PART – II

ENVIRONMENTAL PROTECTION MEASURES AS ON 30.09.2023

1. Production Details

Sl. No	Year	Coal (in MT)		OB (in Mm^3)	
		As per EC	Actual	As per EMP	Actual
1.	2020-21	1.50	1.001	2.50	10.120
2.	2021-22	1.50	1.499	7.50	21.764
3.	2022-23	1.50	1.497	2.50	15.134
4.	2023-24 (apr-sep)	1.50	0.661	7.50	5.109
	Total	**6.00**	**4.658**	**20.00**	**52.127**

2. Topsoil Management (in M.Cu.m)

1.	Topsoil removed in last six moths	:	0.047
2	Topsoil removed so far	:	4.025
3.	i) Topsoil stored in temporary stockyard during last six months.		0.00
	ii) Topsoil stored in temporary stockyard		3.469
4.	(i) Topsoil spread on Dumps during last six months.	:	Nil
	ii) Total Topsoil spread on Dumps		0.06
5.	(i) Topsoil used for other purpose, pl specify during last six months.	:	Nil
	(ii) Total Topsoil used for other purpose, pl specify.		0.538 construction of HFL protection bund

3. Overburden Management (in M.Cu.m)

1	Total OB removed during last six months	:	5.109							
2	Total OB removed since inception	:	50.969							
3	Details of External OB dumps	:	Area (in Ha)		Quantity in (M.Cu.M)		Height (m)		Overall slope	
		:	During six months	Total	During six months	Total	During six months	Total	During six months	Total

	Deck-1		5.35	113.70	0.675	27.105	25	25	29°	29°
	Deck-2	:	16.66	71.00	4.384	18.754	30	30	28°	26°
	Deck-3	:	5.01	5.01	0.000	1.050	0	30	28°	26°
4	Details of Internal dump (Backfilling) (Area w.r.t. Ground level))	:	Nil							
5.	OB used for laying of roads etc.	During last six months	:	Nil						
		Total	:	Nil						
6.	OB used for laying of Railway Track	During last six months	:	Nil						
		Total	:	Nil						
7	OB used for other purpose pl. specify.	During last six months	:	Nil						
		Total	:	Nil						
8.	(i) Quantity of Fly ash / bottom ash used in cu. Mtrs. on OB dump	During last six months	:	Nil						
		Total	:	Nil						
	(ii) Quantity of Fly ash / bottom ash used in cu. Mtrs. on Internal Dump	During last six months	:	Nil						
		Total	:	Nil						
	(iii) No.of fly ash bricks used with size	During last six months	:	Nil						
		Total	:	Nil						

4. Plantation:

S. No	Description	
1	No of plants planted during last six months	22,500
2	Area covered in Ha	5.73

3	Expenditure incurred in Rs.lakhs	3.38
4	Total area brought under plantation so far in Ha	220.53
5	Total no of plants planted so far since inception	2,55,691
6	Species of plants planted	
7	i) Seeds sown during last six months	
	ii) Seeds sown so far	
8	i) Small plants planted during last six months	-
	ii) Small plants planted so far	-
9	Total expenditure in Rs. lakhs	56.96

5. Water Balance Statement

Sl. No	Description	Quantity in KLD
1.	Average quantity of water pumped out of the mine	3100
2.	Water used for drinking/bathing and other industrial requirement	400
3.	Water used for washing of HEMM	260
4.	Water used for plantation	05
5.	Water supplied for nearest township/village for domestic purpose	15
6.	Excess water let out	2440

6. Soil Erosion Control Measures:

Sl.No	Description	Total Required	Existing as on Mar-2023	Constructed during last six months	Total
1	Toe Walls (in Mtrs.)	2500	300	-	300
2	Garland drains (in Mtrs.)		5168	-	5168
3	Settling ponds	05	04	-	04
4	Gabions				
5	Cribs		04	-	04
7	Rock Fill Dams				
8.	Check dams				
9.	Rain water Harvesting structures		02	-	02

7. Micro-meteorological Monitoring:

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

Month	Wind Speed (m/s)			Temperature (ºC)			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 (^{0}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		

8. 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 (PM_{10} and $PM_{2.5}$), Sulphur Dioxide (SO_2) 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 PM_{10}, SO_2 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.	CA13	IK OCP Site Office	N 18°79'05.1"	E 79°54'20.2"
2.	CA15	IK OC Pit Head CHP	N 18°79'50.9"	E 79°54'12.1"
3.	CA16	IK OC Camp Office	N 18°78'99.4"	E 79°54'37.4"
BUFFER ZONE				
4.	BA8	Indaram Village	N 18°49'18.7"	E 79°31'43.7"
5.	BA9	Nizamabad Village	N 18°48'46.9"	E 79°32'47.2"
6.	BA10	Shettipalli Village	N 18°47'09.8"	E 79°34'31.8"
7.	BA11	Tekumatla Village	N 18°48'37.5"	E 79°32'58.2"

Monitoring Data:

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

(All values in μg/m^3)

Location code	Name of the location	PM_{10} (μg/m^3)			$PM_{2.5}$ (μg/m^3)			SO_2 (μg/m^3)			NO_2 (μg/m^3)		
Coal mine standards (commenced after 25.09.2000), GSR 742(E), Dated 25.09.2000		**250**			**-**			**120**			**120**		
CA13	IK OC Site Office	69.0	224.0	177.50	31.0	64.40	51.36	7.60	12.80	11.44	11.60	21.60	17.51

Location code	Name of the location	PM_{10} (μg/m^3)			$PM_{2.5}$ (μg/m^3)			SO_2 (μg/m^3)			NO_2 (μg/m^3)		
NAAQ Standards, CPCB Dated: 18.11.2009		**100**			**60**			**80**			**80**		
Buffer Zone		**Min**	**Max**	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**	**Avg**	**Min**	**Max**	**Avg**
BA8	Indaram Village	41.0	88.0	71.25	20.80	48.10	35.57	8.70	12.70	9.93	14.50	19.70	16.67
BA9	Nizamabad Village	39.0	82.0	63.67	18.60	37.60	31.04	7.60	10.70	9.05	11.30	18.30	13.91
BA10	Shettipalli Village	35.0	76.0	63.08	17.20	43.80	31.78	8.20	11.90	9.28	11.80	16.80	14.40
BA11	Tekumatla Village	40.0	88.0	68.92	20.60	44.0	35.26	7.60	11.0	9.53	12.40	17.90	14.82

The air quality data monitored at the surrounding residential areas indicate that PM_{10} concentration is within the stipulated limits at all locations. The $PM_{2.5}$, SO_2 and NO_2 levels are also well within the 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 will follow control measures in the IK OCP for air pollution control including reduction of particulate emissions:

Air Pollution Control Measures:

As the open cast mining operations involve fugitive dust generation, the following measures are being taken up in the project to prevent/control dust generation and air pollution:

- Wind erosion from the dumps will be controlled significantly by planting grasses on slopes and plants on dumps soon after their formation.
- Continuous water sprinkling arrangements are being made on haul roads, at coal dump yard and other transport routes.
- Black topping of internal roads, coal transport roads and roads to CHP will be done.
- Wet drilling methods and controlled blasting techniques are being adopted to contain dust and gaseous emissions.
- Use of NONELS for blasting and avoiding overcharging of blast holes.
- Green belt will be developed around quarry, external and internal overburden dumps to control dust pollution.
- Spraying of water on permanent transport roads at required frequencies. One 28 KL, Four 12 KL and one 10 KL water sprinklers are being deployed for spraying of water on haul roads at a frequency of 4 trips per sprinkler per each shift (eight hours). Static water sprinkling arrangement will also be made all along the haul roads for effective dust suppression.
- Periodical maintenance of Heavy Earth Moving Machinery (HEMM) and other transport vehicles are being ensured to reduce vehicular exhaust emissions.

  Effective dust suppression measures will be taken up at Coal Handling Plant (CHP). The crusher house would be enclosed to the extent possible and dust suppression arrangement will be provided at suitable locations in the CHP. All conveyors, screens, crusher etc., will be provided with the covers to avoid fugitive dust during operation. Some of the measures proposed to be adopted at CHP in order to control dust emission include:
- Continuous water spraying arrangements such as mist spraying would be done prior and after loading into the trucks for dust suppression.

- In case of long transportation the trucks after loading should be covered with tarpaulin.
- Speed of the vehicles should be maintained within the prescribed limits.
- Trucks should not be over loaded and should be maintained to the body level.
- Laying of concrete pavement around bunkers.
- Height of fall to be minimized at all coal transfer points.
- Internal lining of chutes and bins would be done to take care of abrasion and dust.

Post-project air quality monitoring is being carried out around the Project area 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.

9. 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
3.	Indaram tank	Buffer	N 18˚ 49’ 03.6”	E 79˚ 52’ 02.4”	SW5
4.	Shettipalli tank	Buffer	N 18˚ 47’ 04.2”	E 79˚ 34’ 28.3”	SW6

(ii) Ground Water Quality Monitoring Locations:

Sl. No	Location	Zone	Latitude	Longitude	Station Code
1.	Nizamabad Village	Buffer	N 18^0 48’ 36”	E 79^0 32’ 37”	GW-5
2.	Shettipalli Village	Buffer	N 18˚ 47’ 06.9”	E 79˚ 34’ 41.6”	GW-6
3.	Tekumatla Village	Buffer	N 18˚ 48’ 38.7”	E 79˚ 32’ 54.0”	GW-9
4.	Indaram Village	Buffer	N 18˚ 49’ 14.8”	E 79˚ 31’ 58.8”	GW-8

(iii) Effluents sampling locations

Sl. No.	Sample code	Name of the Location	Latitude	Longitude
1.	EW-13	IK OCP Mine Discharge	N 18°47' 31.8"	E 79°32'04.4"
2	EW-16	IK OC OB Dump Runoff / Settling Pond Outlet	N 18°79' 07.1"	E 79°52' 28.7"

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:

Location	Direction & Distance in km.	pH			
		Min.	Max.	98%tile	STD
IK OCP mine discharge	Beside of the Proj. – 0.310	7.30	8.10	8.08	5.5-9.0
IK OC OB Dump Runoff / Settling Pond Outlet	W -3.60	7.30	8.20	8.134	5.5-9.0
Location	**Direction & Distance in km.**	**TSS (mg/l)**			
		Min.	**Max.**	**98%tile**	**STD**

IK OCP mine discharge	Beside of the Proj. – 0.310	19.0	41.0	40.34	100
IK OC OB Dump Runoff / Settling Pond Outlet	W -3.60	22.0	49.0	47.240	100
Location	**Direction & Distance in km.**	**TDS (mg/l)**			
		Min.	**Max.**	**98%tile**	**STD**
IK OCP mine discharge	Beside of the Proj. – 0.310	647.0	974.0	971.14	--
IK OC OB Dump Runoff / Settling Pond Outlet	W -3.60	603.0	927.0	923.920	--
Location	**Direction & Distance in km.**	**COD (mg/l)**			
		Min.	**Max.**	**98%tile**	**STD**
IK OCP mine discharge	Beside of the Proj. – 0.310	12.0	35.0	34.34	250
IK OC OB Dump Runoff / Settling Pond Outlet	W -3.60	16.0	32.0	31.120	250
Location	**Direction & Distance in km.**	**BOD (mg/l)**			
		Min.	**Max.**	**98%tile**	**STD**
IK OCP mine discharge	Beside of the Proj. – 0.310	1.50	5.10	4.95	30
IK OC OB Dump Runoff / Settling Pond Outlet	W -3.60	1.90	4.10	3.99	30
Location	**Direction & Distance in km.**	**Oil & Grease (mg/l)**			
		Min.	**Max.**	**98%tile**	**STD**
IK OCP mine discharge	Beside of the Proj. – 0.310	1.0	1.60	1.57	10
IK OC OB Dump Runoff / Settling Pond Outlet	W -3.60	1.0	1.4	1.38	10

Note: The Surface water quality, Ground water quality and, effluent monitoring data From April, 2023 to September, 2023 is enclosed as **Annexure-II**

Water Pollution Control Measures:

i) Creation of water sumps areas in the quarry for settlement of suspended solids before pumping water out of the mine.

ii) Garland drains and check dams / rock fill dams will be constructed around the OB dump and the lease area to channelize surface run off and to arrest suspended solids before discharging the run-off water into the natural water regime as well as to prevent storm water from entering the lease area.

iii) Established sewage treatment plant for treating the domestic wastewater generated from the mine colony.

iv) Oil and Grease trap is to be constructed in HEMM workshop for treating vehicle wash effluents and subsequent recycling of the treated water.

v) The run-off from the dump will be treated in the sedimentation tanks before it is discharged into surface water bodies.

vi) Post-project water quality monitoring is being carried out surrounding villages of the project by outside agency [M/s Environment Protection Training and Research Institute (EPTRI) Hyderabad] as per the frequency stipulated by MoEF&CC for coal mining industry.

10. 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**-III.**

Water Conservation Measures:

i) Ground Water levels are recorded seasonally in nearby villages
ii) Water levels recorded in the nearby villages is furnished.
iii) Details of Rain water Harvesting structures as below:

iv) 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**

Noise Monitoring Locations

Station Code	**Name of the Stations**	**Latitude**	**Longitude**
CN12	IK OC Site Office	N 18°79'05.1"	E 79°54'20.2"
CN13*	IK OC BWS	N 18°79'36.6"	E 79°54'15.1"
BN5	Indaram Village	N 18°49'18.7"	E 79°31'43.7"
BN6	Tekumatla Village	N 18°48'37.5"	E 79°32'58.2"

11. Noise Level Monitoring :

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

Location	Zone	Day Time			
		Min.	Max.	Avg.	STD
IK OCP Site Office	Core	60.40	70.50	64.825	75
Indaram Village	Buffer	42.10	49.80	46.967	55
Tekumatla Village	Buffer	40.80	51.20	44.817	55
Location	**Zone**	**Night Time**			
		Min.	**Max.**	**Avg.**	**STD**
IK OCP Site Office	Core	50.80	62.30	55.750	70
Indaram Village	Buffer	31.0	40.80	37.142	45
Tekumatla Village	Buffer	33.90	40.10	36.70	45

Note: The noise level monitoring data from April, 2023 to September, 2023 is enclosed as **Annexure-IV**

Noise Pollution Control Measures:

i) Controlled blasting techniques using delay detonators & relays would be adopted in this project for minimizing noise and blast vibrations.

ii) Blasting operations are being carried out with proper hook-up and optimum explosive charge.

iii) Creation of green belts of dense foliage in three rows between mine areas and residential colonies which will act as noise attenuator.

iv) Proper maintenance of machinery including transport vehicles including fine tuning of engines to reduce noise as well as SO_2, NO_x emissions.

v) Sound and dust proof cabins are being provided in the machines like dozers, shovels, dumpers etc.

vi) With the noise abatement measures as indicated above, the noise levels would be in compliance to the prescribed limits.

vii) Post-project noise quality monitoring is being carried out at surrounding villages 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.

12. Socio-economic Measures:

1	Quarters are constructed on non coal bearing areas with such facilities as Hospitals, Schools, Market place, Post Office, Telegraph Office, Power Supply, Community Halls, Recreation Clubs, Play Grounds and protected water supply and well wetted sewage and drainage line systems.
2	LPG gas is supplied free of cost to the employees.
3	Free medical treatment to workmen and their families is given and all children of workmen are covered under immunization programme.
4	Incentive schemes for popularizing family planning is in vogue where by Rs.1, 000/- paid for the persons undergoing Vasectomy operation and Rs.800/- paid for spouse undergoing Tubectomy operations in addition to the grant of 6 days special leave.
5.	Community taps are provided in the colonies. Tap water is treated and chlorinated to the prescribed standards.
6	Recreation clubs are provided with adequate facilities.
7.	Encouragement to sports and games is given by forming Works People's Sports & Games Association for conducting inter-area meets etc.
8.	Public hearing minutes compliance status enclosed as **Annexure-VI**

9.

Surrounding Habitat Assistance Programme (SHAPE):

Surrounding Habitat Assistance Programme is designed to develop infrastructure facilities to the surround people of 8 km from the SCCL townships and / or 10 Km from the mine entry. About 3% of average net profits of the company made during last three years were allocated for CSR at company level. The details of CSR works taken up by SCCL so far under SHAPE scheme in surrounding villages are as given below:

Rs. In lakhs

Name of the Work	SHAPE works	CSR works							Total
	up to 2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-2021	2021-2022	
Roads Infrastructure	704.1901	3.86	191.47	100.00	180.03	120.00	30.15	41.65	**1371.35**
Schools and other buildings	84.00963	0.00	1.74	0.00	3.00	4.00	4.72	0.00	**97.46963**
Drinking Water Supply	391.6262	0.826	3.48	68.00	3.00	4.00	3.25	0.00	**474.18**
Street lighting	32.63394	0.00	0.00	0.00	16.50	14.00	0.00	0.00	**63.13394**
Ladies training complex	14.4982	0.00	0.00	0.00	0.00	0.00	2.02	2.82	**19.3382**
Other Works	31.17856	19.24	40.494	1.50	2.00	8.00	0.00	7.90	**110.31256**
Total	**1258.137**	**23.926**	**237.184**	**169.5**	**204.53**	**150.0**	**40.14**	**52.37**	**2135.784**

Annexure-IV A

DETAILS OF BLAST INDUCED GROUND VIBRATIONS OF INDARAM OPENCAST PROJECT SRIRAMPUR AREA												
Date	**Location RL**	**OB /COAL**	**Dia of the hole (150mm)**	**Avg.Chg/ hole(kg)**	**MCD (kg)**	**Total explosives (kg)**	**Dist.from instrument to nearest blast hole(m)**	**Fly rock Dist.from farthest hole(m)**	**ppv (mm/s)**	**Frequency (Hz)**	**Air over pr. pa (L)**	**Minimate location (Doragaripally towards Indaram village within 500m dist.)**
01-Apr-23	790	OB	150	716	30	35	26820.00	490	10	0.64	12	128.00
02-Apr-23	795	OB	150	693	30	35	29130.00	490	10	0.62	14	118.00
03-Apr-23	790	OB	150	678	35	40	27470.00	440	15	0.57	10	119.00
04-Apr-23	810	OB	150	695	30	35	25880.00	460	10	0.83	15	124.00
01-May-23	810	OB	150	639	35	40	21190.00	490	15	0.69	11	139.00
02-May-23	780	OB	150	530	35	40	19170.00	490	15	0.76	12	126.00
03-May-23	795	OB	150	434	30	35	14440.00	450	10	0.7	12	132.00
04-May-23	800	OB	150	456	30	35	14570.00	430	10	0.64	18	119.00
05-May-23	800	OB	150	379	35	40	14020.00	430	10	0.64	17	122.00
08-Jun-23	780	OB	150	517	25	30	13730.00	430	15	1.27	-	116.00
09-Jun-23	800	OB	150	549	35	40	21040.00	460	10	0.699	-	118.00
10-Jun-23	780	OB	150	571	35	40	20080.00	440	15	0.762	-	118.00
11-Jun-23	810	OB	150	618	35	40	23690.00	430	15	1.21	-	118.00
12-Jun-23	770	OB	150	524	35	40	18260.00	460	10	0.572	-	118.00
09-Jul-23	760	OB	150	322	40	45	12450.00	470	10	0.699	9.1	115.60
10-Jul-23	780	OB	150	518	40	45	16270.00	450	10	0.635	27	120.80
11-Jul-23	765	OB	150	147	40	45	6130.00	450	10	0.508	11	114.00
12-Jul-23	780	OB	150	550	30	40	20460.00	480	10	0.572	20	126.80
02-Aug-23	790	OB	150	296	30	35	9050.00	480	10	1.21	10	122.30
03-Aug-23	770	OB	150	274	30	35	9840.00	470	10	0.699	13	114.00
04-Aug-23	760	OB	150	331	25	30	9070.00	460	10	0.572	19	119.10
05-Aug-23	800	OB	150	254	20	25	6370.00	470	10	0.699	22	114.00
23-Aug-23	810	OB	150	367	35	40	13950.00	460	10	1.21	20	100.00

24-Aug-23	770	OB	150	394	30	35	14110.00	470	10	0.83	15	100.00
25-Aug-23	0	OB	150	432	20	25	11160.00	460	10	0.89	22	100.00
04-Sep-23	750	OB	150	262	35	40	10330.00	480	10	0.508	18	100
05-Sep-23	755	OB	150	266	35	40	10240.00	460	10	0.83	15	100
06-Sep-23	760	OB	150	213	20	25	4690.00	480	10	1.4	20	100
07-Sep-23	760	OB	150	357	30	35	13430.00	470	10	1.02	20	100

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

Sl. No	Expenditure Head	Capital Expenditure (in Rs.)			Revenue Expenditure (in Rs.)		
		2022-23	2023-24 (apr-sep)	Total	2022-23	2023-24 (apr-sep)	Total
I	Air pollution (Prevention & control)	0	0	**0**	8827414	1728199.8	**10555614**
II	Water pollution (Prevention & Control)	0	0	**0**	2191016.2	750468.9	**2941485.1**
III	Land development	0	0	**0**	0	0	**0**
IV	Plantation	0	0	**0**	135490	290837	**426327**
V	Equipment for maintenance of environment protection	1770833	0	**1770833**	744000	753966	**1497966**
VI	Consultancy payments	0	0	**0**	0	0	**0**
VII	OB Reclamation / Subsidence management	0	0	**0**	60000	**58000**	**118000**
VIII	Environment awareness / Environment education	0	0	**0**	2500	1500	**4000**
IX	Noise & Blasting vibration	0	0	**0**	77493.85	43243.2	**120737.1**
X	Others	0	0	**0**	0	0	**0**
	Total	**1770833**	0	**1770833**	**12037914.05**	**3623214.9**	**15664128.95**

14. Environment management Committee:

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

1) Project Officer - Chairman.
2) Area Env. Officer - Secretary.
3) Area Forest officer - Member.

4) Area Civil Engineer - Member.

5) Region Hydro geologist - Member.

6) Area Estates manager -Member.

7). Area Survey Officer -Member.

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

15. Land use Land cover details 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 / Land cover details of 10km Buffer zone:

Land Use Land Cover Class	2022	
	Area in Hectares	Area Percentage
Water Bodies	4119.78	8.65
Mining Area	2576.26	5.41
Industrial Establishments	308.75	0.65
Built-up Land	3302.32	6.93
Open Forest	2155.33	4.52
Dense Forest	5483.78	11.51
Roads	1321.18	2.77
Barren Land	928.53	1.95
Fallow Land	1838.63	3.86
Plantation	6954.22	14.60
Single Crop	5081.26	10.67
Double Crop	9315.53	19.55
Land with/without scrub	4258.08	8.94
TOTAL AREA	**47643.6425**	**100**

Land use / land cover details of core zone.

The Satellite data of the core zone area of 846.77 ha and data are presented in table 3-3. 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	8.85	1.0
Over Burden Dump	118.89	14.0
Top Soil Dump	32.93	3.9
Plantations Greenbelt	23.59	2.8
Plantations OB Dump	103.36	12.2
Plantations Scrub	132.01	15.6
Quarry Area	132.83	15.7
Roads	17.48	2.1
Service Buildings	12.19	1.4
Water Bodies	13.76	1.6
Agriculture Crop Land	246.02	29.1
Agriculture Fallow Land	3.46	0.4
Settlements	1.38	0.2
Total Area	**846.77**	**100.00**

Project Officer,
Indaram Opencast Project.
PROJECT OFFICER
IKOC & IK-1A

MONITORING DATA OF INDARAM OPENCAST PROJECT 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	Attitude of Phreatic Surface & Piezometric Levels	III
4	Noise	IV
5.	Ground vibrations	IV-A
6.	EMC Meeting minutes	V
7.	Compliance Status of Public hearing minutes	VI

ANNEXURE –I

POST PROJECT AMBIENT AIR QUALITY MONITORING DATA FOR THE PERIOD FROM APRIL, 2023 TO SEPTEMBER, 2023 FOR INDARAM OPENCAST PROJECT.

- Location of the Fugitive dust emission monitoring Station : IK OCP Site Office.
- Direction (w.r.t. IK OCP): Beside of the project.

Sl. No.	Station Name	Date of Sampling	Parameters (µg/ Cu.Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
1.	IK OCP Site Office	11.04.2023	222	62.1	11.8	20.8
		29.04.2023	224	62.4	12.2	19.4
		11.05.2023	211	59.7	11.3	17.6
		29.05.2023	209	58.9	11.9	17.2
		10.06.2023	218	57.5	12.1	15.2
		28.06.2023	214	64.4	12.8	18.9
		13.07.2023	127	39.4	7.6	11.6
		28.07.2023	69	31	11.4	18.1
		12.08.2023	176	46.1	12.1	18.1
		27.08.2023	176	52.6	12.7	21.6
		13.09.2023	127	40.1	9.6	15.1
		27.09.2023	157	42.1	11.8	16.5
	Minimum		**69.00**	**31.00**	**7.60**	**11.60**
	Maximum		**224.00**	**64.40**	**12.80**	**21.60**
	Average		**177.50**	**51.36**	**11.44**	**17.51**
	98% tile		**223.56**	**63.96**	**12.78**	**21.42**
	Coal mine standards GSR 742(E), dtd.25.09.2000 & NAAQS, Dtd.18.11.2009		**250**	**--**	**120**	**120**

- Location of the Fugitive dust emission monitoring Station : IK OCP Camp Office.
- Direction (w.r.t. IK OCP): Beside of the project.

Sl. No.	Station Name	Date of Sampling	Parameters (µg/ Cu.Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	IK OCP Camp Office	11.04.2023	228	61.7	16.2	21.7
		29.04.2023	225	61.2	15.4	18.8
		12.08.2023	217	52.7	12.5	18.6
		27.08.2023	205	51.6	11.6	17.3
		10.06.2023	204	57.4	11.4	17.8
		28.06.2023	195	55.7	12.7	18.7
		13.07.2023	128	40.8	9.6	12.7
		28.07.2023	78	33.8	9.3	13.4
		12.08.2023	217	52.7	12.5	18.6
		27.08.2023	205	51.6	11.6	17.3
		13.09.2023	141	47.1	12.5	20.1
		27.09.2023	174	47.2	12.4	17.6
	Minimum		**78.00**	**33.80**	**9.30**	**12.70**
	Maximum		**228.00**	**61.70**	**16.20**	**21.70**
	Average		**185.25**	**52.15**	**12.79**	**18.04**
	98% tile		**227.34**	**61.59**	**16.11**	**21.35**
	Coal mine standards GSR 742(E), dtd.25.09.2000 & NAAQS, Dtd.18.11.2009		**250**	**--**	**120**	**120**

- Location of the Fugitive dust emission monitoring Station : IK OC Pit Head CHP.
- Direction (w.r.t. IK OCP): Beside of the project.

Sl. No.	Station Name	Date of Sampling	Parameters (µg/ Cu.Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
3.	IK OC Pit Head CHP	11.04.2023	216	62.9	10.1	23.2
		29.04.2023	227	63.1	12.1	17.7
		11.05.2023	231	64.6	13.4	20.1
		29.05.2023	232	66.7	12.9	24.8
		10.06.2023	219	62.1	14.1	19.1
		28.06.2023	189	53.1	13.9	22.4
		13.07.2023	136	41.2	9.8	14.4
		28.07.2023	74	32.5	12.2	17.9
		12.08.2023	191	41	13.2	21.2
		27.08.2023	211	58.1	11.8	18.4
		13.09.2023	136	43.8	11.4	18.8
		27.09.2023	162	43.6	12.9	18.2
	Minimum		**74.0**	**32.5**	**9.8**	**14.4**
	Maximum		**232.0**	**66.7**	**14.1**	**24.8**
	Average		**185.3**	**52.7**	**12.3**	**19.7**
	98% tile		**231.8**	**66.2**	**14.1**	**24.4**
	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 : Top of the Residential House , Indaram village
- Direction (w.r.t. IK OCP.): North West of the project.

Sl. No.	Station Name	Date of Sampling	Parameters (µg/Cu.Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
4.	Indaram village	07.04.2023	79	40.4	8.7	16.6
		27.04.2023	85	42.1	9.4	18.1
		09.05.2023	82	43.7	9.4	16.9
		25.05.2023	88	48.1	9.8	15.5
		08.06.2023	79	45.1	9.9	17.1
		26.06.2023	76	36.8	12.7	19.7
		11.07.2023	41	20.8	11.5	19.5
		26.07.2023	41	21.2	9	14.5
		10.08.2023	71	38.5	9.4	14.6
		25.08.2023	79	32.6	10.4	16.9
		11.09.2023	71	32.1	9.5	14.5
		25.09.2023	63	25.4	9.4	16.1
	Minimum		**41.00**	**20.80**	**8.70**	**14.50**
	Maximum		**88.00**	**48.10**	**12.70**	**19.70**
	Average		**71.25**	**35.57**	**9.93**	**16.67**
	98%tile		**87.34**	**47.44**	**12.44**	**19.66**
	NAAQ Standards, CPCB Dated:18.11.2009		**100**	**60**	**80**	**80**

- Location of the Ambient Air
  Quality monitoring Station : Top of the Residential house, Nizamabad Village.
- Direction (w.r.t. IK OCP.): North of the project.

Sl. No.	Station Name	Date of Sampling	Parameters (µg/Cu.Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
5.	Nizamabad Village	07.04.2023	64	33.1	10.2	13.9
		27.04.2023	69	37.6	8.2	11.8
		09.05.2023	60	36.8	8.8	12.9
		25.05.2023	71	37.2	8.5	12
		08.06.2023	67	33.8	8.1	11.3
		26.06.2023	82	32.7	9.8	17.2
		11.07.2023	46	21.6	10.7	18.3
		26.07.2023	39	19.6	9	13.7
		10.08.2023	64	30.9	8.7	13.5
		25.08.2023	82	34.8	9.6	14.2
		11.09.2023	68	35.8	9.4	13.8
		25.09.2023	52	18.6	7.6	14.3
	Minimum		**39.00**	**18.60**	**7.60**	**11.30**
	Maximum		**82.00**	**37.60**	**10.70**	**18.30**
	Average		**63.67**	**31.04**	**9.05**	**13.91**
	98%tile		**82.00**	**37.51**	**10.59**	**18.06**
	NAAQ Standards, CPCB Dated:18.11.2009		**100**	**60**	**80**	**80**

- Location of the Ambient Air
  Quality monitoring Station: Top of the Residential house, Shettipalli Village.
- Direction (w.r.t. IK OCP): East of the project.

Sl. No	Station Name	Date of Sampling	Parameters (µg/Cu.Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
6.	Shettipalli Village	07.04.2023	74	42.9	8.6	12.8
		27.04.2023	71	36.8	9.1	13.8
		09.05.2023	68	35.7	9.1	14.8
		25.05.2023	66	43.8	9.1	11.8
		08.06.2023	70	37.1	8.5	12.8
		26.06.2023	76	35.4	8.7	16.8
		11.07.2023	40	19.4	11.9	15.6
		26.07.2023	35	17.2	9.5	14.7
		10.08.2023	57	25.3	9.8	15.2
		25.08.2023	69	26.8	8.2	15.7
		11.09.2023	65	34.7	10.5	15.7
		25.09.2023	66	26.2	8.4	13.1
	Minimum		**35.00**	**17.20**	**8.20**	**11.80**
	Maximum		**76.00**	**43.80**	**11.90**	**16.80**
	Average		**63.08**	**31.78**	**9.28**	**14.40**
	98%tile		**75.56**	**43.60**	**11.59**	**16.56**
	NAAQ Standards(Res.)		**100**	**60**	**80**	**80**

- ❖ Location of the Ambient Air Quality monitoring Station : Top of the Residential house, Tekumatla village.
- ❖ Direction (w.r.t. IK OCP) : North of the project.

Sl. No	Station Name	Date of sampling	Parameters (µg/Cu.Mtr.)			
			PM_{10}	$PM_{2.5}$	SO_2	NO_2
7.	Tekumatla village	07.04.2023	78	41.7	9.1	13
		27.04.2023	81	43.1	10.3	14.9
		09.05.2023	81	43.5	9.9	13.8
		25.05.2023	72	44	9.6	12.4
		09.06.2023	68	37.9	9.4	14.1
		26.06.2023	88	39.5	10.4	17.4
		11.07.2023	41	20.7	9.1	17.9
		26.07.2023	40	20.6	11	14.9
		10.08.2023	63	34.7	10.3	16.1
		25.08.2023	73	31.9	7.6	13.4
		11.09.2023	71	36.6	8.5	14.1
		25.09.2023	71	28.9	9.2	15.8
	Minimum		**40.00**	**20.60**	**7.60**	**12.40**
	Maximum		**88.00**	**44.00**	**11.00**	**17.90**
	Average		**68.92**	**35.26**	**9.53**	**14.82**
	98%tile		**86.46**	**43.89**	**10.87**	**17.79**
	NAAQ Standards(Res)		**100**	**60**	**80**	**80**

ANNEXURE-II.

Physico-Chemical and Bacteriological Characteristics of Surface Water

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

Date of sampling: 28.04.2023

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)	SW-5 (Indaram tank)	SW-6 (Shettipalli Tank)
	Date of sampling								28.04.2023	28.04.2023	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	7.8	7.6
2	Electrical Conductivity	µmhos/cm	2510-B	-	-	-	-	2250 µmhos/cm	1455	1070	1012	710
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	5.9	6.3
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	3.2	2.9
5	Total Coliforms	MPN/ 100mL	9221 B	50 or less	500 or less	5000 or less	-	-	94	140	220	170
6	Free Ammonia (as N)	mg/L	4500-NH_3 –F	-	-	-	1.2 mg/L or less	-	BDL	BDL	BDL	BDL
7	Boron as B	mg/L	3120-B	-	-	-	-	Less than 2 mg/L	0.16	0.28	0.12	0.19
8	SAR	-	-	-	-	-	-	Less than 26	1.14	1.12	1.35	1.60

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)	SW-5 (Indaram tank)	SW-6 (Shettipalli Tank)
	DATE OF SAMPLING			**28.04.2023**	**28.04.2023**	**28.04.2023**	**28.04.2023**
1	Colour	Hazen	2120. B	5	5	10	5
2	Odour	TON	2150. B	No odour observed	No odour observed	No odour observed	No odour observed
3	Temperature	ºC	2550. B	25.1	25.0	25.1	25.0
4	Turbidity	NTU	2130. B	0.26	0.44	4.6	2.13
5	Total Dissolved Solids at 180º C	mg/L	2540.C	865	626	590	420
6	Total Suspended Solids at 105º C	mg/L	2540. D	17	11	40	13
7	Chemical Oxygen Demand	mg/L	5220. D	4	8	16	12
8	Chlorides as Cl^-	mg/L	4500-Cl^-.B	260	197	180	135
9	Sulphates as SO_4^{2-}	mg/L	4500-SO_4^{2-}.E	106	86	69	49
10	Fluoride as F^-	mg/L	4500-F^-.C	0.52	0.41	0.64	0.52
11	Calcium as Ca	mg/L	3500-Ca.B	84	80	58	33
12	Magnesium as Mg	mg/L	3500-Mg.B	51	47	48	27
13	Sodium as Na	mg/L	3500-Na.B	167	97	54	68
14	Potassium as K	mg/L	3500-K.B	33.7	11.8	2.6	11.5
15	Nitrites as NO_2	mg/L	4500-NO_2^-.B	BDL	BDL	15.5	BDL
16	Nitrates as NO_3	mg/L	4500-NO_3^-.B	43	10.3	4	17.4
17	Total Phosphates	mg/L	4500-P-D	BDL	BDL	0.024	0.012
18	Ammonical Nitrogen as NH_3-N	mg/L	4500-NH_3-C	BDL	BDL	BDL	BDL
19	Phenolic compounds as C_6H_5OH	mg/L	5530-D	BDL	BDL	BDL	BDL
20	Oil & Grease	mg/L	5520. B	<1	<1	<1	<1
21	Carbonates as CO_3	mg/L	2320. B	nil	nil	nil	Nil
22	Bi-carbonates as HCO_3	mg/L	2320. B	180	135	265	110
23	Fecal Coliforms	MPN/100mL	9221 E	11	17	17	11
24	Zinc as Zn	mg/L	3120. B	0.11	0.10	0.12	0.10

S. No	Parameters	Unit	Test Method	SW-1 (Godavari River upstream)	SW-2 (Godavari River downstream)	SW-5 (Indaram tank)	SW-6 (Shettipalli Tank)
	DATE OF SAMPLING			**28.04.2023**	**28.04.2023**	**28.04.2023**	**28.04.2023**
25	Iron as Fe	mg/L	3120. B	0.58	0.35	0.46	0.49
26	Arsenic as As	mg/L	3120. B	BDL	BDL	BDL	BDL
27	Lead as Pb	mg/L	3120. B	BDL	BDL	BDL	BDL
28	Cadmium as Cd	mg/L	3120. B	BDL	BDL	BDL	BDL
29	Total Chromium as Cr	mg/L	3120. B	BDL	BDL	BDL	BDL
30	Nickel as Ni	mg/L	3120. B	BDL	BDL	BDL	BDL
31	Copper as Cu	mg/L	3120-B	BDL	BDL	BDL	BDL
32	Selenium as Se	mg/L	3120-B	BDL	BDL	BDL	BDL

NTU – Nephelometric Turbidity Unit; TON – Threshold Odour Number; BDL – Below Detection Limit, Detection Limit – BOD – 3 mg/L; Ammonical Nitrogen – 5 mg/L;

Physico-Chemical, Bacteriological Characteristics of Groundwater Collected within the Study Area
Organoleptic and Physical Parameters

S. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-5 Nizamabad	**GW-6** Shettipalli	**GW-8** Indaram	**GW-9** Tekumatla
	Date of sampling					**28.04.2023**	**28.04.2023**	**28.04.2023**	**28.04.2023**
1	Colour	Hazen	2120. B	5	15	<5	<5	<5	<5
2	Odour	TON	2150. B	Agreeable	Agreeable	Agree.	Agree.	Agree.	Agree.
3	pH	-	4500-H^+B	6.5 to 8.5	No relaxation	7.3	7.3	7.5	7.2
4	Taste	FTN	2160. B	Agreeable	Agreeable	Agree.	Agree.	Agree.	Agree.
5	Turbidity	NTU	2130. B	1	5	0.36	0.28	0.72	0.61
6	Total Dissolved Solids at 180^o C	mg/L	2540.C	500	2000	570	995	559	725

General Parameters Concerning Substances Undesirable in Excessive Amounts

S. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-5 Nizamabad	**GW-6** Shettipalli	**GW-8** Indaram	**GW-9** Tekumatla
	Date of sampling					**28.04.2023**	**28.04.2023**	**28.04.2023**	**28.04.2023**
1.	Calcium as Ca	mg/L	3500-Ca.B	75	200	59	70	48	72
2.	Magnesium as Mg	mg/L	3500-Mg.B	30	100	45	64	31	68
3.	Chlorides as Cl-	mg/L	4500-Cl-.B	250	1000	79	224	67	179
4.	Sulphates as SO42-	mg/L	4500-SO42- .E	200	400	81	93	78	92
5.	Fluoride as F-	mg/L	4500-F-.C	1.0	1.5	0.79	0.83	0.88	0.65
6.	Nitrates as NO3	mg/L	4500-NO3-.B	45	No relaxation	37	52	30	38
7.	Total Alkalinity as CaCO3	mg/L	2320. B	200	600	345	510	385	315
8.	Total Hardness as CaCO3	mg/L	2340. C	200	600	354	446	276	466
9.	Sulphide as H_2S	mg/L	4500-S2-F&D	0.05	No relaxation	BDL	BDL	BDL	BDL
10.	Total Ammonia-N	mg/L	IS 3025 (Part 34)	0.5	No relaxation	BDL	BDL	BDL	BDL
11.	Phenolic compounds as C6H5OH	mg/L	5530-D	0.001	0.002	BDL	BDL	BDL	BDL
12.	Residual free chlorine	mg/L	4500-Cl-.B	0.2	1.0	BDL	BDL	BDL	BDL
13.	Mineral oil	mg/L	IS:3025 (part 39)	0.5	No relaxation	absent	absent	absent	absent
14.	Anionic Detergents (as MBAS)	mg/L	IS:13428:2005K	0.2	1.0	<0.2	<0.2	<0.2	<0.2
15.	Aluminium as Al	mg/L	3120-B	0.03	0.2	BDL	BDL	BDL	0.05
16.	Barium as Ba	mg/L	3120. B	0.7	No relaxation	0.08	0.06	0.07	BDL
17.	Boron as B	mg/L	3120-B	0.5	2.4	0.29	0.17	0.26	0.32
18.	Iron as Fe	mg/L	3120-B	1.0	No relaxation	0.18	0.09	0.20	0.19
19.	Zinc as Zn	mg/L	3120-B	5	15	0.41	0.57	0.61	0.75
20.	Copper as Cu	mg/L	3120-B	0.05	1.5	0.17	0.23	0.25	0.26
21.	Manganese as Mn	mg/L	3120-B	0.1	0.3	BDL	BDL	BDL	BDL
22.	Selenium as Se	mg/L	3120-B	0.01	No relaxation	BDL	BDL	BDL	BDL
23.	Silver as Ag	mg/L	3120. B	0.1	No relaxation	BDL	BDL	BDL	BDL

Parameters Concerning Toxic Substances

S. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-5 Nizamabad	**GW-6** Shettipalli	**GW-8** Indaram	**GW-9** Tekumatla
	DATE OF SAMPLING					**28.04.2023**	**28.04.2023**	**28.04.2023**	**28.04.2023**
1	Cadmium as Cd	mg/L	3120-B	0.003	No relaxation	BDL	BDL	BDL	BDL
2	Cyanide as CN-	mg/L	4500-CN^-.F	0.05	No relaxation	BDL	BDL	BDL	BDL
3	Lead as Pb	mg/L	3120-B	0.01	No relaxation	BDL	BDL	BDL	BDL
4	Molybdenum as Mo	mg/L	3120. B	0.07	No relaxation	BDL	BDL	BDL	BDL
5	Nickel as Ni	mg/L	3120-B	0.02	No relaxation	BDL	BDL	BDL	BDL
6	Total Arsenic as As	mg/L	3120-B	0.01	0.05	BDL	BDL	BDL	BDL
7	Total Chromium as Cr	mg/L	3120-B	0.05	No relaxation	BDL	BDL	BDL	BDL
8	Mercury as Hg	µg/L	3500-Hg.B	0.001	No relaxation	BDL	BDL	BDL	BDL
9	**Pesticides:** α–BHC, β-BHC, γ-BHC, δ-BHC, o, p-DDT, p, p' –DDT, Endosulfan, β- Endosulfan, Aldrin, Dieldrin	µg/L	6630. D	Absent	0.001	ND	ND	ND	ND
	2,4-D, Carboryl (Carbonate) Malathion Methyl Parathion Anilophos, Chloropyriphos	Qualitative Analysis	6630. D	Absent	0.001	ND	ND	ND	ND
10	**Polyaromatic Hydrocarbons (PAH's):** Acenaphthene, Acenaphthylene, Anthracene, B(a)A, B(a)P, B(b)F, B(k)F, Pyrene, Dibenz (a,h) anthracene, Fluoranthene, Fluorene, Indeno (1,2,3-(d) Pyrene, Naphthalene, Phenanthrene, Pyrene, Methyl Naphthalene	µg/L	6440.C	-	-	ND	ND	ND	ND

Bacteriological Quality of Drinking water

S. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-5 Nizamabad	**GW-6** Shettipalli	**GW-8** Indaram	**GW-9** Tekumatla
	Date of sampling					**28.04.2023**	**28.04.2023**	**28.04.2023**	**28.04.2023**
1	Total Coliforms	MPN/100 mL	9221 B	-	-	<1.8	<1.8	<1.8	<1.8
2	Fecal Coliforms	MPN/100 mL	9221 E	-	-	<1.8	<1.8	<1.8	<1.8

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)	SW-5 (Indaram tank)	SW-6 (Shettipalli Tank)
Date of sampling									**02.08.2023**	**02.08.2023**	**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	8.1	7.0	7.6
2	Electrical Conductivity	µmhos/cm	2510-B	-	-	-	-	2250 µmhos/cm	379	348	258	299
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	5.3	5.9
4	Bio chemical Oxygen Demand (3 days 27^o C)	mg/L	IS: 3025	2 mg/l or less	3 mg/l or less	3 mg/l or less	-	-	2.2	2.4	3.4	3.8
5	Total Coliforms	MPN/ 100mL	9221 B	50 or less	500 or less	5000 or less	-	-	110	110	220	240
6	Free Ammonia (as N)	mg/L	4500-NH_3 –F	-	-	-	1.2 mg/L or less	-	BDL	BDL	BDL	BDL
7	Boron as B	mg/L	3120-B	-	-	-	-	Less than 2 mg/L	0.08	0.21	0.07	0.13
8	SAR	-	-	-	-	-	-	Less than 26	0.92	0.72	0.69	0.83

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)	SW-5 (Indaram tank)	SW-6 (Shettipalli Tank)
Date of sampling				**02.08.2023**	**02.08.2023**	**02.08.2023**	**02.08.2023**
1	Colour	Hazen	2120. B	5	5	5	10
2	Odour	TON	2150. B	No odour observed	No odour observed	No odour observed	No odour observed
3	Temperature	ºC	2550. B	25.2	25.3	25.1	25.2
4	Turbidity	NTU	2130. B	2.5	7.3	1.95	1.83
5	Total Dissolved Solids at 180º C	mg/L	2540.C	223	204	152	176
6	Total Suspended Solids at 105º C	mg/L	2540. D	41	37	27	33
7	Chemical Oxygen Demand	mg/L	5220. D	16	20	16	12
8	Chlorides as Cl^-	mg/L	4500-Cl^-.B	31	29	19	22
9	Sulphates as SO_4^{2-}	mg/L	4500-SO_4^{2-}.E	32	30	23	26
10	Fluoride as F^-	mg/L	4500-F^-.C	0.45	0.38	0.42	0.51
11	Calcium as Ca	mg/L	3500-Ca.B	26	28	16	18
12	Magnesium as Mg	mg/L	3500-Mg.B	21	22	12	13
13	Sodium as Na	mg/L	3500-Na.B	26	21	15	19
14	Potassium as K	mg/L	3500-K.B	1.2	2.4	2.9	6.8
15	Nitrites as NO_2	mg/L	4500-NO_2^-.B	0.09	0.11	BDL	BDL
16	Nitrates as NO_3	mg/L	4500-NO_3^-.B	4.24	4.22	3.47	4.21
17	Total Phosphates	mg/L	4500-P-D	0.02	BDL	0.084	0.05
18	Ammonical Nitrogen as NH_3-N	mg/L	4500-NH_3-C	BDL	BDL	BDL	BDL
19	Phenolic compounds as C_6H_5OH	mg/L	5530-D	BDL	BDL	BDL	BDL
20	Oil & Grease	mg/L	5520. B	<1	<1	<1	<1
21	Carbonates as CO_3	mg/L	2320. B	nil	nil	nil	Nil
22	Bi-carbonates as HCO_3	mg/L	2320. B	120	95	85	100
23	Fecal Coliforms	MPN/100mL	9221 E	4.5	4.5	11	14
24	Zinc as Zn	mg/L	3120. B	0.19	0.29	0.22	0.14
25	Iron as Fe	mg/L	3120. B	0.61	0.58	0.49	0.32

S. No	Parameters	Unit	Test Method	SW-1 (Godavari River upstream)	SW-2 (Godavari River downstream)	SW-5 (Indaram tank)	SW-6 (Shettipalli Tank)
Date of sampling				**02.08.2023**	**02.08.2023**	**02.08.2023**	**02.08.2023**
26	Arsenic as As	mg/L	3120. B	BDL	BDL	BDL	BDL
27	Lead as Pb	mg/L	3120. B	BDL	BDL	BDL	BDL
28	Cadmium as Cd	mg/L	3120. B	BDL	BDL	BDL	BDL
29	Total Chromium as Cr	mg/L	3120. B	BDL	BDL	BDL	BDL
30	Nickel as Ni	mg/L	3120. B	BDL	BDL	BDL	BDL
31	Copper as Cu	mg/L	3120-B	BDL	BDL	BDL	BDL
32	Selenium as Se	mg/L	3120-B	BDL	BDL	BDL	BDL

NTU – Nephelometric Turbidity Unit; TON – Threshold Odour Number; BDL – Below Detection Limit, Detection Limit – BOD – 3 mg/L; Ammonical Nitrogen – 5 mg/L;

Physico-Chemical, Bacteriological Characteristics of Groundwater Collected within the Study Area
Organoleptic and Physical Parameters

S. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-5 Nizamabad	GW-6 Shettipalli	GW-8 Indaram	GW-9 Tekumatla
Date of sampling						**02.08.2023**	**02.08.2023**	**02.08.2023**	**02.08.2023**
1	Colour	Hazen	2120. B	5	15	<5	<5	<5	<5
2	Odour	TON	2150. B	Agreeable	Agreeable	Agree.	Agree.	Agree.	Agree.
3	pH	-	4500-H^+B	6.5 to 8.5	No relaxation	7.4	8.0	8.0	7.3
4	Taste	FTN	2160. B	Agreeable	Agreeable	Agree.	Agree.	Agree.	Agree.
5	Turbidity	NTU	2130. B	1	5	0.63	0.95	0.28	0.62
6	Total Dissolved Solids at 180^o C	mg/L	2540.C	500	2000	688	213	204	635

General Parameters Concerning Substances Undesirable in Excessive Amounts

S. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-5 Nizamabad	GW-6 Shettipalli	GW-8 Indaram	GW-9 Tekumatla
	Date of sampling					**02.08.2023**	**02.08.2023**	**02.08.2023**	**02.08.2023**
1.	Calcium as Ca	mg/L	3500-Ca.B	75	200	81	24	32	85
2.	Magnesium as Mg	mg/L	3500-Mg.B	30	100	53	19	20	58
3.	Chlorides as Cl-	mg/L	4500-Cl-.B	250	1000	150	29	27	80
4.	Sulphates as SO42-	mg/L	4500-SO42- .E	200	400	52	25	20	46
5.	Fluoride as F-	mg/L	4500-F-.C	1.0	1.5	0.69	0.44	0.5	0.68
6.	Nitrates as NO3	mg/L	4500-NO3-.B	45	No relaxation	44	11	7	30
7.	Total Alkalinity as CaCO3	mg/L	2320. B	200	600	330	115	120	425
8.	Total Hardness as CaCO3	mg/L	2340. C	200	600	421	139	162	450
9.	Sulphide as H_2S	mg/L	4500-S2-F&D	0.05	No relaxation	BDL	BDL	BDL	BDL
10.	Total Ammonia-N	mg/L	IS 3025 (Part 34)	0.5	No relaxation	BDL	BDL	BDL	BDL
11.	Phenolic compounds as C6H5OH	mg/L	5530-D	0.001	0.002	BDL	BDL	BDL	BDL
12.	Residual free chlorine	mg/L	4500-Cl-.B	0.2	1.0	BDL	BDL	BDL	BDL
13.	Mineral oil	mg/L	IS:3025 (part 39)	0.5	No relaxation	absent	absent	absent	absent
14.	Anionic Detergents (as MBAS)	mg/L	IS:13428:2005K	0.2	1.0	<0.2	<0.2	<0.2	<0.2
15.	Aluminium as Al	mg/L	3120-B	0.03	0.2	BDL	0.06	0.07	0.07
16.	Barium as Ba	mg/L	3120. B	0.7	No relaxation	0.17	0.27	0.25	0.23
17.	Boron as B	mg/L	3120-B	0.5	2.4	0.26	0.13	0.11	0.08
18.	Iron as Fe	mg/L	3120-B	1.0	No relaxation	0.42	0.36	0.53	0.52
19.	Zinc as Zn	mg/L	3120-B	5	15	BDL	BDL	BDL	0.10
20.	Copper as Cu	mg/L	3120-B	0.05	1.5	BDL	BDL	BDL	BDL
21.	Manganese as Mn	mg/L	3120-B	0.1	0.3	BDL	BDL	BDL	BDL
22.	Selenium as Se	mg/L	3120-B	0.01	No relaxation	BDL	BDL	BDL	BDL
23.	Silver as Ag	mg/L	3120. B	0.1	No relaxation	BDL	BDL	BDL	BDL

Parameters Concerning Toxic Substances

S. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-5 Nizamabad	**GW-6** Shettipalli	**GW-8** Indaram	**GW-9** Tekumatla
Date of sampling						**02.08.2023**	**02.08.2023**	**02.08.2023**	**02.08.2023**
1	Cadmium as Cd	mg/L	3120-B	0.003	No relaxation	BDL	BDL	BDL	BDL
2	Cyanide as CN-	mg/L	4500-CN⁻.F	0.05	No relaxation	BDL	BDL	BDL	BDL
3	Lead as Pb	mg/L	3120-B	0.01	No relaxation	BDL	BDL	BDL	BDL
4	Molybdenum as Mo	mg/L	3120. B	0.07	No relaxation	BDL	BDL	BDL	BDL
5	Nickel as Ni	mg/L	3120-B	0.02	No relaxation	BDL	BDL	BDL	BDL
6	Total Arsenic as As	mg/L	3120-B	0.01	0.05	BDL	BDL	BDL	BDL
7	Total Chromium as Cr	mg/L	3120-B	0.05	No relaxation	BDL	BDL	BDL	BDL
8	Mercury as Hg	µg/L	3500-Hg.B	0.001	No relaxation	BDL	BDL	BDL	BDL
9	**Pesticides:** α–BHC, β-BHC, γ-BHC, δ-BHC, o, p-DDT, p, p' –DDT, Endosulfan, β- Endosulfan, Aldrin, Dieldrin	µg/L	6630. D	Absent	0.001	ND	ND	ND	ND
	2,4-D, Carboryl (Carbonate) Malathion Methyl Parathion Anilophos, Chloropyriphos	Qualitative Analysis	6630. D	Absent	0.001	ND	ND	ND	ND
10	**Polyaromatic Hydrocarbons (PAH's):** Acenaphthene, Acenaphthylene, Anthracene, B(a)A, B(a)P, B(b)F, B(k)F, Pyrene, Dibenz (a,h) anthracene, Fluoranthene, Fluorene, Indeno (1,2,3-(d) Pyrene, Naphthalene, Phenanthrene, Pyrene, Methyl Naphthalene	µg/L	6440.C	-	-	ND	ND	ND	ND

Bacteriological Quality of Drinking water

S. No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limit in the absence of alternate source	RESULT			
						GW-5 Nizamabad	**GW-6** Shettipalli	**GW-8** Indaram	**GW-9** Tekumatla
Date of sampling						**02.08.2023**	**02.08.2023**	**02.08.2023**	**02.08.2023**
1	Total Coliforms	MPN/100 mL	9221 B	-	-	<1.8	<1.8	<1.8	<1.8
2	Fecal Coliforms	MPN/100 mL	9221 E	-	-	<1.8	<1.8	<1.8	<1.8

III. POST PROJECT WATER QUALITY (EFFLUENTS) MONITORING DATA FOR THE PERIOD FROM APRIL, 2023 TO SEPTEMBER, 2023 FOR IK OCP .

❖ Location of the water
Quality monitoring Station: IK OC Mine discharge

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.	IK OCP Mine discharge	15.04.2023	7.4	33	878	28	2.9	1
		29.04.2023	7.7	20	911	20	1.7	1.2
		15.05.2023	8.1	27	896	27	2.1	<1
		31.05.2023	7.7	19	688	16	2	<1
		15.06.2023	7.5	22	796	12	1.5	<1
		30.06.2023	7.6	41	792	15	1.9	1.2
		15.07.2023	7.7	38	886	19	2.6	<1
		31.07.2023	7.8	26	647	32	3.6	<1
		14.08.2023	8	33	783	24	4.1	<1
		31.08.2023	7.7	27	961	27	3.6	<1
		15.09.2023	7.3	21	810	31	4.4	1.2
		29.09.2023	7.5	34	974	35	5.1	1.6
	Minimum		**7.30**	**19.00**	**647.00**	**12.00**	**1.50**	**1.00**
	Maximum		**8.10**	**41.00**	**974.00**	**35.00**	**5.10**	**1.60**
	Average		**7.67**	**28.42**	**835.17**	**23.83**	**2.96**	**1.24**
	98% tile		**8.08**	**40.34**	**971.14**	**34.34**	**4.95**	**1.57**
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**

❖ Location of the water
Quality monitoring Station :

Sl. No.	Station name	Date of sampling	Concentration in mg/Liter (Except pH)					
			pH (at 25^0 C)	TSS At 105^0 C	TDS (At 180^0 C)	COD	BOD	Oil & Grease
2.	IK OCP Dump surface run off	15.04.2023	7.9	37	710	24	3.3	1
		29.04.2023	7.8	49	842	16	2.2	<1
		15.05.2023	8.2	24	913	27	2.6	1.4
		31.05.2023	7.9	22	753	19	2.4	<1
		15.06.2023	7.7	26	927	16	1.9	<1
		30.06.2023	7.7	33	680	23	3.1	<1
		15.07.2023	7.5	28	877	19	2.6	<1
		31.07.2023	7.9	29	752	28	3.1	<1
		14.08.2023	7.6	37	603	16	3.6	<1
		31.08.2023	7.5	24	809	27	4.1	1
		15.09.2023	7.8	41	655	23	2.4	<1
		29.09.2023	7.3	33	784	32	3.5	1.2
	Minimum		**7.300**	**22.000**	**603.000**	**16.000**	**1.900**	**1.000**
	Maximum		**8.200**	**49.000**	**927.000**	**32.000**	**4.100**	**1.400**
	Average		**7.733**	**31.917**	**775.417**	**22.500**	**2.900**	**1.150**
	98% tile		**8.134**	**47.240**	**923.920**	**31.120**	**3.990**	**1.388**
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)

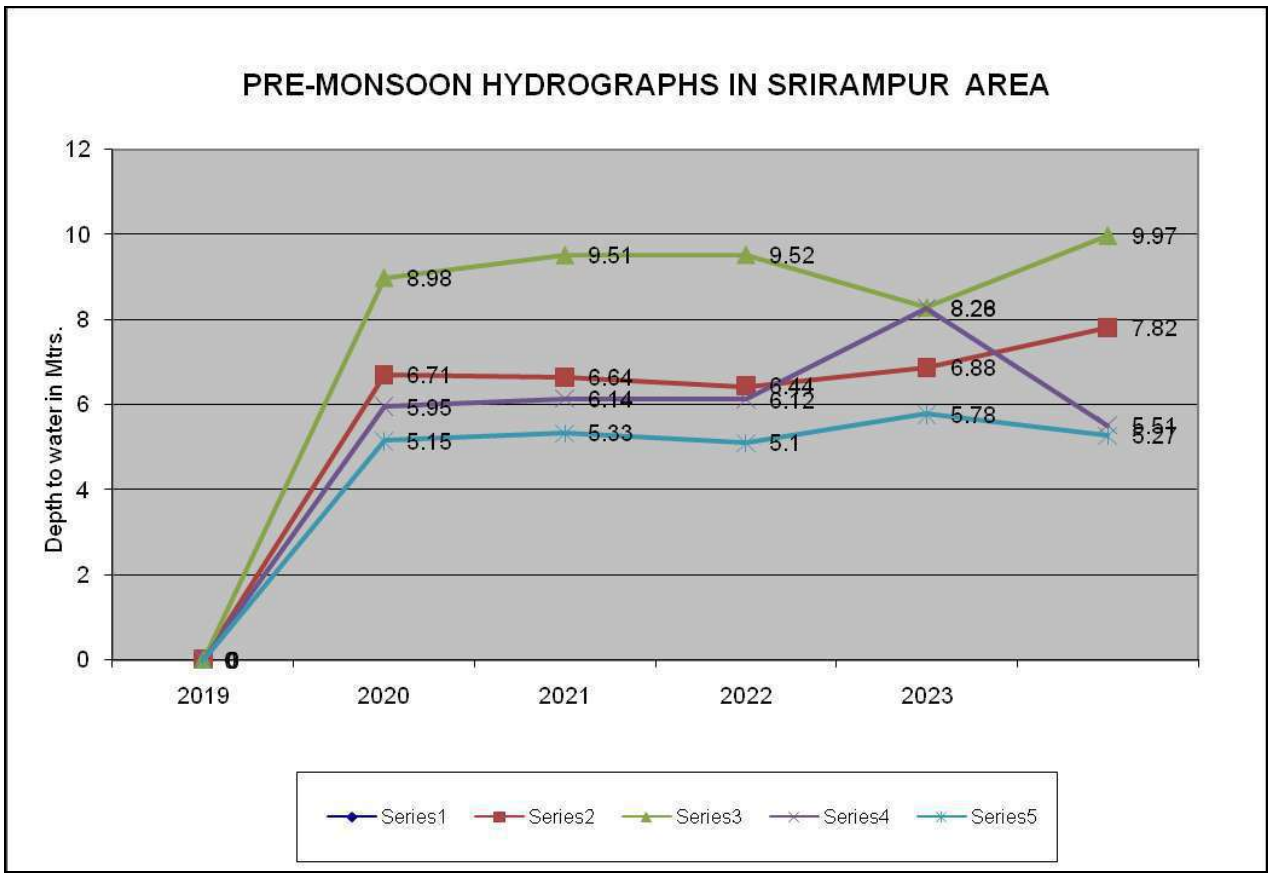
Month	Description	Characteristics of Raw Sewage				Characteristics of Aeration Water					Characteristics of Treated Water				
		pH	TSS	COD	BOD	pH	DO	MLSS	MLVSS	TDS	pH	DO	TSS	COD	BOD
April,23	Min	7.8	205	205	205	7.4	1.7	3040	380	5	6.7	1.2	11	11	28
	Max	7.9	220	220	215	7.6	1.9	3220	399	3170	7.2	1.3	13	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**

ANNEXURE-III

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(MAGL)	Period	Depth to Water (M)				
									2019	**2020**	**2021**	**2022**	**2023**
1	Arunakka nagar near GM office	N.Lingaiah	Domestic	1.00	9.40	Barren Measures 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/Kurmawada	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/Kurmawada	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 Rajamallamma/ 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	Agriculture	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(MAGL)	Period	Depth to Water (M)				
									2019	**2020**	**2021**	**2022**	**2023**
14	Indaram	A.Rajamallu/ opp.BP bunk	Domestic	3x4	11.50	Barren Measures 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/Podusani Bhaskar reddy	Domestic	1.00	13.00	Barren Measures 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	Agriculture	6.50	8.50	Barren Measures 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 Measures 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 Measures 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 Measures 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/side of HP Petrol bunk	M. Uppalaiah	Domestic	1.20	7.00	Barren Measures 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 Measures 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 Measures 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 Measures 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 Measures 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
Depth to water in Mtrs.
12
10
8
6
4
2
0
2019
2020
2021
2022
2023
8.98
9.51
9.52
9.97
6.71
6.64
6.44
6.88
7.82
5.95
6.14
6.12
8.26
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5.15
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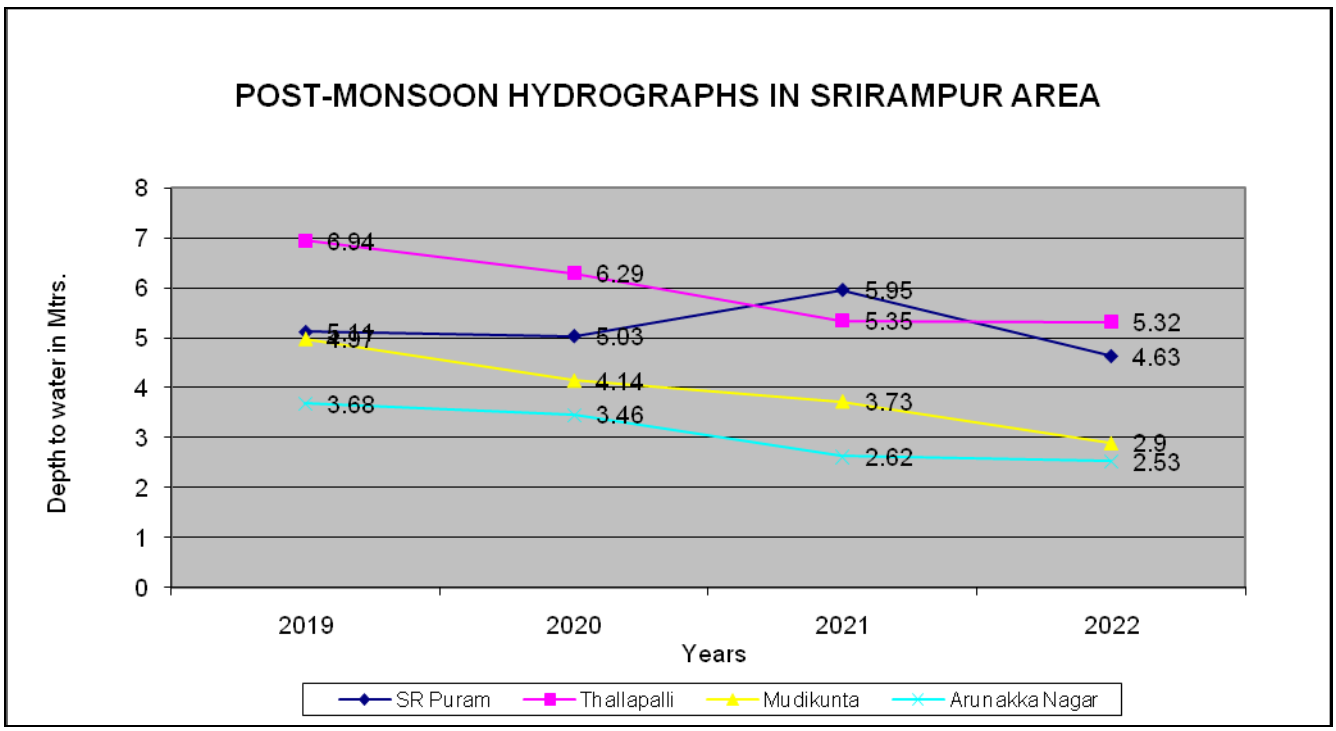
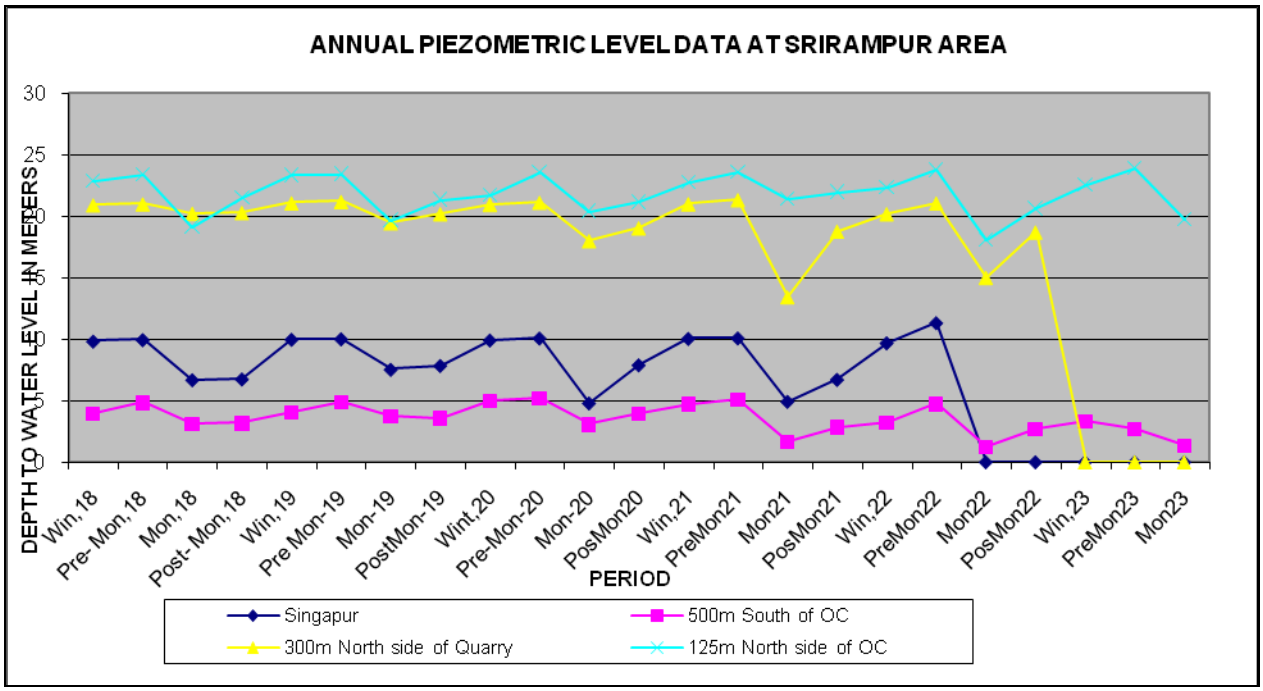
5.27
0
Series1
Series2
Series3
Series4
Series5


POST-MONSOON HYDROGRAPHS IN SRIRAMPUR AREA
Depth to water in Mtrs.
8
7
6
5
4
3
2
1
0
2019
2020
2021
2022
Years
6.94
6.29
5.95
5.35
5.32
5.11
5.03
4.63
4.97
4.14
3.73
2.9
3.68
3.46
2.62
2.53
SR Puram
Thallapalli
Mudikunta
Arunakka Nagar

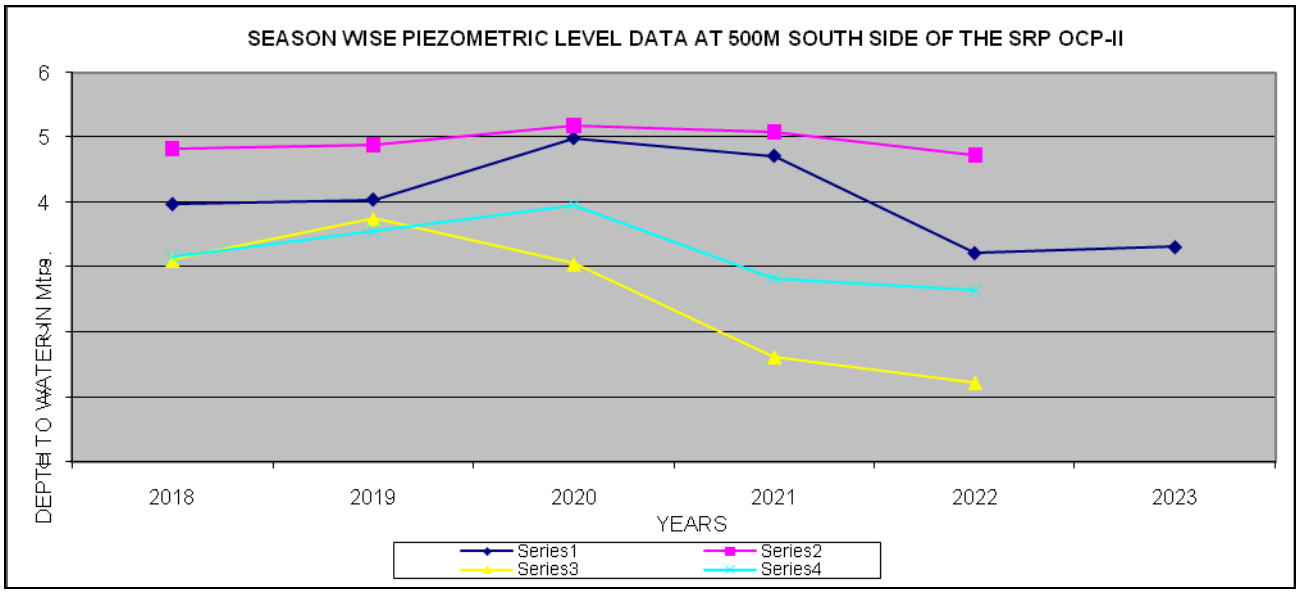


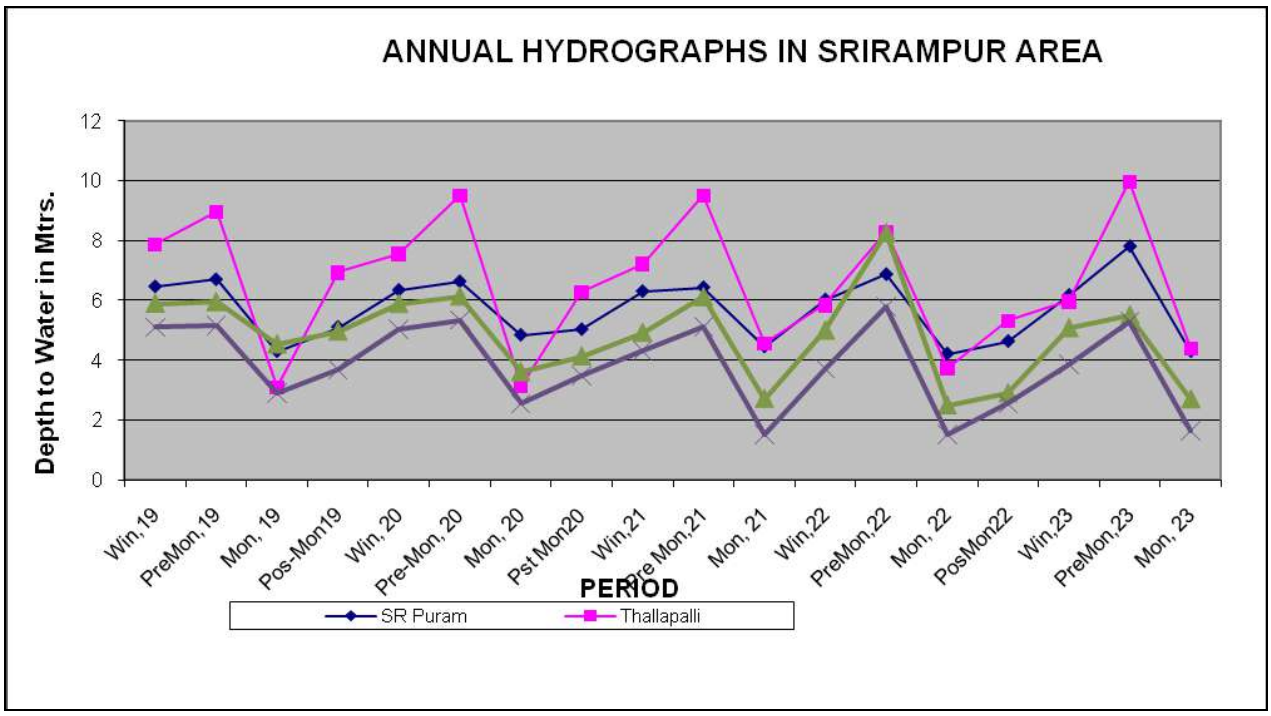
B. PIEZOMETRIC LEVEL DATA OF SRIRAMPUR AREA.

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.II PW-5	About 500 m south of the quarry and 150m north of Indaram Tank (N18^{0}49'35.43" – E 79^{0}30'57.60")	208	0.10	0.30	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.II PW-7	Near Singapur village (N18^{0}49'46.47" – E 79^{0}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.II PW-8	Near Project Office sub-station. About 125m from N side of quarry surface limit. (N18^{0}51'4.12" – E 79^{0}29'39.90")	50	0.10	0.40	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.II PW-10	Road to SRP bus stand, about 300m from N side of quarry surface limit (N18^{0}51'7.10" – E 79^{0}30'11.26")	50	0.1	0.50	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_CSIRO PW-11	West side External dump area, Near to Thallapalli village. (N18^{0}49'54.731" – E 79^{0}29'11.085	50	0.1	0.2	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_CSIRO PW-12	West side External dump area. Near to Thallapalli village (N18^{0}49'50.573" - E 79^{0}29'06.202")	50	0.1	0.2	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_CSIRO PW-13	West side External dump area. Road to Godavari river (N18^{0}49'45.286" – E 79^{0}29'06.811")	50	0.1	0.2	Winter	2.99	3.05	3.17	3.63	3.92	3.97
					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_CSIRO PW-14	West side External dump area. Road to Godavari River (N18^{0}49'32.305" – E 79^{0}28'50.154")	50	0.1	0.2	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





ANNEXURE- IV

NOISE LEVEL MONITORING DATA FOR THE PERIOD FROM APRIL, 2023 TO MARCH, 2023 AROUND INDARAM OPENCAST PROJECT

Fortnight	IK OCP Site Office			Indaram Village			Tekumatla Village		
	Date	L_{day}	L_{night}	Date	L_{day}	L_{night}	Date	L_{day}	L_{night}
April-I	04.04.2023	63.1	56.2	08.04.2023	48.3	34.6	08.04.2023	44.4	36.2
April-II	24.04.2023	66.4	57.4	28.04.2023	47.2	39.1	28.04.2023	42.4	38.1
May–I	06.05.2023	66.4	57.1	11.05.2023	49.8	40.2	11.05.2023	41.6	37.4
May-II	22.05.2023	65.1	55.8	26.05.2023	46.4	38	26.05.2023	40.8	36.8
June–I	06.06.2023	62.8	56.2	10.06.2023	47.1	39.5	10.06.2023	41.7	38.5
June-II	29.06.2023	63.2	50.8	27.06.2023	47.1	40.8	27.06.2023	51.2	40.1
July–I	14.07.2023	70.5	62.3	12.07.2023	46.8	39.1	12.07.2023	47.3	38.4
July –II	29.07.2023	64.7	53.4	27.07.2023	49.1	38.5	27.07.2023	45.3	37.6
Aug-I	14.08.2023	69.5	56.9	11.08.2023	48.2	32.7	11.08.2023	43.2	33.9
Aug -II	27.08.2023	62.1	52.5	26.08.2023	42.1	39.4	26.08.2023	47.3	35.1
Sep-I	15.09.2023	60.4	53.7	12.09.2023	45.3	31	12.09.2023	46.8	34.2
Sep-II	27.09.2023	63.7	56.7	26.09.2023	46.2	32.8	26.09.2023	45.8	34.1
	Average	**64.825**	**55.750**		**46.967**	**37.142**		**44.817**	**36.700**
Limits		**75**	**70**		**55**	**45**		**55**	**45**

ANNEXURE - V

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 PO, SRP OC
3 PO, IK OCP
4 AGM(E&M), SRP
5 DGM(E&M), AWS
6 DGM(E&M). SRP CHP
7 DGM (Civil), SRP
8 Area Survey Officer
9 Addl Manager(Env).SRP
10 Sr. Estates Officer, SRP
11 Dy. Supdt. Survey Officer/ IK OCP

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ANNEXURE- IA

EXHAUST EMISSIONS MONITORING DATA OF HEAVY VEHICLES (HEMM) OF Indaram OCP (IN H.S.U %,K) DURING THE MONTH OF AUGUST, 2023.

Vehicular Emissions Study in Indaram OCP, SRP Area

Sl. No	Eqpt Type/ Capacity	Make	D.O.C	Hrs Runned	Tested Date	HSU % 65	K m-1 2.45	Test Status
1.	Shovel S-1	TATA Hitachi	25.10.2019	23.08.2023	9823	28.4	0.45	PASS
2.	DOZER -1	KOMAT	26.06.2017	,,	13827	10.1	0.12	PASS
3.	DUMPER 100 T K-1	KOMAT	15.11.2021	,,	5714	15.4	0.14	PASS
4.	WS-1	BEML	19.11.2018	,,	7560	20.4	0.18	PASS
5.	LOADER-1	VOLVO	04.11.2019	,,	11499	-	-	BD
6.	LOADER-2	KOMAT	29.11.2021	23.08.2023	7474	19.5	0.17	PASS
7.	MG-1	BEML	18.08.2021	,,	1291	11.5	0.16	PASS
8.	40 T CRANE -C1	TIL	16.09.2021	,,	730	14.3	1.04	PASS
9.	12 T CRANE C-15	ESCORT	08.12.2022	,,	204	-	-	BD

Total no of vehicles	9
No of vehicles tested	7
Passed vehicles	7
Failed vehicles	0
Break down vehicles (B/D)	2

Annexure – VI

COMPLIANCE STATUS OF ISSUES RAISED IN ENVIRONMENTAL PUBLIC HEARING OF INDARAM OPENCAST COAL MINING PROJECT, CONDUCTED ON 03.09.2007:

Sl. No	Views / Opinion / Suggestions	Status of implementation
1	**Sri Mudam Ramesh, Ex-MPTC, Ramaraopet Village** stated that their lands would buried under overburden dump yard due to the proposed project. It could affect their agricultural prospects. He appealed to change the location of dump yard from the present proposal to the land owned by the company and take adequate measures to control pollution. He also requested to arrange compensation to the project affected persons at the earliest. He further requested to render financial assistance to ensure developmental works in his village. They were not against the opencast mining project but were seeking a written commitment from the management to address their demands. He urged to generate more employment benefits for the local unemployed youth and project affected families and raise more plantations.	The compensation for land to be acquired will be paid as per existing land acquisition Acts & Rules. The pollution control measures as a result of open cast mining activity will be taken as per strict guide lines of CPCB & TSPCB. The project displaced/affected families will be suitably accommodated by complying all provisions pertaining to LA & RR. As for as practicable suitable employment will be recommended to children of the land loosing families at out sourcing agencies. Suitable plantation will be taken up wherever required.
2	**Sri Gitta Devaiah,** Ex- Sarpanch, Ramaraopet supported the earlier speakers view. He appealed to facilitate maximum possible job opportunities in the poverty alienated villages. He sought firm assurance from the management and had no objection with the proposed opencast mining. He requested the officials to sort out the air pollution problems causing by the Coal washery Industry in the area. He further requested for providing of street lights for their villages by the company.	Your appeal will be positively considered by giving more priority in recommending employment to the families belongs to below poverty line. The Coal Washery is stopped. The street lighting wherever required will be provided soon.
3	**Sri Namala Thirupathi**, R/o Ramaraopet stated that the proposed mining activity would disturb the blessed conducive atmosphere. The area is dependent on agricultural activity that would be hampered due to the proposed scheme. He while stating about the coal requirement for national economy stated that the opencast activity would impact their livelihood security. He said that they are not opposing the open cast but said that due to open cast loose their villages and water bodies with diversion of highway. He requested to address their demands and not to make shuffling in top brass of the company. He sought written commitment from the management.	All pollution control measures will be taken to retain natural atmosphere. If natural water table disturbs, SCCL will provide Drinking water and Domestic water through water pipe lines, as well as water tankers if required to all surrounding villages wherever water table deplenishes.
4	**Sri G. Narsaiah**, Sarpanch, Tekumatla stated that they conducted door to door campaign to know the public stand over the proposed mining activity.	In broader view, extraction Coal is inevitable for Electricity production to cater the Domestic /Agricultural/

Sl. No	Views / Opinion / Suggestions	Status of implementation
	The community. The community meeting passed resolution opposing the open cast mining.	Industrial power needs of State Government. A meeting will be conducted, along with Revenue officials and public representatives to educate the villagers and redress the issue.
5	**Sri N. Satyanarayana Rao**, MPTC member, Tekumatla stated the proposed project would affect agriculture sector and ultimately impact their living conditions. He firmly objected the opencast mining even though it provides infrastructure development.	For the purpose of IK OC Project, SCCL is proposing to acquire total land of extent 856.117 Hectares out of which 672.24 Hectares is Agricultural land. To increase the Agricultural production in other parts of the state, power deficit will be overcome by increasing power production. This issue will be discussed elaborately during the meeting mentioned in previous point.
6	**Sri Gunda Tirupati,** Ex-Sarpanch, Tekumatla narrated that if open casting is taken up the village atmosphere will get disturbed, agriculture will be affected and wells will dried up. The heavy blasting methods would damage houses. The extraction of coal by mining would affect their cultivable lands. He opposed the open cast and requested the District collector to render justice to the affected families.	While conducting OB/COAL blasting operations, latest techniques of controlled blasting will be adopted to prevent ground vibrations and fly rock which prevents damage of dwellings in the nearby village. (Remaining problems discussed in previous points)
7	**Sri Maruthi,** Ex-MPTC Member, Tekumatla stated that the proposed project would impact surrounding people as its life period is about 27 years. Though the open cast mining would give required support for national interests they were not in a position to support the project.	
8	**Sri Mudam Rajaiah** R/o Ramaraopet opposed to the proposed opencast mining scheme as it would affect the agriculture and their livelihood. He wanted a commitment from the Officials and the Singareni Management that they would not loose their agricultural lands.	
9	**Smt. Merugu Ramakka** R/o Ramaraopet, stated that they were not ready to give away their lands and leave the area.	
10	**Smt. Mudam Madunamma**, R/o Ramaraopet, Stated that they carry out the mining activity towards the river side and they were not ready to give away their lands.	
11	**Sri Pudari Ramaiah**, Ex-sarpanch, Indaram narrated that the cultivable lands under the catchments of irrigation tank were going to be acquired by the company. The commercial crops	

Sl. No	Views / Opinion / Suggestions	Status of implementation
	under the river Godavari would also be affected. He criticized that the company had not granted compensation to the earlier affected people which case is pending with the High Court. He strongly opposed to the proposed project and said if necessary would agitate against opencast	
12	**Sri Shaik Qumruddin**, R/o Indaram emphasized the need for Industrialization as it would boost living standards and create employment opportunities in the area. The company was providing direct and indirect benefits in the vicinity. Though some section of people were getting benefits there were also some controllable pollution problems. He stated that financial situation of the country would improve due to Industrialization. He stated that there would be environmental degradation due to un-scientific blasting methods. The utilities in the work shop could lead to water pollution. The proposed project would bring about ill effects and the ground vibrations impact nearby houses, cattle. He anticipated that the green cover, natural resources prevailed in the area would get disturbed. He however admitted that the underground mining was causing no impact with mechanized methods and the extraction of natural resources should be given utmost priority.	Your suggestions are highly valuable, as discussed earlier, controlled blasting techniques will be adopted to prevent ground vibrations and fly rock. Green cover and natural environment and atmosphere will be restored by adopting phase wise land reclamation and restoration of flora & fauna as a part of planned Mine closure Activities.
13	**Sri Chunchula Rajaiah**, Ex-MPTC member, Indaram opposed the proposed project stating that they would affect the surrounding habitation, cattle and stated that the company had not full filled earlier commitments. He came down heavily on the management for not taking up any welfare measures due to which they had no faith in it.	**These all repeated issues discussed in previous points**
14	**Sri Regunta Lingaiah,** R/o Indaram (V) sought to chalk out a best rehabilitation and re settlement package for the proposed project. He urged to provide land for land, house for house against offering valued price so as to uphold the existing condition as the money given as compensation would be spent in no time. They would have no objection if the company implemented the predictions of R&R package in its true spirit.	
15	**Sri Chippakurthi Durgaiah,** Sarpanch, Indaram stated that they had no problem with the underground mining. The opencast mining would cause loss of their cultivable lands besides posing adverse impacts in the vicinity. He opposed to the open cast mining and wanted underground mining.	

Sl. No	Views / Opinion / Suggestions	Status of implementation
16	**Sri Puli Mallesh**, MPTC member, Indaram opposed the project stating that they would loose their agricultural lands. He cited that the proposed project would become threat to their safe living and would commit suicide. He enumerated that the establishment of Singareni Company had not brought about any effective measures in their village.	
17	**Sri Regunta Sunil Kumar Madiga,** Indaram stated that they had not objected the company when it was gone for underground coal mining. The underground mining did not bring any impact to the habitation and agriculture. He stated that a small washery plant was causing pollution and so this large open cast would also cause heavy pollution. He took Tallapalli project affected persons case, in which people had not received necessary compensation, as an example to elicit his concern over the proposed mining. They evolved a consensus that the proposed project should be opposed. He took strong exception to the proposed mining scheme.	This project is proposed to extract the coal from standing pillars, after extraction of about 35% to 40% coal from IK 1A Underground mine with Development as mining method leaving about 60% to 65% coal in standing coal pillars. This coal can be extracted only with Opencast mining method. Due to some disputes in the court of law, some payments were delayed in Thallapally. Afterwards payments to Thallapally structures were made with interest subject to court orders.
18	**Sri Kobi Ramesh,** R/o Indaram warned of agitation if the company is forwarded with the open cast mining.	Discussed earlier
19	**Sri Kontham Ananadam,** R/o Ramaraopet supported the views of the speaker, who stated in favour of the project and said that the things would go as proposed in spite of resistance.	Your comments are highly appreciated.
20	**Sri Md. Fayaz Hussain,** R/o Indaram strongly objected to the opencast mining project as it would impact natural resources of the area. The pollution generated due to mining activity would pose orthopedic disorders and physically handicapped. The upcoming generations should not face pollution related problems and physically handicapped children. He stated that most of the public area against the project.	Due to mining activity orthopedic and physically handicapped disorders will not occur as SCCL is going to take utmost care curbing pollution.
21	**Sri Fayazuddin,** R/o Indaram opposed to the proposed project. The company has not extended compensation to the Thallapalli villagers those who lost their lands under earlier mining. He added that the agriculture sector would be impacted due to open cast mining.	**These all repeated issues discussed in previous points**
22	**Smt. Kadari Malleshwari,** President – MPP, Jaipur (M) stated that they have no objection with the underground mining but would oppose to the open cast mining.	
23	**Sri Ball Ramesh,** Ward member, R/o Tekumatla while supporting all the earlier speakers' views objected to the proposed project.	

Sl. No	Views / Opinion / Suggestions	Status of implementation
24	**Smt. Vijayalaxmi,** R/o. Indaram enumerated that her brother passed away because of cancer. The proposed opencast land acquisition hampered the market value of their land, on which they had expectations thus her brother was unable to meet the medical expenses. The opencast would cause pollution and affect to livelihood security.	
25	**Smt. Gaddam rajeshwari, Smt. Beebasha and Smt. Mangeshwari,** R/o Indaram (V) stated that their women group passed a resolution opposing the proposed project after pursuing the malerial facts. They urged to take the resolution into consideration.	**These all repeated issues discussed in previous points**
26	**Sri Meda Kistaiah**, R/o. Indaram stated about his own land problem.	
27	**Sri N. Bhoopathi Rao,** R/o Tekumatla stated that they had not faced any problem with the underground mining. He suggested taking up of the underground mining against opencast method.	
28	**Sri P. Ranga Rao,** R/o Seetharampalli (V), Mancherial (M) opposed to the opencast mining since the company had not sanctioned any house for Srirampur Opencast Project-I affected families. He sought to know how the industry address the public demands in Indaram Opencast mining as it had not taken any step in Srirampur Opencast Project-I.	
29	**Sri Boddu Chinnai,** R/o Thallapalli criticized that the industry had not provided employment for the land lost families in their village and had not sanctioned compensation. He added that they would take agitational path if the company went with the opencast mining.	
30	**Sri Medari Ramanna,** R/o Tekumatla blamed the company for not fulfilling its earlier commitments. He requested to render justice for the project affected families. He opposed to the proposed mining activity.	
31	**Sri Srinivasa Yadav,** Sarpanch, R/o Mudigunta complained on some leaders who were acting in favour of the company for their personal mileage. He questioned that when the company had not provided necessary benefits in other open cast mining cases how they were seeking public support for Indaram Project. He sought to know what compensation would be provided to the affected people in phase wise Indaram project. He	Every benefit including payment of compensation for land & structures and implementation of R&R package including allotment of House plots as per G.O.Ms. No.68 to each and every PDF/PAF was provided to affected villagers of SRP OC II subsequently.

Sl. No	Views / Opinion / Suggestions	Status of implementation
	advocated for the implementation of R&R package for Thallapalli project affected families as it would send away a positive message to voluntarily offer their lands for the proposed project. He also added that he had no objection on the project subject to adequate compensation for the land.	
32	**Sri Tula Anjaneyulu,** R/o Tekumatla stated that the proposed project would reduce man power requirement which demands in underground mining project. He opposed to the open cast mining project.	This coal can be extracted only with Opencast mining method.
33	**Sri Boddu Thirupathi,** R/o Thallapalli stated that they had extended support during the earlier public hearing. The company had not fulfilled its commitments and had not realized any compensation so far. He sought to know about the provisions of the G.O.Ms. No.68.	G.O.Ms. No.68 implemented subsequently.
34	**Sri Ch. Sunil,** R/o Indaram appealed no to take up opencast mining as they were not in a position to give away their lands under land acquisition process.	**These all repeated issues discussed in previous points**
35	**Sri Boddu Mallesh,** R/o Ramarao pet stated that though they were not opposing the proposed project but their only concern was to uphold their resources.	
36	**Sri N. Kiran kumar,** R/o Indaram stated that the proposed project would affect their lively hood security and opposed to the proposal. He added that the company had not taken up any welfare measure in their village thus they have no faith in the company.	
37	**Sri R.Srinivas,** R/o Indaram a photographer opposed to the open cast mining and requested the persons opposing the project to stand up.	

Project Officer,
Indaram Opencast Project.
PROJECT OFFICER
IKOC & IK-1A