



**THE SINGARENI COLLIERIES COMPANY LIMITED
(A GOVERNMENT COMPANY)
ADRIYALA PROJECT AREA**

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Ref.No.RG-III/ENV/3/

Dt:25.11.2016

**To
The Director
Ministry of Environment, Forests & Climate Change (MoEF & CC)
Regional Office,
1st and 2nd floor, HEPC Building, No.34,
Cathedral Garden Road,
Nungambakkam,
Chennai-600034**

Dear Sir,

Sub: Half yearly Environmental Monitoring Report of Godavarikhani No.10A incline
Coal Mine Project for the period from April 2016 to September 2016 –Reg.
Ref.No: J-11015/25/83-EN5 & J-11015/7/84.EN.5, Dt.11.07.1985.

With reference to the above subject, please find enclosed here with the Half Yearly Environmental Monitoring Report (Hard and Soft copies) of Godavari Khani No.10A incline Coal Mine Project for the period from April 2016 to September 2016 for Your kind perusal.

The report consists of part-I, which indicates the status of the implementation of environmental clearance conditions, and part-II indicates various environment control measures being taken.

Thanking you,

Yours faithfully,

**General Manager,
Adriyala Project Area.**

Enclosed :a/a with soft copy

CC :
Member Secretary, TSPCB, Hyd.
EE, TSPCB.RO, NTPC, Rgm,
GM (ENV), Kgm,
PO GDK 10A Inc,
M.F

HALF YEARLY MOINITORING REPORT
(IN COMPLIANCE WITH EIA NOTIFICATION 2006 UNDER
ENVIRONMENT PROTECTION ACT)

FOR

GDK10A INCINE
(ADRIYALA PROECT AREA)

FOR THE PERIOD APRIL 2016 TO SEPTEMBER 2016



THE SINGARENI COLLIERIES COMPANY LIMITED
(AGOVT.COMPANY)
ADRIYALA PROJECT AREA

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THE SINGARENI COLLIERIES COMPANY LIMITED
(A Government Company)
RAMAGUNDAM-III AREA

PART-I
HALF YEARLY COMPLIANCE REPORT OF
ENVIRONMENTAL CLEARANCE CONDITIONS AS ON 30.09.2016

A. SALIENT FEATURES OF THE PROJECT:

1	Name of the Project	:	GDK10A INCLINE
2	Organization	:	Singareni Collieries Company Limited
3	Coalfield	:	Godavari Valley Coal Field
4	Type of Mine	:	Under Ground mine
5	Technology	:	Long wall mechanization
6	Environmental Clearance	:	
	A Letter No & date	:	i) J-11015/25/83/En.5, Dt.11.07.1985 ii) J-11015/7/84/En.5, Dt. 11.07.1985
	B Sanction capacity	:	Normative: 5.7 L.T Peak:----
	C Mining Lease Area	:	855.70
	D Date of Public Hearing	:	Not conducted
7	Location of the Project	:	
	A Village	:	Adriyala
	B Tehasil	:	Kamanpur mandal
	C District	:	Karimangar Dt.
	D State	:	Telangana State
	E Latitude	:	N 18 ⁰ 39' 15" to 18 ⁰ 41' 45" and
	F Longitude	:	79 ⁰ 33' 45" to 79 ⁰ 35'
	G Topo Sheet	:	56 N/10 NW
	H Nearest railway station	:	Ramagundam Railway Station
	I Nearest Airport	:	Hyderabad
	J Nearest town	:	Ramagundam
8	Address for Correspondence	:	
	A Name	:	Sri Raghukumar
	B Designation	:	Deputy General Manager
	C Address	:	GDK -10 A Incline
	D Pin Code	:	505211
	G Telephone No.	:	08728-201320
	H Fax No.	:	08728-259843
9	Life of the Project	:	
	A Date of Opening	:	06-09-1985
	B Total Life of the project as per EMP	:	31yrs
	C Balance Life	:	NIL
10	Seams	:	
	A Total Seams Present	:	No.1 Seam & No.2 Seam
	B Seams being worked	:	No.1 Seam & No.2 Seam
11	Depth	:	
	A Minimum Depth (m)	:	33 M-No.1 Seam, 58M-No.2 Seam
	B Maximum Depth (m)	:	375M-No.1 seam, 400M-No.2 seam
	C Present working depth (m)	:	186M- No.1 Seam & 267M- No.2 seam
12	Reserves	:	
	A Total Geological Reserves	:	35.67mt

	B	Total Extractable Reserves	:	22.84mt
	C	Reserves already Extracted	:	18.172 mt
	D	Balance Reserves	:	4.67 mt
	E	Coal production during last six months	:	NIL
13	Land Requirement			
	A	Total Requirement (Mine Take Area)		302.15 Ha
	B	Forest land Involved		8.10 Ha
	C	Non-forest land		228.17 Ha
		Govt. land		65.88 Ha
	D	Land acquired so far (Surface rights)		302.15 Ha
14	Statutory Clearances			
	A	Ground Water Clearance		L:r.No.1081/T/2007 dt. 10-09-2007
	B	Consent for Establishment	:	No consent for establishment
	C	Consent for Operation	:	TSPCB/HYD/RGM/GDK-10/20/HO/2014-222,valid up to 31.3.2017
	D	Forest Clearance	:	Vide Lr.No.F.NO.8-109/2005-FC DT.02-05-2008
	E	Mining Lease	:	South godavari Mining lease. Valid From 01.01.1985 to 31.12.2014.(30years) GOMS No.291,Dt:11.06.1986. 31.12.2034
	F	Others (Specify)		-
15	R & R Involved			
			:	Not involved

B. COMPLIANCE STATUS OF EC CONDITIONS AS ON 30.09.2016.

Sl. No.	Condition	Compliance status
i	Effective works shall be carried out at surface on the completion of mining of both the first seam as well as the second seam. This would ensure early detection of any cracks developing on the surface due to subsidence and would enable project proponents to take preventive measures.	Subsidence survey is being conducted regularly. If cracks are found the same will be blanketed immediately with the OB.
ii	A silencer shall be installed for the mine fan to prevent noise pollution	Evasee was installed for the fan to prevent noise pollution.
iii	To overcome air pollution due to generation of dust, dust extractors shall be used in the coal handling plant.	Water spraying is arranged at all the coal transfer points along the belt conveyor and regular cleaning of gantry and the sides of belt conveyor are being arranged.

iv	The project proponents shall provide details about the density and type of plants planted to the planted in this area.	Different types of plant species were planted in the mine boundary and along the approach roads of the mine. The plantation is being taken up by the Forestry Department of SCCL headed by Advisor (Forestry) an IFS Officer. The details are furnished in point no.2 of Part II.
v	Company shall also be advised to have a central township in future instead of having a separate town ship for each project. This central town ship shall be constructed on a non coal bearing area so that it does not have to be demolished later on for extracting coal.	Centenary colony was established in the non coal bearing area.
vi	A periodic (every 6 months) report showing the progress regarding implementation of various recommendations and other control measures listed in the EMP shall be communicated to this Department	Half-yearly report is being submitted regularly in June and December every year in hard and soft copies to MoEF&CC, Chennai and TSPCB, Hyderabad and RO, TSPCB, Rgm.

A periodic progress report regarding environmental protection measures till 30.09.2016 is furnished in **Part - II**.

PART – II

1. Production Details

Sl. No	Year	Production in MTPA	
		As per EC	Actual
1	2000-01	0.57	0.132
2	2001-02	0.57	0.402
3	2002-03	0.57	0.237
4	2003-04	0.57	0.513
5	2004-05	0.57	0.471
6	2005-06	0.57	0.540
7	2006-07	0.57	0.442
8	2007-08	0.57	0.867
9	2008-09	0.57	0.531
10	2009-10	0.57	0.683
11	2010-11	0.57	0.570
12	2011-12	0.57	0.325
13	2012-13	0.57	0.349
14	2013-14	0.57	0.169
15	2014-15	0.57	0.342
16	2015-16	0.57	0.193
17	2016-17	0.57	NIL

2. Plantation:

1	Area covered in Ha	18Ha in FOREST LAND in 2012
2	Total area brought under plantation so far in Ha	3.6 kms avenue plantation, 18Ha in FOREST LAND in 2012
3	Total no. of plants planted so far since inception	18,221
4	Species of plants planted	A.indica,Holoptelia,Ficus species etc.

3. Water Balance Statement:

Sl.No	Description	Quantity in KLD
1	Average quantity of water pumped out of the mine	2320 KLD
2	Water used for Dust suppression	200 KLD
4	Water used for plantation	20 KLD
5	Water supplied for domestic purpose	50 KLD
6	Excess water let out	2000 KLD
7	Point of discharge (as per CFO)	Bokkalavagu
8	Discharge Consent from APPCB	6000 KLD

4. Micro-meteorological Monitoring:

**Summary of micro-meteorological data generated for Monsoon Season
(June 2016 - August 2016)**

S.No	Parameter(s)	Min	Max	Mean
1.	Temperature (°C)	22.4	43.9	29.4
2.	Wind Speed (m/s)	Calm % (56.84)	14.0	1.06
3.	Relative Humidity (%)	12	99.9	69.60
4.	Predominant Wind direction for the entire study period	West(W)		
5.	Total Rainfall (mm)	741.3		

5. Ambient Air Quality Monitoring**Parameters:**

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

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

Frequency of Monitoring:

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

The details are furnished in Annexure I

Air Pollution Control Measures:

- a) Water spraying arrangements are being maintained
 - i. At loading & unloading points, at conveyor transfer points in Under Ground.
 - ii. At lorry loading points on the surface and mine premises.
- b) Restricted open burning of coal near mine and mine premises.
- c) Regular cleaning of coal dust heaps on surface
- d) Black topping of all the approach routes to the mine was done.
- e) Watering of connected roads and near by the bunker at regular intervals to arrest the air borne dust.
- f) Plantation was done within the mine premises and approach roads to the mine .
- g) Periodic maintenance of vehicles etc.
- h) The underground workings of the mine is well ventilated by Mechanical Ventilator.

6. Water Quality Monitoring:

The impact of the mining activities on the water environment is being 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 7 water samples i.e., 2 samples from surface and 2 samples from groundwater and 3 samples from effluent discharge 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	Latitude	Longitude
1.	Bokkalavagu upstream at Mulkalapalli village	N18 ⁰ 38' 46.4"	E 79 ⁰ 32' 20.0"
2.	Bokkalavagu down stream	N18 ⁰ 39' 15.6"	E 79 ⁰ 36' 07.8"
3.	Tank near adriyala village	N18 ⁰ ,39'28.4"	E 79 ⁰ 35'16.0"

(ii) Ground Water Quality Monitoring Locations:

Sl. No	Location	Latitude	Longitude
1.	Ladnapur village	N18 ⁰ 37' 52.3"	E 79 ⁰ 34' 30.7"
2.	Rachapalli Village	N18 ⁰ 39' 39.6."	E 79 ⁰ 35' 59.4"
3.	Julapalli village	N18 ⁰ 39' 58.7."	E 79 ⁰ 31' 17.3"

(iii) Effluents sampling locations

Sl.No.	Name of the Location	Latitude	Longitude
1	OCP-I, EXPANSION MINE DISCHARGE	N 18° 40' 54.8"	E 79° 32' 49.5"
2	GDK 10 A INC. MINE DISCHARGE	N 18° 39' 35.8"	E 79° 33 ' 3.1"
3	OCP-I, ETP OUT LET WATER	N 18° 40' 13.6"	E 79° 31' 59.5"
4	ADRIYALA SHAFT PROJECT MIMINE DISCHARGE	N 18° 39' 17"	E 79° 34' 59.1"
5	OCP-I CHP SETTLING TANK OUTLET	N 18° 40' 6.1"	E 79° 31' 37.3"

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), Chemical Oxygen demand (COD) 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. Whereas ground water (all parameters), surface water (all parameters) are being analyzed once in every quarter.

The summary of the monitoring data enclosed as **Annexure-II & III**

7. ATTITUDE OF PHREATIC SURFACE The summary of the monitoring data enclosed as **Annexure-IV**

Water Pollution Control Measures:

- i) Water is being filtered and chlorinated before supplying for domestic consumption.
- ii) Mine discharge water is passed through settling tanks.
- iii) Well drainage system was maintained at septic tank, soak pits followed by oxidation pond. The quality of the treated effluent from the oxidation pond is regularly monitored, which will finally joins the vagu flowing adjacent to it. Regular cleaning of septic tanks soak pits and periodical cleaning of sludge from the natural oxidation pond taken up for effective function of the same.

The compliance of groundwater clearance:

CONDITIONS	COMPLIANCE
1. To prevent any impact of coal mine, periodical monitoring of groundwater levels and quality should be undertaken and report must be submit to the Deputy Director, Ground Water Department, Karimnagar regularly.	Ground water level monitoring is being taken up four times a year season wise by SCCL Exploration Dept. After obtaining the report, the same is being submitted regularly to the Director, Ground water Department, karimnagar and Chairman, Central Pollution Control Board, New Delhi
2. Purpose built piezometers may be constructed for the purpose of water level monitoring.	6. Piezometers were constructed for water level is being monitored.
3. Afforestation may be taken up wherever possible in the surrounding project area.	Plantation is being taken up in the adjacent vacant land, OC dumps, Colony.
4. Artificial recharge structures have to be taken up at suitable locations.	One Summer storage tank, Rain water harvesting structures were established in the surrounding area.
5. Precautions should be taken to prevent pollution of local surface and ground water bodies in the area.	The mine seepage water is pumped out after settling of the suspended solids in U/G sumps. On the surface the water is purified in the filter beds.
6. Impact of mining on ground water resources such as drastic reduction of water table, deterioration of water quality, degradation of irrigation tanks, discharge of untreated water etc. .	Ground water table, water quality is being monitored regularly.

8. Noise Level Monitoring

The summary of the monitoring data enclosed as **Annexure-V**

Noise Pollution Control Measures:

- i) Plantation is grown around the fan house control noise and also evasee is fitted to the fan house.
- ii) To dampen the noise levels along the belt conveyor impact rollers are provided at transfer points to reduce the noise.
- iii) High level noise intensity working areas/zones earmuffs or earplugs are provided to the workmen .
- iv) Regular noise level monitoring is being done periodically for taking corrective action where ever required.

9. SUBSIDENCE MANAGEMENT DETAILS

(a) Total seam wise area developed (including Depillaring area) so far:

Sl No.	Seam	Area in Ha.	Depth (m)		Total Thickness(m)	Working height(m)
			Min	Max		
1	1 seam	--	--	--	--	--
2.	2 seam	7.85	213m	252m	6.60m	2.80m

(b) Total seam wise area depillared so far since inception 170.55 Ha.

Sl. No	Seam	Area in Ha.	Depth m)		Total Thickness (m)	Working thickness (m)	Caving/ Stowing
			Min	Max			
1	1 seam	--	--	--	--	--	--
2	2 seam	5.86	213	252	6.60	2.80	caving

(c) Subsidence Management

a. Max crack width observed so far	40 cm
b. max subsidence occurred so far	2.77mts
d. whether the vegetation effected if any	Nil
c.If affected, give details	nil
d. Total man shifts worked in subsidence area for crack filling and dozing	80
e. Total dozer shifts worked for subsidence reclamation	-
f. Area filled up with OB/ subsoil material in ha	-
g. Quantity of OB/ Subsoil dumped: in L.cu.m.	-
h. Maximum height of dump:	12m
i. Total Subsidence area planted so far in ha.	28.20

**10. CAPITAL AND REVENUE EXPENDITURE INCURRED ON ENVIRONMENT
MANAGEMENT AND POLLUTION CONTROL FOR THE PERIOD
APRIL 2016 TO SEPTEMBER 2016**

(Amount in lakhs)

Sl. no	Environmental Activities	Capital	Revenue
A	Air pollution(prevention & control)	---	NIL
	Water sprinkling and dust suppression(including wet drilling arrangement)	---	NIL
	Asphalting of coal transport road & other roads	---	NIL
	Purchase of Water sprinklers and others	---	NIL
	Post project air quality Monitoring	---	NIL
B	Water pollution(prevention & control)	---	NIL
	Construction of filter bed & maintenance	---	NIL
	Rain water harvesting pits	---	NIL
	Construction of ETP & Maintenance	---	NIL
	Garland canals, settling ponds	---	NIL
	De-silting of tanks, drains around subsidence area.	---	NIL
	Post project water quality Monitoring	---	NIL
C	Noise & Blast vibrations(prevention & control)	---	NIL
	Cost of Ear plugs & Muffs	---	NIL
	Noise reduction measures if any	---	NIL
	Post project Noise quality Monitoring	---	NIL
D	Plantation	---	NIL
	Vacant land & Avenue plantation	---	NIL
	Lawn and Parks	---	NIL
E	Subsidence Management	---	NIL
	Subsidence crack filling	---	NIL
F	Others	---	--
	Water Cess charges/CFO fee paid to APPCB	---	500
	Sampling/analysis charges	---	--
	Energy & water conservation measures	---	--
	P&M Maintenance-Env. quality monitoring equipment like dust sampler, sound level meters, water sprinklers etc.	---	--
	Cost of Scientific studies	---	--
	Env. Awareness propaganda expenses.	---	--
	Total	---	--

**CAPITAL AND REVENUE EXPENDITURE INCURRED ON ENVIRONMENT
MANAGEMENT AND POLLUTION CONTROL SINCE INCEPTION OF THE PROJECT
(Amount in lakhs)- GDK 10 A INC**

Sl. no	Environmental Activities	Capital	Revenue
A	Air pollution(prevention & control)	---	135.89
	Water sprinkling and dust suppression(including wet drilling arrangement)		
	Asphalting of coal transport road & other roads	12.00	
	Purchase of Water sprinklers and others		
	Post project air quality Monitoring		9.3
B	Water pollution(prevention & control)	---	14.02
	Construction of filter bed & maintenance	38.70	
	Rain water harvesting pits		
	Construction of ETP & Maintenance		
	Garland canals, settling ponds		
	De-silting of tanks, drains around subsidence area.		11.28
	Post project water quality Monitoring		1.83
C	Noise & Blast vibrations(prevention & control)	---	
	Cost of Ear plugs & Muffs		
	Noise reduction measures if any		1.56
	Post project Noise quality Monitoring		1.00
D	Plantation	---	20.11
	Vacant land & Avenue plantation		
	Lawn and Parks		3.89
E	Subsidence Management	---	12.38
	Subsidence crack filling		3.54
F	Others	1.00	
	CFO fee paid to APPCB		
	Sampling/analysis charges		
	Energy & water conservation measures		
	P&M Maintenance-Env. quality monitoring equipment like dust sampler, sound level meters, water sprinklers etc.		43.19
	Cost of Scientific studies		
	Env. Awareness propaganda expenses.		28.68
	Water cess paid to pollution control Board		7.61
	Total	51.70	294.18

11. Environmental Management Committee

A.The Environmental Management committee Members

S/Sri

1	Raghu Kumar	Agent-Chairman
2	A.K.K.Sharma	Manager, member
3	Sudhakar	P.E, Member
4	P.Prakash	Safety Officer, Member
5	Padma Raju	EE, civil, RG-III Member
6	R. Uma Maheswara Rao	Area Survey Officer, Member
7	M.Narayana	Sr. Survey Officer , 10 Inc Member
8	Abilash David	Deputy Manager (Forestry), Member
9	T.Heeriya	Sr. Estates Manager, RG-III, Member
10	GVS Prabhakara Rao	SE (ENV) RG-III, Member Secretary

The minutes of EMC is enclosed as **Annexure-VI**

12. Socio-economic Measures:

1	Quarters are constructed on non coal bearing areas with facilities such as Hospitals, Schools, Market place, Post Office, Telegraph Office, Power Supply, Community Halls, Recreation Clubs, Play Grounds and protected water supply and well netted sewage and drainage line systems.
2	LPG gas is being supplied free of cost to the employees.
3	Free medical treatment is being given to workmen and their families, and all children of workmen are covered under immunization programme.
4	Incentive schemes for popularizing family planning is in vogue where by Rs.1000 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	Two RO plants were provided in Ladnapur & Nagepalli Villages
6	Land given to JNTUH, Krushi vignan, Horticulture polytechnic
7	Bore wells are provided in colonies. The drinking water which is supplied to the colony is chlorinated to the prescribed standards.
8	Recreation clubs are provided with adequate facilities
9	Free medical camps are being conducting regularly to the surrounding villagers
10	Encouragement to sports and games is given by forming works people's sports and games association for conducting inter area meets etc.
11	Giving training to the unemployed youth in different types of self employment schemes through Singareni Sewa Samithi.

**AGENT
GDK 10 Incline**

ANNEXURE-I
GDK10A INCLINE
ANALYSIS OF AIR QUALITY MONITORING REPORTS
FROM APRIL 2016 TO SEPTEMBER 2016.

1. GDK10A INC

S.No	Location name & code date of sampling	Parameter			
		PM₁₀ (µg/m³)	PM_{2.5} (µg/m³)	SO₂ (µg/m³)	NO₂ (µg/m³)
	GDK10A CA 17				
	Coal mine standards, GSR 742(E), Dated 25.09.2000 & NAAQS, Dated 18.11.2009.	300	-	120	120
1	04.04.2016	178	65.3	14.3	22.4
2	19.04.2016	188	66.3	15.8	26.1
3	05.05.2016	199	69.2	16.5	27.8
4	21.05.2016	166	54.2	16.1	26.4
5	02.06.2016	141	51.2	13.9	22.1
6	16.06.2016	135	43.9	12.9	21.1
7	01.07.2016	124	48.3	11.5	18.2
8	16.07.2016	120	45.6	12.1	17.6
9	04.08.2016	125	48.9	11.5	18.1
10	16.08.2016	115	45.1	12.1	16.8
11	01.09.2016	95	40.0	11.5	14.6
12	16.09.2016	89	51.2	11.8	15.0
	Min	89	40.0	11.5	14.6
	Max	199	69.2	16.5	27.8
	98 Percentile	195.02	67.81	16.17	27.24

2. Adriyala shaft

S.No	Location name & code date of sampling	Parameter			
		PM₁₀ (µg/m³)	PM_{2.5} (µg/m³)	SO₂ (µg/m³)	NO₂ (µg/m³)
	Adriyala shaft CA 23				
	Coal mine standards, GSR 742(E), Dated 25.09.2000 & NAAQS, Dated 18.11.2009.	250	-	120	120
1	04.04.2016	120	44.2	13.6	17.9
2	20.04.2016	165	62.2	14.5	18.3
3	05.05.2016	236	75.8	16.9	31.2
4	21.05.2016	152	62.5	17.5	25.9
5	02.06.2016	138	44.9	11.7	16.8
6	16.06.2016	129	41.3	11.7	15.9
7	01.07.2016	131	42.9	12.1	16.3
8	16.07.2016	128	40.2	11.7	15.1
9	04.08.2016	115	42.6	10.1	15.9
10	16.08.2016	110	48.1	11.4	16.2
11	01.09.2016	98	36.9	10.2	15.3
12	16.09.2016	90	30.8	10.7	12.1
	Min	90	30.8	10.1	12.1
	Max	236	75.8	17.5	31.2
	98 Percentile	231.28	74.28	17.15	30.57

3. OCP-I

S.No	Location name & code date of sampling	Parameter			
		PM₁₀ (µg/m³)	PM_{2.5} (µg/m³)	SO₂ (µg/m³)	NO₂ (µg/m³)
	OC-I Expansion CA - 18				
	Coal mine standards, GSR 742(E),Dated 25.09.2000 & NAAQS, Dated 18.11.2009.	250	-	120	120
1	04.04.2016	242	82.2	20.5	26.9
2	19.04.2016	245	83.6	21.2	30.2
3	05.05.2016	240	81.5	20.5	31.6
4	21.05.2016	246	84.1	17.8	25.9
5	02.06.2016	180	70.5	15.3	22.1
6	16.06.2016	174	62.6	13.9	20.8
7	01.07.2016	168	58.3	12.1	17.3
8	16.07.2016	143	46.2	13.4	18.9
9	04.08.2016	152	51.3	14.2	19.8
10	16.08.2016	145	53.9	15.9	21.5
11	01.09.2016	135	50.0	15.6	19.3
12	16.09.2016	146	53.8	15.8	19.4
	Min	135	50.0	12.1	19.3
	Max	246	84.1	21.2	31.6
	98 Percentile	241.08	82.41	20.77	30.96

4. OCP-I BASE WORKSHOP & STORES

S.No	Location name & code date of sampling	Parameter			
		PM₁₀ (µg/m³)	PM_{2.5} (µg/m³)	SO₂ (µg/m³)	NO₂ (µg/m³)
	OC-I BASE WORKSHOP CA 19				
	Coal mine standards, GSR 742(E),Dated 25.09.2000 & NAAQS, Dated 18.11.2009.	250	-	120	120
1	04.04.2016	223	70.2	19.3	25.3
2	19.04.2016	225	71.2	18.3	24.1
3	05.05.2016	235	78.3	21.2	26.8
4	21.05.2016	249	72.5	16.3	25.6
5	02.06.2016	168	55.3	12.8	21.1
6	16.06.2016	162	51.8	11.9	20.6
7	01.07.2016	155	54.7	12.6	22.7
8	16.07.2016	165	58.3	13.5	23.7
9	04.08.2016	168	61.2	14.5	22.1
10	16.08.2016	162	58.7	13.1	21.4
11	01.09.2016	125	41.3	12.0	17.3
12	16.09.2015	145	45.1	11.2	15.7
	Min	125	41.3	11.2	15.7
	Max	249	78.3	21.2	26.8
	98 Percentile	244.02	76.73	20.77	26.26

5. GDK10 Incline

S.No	Location name & code date of sampling	Parameter			
		PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)
	GDK10A CA 17				
	Coal mine standards, GSR 742(E), Dated 25.09.2000 & NAAQS, Dated 18.11.2009.	300	-	120	120
1	04.04.2016	178	65.3	14.3	22.4
2	19.04.2016	188	66.3	15.8	26.1
3	05.05.2016	199	69.2	16.5	27.8
4	21.05.2016	166	54.2	16.1	26.4
5	02.06.2016	141	51.2	13.9	22.1
6	16.06.2016	135	43.9	12.9	21.1
7	01.07.2016	124	48.3	11.5	18.2
8	16.07.2016	120	45.6	12.1	17.6
9	04.08.2016	125	48.9	11.5	18.1
10	16.08.2016	115	45.1	12.1	16.8
11	01.09.2016	95	40.0	11.5	14.6
12	16.09.2016	89	51.2	11.8	15.0
	Min	89	40.0	11.5	14.6
	Max	199	69.2	16.5	27.8
	98 Percentile	195.02	67.81	16.17	27.24

6. RACHAPALLI VILLAGE

S.No	Location name & code date of sampling	Parameter			
		PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)
	RACHAPALLI VILLAGE BA				
	Coal mine standards, GSR 742(E), Dated 25.09.2000 & NAAQS, Dated 18.11.2009.	100	60	80	80
1	06.04.2016	80	40.0	13.5	24.1
2	20.04.2016	74	33.3	12.5	26.4
3	07.05.2016	79	38.6	13.5	24.5
4	24.05.2016	95	46.7	20.8	26.7
5	04.06.2016	71	34.2	15.2	21.4
6	18.06.2016	65	32.8	14.2	20.4
7	04.07.2016	62	33.5	13.1	19.1
8	19.07.2016	60	34.5	12.7	18.4
9	06.08.2016	63	35.6	13.1	19.5
10	18.08.2016	68	31.9	11.5	16.8
11	03.09.2016	57	26.9	10.9	14.9
12	19.09.2016	63	39.8	11.2	18.1
	Min	57	26.9	10.9	14.9
	Max	95	46.7	20.8	26.7
	98 Percentile	93.1	45.76	20.38	26.16

7. AKKAPALLI VILLAGE

S.No	Location name & code date of sampling	Parameter			
		PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)
	AKKAPALLI VILLAGE BUFFER ZONE BA 23				
	Coal mine standards, GSR 742(E), Dated 25.09.2000 & NAAQS, Dated 18.11.2009.	100	60	80	80
1	06.04.2016	84	49.6	13.1	20.3
2	20.04.2016	84	44.2	12.5	19.5
3	07.05.2016	89	55.2	15.9	21.5
4	24.05.2016	79	40.0	17.7	23.2
5	04.06.2016	73	35.8	14.2	20.8
6	18.06.2016	69	32.5	13.8	18.4
7	04.07.2016	58	28.1	10.5	16.4
8	09.07.2016	56	27.1	11.5	17.2
9	06.08.2016	59	30.2	11.9	18.2
10	18.08.2016	60	28.3	10.5	17.4
11	03.09.2016	51	26.5	9.5	16.2
12	19.09.2016	60	38.2	14.2	16.1
	Min	51	26.5	9.5	16.1
	Max	89	55.2	17.7	23.2
	98 percentile	87.22	54.09	17.34	22.73

8. NAGEPALLI VILLAGE

S.No	Location name & code date of sampling	Parameter			
		PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)
	NAGEPALLI VILLAGE BA 28 BUFFER ZONE				
	Coal mine standards, GSR 742(E), Dated 25.09.2000 & NAAQS, Dated 18.11.2009.	100	60	80	80
1	05.04.2016	79	35.8	14.7	19.8
2	21.04.2016	78	33.4	13.8	18.2
3	06.05.2016	83	45.3	15.6	21.3
4	24.05.2016	90	48.6	22.1	36.7
5	03.06.2016	74	41.0	16.2	24.1
6	17.06.2016	72	36.8	15.3	22.7
7	02.07.2016	67	30.4	14.4	19.5
8	19.07.2016	64	31.5	12.7	17.4
9	06.08.2016	67	32.7	12.9	18.5
10	17.08.2016	71	38.6	13.4	21.6
11	03.09.2016	61	32.5	12.1	18.5
12	19.09.2016	59	37.5	12.5	14.3
	Min	61	30.4	12.1	14.3
	Max	90	48.6	16.2	36.7
	98 percentile	88.2	47.62	15.87	35.96

ANNEXURE-II
ANALYSIS OF WATER QUALITY MOINITORING REPORTS- ADRIYALA SHAFT PROJECT
FROM APRIL 2016 TO SEPTEMBER 2016

1. GDK 10 A INC. MINE DISCHARGE.

S.No	Location name & code date of sampling	Parameters			
		pH (at 25° C)	Total Suspended Solids at 105° C	Chemical Oxygen Demand	Oil & Grease
	GDK 10 A INC. (EW 1)				
	Unit	--	mg/L	mg/L	Mg/L
	Test Method	4500-H⁺B	2540-D	5220-D	5520-B
	MoEF GSR 742(E) and GSR 801(E) Effluent Standards for Coal mines.	5.5 to 9.0	100	250	10
1	13.04.2016	7.4	14	10	<1
2	23.04.2016	8.0	16	10	<1
3	09.05.2016	7.8	13	16	<1
4	24.05.2016	7.8	15	12	<1
5	09.06.2016	8.2	35	16	<1
6	25.06.2016	7.8	13	12	<1
7	08.07.2016	7.4	12	13	<1
8	25.07.2016	7.6	12	12	<1
9	10.08.2016	7.8	14	8	<1
10	28.08.2016	7.9	14	8	<1
11	08.09.2016	7.7	16	12	<1
12	23.09.2016	7.8	14	12	<1
	Min	7.2	11	08	<1
	Max	7.9	22	31	<1
	98 Percentile	7.74	21.56	30.38	<1

2. ADRIYALA SHAFT MINE DISCHARGE.

S.No	Location name & code date of sampling	Parameters			
	ADRIYALA SHAFT PROJECT (EW 3)	pH (at 25^o C)	Total Suspended Solids at 105^o C	Chemical Oxygen Demand	Oil & Grease
	Unit	--	mg/L	mg/L	mg/L
	Test Method	4500- H⁺B	2540-D	5220-D	5520-B
	MoEF GSR 742(E) and GSR 801(E) Effluent Standards for Coal mines.	5.5 to9.0	100	250	10
1	13.04.2016	7.2	13	20	<1
2	23.04.2016	8.0	14	10	<1
3	09.05.2016	7.7	16	24	<1
4	24.05.2016	8.0	13	16	<1
5	09.06.2016	8.0	13	20	<1
6	25.06.2016	7.7	18	12	<1
7	08.07.2016	7.2	17	11	<1
8	25.07.2016	8.1	16	8	<1
9	10.08.2016	7.9	20	12	<1
10	28.08.2016	7.7	16	12	<1
11	08.09.2016	7.6	22	8	<1
12	23.09.2016	7.7	18	8	<1
	Min	7.2	13	10	<1
	Max	8.1	22	24	<1
	98 Percentile	7.93	21.56	23.52	<1

3. OCP –I EXPANSION MINE DISCHARGE.

S.No	Location name & code date of sampling	Parameters			
	OCP –I EXPANSION MINE DISCHARGE (EW 4)	pH (at 25^o C)	Total Suspended Solids at 105^o C	Chemical Oxygen Demand	Oil& Grease
	Unit	--	mg/L	mg/L	mg/L
	Test Method	4500- H⁺B	2540-D	5220-D	5520-B
	MoEF GSR 742(E) and GSR 801(E) Effluent Standards for Coal mines.	5.5 to9.0	100	250	10
1	13.04.2016	7.8	11	20	<1
2	23.04.2016	8.0	13	10	<1
3	09.05.2016	7.9	12	20	<1
4	24.05.2016	8.1	18	20	<1
5	09.06.2016	8.2	14	16	<1
6	25.06.2016	7.9	20	16	<1
7	08.07.2016	7.6	17	15	<1
8	25.07.2016	7.8	18	12	<1
9	10.08.2016	7.8	21	16	<1
10	28.08.2016	7.4	15	16	<1
11	08.09.2016	7.4	18	12	<1
12	23.09.2016	7.6	19	12	<1
	Min	7.3	11	10	<1
	Max	8.2	21	20	<1
	98 Percentile	8.03	20.50	19.60	<1

4. OCP –I ETP OUT LET WATER DISCHARGE.

S.No	Location name & code date of sampling	Parameters			
	OCP –I ETP OUT LET WATER DISCHARGE (EW 5)	pH (at 25^o C)	Total Suspended Solids at 105^o C	Chemical Oxygen Demand	Oil & Grease
	Unit	--	mg/L	mg/L	mg/L
	Test Method	4500- H⁺B	2540-D	5220-D	5520-B
	MoEF GSR 742(E) and GSR 801(E) Effluent Standards for Coal mines.	5.5 to9.0	100	250	10
1	13.04.2016	8.1	12	10	<1
2	23.04.2016	6.9	18	21	<1
3	09.05.2016	7.9	20	27	<1
4	24.05.2016	8.0	14	24	<1
5	09.06.2016	8.2	24	12	<1
6	25.06.2016	8.0	16	28	<1
7	08.07.2016	7.8	15	24	2.0
8	25.07.2016	7.9	30	28	1.8
9	10.08.2016	8.0	28	24	1.4
10	28.08.2016	7.7	22	20	1
11	08.09.2016	7.9	23	24	1.2
12	23.09.2016	7.9	26	20	1
	Min	6.9	12	10	1
	Max	8.2	30	28	1.8
	98 Percentile	8.03	29.40	27.44	1.76

5. OCP –I CHP SETTLING TANK OUTLET .

S.No	Location name & code date of sampling	Parameters			
	OCP –I ETP OUT LET DISCHARGE(EW 6)	pH (at 25^o C)	Total Suspended Solids at 105^o C	Chemical Oxygen Demand	Oil & Grease
	Unit	--	mg/L	mg/L	mg/L
	Test Method	4500- H⁺B	2540-D	5220-D	5520-B
	MoEF GSR 742(E) and GSR 801(E) Effluent Standards for Coal mines.	5.5 to9.0	100	250	10
1	13.04.2016	8.0	16	20	<1
2	23.04.2016	8.0	12	21	<1
3	09.05.2016	8.0	16	27	<1
4	24.05.2016	7.3	12	12	<1
5	09.06.2016	8.2	12	20	<1
6	25.06.2016	7.9	24	16	<1
7	08.07.2016	7.6	22	15	<1
8	25.07.2016	7.7	14	12	<1
9	10.08.2016	7.8	16	20	<1
10	28.08.2016	7.9	14	20	<1
11	08.09.2016	7.5	19	20	<1
12	23.09.2016	7.7	24	16	<1
	Min	7.3	12	12	<1
	Max	8.0	24	27	<1
	98 Percentile	7.84	23.52	26.46	<1

ANNEXURE-III

Samples taken on 11.8.2016

Table: 4.5- Physico-Chemical and Bacteriological Characteristics of Surface Water at Selected Locations in the Study Area

S.No.	Parameters	Unit	Test Method	Tolerance Limits IS : 2296-1982	CPCB Water quality Criteria				RESULT		
					Class C	Class A	Class B	Class C	SW-1 (Bokkalavagu upstream at Mulkalapalli Village)	SW-2 (Bokkalavagu downstream near Rachapalli Village)	SW-3 (Tank near Adiryala Village)
1.	pH	-	4500-H ⁺ B	6.5-8.5	6.5 -8.5	6.5 -8.5	6.5 - 9	7.2	8.1	8.1	
2.	Temperature	°C	2550. B	--	--	--	--	26.1	26.3	26.5	
3.	Electrical Conductivity	µmhos/cm	2510-B	--	--	--	--	506	1630	1360	
4.	Turbidity	NTU	2130. B	--	--	--	--	6.4	9.8	17.2	
5.	Chlorides as Cl ⁻	mg/L	4500-Cl ⁻ .B	600	--	--	--	36	71	78	
6.	Total Dissolved Solids at 180° C	mg/L	2540.C	2000	--	--	--	267	1050	834	
7.	Bio chemical Oxygen Demand for 3 days at 27° C	mg/L	IS: 3025	3	2 mg/l or less	3 mg/l or less	3 mg/l or less	4	8	6	
8.	Nitrites as NO ₂	mg/L	4500-NO ₂ ⁻ .B	--	--	--	--	0.02	0.02	0.03	
9.	Nitrates as NO ₃	mg/L	4500-NO ₃ ⁻ .B	50	--	--	--	7	4	9	
10.	Total Chromium as Cr	mg/L	3120. B	-	--	--	--	BDL	BDL	BDL	
11.	Nickel as Ni	mg/L	3120. B	0.02	--	--	--	BDL	BDL	BDL	
12.	Lead as Pb	mg/L	3120. B	0.01	--	--	--	BDL	BDL	BDL	
13.	Cadmium as Cd	mg/L	3120. B	0.003	--	--	--	BDL	BDL	BDL	
14.	Zinc as Zn	mg/L	3120. B	5	--	--	--	0.05	0.04	0.05	
15.	Arsenic as As	mg/L	3120. B	0.01	--	--	--	BDL	BDL	BDL	
16.	Iron as Fe	mg/L	3120. B	50	-	-	-	0.22	0.47	0.25	
17.	Copper as Cu	mg/L	3120-B	0.05	-	-	-	0.03	BDL	BDL	
18.	Boron as B	mg/L	3120-B	1.0	--	--	--	0.03	0.12	0.11	
19.	Total Coliform	MPN/100mL	9221A & B	5000	50 or less	500 or less	5000 or less	350	110	94	
20.	Faecal Coliform	MPN/100mL	9221 E	--	--	--	--	170	70	23	
21.	<i>E. coli</i>	Presence or Absence/MPN/100mL	9221 F	--	--	--	--	Present	Present	Absent	
22.	Pesticides: α-BHC, β-BHC, γ-BHC, δ-BHC, o,p-DDT, p,p' -DDT, α - Endosulfan, β-Endosulfan, Aldrin, Dieldrin	µg/L	6630. D	Absent	-	-	-	ND	ND	ND	
	2,4-D, Carbaryl (Carbonate) Malathion Methyl Parathion Anilophos, chloropyriphos	Qualitative analysis	6630. D	Absent	-	-	-	ND	ND	ND	

S. No.	Parameters	Unit	Test Method	Tolerance Limits IS : 2296 -1982	CPCB Water quality Criteria			RESULT		
				Class C	Class A	Class B	Class C	SW-1 (Bokkalavagu upstream at Mulkalapalli Village)	SW-2 (Bokkalavagu downstream near Rachapalli Village)	SW-3 (Tank near Adiryala Village)
23.	Colour	Pt-co-	2120. B	300	--	--	--	10	10	10
24.	Odour	TON	2150. B	--	--	--	--	No odour observed	No Odour observed	No odour observed
25.	Dissolved Oxygen	mg/L	4500-O.C	4	6 mg/l or more	5 mg/l or more	4 mg/l or more	5.8	5.6	6.1
26.	Ammonical Nitrogen as NH ₃ -N	mg/L	4500-NH ₃ -C	--	--	--	--	BDL	BDL	BDL
27.	Total Suspended Solids at 105° C	mg/L	2540. D	1500	--	--	--	9	12	7
28.	Total Phosphates	mg/L	4500-P-D	--	--	--	--	BDL	BDL	BDL
29.	Chemical Oxygen Demand	mg/L	5220. D	--	--	--	--	16	28	18
30.	Oil & Grease	mg/L	5520. B	--	--	--	--	<1	<1	<1
31.	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	6630-D	--	--	-	-	ND	ND	ND

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

Samples taken on 11.8.2016

Table-4.6-Physico-Chemical and Bacteriological Characteristics of Ground Water at Selected Locations in the Study Area

S.No.	Parameters	Unit	Test Method	IS: 10500 Requirement (Acceptable Limit)	IS: 10500 Permissible Limits	RESULT		
						GW-1 (Ladnapur Village)	GW-2 (Rachapalli Village)	GW-3 (Julapalli Village)
1.	pH	-	4500-H ⁺ B	6.5 to 8.5	No relaxation	7.3	7.2	7.2
2.	Temperature	°C	2550. B	--	--	26.8	26.9	26.9
3.	Electrical Conductivity	µmhos/cm	2510-B	--	--	980	1600	1480
4.	Turbidity	NTU	2130. B	1	5	0.7	1.2	0.9
5.	Total Hardness as CaCO ₃	mg/L	2340. C	200	600	464	498	594
6.	Chlorides as Cl ⁻	mg/L	4500-Cl ⁻ .B	250	1000	62	116	190
7.	Fluoride as F ⁻	mg/L	4500-F ⁻ .C	1.0	1.5	1.07	1.14	1.13
8.	Total Dissolved Solids at 180° C	mg/L	2540.C	500	2000	580	980	890
9.	Calcium as Ca	mg/L	3500-Ca.B	75	200	40	151	51
10.	Magnesium as Mg	mg/L	3500-Mg.B	30	100	88	92	115
11.	Sulphates as SO ₄ ²⁻	mg/L	4500-SO ₄ ²⁻ .E	200	400	57	111	39
12.	Nitrates as NO ₃	mg/L	4500-NO ₃ ⁻ .B	45	No relaxation	14	10	21
13.	Nitrites as NO ₂	mg/L	4500-NO ₂ ⁻ .B	--	--	BDL	BDL	BDL
14.	Phenolic compounds as C ₆ H ₅ OH	mg/L	5530-D	0.001	0.002	BDL	BDL	BDL
15.	Cyanide as CN ⁻	mg/L	4500-CN ⁻ .F	0.05	No relaxation	BDL	BDL	BDL
16.	Total Alkalinity as CaCO ₃	mg/L	2320. B	200	600	368	382	414

S.No.	Parameters	Unit	Test Method	IS: 10500 Desirable Limits	IS: 10500 Permissible Limits	RESULT		
						GW-1 (Ladna pur Village)	GW-2 (Rachapalli Village)	GW-3 (Julapalli Village)
17	Hexavalent Chromium as Cr ⁺⁶	mg/L	3500-Cr ⁺⁶ .B	---	-----	BDL	BDL	BDL
18	Boron as B	mg/L	3120-B	0.5	1.0	BDL	0.07	0.06
19	Barium as Ba	mg/L	3120. B	0.7	No relaxation	0.71	0.34	0.22
20	Iron as Fe	mg/L	3120-B	0.3	No relaxation	0.47	0.02	0.03
21	Silver as Ag	mg/L	3120. B	0.1	No relaxation	BDL	BDL	BDL
22	Molybdenum as Mo	mg/L	3120. B	0.07	No relaxation	BDL	BDL	BDL
23	Copper as Cu	mg/L	3120-B	0.05	1.5	BDL	BDL	BDL
24	Manganese as Mn	mg/L	3120-B	0.1	0.3	BDL	BDL	BDL
25	Cadmium as Cd	mg/L	3120-B	0.003	No relaxation	BDL	BDL	BDL
26	Selenium as Se	mg/L	3120-B	0.01	No relaxation	BDL	BDL	BDL
27	Arsenic as As	mg/L	3120-B	0.01	0.05	BDL	BDL	BDL
28	Lead as Pb	mg/L	3120-B	0.01	No relaxation	BDL	BDL	BDL
29	Zinc as Zn	mg/L	3120-B	5	15	0.13	0.04	0.18
30	Aluminum as Al	mg/L	3120-B	0.03	0.2	BDL	BDL	BDL
31	Chromium as Cr	mg/L	3120-B	0.05	No relaxation	BDL	BDL	BDL
32	Nickel as Ni	mg/L	3120-B	0.02	No relaxation	BDL	BDL	BDL
33	Total Coliform	MPN/100 ml	9221A & B	--	--	<1.8	<1.8	<1.8
34	Fecal Coliform	MPN/100 ml	9221 E	--	--	<1.8	<1.8	<1.8
35	E. Coli	Presence / Absence	9221 F	--	--	<1.8	<1.8	<1.8
36	Pesticides: α-BHC, β-BHC, γ-BHC, δ-BHC, o,p-DDT, p,p' -DDT, α - Endosulfan, β- Endosulfan, Aldrin, Dieldrin	µg/L	6630. D	Absent	0.001	ND	ND	ND
	2,4-D, Carbaryl (Carbonate) Malathion Methyl Parathion Anilophos, Chloropyrifos	Qualitative analysis	6630. D	Absent	0.001	ND	ND	ND

S.No.	Parameters	Unit	Test Method	IS: 10500 Desirable Limits	IS: 10500 Permissible Limits	RESULT		
						GW-1 (Ladnapur Village)	GW-2 (Rachapalli Village)	GW-3 (Julapalli Village)
37	Colour	Pt-co-	2120. B	5	15	<5	<5	<5
38	Odour	TON	2150. B	Agreeable	Agreeable	No Odour observed	No Odour observed	No Odour observed
39	Mercury as Hg	µg/L	3500-Hg.B	0.001	No relaxation	BDL	BDL	BDL
40	Taste	FTN	2160. B	Agreeable	Agreeable	No flavor observed	No flavor observed	No flavor observed
41	Residual free chlorine	mg/L	4500-Cl ⁻ .B	0.2	1.0	BDL	BDL	BDL
42	Sulfide as S ²⁻	mg/L	4500. S ²⁻ . G	-	-	BDL	BDL	BDL
43	Orthophosphates	mg/L	4500-P-D	--	--	BDL	BDL	BDL
44	Anionic Detergents	mg/L	IS:13428	0.2	1.0	<0.2	<0.2	<0.2
45	Chemical Oxygen Demand	mg/L	5220. D	--	--	10	20	20
46	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

NTU – Nephelometric Turbidity Unit; TON – Threshold Odour Number; FTN – Flavor Threshold Number; BDL – Below Detection Limit, Detection Limit – Residual free chlorine – 1 mg/L; Nitrites – 0.02 mg/L; ; Phenols – 0.1 mg/L; Mercury – 20 µg/L; Hex. Chromium – 0.05 mg/L; Iron – 0.02 mg/L; Copper – 0.02 mg/L; Manganese – 0.01 mg/L; Cadmium – 0.01 mg/L; Selenium – 0.04 mg/L; Arsenic – 0.02 mg/L; Lead – 0.04 mg/L; Aluminum – 0.03 mg/L; Chromium – 0.02 mg/L; Nickel – 0.02 mg/L; ND-Not Detected Detection Limit : PAHs – 1 ppm; Pesticides– 0.1 ppm.

ANNEXURE-IV**ATTITUDE OF PHREATIC SURFACE IN RAMAGUNDAM-III AREA
PRE MONSOON, 2016**

Well No	Name of Village	Location	Owner's name	Type of well	Dimensions (m)	Total Depth (m)	Geology	Measuring point (M)	Depth to water (m) Pre monsoon 2016
1	Kannala	Kanda Pochaiah	Govt.Well	Domestic Well	2.00	10.10	Barren Measures Sst	0.60	Dry
2	Rachhapalli	Village Centre	Govt.Well	Domestic Well	2.00	6.30	Barren Measures Sst	0.50	Dry
3	Addriyala	Old Panchyat Office	Rampalli Rajaiah	Domestic Well	1.00	8.35	Barren Measures Sst	0.50	7.72
4	Akkapalli	Village Centre	Govt.Well	Domestic well	2.00	6.28	Barren Measures Sst	0.45	Dry
5	Ladnapur	Road side	Vannampalli Raju	Domestic .Well	1.50	9.25	Gneiss	0.60	Dry
6	Ladnapur	Road side	Thati Laxmamma	Domestic .Well	1.50	8.30	Gneiss	0.45	Dry
7	Pannuru	Opp. OC-II Guest House road	Totla Chinnakka	Domestic well	1.00	9.50	Gneiss	0.40/1.00	7.60
8	Mulkalpalli	In village centre	Adj. to B.Lingaiah	Domestic well	1.00	9.50	Gneiss	0.50	7.90
9	Mulkalpalli	Adjacent to SCCL Colony	G.Komaraiah	Domestic well	1.00	5.00	Gneiss	0.60	5.22
10	Kalvacherla	Peddapalli 17km stone	Odelu	Domestic. Well	1.00	9.00	Gneiss	0.60	7.63
11	Kamanpur (old)	Opp theater	Chinna Lakshmaiah	Domestic well	1.00	8.00	Gneiss	0.50	Dry
12	Kamanpur (old)	Road side	Kovuri Rayamallu	Domestic well	1.00	9.50	Gneiss	0.50	Dry
13	Julapalli	Near transformer	Sriramula lingaiah	Domestic well	1.00	11.00	Sullavai Sst	0.60	Dry
14	Alluru	Near pochamma temple	Durgam Pocham	Domestic Well	1.00	13.50	Talchir SST	0.50	11.75

**ATTITUDE OF PIEZOMETRIC SURFACE IN RAMAGUNDAM-III AREA
PRE MONSOON 2016**

Block/mine: OCP-I

Area: Ramagundam-III

Piezo metric Well no	Location	Depth(m)	Dia (m)	Measuring Point(m)	Depth to water (m)
					PRE MONSOON 2016
1	Near filter bed/ on the way to Julapalli village	50	0.1	0.2	3.20
2	Near conveyer belt opp.133 KV substation	50	0.1	0.2	9.35
3	In UMTI	50	0.1	0.2	14.09
4	GDK 10 shaft near temple	50	0.1	0.2	16.03
5	Beside 132/33 KV substation gate	50	0.1	0.7	5.42
6	RG OC-I site office besides cycle stand	50	0.1	0.7	12.79

Block/mine: OCP-II

Area: Ramagundam-III

Piezo metric Well no	Location	Depth(m)	Dia (m)	Measuring Point(m)	Depth to water (m)
					PRE MONSOON 2016
1	Besides Qtr. No.NB-5 Centenary colony	50	0.1	0.2	9.00
2	In OC-II stores	50	0.1	0.2	9.53
3	Near Ramayyapalli X road	50	0.1	0.2	14.63
4	Near Adriyala shaft	50	0.1	0.2	9.31
5	Between western side spreader dump and temple RG OC-II	50	0.1	0.7	7.87
6	Adriyala truck dump near BH. No. RG1332	50	0.1	0.7	5.71

ATTITUDE OF PIEZOMETRIC SURFACE IN RAMAGUNDAM-III AREA
MONSOON 2016

Well No	Name of Village	Location	Owner's name	Type of well	Dimensions (m)	Total Depth (m)	Geology	Measuring point (M)	Depth to water (m) monsoon 2016
1	Kannala	Kanda Pochaiah	Govt.Well	Domestic Well	2.00	10.10	Barren Measures Sst	0.60	9.00
2	Rachhapalli	Village Centre	Govt.Well	Domestic Well	2.00	6.30	Barren Measures Sst	0.50	4.27
3	Addriyala	Old Panchyat Office	Rampalli Rajaiah	Domestic Well	1.00	8.35	Barren Measures Sst	0.50	5.38
4	Akkapalli	Village Centre	Govt.Well	Domestic well	2.00	6.28	Barren Measures Sst	0.45	4.35
5	Ladnapur	Road side	Vannampalli Raju	Domestic .Well	1.50	9.25	Gneiss	0.60	Dry
6	Ladnapur	Road side	Thati Laxmamma	Domestic .Well	1.50	8.30	Gneiss	0.45	Dry
7	Pannuru	Opp. OC-II Guest House road	Totla Chinnakka	Domestic well	1.00	9.50	Gneiss	0.40	6.40
8	Mulkalpalli	In village centre	Adj. to B.Lingaiah	Domestic well	1.00	9.50	Gneiss	0.50	4.18
9	Mulkalpalli	Adjacent to SCCL Colony	G.Komaraiah	Domestic well	1.00	5.00	Gneiss	0.60	2.95
10	Kalvacherla	Peddapalli 17km stone	Odelu	Domestic. Well	1.00	9.00	Gneiss	0.60	5.50
11	Kamanpur (old)	Opp theater	Chinna Lakshmaiah	Domestic well	1.00	8.00	Gneiss	0.50	7.60
12	Kamanpur (old)	Road side	Kovuri Rayamalla	Domestic well	1.00	9.50	Gneiss	0.50	6.40
13	Julapalli	Near transformer	Sriramula lingaiah	Domestic well	1.00	11.00	Sullavai Sst	0.60	6.54
14	Alluru	Near pochamma temple	Durgam Pocham	Domestic Well	1.00	13.50	Talchir SST	0.50	10.75

Block/mine: OCP-I

Area: Ramagundam-III

Piezo metric Well no	Location	Depth(m)	Dia (m)	Measuring Point(m)	Depth to water (m)
					MONSOON 2016
1	Near filter bed/ on the way to Julapalli village	50	0.1	0.2	1.45
2	Near conveyer belt opp.133 KV substation	50	0.1	0.2	8.03
3	In UMTI	50	0.1	0.2	12.13
4	GDK 10 shaft near temple	50	0.1	0.2	13.02
5	Beside 132/33 KV substation gate	50	0.1	0.7	3.19
6	RG OC-I site office besides cycle stand	50	0.1	0.7	10.62

Block/mine: OCP-II

Area: Ramagundam-III

Piezo metric Well no	Location	Depth(m)	Dia (m)	Measuring Point(m)	Depth to water (m)
					MONSOON 2016
1	Besides Qtr. No.NB-5 Centenary colony	50	0.1	0.2	6.58
2	In OC-II stores	50	0.1	0.2	8.09
3	Near Ramayyapalli X road	50	0.1	0.2	16.51
4	Near Adriyala shaft	50	0.1	0.2	2.12
5	Between western side spreader dump and temple RG OC-II	50	0.1	0.7	NR
6	Adriyala truck dump near BH. No. RG1332	50	0.1	0.7	4.41

ANNEXURE-V
ANALYSIS OF NOISE MONITORING REPORTS- ADRIYALA SHAFT PROJECT
FROM APRIL 2016 TO SEPTEMBER 2016

1. GDK 10A INCLINE

SI.No	Location name & Code. Date of Sampling GDK 10 A INC. (CN 14) Core zone	Standard limits of Noise	
		Day time	Night time
		75	70
		Noise levels in dB (A)	
		Leq Day	Leq Night
1	06.04.2016	52.3	44.3
2	21.04.2016	56.3	47.1
3	06.05.2016	60.2	51.3
4	23.05.2016	67.7	55.6
5	03.06.2016	65.2	51.2
6	18.06.2016	54.3	44.6
7	04.07.2016	56.1	46.8
8	19.07.2016	58.1	48.1
9	06.08.2016	56.2	41.2
10	18.08.2016	58.3	48.5
11	03.09.2016	55.6	45.2
12	19.09.2016	57.9	47.3

2. ADRIYALA SHAFT SITE OFFICE

SI.No	Location name & Code. Date of Sampling ADRIYALA SHAFT SITE OFFICE CN-20 CORE ZONE	Standard limits of Noise	
		Day time	Night time
		75	70
		Noise levels in dB (A)	
		Leq Day	Leq Night
1	05.04.2016	50.3	45.3
2	20.04.2016	52.3	39.2
3	06.05.2016	51.0	35.8
4	24.05.2016	52.2	40.3
5	04.06.2016	50.2	39.8
6	17.06.2016	48.2	37.6
7	02.07.2016	50.0	39.9
8	18.07.2016	52.4	41.7
9	05.08.2016	48.7	39.1
10	19.08.2016	50.9	41.2
11	02.09.2016	52.3	43.9
12	16.09.2016	64.7	50.5

3. GDK 10 INCLINE

SI.No	Location name & Code. Date of Sampling	Standard limits of Noise	
		Day time	Night time
		75	70
		Noise levels in dB (A)	
		Leq Day	Leq Night
1	06.04.2016	60.2	49.8
2	21.04.2016	65.3	48.2
3	06.05.2016	55.3	45.8
4	24.05.2016	66.8	54.5
5	03.06.2016	60.8	50.1
6	18.06.2016	53.1	45.8
7	04.07.2016	51.9	41.2
8	19.07.2016	53.1	42.7
9	06.08.2016	54.9	40.8
10	18.08.2016	48.3	37.7
11	03.09.2016	41.3	31.6
12	19.09.2016	55.9	33.8

4. RACHAPALLI VILLAGE

SI.No	Location name & Code. Date of Sampling	Standard limits of Noise	
		Day time	Night time
		55	45
		Noise levels in dB (A)	
		Leq Day	Leq Night
1	04.04.2016	47.3	35.6
2	20.04.2016	44.3	32.1
3	05.05.2016	48.3	35.5
4	21.05.2016	50.4	38.9
5	02.06.2016	45.3	35.2
6	17.06.2016	46.1	32.4
7	02.07.2016	44.4	34.1
8	18.07.2016	46.5	32.7
9	05.08.2016	48.3	33.8
10	16.08.2016	45.6	35.1
11	01.09.2016	46.9	37.2
12	16.09.2016	47.5	34.7

5. AKKAPALLI VILLAGE

SI.No	Location name & Code. Date of Sampling AKKAPALLI VILLAGE BN-11 BUFFER ZONE	Standard limits of Noise	
		Day time	Night time
		55	45
		Noise levels in dB (A)	
		Leq Day	Leq Night
1	04.04.2016	50.3	43.6
2	20.04.2016	50.2	40.2
3	05.05.2016	51.4	42.5
4	21.05.2016	48.4	39.2
5	02.06.2016	46.2	36.0
6	17.06.2016	47.8	37.9
7	02.07.2016	49.9	40.1
8	18.07.2016	48.8	38.7
9	05.08.2016	52.1	40.2
10	16.08.2016	49.3	36.1
11	01.09.2016	50.3	34.7
12	16.09.2016	46.8	37.0

ANNEXURE-VII
DETAILS OF FUNDS SPENT ON CSR ACTIVITIES

Sl. No.	Name of the work & proceeding	Date	Sanctioned Amount (Rs)
1	CC ROAD AT SRIRAM NAGAR(V) MANTHANI(M)	18-02-2011	2,50,000
2.	CON. OF CS ROAD & SIDE DRAINES AT KUCHI RAJ PALLY (V) MANTHANI (M) Lr.No. E4/4040/2009 DT. 08-07-2010	31-08-2010	2,50,000
3.	CC ROAD & SIDE DRAINS GANGAPUR(V) MANTHANI(M) Lr.No.E4/4040/2009 DT.24-01-2010	15-04-2010	2,50,000
4.	CC ROAD FROM SRIPADA COLONY AT MANTHANI(V) (M) Lr.No. E4/4040/2009 DT. 24-01-2010	15-04-2010	2,50,000
5.	CC ROAD AT NAGULAVEEDI MANTHANI (V) (M) Lr.No. E4/4040/2009 Dt.24-01-2010	15-04-2010	2,50,000
6.	APPROACH ROAD TO GOVT. JUNIOR COLLEGE (GIRLS) MANTHANI (V) (M) E4/4040/2009 DT.08-07-2010	31-08-2010	3,00,000
7.	CONSTRUCTION OF DHOBI GHAT (V&M), MB NO.687/AK/08/ Lr.No. E4/4040/2008 Dt. 13-12-2010	02-01-2011	7,00,000
8.	CONSTRUCTION OF SULABH COMPLEX BOINAPET (V) MANTHANI (M), MBNO688/AK/08, Lr.No. E4/4040/2008 DT.13-12-2010	02-01-2011	1,50,000
9.	CONSTRUCTION OF V.O. BUILDING MALEPALLY (V) MANTHANI (M), MBNO 01/A9/10, LRNO E4/4040/2008 DT. 13-12-2010	02-01-2011	1,50,000
10.	BALANCE WORK OF WATER SUPPLY, MALLEPALLY(V) OF MANTHANI(M)		1,50,000
11.	CC ROAD & SIDE DRAINS FROM SCHOOL BUILDING TO VAGU(V) MANTHANI (M), MBNO 825/BP/09/, Lr.No. E4/4040/2008, Dt. 13-12-2010	02-01-2011	2,50,000
12	CC ROAD & SIDE DRAINS FROM P.BAKKI REDDY (H) TO SC COLONY, MALLEPALLY(V) MANTHANI(M) MBNO826/BP//09, Lr.No.E4/4040/2008 Dt. 13-12-2010	02-01-2011	2,50,000
13	CONSTRUCTION OF COMPOUND WALL TO PRIMARY SCHOOL, MALLEPALLI (V) OF MANTHANI (M) MBNO 02/AP/10, Lr.No. E4/4040/2008 Dt. 13-12-2010	02-01-2011	1,50,000
14	ZPHS SCHOOL COMPOUND WALL GUNJAPADUGU(V) OF MANTHANI(M) MBNO-01/BP/10/ Lr.No.E4/4040/2008, DT.13-12-2010	02.01.11	2,50,000
15	SIDE DRAINS AT MALANAWADA, VILKOCHAVARAM(V) OF MANTHANI (M) MBNO-189/BP/09, Lr.No.E4/4040/2008, Dt. 13-12-2010	02-01-11	2,50,000
16	LAYING OF CC ROAD FROM PULLAIAH (H) TOI RAMOJI (H) AT VILOCHAVARAM (V) OF MANTHANI (M) E4/4040/2009 DT. 08-07-2010	31-08-11	1,50,000

17	LAYING OF CC Road AT MAHBOOBOALLI SC COLONY, PUTTAPAKA (V) OF MANTHANI(M) MBNO-39/BP/09, Lr.No. E4/4040/2009, Dt. 21-10-2010	12-12-10	1,50,000
18	LAYING OF CC ROAD AT NAGARAMPALLI, PUTTAPAKA (V) OF MANTHANI(M)	18-02-11	2,50,000
19	CONSTRUCTION OF IN CHSR AT NAGARAMPALLI-MAHABOOPALLI, PUTTAPAKA (V) OF MANTHANI (M).	18-02-11	2,50,000
20	CC ROAD AT CHILAPALLI SC COLONY COLONY AT SIRIPURAM (V) OF MANTHANI (M) Lr.No. E4/040/2009 Dt. 26-03-2010	31-03-12	2,00,000
21	COMMUNITY ALL AT CHILLAPALLI MANTHANI(M) SRIPURAM (V) OF MANTHANI(M) Lr.No.E4/4040/2009	14-09-12	2,50,000
22.	CC ROAD AT SIRIPURAM SC COLONY, SIRIPURAM(V) OF MATHANI(M)SC COLONY, SRIRIPRAM Lr.No.E4/4040/20-09 Dt. 26-03-2010	31-03-10	2,00,000
23	SIDE DRAIN AT BESTHAPALLI,SRIPURAM (V) OF MANTHANI(M)		1,50,000
24	DOBHIGHAT AT CHILLAPALLI & SRIPURAM SIRIPURAM (V) OF MANTHANI (M)	14-09-12	2,50,000
25	CON. OF COMPOUND WALL TO GOVT. SCHOOL MANTHANI(V) (M) E4/4040//2009 DT. 08-07-2010	31-08-10	2,50,000
26	CC ROAD KHAUPALLY, MACHUPET (V) OF MUTHURAM (MNT) (M) E4/4040/2009 DT. 19-02-2010	15-04-10	1,50,000
27	WATER PIPE LINE FROM WELLL TO MACHUPET(V) MUTHARAM(MNT) (M)	20-07-11	1,50,000
28	C/O SIDE DRAIN FROM K.MALLAIAH (H) TO B.RAJAMALLU (H) AT LAKKARAM (V) OF MUTHARAM (MNT) (M)	18-02-11	2,00,000
29	CC ROAD R/F D.RAJALINGAM)H) TO CH.GATTAIAH(H) AT LAKKARAM (V) OF MUTHARAM (M) MBNO-40/AK/08	15-04-10	2,00,000
30	CC ROAD & SIDE DRAIN AT GOLLAWADA ADVIRAMPET(V) OF MUTHARAM(MNT) (M)	18-02-11	2,50,000
31	SIDE DRAINS AT POCHAMMA TEMPLE ADIVARAMPET (V) MUTHARAM(MNT)(M) MBNO-827/BP/09/Lr.No.E4/4040/2009 DT.21-10-2010	12-12-10	2,50,000
32	SIDE DRAIN AT SC COLONY ADIVARAMPET(V) MUTHARAM(MNT)(M) MBNO-828/BP/09/ Lr.No.E4/4040/2009 DT.21-10-2010	12-12-10	2,50,000
33	SULABH COMPLEX ADIVARAMPET (V) OF MUTHARAM(M)	20-07-11	3,50,000
34	CC ROAD AT SC COLONY, RAJAPUR G.P. ADIVARAMPET (V) OF MUTHARAM (MNT) (M) E4/4040/2009 DT. 19-02-2010	15-04-10	1,50,000
35	CON. OF SCHOOL COMPOUND WALL TO BUDAVARMPET (V) OF MUTHARAM (MNT) (M) E4/4040/2009 DT. 12-03-2010	15-04-10	1,50,000

36	WATER PIPE LINE FROM A BLOCK TO WATER TANK NAGEPALLI (V) KAMANPUR (M) LR.NO. E4/3144/2008 DT.05-02-2010	31-03-10	2.50.000
37	BALANCE WORK OF DHOBIGHAT AT NAGEPALLI(V) OF KAMANPUR(M) E4/4040/2008 DT.09-09-2010	13-10-10	2,50,000
38	SIDE DRAINS AT B&C BLOCKS, NAGAPALLI (V) OF KAMANPUR(M)	02-09-11	3,50,000
39	CONS. OF COMMUNITY HALL AT GUNJAPADUGU(V) OF MANTHANI(M) E4/4040/2009 DT.16-06-2010	03-08-10	1,50,000
40	CC ROAD & SIDE DRAIN FROM NAGAPALLI R&B ROAD TO ZPHS AT NAGAPALLI (V) OIF KAMANPUR (M)	14-09-12	2,50,000
41	LAYING OF CC ROAD R/F R&B ROAD TO KOYYADA RAMULU (H) AT RANGAPUR (V) OF M.P. PEDDAPALLY (M) MBNO-2/AP/09 LR.NO.E4/4040/2009, DT. 21-10-2010	12-12-10	2,00,000
42	LAYING OF CC ROAD R/F MEKALA NAGIAH (H) TO GANTA NARSAIAH(H) AT RANGAPUR (V) OF PEDDAPALLY (M) MBNO-12/AP/09 LR.NO.E4/4040/2009 DT. 21-10-2010	12-12-10	2,00,000
43	LAYING OF CC ROAD FROM NAMASANI RAJESHAM (H) TO NAYLAM SHANKARAIH (H) AT RANGAPUR(V) OF PEDDAPALLI(M)	18-02-11	2,00,000
44	LAYING OF CC ROAD R/F NANASANI SRINIVAS (H) TO POCHAMMA GUDI AT RANAPUR (V) OF PEDDAPALLI	18-02-11	2,00,000
45	LAYING OF CC ROAD R/F NALLA SHANKARAIH (H) TO GUNTA SHANKARAIH (H) AT RANGAPUR(V) OF PEDDAPALLI(M)	18-02-11	2,00,000
46	LAYING OF CC ROAD FROM SC COMMUNITY HALL TO CHILIVENI CHANDRAIAH (H) AT RANGAPUR (V) OF PEDDAPALLI		2,00,000
47	LAYING OF CC ROAD FROM RAMINALA MALLIAH (H) TO PULIPAKA LINGAIAH (H) AT RANGAPUR (V) OF PEDDAPALLI(M) E4/4040/2009/ DT. 08-07-2010	03-08-10	2,00,000
48	LAYING OF CC ROAD FROM PULIPAKA LINGAIAH (H) TO RAMINALA LINGAIAH (H) AT RANGAPUR(V) OF PEDDAPALLI(M) E4/4040/2009 DT. 08-07-2010	03-08-10	1,00,000
49	LAYING OIF CC ROAD FROM GANDU RAJIAH (H) TO GANTA VENKATI (H) AT RANGAPUR (V) OIF PEDDAPALLI(M)	07-04-11	2,00,000
50	LAYING OF CC ROAD FROM GP OFFICE TO MEKALA KOMARAIH (H) AT RANGAPUR (V) OIF PEDDAPALLI (M) E4/4040/2009 DT. 08-07-2010	03-08-10	2,00,000
51	LAYING OF CC ROAD FROM THOTA LAXMAIAH (H) TO KOYYADA PAPAIAH AT RANGAPUR (V) OF PEDDAPALLI (M) MBNO-20/AP/09 LR.NO.E3/4040/2009 DT. 21-10-2010.	12-12-10	2,00,000

52	LAYING OF CC ROAD FROM CHINTHALA POCHAMMA (H) AT RANGAPUR(V) OF PEDDAPALLI (M) MBNO-17/AP/09 LR.NO.E3/4040/2009 DT. 21.10.2010	12-12-10	2,00,000
53	LAYING OF CC ROAD FROM GANDU BHOOMIAIAH (H) TO MADAM MONDAIAH AT RANGAPUR (V) OF PEDDAPALLI(M) MBNO-18/AP/09 LR.NO. E3/4040/2008 DT.21-10-2010	12-12-10	2,00,000
54	LAYING OF CC ROAD FROM THALLA POCHA MALLAIAH (H) TO GURRALA SHANKAR (H) AT SABBITHAM (V) OF PEDDAPALLI (M)		2,00,000
55	LAYING OF CC ROAD FROM GURRALA RAJESHAM (H) TO POLDASARI BHEEMAIAH(H) AT SABBITHAM (V) OF PEDDAPALLI(M)	18-02-11	2,00,000
56	LAYING OF CC ROAD FROM DUBASI RAJIAH (H) TO BUDASI THIRUPATHI (H) AT SABBITHAM (V) OF PEDDAPALLI(M)		2,00,000
57	LAYING OF CC ROAD FROM GANDAM RAJIAH (H) TO PERUKU POSHALU (H) AT SABBITHAM (V) OF PEDDAPALLI(M)	18-02-11	2,00,000
58	CC ROAD FROM GANDAM VEERAMMA (H) TO INDLA RAMESH (H) AT SABBITHAM (V) OF PEDDAPALLI(M)	18-02-11	2,00,000
59	CC ROAD FROM MEKKONDA BHAGYAMMA (H) TO THUMMALA RAM REDDY (H) AT SABBITHAM (V) OF PEDDAPALLI(M)	18-02-11	2,00,000
60	LAYING OF CC ROAD FROM KASARLA RAJIAH (H) TO INDLA ANJIAH (H) AT SABBITHAM (V) OF PEDDAPAKKI(M)	18-02-11	2,00,000
61	LAYING OF CC ROAD FROM NAMASANI KOMARAIAH (H) TO MIRYALA SRINIVAS (H) AT SABBITHAM (V) OF PEDDAPALLI (M)	18-02-11	1,00,000
62	CONSTRUCTION OF COMMUNITY HALL AT RATNAPUR (V) OF KAMANPUR (M)	14-09-12	2,25,000
63	CONSTRUCTION OF SC COMMUNITY HALL AT RATNAPUR(V) OF KAMANPUR(M)	22-10-12	2,25,000
64	TUBE LIGHTS FOR THE SURROUNDING VILLAGES FOR STREET LIGHT	20.6.2014	4,500
65	VINAYAKA PRATIMAS OF SOIL DISTRIBUTED TO THE SURROUNDING VILLAGES	29.8.2014	3,000
66	FOR SEGREGATION OF PLASTICS AND PAPERS MAKE BAGS FOR ISSUING TO THE COLONY RESIDENTS	24.3.2015	1,80,000
67	PLANTS GIVEN TO THE MUTTARAM POLICE STATION	26.2.2015	20,000
68	PLAYING MATERIAL GIVEN TO THE SCHOOL CHILDREN	28.2.2015	30,000
69	FREE DISTRIBUTION OF FRUIT BEARING PLANTS TO THE SURROUNDING VILLAGES	16.08.2015	3,00,000
70	MEDICAL CAMP CONDUCTED IN AKKAPALLI VILLAGE	30.8.2015	1,00,000
71	BORE WELLS IN THE SURROUNDING VILLAGES VEMPADU, KANNALA,	October to March 2016	4,00,000

	GUNJAPADUGU, NAGARAM, SIRIPURAM,AND SURAYYAPALLI		
72	KANNALA RO PLANT SHED	October to March 2016	1,50,000
73	BITTUPALLI APPROACH ROAD	-DO-	103,00,000
74	CNC RO PLANT SHED AND BORE WELL	-DO-	7,00,000
75	CNC RO PLANT COST	-DO-	1,80,000
76	40 STREET LIGHTS WERE ISSUED TO AKKAPALLI AND BITTUPALLI	5.10.2016	36,000

ANNEXURE-VI

**THE SINGARENI COLLIERIES COMPANY LIMITED
(A GOVT. COMPANY)
RAMAGUNDAM-III Area**

I).The Environmental Management Committee meeting was held on 27-08-2016 at Project Officer, GDK10&GDK10A inclines at 4.30PM.

The below members have participated in the above meeting.

S/Shri

Sl.No.	Name	Designation
1	Raghu Kumar	Agent GDK10&10A Inclines, Chairman
2	Kishore Kumar Sharma	SOM, Secretary
3	Padma Rao	EE, Civil Member
4	P.Prakash	Safety office, member
5	GVS Prabhakara Rao	SE (Env), Member Secretary,
6	Uma Maheshwara Rao	Area Survey Officer, Member
7	Heeriya	Area Estates Officer, Member
8	M.Narayana	Sr. Survey Officer, member
9	P.D Sudhakar	Group Engineer, Member
10	A.Sudhakar Rao	Addl. Manager GDK 10
11	Padma Raju	EE, Civil, RG-III Area, Member
12	Abilasha David	Dy.Mgr. Forestry, memeber

Agenda of the meeting:

1. Review the EC, FC, CFO & EMP conditions and its implementation.
2. Review the recent air, water and noise monitoring reports.
3. Review the ground water monitoring reports and its submission to concerned departments.
4. Review the garland drains around the mine.
5. Review the usage of water flow meters at discharge the pumping of water from the mine.
6. Review the plantation proposals and actual plantation done in the year 2016.
7. Review the construction of settling ponds where they are necessary to control the coal dust in the water before the water entering in to the near by villages.
8. Sending the capital and revenue expenditure details to DGM (F&A) before 5th of every month.
9. Review the other environment issues as advised by the chairman.

Minutes of the meeting:

1. Chairman welcomed all the members for meeting.
2. Chairman reviewed the previous meeting minutes with the members.
3. Chairman reviewed the below EC conditions with the members.
The cranes Which may develop at the surface due to subsidence as a result of the underground working shall be kept moist at all the time to prevent possibility of the mine

a) Manager, So & survey officer replied that subsidence monitoring is conducting regularly, if any gards are found they will be filled and dozed.

Action: SOM, SO & Survey Officer

b) Various pollution measures listed in the EMP Shall be strictly implemented and a report regarding implementation of their measures shall be submitted every six months to this department.

SE (Env) and manager replied that all the pollution control measures are being taken. as per EMP, EC,CFO Condition and see the air, mine and water pollution are within the below limits monitoring is being coined out by EPTRI, Hyderabad regularly.

Action: SE(Env)

4. Chairman requested the below CFO condition:

Schedule B. 3) The industry shall not produce beyond the permitted capacity as mentioned in this order without obtaining prior CFE & CFO of the board the mining capacity of the coal also should not be increased by the ministry more than IBM approved capacity i.e 4.5 lakh tones per annum.

Action: Manager, GDK 10INC

5. Chairman requested SE (Env), Survey officer and Dy.manager (Forestry) to make necessary arrangements for plantation along the approach road to the mine, vacant land at the side of the mine compound wall.

Action: SOM,SO, SE(Env), Survey officer

6. Chairman requested E.E (Civil) make necessary proposals at the disposal point of mine water to the Bokkala vagu to arrest the slit may be available.

Action: E.E (Civil), RG-III

7. Chairman requested SE(Env), Safety officer to send the capital and revenue expenditure month wise to the DGM(F&A) every month before 5th send to GM(F&A), GM(Env) and also submit to the MoEF &CC, Chennai along with Half yearly monitoring reports.

Action: Survey Officer, SE(Env)

8. Chairman Reviewed the recent air, water and noise monitoring reports with all members.

Action: Survey officer, SE(Env)

Is carried out lay EPTRI, Hyderabad monthly two times found that the reports are within the below limits.

Action: SE(Env) RG-III

9. Chairman requested all the members to implement all the EC, FC, CFO & EMP condition without any deviation and the environment in mine surroundings are good.

Action: All the members.

II).The Environmental Management Committee meeting was held on 15-04-2016 at Project Officer, GDK10&GDK10A inclines at 4.30PM.

The below members have participated in the above meeting.

S/Shri

Sl.No.	Name	Designation
1	Raghu Kumar	Agent GDK10&10A Inclines, Chairman
2	Kishore Kumar Sharma	SOM, Secretary
3	Padma Rao	EE, Civil Member
4	P.Prakash	Safety office, member
5	GVS Prabhakara Rao	SE (Env), Member Secretary,
6	Uma Maheshwara Rao	Area Survey Officer, Member
7	Heeriya	Area Estates Officer, Member
8	M.Narayana	Sr. Survey Officer, member
9	P.D Sudhakar	Group Engineer, Member
10	A.Sudhakar Rao	Addl. Manager GDK 10
11	Padma Raju	EE, Civil, RG-III Area, Member
12	Abilasha David	Dy.Mgr. Forestry, memeber

Agenda of the meeting:

1. Review the EC, FC, CFO & EMP conditions and its implementation.
2. Review the recent air, water and noise monitoring reports.
3. Review the ground water monitoring reports and its submission to concerned departments.
4. Review the garland drains around the mine.
5. Review the usage of water flow meters at discharge the pumping of water from the mine.
6. Review the construction of settling ponds where they are necessary to control the coal dust in the water before the water entering in to the nearby villages.
7. Sending the capital and revenue expenditure details to DGM (F&A) before 5th of every month to submit GM(Env) and along with HYMR to MoEF & CC.
8. Review the other environmental issues as advised by the chairman.

Minutes of the meeting:

1. Chairman enquired SE (Env) regarding the recent air, water and noise monitoring reports.
SE (Env) replied that air, water and noise quality monitoring is conducted by the EPTRI, every fortnight regularly,PM 2.5 is slightly increased in mine area. Remaining values are within the below limits.

Action: SE(ENV) RG-III & ALP

2. Chairman reviewed the below EC conditions with the members.
10 incline EC conditions:

a) The cracks which may develop at the surface due to subsidence as a result of the underground workings shall be kept moist all the time to prevent possibility of the mine fire.

SOM, 10 incline has replied that regular subsidence monitoring is being conducted by the survey department and the cracks are filled with manually and with dozer it find.

Action: SOM, Survey Officer, 10 Inc

b) The various pollution control measures listed in the EMP shall be strictly implemented and a report regarding the implementation of these measures shall be submitted every six months to this department.

SE (Env) replied that the implementation of EC, EMP is submitting to MoEF, CC & Member Secretary, TSPCB, Hyderabad in every six months.

Action: SE (Env), RGIII & ALP

10A Incline, EC:

i. Effective arrangements shall be carried out at surface as the completion of mining of both the first seam as well as second seam. This should ensure early detection of any cracks developing on the surface due to subsidence and would enable project proponents to take preventive measures. Chairman requested SOM & Survey Officer to make necessary arrangements for the above conditions on completion of the above.

Action: SOM & Survey Officer

- ii. A silencer shall be installed to the mine to prevent noise pollution.
- iii. To overcome air pollution due to generation of dust, dust extractors shall be used in the coal handling plant.
- iv. The project proponent shall provide details about the density and type of plants planted, to be planted in this area.
Chairman requested Forest Officer to make necessary proposal at the time of Plantation for the above condition.

Action: Forest Officer, RG II & RGIII

3. Chairman enquired SE (Env) regarding the ground water monitoring reports and its submission to CPCB, New Delhi and TSPCB, Ground Water Department, Karimnagar.

SE (Env) replied that monitoring is carried out by Singareni Exploration Department yearly four times. After receiving the report the same is to be submitted to the above departments regularly.

Action:SE (Env)

4. Chairman requested SOM, Survey Officer & Safety Officer to make a visit along the garland drains and make necessary arrangements to clear the silt and make the drains clean.

Action: SOM, Survey Officer& Safety Officer

5. Chairman requested SOM, Group Engineer to make necessary arrangements for construction of water flow meters to the mine discharge water for reading the discharge water from the mine.

Action: SOM, Grp.Engr., SO

6. Chairman requested Survey Officer to write a letter to DGM(Civil) for construction of settling ponds where the excess water is entering into the Bokkala vagu.

Action: Survey Officer

7. Chairman requested Survey Officer to send the capital & revenue expenditure to DGM(F&A) every month before 5th for entering in the record of Finance Department and Environment Department.

Action: Survey Officer

8. Chairman requested all the members to follow the EC,FC,CFO & EMP conditions properly without any deviation and see the mine and surroundings are in good atmosphere.

Action: All the members.

**GDK10 INCLINE MINE BOUNDARY WGS84 CO-ORDINATES
AP AREA**

SL.NO	LATITUDE			LONGITUDE			STATION ID
1	18	41	9.026303	79	35	5.082164	A
2	18	41	10.70605	79	34	53.81431	A-1
3	18	41	11.6284	79	34	51.80458	A-2
4	18	41	8.779326	79	34	44.01015	A-3
5	18	41	5.836956	79	34	44.40877	A-4
6	18	41	1.502065	79	34	42.63538	A-5
7	18	40	56.42851	79	34	35.72368	A-6
8	18	40	26.78982	79	34	48.96049	A-7
9	18	40	22.62158	79	34	38.62288	A-8
10	18	39	51.9217	79	34	51.93539	A-9
11	18	39	47.28955	79	34	54.57734	A-10
12	18	39	26.94853	79	34	58.12497	A-11
13	18	39	23.97795	79	34	46.74978	A-12
14	18	39	4.538978	79	34	50.72807	A-13
15	18	39	1.975201	79	34	34.28099	A-14
16	18	39	12.94187	79	33	48.50969	A-15
17	18	41	24.34776	79	34	57.89926	DS-1
18	18	42	17.43519	79	34	1.564909	BP-22A
19	18	42	3.034859	79	33	34.98266	BP-23A
20	18	41	32.37412	79	33	47.85675	BP-24A
21	18	41	35.05938	79	33	53.02199	BP-N1
22	18	41	28.2618	79	34	2.492091	BP-N2
23	18	41	21.1252	79	34	5.746138	BP-N3
24	18	41	17.06013	79	34	4.878766	BP-N4
25	18	41	5.910643	79	34	0.846114	BP-N5
26	18	40	58.11092	79	33	57.47362	BP-N6
27	18	40	53.23782	79	33	54.79393	BP-N7
28	18	40	16.54939	79	33	50.03353	BP-38B
29	18	39	38.83756	79	33	47.27232	BP-42
30	18	39	9.038943	79	33	44.06604	BP-0
31	18	39	15.6546	79	33	51.59885	BP-N
32	18	39	17.61684	79	33	59.08204	BP-M
33	18	39	20.89424	79	34	12.74905	BP-K
34	18	39	21.4741	79	34	14.66286	BP-K1
35	18	39	17.62011	79	34	19.22454	BP-A
36	18	39	10.83755	79	34	23.70792	BP-A1
37	18	39	2.061788	79	34	30.81311	BP-B