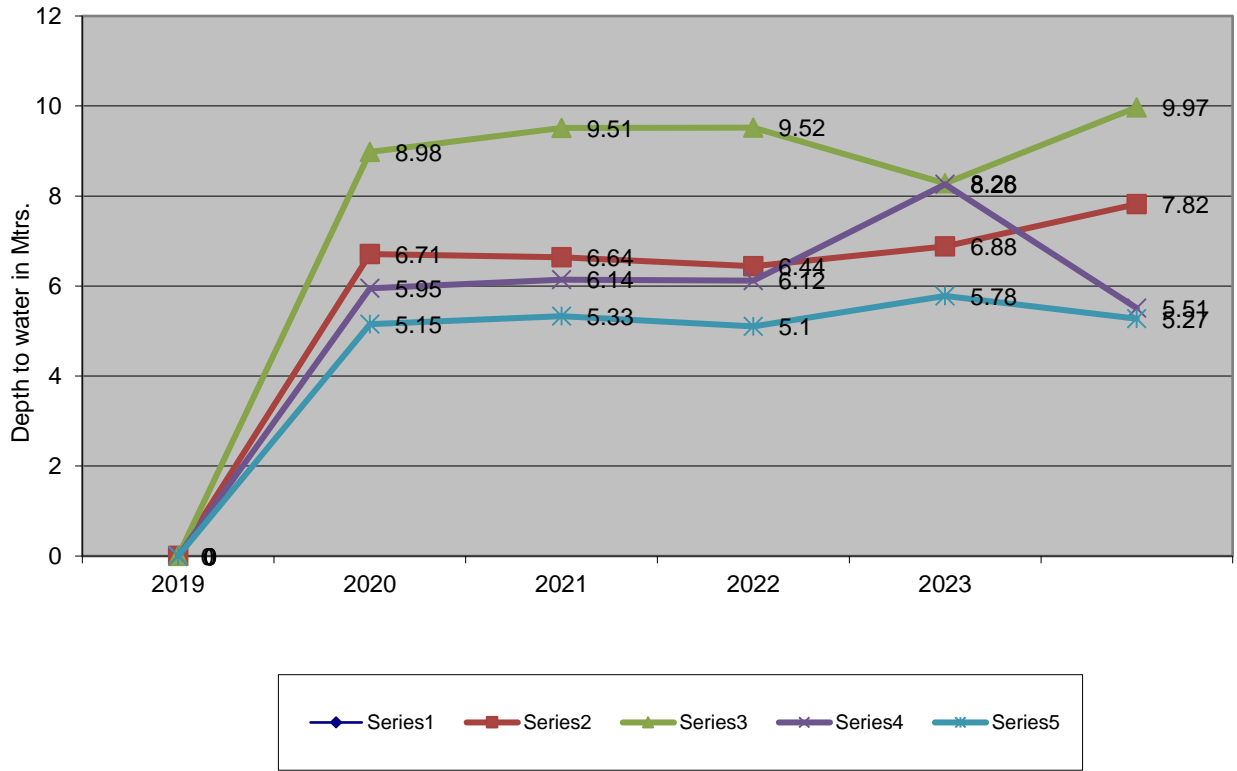
Fortnight	RK-5 Incline			Kankur			Mudigunta		
	Date	L _{day}	L _{night}	Date	L _{day}	L _{night}	Date	L _{day}	L _{night}
Apr-I	05.04.2023	67.1	55.7	05.04.2023	47.8	33.4	05.04.2023	42.4	33.8
Apr-II	25.04.2023	66.7	54.8	25.04.2023	44.6	36.1	25.04.2023	41.7	34.5
May -I	08.05.2023	64.2	58.1	08.05.2023	43.1	35.4	08.05.2023	39.8	33.1
May -II	23.05.2023	68.1	57	23.05.2023	41.9	34.4	23.05.2023	43.1	36.9
June-I	07.06.2023	63.1	58.2	07.06.2023	42.6	37.4	07.06.2023	39.2	34.6
June-II	23.06.2023	65.8	53.6	23.06.2023	45.6	39.5	23.06.2023	43.6	36.2
July-I	08.07.2023	68.3	61.3	08.07.2023	50.3	39.5	08.07.2023	46.9	39.2
July -II	24.07.2023	69.5	60.4	24.07.2023	46.9	38.5	24.07.2023	42.6	31.3
Aug-I	08.08.2023	65.8	53.1	08.08.2023	50.1	39.5	08.08.2023	49.8	40.1
Aug -II	23.08.2023	68.2	56.8	23.08.2023	45.1	32.1	23.08.2023	48.2	38.1
Sep-I	08.09.2023	62.3	51.1	09.09.2023	41.2	32.1	09.09.2023	39.5	32
Sep -II	23.09.2023	65.8	57.1	23.09.2023	47.1	40.2	23.09.2023	43.1	35.7
	Average	66.242	56.433		45.525	36.508		43.325	35.458
Limits		75	70		55	45		55	45

A. ATTITUDE OF PHREATIC SURFACE IN SRIRAMPUR AREA

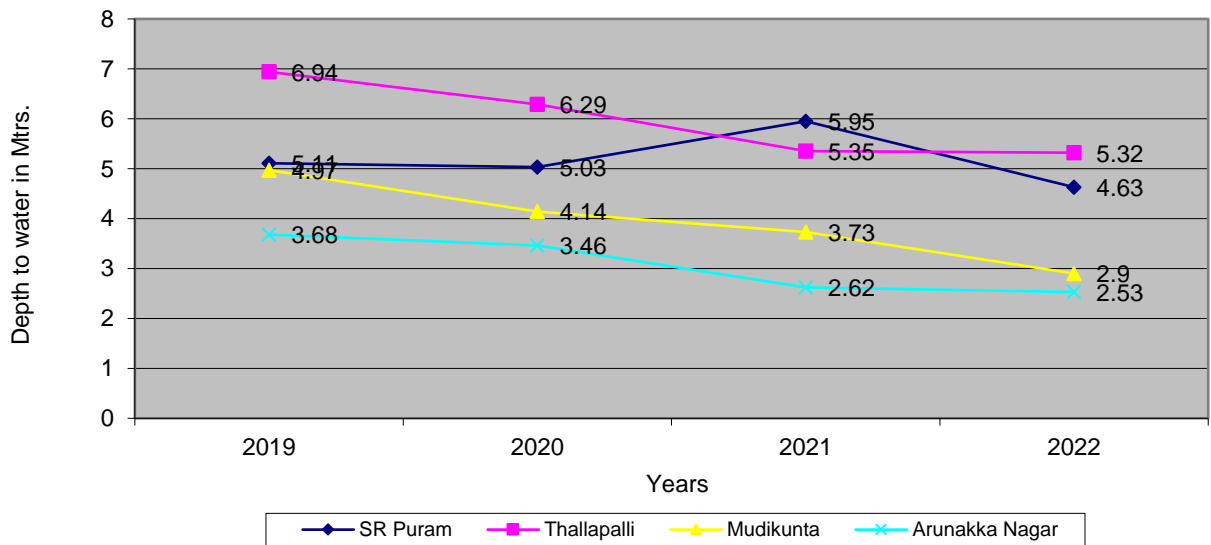
Sl. No	Name of village	Owner's Name	Type of Well	Dimensions (M)	Total Depth (M)	Geology	Measuring point(MA GL)	Period	Depth to Water (M)				
									2019	2020	2021	2022	2023
1	Arunakka nagar near GM office	N.Lingaiah	Domestic	1.00	9.40	Barren Measur es Fm	0.30	Winter	5.09	5.01	4.31	3.70	3.84
								Pre-Monsoon	5.15	5.33	5.10	5.78	5.27
								Monsoon	2.89	2.54	1.52	1.50	1.64
								Post- Monsoon	3.68	3.46	2.62	2.53	
2	RK-6 Colony	Q.No.SA-13	Domestic	1.20	10.00	Barkar Fm	0.30	Winter	2.13	2.07	2.44	1.62	1.74
								Pre-Monsoon	2.51	2.48	2.63	4.06	3.53
								Monsoon	1.14	1.19	0.84	0.74	0.81
								Post- Monsoon	1.94	1.90	1.56	1.47	
3	RK-6 Colony/Kur mawada	Karre Posham	Domestic	1.00	6.50	Barkar Fm	GL	Winter	2.53	3.05	2.93	2.83	2.96
								Pre-Monsoon	3.07	3.11	3.17	3.85	1.90
								Monsoon	2.88	1.93	1.20	1.32	1.28
								Post- Monsoon	3.01	2.71	2.10	1.55	
4	RK-6 Colony/Kur mawada	Eshwaraiah	Domestic	1.00	6.50	Barkar Fm	GL	Winter	2.51	2.44	4.50	1.96	AB
								Pre-Monsoon	2.67	2.61	4.66	3.68	--
								Monsoon	2.09	1.96	1.44	WD	--
								Post- Monsoon	2.41	2.66	1.49	AB	
5	S.R.Puram Naspur X Road	Aasami Rajamallam ma/ Ippalapalli Kanakaiah	Domestic	1.2	13.50	Talchir	0.6	Winter	6.47	6.35	6.37	6.03	6.18
								Pre-Monsoon	6.71	6.64	6.44	6.88	7.82
								Monsoon	4.29	4.84	4.45	4.21	4.29
								Post- Monsoon	5.11	5.03	5.95	4.63	
6	Sitharampalli / on the way to intake well	Surimilla Lachanna	Domestic	2.5x3.5	6.90	Sullavai	0.60	Winter	7.43	7.38	7.14	2.98	2.92
								Pre-Monsoon	7.51	7.79	7.31	7.27	4.47
								Monsoon	6.18	4.34	1.75	1.63	2.23
								Post- Monsoon	7.21	4.58	2.48	2.71	
7	Sitharampalli/on the way to Thallapalli	M.Gopaiah	Domestic	1.20	11.50	Sullavai	GL	Winter	12.84	12.64	12.00	10.29	10.31
								Pre-Monsoon	12.98	13.04	12.63	12.28	13.30
								Monsoon	10.16	6.81	5.70	4.54	5.00
								Post- Monsoon	11.15	10.82	6.95	7.13	
8	Tallapalli/On the way to Intake well	Rukum. Ramaiah	Domestic	2.40	9.10	Sullavai	0.70	Winter	2.49	2.19	2.37	1.91	2.08
								Pre-Monsoon	2.70	2.67	2.73	2.93	2.17
								Monsoon	1.13	2.08	1.35	1.18	2.03
								Post- Monsoon	1.31	2.14	1.85	1.80	
9	Tallapalli/end of the village towards OC	B.Rajaiah	Domestic	1.20	10.50	Sullavai	1.10	Winter	7.89	7.56	7.22	5.85	5.97
								Pre-Monsoon	8.98	9.51	9.52	8.28	9.97
								Monsoon	3.1	3.15	4.55	3.74	4.40
								Post- Monsoon	6.94	6.29	5.35	5.32	
10	Singapuram /opp.panchayat office	Nammala Srinivasu	Domestic	2.40	7.40	Sullavai FM	0.30	Winter	3.94	4.07	5.16	3.33	3.18
								Pre-Monsoon	4.61	5.51	5.33	5.48	4.17
								Monsoon	2.13	2.71	1.70	1.30	1.83
								Post- Monsoon	2.44	2.83	2.35	2.48	
11	Singapuram /near teak plantation	Aggu Sailu	Agricultur e	4.00	10.50	Sullavai	GL	Winter	AB	AB	AB	--	--
								Pre-Monsoon	AB	AB	AB	--	--
								Monsoon	AB	AB	AB	--	--
								Post- Monsoon	AB	AB	AB	--	--
12	Ramaraopet /Near bridge	Gunta. Chandraiah	Domestic	1.30	5.20	Talchir FM	0.60	Winter	6.31	5.29	6.24	5.08	5.22
								Pre-Monsoon	5.38	5.72	6.28	6.92	--
								Monsoon	2.71	2.97	2.52	1.02	1.08
								Post- Monsoon	5.24	5.11	AB	3.48	
13	Guttedarpalli/Near RWS tank	R.Venkati	Domestic	2.50	8.50	Barkar Fm	0.50	Winter	Dry	Dry	AB	--	--
								Pre-Monsoon	Dry	Dry	AB	--	--
								Monsoon	Dry	Dry	AB	--	--
								Post- Monsoon	Dry	Dry	AB	AB	

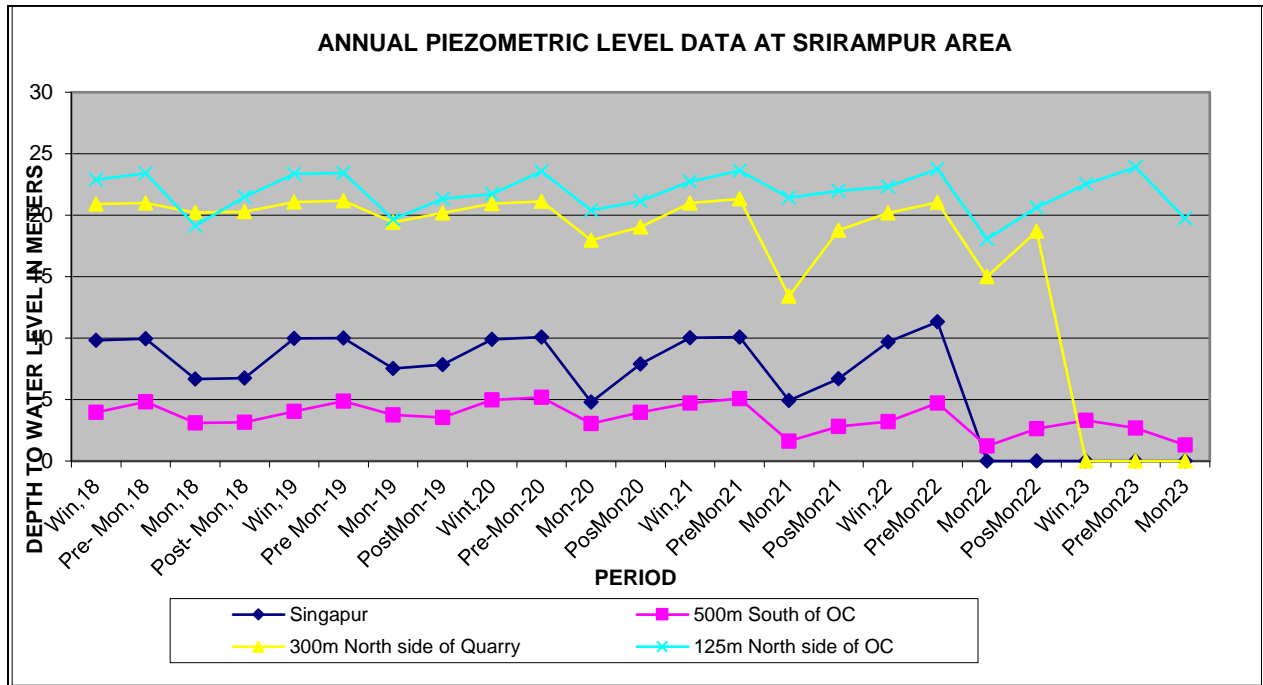
Sl. No	Name of village	Owner's Name	Type of Well	Dimensions (M)	Total Depth (M)	Geology	Measuring point(M AGL)	Period	Depth to Water (M)				
									2019	2020	2021	2022	2023
14	Indaram	A.Rajamallu/ opp.BP bunk	Domestic	3x4	11.50	Barren Measur es Fm	0.40	Winter	6.17	6.13	6.14	--	6.17
								Pre-Monsoon	6.89	7.37	7.35	7.54	3.60
								Monsoon	3.51	3.85	3.65	3.28	3.44
								Post- Monsoon	3.96	3.94	--	4.10	
15	Indram/ opp. Garden	M.Sankar/Po dusani Bhaskar reddy	Domestic	1.00	13.00	Barren Measur es Fm	0.90	Winter	AB	AB	AB	--	--
								Pre-Monsoon	AB	AB	AB	--	--
								Monsoon	AB	AB	AB	--	--
								Post- Monsoon	AB	AB	--	--	
16	Indaram/IK- 1&1A X- roads	Rajanna	Agricul ture	6.50	8.50	Barren Measur es Fm	0.70	Winter	AB	AB	AB	--	--
								Pre-Monsoon	AB	AB	AB	--	--
								Monsoon	AB	AB	AB	--	
								Post- Monsoon	AB	AB	--		
17	Tekumatla	Rice mill/ Kamalakar	Domestic	1.60	10.50	Barren Measur es Fm	0.60	Winter	9.70	9.67	9.84	--	9.74
								Pre-Monsoon	Dry	Dry	10.53	--	11.37
								Monsoon	9.21	8.22	9.00	7.81	7.68
								Post- Monsoon	9.63	9.75	--	8.10	
18	Tekumatla /behind Panchayat office	V.Ramireddy	Domestic	1.00	11.00	Barren Measur es Fm	GL	Winter	2.13	3.66	2.55	3.74	3.88
								Pre-Monsoon	5.32	5.71	5.28	5.32	--
								Monsoon	1.66	2.34	2.10	1.88	3.10
								Post- Monsoon	3.64	2.41	--	2.72	
19	Indaram	Govt. Well	Domestic	2.00	9.00	Barren Measur es Fm	0.50	Winter	6.79	6.68	6.34	4.76	4.86
								Pre-Monsoon	Dry	7.13	6.89	7.56	7.37
								Monsoon	Dry	3.82	3.92	3.51	3.73
								Post- Monsoon	5.44	4.95	--	--	
20	Indaram/sid e of HP Petrol bunk	M. Uppalaiah	Domestic	1.20	7.00	Barren Measur es Fm	0.60	Winter	6.24	6.18	6.08	6.24	6.33
								Pre-Monsoon	6.61	6.74	6.57	6.84	6.40
								Monsoon	4.74	4.31	2.05	1.91	2.01
								Post- Monsoon	4.81	4.67	--	--	
21	Rasulpalli	Madhukar	Domestic	1.00	8.00	Barren Measur es Fm	0.70	Winter	3.71	3.62	3.46	2.90	2.98
								Pre-Monsoon	5.14	5.54	5.22	4.37	3.05
								Monsoon	1.96	2.18	1.56	1.41	1.48
								Post- Monsoon	3.22	2.89	--	--	
22	Mudikunta	G.Rajaiah	Domestic	1.00	11.40	Barren Measur es Fm	0.40	Winter	5.90	5.89	4.93	5.00	5.08
								Pre-Monsoon	5.95	6.14	6.12	8.26	5.51
								Monsoon	4.54	3.61	2.72	2.50	2.70
								Post- Monsoon	4.97	4.14	3.73	2.90	
23	Mudikunta	Ellamma temple	Domestic	1.00	4.50	Barren Measur es Fm	0.40	Winter	2.98	AB	AB	--	--
								Pre-Monsoon	AB	AB	AB	--	--
								Monsoon	AB	AB	AB	--	
								Post- Monsoon	AB	AB	--	--	
24	Kankur/near school	Govt. Well /Regunta.Mallesh	Domestic	4.00	9.00/ 10.0	Barren Measur es Fm	0.40/ 0.50	Winter	Dry	6.55	AB	6.75	6.82
								Pre-Monsoon	Dry	AB	7.30	7.31	2.85
								Monsoon	7.39	AB	3.83	1.00	2.00
								Post- Monsoon	7.84	AB	--	--	
25	Jaipur	Behind AE Off. Near bus stop	Domestic	1.50	12.00	Kamthi FM	0.80	Winter	3.93	3.84	4.26	2.96	2.99
								Pre-Monsoon	4.05	5.11	5.91	4.87	3.80
								Monsoon	2.34	2.18	1.50	0.81	0.88
								Post- Monsoon	2.66	3.06	--	1.08	

PRE-MONSOON HYDROGRAPHS IN SRIRAMPUR AREA



POST-MONSOON HYDROGRAPHS IN SRIRAMPUR AREA



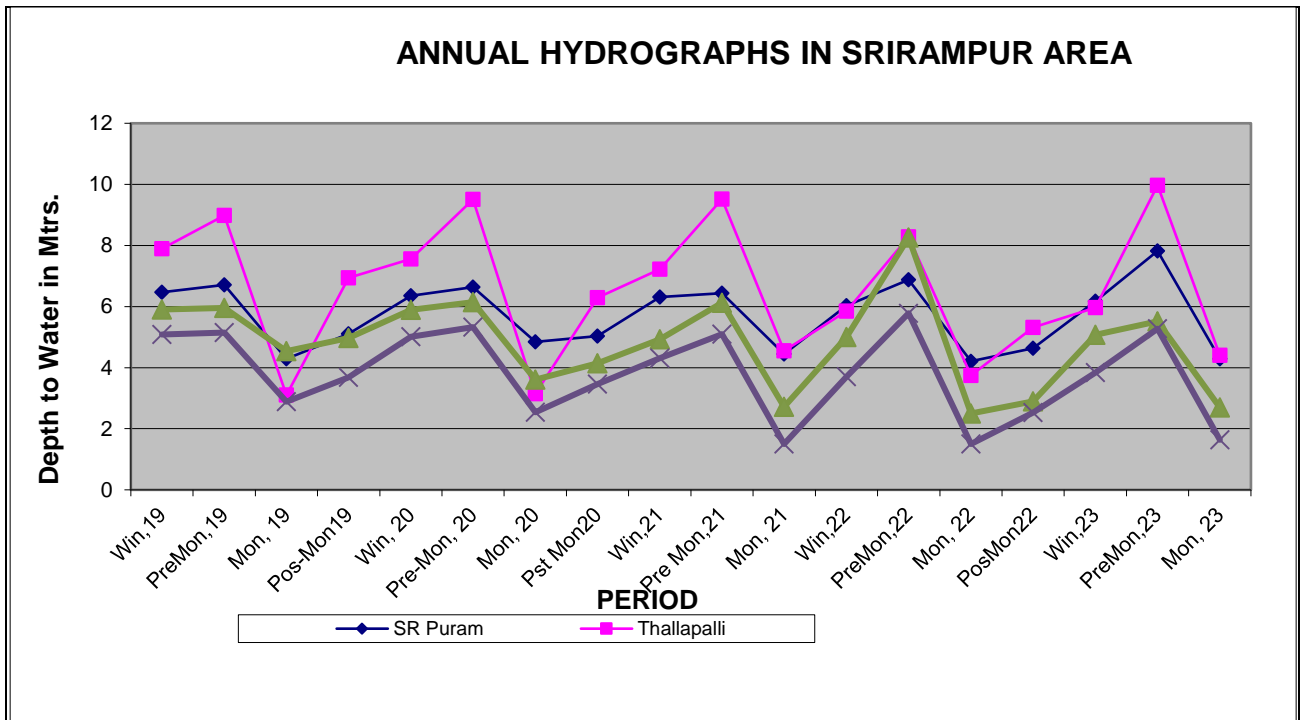
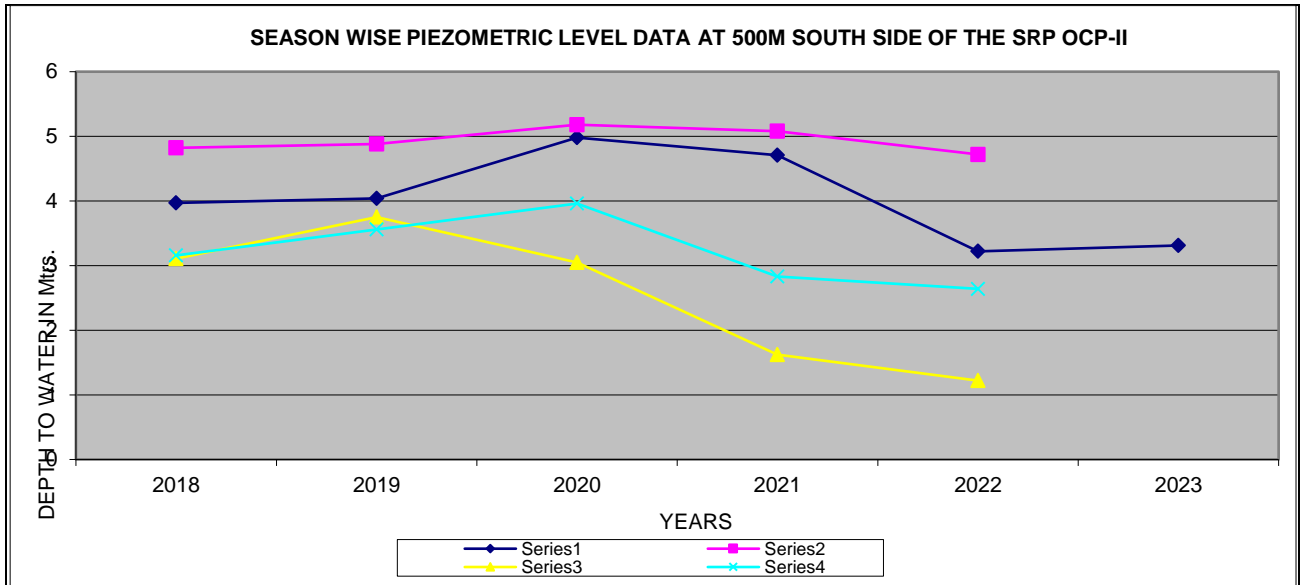


B. PIEZOMETRIC LEVEL DATA OF SRIRAMPUR AREA.

Well No.	Location	Depth (m)	Dia (m)	Measuring point (m above ground level)	Period	Depth to Water (m)					
						2018	2019	2020	2021	2022	2023
SRP_OCP.I PW-5	About 500 m south of the quarry and 150m north of Indaram Tank (N18°49'35.43" – E 79°30'57.60")	208	0.10	0.30	Winter	3.97	4.04	4.98	4.71	3.22	3.31
					Pre-Monsoon	4.82	4.88	5.18	5.08	4.72	2.70
					Monsoon	3.11	3.75	3.05	1.62	1.22	1.31
					Post-Monsoon	3.16	3.56	3.96	2.83	2.64	
SRP_OCP.I PW-7	Near Singapur village (N18°49'46.47" – E 79°30'25.52")	50	0.10	0.20	Winter	9.82	9.97	9.91	10.04	9.68	*NA
					Pre-Monsoon	9.94	10.01	10.07	10.08	11.32	AB
					Monsoon	6.68	7.53	4.79	4.92	*NA	AB
					Post-Monsoon	6.74	7.84	7.89	6.71	*NA	
SRP_OCP.I PW-8	Near Project Office sub-station. About 125m from N side of quarry surface limit. (N18°51'4.12" – E 79°29'39.90")	50	0.10	0.40	Winter	22.90	23.35	21.72	22.73	22.32	22.52
					Pre-Monsoon	23.41	23.43	23.57	23.62	23.75	23.90
					Monsoon	19.13	19.67	20.4	21.42	18.06	19.73
					Post-Monsoon	21.48	21.33	21.14	21.97	20.63	
SRP_OCP.I PW-10	Road to SRP bus stand, about 300m from N side of quarry surface limit (N18°51'7.10" – E 79°30'11.26")	50	0.1	0.50	Winter	20.90	21.07	20.94	20.99	20.19	NA*
					Pre-Monsoon	20.98	21.17	21.11	21.32	21.05	NA*
					Monsoon	20.21	19.44	17.98	13.42	15.00	NA*
					Post-Monsoon	20.28	20.19	1.03	18.77	18.70	
*SRP_CSIR O PW-11	West side External dump area, Near to Thallapalli village. (N18°49'54.731" – E 79°29'11.085)	50	0.1	0.2	Winter	1.97	2.32	2.38	2.23	2.09	2.18
					Pre-Monsoon	2.38	2.53	2.57	2.64	3.17	2.60
					Monsoon	1.05	NA	0.91	1.15	1.05	NA*
					Post-Monsoon	2.00	2.07	2.00	1.89	1.88	
*SRP_CSIR O PW-12	West side External dump area. Near to Thallapalli village (N18°49'50.573" - E 79°29'06.202")	50	0.1	0.2	Winter	2.07	2.87	2.84	2.68	2.80	2.73
					Pre-Monsoon	2.28	2.91	2.93	3.01	4.65	2.80
					Monsoon	2.08	2.12	2.08	1.81	2.03	1.83
					Post-Monsoon	2.14	2.35	2.17	2.29	2.66	
*SRP_CSIR		50	0.1	0.2	Winter	2.99	3.05	3.17	3.63	3.92	3.97

O PW-13	External dump area. Road to Godavari river (N18°49'45.286" – E 79°29'06.811")				Pre-Monsoon	3.28	3.76	3.84	4.07	4.56	3.70
					Monsoon	3.11	2.98	3.08	2.97	4.21	2.83
					Post-Monsoon	3.06	3.11	3.27	3.85	4.48	
*SRP_CSIR O PW-14	West side External dump area. Road to Godavari River (N18°49'32.305" – E 79°28'50.154")	50	0.1	0.2	Winter	4.73	4.77	4.68	4.37	4.62	4.54
					Pre-Monsoon	5.25	4.82	4.91	5.77	6.25	5.80
					Monsoon	4.12	4.18	4.13	3.92	4.06	3.38
					Post-Monsoon	4.19	4.24	4.28	4.22	4.45	

Note : NA:Not applicable and AB: Abonded.
Piezometric well No.SRP OCP-I, PW-1,2,3,4,6&9 were abonded



MINUTES OF THE ENVIRONMENTAL MANAGEMENT COMMITTEE MEETING HELD ON 28.08.2023 AT 5.30 PM AT GENERAL MANAGER'S OFFICE TO REVIEW THE EC, CFE, CFO AND F.C CONDITIONS COMPLIANCE STATUS OF ALL MINES / PROJECTS OF SRIRAMPUR AREA

At the outset Addl Manager (Env) while welcoming the members explained about the need of Environmental Management Committee Meeting (EMC), complying of EC/CFE/CFO/FC conditions and discussed following points. General Manager instructed the concern to take up the works as discussed.

With reference to the letters cited, Area level Committee meeting was conducted under the chairmanship of GM SRP with the officers concerned (copy of list enclosed) from 5.30pm to 7.30pm on 28.08.2023 at general manager's office SRP on Non-compliance status of conditions stipulated in EC/FC/CFE/CFO of Mines of Srirampur Area.

The minutes of the meeting are given below.

While welcoming the participants to the area level committee meeting, Area Environment Officer in his opening remarks highlighted the points discussed in the Apex committee meeting and given small presentation on awareness of environmental laws.

Thereafter Chairman welcomed the members and advised all the Agents, Managers to strictly follow the rules connected to environment. Violation of Environment procedures will be viewed seriously and stringent action will be taken against the violation.

It is a fundamental responsibility of every citizen of India to protect environment. We have to follow environmental laws meticulously.

Some Laws we can implement, some are to be forwarded to higher ups and some are time taking.

The person personally will be held responsible for their own violation. Responsibility is demarcated.

AREA LEVEL ENVIRONMENTAL COMMITTEE MEETING AGENDA

AREA ENGINEER (E&M)

- Installation of flow meters on mine water discharge pipes.
- Crushers at the existing CHP and that to be constructed shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, and transfer points.
- ETP shall also be provided for CHP wastewater. Mine discharge water shall be treated to prescribed standards before discharge into any natural water course.
- The company shall provide water sprinkling system at coal stacking yards (CFO Condition)
- CFO Condition No:9 of Schedule- B, The Company shall provide water sprinkling system at Coal yard near GM Office and other coal Yards. (CFO Condition).
- The Industry shall provide Impact Rollers at transfer points to dampen the noise levels at Coal handling points (CFO Condition).
- The industry may explore the possibility of generating the solar power for their energy requirements.

AREA ENGINEER (CIVIL)

- ETP shall also be provided for workshop and CHP wastewater. Mine discharge water shall be treated to prescribed standards before discharge into any natural water course.
- The sewage treatment plant (STP) installed in the township shall meet the requirements of the expansion project as well as all colonies.
- The construction of retaining wall at the toe of the dumps and OB benches.
- The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource.
- CFO Condition No:9 of Schedule- B, The Company shall provide water sprinkling system at Coal yard near GM Office and other coal Yards. (CFO Condition)

PROJECT OFFICER/MANAGER, SRP OC

- Proper stacking of Top soil.
- Garland drains of suitable size.
- Settling ponds (20m L X 20m W x 2m D)
- An area Drainage Study shall be conducted and protective measures shall be taken to prevent mine inundation.
- The construction of retaining wall at the toe of the dumps and OB benches.
- Crushers at the existing CHP and that to be constructed shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, and transfer points.
- Besides carrying out regular periodic health check up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check up for occupational diseases and hearing impairment, if any, through an agency such as **NIOH, Ahmadabad** within a period of one year and the results reported to this Ministry and to DGMS.
- ETP shall also be provided for workshop and CHP wastewater. Mine discharge water shall be treated to prescribed standards before discharge into any natural water course.
- The industry shall ensure covering of coal trucks with tarpaulin to avoid spillages of coal and fugitive emissions due to transportation of coal. (CFO Condition).

AGENTS/MANAGERS (UG)

- Sufficient coal pillars shall be left un-extracted around the airshaft (within the subsidence influence area) to protect from any damage from subsidence, if any.
- Drills should be wet operated
- ETP shall also be provided for workshop and CHP wastewater. Mine discharge water shall be treated to prescribed standards before discharge into any natural water course.
- CFO Condition No:9 of Schedule- B, The Company shall provide water sprinkling system at Coal yard near GM Office and other coal Yards. (CFO Condition) (RK 7 Gr Agent)
- Monthly water discharge and consumption details shall be prepared and submit to Corporate (Env Dept)
- The industry shall ensure covering of coal trucks with tarpaulin to avoid spillages of coal and fugitive emissions due to transportation of coal. (CFO Condition).

PROJECT ENGINEER, SRP OC

- Crushers at the existing CHP and that to be constructed shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, and transfer points

- The company shall provide water sprinkling system at coal stacking yards (CFO Condition)
- The Industry shall provide Impact Rollers at transfer points to dampen the noise levels at Coal handling points (CFO Condition).

DGM (E&M) SRP CHP

- Crushers at the existing CHP and that to be constructed shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, and transfer points.
- ETP shall also be provided for CHP wastewater. Mine discharge water shall be treated to prescribed standards before discharge into any natural water course.
- The company shall provide water sprinkling system at coal stacking yards (CFO Condition)
- The Industry shall provide Impact Rollers at transfer points to dampen the noise levels at Coal handling points (CFO Condition).
- The industry shall ensure covering of coal trucks with tarpaulin to avoid spillages of coal and fugitive emissions due to transportation of coal. (CFO Condition).

While reviewing the different environment activities as per conditions stipulated in EC/FC/CFE/CFO chairman advised to take up the following works.

CHAIRMAN'S INSTRUCTIONS/ADVISES

AREA ENGINEER (E&M)

- Advised to put proposal with required input Data for Installation of flow meters on mine water discharge pipes.
- High efficiency bag filters – Advised to visit Orient cement/STPP along with DGM (CHP), SRP, PE (SRP OC), Area environment officer and prepare a Draft proposal for further course of action.
- Provide fixed and single valve operated water sprinkling system at Weigh Bridge near GM Office in consultation with DGM (Civil) and Agent RK 7 Group.
- Impact Rollers at transfer points to dampen the noise levels at Coal handling points – Advised to Study discuss with DGM (CHP), SRP, PE (SRP OC) and put up the status

AREA ENGINEER (CIVIL)

- The sewage treatment plant (STP) – Advised to initiate proposal for another STP with suitable capacity at strategic location to serve CCC Township, Krishna Colony, RK 5 Colony, RK 8 Colony, SRP Colony and CISF Colony.
- Rain water harvesting pits– Advised to recondition present pits 32 NOs and propose for some more pits.
- The chairman, advised to take up construction of rock toe walls, rain water harvesting pits, rock fill dams, cleaning of drains, settling ponds, check dams, culverts, etc., as and when required. And to make field visits by audit committee formed.

PROJECT OFFICER/MANAGER, SRP OC.

PROJECT ENGINEER, SRP OC.

- Advised to comply all conditions discussed in the meeting.
- ETP shall be proposed at OB out sourcing HEMM parking Area.
- The chairman, advised to take up construction of rock toe walls, rain water harvesting pits, rock fill dams, cleaning of drains, settling ponds, check dams, culverts, etc., as and when required.
- The chairman, advised to ensure covering of coal trucks with tarpaulin to avoid spillages of coal and fugitive emissions due to transportation of coal. (CFO Condition).

AGENTS/MANAGERS (UG)

- The chairman, advised to ensure covering of coal trucks with tarpaulin to avoid spillages of coal and fugitive emissions due to transportation of coal. (CFO Condition).
- Advised to comply all conditions discussed in the meeting.

DGM (E&M) SRP CHP

- Advised to comply all conditions discussed in the meeting
- Put up proposal for ETP for new CHP.
- The chairman, advised to ensure covering of coal trucks with tarpaulin to avoid spillages of coal and fugitive emissions due to transportation of coal. (CFO Condition).

AREA ENVIRONMENT/ FOREST OFFICER

- To follow up and monitor everybody concerned to comply all above discussed conditions.

Chairman further advised HODs and members shall have positive approach towards environment protection and to co-ordinate with project authorities for rectifying Non compliance conditions of EC/FC/CFE/CFO of all mines of Srirampur area. A compliance report of the minutes may please be communicated to the office of the undersigned at the earliest.

Finally Area Environment Officer requested all members to kindly follow the procedures and try to comply the guidelines. Kindly take this as serious issue on the matter of non-compliance of guidelines. Also informed the copy of minutes of this meeting will be sent to G.M. (Environment) and Corporate Level Apex Committee.

Meeting ended with vote of thanks.

The following committee members/ Guests were present:

- 1 General Manager
- 2 Agent, RK-5&6 Group
- 3 AGM(E&M), SRP
- 4 DGM(E&M), AWS
- 5 DGM(E&M). SRP CHP
- 6 DGM (Civil), SRP
- 7 Area Survey Officer
- 8 Addl Manager/Env.SRP
- 9 Sr. Estates Officer, SRP
- 10 Coll. Mgr., / RK-5
- 11 Dy. Supdt. Survey Officer/ RK-5

3.9.1 Flora & Fauna in Core Zone

Habitat: Core zone is covered forestland of area about 337.15 ha. The habitat is well maintained with artificial rising of plants around the Core area with natural forest species. The tree species listed below are above 5 mts height and herbs and shrubs attracts the birds and butterflies. This area is good habitat for reptiles and amphibians.

FLORA

i). Trees:

S.No.	Scientific Name	Family	Common Name	Status
1.	<i>Acacia auriculiformis</i>	Mimosaceae	Ari	C
2.	<i>Azadirachta indica</i>	Meliaceae	Vepa	C
3.	<i>Cassia fistula</i>	Caesalpiaceae	Rela	VC
4.	<i>Cassia siamea</i>	Caesalpiaceae	Seema tangedu	C
5.	<i>Chloroxylon swietenia</i>	Flindersiaceae	Billudu	C
6.	<i>Diospyros melanoxylon</i>	Ebenaceae	Tuniki aku	UC
7.	<i>Madhuca indica</i>	Sapotaceae	Ippa	C
8.	<i>Morinda pubescens</i>	Rubiaceae	Toguru	C
9.	<i>Ficus religiosa</i>	Moraceae	Raavi	C
10.	<i>Pongamia pinnata</i>	Fabaceae	Kanuga	A
11.	<i>Prosopis chilensis</i>	Mimosaceae	Thumma	C
12.	<i>Tectona grandis</i>	Verbenaceae	Teaku chettu	C

ii). Shrubs:

S.No.	Scientific Name	Family	Common Name	Status
13.	<i>Abutilon indicum</i>	Malvaceae	Tutturubenda	VC
14.	<i>Barleria prionitis</i>	Acanthaceae	Mullagorinta	C
15.	<i>Calotropis gigantean</i>	Asclepiadaceae	Jilledu	A
16.	<i>Cassia auriculata</i>	Caesalpiaceae	Thangedu	A
17.	<i>Cassine glauca</i>	Celastraceae	Nerini, Neridi	C
18.	<i>Jatropha gossypifolia</i>	Euphorbiaceae	Nepalamu	C
19.	<i>Pavetta indica</i>	Rubiaceae	Kommi	C
20.	<i>Hyptis sueolens</i>	Lamiaceae	Konda tulasi	A
21.	<i>Lantana camara</i>	Verbenaceae	Ranabheri	C
22.	<i>Plectranthu parviflora</i>	Rubiaceae	Balusu	C
23.	<i>Vitex negundo</i>	Verbenaceae	Vavili	A
24.	<i>Zizyphus maurtiana</i>	Rhamnaceae	Regu	C
25.	<i>Ricinus communis</i>	Euphorbiaceae	Amudamu	A

iii). Herbs:

S.No.	Scientific Name	Family	Common Name	Status
26.	<i>Croton banplandianum</i>	Euphorbiaceae	Kukkamirapa	A
27.	<i>Evolvulus alsinoides</i>	Convolvulaceae	Vishnukranthamu	VC
28.	<i>Indigofera tinctoria</i>	Fabaceae	Nili	C
29.	<i>Solanum surattense</i>	Solanaceae	Ramamulaga/Kasi	C
30.	<i>Tephrosea purpurea</i>	Fabaceae	Vempali	VC

iv). Lianas (Climbers/ Woody climbers):

S.No.	Scientific Name	Family	Common Name	Status
31.	<i>Cuscuta reflexa</i>	Solanaceae	Akashavalli	R
32.	<i>Hemidesmus indicus</i>	Periplocaceae	Sugandhipala	C
33.	<i>Tylophora indica</i>	Asclepiadaceae	Kukkapala	C

v). **Grasses:**

S.No.	Scientific Name	Family	Common Name	Status
34.	<i>Aristida ascensions</i>	Poaceae	Cheepurugaddi	C
35.	<i>Cynodon dactylon</i>	Poaceae	Garika	VC
36.	<i>Cyperus javanicus</i>	Cyperaceae	Thunga musthalu	VC

vi). **Aquatic Plants:**

S.No.	Scientific Name	Family	Common Name	Status
37.	<i>Hydrilla verticillata</i>	Hydrocharitaceae	Pacchimokka	R
38.	<i>Ipomoea cornea</i>	Convolvulaceae	Samudra pala	C
39.	<i>Phyla nodiflora</i>	Verbenaceae	Bokkenaku	UC
40.	<i>Typha angustata</i>	Typhaceae	Jambhu	C

FAUNA

S.No	Scientific Name	Common Name	Status
1	<i>Felis chaus</i>	Jungle cat	R
2	<i>Herpestes edwardsi</i>	Common mongoose	C
3	<i>Hystrix indica</i>	Porcupine	UC
4	<i>Lepus nigricollis</i>	Hare	C
5	<i>Ardeola grayii</i>	Indian Pond Heron	VC
6	<i>Bubulcus ibis</i>	Cattle egret	VC
7	<i>Egretta gazetta</i>	Small egret	VC
8	<i>Galloperdix spadicea</i>	Red spur fowl	C
9	<i>Gallus sonneratii</i>	Grey jungle fowl	C
10	<i>Naja naja</i>	Cobra	C
11	<i>Ptyas mucosus</i>	Rat snake	C
12	<i>Vipera russelli</i>	Russels viper	UC
13	<i>Hemidactylus brooki</i>	Brook's Gecko	C
14	<i>Hemidactylus flaviviridis</i>	Northern house Gecko	C
15	<i>Calotes versicolor</i>	Common Garden Lizard	VC
16	<i>Calotes rouxi</i>	Forest Calottes	VC
17	<i>Sitana ponticeriana</i>	Fan-throated lizard	VC
18	<i>Mabuya carinata</i>	Common Skink	C

*A: ABUNDANT; C : COMMON; VC: VERY COMMON; UC: UNCOMMON; R: RARE

There are no endemic / endangered flora & fauna species found in the Core Zone

3.9.2 Flora & Fauna in Buffer Zone :

Habitat: Buffer zone falls in forestland. The forest type is Dry deciduous mixed forest comprises vegetation in dense patches, scrubs and type formations.

FLORA

i). **Trees:**

S.No.	Scientific Name	Family	Common Name	Status
1.	<i>Acacia nilotica</i>	Mimosaceae	Nallatumma	C
2.	<i>Albizia amera</i>	Mimosaceae	Chikireni	C
3.	<i>Albizia lebbeck</i>	Mimosaceae	Dirisina, Sirisa	C
4.	<i>Bambusa arundianacea</i>	Poaceae	Bongu Veduru	VC
5.	<i>Cassia auriculata</i>	Caesalpiniaceae	Thangedu	VC
6.	<i>Cassia fistula</i>	Caesalpiniaceae	Rela	C
7.	<i>Chloroxylon swietenia</i>	Flindersiaceae	Billudu	C
8.	<i>Diospyros melanoxylon</i>	Ebenaceae	Tuniki aku	C
9.	<i>Eucalyptus globules</i>	Myrtaceae	Neelagiri thailamu	UC

10.	<i>Ficus benjamina</i>	Moraceae	Bembedu	UC
11.	<i>Ficus religiosa</i>	Moraceae	Raavi	UC
12.	<i>Limonia acidissima</i>	Rutaceae	Velaga	UC
13.	<i>Litsea glutinosa</i>	Lauraceae	Narra alagi	R
14.	<i>Morinda pubescens</i>	Rubiaceae	Toguru	R
15.	<i>Phoenix sylvestris</i>	Palmae	Eethachettu	C
16.	<i>Pithecelobium dulce</i>	Mimosaceae	Seemachinta	C
17.	<i>Pongamia pinnata</i>	Fabaceae	Kanuga	VC
18.	<i>Prosopi chilensis</i>	Mimosaceae	Thumma	C
19.	<i>Tamarindus indica</i>	Caesalpiniaceae	Chinta/Tamarind	C
20.	<i>Tectona grandis</i>	Verbenaceae	Teaku chettu	C

ii). **Shrubs:**

S.No.	Scientific Name	Family	Common Name	Status
21.	<i>Acacia caesia</i>	Mimosaceae	Korinda	C
22.	<i>Agave americana</i>	Agavaceae	Kithanara	C
23.	<i>Alangium salvifolium</i>	Alangiaceae	Uduga	C
24.	<i>Barleria prionitis</i>	Acanthaceae	Mullagorinta	UC
25.	<i>Calotropis gigantea</i>	Asclepiadaceae	Jilledu	VC
26.	<i>Carissa carandas</i>	Apocynaceae	Wakkayalu	C
27.	<i>Cleistanthus collinus</i>	Euphorbiaceae	Nalla vadisa	C
28.	<i>Hyptis sueolens</i>	Lamiaceae	Konda tulasi	C
29.	<i>Ricinus communis</i>	Euphorbiaceae	Amudamu	C
30.	<i>Vitex negundo</i>	Verbenaceae	Vavili	VC
31.	<i>Wrightia tinctoria</i>	Apocynaceae	Palakodisa	C
32.	<i>Ziziphus mauritiana</i>	Rhamnaceae	Regu	C

iii). **Herbs:**

S.No.	Scientific Name	Family	Common Name	Status
33.	<i>Croton banplandianum</i>	Euphorbiaceae	Kukkamirapa	C
34.	<i>Evolvulus alsinoides</i>	Convolvulaceae	Vishnukranthamu	C
35.	<i>Solanum surattense</i>	Solanaceae	Ramamulaga/Kasi	C
36.	<i>Tephrosea purpurea</i>	Fabaceae	Vempali	VC

iv). **Lianas (Climbers/ Woody climbers)**

S.No.	Scientific Name	Family	Common Name	Status
37.	<i>Coccinea grandis</i>	Cucurbitaceae	Donda	C
38.	<i>Cuscuta reflexa</i>	Solanaceae	Akashavalli,	VC
39.	<i>Hemidesmus indicus</i>	Periplocaceae	Sugandhipala	C
40.	<i>Tylophora indica</i>	Asclepiadaceae	Kukkapala	C

v). **Aquatic Plants**

S.No.	Scientific Name	Family	Common Name	Status
41.	<i>Hydrilla verticillata.</i>	Hydrocharitaceae	Pacchimokka	C
42.	<i>Ipomoea cornea</i>	Convolvulaceae	Samudra pala	C
43.	<i>Phyla nodiflora</i>	Verbenaceae	Bokkenaku	C
44.	<i>Typha angustata</i>	Typhaceae	Jambhu	C

vi). **Crops/Cultivated Plants**

S.No.	Scientific Name	Family	Common Name	Status
45.	<i>Gossypium herbacium</i>	Malvaceae	Cotton	C
46.	<i>Mangifera indica</i>	Anacardiaceae	Mamidi	C
47.	<i>Zea maize</i>	Poaceae	Mokkajonna	C

D. FAUNA:

S.No.	Scientific Name	Common Name	Status
1	<i>Axis axis</i>	Chital or Spotted deer	C
2	<i>Felis chaus</i>	Jungle cat	UC
3	<i>Presbytis entellus</i>	Common langur	C
4	<i>Sus scrofa</i>	Wild boar	C
5	<i>Aeridotheres tristis</i>	Common myna	C
6	<i>Copsychus saularis</i>	Mag-pie robin	C
7	<i>Corvus splendens</i>	Common crow	VC
8	<i>Dicrurus adsimilis</i>	Black drogon	C
9	<i>Pitta branchyura</i>	Indian pitta	C
10	<i>Psittacula cupatria</i>	Large Indian parakeet	UC
11	<i>Psittacula krameri</i>	Rose ringed parakeet	UC
12	<i>Pycnotus cafer</i>	Redvented bulbul	UC
13	<i>Saxicoloides fulicata</i>	Indian robin	VC
14	<i>Streptopelia senegalensis</i>	Ring dove	C
15	<i>Turdoides curdatus</i>	Common babbler	VC
16	<i>Turdoides striatus</i>	Jungle babbler	VC
17	<i>Naja naja</i>	Binoccllate cobra	C
18	<i>Sitana ponticeriana</i>	Fan throated lizard	VC
19	<i>Typhlina amina</i>	Common blind snake	VC

***A: ABUNDANT; C : COMMON; VC: VERY COMMON; UC: UNCOMMON; R: RARE**

As seen from the above list, there are no endemic or endangered species present in this zone.

IMPLEMENTATION STATUS OF THE PUBLIC VIEWS / OPINIONS / OBJECTIONS RAISED DURING THE ENVIRONMENTAL PUBLIC HEARING FOR THE EXISTING RK-5 INCLINE UNDERGROUND COAL MINES OF SRIRAMPUR AREA HELD ON 12-03-2008 AT 2:00 P.M. AT MARKET YARD (WEEKLY MARKET) NEAR PRATIBHA HIGH SCHOOL, RK-6 COLONY, SRIRAMPUR, MANCHERIAL MANDAL, ADILABAD DISTRICT, T.S.

Sl. No	Representation of the Public	Status of implementation
1	<p>Sri G. Jaggaiah, Sarpanch, Singapur village welcomed the proposed expansion of the mines for increasing production capacity of existing SRP-1, SRP 3 & 3A, RK-5, RK-6 and RK-7 Inclines.</p> <p>He stated that due to coal transport lorries on the roads, pollution is increasing and road accidents are increasing.</p> <p>Central lighting system is to be arranged from SHAPE funds.</p> <p>Bore well water level is decreasing in this area due to underground mines.</p> <p>He stressed the need for supply of drinking water to the surrounding villages.</p> <p>He also opined that few more SULABH Complexes are to be constructed.</p> <p>He stated that drains are to be constructed from RK -6 hutment area.</p>	<p>Monitoring of air, noise and water is being regularly carried out as per the standards of TSPCB.</p> <p>Transportation lorries are being covered with tarpaulins to prevent air pollution.</p> <p>Central lighting system has been arranged in RK-6 colony through SHAPE funds.</p> <p>About 48 nos., Level of bore water is being monitored and found to vary due to seasonal effects but not due to mining operation.</p> <p>Funds are being allocated for Rural Water Supply Scheme under SHAPE. However Nos.67 bore holes with hand pumps provided at Naspur colony, Nagarjuna colony, hutment area, and surrounding villages of Srirampur area.</p> <p>Drains were constructed under SHAPE</p>
2	<p>Sri T.Rajaiah, MPTC, Srirampur stated that only 25% workmen are provided with company quarters and most of the workmen are living in their own houses/ huts. Water supply was given to some of the families in the hutment area.</p> <p>Roads and drains are constructed by SCCL under SHAPE fund.</p> <p>From G.M. Office to RK.6 colony statue, more number of heavy vehicles are plying and causing health problem due to dust. Water spraying is to be done to control dust pollution along roads.</p> <p>Recreation facilities are to be improved in the colonies. Training is being given to the children of workmen and suggested that SCCL should help in getting bank loans for self employment.</p> <p>Plantation work contracts are to be given to the unemployed children of the employees.</p>	<p>More than 55% out of 14306 employees, 7897 were provided accommodation in to quarters.</p> <p>Overhead tank (45.0 Lakhs) and pipe lines (30.0 Lakhs) arranged at Srirampur colony surroundings of 23 habitats under shape fund.</p> <p>Roads and drains are being constructed.</p> <p>Water spraying on asphalt roads will damage the road. Hence, the route of the lorries has been diverted via RK-8, RK-6, and Sthupam to CSP instead of RK-6 colony.</p> <p>Recreation club, parks have been developed in the colonies. A Gym is provided in CER club.</p> <p>--</p>

Sl. No	Representation of the Public	Status of implementation
3	<p>Sri Ch. Linga Murthy, Jt. Secretary. CPI / MPTC, RK-6 colony requested to provide Street lighting along RK-6 'kotha road'.</p> <p>As the coal transport lorries / heavy vehicles are plying more frequently, water spraying is to be done at least three times a day.</p> <p>Health club, parks and play grounds are to be improved in the colonies.</p> <p>Side drains were constructed under SHAPE fund and their maintenance also to be done by SCCL. He stressed that either SCCL or through RTC, school buses are to be provided for college girls and boys from Krishna colony to Mancherial. Central lighting and road dividers are to be provided from Indaram to Naspur colony.</p> <p>Lighting system and drinking water supply to be arranged at weekly market yard of RK.6 colony. He also requested to repair bore wells in hutment areas and expressed that pada yatras should also be made in hutment areas.</p>	<p>Street lighting has been provided along RK-6 Kotha road.</p> <p>Water spraying on asphalt roads will damage the road. Hence, the route of the lorries has been diverted via RK-8, RK-6, and Sthupam to CSP instead of RK-6 colony.</p> <p>Renovation of ICU ward at Mancherial Govt. hospital (60.0 Lakhs) provided under shape fund.</p> <p>Recreation club, parks and swimming pool have been developed in the colonies. A Gym is provided in CER club. Two Community halls provided at Naspur colony and one community hall and play ground (i.e., Shanthi stadium)at Krishna colony.</p> <p>Maintenance is being done by outsourcing.</p> <p>The road from Indaram to Naspur is a national highway (NH-16).</p> <p>Provided.</p> <p>Bore wells are being maintained as and when required. Pada yatras are being continued in colonies.</p>
4	<p>Sri Siddam Sankaraiah, Upa-Sarpanch, Singapur stated that earlier there was a road from RK.6 to RK.7 & RK.8 directly for coal transportation; but not through RK.6 colony. He requested to divert the coal transport route.</p> <p>He also requested to provide infrastructural facilities in their private colonies where SCCL workers are residing and to provide Central lighting system along RK.6 colony main road.</p> <p>He requested for construction of drains and other facilities under SHAPE or Govt. funds.</p>	<p>The route of the lorries has been diverted via RK-8, RK-6, and Sthupam to CSP instead of RK-6 colony.</p> <p>Central lighting system was provided in RK-6 colony main road.</p> <p>Construction of drains completed at RK-6 hutment area under shape works</p>
5	<p>Sri Rachakonda Gopala Rao, Sarpanch, Naspur stated that in Lakshminagar, Prasanthnagar, Gandhinagar and Vidyanagar, there is no drinking water facility and requested for drinking water supply. In Shirke and Nagarjuna colonies water supply is to be improved.</p> <p>He requested to develop the weekly market in Naspur colony and to arrange for central lighting system in the Shirke colony.</p> <p>He requested for laying of road from Shirke colony to SRP 3 & 3A mine.</p>	<p>However Nos.67 bore holes with hand pumps provided at Naspur colony, Nagarjuna colony, hutment area, and surrounding villages of SRP OCP. Sufficient drinking water being supplied as per availability of water in Godavari river.</p> <p>Weekly market is running in Naspur colony.</p> <p>Road was laid from Shirke colony to SRP-3 & 3A mine.</p>

Sl. No	Representation of the Public	Status of implementation
6	<p>Sri Muthe Rajesam, Sarpanch, Teegalpahad village informed that at Teegalpahad, filter bed was constructed 20 years back when sufficient water was supplied. But now water is supplied for only 6 hours per day. He stated that in this gram panchayath, out of 17,500 population, about 2000 are SCCL employees. He requested to provide sufficient water to their village.</p> <p>He stated that trees are not planted along the roads.</p> <p>He requested for laying of road from Shirke colony to SRP 3 &3A mine.</p>	<p>Sufficient water being supplied.</p> <p>Plantation is being done as per the EIA/EMP.</p> <p>Road laid.</p>
7	<p>Sri B.Nagesh, MPTC, Teegalpahad village stated that water supplied by SCCL is not sufficient to their village and bore wells are dried. He complained that due to SCCL mines, ground water level is declining.</p> <p>As population is more, the existing water supply of 6 hours is not sufficient.</p> <p>He alleged that proper compensation for land taken for mining purposes was not given.</p> <p>He thanked SCCL for constructing sulabh complexes.</p> <p>He requested to construct Dhobi ghats in Teegalpahad village and also to provide one ambulance by SCCL to use in emergencies.</p>	<p>Level of bore water is being monitored and found to vary due to seasonal effects but not due to mining operation.</p> <p>However Nos.67 bore holes with hand pumps provided at Naspur colony, Nagarjuna colony, hutment area, and surrounding villages of Srirampur area.</p> <p>Compensation was paid as per the guidelines of the Govt. authorities.</p> <p>-</p> <p>-</p>
8	<p>Sri Tippani Ramaiah, ZPTC, Mancherial stated that water scarcity is more in Teegalpahad village and requested to provide sufficient water. He requested to construct check dams in the village and also to provide 4 acres of land for cremation ground.</p> <p>He also requested for laying CC road from Naspur to SRP 3 and to provide lighting along road.</p>	<p>8 nos. of check dams were constructed at RK-5 near the bungalows area in the vagu for augmentation of ground water (2.72 lskhs).</p> <p>Provided.</p>
9	<p>Sri B. Sadanandam, MPTC stated that the width of road is very less in RK.7 area and requested for widening the road and control dust problem.</p> <p>Central lighting to be provided from Indaram to Srirampur and also from Naspur to Nagarjuna colony.</p> <p>He requested for sufficient water supply and also to construct compound wall around Naspur colony.</p>	<p>Widening is completed and road way dust sweeping is started through out-sourcing.</p> <p>The road from Indaram to Naspur is a national highway (NH-16).</p> <p>Sufficient water supply being done, subject to availability of water in Godavari river.</p>

Sl. No	Representation of the Public	Status of implementation
10	<p>Sri Gummadi Srinivas, MPTC, RK.6 opined that the views of the public should be taken into consideration.</p> <p>He told that public hearing meeting and its purpose was not informed to public.</p> <p>By starting OC mines, SRP Area is getting more profits and hence welfare amenities are to be provided to the surrounding villages.</p> <p>SCCL should establish higher education colleges in coal belt areas.</p> <p>All facilities to be provided to the retired workers colonies.</p> <p>In RK.6 Colony, park and playground is to be developed.</p> <p>Central lighting is to be provided from GM office to Indaram.</p> <p>Coal transport lorry speed is to be limited, and speed breakers are to be provided. Workers in colonies are facing problem due to power cuts and it is to be minimised.</p>	<p>Are being considered.</p> <p>Informed as per the guidelines of the MoEF&CC and TSPCB, Nizamabad.</p> <p>Being provided.</p> <p>One polytechnic college has been established in Srirampur area.</p> <p>Facilities are being provided as per the company norms.</p> <p>Play ground has been provided at RK.6 colony.</p> <p>The road from Indaram to GM office is a national highway (NH-16). Speeds are limited and speed breakers were provided wherever required all along the coal transport road. Power cut is restricted to only two in a day</p>
11	<p>Sri Jakkula Rajesham, Ex-Sarpanch, Thallapalli stated that though there is a reserved forest, no plantation is there and requested SCCL for plantation in forest land.</p> <p>SCCL has given plots to the workmen, but no amenities were provided in the hutment area.</p> <p>He further requested SCCL to protect the colonies above SRP 3 & 3A incline by sand stowing.</p> <p>He emphasized for more plantation and laying of black topped road.</p> <p>He requested for providing central lighting system from CCC 'X' Road to CCC Town ship and Srirampur to Mancherial under SHAPE.</p> <p>He also requested for construction of compound wall around community hall in RK-6 colony.</p>	<p>Plantation is being done during 2012 monsoon in the reserve forest land near OCP and 40 Ha during 2014 and 30 Ha during 2015 was done at RF land near cross road of Chennur & Godavrikhani. Further plantation will also be taken up in consultation with the Forest department, Mancherial.</p> <p>All amenities like roads, power lines and bore wells being provide at R&R plot site.</p> <p>Sand stowing is being done to protect the colonies lying above the mines.</p> <p>Plantation is being done as per the EIA/EMP, and also all connected roads to SRP3&3A black topped road provided.</p> <p>Street light being provided The road from Srirampur to Mancherial is a national highway (NH-16).</p> <p>Compound wall was constructed around the community hall.</p>

Sl. No	Representation of the Public	Status of implementation
12	<p>Sri Gadasu Ravinder, Srirampur opined that pollution is increasing due to overloading of transport lorries. Dust suppression arrangements are to be made and plantation is to be increased to minimize air pollution.</p> <p>Drains and roads are to be repaired in hutment areas.</p> <p>He requested to lay road from Royal talkies to SRP 3 & 3A and to provide water supply at 'Shivalayam' near RK.5 Incline.</p> <p>Counseling is to be given to the children of SCCL employees regarding higher education.</p>	<p>Being complied.</p> <p>Being repaired.</p> <p>Road was laid. Water supply provided.</p> <p>Being given.</p>
13	<p>Sri P.Rajasekhar, SF, RK.5 Incline said that SCCL has made numerous plantation in the area which reduces air pollution and sound pollution. The company constructed sewage treatment plant. SCCL received national awards on environmental activities.</p> <p>He stated that water spraying to be done on coal transport route to minimize air pollution.</p> <p>He requested on behalf of all to remove power cut during examination period for the sake of children. He welcomed the proposed expansion of the existing mines.</p>	<p>-</p> <p>Water spraying on asphalt roads will damage the road. However, the lorries are being covered with tarpaulins, so that minimize the spillage of coal from lorries.</p> <p>Being considered</p> <p>-</p>
14	<p>Sri M. Malla Reddy, Vice President, AITUC, Srirampur requested all to make their efforts in bringing up the organization.</p> <p>He opined that plantation of trees should be improved in colonies and in vacant lands particularly near CSP.</p> <p>As the plying of heavy vehicles have increased, the quality of laying of roads also to be improved.</p> <p>As more accidents are occurring near Srirampur bus stand, road dividers should be provided and fitness of the coal transporting vehicles should be checked.</p> <p>Medical and health camps are to be arranged.</p> <p>Retired employees and contract workmen also should be provided medical facility.</p> <p>Water supply to be arranged for villagers of Teegalpahad and Naspur. He promised to give full support for the proposed expansion of the mines.</p>	<p>Plantation is being done as per the EIA/EMP.</p> <p>Being complied.</p> <p>-</p> <p>Are being arranged.</p> <p>Being provided.</p> <p>Bore wells are drilled through Rural water supply scheme under SHAPE. However Nos.67 bore holes with hand pumps provided at Naspur colony, Nagarjuna colony, hutment area, and surrounding villages of Srirampur area</p> <p>.</p>

Sl. No	Representation of the Public	Status of implementation
15	<p>Sri Dasari Kishan, RK-6 Colony stated that in Singapur village, drainage system and sanitation to be improved.</p> <p>He thanked management for construction of Sulabh complexes and requested to arrange to repair doors.</p> <p>He told that other than SCCL employees are also to be made eligible for participating in 'Dial your G.M. Programme'.</p> <p>He felt happy with the reforms in the company and he also requested to discourage liquor shops in colonies.</p>	<p>-</p> <p>Repaired time to time.</p> <p>Only SCCL employees are eligible for participating in 'Dial your G.M. Programme'.</p>
16	<p>Sri Srinivasa Yadav, Sarpanch, Mudikunta welcomed the proposed expansion of the existing underground mines.</p> <p>He stated that due to underground mines, water scarcity is prevailing in the area.</p> <p>He requested that excess water from RK-NT to be re-coursed to Mudikunta tank.</p> <p>He stated that there is no pollution problem due to mining. He stated that due to SCCL, tremendous development works were taken place in Indaram, Ramaraopet and other villages and requested for development of roads and supply of Godavari water to their village also under SHAPE fund.</p> <p>He requested to cover the coal transport lorries properly with tarpaulins.</p>	<p>Level of bore water is being monitored and found to vary due to seasonal effects but not due to mining operation</p> <p>-</p> <p>Lorries are being covered with tarpaulins.</p>
17	<p>Sri K.Laxma Reddy, Mining Sirdar, RK.5 stated that in RK5 mine, greenbelt has been developed within the mine premises. There is no pollution problem in the mine.</p> <p>He requested for plantation along road from RK.5 to CHP.</p> <p>Coal transport vehicles should be covered with tarpaulins and water spraying is to be done on roads from mine to CHP.</p> <p>He also requested to arrange lighting from Krishna colony to CHP.</p>	<p>-</p> <p>Avenue plantation from RK.5 to CHP completed.</p> <p>Is being complied.</p> <p>Lighting from Krishna colony to CHP Provided.</p>
18	<p>Sri Devasani Rajesham, RK.6 felt happy for the huge plantation in his mine.</p> <p>He opined that to control dust pollution, effective water spraying is to be made by tankers and requested for plantation in vacant places.</p> <p>He requested for repairing of drains and construction of compound wall around the community hall and park in RK.6 Colony and welcomed the expansion of RK-6 mine.</p>	<p>-</p> <p>Water spraying is being done wherever necessary.</p> <p>Complied.</p>
19	<p>Sri Datta Srinivas, Ward Member, Singapur said that existing weekly market place is not sufficient and requested to provide market place near RK-8 colony.</p> <p>He requested for water spraying from Sai baba temple to stadium to control dust pollution.</p>	<p>Weekly market provided with sufficient place at existing location.</p> <p>Water spraying on asphalt roads will damage the road.</p>

Sl. No	Representation of the Public	Status of implementation
20	<p>Sri Gajula Prabhakar, SRP.1 Incline stated that a number of trees were planted at SRP.1 Incline premises.</p> <p>Water spraying is being made in the mine premises and requested to extend the same from SRP 1 incline mine road to SRP 3 incline.</p> <p>Treated water is being supplied to the nearby villages.</p> <p>He requested for arranging compound wall around Shanthi stadium and also requested for developing a park.</p>	<p>Water spraying on asphalt roads will damage the road, and road cleaning work is under process.</p> <p>Treated water being supplied to Teegalphad filter bed</p> <p>Fencing was laid.</p>
21	<p>Sri Bathula Mallaiah, Coal filler RK.6 welcomed the proposed expansion of the existing mines. He told that production from underground mines should be encouraged as underground mines provide more employment less pollution in comparison to opencast mines.</p> <p>He requested for arranging lighting and compound wall at Shanthi stadium.</p>	<p>-</p> <p>Fencing and lighting were provided</p>
22	<p>Sri P. Mohan Reddy, Electrician, RK.7 welcomed the proposed expansion and stressed for more plantation in the area.</p> <p>All pollution control measures are to be taken for the proposed expansion.</p> <p>He suggested that oil leakage to be controlled to prevent water pollution.</p> <p>SCCL is supplying LPG instead of coal for domestic purpose which reduced air pollution.</p> <p>He told that plying of heavy vehicles in RK-7 road causing dust pollution and requested for taking dust suppression measures and expansion of road.</p>	<p>Plantation completed, as there is no vacant land for further plantation.</p> <p>Pollution control measures are being strictly implemented.</p> <p>All probable steps taken to prevent oil leakage.</p> <p>Expansion of road is under progress.</p> <p>Widening is completed and road way dust sweeping is started through out-sourcing.</p>
23	<p>Sri K.Veeramallu, C.F. SRP.3 welcomed the proposal and also promised to put more efforts for improvement of production. Numerous plants have been planted at SRP 3 & 3A premises.</p> <p>He requested to supply Godavari water to all the mines.</p>	<p>----</p>
24	<p>Sri Devarakonda Lingaiah, RK.7 explained that greenery was developed by plantation. Water pollution control measures are being taken in their mine. Drinking water quality was tested for potability and chlorination is being done regularly.</p> <p>He opined that Godavari water should be supplied to all the mines. He stated that environment awareness programmes are observed on 5th June, World Environment Day.</p> <p>He suggested to control oil leakage from SDL to control water pollution in u/g mine.</p>	<p>-----</p> <p>Regular preventive maintenance is being done to prevent oil leakage.</p>

Sl. No	Representation of the Public	Status of implementation
25	<p>Sri Ashok, CF., RK.7 expressed that underground mines should be continued and preference should be given for more plantation. Ear plugs to be supplied to the fan operator.</p> <p>He requested to supply power to RK-7 hutment area.</p>	<p>Plantation is being done as per the EIA/EMP.</p> <p>Ear plugs and dust masks are being provided.</p>



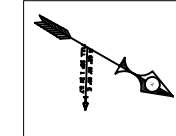
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AGENT,
RK-5&6 Group of Mines.

Agent

RK-5 & 6 Group of Mines
Srirampeta area.

LIST OF WGS 84 CO-ORDINATES
RK-5 PLANTATION AREA



BACK SIDE OF RK-5 ERODED BIT-2

1	18° 53' 12.80244" N	79° 30' 04.45384" E
2	18° 53' 15.79964" N	79° 30' 12.39268" E
3	18° 53' 09.44288" N	79° 30' 15.64441" E
4	18° 53' 08.91595" N	79° 30' 06.99544" E

BACK SIDE OF RK-5 NEAR LPG SHED

1	18° 52' 35.58235" N	79° 29' 40.94422" E
2	18° 52' 40.29671" N	79° 29' 42.71207" E
3	18° 52' 40.14255" N	79° 29' 52.08686" E
4	18° 52' 33.53756" N	79° 29' 50.98478" E
5	18° 52' 31.42153" N	79° 29' 45.26385" E
6	18° 52' 33.83789" N	79° 29' 45.46120" E

LPG GODOWN & KRISHNA COLONY

1	18° 52' 55.40832" N	79° 29' 30.07461" E
2	18° 52' 57.48423" N	79° 29' 30.07461" E
3	18° 52' 42.73289" N	79° 29' 30.07461" E
4	18° 52' 36.29551" N	79° 29' 30.07461" E

Opp. to RK-5B Mine (Bamboo)

1	18° 53' 35.10000" N	79° 29' 55.30736" E
2	18° 53' 36.12338" N	79° 29' 58.12546" E
3	18° 53' 48.53564" N	79° 29' 52.72463" E
4	18° 54' 02.12002" N	79° 29' 46.96543" E
5	18° 54' 10.73094" N	79° 29' 42.95241" E
6	18° 54' 15.13714" N	79° 29' 41.01234" E
7	18° 54' 13.10803" N	79° 29' 38.25001" E
8	18° 53' 54.77074" N	79° 29' 46.90842" E
9	18° 53' 40.88780" N	79° 29' 52.84207" E

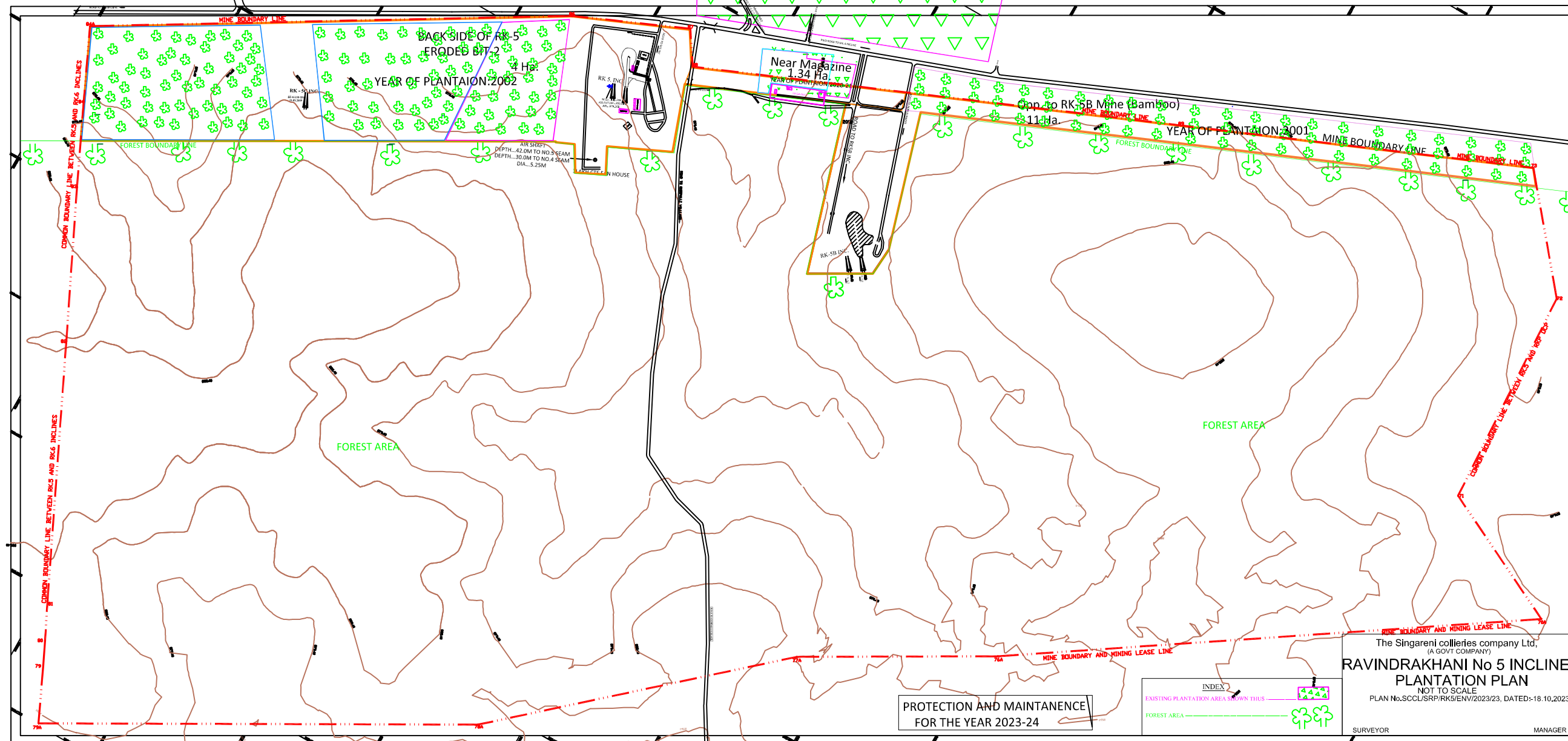
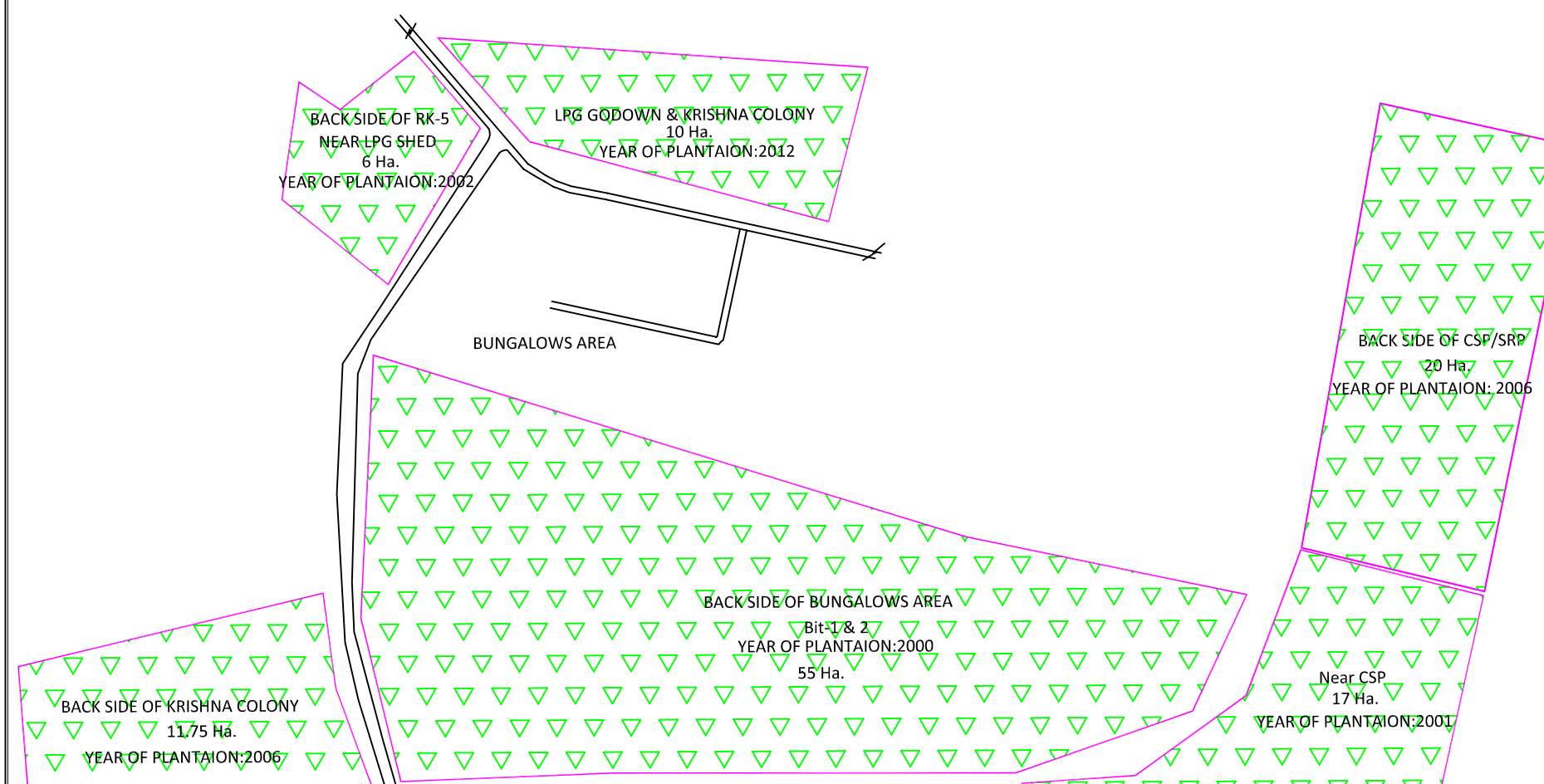
Near CSP

1	18° 53' 34.60315" N	79° 29' 38.11135" E
2	18° 53' 38.80371" N	79° 29' 52.39010" E
3	18° 53' 20.13825" N	79° 29' 59.75424" E
4	18° 53' 19.39579" N	79° 29' 58.34067" E
5	18° 53' 24.06752" N	79° 29' 55.08844" E
6	18° 53' 26.86641" N	79° 29' 48.66164" E
7	18° 53' 25.66836" N	79° 29' 40.72043" E

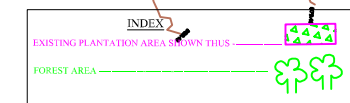
BACK SIDE OF CSP/SRP

1	18° 53' 18.22846" N	79° 29' 18.60852" E
2	18° 53' 25.64605" N	79° 29' 40.60758" E
3	18° 53' 34.54548" N	79° 29' 37.89895" E
4	18° 53' 27.62677" N	79° 29' 15.57227" E

SL. No.	Year	plantation Area in Ha	No. of trees planted	
1	1996	0.942	282	
2	1997	1.331	465	
3	2000	1.671	1700	
4	2001	2.715	3140	
5	2002	0.280	100	
6	2003	0.618	2500	
7	2004	0.665	1100	
8	2005	0.100	160	
9	2006	0.230	120	
10	2007	1.170	300	
		2008-20	21.928	Re-plantation
		2020-21	1,340	Re-plantation (200 No's)
		2021-22	1,000	Re-plantation (600 No's)
		Total	33.990	10667

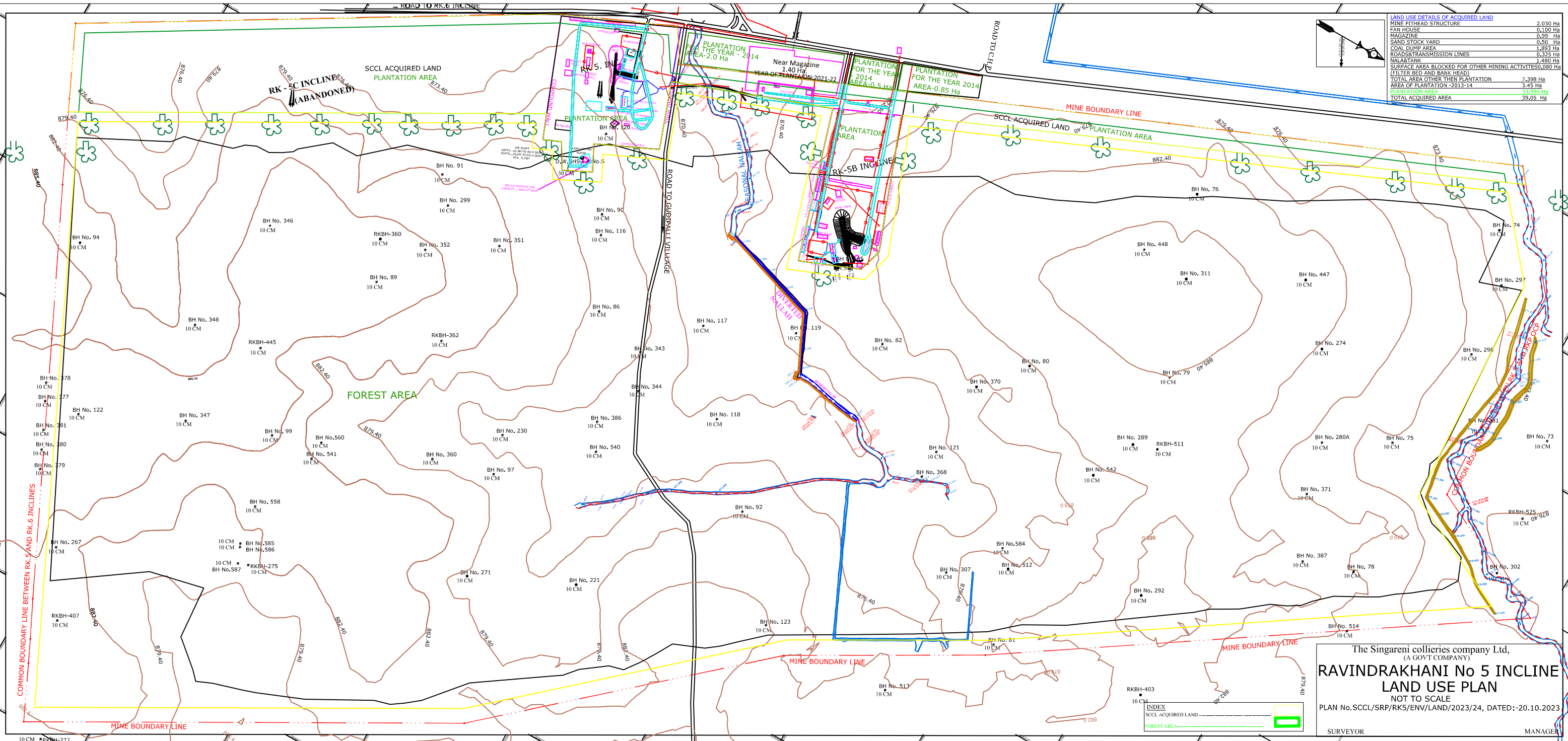
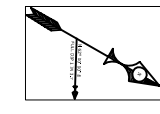


PROTECTION AND MAINTANENCE
FOR THE YEAR 2023-24



The Singareni collieries company Ltd.
(A GOVT COMPANY)
**RAVINDRAKHANI No 5 INCLINE
PLANTATION PLAN**
NOT TO SCALE
PLAN No.SCOL/SRP/IRKS/ENV/2023/23, DATED-18.10.2023
SURVEYOR _____ MANAGER _____

LAND USE DETAILS OF ACQUIRED LAND	
MINE PITHEAD STRUCTURE	2.030 Ha
FAW HOUSE	0.100 Ha
MAGAZINE	0.99 Ha
SAND STOCK YARD	0.50 Ha
COAL DUMP AREA	1.893 Ha
ROADS/TRANSMISSION LINES	0.325 Ha
NAL&TANK	1.480 Ha
SURFACE AREA BLOCKED FOR OTHER MINING ACTIVITIES (FILTER BED AND BANK HEAD)	0.880 Ha
TOTAL AREA OTHER THEN PLANTATION	7.398 Ha
AREA OF PLANTATION -2013-14	3.45 Ha
PLANTATION AREA	33.950 Ha
TOTAL ACQUIRED AREA	39.05 Ha



The Singareni collieries company Ltd,
(A GOVT COMPANY)

RAVINDRAKHANI No 5 INCLINE LAND USE PLAN

PLAN No. SCCL/SRP/RK5/ENV/LAND/2023/24, DATED:-20.10.2023

SURVEYOR MANAGER

INDEX	
SCCL ACQUIRED LAND	
FOREST AREA	