The Singareni Collieries Company Limited
(A Government Company)

Regd. Office:
Kothagudem Collieries - 507 101,
Bhadrachalam Road Rly.Station,
Khammam District - A.P.

Director (P&P) : 08744 - 242602
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Ref.No.CRP/ENV/A/431A/ 600 Date: 28.08.2013

Director (IA Division),
Thermal & Coal Mining,
Ministry of Environment & Forests,
Paryavaran Bhawan,
CGO Complex, Lodi Road,
N E W D E L H I - 110 003.

Sir,

Sub: Revised application in Form - I for prior Environmental Clearance for the proposed **Manuguru Opencast - II Expansion** Coal Mining Project of SCCL (**Expansion in peak production capacity from 5.00 MTPA to 6.25 MTPA in ML area of 3205.76 Ha**) located near Manuguru village, Manuguru Mandal in Khammam District of AP – Grant of EC for one time capacity expansion in the existing operations (25% enhancement) under the provisions of OM dated 19.12.2012 – Request - Reg.

Ref: 1. Environment J-11015 /144 /2007-IA-II (M) dated 31st July 2008.
2. Office Memorandum No. J-11015/30/2004.IA.II (M), Dated 19.12.2012
3. SCCL Lr. No. CRP/ENV/A/431A/121, Dated 18.02.2013

* * * *

SCCL is operating Manuguru Opencast - II Expansion Coal Mining Project located near Manuguru Village, Manuguru Mandal in Khammam District of Andhra Pradesh, for which MoEF, GoI accorded environmental clearance in the year 2008 vide letter cited under reference (1) for the normative production capacity of 4.00 MTPA with a peak production of 5.00 MTPA in the ML area of 3205.76 Ha.

In view of the demand of the coal, the potentiality for increase in the existing mines was reviewed and proposed to stabilize the normative production capacity of 4.00 MTPA to envisaged peak capacity of 5.00 MTPA. Accordingly application for environmental clearance for the 5.00 MTPA Normative capacity in the same ML area was submitted MoEF during February, 2013 vide SCCL letter cited under reference (3).

In supersession of earlier application under reference (3), SCCL is proposing to increase the peak production capacity from 5.00 MTPA to 6.25 MTPA within the same mining lease area of 3205.76 Ha. for extracting the balance coal reserves 244.78 MT by removing 1808.37 M.Cum of OB over an estimated life of 40 years, under the name of **Manuguru Opencast - II Expansion Coal Mining Project (MNG OC - II Expansion Coal Mining Project).**

The proposal is one time capacity expansion for 25% enhancement of production in existing operations without any lateral expansion in mining lease area. As such, it is proposed to obtain environmental clearance under the provisions of Office Memorandum of MoEF cited under reference (2).

In this connection, the revised application in Form – I, Project Pre-feasibility Report, an addendum to earlier EIA/EMP addressing the issues of incremental capacity, Report of compliance of environmental clearance conditions imposed in the earlier EC certified by Regional Office, MoEF, Bangalore, compliance of commitments made in the earlier public hearing, etc., submitting herewith for environmental clearance for the proposed one time capacity expansion (25% increase in production capacity) in the existing operations of **MNG OC - II Expansion Coal Mining Project**.

Some of the salient features of the project are furnished hereunder.

1.	Name of the Project	:	**MNG OC-II Expansion Coal Mining Project**
2.	Name of the Organization	:	Singareni Collieries Company Limited
3.	Location		
	Village / Town	:	Manuguru
	Mandal	:	Manuguru
	District	:	Khammam
	State	:	Andhra Pradesh
4.	New / Expansion / Modernization	:	One time production capacity expansion up to 25%
5.	Present Capacity	:	5.00 MTPA (peak)
6.	Proposed Capacity	:	6.25 MTPA (25% over the earlier capacity)
7.	Present ML area	:	3205.76 Ha.
8.	Proposed ML Area	:	3205.76 Ha. (no lateral expansion)
9.	Involvement of Forest Land	:	2673.70 Ha.
10.	Earlier EC Letter Number	:	J-11015 /144 /2007-IA-II (M) dated 31st July 2008
11.	Date of earlier Public Hearing		28.08.2007
12.	Address for Correspondence		
	Name	:	A. Manohar Rao
	Designation (Owner / Partner / CEO)	:	Director (Planning & Projects)
	Address	:	Singareni Collieries Company Limited
	Post & PIN	:	Kothagudem Collieries & 507 101
	E - mail	:	dpp@scclmines.com

Telephone No.	:	08744 - 242602
Fax No.	:	08744 - 242724

Hence, it is requested to consider the proposal and issue **Environmental Clearance** for onetime capacity expansion (25% enhancement of production capacity) in the existing operations of Manuguru Opencast-II Expansion Project, under the provisions of Office Memorandum No. J-11015/30/2004.IA.II (M), dated 19.12.2012.

Yours faithfully,

(A. Manohar Rao)
Director (Planning & Projects)

Director (Planning & Projects)
The Singareni Collieries Co. Ltd.
KOTHAGUDEM

Encl: Hard and Soft copy of

1. Application in Form – I along with PFR, Addendum to earlier EMP, Certified report of compliance of earlier EC, compliance status of commitments made in PH.
2. Copy of earlier EC letter of the existing project

APPLICATION FOR PRIOR ENVIRONMENT CLEARANCE FOR

THE PROPOSED

MANUGURU OPENCAST – II EXPANSION PROJECT

(One time Capacity Expansion for 25% in the existing operations under the provisions of MoEF Office Memorandum J-11015/30/2004.IA.II (M) dt 19.12.2012)

DEPARTMENT OF ENVIRONMENT

(QCI / NABET Accredited EIA Consultant Organization)

THE SINGARENI COLLIERIES COMPANY LIMITED

(A Government Company)

KOTHAGUDEM COLLIERIES - 507101 (A.P)

AUGUST – 2013

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Form-1

(As per SO 1533, Dated 14.9.2006 and subsequent Amendments vise SO 3067 dated 01.12.2009)

FORM 1

(Appendix-1 of S.O. 1533, dated 14.9.2006 including amendment envisaged in S.O. 3067, dated 1.12.2009)

(I) Basic Information

Sl. No.	Item	Details
1	Name of the project/s	MANUGURU OPENCAST–II EXPANSION COAL MINING PROJECT
2	S.No. in the schedule	1(a)
3	Proposed capacity/area/length/tonnage to be handled/command area/lease area/number of wells drilled	Production capacity : 6.25 MTPA Lease area : 3205.76 Ha
4	New/Expansion/Modernization	Expansion
5	Existing capacity/Area etc.,	Production capacity : 5.00 MTPA(Peak) Lease area : 3205.76 Ha
6	Category of the project i.e. "A" or "B"	"A"
7	Does it attract the general condition? If yes please specify	Yes. The project is at a distance of 7.5 Km from the Kinnerasani WL Sanctuary.
8	Does it attract the specific condition? If yes please specify	No
9	Location Plot/Survey/Khasra No. Village Tehsil District State	The Manuguru OC-II Expansion project is a part of Manuguru coal fields of Kothagudem region and is about 70 Km from Kothagudem town by road and 55 Kms by rail. The block is located between North latitude $17^0$55'34'' and $17^0$59'11'' and East Longitude $80^0$43'57'' and $80^0$47'27'' in the survey of India Topo sheets 65C/9 and 65C/13. Manuguru Manuguru Khammam Andhra Pradesh
10	Nearest railway station/airport along with distance in Kms.	Railway station : Manuguru Airport : Gannavaram (Vijayawada)
11	Nearest Town, City, District headquarters along with distance in Kms	Town : Manuguru City : Vijayawada District head quarters : Khammam
12	Village panchayats, Zilla parishad, Municipal Corporation, Local Body (Complete postal addresses with telephone no's to be given)	Village: Manuguru Tehsil : Manuguru District: Khammam State : Andhra Pradesh

13	Name of the applicant	A. Manohar Rao, Director (Planning and Projects)
14	Registered Address	Singareni Collieries Company Limited Kothagudem Collieries- 507101 Khammam District, A.P.
15	Address for correspondence Name Designation (owner/partner/CEO) Address Pin Code E-mail Telephone No. Fax No.	 A.Manohar Rao Director (Planning and Projects) Singareni Collieries Company Limited PO: Kothagudem Collieries Dist: Khammam,A.P 507101 dpp@scclmines.com 08744-242602 08744-242724
16	Details of alternative sites examined, if any Location of these sites should be shown on a topo sheet	Not applicable as the mining is site specific activity
17	Interlinked projects	No
18	Whether separate application of interlinked projects has been submitted?	Not Applicable
19	If yes, date of submission	Not Applicable
20	If, no reason	Not Applicable
21	Whether the proposal involves approval/clearance under: If yes, details of the same and their status to be given (a) The Forest (Conservation) Act, 1980? (b) The Wildlife (Protection) Act, 1972? (c) The CRZ Notification, 1991?	(a) The clearance under FC Act, 1980 to be obtained for diversion of forest land. Status: Out of total requirement of 2673.70 Ha of FL, 994.14 Ha of Forest land is already diverted for the proposed project. Remaining Forestland will be diverted in phased manner under the provisions of F(C) Act 1980. (b) The proposed project falls with in 10Km of Kinnerasani WL Sanctuary (c) Not Applicable
22	Whether there is any Government Order/Policy relevant/relating to the site?	No
23	Forest land involved (Hectares)	The total land requirement : 3205.76 Ha Total Forest Land involved : 2673.70 Ha Forest land already diverted : 994.14 Ha Forest land to be diverted : 1679.56 Ha
24	Whether there is any litigation pending against the project and/or land in which the project is propose to be set up? (a) Name of the court (b) Case No. (c) Orders/directions of the court, if any and its relevance with the proposed project	No

(II) Activity

1. Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)

<table>
<tr><th>Sl . No.</th><th>Information/Checklist confirmation</th><th>Yes/ No</th><th>Details thereof (with approximate quantities / rates, wherever possible) with source of information data</th></tr>
<tr><td>1.1</td><td>Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)</td><td>Yes</td><td>Land requirement for the project including backfilling of abandoned mines is 3205.76 Ha.
<table>
<tr><th rowspan="2">Purpose</th><th colspan="3">Land requirement (in Ha)</th></tr>
<tr><th>Non-Forest</th><th>Forest</th><th>Total</th></tr>
<tr><td>Quarry area</td><td>121.54</td><td>1305.20</td><td>1426.74</td></tr>
<tr><td>OB dumps</td><td>262.23</td><td>807.83</td><td>1070.06</td></tr>
<tr><td>Safe barrier, darinage, protection bund etc</td><td>59.01</td><td>174.75</td><td>233.76</td></tr>
<tr><td>Service buildings, railway sidings, CHP, etc</td><td>2.17</td><td>103.86</td><td>106.03</td></tr>
<tr><td>Sub total</td><td>444.95</td><td>2391.64</td><td>2836.59</td></tr>
<tr><td>Vagu Diversion</td><td>85.32</td><td>281.81</td><td>367.13</td></tr>
<tr><td>Diversion of Road to Kotturu Village</td><td>1.79</td><td>0.25</td><td>2.04</td></tr>
<tr><td>Total</td><td>532.06</td><td>2673.7</td><td>3205.76</td></tr>
</table>
Source : Pre-Feasibility Report</td></tr>
<tr><td>1.2</td><td>Clearance of existing land, vegetation and buildings?</td><td>Yes</td><td>All the vegetation in the project will be cleared before commencement of mining operations.

Forest land involved in the project will be diverted in phased manner after necessary approval

Land area will be broken for quarry purpose.

The existing office buildings of operating Manuguru OC-II Expansion will be utilized during initial period and will be dismantled and shifted to nearby location later on.

The approximate number of Project Affected Families (PAFs) in Shanti Nagar and Golla Koturu are 208 and 72 respectively.

The PAFs in Srirangapuram Vil are already rehabilitated as per the G.O.No. 68 of Govt of A.P. the remaining two villages will also be rehabilitated as per the existing R&R Policy of Govt of A.P.

Source : Pre-Feasibility Report</td></tr>
<tr><td>1.3</td><td>Creation of new land uses?</td><td>Yes</td><td>The changed land use at the end project operations is as follows:
Quarry area :1426.74 Ha
External dump yards :1070.06 Ha
Safe barrier, drainage,
Protection bund etc : 233.76 Ha.
Service building,
railway siding,CHP etc: 106.03 Ha
Vagu diversion : 367.13 Ha
Road diversion : 2.04 Ha</td></tr>
</table>

			Out of 3205.76 Ha of total land acquired area for the proposed project, 1961.78 Ha of land will be biologically reclaimed after back filling the void. The 1040.57 Ha of land will be left as void for water body after filling the void to 45m depth. This will help in augmenting ground water recharge. The balance 203.41 Ha of land will be used for miscellaneous purposes like safe barrier, drainage, service building, road diversion etc. The Project Affected Families (PAFs) will be rehabilitated at new location with all infrastructure facilities as per Govt. guidelines. ***Source : Pre-Feasibility Report***
1.4	Pre-construction investigations e.g. bore houses, soil testing?	Yes	Pre-mining investigation was carried out by drilling of bore holes within the block by SCCL exploration department. A total of 105 boreholes were drilled in the working area i.e 1426.74 Ha. The borehole density is 9.88 boreholes /Sq.Km and the total meterage drilled is 27538.12 m. ***Source : Pre Feasibility Report of the Project***
1.5	Construction works?	Yes	The service buildings of existing Manuguru OC-II Expansion will be utilized for the proposed Expansion II project.
1.6	Demolition works?	Yes	The existing service buildings will be used for 10 years. Later, these buildings will be demolished and new service buildings will be made near mine workings. The PAFs will be rehabilitated to new location and the buildings and structures will be demolished for carrying out mining operations. ***Source : Pre Feasibility Report***
1.7	Temporary sites used for construction works or housing of construction workers?	No	Not required as the existing infrastructure is sufficient.
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations	Yes	Overburden generated from the proposed project will be dumped in the dump yard upto a maximum height of 120 m in decks with a maximum deck height of 30 m. The administrative service buildings and workshop etc will be above ground structures. ***Source : Pre Feasibility Report of the Project***
1.9	Underground works including mining or tunneling?	No	The proposal is for Opencast mining only.
1.10	Reclamation works?	Yes	A total quantity of 1929.75 M.Cum. Of OB (including top soil 18.62 M.Cum) will be generated during the life of mine from MNG OC II Expansion Property. 1228.50 M.Cum of OB will be dumped internally 682.63 M.Cum of OB will be dumped externally

			Phase wise reclamation programme will be furnished in EIA / EMP. ***Source : Pre Feasibility Report of the Project***
1.11	Dredging?	No	Not Applicable
1.12	Offshore structures?	No	Not Applicable
1.13	Production and manufacturing processes?	No	No manufacturing process is involved in the present proposal. Coal is extracted from the earth crust after removal/excavation of overlying strata i.e. Overburden. ***Source : Pre Feasibility Report***
1.14	Facilities for storage of goods or materials?	Yes	The existing Magazine will cater the needs of expansion project. Existing store will be relocated for expansion project. ***Source : Pre Feasibility Report***
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?	Yes	The solid waste generated during process of mining like over burden, rejects from coal, etc. will be dumped at earmarked sites. The overburden dumps will be reclaimed biologically with native species. Opencast equipment such as HEMM needs regular washing. Water from washing station will be treated for oil and grease separation before discharging it out. The treated water will be used for greenbelt development within the premises. The mine discharge water normally contains coal fines will be treated in settling ponds.
1.16	Facilities for long term housing of operational workers?	No	Existing township is sufficient for this project requirement for housing needs of the employees. ***Source : Pre Feasibility Report of the Project***
1.17	New road, rail or sea traffic during construction or operation?	No	Existing road and rail network will cater the needs of the expansion project.
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	No	Nil
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements	No	Nil
1.20	New or diverted transmission lines or pipelines?	No	Nil
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of	Yes	Gorrepeta Vagu lies in the middle of the property. It has to be diverted in consultation with Irrigation Department. The total land required for diversion is estimated as 367.13 Ha (Non-Forest land -

	watercourses or aquifers?		85.32 Ha; Forest land-281.81 Ha) and the length of diversion is about 16.69Km.
1.22	Stream crossings?	No	No streams crossings.
1.23	Abstraction or transfers of water form ground or surface waters?	Yes	As a result of mining operations, mine seepage water is required to be pumped out continuously from ground to surface for carrying out mining operations safely. The mine discharge water will be let out after treatment in settling tank after removal of suspended solids. No obstruction of surface water for the present proposal
1.24	Changes in water bodies or the land surface affecting drainage or run-off?	Yes	Part of the Gorrapeta Vagu which is flowing over the property is proposed for diversion.
1.25	Transport of personnel or materials for construction, operation or decommissioning?	Yes	Individual transport by workmen from township to the site.
1.26	Long-term dismantling or decommissioning or restoration works?	Yes	De commissioning / closure plan will be prepared as per the guidelines given by Ministry of Coal in this regard.
1.27	Ongoing activity during decommissioning which could have an impact on the environment?	Yes	The project area will be reclaimed and plantation will be carried out in phased manner. Service buildings will be dismantled at the end of mining operations. All the activities involved during de-commissioning will be carried out and material will be handled as per closure plan approved by Ministry of Coal, thereby minimizing the impact on the environment.
1.28	Influx of people to an area in either temporarily or permanently?	Yes	The Manuguru OC-II Expansion Project is a major project of Singareni Collieries which is producing about 5.00 MTPA per annum and provided direct employment to 1515 persons. The same manpower will be deployed for this expansion project. The additional manpower required if any will be deployed from surplus manpower of the other projects/ area. No change in land use or topography due to Influx of the people to an area, as the existing township area will meet the requirements of the proposed project
1.29	Introduction of alien species?	No	No
1.30	Loss of native species or genetic diversity?	Yes	No loss of native species or generic diversity. Clearing of project is restricted to the land required for the project and it will be reclaimed with native species during reclamation.

1.31	Any other actions?	No	Nil

2. Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):

S.No.	Information/checklist confirmation	Yes/ No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
2.1	Land especially undeveloped or agricultural land (ha)	Yes	The total land required for the project including MNG OC-II Expansion project is 3205.76 Ha. Out of which 2673.70 Ha is Forest land and the remaining 532.06 Ha is non forest land Out of total land requirement 1071.74 Ha (77.60 Ha NFL + 994.14 Ha FL) is already under possession of SCCL and under use for mining. Remaining 2134.02 Ha (454.46 Ha NFL + 1679.56 Ha FL) is required to be acquired for expansion proposal. ***Source : Pre Feasibility Report of the Project***
2.2	Water (expected source & competing users) unit: KLD	Yes	The ground water which seeps into the mine workings will be utilized for various purpose of the project. No external source is required for expansion project. About 2500 M^3/day will be required for various mine requirements of the project.
2.3	Minerals (MT)	No	No minerals are required to be used for the project as it is only process of excavation from the earth crust.
2.4	Construction material – stone, aggregates, sand / soil (expected source - MT)	Yes	Only meager quantity of construction materials like sand, stone, cement is required for construction of office buildings and other infrastructure.
2.5	Forests and timber (source – MT)	No	No timber is required for the project.
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)	Yes	The source of power for the project will be from 132 KV Manuguru Sub-Station. A 33 KV Overhead transmission line originating from this sub-station is feeding power to MNG OC-II Expansion. It is proposed to draw power from this transmission line. ***Source : Pre Feasibility Report of the Project***
2.7	Any other natural resources (use appropriate standard units)	No	@ 0.90 liters/Cum of diesel will be utilised for excavation of coal/OB

3. Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.

S.No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)	Yes	It is proposed to remove topsoil and hard overburden with shovel-dumper combination. Explosive is required for blasting operation with specific consumption of about 0.21Kg per tonne of coal production and 0.32 Kg per Cu.m. of OB removal in this project as observed in the operating Manuguru OC-II Expansion Project. The same will be stored, transported, handled and used in accordance with Indian Explosive Act 1884, MSIHC Rules 2000, Mines Act, 1952 and regulations there under. The existing Magazine will cater the requirement of expansion project ***Source :Pre Feasibility Report of the Project***
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)	No	Not applicable
3.3	Affect the welfare of people e.g. by changing living conditions?	No	No affect on welfare of people is anticipated.
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,	No	Not applicable
3.5	Any other causes	No	Not applicable

4. Production of solid wastes during construction or operation or decommissioning (MT/month)

S.No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes	Yes	During the process of coal extraction, overlying strata consisting of topsoil and sedimentary rock formation shall be removed separately as overburden. Solid waste mainly consists of overburden material obtained during mining operations at different stages and a negligible quantity of shale / rejects separated from the excavated coal. It is proposed to remove 1929.75 M.Cu.m. of overburden material from MNG OC-II Expansion

			Property during entire life of the project. The average Solid waste generated during operation of the mine is about 42.88 M.Cum. per annum. ***Source : Pre Feasibility Report of the Project***
4.2	Municipal waste (domestic and or commercial wastes)	No	No additional domestic waste will be generated as there is no proposal for any new township.
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)	Yes	Hazardous wastes of small quantities of used oil, lead acid batteries and waste oil drums will be generated
4.4	Other industrial process wastes	No	Nil
4.5	Surplus product	No	Nil
4.6	Sewage sludge or other sludge from effluent treatment	No	No additional sewage sludge will be generated as there is no proposal for any new township.
4.7	Construction or demolition wastes	Yes	Demolition at the end of the project will be carried out as per mine closure plan.
4.8	Redundant machinery or equipment	No	Not applicable
4.9	Contaminated soils or other materials	No	Not applicable
4.10	Agricultural wastes	No	Not applicable
4.11	Other solid wastes	No	Not applicable

5. Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)

S.No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources	Yes	Production processes like drilling, blasting, excavation, loading and transportation of material requires combustion of diesel. Diesel used in the project will generate pollutants like CO2, CO, SOx, HC and NOx @ 0.90liters/Cum of diesel will be utilised for excavation of coal/OB.
5.2	Emissions from production processes	Yes	Production processes like drilling, blasting, excavation, loading and transportation of material will cause air pollution.
5.3	Emissions from materials handling including storage or transport	No	No major materials are involved in mining operations. Hence emissions from materials handling including storage or transport are minimal.
5.4	Emissions from construction activities including plant and equipment	No	The mine is already in operation.

5.5	Dust or odours from handling of materials including construction materials, sewage and waste.	No	Generation of dust from handling of materials will be minimum.
5.6	Emissions from incineration of waste	No	Nil
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)	No	Nil
5.8	Emissions from any other sources.	No	Nil

6. Generation of Noise and Vibration and Emissions of Light and Heat:

S.No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers	Yes	The main sources of noise in the opencast mine are the electrical and diesel operated machines, pumps, drilling machines, dumpers, etc. Noise levels near HEMM would be above 90 dB (A), the cabins will be made sound proof and the employees working in the vicinity of HEMM will be provided with earplugs / muffs.
6.2	From industrial or similar processes	No	Nil
6.3	From construction or demolition	No	Nil
6.4	From blasting or piling	Yes	Blasting operations will produce noise and vibrations. Proper care and blasting pattern will be taken while carrying out blasting operations to minimize the effect of the same.
6.5	From construction or operational traffic	Yes	During operational phase, noise levels will increase due to running of machinery and vehicular movement in the area but the impacts will be localized. Regular tuning of vehicle will check the noise levels. The coal transportation from the main CHP is by Rail, as such only marginal impact on the noise levels.
6.6	From lighting or cooling systems	No	Nil
6.7	From any other sources	No	Nil

7. Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:

S.No.	Information / Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials	No	No.
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)	No	The mining process does not involve any chemical treatment. The mine discharge water, which may contain coal fines, needs sedimentation, before discharge into the natural water course / open land. The treatment facilities such as sedimentation, filtration and chlorination will be provided for mine discharge, so as to conform to the effluent standards as prescribed by MoEF. The workshop effluent, which may contain oil & grease, will be treated in oil & grease trap provided at workshop.
7.3	By deposition of pollutants emitted to air into the land or into water	No	The SPM levels and dust fall on the surrounding areas will be marginal increment over the background concentrations.
7.4	From any other sources	No	Nil
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	Nil

8. Risk of accidents during construction or operation of the Project, which could affect human health or the environment

S.No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities / rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances.	Yes	Mining and allied activities are associated with several potential hazards to both the employees and the public at large. The various factors, which can create disaster in opencast mining, are mine fires, spontaneous heating and blasting. The anticipated risks will be managed by implementation and periodical review of the Risk Management Plan and the affect of risk will be controlled by implementation of emergency plan into operation in case of incident.
8.2	From any other causes.	Yes	There is risk of accidents due to mining operations and the same will be overcome by strictly implementing the statutory provisions

			under Mines Act, 1952.
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?	No	Nil

9. Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality

S. No.	Information/Checklist confirmation	Yes/ No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
9.1	Lead to development of supporting. facilities, ancillary development or development stimulated by the project which could have impact on the environment e.g.:		
	• Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.)	Yes	• The proposed project may lead to development of better supporting infrastructure like roads, power supply, housing development etc.
	• housing development	Yes	• The expansion project will increase the potentiality of coal availability for user industries.
	• extractive industries	No	• Nil.
	• supply industries	No	• Supply of spares and other services will come up.
	• other	Yes	• New establishments may come up in and around project site like shops, hotels, lodgings and other commercial complexes.
9.2	Lead to after-use of the site, which could have an impact on the environment	No	Land use pattern will be changed.
9.3	Set a precedent for later developments	No	Nil
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects	No	MNG OC-IV and PK-I Incline mines exist adjacent to proposed expansion. Further, coal mines may come up in future. Coal mining is site specific. This can not be avoided.

(III) Environmental Sensitivity

S.No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value	- Nil -	No areas protected under international conventions, national or local legislation exist.
2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests	Nil	Kinnerasani WL Sanctuary is at a distance of 7.5 Km from the project site. Forest land is involved in this mine Godavari river is flowing 3.3 Kms away from the mine boundary. No wet lands, coastal zone, biospheres, mountain areas which are important or sensitive for ecological reason exist.
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration	- Nil -	No such areas exist.
4	Inland, coastal, marine or underground waters	- Nil -	Not applicable
5	State, National boundaries	Nil	No State or National boundary within 15 Km from the proposed project.
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas	- Nil -	No Routes or facilities used by public for access to recreation or other tourist, pilgrim areas exists within 15 Km.
7	Defence installations	- Nil -	No defense installations exist.
8	Densely populated or built-up area	- Nil -	No densely populated or built up area exist within 15 Km radius from the proposed project.
9	Areas occupied by sensitive man-made land uses *(hospitals, schools, places of worship, community facilities)*	Yes	There are number of schools, hospitals and several places of worship and community facilities, located within an aerial distance of 15 km from the proposed project location boundary.
10	Areas containing important, high quality or scarce resources *(ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)*	- Nil-	No areas containing important, high quality or scarce resources.
11	Areas already subjected to pollution or environmental damage. *(those where existing*	- Nil-	No such areas already subjected to pollution or environmental damage exists.

	legal environmental standards are exceeded)		
12	Areas susceptible to natural hazard which could cause the project to present environmental problems (*earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions*)	- Nil-	No such area susceptible to natural hazard exists.

(IV). Proposed Terms of Reference for EIA studies:

- The present proposal is for increase in production capacity 25% on peak without lateral expansion in ML area.
- The present application is made under the clause 7 (ii) of EIA Notification and satisfies the guidelines issued vide office memorandum dated 19.12.2012.
- Detailed EIA/EMP was prepared for 5.00 MTPA in the ML area of 3205.76 Ha and has been accorded environmental clearance vide J-11015/144/2007-IA.II (M), Dated: 31.7.2008
- Hence, the impact of increase in production capacity brought out in addendum to earlier EMP.

I hereby given undertaking that the data and information given in the application and enclosures are true to the best of my knowledge and belief and I am aware that if any part of the data and information submitted is found to be false or misleading at any stage, the project will be rejected and the clearance given, if any, to the project will be revoked at our risk and cost.

(A. Manohar Rao)
Director (Planning & Projects)
The Singareni Collieries Company Limited
(A Government Company)

Date: .08.2013

Place: Kothagudem

Given under the seal of
Organization on behalf of
Whom the applicant is signing.

Pre-Feasibility Report

(Prepared as per the guidelines issued by MoEF vide Lr. No. J-11013 / 41/2006-IA.II(I) dated 30th December 2010**)**

PRE-FEASIBILITY REPORT OF MANUGURU OC-II EXPANSION PROJECT

1. EXECUTIVE SUMMARY:

1.	Name of the Project	:	MANUGURU OPENCAST-II EXPANSION PROJECT
2.	Type of the project	:	Expansion
3.	Location		
	Village	:	Manuguru
	Mandal	:	Manuguru
	District	:	Khammam
	State	:	Andhra Pradesh
	Coal Field	:	Godavari Valley Coal Field
4.	Name of the organization	:	The Singareni Collieries Company Ltd.

5. Details of Coal & OB

Description	As per FR 2007	As per RFR 2013
Geological Reserves (Mt)	344.88	344.88
Extractable Reserves (Mt)	264.20	264.20
Reserves already extracted (Mt)	Nil	19.42
Balance extractable reserves (Mt)	264.20	244.78
Total Overburden (M.Cu.m)	1929.75	1929.75
Over Burden already removed (M.Cu.m)	Nil	121.38
Balance OB to be removed (M.Cu.m)	1929.75	1808.37
Average Stripping Ratio (tones/Cum)	7.30	7.39

6.	Area of excavation	:	1426.74 Ha.
7.	Borehole density	:	9.88 No/Sq.km
8.	Land requirement	:	3205.76 Ha
	i) Forest land	:	2673.70 Ha
	ii) Non- forest land	:	532.06 Ha
	iii) Land under position	:	1071.74 Ha
9.	Technology	:	Shovel-Dumper combination
10.	Maximum depth of the quarry	:	420 m
11.	Production capacity	:	It is proposed to increase the peak production capacity from 5.00 Mtpa to 6.25 Mtpa.
12.	Life of the project	:	Life of the project is 45 years. Balance life as on 1.4.2013 is 40 years.
13.	R&R involved*	:	3 villages, namely Srinagapuram (50), Shantinagar (208), and Gollakotturulu (72) involving 330 PAFs and 55 land oustees are to be rehabilitated.

* -Socio economic enjoyment survey will be done by the district in-charge at the time of land acquisition the actual will be paid by the SCCL.

2. INTRODUCTION OF THE PROJECT / BACKGROUND INFORMATION:

i. Identification of the project and project proponent. In case of mining project, a copy of mining lease / letter of intent should be given

Manuguru OC-II Expansion Project is a part of Manuguru Coal fields of Kothagudem Region and is about 70 Km from Kothagudem town by road. The project is located near the Manuguru (village & Mandal) of Khammam district of Andhra Pradesh. The block is located between Latitude 17°55'34" and 17°59'11"and East longitude 80°43'57" and 80°47'27" in the Survey of India Topo sheets 65C/9 and 65C/13.The project is located adjacent to Manuguru OC-IV and to the dip of Manuguru OC-II and Manuguru OC-III.

The MANUGURU OC-II EXPANSION PROJECT is covered under five different Mining Leases as mentioned below.

i. 1st renewal of Manuguru Mining Lease for 2186 Ha, issued Vide G.O No 217 I&C Dept. dated 12-08-2008, which is valid up to 22-07-2035 (30 years).
ii. 1st renewal of Manuguru Extension Additional Mining Lease for 125.90 Ha, issued Vide G.O No 259 I&C Dept. dated 23-09-2008, which is valid up to 09-04-2027 (20 years).
iii. Manuguru OC-II (Phase-II) balance Area Mining Lease for 198.22 Ha, issued Vide G.O No 63 I&C Dept. dated 06-03-1999, which is valid up to 04-08-2029 (30 years).
iv. Manuguru OC-III Mining Lease for 75.00 Ha, issued Vide G.O No 91 I&C Dept. dated 24-03-2005, which is valid up to 29-05-2025 (20 years).
v. Manuguru OC-II Expansion (Phase-I) Mining Lease for 175.69 Ha, issued Vide G.O No 238 I&C Dept. dated 27-08-2008, which is valid up to 21-11-2028 (20 years).

Out of total land requirement of 3205.76 Ha, only 996.74 Ha area is covered under the above mentioned Mining Leases, fresh Mining Lease has to be obtained for remaining 2209.02 Ha of land under phased manner, which is under the process.

Environmental Clearance:

The MNG OC-II Expansion is having approved environment clearance from MOEF by vide letter No. J-11015/144/2007-IA-II(M), dated 31st July 2008 for rated production of 4.00 Mtpa and with a peak production capacity of 5.00 Mtpa.

Note: Copy of mining lease orders are enclosed as Annexure-1

Project proponent

The Singareni Collieries Company Limited is a coal mining company owned jointly by the State and Central Governments.

Address:

Director (Planning & Projects)
The Singareni Collieries Company Limited
Po:Kothagudem, PIN. 507 101
Dist: Khammam, Andhra Pradesh
E-Mail id**:** dpp@scclmines.com
Ph.No. 08744 – 242602; Fax No. 08744-242724

ii. Brief description of the nature of the project

The Manuguru OC-II Expansion Project is operating coal mine, which is a part of Manuguru Coal fields of Kothagudem Region. The project is located adjacent to Manuguru OC-IV and to the dip of Manuguru OC-II and Manuguru OC-III.

Forest land of 2673.70 Ha is required to be acquired for the whole life of the Project (i.e. 45 years). Since acquisition of such large extent of land is time consuming and will result in huge financial burden to the company, it is proposed to acquire the land in phases. Presently 994.14 Ha of Forest land is acquired by the SCCL.

The MNG OC-II Expansion project is having total Geological Reserves of 344.88 Mt. The total Extractable reserves are 264.20 Mt. The project is planned for an annual output of 4.00 Mt and peak production level of 5.00 Mt. The life of the project is 66 years (including 1 year construction period). Stripping ratio is 7.30 Cu.m/tonne. As on 1.4.2013 out of the above coal reserves 19.42 Mt of coal was removed by extracting 121.38 MCum of OB from 1.4.2008. The remaining 244.78 Mt of coal has to be excavated by removing 1808.37 MCum of OB.

Present proposal

Keeping in view of the increase in demand in the SCCL command area and limited scope for enhancing production in the short run, it is proposed to enhance the capacities of presently operating opencast mines to their optimum levels with short gestation.

The present proposal is to increase the peak capacity of the project up to 25%. Hence it is proposed to obtain Environmental Clearance for one time capacity expansion under the provisions of Office memorandum vide J-11015/30/2004.IA.II(M), dated 19.12.2012.

MANUGURU OC-II EXPANSION PROJECT is one of such projects wherein the potential production peak capacity can be enhanced from 5.00 Mtpa to 6.25 Mtpa with minimum additional facilities and with in short gestation. The life of the project is 45 years.

The salient features of the Revised Feasibility Report are as follows:

- This project is expected to give its rated capacity production i.e. 6.25 Mtpa in 1st year i.e. 2013-14 (as all the infrastructure facilities are established).
- Basing on the above proposal as on 1.4.2013 the left out mineable coal reserves will be of 244.78 Mt of coal and 1808.37 MCum of OB with 7.39 Cum/t of stripping ratio.
- It is proposed to remove OB by hiring HEMM (46%) as well as by departmental HEMM (54%).
- The total land required for MANUGURU OC-II EXPANSION PROJECT is 3205.76 Ha.

iii. Need for the project and its importance to the country and or region

The Singareni Collieries Company Limited is a state owned Public Sector Company operating 34 Nos. of Underground mines and 15 No. of Opencast mines. It has been exploiting coal for more than 120 years. Out of 470 Km long Pranhita Godavari valley Coal field, the 350 Km sector is lying mostly in the South Indian State of Andhra

Pradesh. Over the years, the Company had expanded its exploitation activities in Adilabad, Karimnagar, Warangal and Khammam districts of Andhra Pradesh.

SCCL is taking the following steps for increasing the coal production.

1) Reconstruction of existing mines for optimum production by intermediate and high technology.
2) Improving the productivity in the existing mines by improving the utilization of the equipment.
3) Opening of new mines in the adjoining/superjacent areas/seams for higher production.
4) Adopting opencast method of mining wherever possible for high rate of production.
5) Conversion of shallow underground workings to opencast method for extraction of balance coal reserves.
6) Expansion of the existing opencast workings to further dip side up to optimum level.
7) Enhancing the production of existing opencast projects where ever possible

In this context, viability of enhancement of production of existing MANUGURU OC-II EXPANSION PROJECT is examined and found amenable for enhancement by enhancing the capacity of HEMM.

iv. Demand-Supply gap

The total availability of coal from the existing projects, projects under implementation and approved projects is inadequate to meet the total demand and a substantial gap remains unfulfilled. The following statement reveals the gap and justifies planning of additional new projects and reconstructing the existing Projects. The production projections of XII Plan can only be met by starting new mines and by reorganizing & reconstructing some of the existing mines to step up production with advanced technology.

The main consumers of coal are power sector companies like NTPC, APGENCO, KPCL, MSEB, cement and other industries like Heavy water plant, Brick etc.

Million Tonnes

Sl.No	Particulars	XI Plan	XII Plan				
		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
1	Demand	55.75	57.60	59.40	63.70	71.30	73.50
2	Production	52.20	53.10	54.30	55.10	56.10	57.10
3	Gap	-3.55	-4.50	-5.10	-8.60	-15.20	-16.40

The present proposal of, expansion of existing MANUGURU OC-II EXPANSION PROJECT, is planned to increase peak production from 5.00 Mtpa to 6.25 Mtpa.

v. Imports vs. Indigenous production

Certain quantity of coal is being imported to mitigate demand-supply gap in the country. In order to reduce the imports and to increase the production capacities, now it is planned to increase the capacity of the existing MANUGURU OC-II EXPANSION PROJECT.

vi. Export possibility

There is no possibility of export of coal from this mine as there is sufficient demand for industries located in the region and also elsewhere in AP and India.

vii. Domestic / export markets

The coal produced is fed to the major domestic customers namely Power sector, Cement industries, fertilizers, brick industries etc

viii. Employment generation(Direct and Indirect) due to the project:

This is an existing project, which is considered for further production enhancement. Due to opening of this project direct employment is generated in the company for working various operations in the mine. The total manpower to be deployed by the company in this mine is around 1515. Apart from the direct employment, Indirect employment may also be generated to lot many in the form of Coal transportation, picking of Shale / Stone from the conveyor belts, supply of raw material like fly ash bricks, general conveyance of persons to the mine from their location by means of hired vehicles, housekeeping, out sourced OB removal etc.

3. PROJECT DESCRIPTION:

i. Type of project including interlinked and interdependent projects, if any.

The project is independent and not interlinked or interdependent on any project for its production enhancement.

ii. Location (map showing general location, specific location, and project boundary & project site layout) with coordinates

The MANUGURU OC-II EXPANSION PROJECT is a part of Manuguru Coal fields of Kothagudem Region and is about 70 Km from Kothagudem town by road. The block is located between Latitude 17^{o}55'34" and 17^{o}59'11"and East longitude 80^{o}43'57" and 80^{o}47'27" in the Survey of India Topo sheets 65C/9 and 65C/13.The project is located adjacent to Manuguru OC-IV and to the dip of Manuguru OC-II and Manuguru OC-III.

The access to the project site is well developed.

Note: *The Location Plan and Key Plan of the area is shown in Plate No: I & II*

iii. Details of alternate sites considered and the basis of selecting the proposed site, particularly the environmental considerations should be highlighted

As the mining is site specific in nature and production enhancement is planned in the existing mine which commenced its production in the year 1985. As such details of alternative sites are not considered.

iv. Size or magnitude of operation

The mine is proposed to operate at normal capacity of 6.25 Mtpa. The physical parameters of MANUGURU OC-II EXPANSION PROJECT as per the boundaries of the project (45 years life) discussed above will result in the following physical parameters:

Salient Features of Manuguru OC-II Expansion Project

1.	Maximum strike length along surface	5560 m.
2.	Minimum strike length along surface	3500 m
3.	Maximum width of the quarry along surface	3030 m
4.	Minimum width of the quarry along surface	2050 m
5.	Minimum depth of the quarry	10 m
6.	Maximum depth of the quarry	420 m
7.	Floor area of quarry (only expansion area)	651.38 Ha.
8.	Area of excavation on surface (only expansion area)	930.08 Ha.
9.	Total land requirement of quarry (including external dump area & Safe barrier around the quarry& dump incl. Vagu diversion)	3205.76Ha.
10.	Gradient of the seam	1 in 5.5 to 1 in 7.0

v. Project description with process details (a schematic diagram/ flow chart showing the project layout, components of the project etc. should be given)

The project is a coal producing unit referred to as a Coal mine. The coal produced is brought to surface and dispatched to identified pit head customers namely Power houses, Cement industries, fertilizer industries, and other units.

The components of the project are:

Under the prevailing geo-mining conditions, with multiple seams and steep gradient, it is proposed to mine the property using shovel-dumper combination – which is considered most suitable. The method of work with Shovel-dumper Mining comprises of –

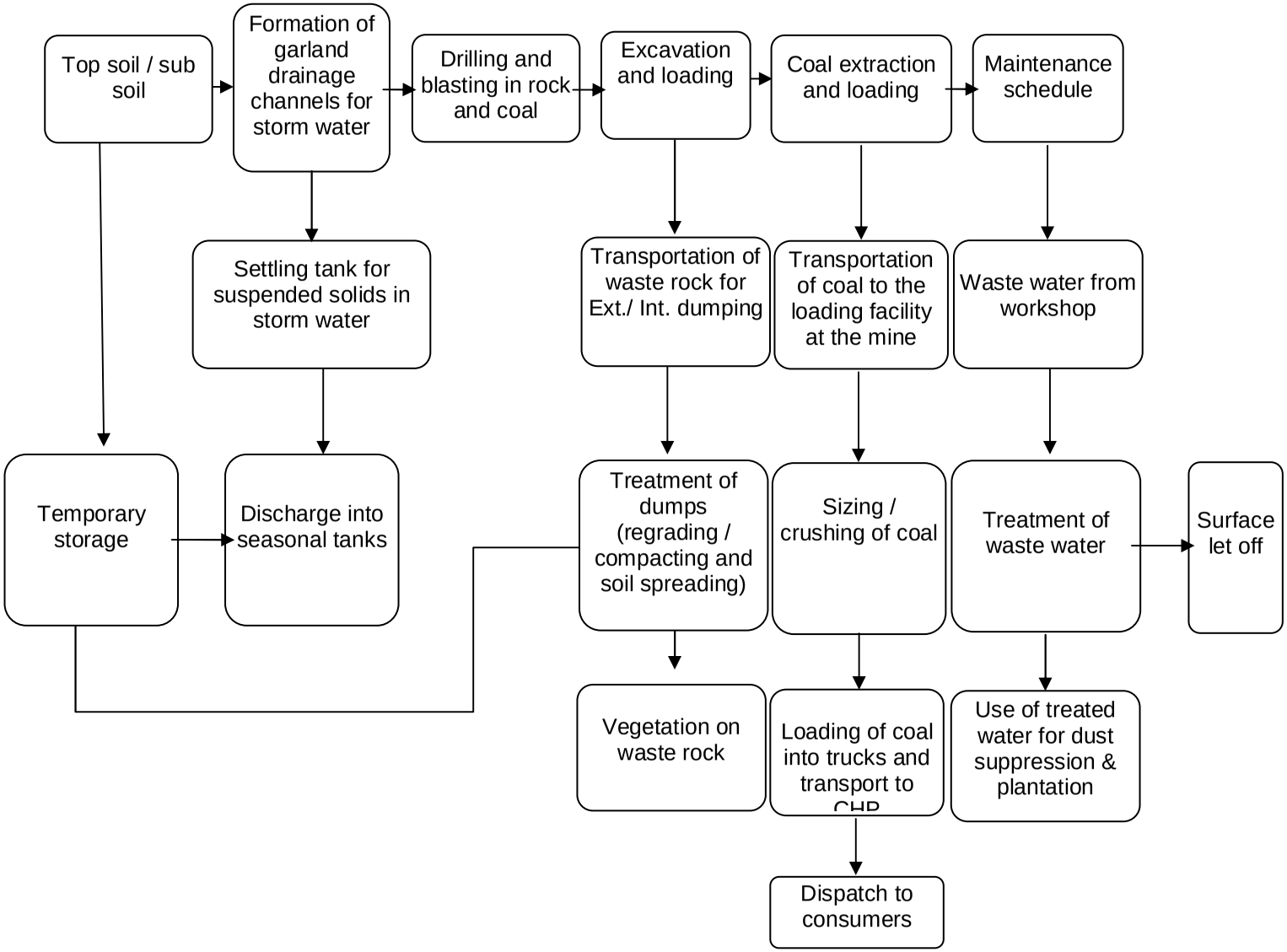
- Removal of topsoil.
- Initial opening of Box cut and removal of intermediate hard rock (Since it is a continuing Project opening of Box cut is not required).
- Removal of OB to expose the coal seam.
- Excavation of coal.

The activities involved in the Process are:

- Drilling & Blasting
- Haul roads formation
- OB removal
- Transport of Overburden and placement of the same at stipulated Dump yards.
- Transportation of coal from face to surface by means of trucks/belt conveyors
- Transportation of coal from pit head to CHP and then to consumers
- Pumping operations etc…

All the mining operations are done under the Supervision of Mining / Mechanical staff as per the Mines Act.

MINE DEVELOPMENT AND COAL EXTRACTION PROCESS CHART
MANUGURU OC-II EXPANSION PROJECT



vi. Raw material required along with estimated quantity, likely source, marketing area of final product, mode of transport of raw material and finished product

Raw Material Required along with estimated quantity:

Material	Quantity/annum	Source
Explosives	19258 T	Purchasing From Explosive companies
Diesel Oil	34054 KL	Purchasing From Oil companies

Mode of Transportation of Raw Material:

- Explosives are being transported in Explosive Vans Approved by the Chief controller of Explosives
- Diesel oil is being transported to Company Established Oil Bunks at site through approved Oil Company Lorries.

Marketing area of final product:

The coal is supplied to the major customers like Powerhouses, Cement, Textiles, Paper, Railways, and other industries.

Mode of Transportation of Finished Product (Coal):

A well established coal handling plant (Kondapuram CHP) with a capacity of 8.00 Mtpa already exists to meet the total coal dispatches of Manuguru area. And also it is planned to enhance the capacity of the existing CHP to meet the demanded production level. From this CHP, coal is being dispatched to different destinations by Rail, Road and Arial rope way.

Presently coal from MNG OCP-II is being brought to KCHP through belt from in pit crushers provided. Coal is crushed to -200mm size and through different streams, coal is conveyed to Rapid Loading System via 21000 Tonne capacity reclaim bunker for rail dispatch, to Pre-Weigh Bin bunker for road dispatch and to Heavy Water Plant bunker for dispatch through Arial rope way.

It is proposed to shift the crushers to the new location in the later years for transport of coal directly from quarry to Kondapur CHP.

vii. Resource optimization / recycling and reuse envisaged in the Project, if any, should be briefly outlined.

Resources like Explosives, Diesel Oil, Machinery, Land, Power and Water are fully optimized to minimize unnecessary losses during the process of excavation and supply of coal to the customers.

As the coal mining process does not involve any chemical process, the excess pumping water will be useful for supply for domestic purpose, drinking and irrigation to nearby fields. The effluents from workshop and township is proposed to treat in ETPs and STPs respectively and waste water will be utilized for watering plantations, parks, lawns, gardens and for spraying arrangement for dust control, etc.

Excess water, Let out from the mine is being treated in settling tanks and used for agriculture purpose.

viii. Availability of water, its source, Energy / Power requirement and source should be given

- The water produced in the mine during mining activity is collected at identified sumps and is pumped to surface by means of suitable capacity of pumps. The water is treated in slow sand filters followed by disinfections before it is utilized for drinking, washing, bathing etc. The water required for industrial purpose such as washing, spraying, etc. is also met from the pumped out water.

- The source of power for the project is from 132/33 KV sub-station, Manuguru. This sub-station is having sufficient spare capacity to meet the power requirement of expansion project also. 2Nos. of 33KV feeders are already feeding power to this project from 132/33KV substation and they will meet the future requirement also. The power requirement for this project is about 10.92 MVA.

ix. Quantity of wastes to be generated (liquid/solid) and scheme for their Disposal

The project involves the excavation of coal from the earth crust. During the process of excavation, the superincumbent strata required to be removed and dumped in the earmarked sites as a solid waste. The wastes in the form of solid & liquid are being generated during mining activity.

Solid waste

As per the FR of MANUGURU OC-II EXPANSION PROJECT, the total coal to be extracted is 264.20 Mt and OB to be removed is 1929.75 M.Cum with a stripping ratio of 7.30 Cum/T.

A total quantity of 1929.75 M.Cu.m of overburden (1911.13 M.Cu.m hard OB + 18.620 M.Cu.m topsoil) is generated during the life of the project. 682.63 M.cu.m (36%) will be dumped in external dump yard and 1228.50 M.Cu.m (64%) will be back-filled in to the de-coaled area of the quarry.

A total of 18.62 M.Cum of Top soil is produced during the project life. Adequate care has been taken to preserve the Top soil in temporary dump yards (during the initial period of Quarry operation) and spread over the dumps in the later part.

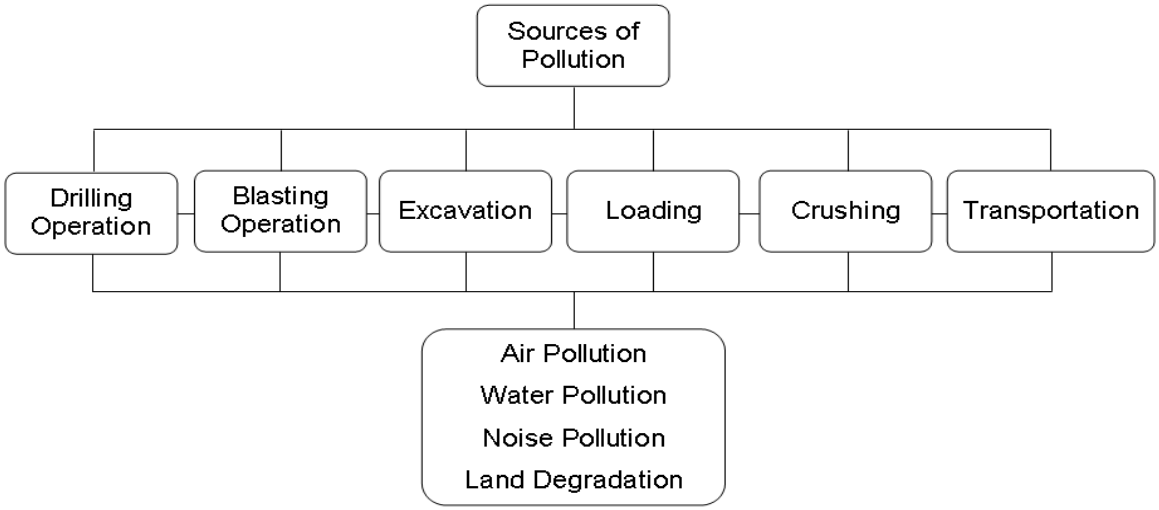
A total quantity of 121.38 M.Cu.m of overburden (120.10 M.Cu.m hard OB + 1.28 M.Cu.m topsoil) was already excavated. Hard OB was dumped in external dump yard and top soil was preserved at temporary storage yard.

Liquid waste

The liquid waste generated in the mine like used engine oil, used gear oil, used brake oils and other lubricants are stored in separate tins/drums/cans and sent to main stores for disposal to APPCB authorized recyclers.

x. Schematic representations of the feasibility drawing which gives information of EIA purpose

Schematic diagram showing the activities involved in the existing project which are potential source for Air Pollution, Water Pollution, Noise, Land degradation and impact on other environmental attributes are given under:



4. SITE ANALYSIS:

i. Connectivity

The nearest railhead to this project is Manuguru Railway Station which is at a distance of 7 Km. This Railway Station is connected to Bhadrachalam Road Railway Station by a 55 Km long track which is also meant for coal transport. The block is well connected with state capital Hyderabad (347 Km) and the district head quarters Khammam (142 Km.) by road.

ii. Land form, Land use and Land ownership

No additional land is required for the present expansion proposal of the project. The land requirement for the existing project ownership wise is given below:

Land Ownership details over mine take area (in Hectares):

(i) Forest land : 2673.70 Ha
(ii) Non- forest land : 532.06 Ha
(iii) Total mine take area : 3205.76 Ha

The total land requirement for the project is 3205.76 Ha (for the life of 45 years). Presently 1071.74 Ha of land is under the possession of SCCL. The land use pattern of the total required area is as follows:

Sl.No	Land use pattern	Area in Ha
1	Forest Land	2673.70
2	Agricultural land	277.99
3	Water bodies	26.00
4	Grazing land	111.76
5	Waste land	8.71
6	Government Land	77.60
7	Habitat	30.00
	Total land required for the Mine	3205.76

iii. Topography (along with map)

Physiography

The area is an undulatory terrain dotted with hillocks and adjacent sand patches that are imperfectly drained. The topographic elevation of the block varies from 92 m above MSL to 113 m above MSL, with a gradient of 9.3 m /km towards North.

In this block, thick sandy soil cover of 1 to 6 m overlies the weathered zone. The coal bearing Barakar formation trends East-West with northerly dips of 7^0 to 10^0.

DRAINAGE

The block area is drained by Gorrepeta Vagu, an ephemeral tributary of Godavari River, flowing towards northeast. Gorrepeta Vagu was planned for diversion along the periphery of the MNG OCP-II Expansion project. The design and alignment for diversion is being firmed up in consultation with Irrigation department. Thus, the extent of area required for diversion and the cost of diversion are tentative and may have to be revised after obtaining approval from Irrigation department. The proposed length of diversion is 16.69 Km at an estimated cost of about Rs 80.00 Crores. The high flood level of this stream is 805 m.

iv. Existing land use pattern (agriculture, non -agriculture, forest, water bodies(including area under CRZ)),shortest distances from the periphery of the project to periphery of the forests, national park, wild life sanctuary, eco sensitive areas, water bodies(distance from the HFL of the river).In case of industrial area, a copy of the Gazette notification should be given.

The total land requirement for the project is 3205.76 Ha (forest land – 2673.70 Ha, non-forest land- 532.06 Ha). The land requirement for the Project upto 45 years and Land presently under the possession of SCCL is as follows:

Land Requirement/Under possession Details (Area in Hectares)

Particulars	Total Land requirement			Land under SCCL Possession		
	Forest	Non-Forest	Total	Forest	Non Forest	Total
Quarry area	1305.20	121.54	1426.74	662.69	16.30	678.99
OB dumps	807.83	262.23	1070.06	219.74	56.06	275.8
Safe barrier, drainage, protection bund etc	174.75	59.01	233.76	36.71	3.07	39.78
Service buildings, railway sidings, CHP, etc	103.86	2.17	106.03	75.00	2.17	77.17
Vagu Diversion	281.81	85.32	367.13	--	--	--
Diversion of Road	0.25	1.79	2.04	--	--	--
Total	**2673.70**	**532.06**	**3205.76**	**994.14**	**77.60**	**1071.74**

This land will be acquired in phases as per requirement.

Note: *The Land requirement Plan of the area is shown in* ***Plate No: III***

MANUGURU OC-II EXPANSION PROJECT does not fall under Costal Regulation Zone (CRZ) area. Kinnerasani wild life sanctuary exists within Buffer Zone of the project. The project area is not comes under industrial area. Major part of the project falls under the Burgampad Reserve Forest.

v. Existing Infrastructure

The fallowing infrastructure existing in the mine is used for excavation and transportation of coal.

- Office buildings/Service buildings
- Pumps of different HP & Head
- HEMM of different capacities
- Different capacities of electrical equipments.
- Source of power and existing substation
- Connecting road and communication systems
- Belt structures for transport of coal from In-pit to CHP
- CHP and Railway siding to CHP

vi. Soil classification

To assess the baseline soil quality characteristics in the study region, 4 soil samples were collected during March, 2006 within a depth of 1m and analyzed. The analysis results show that the soils are conducible for the growth of different species, which are commonly found in nature.

vii. Climatic data from secondary sources

Micro-Meteorological Data

The onsite meteorological data viz. wind speed, direction, temperature, rainfall and relative humidity were monitored continuously during study period.

December and January are the coolest months of the year, while June to October is rainy months. Nearly 85% of the annual rainfall is received during the SW monsoon. May is the hottest month of the year. The maximum and minimum temperatures range from 35^0 – 46^0 C and 15^0 - 25^0 C respectively. The average relative humidity of 64% may reach up to 80% during the rainy season.

Climate

The area experiences a typical tropical climate, with three distinct seasons - a hot summer from February to June with occasional thunder showers; a good rainy season between July and October; and a pleasant winter between November and January.

Rainfall

An analysis of the daily rainfall data monitored at Manuguru from 1963 to 2006 indicates that the annual rainfall varies widely from 797.20mm (2002) to 1887.3 mm (1983) with a mean of 1340.6 mm. The maximum daily rainfall is 277.0 mm and the max. monthly rainfall is 1030.0 mm (July 1976).

viii. Social Infrastructure available

The mining activities in the proposed project area are being carried out since 1985. The social infrastructure in terms of connectivity by road and rail, communication, health, sanitation, community centers, education, financial institutions, income source, etc. are well established. Infrastructure facilities were fully developed in the area. SCCL has constructed quarters for residential accommodation of the employees employed in the mine. Other facilities provided were:

- Well connected to District and State head quarters.
- Power supply network and communication network
- Hospital for necessary medical aid with specialist doctors
- Acute Medical cases referred to Super specialty hospitals by the company
- Clubs for social interactions and recreation
- Bank facility and ATM counters
- Schools for providing necessary education
- Parks for recreation
- Necessary market facilities and shops
- Provision of Super bazaar
- Supply of free LPG
- Provision of petrol through Company petrol bunk
- Sports & Cultural activities
- Encouraging Horticulture
- Promoting skills of women of the colonies through Singareni Seva Samithi
- Development of surrounding habitat through SHAPE funds

5. PLANNING BRIEF:

i. Planning concept (type of industries, facilities, transportation etc) Town and country planning / Development authority classification

Reserves in the MANUGURU OC-II EXPANSION PROJECT AREA:

The balance coal reserves and overburden to be removed and the stripping ratio, up to 420m depth of floor of Index seam are as follows:

Particulars	Details
Mineable Reserves (Mt)	244.78 MT
Overburden (M.Cu.m)	1808.37 M. Cum
Stripping Ratio (Cu.m/T)	7.39

Details of coal seams

The detailed exploration in MANUGURU OC-II EXPANSION Block has proved the existence of twelve coal horizons viz. I, H-1, H-2, B-1, B-2, H-2, H-3, H-4(Top), H-4 (Bottom), Thick Seam (Top), Thick Seam (Combined), Thick Seam (Bottom) and Index Seams in descending order. B-1, B-2 and Horizon-4 are thin coal bands having thickness of 0.75m .Horizon 4 was again split into two thin seams. Thick seam was split in to three horizons namely top, bottom and combined sections. The sequence of coal seams is furnished in the Table below:

Description	Usual thickness	Geological Reserves in MT	Mineable Reserves in MT	GCV in (Kcal/Kg)	Grade
1seam	3.4	27	26.1	3219	G-14
Parting	110.38				
H1Seam	1.51	19.06	16.09	3609	G-13
Parting	7.12				
B1 Seam	0.99	12.01	4.49	3610	G-13
Parting	6.08				
B2Seam	0.79	9.86	7.1	4070	G-11
Parting	10.27				
H2 Seam	2.86	38.59	37.96	4104	G-11
Parting	12.51				
H3 Seam	3.35	44.27	39.66	4249	G-11
Parting	8.75				
H4 Top	1.03	13.05	9.17	4994	G-8
Parting	4.23				
H4 Bottom	0.78	8.85	7.31	4729	G-9
Parting	8.68				
T S Top	3.35	10.4	87.75	5542	G-6
Parting	6.59				
TS Bottom	4.97	14.91	7.23	6553	G-3
TS(Comb)	15	133.88	9.92	5937	G-5
Parting	10				
Index Seam	1.23	13	11.43	5522	G-6
Total		**344.88**	**264.2**	**4722**	**G-9**

Rated capacity and life of the project:

The peak production capacity of the project is proposed to be enhanced from 5.00 Mtpa to 6.25 Mtpa. The total life of the project is 45 years. Balance life as on 1.4.2013 is 40 years.

Calendar Programme of Excavation:

The rated capacity of 6.25 Mtpa of ROM coal is proposed to be achieved during the first year of mining operations itself i.e. 2013-14 and will be maintained till 2051-52. The production Schedules pertaining to MANUGURU OC-II EXPANSION PROJECT area (for balance area to be excavated from 2013-14 onwards up to 25 years of life) are as follows:

a) Total mineable coal **:** 244.78 Mt (156.25 Mt up to 25 years of life)

b) Total overburden **:** 1808.37 M.Cum.(1035.04 M.Cum up to 25 yr life)

YEAR WISE MINING SCHEDULE MANUGURU OC-II EXPANSION

Quantities	Financial Year	Year	Coal in MT	OB in M.Cum	SR Cum/T
Excavated Quantities	Upto 2012-13		19.42	121.38	6.25
Balance Quantities	2013-14	1	6.25	26.75	4.28
	2014-15	2	6.25	27.45	4.39
	2015-16	3	6.25	29.78	4.76
	2016-17	4	6.25	34.79	5.57
	2017-18	5	6.25	35.00	5.60
	2018-19	6	6.25	34.78	5.56
	2019-20	7	6.25	37.09	5.93
	2020-21	8	6.25	40.51	6.48
	2021-22	9	6.25	42.41	6.79
	2022-23	10	6.25	43.15	6.90
	2023-24	11	6.25	42.51	6.80
	2024-25	12	6.25	45.03	7.20
	2025-26	13	6.25	46.69	7.47
	2026-27	14	6.25	39.99	6.40
	2027-28	15	6.25	40.19	6.43
	2028-29	16	6.25	41.81	6.69
	2029-30	17	6.25	43.07	6.89
	2030-31	18	6.25	44.39	7.10
	2031-32	19	6.25	45.53	7.28
	2032-33	20	6.25	46.71	7.47
	2033-34	21	6.25	47.67	7.63
	2034-35	22	6.25	48.62	7.78
	2035-36	23	6.25	49.60	7.94
	2036-37	24	6.25	50.33	8.05
	2037-38	25	6.25	51.18	8.19
Sub Total (for 25 years life of Exp. Project)			156.25	1035.04	6.62
After 25 years upto 45th year			88.53	773.33	8.74
Grand Total			**264.20**	**1929.75**	**7.30**

Method of work:

It is proposed to extract the coal by open cast method with shovel dumper combination in the proposed expansion project.

Mechanisation:
It is proposed to extract/excavate the coal and overburden in MANUGURU OC-II EXPANSION PROJECT with Shovel-Dumper combination.

Equipment deployment:

The Main HEMM projected is as follows:

Sl No.	***Description***	***Existing***
A	***Coal*****	
1	6.5 Cum Diesel Hydraulic Shovel	2
2	60 T Dumpers	15
3	150 mm Drill	4
4	410 HP Dozers	3
	Over Burden	
B	***By hiring of HEMM including drilling****	
1	3-3.5 Cu.m. Diesel Hyd. Backhoe	10
2	16 Cum trucks	75
3	10 KL Water tankers	4
4	320 HP Dozers	6
5	Motor Grader	2
C	***By departmental HEMM*****	
1	12 Cum Diesel Hyd. Shovel	1
2	10 Cu.m Electric Rope Shovels	6
3	3-3.5 Cu.m. Diesel Hyd. Backhoe	4
4	35 T Rear Dumpers	39
5	85 T Rear Dumpers	12
6	100 T Rear Dumpers	57
7	410 HP Dozers	7
8	Motor Grader	7
9	28 KL Water sprinklers	9

* It is proposed to remove over and above capacity of departmental OB removal by hiring of HEMM including drilling.
** The production capacities of the HEMM were increased by better utilization of its performance levels.

CONSTRUCTION AND DEMOLITION WORKS

With the commencement of MANUGURU OC-II EXPANSION PROJECT, existing infrastructure facilities like service buildings, work shop, Office buildings and Sub-stations etc will serve this expansion project. No further construction or demolition of structures is required.

WASTE MANAGEMENT

Dumping Strategy:

Background

During the process of coal extraction, overlying strata consisting of topsoil and sedimentary rock formation shall be removed separately as overburden. Solid waste mainly consists of overburden material obtained during mining operations at different stages and a negligible quantity of shale/rejects separated from the excavated coal.

Design criteria:

Sequential mining suited for achieving the objective of placing maximum possible OB in the internal dumps. Thus external dump quantities from this pit will be minimized.
The following design criteria have been considered for waste dumps.

i. Separate spoil dumps for Top soil and other OB.
ii. Maximum height of Top soil dump will be 10 meters.
iii. Main OB to be dumped in 30 m high decks.
iv. 30 m berm width for allowing safe transport.
v. Dump slope for each deck to be at 37 ½ ^{0} and overall slope at 25.64 ^{0}.
vi. Track Dozers will be deployed for shaping the dumps
vii. Maximum height of External dump yard is 120m above ground level.

Dump Yards:

A total quantity of 1929.75 M.Cu.m of overburden (1911.13 M.Cu.m hard OB + 18.62 M.Cu.m topsoil) is generated during the life of the project will be dumped in the following different dump yards.

i. East side External dump yard.
ii. West side External dump yard.
iii. North side External dump yard.
iv. Internal dump yard.
v. Temporary storage dump yard for top soil.

Out of 1911.13 M.Cu.m of hard OB, a 682.63 M.cu.m (36%) will be dumped in external dumpsite and a total quantity of 1228.50 M.Cu.m (64%) will be dumped directly back-filled in to the de-coaled area of the quarry.

A total quantity of 121.38 M.Cu.m of overburden (120.10 M.Cu.m hard OB + 1.28 M.Cu.m topsoil) was generated till now and hard OB was dumped in external dump yard, and top soil was preserved at temporary storage yard.

Topsoil:

A total of 18.62 M.Cu.m. of Top soil is produced in the life of the project. Adequate care has been taken to preserve the Top soil in temporary dump yards (during the initial period of Quarry operation) and spread over the dumps in the later part. Initially, the Top soil is preserved at the following places:

1) As a protection bund around the quarry.
2) On the top of the West external dump yard
3) In the North west corner of the pit

Since most of the land in the vicinity of the Project is forest land and in order to prevent degradation of forest, one of the Top soil dumps is located on the top of West external dump yard. Top soil of 1.24 M.Cu.m. is stored on the top of the West external dump yard from 2nd year to 5th year on the 90m deck. The Top soil will be preserved upto 15th year. The preserved Top soil of 1.24 M.Cum. will be spread on the finished dumps between 16th year and 20th year. Meanwhile, another Top soil dump of 0.66 M.Cum. will be formed on the West external dump yard on the finished 120m deck between 16th and

20th year. The total quantity of Top soil in the West Top soil dump by the end of 25th year will be 1.95 M.Cum.

Top soil is preserved in the North West dump from 6th year onwards. The total quantity of Top soil in the West Top soil dump by the end of 25th year will be 3.95 M.Cum. The total area occupied by the Top soil dump is 49.84 Ha.

Whatever topsoil produced throughout the life of the project is either spread over external, internal dumps or stored as a protective bund, temporary dump yards.

Final Void

Total requirement of land for MANUGURU OC-II EXPANSION PROJECT is 3205.76 Ha which consists of 1426.74 Ha of surface excavation area. As a result of phase-wise reclamation programme of the project, an area of 616.84 Ha of land will be reclaimed at mine closure stage. A total final void of 809.90 Ha up to a depth of 45m will be converted as water reservoir.

ii. Population projection

The average daily attendance required to achieve the rated production of 6.25 Mtpa is estimated to be 1211 excluding area level. After considering absenteeism towards authorized leave, sick etc., the men on roll for the project is 1515 excluding Area level. Contractor manpower is not considered. The average daily production is 19670 tonnes. The planned O.M.S. is 13.00 tonnes at 100% performance level.

iii. Land use planning (breakup along with green belt etc)

Total requirement of land for MANUGURU OC-II EXPANSION PROJECT is 3205.76 Ha which consists of 1426.74 Ha of surface excavation area. As a result of phase-wise reclamation programme of the project, an area of 616.84 Ha of land will be reclaimed at mine closure stage. A total void of 809.90 Ha up to a depth of 45 m will be left over at the end of mining operations. The void left over in excavated pits can be utilized as potential water body by the surrounding villages. The external OB dump and internal OB dump above ground level will be stabilized and completely afforested at the end of mining operations.

At the end of mining operations, the end land use status of the proposed project is furnished hereunder.

Land in Hactares

Description	Land Requirement	Reclaimed area	Void/water body	Changed land use
Quarry area	1426.70	616.80	809.90	--
External dump yards	1070.10	1070.10	--	--
Safe barrier and Drainage along Quarry & External Dump Area	233.76	138.42	--	95.34
Service Buildings	106.03	--	--	106.03
Nallah Diversion & Bund	367.13	136.46	230.67	--
Diversion of road	2.04	--	--	2.04
Total area	3205.76	1961.78	1040.57	203.41

Note: *The Initial stage, Final stage and Mine Closure stage Plans are enclosed as* ***Plate IV to VI***

iv. Assessment of infrastructure demand (Physical & Social)

The proposed project is planned to develop in the existing coal belt of the company and well established infrastructure such as road, rail, railway siding, CHP, Township, communication, power supply arrangements, etc. are available.

v. Amenities/Facilities

The facilities are provided to the persons connected to mining operation whether direct or indirect are:

Residential quarters, Rest shelters for taking rest, Canteen facilities at subsidized rates, Washing/bathing facilities, provision of motor cycle/Cycle sheds, provision of drinking water points, sanitation facilities, first aid and medical facilities etc.

6. PROPOSED INFRASTRUCTURE

i. Industrial area (Processing area)

The existing office buildings, workshops and CHP will be catering the needs for proposed expansion project.

ii. Residential area (Non processing area)

No additional township is required for the envisaged proposal. The existing township is sufficient to cater the needs of persons employed in the mine.

iii. Green belt (Plantation details)

Description	Plantation Area
Quarry area (Internal Dump)	616.80
External Dump Area	1070.1
Safe barrier and Drainage along Quarry & External Dump Area	138.42
Nallah Diversion & Bund along Nallah	136.46
Total Plantation area	1961.78

iv. Social Infrastructure

Social Infrastructure available in the area will cater the needs of the employees working in the mine. No additional social infrastructure is proposed in the project.

v. Connectivity(Traffic and transportation road/ Rail/Metro/ Water ways etc)

A well established coal handling plant (Kondapuram CHP) with a capacity of 8.0 Mtpa already exists to meet the total coal dispatches of Manuguru area. From this CHP, coal is being dispatched to different destinations by Rail, Road and Arial rope way.

Presently coal from MNG OCP-II is being brought to KCHP through belt from in pit crushers, coal is crushed to -200mm size and through different belt streams, coal is conveyed to Rapid Loading System via 21000 Tonne capacity reclaim bunker for rail dispatch, to Pre-Weigh Bin bunker for road dispatch and to Heavy Water Plant bunker for dispatch through Arial rope way.

vi. Drinking water management (Source and Supply of water)

The water collected at identified sumps is pumped to surface by means of suitable capacity of pumps. The water is pumped to filter bed on surface and after treatment it is used for drinking purpose.

vii. Sewerage system

The sewage water is being treated in septic tank followed by soak pit.

viii. Industrial waste management

The major effluent source is mine water pumped out from the mine, which is being let out into natural streams after removal of suspended solids. The other source of concern would be the domestic and service building effluents. The domestic effluent is being treated in septic tank followed by soak pits.

In the coal extraction process, coal-containing impurities such as shale or sometimes sandstone are being transported to the coal handling plant. There, the shale and sand stone is being picked out manually. This solid waste is in the form of lumps.

The solid waste from the townships is being collected from the collection bins and tricycles provided by SCCL. The domestic solid waste collected is being transported to the disposal sites of SCCL. The solid waste disposal sites are identified in the low-lying areas, over burden dumps and subsidence areas of SCCL. Hence, no appreciable impact is anticipated due to disposal of solid wastes.

There is no problem for collection, handling and transport of solid wastes and there will not be any subsequent pollution of air, water and soil due to disposal or reuse of solid wastes.

ix. Solid waste management

The following design criteria have been considered for waste dumps.

i. Separate spoil dumps for Top soil and other OB.
ii. Maximum height of Top soil dump will be 10 meters.
iii. Main OB to be dumped in 30 m high decks.
iv. 30 m berm width for allowing safe transport.
v. Dump slope for each deck to be at 37 ½ ^{0} and overall slope at 25.64 ^{0}.
vi. Track Dozers will be deployed for shaping the dumps
vii. Maximum height of External dump yard is 120m above ground level

The quantity of overburden generation in this Opencast will be as follows:

Quantities	Financial Year	Year	OB in M.Cum
Excavated Quantities	Upto 2012-13		121.38
Balance Quantities	2013-14	1	26.75
	2014-15	2	27.45
	2015-16	3	29.78
	2016-17	4	34.79

Quantities	Financial Year	Year	OB in M.Cum
	2017-18	5	35.00
	2018-19	6	34.78
	2019-20	7	37.09
	2020-21	8	40.51
	2021-22	9	42.41
	2022-23	10	43.15
	2023-24	11	42.51
	2024-25	12	45.03
	2025-26	13	46.69
	2026-27	14	39.99
	2027-28	15	40.19
	2028-29	16	41.81
	2029-30	17	43.07
	2030-31	18	44.39
	2031-32	19	45.53
	2032-33	20	46.71
	2033-34	21	47.67
	2034-35	22	48.62
	2035-36	23	49.60
	2036-37	24	50.33
	2037-38	25	51.18
Sub Total (for 25 years life of Exp. Project)			1035.04
After 25th year upto 45th year			773.33
Grand total			**1929.75**

x. Power requirement & supply / source

The source of power for the project is from 132/33 KV sub-station, Manuguru. This sub-station is having sufficient spare capacity to meet the power requirement of EXPANSION project also. 2Nos. of 33KV feeders are already feeding power to this project from 132/33KV substation and they will meet the future requirement also. The power requirement for this project is about 10.92 MVA.

7. REHABILITATION AND RESETTLEMENT (R&R) PLAN:

MANUGURU OC-II EXPANSION PROJECT is an operating Mine. The total land requirement for the project is 3205.76 Ha (forest land – 2673.70 Ha, non-forest land-532.06 Ha). The life of project is 45 years. The total land will be acquired in phased manner as per requirement. Out of the above 1071.74 Ha of land was already acquired.

Nearly 3Nos of villages, namely Srinagapuram (50), Shantinagar (208), and Gollakotturulu (72) involving 330 PAFs and 55 land oustees are to be rehabilitated within 10 years of the project commencement. Socio economic enjoyment survey will be done by the district in-charge at the time of land acquisition the actual will be paid by the SCCL.

8. PROJECT SCHEDULE & COST ESTIMATES:

i. Likely date of start of construction and likely date of completion (Time schedule for the project to be given)

The project is already operating opencast mine and proposed to enhance its peak production capacity from 5.00 Mtpa to 6.25 Mtpa. The rated output in the first year i.e 2013-14 is 6.25 Mtpa and the project completes in the first year itself.

9. ANALYSIS OF PROPOSAL (FINAL RECOMMENDATION):

Financial and social benefits with special emphasis on the benefit to the local people including tribal population, if any, in the area.

IMPROVEMENT IN PHYSICAL INFRASTRUCTURE

This project is located in the Khammam district of Andhra Pradesh. The project is also located in an area where communications and other facilities are well established. The following physical infrastructure facilities will further improve due to proposed project.

- Road Transport facilities
- Communications
- Housing facilities
- Water supply and sanitation
- Power
- Medical, Educational and social benefits will be made available to the nearby civilian population in addition to the workmen employed in the project.

IMPROVEMENT IN SOCIAL INFRASTRUCTURE

Coal mining and agriculture is the basic sector of employment for the local people in this area. This project leads to indirect employment opportunity. Employment is expected during civil construction period, in trade, garbage lifting, sanitation and other ancillary services, Employment in these sectors is primarily temporary or contractual and involvement of unskilled labor is more. A major part of this labor force is mainly from local villagers who are expected to engage themselves both in agriculture and project activities. This will enhance their income and lead to overall economic growth of the area.

The following changes in socio-economic status are expected to take place with this project.

(i) The project is having a strong positive employment and income effect, both direct as well as indirect. Migrant - non-migrant ratio will shift towards migrant side because a number of people will migrate towards the central region of study circle in the years to come. This will happen because of better indirect employment opportunities due to this project.

(ii) The project is going to have positive impact on consumption behaviors by way of raising average consumption and income through multiplier effect.

(iii) The project is going to bring about changes in the pattern of demand from food to non-food items and sufficient income is generated.

(iv) People perceive that the project will help in the development of social infrastructures / such as.

- Education facilities
- Banking facilities
- Post offices and Communication facilities
- Medical facilities
- Recreation facilities
- Business establishments & Community facilities
- Plantation and parks

OTHER TANGIBLE BENEFITS

The proposed Expansion of MANUGURU OC-II EXPANSION PROJECT is likely to have other tangible benefits as given below.

(i) Indirect employment opportunities to local people in contractual works like housing construction, transportation, sanitation, for supply of goods and services to the project and other community services.

(ii) Additional housing demand for rental accommodation will increase.

(iii) Market and business establishment facilities will also increase.

(iv) Cultural, recreation and aesthetic facilities will also improve.

(v) Improvement in communication, transport, education, community development and medical facilities.

(vi) Overall change in employment and income opportunity.

(vii) The State Government will also benefit directly from the proposed project, through increased revenue from royalties, excise duty and etc.

JUSTIFICATION

- Opencast method is a safe method of mining compared to underground method.
- The development of coalfield will provide better social and economic life to the area. It will also give a boost to the industrial activity in the area and help in creating national wealth.
- In order to meet the ever increasing coal demand, it is essential to enhance the production. The project will contribute 6.25 Mt of coal per annum.
- This project enables extraction of 244.78 Mt of coal (as on 1.4.2013).
- Thin seams, which are not amenable for extraction by underground method, can now be extracted by opencast method.

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Addendum EIA/EMP

ADDENDUM TO ENVIRONMENTAL IMPACT ASSESSMENT / ENVIRONMENT MANAGEMENT PLAN

1. Introduction

Manuguru Opencast-II Project was started in the year 1990 with a production capacity of 1.25 MTPA in the mining lease area of 900 Ha. Accordingly Environmental Clearance was obtained from Ministry of Environment and Forests vide No.J-11015/6/84/ENV.5/IA-II dated 06.07.1990. Subsequently, during the 2008, the project was proposed to expand to dip side of the project and also amalgamating adjacent MNG OC-III project in the Mining Lease area of 3205.76 Ha with a peak production capacity of 5.00 MTPA under the name of Manuguru Opencast-II Expansion Project and accorded Environmental Clearance from MoEF vide J-11015/114/2007-IA.II (M) dated 31.07.2008. The project attained its peak production capacity from 2012-13.

Presently SCCL is producing 53.00 MTPA against demand of 57.50 MTPA. The gap between demand and supply is 4.5 MTPA. As per the working group of Ministry of Coal, Government of India, the gap will become 16.50 MTPA in the region by the terminal year of 12th Five Year Plan (i.e. 2016-17) even after taking up new projects. In order to reduce the gap between demand and supply, SCCL proposed to enhance the production from potential existing mines.

In light of the of above, the potentiality for increase in the production capacity in the existing Manuguru Opencast-II Expansion project is examined.

Hence, it is proposed to increase the peak production capacity of Manuguru Opencast-II Expansion Project from 5.00 MTPA to 6.25 MTPA without lateral expansion in Mining Lease area.

2. Purpose of the report

The present expansion proposal attract the provisions of clause 7(ii) of EIA Notification 2006 vide SO 1533, dated 14.9.2006 and subsequent amendments vide SO 3067 dated 1.12.2009.

The present proposal is for one time capacity expansion for 25% in the existing operations by capacity utilization of the existing equipment without lateral expansion in mining lease area and public hearing was conducted earlier as a process of obtaining EC. Hence it is proposed to obtain Environmental Clearance for one time capacity expansion under the provisions of Office memorandum vide J-11015/30/2004.IA.II (M), dated 19.12.2012.

In this connection, addendum to the earlier EIA/EMP addressing the environmental issues of increase in the production is presented hereunder.

3. Compliance of guidelines envisaged in OM dated 19.12.2012.

Condition	Status of Compliance
Exemption would be considered for those expansion projects which have obtained prior EC and have undergone Public Hearing during the process of obtaining EC	Obtained EC under the EIA Notification, 2006 and conducted Public hearing on 28.08.2007
Proposal is for one time capacity expansion of up to 25% in the existing coal mining operation	First time only
There is no additional mine lease area involved	No additional mine lease area involved in the present proposal
Application for the expansion project shall include a certified report of the Regional Office of the MoEF on the issues of compliance of EC conditions stipulated for the existing project for which EC for the expansion is being sought and necessary action taken there upon by the EAC, in terms of the MoEF Circular No. J-l 1011/618/2010- IA.II (l) dated 30.5.2012.	Certified report of the Regional Office of the MoEF on the issues of compliance of EC conditions stipulated for the existing project is enclosed. (F.No.EP/12.1/715/AP,dated 3.07.2013)
Details of the court cases, if any, pending in any Court of Law against the project as well as directions passed by any Court relating to the project shall be furnished by the proponent directly to the Environment Appraisal Committee (EAC). The EAC will deliberate upon the same and the gist of the discussion will be reflected in the minutes of the EAC meeting.	Nil
Details of notices, if any, issued to the project under Section 5 of the Environment (Protection) Act, 1986 will be reported by the proponent directly to the EAC. The EAC will deliberate upon the same and the gist	Nil

of the discussion will be reflected in the minutes of the EAC meeting.	
If the project falls in a Critically Polluted Area (CPA) wherein the moratorium has been lifted, the EAC shall examine the measures required to be implemented by the project proponent under the Environment Action Plan prepared by the State Pollution Control Board concerned and status of their implementation. In such cases, the EAC shall also examine the monitoring data furnished by the project proponent of the environmental quality of the study area/CPA in which the project falls and after due diligence, decide if any additional mitigative measures are required for the expansion.	This Project does not fall under Critically Polluted Area (CPA)
25% expansion in production capacity is subject to a ceiling of 2 MTPA of additional production where the transportation of the additional production is proposed by road and of 5 MTPA of additional production if such transportation is proposed by means of a conveyor and/or rail transport.	Expansion from 5.00 MTPA to 6.25 MTPA and coal transportation is proposed through railway. Hence the expansion in production capacity is within the threshold limits specified.

All the conditions stipulated under Office memorandum vide J-11015/30/2004.IA.II (M), dated 19.12.2012 were fulfilled.

4. Present environmental status

Pre-mining environmental scenario in respect of Air, Water, Soil, Noise, land and Biological Environment addressed in the earlier EMP. The post project environmental monitoring is being carried during October 2012 to March 2013 in respect of Air Quality, Water Quality, Noise levels, Vehicular emission, Phreatic surface and Land use study through satellite imagery, etc., are presented herewith for assessment of present level of environment in and around the project site.

4.1 Post- project environmental monitoring

Monitoring Agency: The Singareni Collieries Company Limited (SCCL) entrusted work of Post Project Environmental Monitoring to Environmental Protection Training and Research Institute (EPTRI), Hyderabad which is MoEF and NABL accredited laboratory.

Study Area: Core zone (Project area) and Buffer zone (10 Km from the project boundary)

Monitoring Period: October 2012 to March 2013

Attributes, Parameters and Frequency of monitoring:

Sl. No	Activity	Parameters to be Monitored	Sampling period, frequency & measurement method	No. of stations
1	**Air Environment** **A.** Micro-Meteorological Study	i) Wind Speed ii) Wind direction iii) Air Temperature iv) Relative Humidity v) Rainfall	**Sampling period:** October 2012 to March 2013 **Frequency:** Hourly observations **Measurement Method:** As per IMD Specifications	One
	B. Ambient Air Quality (AAQ) monitoring in Core and Buffer Zone	**Particulate Matter (PM)** i) Particulate Matter <10µ (PM_{10}) ii) Particulate matter <2.5µ ($PM_{2.5}$) **Gaseous Pollutants (GP**) i) Sulphur Dioxide (SO_2) ii) Oxides of Nitrogen (NO_2)	**Sampling period:** 24 hourly sample for Particulate Matter (PM) and 8 hourly samples for Gaseous Pollutants and averaged for 24 hours. **Frequency:** Once in Fortnight **Measurement Method:** PM_{10}**:** Gravimetric (High-volume sampler) $PM_{2.5}$**:** Gravimetric (Fine Dust sampler) SO_2**:** EPA modified West & Geake method. NO_2**:** Arsenate modified Jacob - Hochheiser method.	Four
	C. Characteristics of coal	Presence of Heavy Metals including levels of Hg, As, Pb, Cr etc.	**Frequency:** Once in six months	One
2	**Water Environment** A. Ground Water Quality	All the parameters as prescribed by CPCB in the Guidelines issued for Water	**Frequency:** Once in 3 months **Sampling method**: Grab sample	Five

Sl. No	Activity	Parameters to be Monitored	Sampling period, frequency & measurement method	No. of stations
		Quality Monitoring, vide MINARS/27/2007-08, in respect of Ground Water samples		
	B. Surface Water Quality	All the parameters as prescribed by CPCB in the Guidelines issued for Water Quality Monitoring, vide MINARS/27/2007-08, in respect of Surface Water samples.	**Frequency:** Once in 3 months **Sampling method**: Grab sample.	Four
	C. Effluents	a. pH b. Total Suspended Solids (TSS) c. Chemical Oxygen Demand (COD) d. Oil and Grease (O&G)	**Sampling period:** October 2012 to March 2013 **Frequency:** Once in fortnight	Four
	D. Phreatic Surface levels	Depth to water	a) **Frequency:** Once in a season **Measurement Method:** Piezometer / water level indicator	Six (Piezometric)
3	**Noise**	Recording of Leq noise levels for day time (6.00 AM-10.00 PM) and night time (10.00 PM - 6.00 AM))	**Sampling Period:** Hourly equivalent noise levels L_{eq}, L_{eq}(Day) and L_{eq}(Night) for one day in a season. **Frequency:** Once in fortnight **Measurement Method:** Precision Integrated Micro Computer Sound level meter	Three
4	**Land Environment** **A.** Land Use Pattern	The land use / land cover classification as per Annexure-2 of EIA Guidance Manual-Mining of Minerals, issued by MoEF.	**Frequency:** Once in three years **Measurement Method:** The land use / land cover study using recent satellite imagery	Core & buffer zone

4.2 Micro-meteorological Study:

Automatic Micro-meteorological station was installed at General Manager Office, Manuguru Area. The summary of the monitoring from Dec 2012 to Feb 2013 as follows:

Sl. No.	Parameter	Min.	Max.	Mean
1.	Temperature (^{0}C)	12.9	40.9	26.33
2.	Wind Speed (Km/hr)	0	16	2.45
3.	Relative Humidity (%)	8.5	100	63.32
4	Predominant Wind direction for the entire study period	North		
5	Total rainfall (mm)	250		

Rainfall

An analysis of the daily rainfall data monitored at Manuguru from 1963 to 2011 indicates that the annual rainfall varies widely from 797.20mm (2002) to 1887.3 mm (1983) with a mean of 1340.6 mm. The maximum daily rainfall is 277.0 mm and the max. monthly rainfall is 1030.0 mm (July 1976).

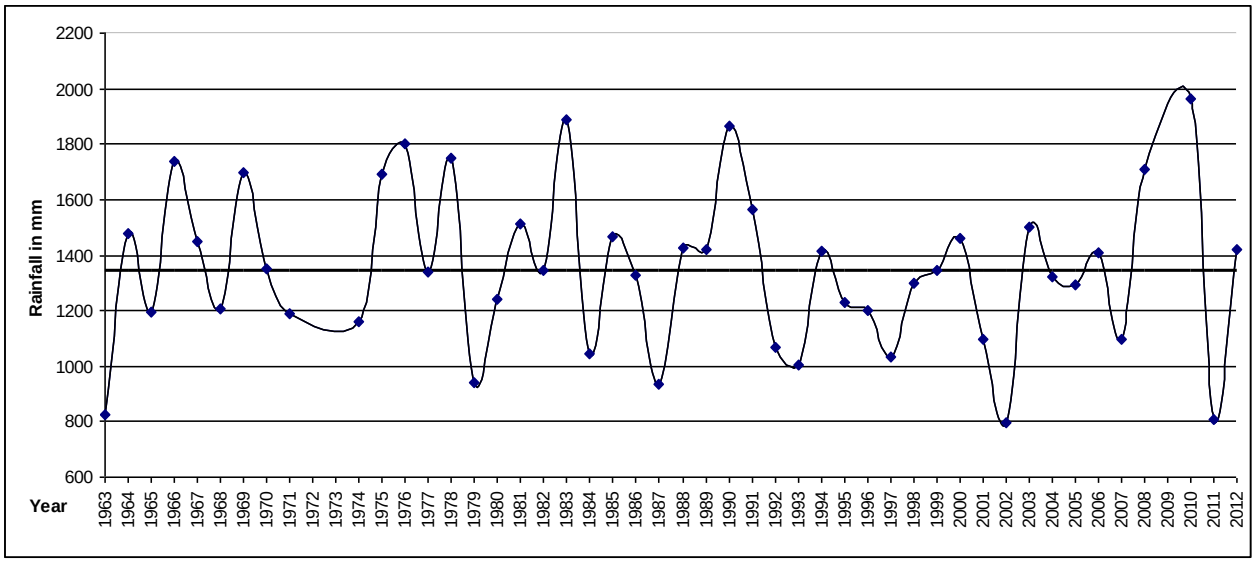
Rainfall Data – Manuguru Area

Station: Manuguru (in millimeters)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1963	0.0	0.0	0.0	0.0	0.0	207.1	305.7	211.6	91.8	10.4	0.0	0.0	826.6
1964	0.0	0.0	0.0	0.0	15.4	289.4	241.5	407.8	420.3	100.9	0.0	0.0	1475.3
1965	0.0	0.0	43.2	54.0	0.0	153.6	552.6	178.2	178.7	0.0	0.0	35.6	1195.9
1966	48.3	0.0	0.0	5.0	0.0	103.9	655.2	376.0	416.9	63.0	12.7	55.9	1736.9
1967	0.0	0.0	63.3	22.9	0.0	284.2	528.6	406.0	61.3	24.6	0.0	58.4	1449.3
1968	48.3	14.0	10.2	30.4	5.1	90.7	347.8	149.7	238.2	221.4	50.8	0.0	1206.6
1969	0.0	0.0	0.0	5.3	114.3	164.5	600.3	240.2	369.8	85.6	45.2	73.9	1699.1
1970	12.6	0.0	0.0	0.0	67.7	310.0	237.1	457.4	264.4	0.0	0.0	0.0	1349.2
1971	23.0	27.9	0.0	12.4	34.0	276.4	344.8	195.2	104.8	173.4	0.0	0.0	1191.9
1974	0.0	0.0	0.0	0.0	0.0	194.0	203.5	329.9	175.7	234.0	23.0	0.0	1160.1
1975	0.0	0.0	0.0	0.0	63.0	260.6	396.7	302.0	505.3	166.0	0.0	0.0	1693.6
1976	0.0	0.0	0.0	40.0	50.0	98.0	1030.0	277.2	222.9	0.0	81.0	0.0	1799.1
1977	0.0	0.0	0.0	33.0	111.8	197.1	452.0	285.0	116.0	43.0	92.0	10.0	1339.9
1978	5.0	0.0	0.0	49.0	0.0	353.0	522.4	649.9	98.0	20.0	50.0	0.0	1747.3
1979	0.0	65.0	0.0	19.0	12.0	237.5	153.3	155.8	226.1	47.0	27.8	0.0	943.5
1980	0.0	0.0	16.9	0.0	18.8	247.5	471.0	328.2	143.6	10.4	0.0	5.3	1241.7
1981	0.0	0.0	100.2	0.0	28.4	128.4	463.1	445.8	317.9	26.0	0.0	0.0	1509.8
1982	0.0	1.2	6.6	13.0	27.0	192.0	281.4	568.6	144.2	105.8	4.6	0.0	1344.4
1983	0.0	27.1	0.0	15.4	10.6	281.4	403.6	541.2	375.2	232.8	0.0	0.0	1887.3
1984	28.0	0.0	0.0	0.0	0.0	193.8	396.2	186.3	204.7	34.2	0.0	0.0	1043.2
1985	0.0	0.0	0.0	67.0	52.0	145.0	308.7	623.5	91.5	176.5	0.0	0.0	1464.2
1986	45.0	61.6	0.0	0.0	23.4	130.6	360.8	507.0	134.0	39.6	0.0	26.4	1328.4
1987	0.0	0.0	0.0	0.0	0.0	95.1	353.6	205.2	154.2	96.4	29.6	0.0	934.1
1988	0.0	0.0	0.0	46.5	63.6	86.2	836.8	125.0	203.5	63.5	0.0	0.0	1425.1
1989	0.0	0.0	41.6	5.8	57.8	246.6	454.2	291.3	283.9	35.0	4.2	0.0	1420.4
1990	9.0	55.0	158.2	0.0	393.5	170.4	311.4	357.1	160.6	235.8	11.5	0.0	1862.5
1991	41.0	0.0	0.0	40.0	21.2	329.3	514.6	321.9	178.7	17.8	100.1	0.0	1564.6
1992	49.0	20.0	0.0	0.0	12.0	195.3	351.7	318.6	90.0	4.2	24.4	0.0	1065.2
1993	0.0	0.0	0.0	0.0	40.5	83.2	438.8	132.9	261.2	45.2	0.0	0.0	1001.8
1994	0.0	0.0	0.0	59.3	47.0	138.4	527.3	335.7	97.0	161.1	50.8	0.0	1416.6
1995	35.6	0.0	0.0	30.4	48.0	73.9	405.5	254.2	204.3	175.1	0.0	0.0	1227.0
1996	0.0	0.0	0.0	80.4	25.0	257.2	234.7	336.5	187.8	63.8	13.4	0.0	1198.8
1997	32.1	5.0	0.0	116.0	0.0	38.3	205.3	400.5	148.6	23.3	49.0	13.0	1031.1
1998	10.0	53.0	0.0	25.5	10.5	85.4	419.9	234.2	283.5	147.8	29.8	0.0	1299.6
1999	0.0	0.0	0.0	0.0	173.7	173.9	346.8	319.7	257.8	61.4	9.8	0.0	1343.1
2000	0.0	0.0	0.0	0.0	0.0	227.6	404.2	720.0	40.8	38.8	0.0	29.2	1460.6
2001	0.0	0.0	0.0	23.4	14.8	159.8	313.6	240.4	147.1	197.5	0.0	0.0	1096.6
2002	30.8	0.0	0.0	48.2	19.8	138.2	77.6	367.4	67.0	48.2	0.0	0.0	797.2
2003	0.0	0.0	0.0	0.0	0.0	189.6	459.2	496.8	165.4	128.4	0.0	59.6	1499.0
2004	18.0	12.6	5.2	57.2	21.4	168.0	339.0	523.0	110.0	69.2	0.0	0.0	1323.6
2005	0.0	10.8	0.0	12.8	47.0	62.8	410.6	220.2	499.0	52.4	0.0	0.0	1315.6
2006	0.0	0.0	50.2	50.2	160.6	148.2	214.0	474.0	233.8	13.0	63.8	0.0	1407.8
2007	0.0	10.2	0.0	20.6	12.4	199.0	180.0	295.4	281.4	99.0	0.0	0.0	1098.0
2008	0.0	18.6	81.0	1.2	14.0	245.6	344.8	698.0	227.4	62.8	13.2	0.0	1706.6
2009	0.0	0.0	0.0	20.2	30.6	53.8	206.0	213.8	112.6	92.0	22.2	0.0	751.2
2010	59.4	25.1	0	26.8	139.2	420	485.4	335.2	330.8	53.6	40.8	49	1965.3
2011	0	14.1	5.8	5.8	83.4	30.2	142	269.8	140.6	113.6	0	0	805.3
Mean	10.5	9.0	12.4	22.1	44.0	182.0	387.5	347.0	207.8	83.3	18.1	8.9	1332.6

(Source: India Meteorological department)

Annual Rainfall data plot



4.3 Ambient Air Quality

The ambient air quality has been monitored in core zone and buffer zone. The parameters monitored were Particulate Matter (PM_{10}), Particulate Matter ($PM_{2.5}$) and Gaseous parameters viz., Oxides of Nitrogen (as NO_2), Sulphur dioxide (SO_2). The data collected in core zone is compared with MoEF coal mine standards as per GSR 742(E), dt. 25.09.2000 whereas the data collected in buffer zone is compared with NAAQ Standards, CPCB, dt. 18.11.2009. The locations are presented in **Table-3.3.1** and summery of AAQM is presented in **Tables- 3.3.2.**

Table:-3.2.1: Ambient Air Quality Monitoring Stations in the project study area

Code	Name of the Location	Zone	Direction	Distance	Latitude	Longitude
CA1	Manuguru OC-II Extn.Site Office	Core	--	--	N 17° 56' 17.3"	E 80° 46' 27.3"
CA2	Manuguru OC-II Extn.B.W.S	Core	N	1.5 Km	N 17° 56' 19.2"	E 80° 46' 40.9"
CA3	KCHP	Core	S	2.0 Km	N 17° 56' 05.1"	E 80° 46' 23.0"
CA4	MNG OC-IV Field Sub-Station	Core	--	--	N 17° 56' 17.3"	E 80° 46' 27.3"
BA1	Pagideru Village	Buffer	NW	5.0 Km	N 17° 58' 15.6"	E 80° 43' 56.3"
BA 2	Shantinagar	Buffer	NW	4.6 Km	N 17° 57' 54.0"	E 80° 44' 11.3"
BA 3	Bugga	Buffer	SW	4.0 Km	N 17° 55' 00.6"	E 80° 43' 18.2"
BA 4	P.V.Colony	Buffer	SE	3.5 Km	N 17° 54' 27.0"	E 80° 48' 05.1"
BA 5	Kunavaram	Buffer	SE	2.8 Km	N 17° 55' 05.8"	E 80° 47' 53.6"

Table – 3.3.2: Summary of Ambient Air Quality

Station Code	Location	PM_{10}			
		Min.	Max.	Ave	Standard
CA1	Manuguru OC-II Extn.Site Office	63	163	126.08	250
CA2	Manuguru OC-II Extn.B.W.S	97	183	139.75	250
CA3	KCHP	155	252	193.33	250
CA4	MNG OC-IV Field Sub-Station	102	180	140.57	250
BA1	Pagideru Village	50	89	69.25	100
BA 2	Shantinagar	53	94	72.66	100
BA 3	Bugga	43	70	61.77	100
BA 4	P.V.Colony	52	91	71.83	100
BA 5	Kunavaram	59	103	76.16	100
Station Code	Location	$PM_{2.5}$			
		Min.	Max.	Ave	Standard
CA1	Manuguru OC-II Extn.Site Office	11.2	60.5	47.28	NS
CA2	Manuguru OC-II Extn.B.W.S	35.9	62.5	50.4	60
CA3	KCHP	54.2	79.2	68.13	60
CA4	MNG OC-IV Field Sub-Station	41.7	66.7	49.35	60
BA1	Pagideru Village	25.3	46.1	37.24	60
BA 2	Shantinagar	25	45.6	37.05	60
BA 3	Bugga	22.6	36.8	31.43	60
BA 4	P.V.Colony	24.7	49.2	38.00	60
BA 5	Kunavaram	30.1	49.4	39.02	60
Station Code		SO_2			
		Min.	Max.	Ave	Standard
CA1	Manuguru OC-II Extn.Site Office	12.1	19.1	13.63	120
CA2	Manuguru OC-II Extn.B.W.S	12.5	19.1	13.68	120
CA3	KCHP	12.3	17.8	13.82	120
CA4	MNG OC-IV Field Sub-Station	12.5	14.3	12.88	120
BA1	Pagideru Village	9.8	13.8	11.46	80
BA 2	Shantinagar	9.5	12.8	11.40	80
BA 3	Bugga	10.1	15.3	11.66	80
BA 4	P.V.Colony	9.8	12.7	10.78	80
BA 5	Kunavaram	10.3	14.1	11.41	80
Station Code	Location	NO_x			
		Min.	Max.	Ave	STD
CA1	Manuguru OC-II Extn.Site Office	18.6	25	22.26	120

CA2	Manuguru OC-II Extn.B.W.S	18	37.3	21.77	120
CA3	KCHP	14.3	25.1	22.00	120
CA4	MNG OC-IV Field Sub-Station	23.9	19.4	20.98	120
BA1	Pagideru Village	13.3	26.7	15.11	80
BA 2	Shantinagar	11.6	16.9	14.15	80
BA 3	Bugga	12.8	19.4	15.32	80
BA 4	P.V.Colony	12.6	18.9	14.7	80
BA 5	Kunavaram	13.1	20.7	15.3	80

The monitoring reveals that dust concentrations are within the prescribed limits except at Kunavaram Village where main source of dust is reported from Katcha Roads. Necessary steps will be taken for the controlling the dust by asphalting of roads under CSR scheme.

4.4 Water quality

The impact of the ongoing mining project on the water environment was assessed by studying the quality of groundwater, surface water and effluent quality in the study area. The sampling locations were selected considering their proximity to the project sites. Water samples comprising of mine water discharge, OB dump run off, ETP outlet, Colony effluent, surface water and groundwater were collected and analyzed for various physico-chemical and bacteriological parameters.

The details of sampling locations are given **Tables 3.4.1** and the analytical results are presented in **Tables 3.4.2 to 3.4.4.**

Table 3.4.1: Water Sampling Locations

Sampling code	Sampling Location	Latitude	Longitude	Remarks
SW1	Up Stream of gorripeta Vagu	N 15˚56'08.4"	E 80˚33'01.6"	Surface water
SW2	Downstream of Gorripeta Vagu	N 17˚58'31.9"	E 80˚47'33.4"	Surface water
SW3	Up stream of Godavari river	N 18˚00'34.8"	E 80˚47'12.9"	Surface water
SW4	Downstream of Godavari river	N 17˚57'13.7"	E 80˚52'01.1"	Surface water
GW1	Bore well at Sivalingapuram	N 17˚57'06.9"	E 80˚49'11.3"	Ground water
GW2	Bore well at Kamalapuram	N 17˚56'53.9"	E 80˚51'14.8"	Ground water
GW3	Bore well at Pagaderu	N 17˚58'20.7"	E 80˚43'50.1"	Ground water
GW4	Bore well at Santhinagar	N 17˚58'19.7"	E 80˚43'49.7"	Ground water

Monitoring data

Table 3.4.2: Physico-chemical and bacteriological characteristics of surface water

Sampling Period: Grab sampling on 01.02.2013

Sl. No.	Parameters	Units	SW1	SW2	CPCB Water criteria		
					Class –A	Class-B	Class-C
1.	pH	--	7.9	7.9	6.5-8.5	6.5-8.5	6.5-9.0
2.	Temperature	°C	25.2	25.2	--	--	--
3.	Conductivity	μmhos/cm	1700	1700	--	--	--
4.	Turbidity	NTU	0.09	0.09	--	--	--
5.	Chlorides as Cl	mg/l	74	74	--	--	--
6.	Nitrites as NO_2	mg/l	0.032	0.032	--	--	--
7.	Total Coli forms	MPN/100	110	110	50 or less	500 or less	5000 or less
8.	Feacal Coli form	MPN/100	33	33	--	--	--
9.	E. Coli	MPN/100	<1.8	<1.8	--	--	--
10.	Odour	TON	No odour	No odour	--	--	--
11.	Dissolved Oxygen	mg/l	6.2	6.2	6	5	4
12.	BOD(3 days at 27^0 C)	mg O_2/l	BDL	BDL	2	3	3
13.	Colour	Pt-co	10	05	--	--	--
14.	Nitrate as NO_3	mg/l	0.376	0.405	--	--	--
15.	Ammonical Nitrogen as NH_3-N	mg/l	BDL	BDL	--	--	--
16.	TSS at 105°C	mg/l	8	12	--	--	--
17	Total phosphates	mg/l	BDL	BDL	--	--	--
18	COD	mg/l	10	8	--	--	--
19	Oil & Grease	mg/ l	<1	<1	--	--	--

Sampling Period: Grab sampling on 01.02.2013

Sl. No.	Parameters	Units	SW3	SW4	CPCB Water criteria		
					Class –A	Class-B	Class-C
1.	pH	--	7.7	7.9	6.5-8.5	6.5-8.5	6.5-9.0
2.	Temperature	°C	25.1	25.3	--	--	--
3.	Conductivity	μmhos/cm	548	1180	--	--	--
4.	Turbidity	NTU	2.8	1.6	--	--	--
5.	Chlorides as Cl	mg/l	31	96	--	--	--
6.	Nitrites as NO_2	mg/l	0.15	0.025	--	--	--
7.	Total Coli forms	MPN/100	140	110	50 or less	500 or less	5000 or less
8.	Feacal Coli form	MPN/100	94	33	--	--	--
9.	E. Coli	MPN/100	Present	<1.8	--	--	--
10.	Odour	TON	No odour	No odour	--	--	--
11.	Dissolved Oxygen	mg/l	6.0	6.2	6	5	4
12.	BOD(3 days at 27^0 C)	mg O_2/l	BDL	BDL	2	3	3
13.	Colour	Pt-co	20	10	--	--	--
14.	Nitrate as NO_3	mg/l	0.970	0.453	--	--	--
15.	Ammonical Nitrogen as NH_3-N	mg/l	BDL	BDL	--	--	--
16.	TSS at 105°C	mg/l	14	24	--	--	--
17	Total phosphates	mg/l	BDL	BDL	--	--	--
18	COD	mg/l	10	8	--	--	--
19	Oil & Grease	mg/ l	<1	<1	--	--	--

Table 3.4.3: Physico-chemical and bacteriological characteristics of Ground water

Sampling Period: Grab sampling on 01.02.2013

Sl. No.	Parameters	Units	GW1	GW2	GW3	GW4	10500 Permissible limits
1.	pH	-	8.1	8.3	7.5	7.0	6.5 to 8.5
2.	Temperature	^oC	25.1	25.1	25.3	25.2	--
3.	Electrical Conductivity	µmhos /cm	2000	530	1080	2600	--
4.	Turbidity	NTU	1.02	0.09	0.09	1.06	5
5.	Total Hardness as $CaCO_3$	mg/L	318	40	318	641	600
6.	Chlorides as Cl^-	mg/L	257	60	115	608	1000
7.	Fluoride as F^-	mg/L	3.12	1.01	0.317	0.718	1.5
8.	Total Dissolved Solids at 180^o C	mg/L	1220	330	730	1680	2000
9.	Calcium as Ca	mg/L	53	10	91	138	200
10.	Magnesium as Mg	mg/L	45	4.0	22	72	100
11.	Sulphates as SO_4^{2-}	mg/L	101	16	71	210	400
12.	Nitrates as NO_3	mg/L	20	4.9	21.3	63	45
13.	Nitrites as NO_2	mg/L	0.638	0.075	0.023	0.658	--
14.	Phenolic compounds as C_6H_5OH	mg/L	BDL	BDL	BDL	BDL	0.002
15.	Mercury as Hg	µg/L	BDL	BDL	BDL	BDL	0.001
16.	Cyanide as CN-	mg/L	BDL	BDL	BDL	BDL	**0.05**
17	Total Alkalinity as $CaCO_3$	mg/L	578	160	369	529	600
18	Hexavalent Chromium as Cr^{+6}	mg/L	BDL	BDL	BDL	BDL	-----
19	Boron as B	mg/L	0.06	BDL	0.02	0.04	1.0
20	Iron as Fe	mg/L	BDL	0.04	0.04	0.03	0.3
21	Copper as Cu	mg/L	BDL	BDL	BDL	BDL	1.5
22	Manganese as Mn	mg/L	BDL	BDL	BDL	BDL	0.3
23	Cadmium as Cd	mg/L	BDL	BDL	BDL	BDL	0.003
24	Selenium as Se	mg/L	BDL	BDL	BDL	BDL	0.01
25	Arsenic as As	mg/L	BDL	BDL	BDL	BDL	0.05
26	Lead as Pb	mg/L	BDL	BDL	BDL	BDL	0.01
27	Zinc as Zn	mg/L	BDL	BDL	0.06	BDL	15
28	Aluminium as Al	mg/L	BDL	BDL	BDL	BDL	0.2
29	Chromium as Cr	mg/L	BDL	BDL	BDL	BDL	0.05
30	Nickel as Ni	mg/L	BDL	BDL	BDL	BDL	0.02
31	Pesticides:	µg/L	ND	ND	ND	ND	0.001
	2,4-D, Carboryl (Carbonate) Malathion Methyl Parathion Anilophos, Chloropyriphos	Qualitative analysis	ND	ND	ND	ND	0.001
32	Total Coliform	MPN /100	<1.8	<1.8	<1.8	<1.8	--
33	Faecal Coliform	MPN /100	<1.8	<1.8	<1.8	<1.8	--
34	E. Coli	MPN/ 100	<1.8	<1.8	<1.8	<1.8	--
35	Colour	Pt-co-	<5	<5	<5	<5	15
36	Odour	TON	Nil	Nil	Nil	Nil	Agreeable
37	Taste	FTN	Nil	Nil	Nil	Nil	Agreeable
38	Residual free chlorine	mg/L	BDL	BDL	BDL	BDL	1.0
39	Orthophosphates	mg/L	BDL	BDL	BDL	BDL	--
40	Anionic Detergents (as MBAS)	mg/L	<0.2	<0.2	<0.2	<0.2	1.0
41	Mineral Oil	mg/L	Absent	Absent	Absent	Absent	0.5
42	Chemical Oxygen Demand	mg/L	10	8	12	10	--

43	Polyaromatic Hydrocarbons (PAH's):	mg/L	ND	ND	ND	ND	--

Table 3.4.4: Effluent quality monitoring data

Location	P^H			
	Min.	Max.	Average	Standard
Mine discharge	7.5	8	7.75	5.5 to 9.0
Base workshop ETP outlet	7.7	8.3	8.05	5.5 to 9.0
OB dump surface runoff-settling tank outlet*	4.2	7.9	7.05	5.5 to 9.0
MNG Area Colony effluent	6.9	7.6	7.21	5.5 to 9.0
Area Hospital effluent	6.8	7.2	6.98	5.5 to 9.0
Location	TSS (mg/l)			
	Min.	Max.	Average	Standard
Mine discharge	10	44	20.83	100
Base workshop ETP outlet	10	20	15.77	100
OB dump surface runoff-settling tank outlet*	10	30	22.33	100
MNG Area Colony effluent	8	22	15	100
Area Hospital effluent	10	62	28.66	100
Location	COD (mg/l)			
	Min.	Max.	Average	Standard
Mine discharge	24	44	30.25	250
Base workshop ETP outlet	22	34	28.86	250
OB dump surface runoff-settling tank outlet*	24	34	28.33	250
MNG Area Colony effluent	28	58	41.83	250
Area Hospital effluent	22	84	43	250
Location	Oil & Grease (mg/l)			
	Min.	Max.	Average	Standard
Mine discharge	<1	<1	<1	10
Base workshop ETP outlet	1.0	1.9	1.56	10
OB dump surface runoff-settling tank outlet*	<1	<1	<1	10
MNG Area Colony effluent	1.0	1.8	1.38	10
Area Hospital effluent	<1	1.2	1.2	10

4.5 Noise levels

The ambient noise levels are being monitored in the project area to assess the impact of mining on surrounding environment. The following sampling locations have been selected in and around the project area for monitoring of noise levels as shown in **Table no. 3.5.1.**

Table No.3.5.1: Noise Level Monitoring Locations

Sampling code	Sampling Location	Latitude	Longitude	Remarks
CN1	MNG OC-II EXT site office	N 17° 56' 17.3"	E 80° 46' 27.3"	Core Zone
CN2	MNG OC-II EXT Base Workshop	N 17° 56' 19.2"	E 80° 46' 40.9"	Core Zone
CN3	Kondapur CHP	N 17° 56' 05.1"	E 80° 46' 23.0"	Core Zone
BN1	Pagaderu Village	N 17° 58' 15.6"	E 80° 43' 56.3"	Buffer Zone
BN2	Bugga Village	N 17° 55' 00.6"	E 80° 43' 18.2"	Buffer Zone

BN3	PV Colony	N 17° 54' 27.0"	E 80° 48' 05.1"	Buffer Zone

Noise level data

The noise levels are recorded on hourly basis, and the data is used to compute L_{day} and L_{night} values. The noise level data monitored at the identified locations is presented in **Table no. 3.5.2.**

Table: 3.5.2: Summery of Noise monitoring

Sampling code	Location	Day Time (L_{day})			
		Min.	Max.	Avg.	Standard
CN1	MNG OC-II EXT site office	57.9	71.3	65.6	75
CN2	MNG OC-II EXT Base Workshop	61.6	70.1	66.73	75
CN3	Kondapur CHP	60.3	70.4	66.0	75
BN1	Pagaderu Village	40.1	53.8	45.45	55
BN2	Bugga Village	40.7	49.7	45.04	55
BN3	PV Colony	39.7	49.9	46.46	55
Sampling code	Location	Night Time (L_{night})			
		Min.	Max.	Avg.	Standard
CN1	MNG OC-II EXT site office	41.5	63.9	53.14	70
CN2	MNG OC-II EXT Base Workshop	41.0	59.1	49.17	70
CN3	Kondapur CHP	53.9	68.3	57.10	70
BN1	Pagaderu Village	29.2	45.5	36.27	45
BN2	Bugga Village	32.5	38.8	35.07	45
BN3	PV Colony	29.5	42.6	36.1	45

The noise level data indicates that the Leq values monitored during daytime & night time are found to be within limits as stipulated under Noise Pollution (Regulation and Control) Rules, 2000.

4.6 Attitude of Phreatic Surface:

Piezometric Well No.	Location	Depth (m)	Dia (m)	Period	Depth to water (m)						
					2007	2008	2009	2010	2011	2012	2013
MNG_PW-1	About 200m north of northern boundary of quarry	30	0.10	Winter	12.08	14.00	14.25	16.42	AB		
				Pre-monsoon	13.40	14.59	14.57	NA	AB		
				Monsoon	13.89	12.33	15.41	NA	AB		
				Post-monsoon	13.22	12.33	15.48	15.53	AB		
MNG_PW-2	About 165m SE of southeastern side of quarry in the MCOA club premises.	30	0.10	Winter	2.29	2.47	2.68	2.94	3.93		
				Pre-monsoon	2.37	1.95	2.63	2.71	3.93		
				Monsoon	1.37	2.31	2.05	2.80	NR		
				Post-monsoon	1.85	2.37	2.82	3.68	NR		
MNG_PW-3	About410m SE of southeastern side of quarry,in the Bus stand premise.	30	0.10	Winter	1.64	1.42	1.92	1.53	1.35	1.06	
				Pre-monsoon	1.79	1.34	1.71	1.72	1.70	1.42	
				Monsoon	0.90	0.92	0.84	0.75	0.84		
				Post-monsoon	0.98	1.06	1.62	1.10	0.94		
MNG_PW-4	About 300m north of the northern boundary of the	50	0.10	Winter	25.80	25.71	26.05				
				Pre-monsoon	26.77						

	quarry			Monsoon	26.96						
				Post-monsoon	25.98						
MNG_PW-5	About 500m north of northern edge of quarry and 580m due north of Bh.No 439	50	0.10	Winter	8.89	10.69	10.53	13.25			
				Pre-monsoon	10.28	11.45	11.30	NA			
				Monsoon	10.82	10.06	12.20	NA			
				Post-monsoon	10.28	9.11	12.48	12.09			
MNG_PW-6	200m Southeast of Gorripeta vagu and on the eastern side of road to Bayyaram.	375	0.10	Winter	--	16.87	NR	18.52	17.93	17.52	16.4
				Pre-monsoon	--	17.25	16.71	19.38	18.09	18.06	
				Monsoon	16.47	16.84	17.54	19.13	18.29	17.78	
				Post-monsoon	13.68	16.00	18.19	18.00	17.79	16.96	
MNG_PW-7	On the Eastern edge of the Quarry at Sammakka Temple, Tirlapuram village	50	0.10	Winter			--	8.10	5.56	5.27	4.87
				Pre-monsoon			10.10	10.15	6.00	6.37	
				Monsoon			6.80	6.75	5.59	2.67	
				Post-monsoon			6.83	5.85	4.40	2.71	
MNG_PW-8	700m North of the OC in Veternary Hospital premises,Ramanujavaram	50	0.10	Winter			--	6.68	5.97	6.35	5.88
				Pre-monsoon			7.69	8.59	7.34	7.92	
				Monsoon			6.96	4.13	6.22	3.23	
				Post-monsoon			6.91	4.56	5.51	3.43	
MNG_PW-9	Within the core zone of the OC Project in the north side, Near school at Gollakothuru Village	50	0.10	Winter			--	1.84	1.51	0.95	1.32
				Pre-monsoon			2.15	2.46	2.20	1.73	
				Monsoon			0.65	0.85	1.07	0.75	
				Post-monsoon			0.97	0.63	0.92	0.45	
MNG_PW-10	90m from NW boundary of the project at Grampanchayath office of Pagideru village	50	0.10	Winter			--	2.77	2.17	1.87	2.42
				Pre-monsoon			3.25	3.63	3.38	3.47	
				Monsoon			1.91	1.72	1.70	0.65	
				Post-monsoon			2.48	1.00	0.96	0.85	
MNG_PW-11	Within the core zone of the OC Project in the South side, Near Temple at OC-II site office	50	0.10	Winter			--	3.22	2.56	2.65	2.34
				Pre-monsoon			3.14	3.42	2.89	2.82	
				Monsoon			2.90	2.14	2.44	2.00	
				Post-monsoon			3.15	2.47	2.53	2.10	
MNG_PW-12	100m distance from Southern boundary of the project at Railway track Near Kunavaram	50	0.10	Winter			--	4.12	3.79	3.57	3.17
				Pre-monsoon			4.37	4.62	4.11	3.70	
				Monsoon			3.22	1.49	3.70	2.00	
				Post-monsoon			3.75	3.37	2.91	2.37	
MNG_PW-13	PK - Incline	--	--	Winter					9.60	--	--
				Pre-monsoon					9.71	--	
				Monsoon					--	--	
				Post-monsoon					--	--	

4.7 Land use details:

Land used pattern for Core and Buffer zone of Manuguru Open Cast-II Expansion project using satellite imagery was carried during 2010-11 by JNTU.

Processing of Data: The Digital Image Processing has been performed using ERDAS Imagine software tools and Garmin 12 GPS has been used for Ground truthing.

The IRS Resourcesat2 LISS IV Multidated (Kharif and Rabi) satellite data has been geometrically corrected with respect to Survey of India Topo sheets. To carry out the geo-referencing, ground control points (GCPs) were identified on the maps and raw satellite data. The coefficients for two co-ordinate transformation equations were computed based on polynomial regression between GCPs on map and satellite data. Alternate GCPs were generated till the Root Mean Square (RMS) error was less than 0.5 pixels and then both the images were co-registered.

This IRS Resourcesat2 LISS IV Multidated (Kharif and Rabi) satellite data has been used for the Land Use Land Cover Analysis of Buffer Zone. The satellite image is analyzed digitally by the method of supervised classification with necessary Ground truthing using the reference map as well as GPS instrument.

IRS PV CARTOSAT Pan A data (of Core Zone) is geo-referenced data supplied by NRSC, Hyderabad. For better spatial resolution of multi-spectral, the satellite datasets - IRS RESOURCESAT2 LISS IV and IRS PV CARTOSAT Pan A have been merged for Core Zone to achieve better spatial resolution.

The hybrid method of Digital Interpretation and visual interpretation has been used to classify the Core Zone to achieve accuracy levels.

The coordinates of the boundary were collected using the GPS for geo-referencing the boundary, during Ground truthing phase.

Buffer zone (Kharif Season):

Satellite:	IRS RESOURCESAT2
Sensor:	LISS III
Path:	102
Row:	060
Spatial Resolution:	23.5 m
Date of pass:	13-November-2012

Buffer Zone (Rabi Season):

Satellite:	IRS RESOURCESAT2
Sensor:	LISS IV FX
Path:	102
Row:	060
Spatial Resolution:	5.8 m
Date of pass:	30-April-2013

Core Mining Area:

Satellite:	IRS PV Cartosat
Sensor:	PAN A
Path:	556
Row:	313
Date of Pass:	19-December-2012
Spatial Resolution:	2.5 m

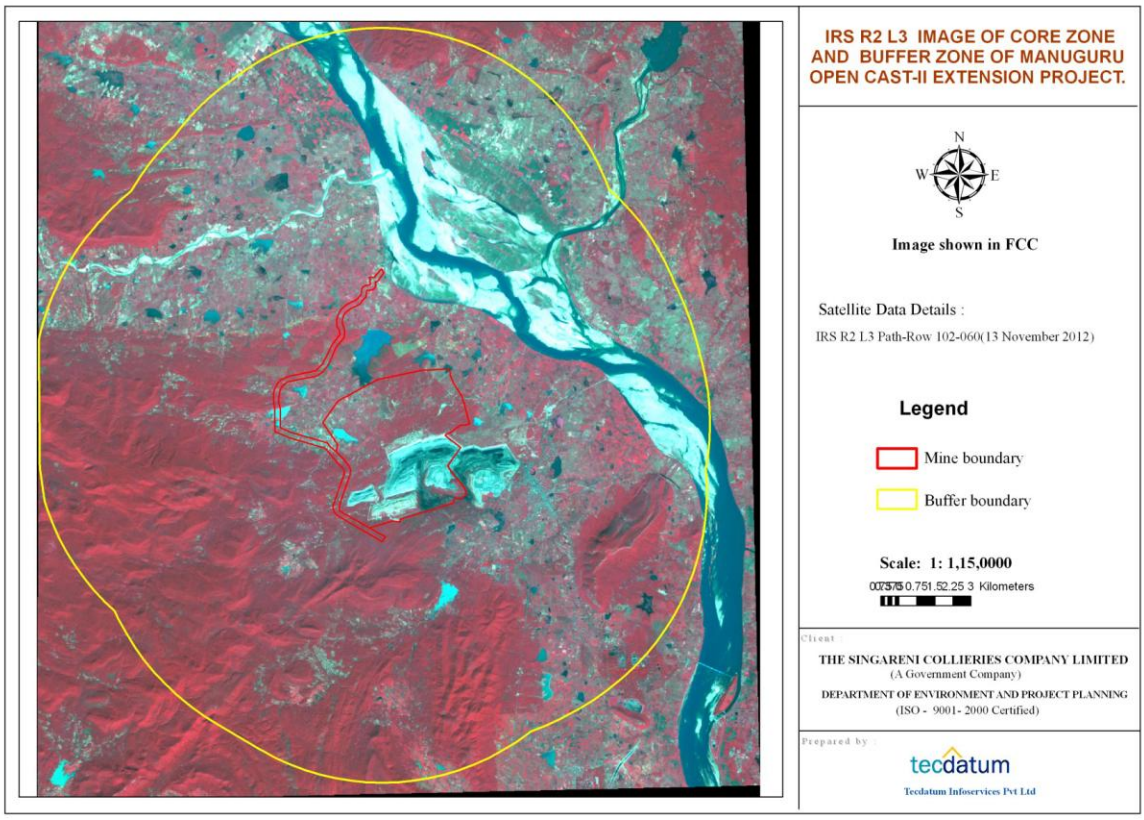


Figure: IRS R2 LISS-III Image of 13th November 2012

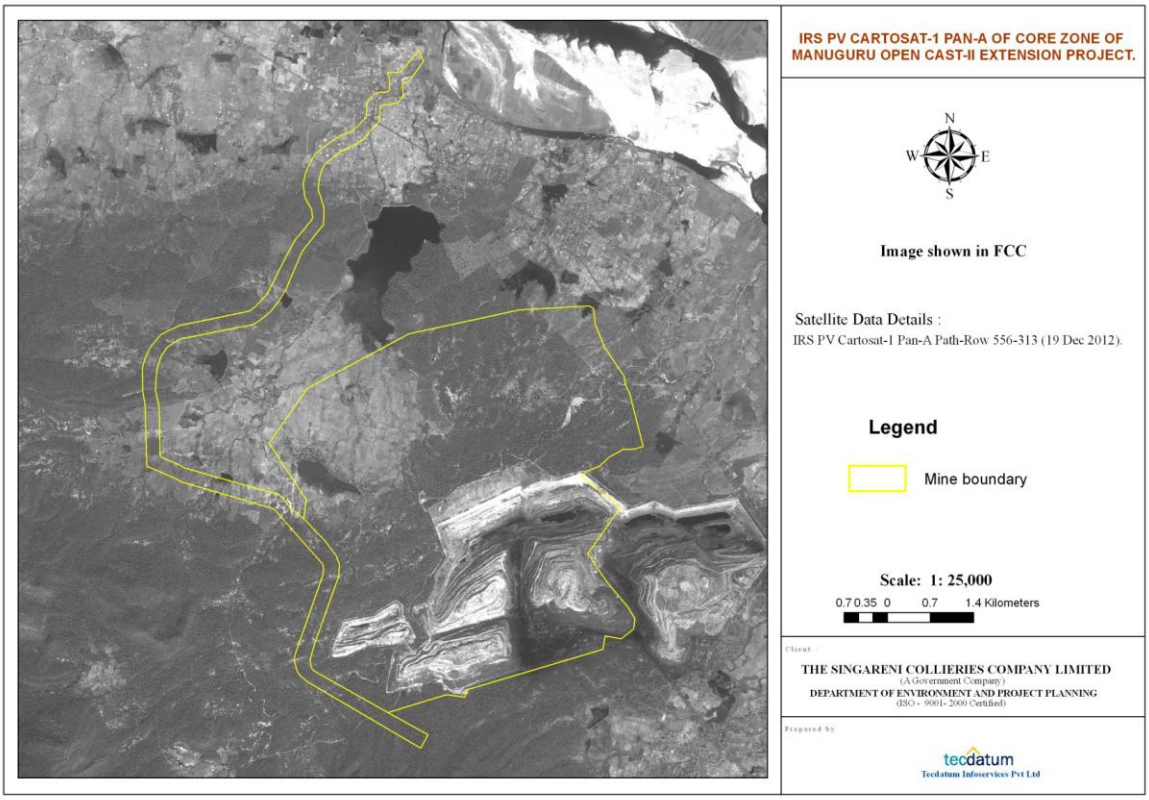


Figure: IRS PV Cartosat-I PAN Image of 19th December 2012

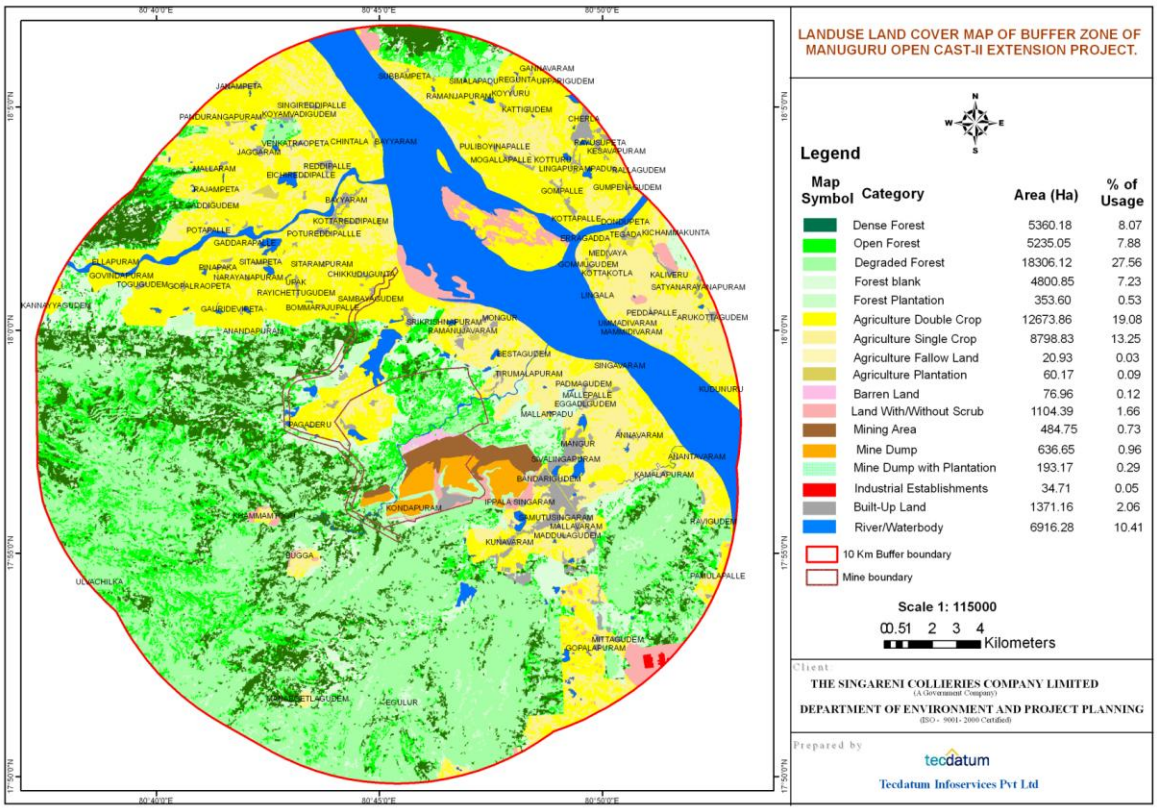


Figure: Land use Land Cover of Buffer Zone

Figure: Land use Land Cover of Core Zone

Land Use Land Cover Class		Area of Sub Class		Area of Class	
		Area in Ha	% of Usage	Area in Ha	% of Usage
Agriculture				**383.61**	**11.96**
	Crop Land	383.61	11.96		
Forest Cover				**1722.01.41**	**53.72**
	Degraded Forest	259.04	8.10		
	Open Forest	1215.17	37.90		
	Forest plantation	17.51	0.55		
	Forest Blank	230.29	7.18		
Waste Land				**111.21**	**3.71**
	Barren Land	94.61	2.95		
	Land with/ without scrub	24.60	0.76		
Others				**980.87**	**30.60**
	Mine Pit	283.91	8.85		
	Coal Dump	5.02	0.16		
	Mine Dump	316.42	9.87		
	Dump with Plantation	186.57	5.82		
	Built Up Land	76.34	2.38		
	Roads	52.31	1.63		
	River/Water Body	60.30	1.89		
Total Area		**3205.70**	**100.00**	**3205.70**	**100.00**

Table: Land use Land Cover details of Core Zone (mine lease area)

Land Use	Land Cover Class	Area of Sub Class		Area of Class	
		Area in Ha	% of Usage	Area in Ha	% of Usage
Agriculture				**21553.79**	**32.45**
	Single Crop	8798.83	13.25		
	Double Crop	12673.86	19.08		
	Fallow Land	20.93	0.03		
	Plantations	60.17	0.09		
Forest Cover				**34055.8**	**51.27**
	Dense Forest	5360.18	8.07		
	Open Forest	5235.05	7.88		
	Degraded Forest	18306.12	27.56		
	Forest Blank	4800.85	7.23		
	Forest Plantation	353.60	0.53		
Waste Land				**1181.35**	**1.78**
	Land with/ without scrub	1104.39	1.66		
	barren land	76.96	0.12		
Others				**9636.72**	**14.50**
	Industrial Area	34.71	0.05		
	Built Up Land	1371.16	2.06		
	Mining Area	484.75	0.73		
	Mine Dump	636.65	0.96		
	Mine Dump with Plantation	193.17	0.29		
	Surface Water	6916.28	10.41		
Total Area		**66427.66**		**66427.66**	**100.00**

Table: Land use Land Cover details of 10 km Buffer Zone

4.8 Characteristics of coal:

The Coal samples collected from the Manuguru OC-II Expansion analysed for Metals viz Mercury (as Hg),Chromium (as Cr), Cadmium (as Cd), Lead (as Pb), Zinc (as Zn), Iron (as Fe), Cobalt (as Co), Manganese (as Mn), Copper (as Cu), Molybdenum (as Mo), Nickel (as Ni), Vanadium (as V), Silver (as Ag), Aluminum (as Al), Arsenic (as As) and Selenium (as Se). The results are:

Sl No	Parameters	UNIT	Test method	RESULT
1	Mercury as Hg	mg/Kg	SW-7471A	BDL
2	Chromium as Cr	mg/Kg	SW-846-6010 B	11.8
3	Cadmium as Cd	mg/Kg	SW-846-6010 B	BDL
4	Lead as Pb	mg/Kg	SW-846-6010 B	8.3
5	Zinc as Zn	mg/Kg	SW-846-6010 B	50.1
6	Iron as Fe	mg/Kg	SW-846-6010 B	10013
7	Cobalt as Co	mg/Kg	SW-846-6010 B	10.4
8	Manganese as Mn	mg/Kg	SW-846-6010 B	135.7
9	Copper as Cu	mg/Kg	SW-846-6010 B	11.9
10	Molybdenum as Mo	mg/Kg	SW-846-6010 B	42
11	Nickel as Ni	mg/Kg	SW-846-6010 B	16.6
12	Vanadium as V	mg/Kg	SW-846-6010 B	13.0
13	Silver as Ag	mg/Kg	SW-846-6010 B	BDL
14	Aluminium as Al	mg/Kg	SW-846-6010 B	879
15	Arsenic as As	mg/Kg	SW-846-6010 B	BDL
16	Selenium as Se	mg/Kg	SW-846-6010 B	BDL

5. Environmental Impact Assessment & Mitigation Measures

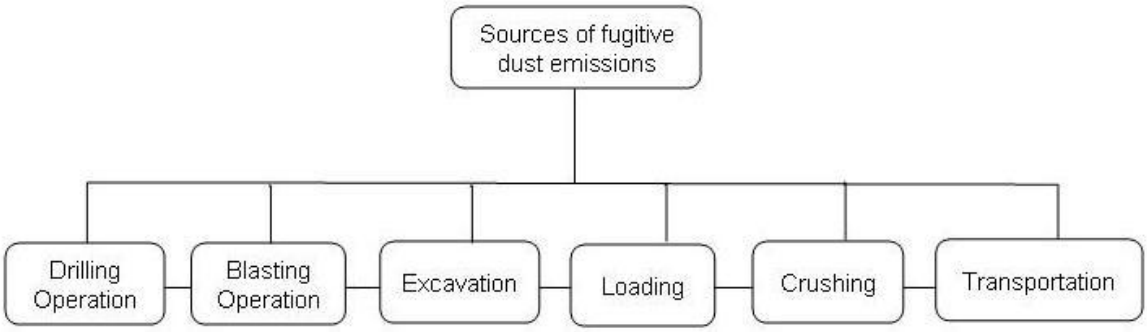
The present proposal is to increase the peak production capacity from 5.00 MTPA to 6.25 MTPA from the same mine take area of 3205.76 Ha as envisaged in the earlier EMP.

The earlier EMP was prepared considering impacts with 5.00 MTPA (peak production). The pollution impacts of coal mining activities and its allied activities of the project have been assessed for incremental production of 1.25 MTPA. The environmental Attributes like air, water, noise, flora, fauna, land resource and socio-economic aspects have been taken for impact assessment.

5.1. Impact on air quality

Considerable amount of air pollution will be caused at various stages of mining operations as shown in flow chart given hereunder –

Flow Chart showing Air Pollution at various stages



Generation of Suspended Particulate Matter (SPM) and Particulate Matter less than 10 microns (PM10) is the imperative in mining activities / operations. Most of the dust is generated from drilling, blasting, excavation, crushing and transportation operations.
The emissions from the mining operations can be estimated either by sampling or direct measurement or using emission factors. Emission factors are being widely used for estimation of emissions from the proposed mining operations.

An emission factor is a representative value that attempts to relate the quantity of pollutant released in the atmosphere with an activity associated with the release of that pollutant. These factors are usually expressed as the weight of pollutant divided by a unit weight, volume, distance or duration of the activity emitting the pollutant. The parameters that are most likely to influence the particle emissions are measure of source activity, properties of the material being disturbed and climatic parameters.

United States Environmental Protection Agency (USEPA) has developed emission factors for coal mining operation was published through AP-42 (1998), based on these emission factors National Pollution Inventory (NPI), Australian Government also developed emission factors for Suspended Particulate Matter (TSP) and Particulate Matter (PM10) and published the Emission Estimation Technique Manual (EET Manual) for mining and the version 3.0 is updated in January 2012.

5.1.1. Drilling in Coal

Emissions from the drilling are relatively minor component of the overall emission from the opencast mining. The variables like, depth of hole, diameter of the hole, moisture content of the material being drilled, type of the drilling, wind current at the drilling site will influence the rate of emission. USEPA (1998) has derived emission factor for TSPM is 0.59 Kg / hole taking into consideration of all the parameters. USEPA (1998) does not provide any emission factor for PM_{10} component. However, the NPI EET Manual (2012) states that the

mean fraction of PM_{10}/TSP was 0.52. Hence the best estimation of the emission factor for drilling for PM_{10} is = 0.59*0.52= 0.31 Kg/hole

Number of drilling machines in coal (150 mm / 160 mm dia.)	:	1 Nos.
Number of hours of operation every day	:	24
Type of source	:	Point
Peak Coal production in MTPA	:	6.25 MTPA
Coal production / day	:	18940 T
Depth of the hole	:	6 m
Burden	:	6 m
Spacing	:	6 m
No. of holes drilled per day in coal working	:	58 No.s

No. of holes in coal working / day = Peak coal production per day / (Burden x Spacing x Depth of hole x Sp. Gravity of coal)

EF_{PM10} = 0.31 Kg/Hole

Where, EF_{PM10} = Emission Factor for PM_{10}

Total Emission form drilling in coal in Kg/day = EF_{PM10} x No. of holes/day

Emissions from coal drilling = 0.31 x 58 = 17.98 Kg/day

5.1.2. Drilling in Overburden

USEPA (1998) has derived emission factor for TSP during drilling operation in Overburden is 0.59 Kg/hole. USEPA (1998) does not provide any emission factor for PM_{10} component. However, as per the NPI EET Manual (2012) the emission factor for drilling for PM_{10} is 0.31 Kg/hole.

Number of drilling machines in OB	(250 mm)	:	2 Nos.
	(150-200mm)		4 Nos
Number of hours of operation every day		:	24
Type of source		:	Point
Peak OB removal per annum		:	51.18 M. Cu.m
OB removal / day		:	155090 BCM (or) 310180 T
Depth of the hole		:	8 m
Burden		:	6 m
Spacing		:	8 m
No. of holes drilled per day in OB		:	403 No.s

No. of holes in OB working / day = Peak OB removal per day / (Burden x Spacing x Depth of hole)

EF_{PM10} = 0.31 Kg/Hole

Total Emission form drilling in OB in Kgs/day = EF_{PM10} x No. of holes/day

Emissions from OB drilling = 0.31 x 403 = 124.93 Kg/day

5.1.3. Blasting Operations in Coal

The emissions from the blasting operations mainly depend on the area of the blasting, moisture content of the blasted material, depth of the blast hole, explosives being used, mode of detonation, blasting pattern, etc. USEPA (1998) provided emission factor for blasting for TSP is as follows:

$EF_{TSP} = (344*A^{0.8})/(M^{1.9}*D^{1.8})$ Kg/blast

Where,

EF_{TSP} = Emission factor for TSP in Kg/blast

A = Area of blasting in m^2 (2104 m^2 area is required to be blasted to produce 18940 T/day)

M =Moisture content in coal (5.06 for MNG OC-II Exp coal)

D = Depth of the hole (6m)

For PM10 fraction, USEPA (1998) estimated that, it will be 52% of TSP (Ref: NPI EET Manual, 2012). Hence,

$EF_{PM10} = EF_{TSP}$ x 0.52

$EF_{PM10} = (344*2104^{0.8})/(5.06^{1.9}*6^{1.8})$ x 0.52 = 148.74 Kg/day

Source type: Area

5.1.4. Blasting Operations in OB

As per the USEPA and NPI, the emission factor for coal is also suitable for OB. As such,

$EF_{TSP} = (344*A^{0.8})/(M^{1.9}*D^{1.8})$ Kg/blast

Where,

EF_{TSP} = Emission factor for TSP in Kg/blast

A = Area of blasting in m^2 (19386.5 m^2 area is required to be blasted to produce 155090 Cu.m/day)

M =Moisture content in OB (10%)

D = Depth of the hole (8m)

For PM10 fraction, USEPA (1998) estimated that, it will be 52% of TSP (Ref: NPI EET Manual, 2012). Hence,

$EF_{PM10} = EF_{TSP}$ x 0.52

$EF_{PM10} = (344*19386.5^{0.8})/(10^{1.9}*8^{1.8})$ x 0.52 = 143.55 Kg/day

Source type: Area

5.1.5. Excavation in Coal

The emission during the excavation i.e. loading of coal on to the trucks is mainly depending on the moisture content.

Capacity of shovels used for loading of the Coal	:	6.5 Cu.m.
Annual capacity of the shovels	:	3.0 M.Cu.m
Type of source	:	Area
No. of shovels required	:	2 No.s

As per the USEPA (1998) and NPI EET Manual, 2012 the emission factor is:

$EF_{PM10} = k*0.0596/(M)^{0.9}$

EF_{PM10} = emission factor for PM_{10} in Kg / ton

k = 0.75 for PM_{10} concentration

M = Moisture content in (%) = 5.06%

Total emissions in Kg/day = EF X Peak coal production per day in tons

Total emissions from coal loading = $0.75*0.0596/(5.06)^{0.9}$ x 18940 = 196.77 Kg/day

5.1.6. Excavation in OB

The emission during the excavation i.e. loading of OB on to the dumpers/trucks is mainly depending on the moisture content of OB and mean wind speed.

Capacity of shovels used for loading of the OB	:	3.0-3.5 Cu.m
Type of source	:	Area
No. of shovels required	:	10 No.s

As per the USEPA (1998) and NPI EET Manual, 2011 the emission factor is:

$EF_{PM10} = k*0.0016*(U/2.2)^{1.3}/(M/2)^{1.4}$

EF_{PM10} = emission factor for PM_{10} in Kg / ton

k = 0.35

U = Mean wind speed in m/sec =1.8 m/sec near MNG OC-II Exp.Project

M = Moisture content in (2%)

Total emissions in Kg/day = EF X Peak OB removal per day in tons

$EF_{PM10} = 0.35*0.0016(1.8/2.2)^{1.3}/(2/2)^{1.4} = 0.0004314$

Emissions from OB loading =0.0004314 x 310180 = 133.82 Kg/day.

5.1.7. Bulldozing in Coal

The emission during the bulldozing operation in the coal is mainly depending on the moisture content and silt content of the material. As per the USEPA (1998) and NPI EET Manual, 2012 the emission factor is:

$EF_{PM10} = 6.33(s)^{1.5}/(M)^{1.4}$

EF_{PM10} = emission factor for PM_{10} in Kg/h

s = Silt content in (%), M = Moisture content in (%)

Total emissions in Kg/day = EF X No. of dozing hours of all the dozers

Silt content = 7%

Moisture content = 5.06

Dozing hours = 12 hrs/day

Total Dozing Hours=12 x 3 =36 hrs/day (3 Dozers)

$EF_{PM10} = 6.33(7)^{1.5}/(5.06)^{1.4} = 12.11$ Kg/h

Emissions from coal dozing = 12.11 x 36 = 436.06 Kg/day

Source Type: Area.

5.1.8. Bulldozing in Overburden

As per the USEPA (1998) and NPI EET Manual, 2012 the emission factor is:

$EF_{PM10} = 0.34(s)^{1.5}/(M)^{1.4}$

EF_{PM10} = emission factor for PM_{10} in Kg/h

s = Silt content in (%), M = Moisture content in (%)

Silt content = 8%

Moisture content = 10%

Dozing hours = 72 hrs/day (6 Dozers x 12 hrs/dozer)

$EF_{PM10} = 0.34(8)^{1.5}/(10)^{1.4} = 0.30$

Total emissions in Kg/day = EF_{PM10} X No. of dozing hours of all the dozers

Emissions from OB dozing = 0.30 x 72 = 22.05 Kg/day

Source type: Area

5.1.9. Transportation of Coal

When a vehicle travels an unpaved road, the force of the wheels on the road surfaces causes pulverization of the surface material, particles are lifted and dropped from the rolling wheels and the road surface is exposed to strong air currents in turbulent shear, with turbulent wake behind the vehicle continue to act on the road surface after the vehicle has passed. Various types of road surfaces and vehicle characteristics are likely to have an impact on the particulate emission from unpaved roads. The particulate emission is mainly depending on the weight of the vehicle and silt content on the road surface.

Carrying capacity of dumper used for Coal	:	60 T
Gross weight of the dumper	:	55 T(Tare)+38(Coal) T= 93T
Type of source	:	Line
Dumper Speed	:	25 KMPH
Distance travelled per trip	:	6.0 Km (lead 3.0x2)
No. of trips to be made to achieve 18940 T/day		500 Trips/day

Total travelling distance of all dumpers : 1500(Load)+1500(Empty) Km

As per the USEPA (1998) and NPI EET Manual 2012 the emission factor for PM_{10} is:

$EF_{PM10} = k*(s/12)^{0.8}*(W/3)^{0.4}/(M/0.2)^{0.3}$

EF_{PM10}=emission factor in Kg per vehicle per km (Kg/VKT)

k = 0.733 for PM_{10}

s = silt content of road surface (2%)

W = Vehicle gross mass in tonnes (60T dumper gross weight with coal – 93 T)

M = Moisture content (10%)

Total Km travelled by all coal dumpers with load = 1500 Km

$EF_{PM10} = 0.733*(2/12)^{0.8}*(53/3)^{0.4}/(10/0.2)^{0.3} = 0.1705*1500 = 255.75$

Total Km travelled by all coal dumpers with empty = 1500 Km

Empty = $EF_{PM10} = 0.733*(2/12)^{0.8}*(31/3)^{0.4}/(10/0.2)^{0.3} = 0.1375*1500 = 206.25$

Total emissions due to coal transport = 462 Kg/day

5.1.10. Transportation of OB

As per the USEPA (1998) and NPI EET Manual 2012 the emission factor for PM_{10} for OB is also same as coal:

Carrying capacity of dumper used for OB	:	35 T- 12 B.Cu.m 100 T- 35 B.Cu.m
Gross weight of the Dump Trucks	:	35 T - 31(Tare)+ 24(OB) T 100 T - 74(Tare)+ 70(OB) T
Type of source	:	Line
Dumper Speed	:	25 KMPH
Distance travelling/ trip	:	10.0 Km (5.0 Kmx2)
No. of dumpers required	:	35 T - 68 Nos 100 T- 35 Nos
Total No of dumpers required to remove 155090 LBCM/day	:	103 dumpers
No of trips required per day	:	35 T dumpers -5770 Trips/day 100 T dumpers- 1715 trips/day
Total travelling distance by Dump Trucks (5 km)	:	35T-28850(L)+28850(E) 100T-8570 (L)+8570(E)

*L – Loads, E – Empty

$EF_{PM10} = k*(s/12)^{0.8}*(W/3)^{0.4}/(M/0.2)^{0.3}$

s = silt content of road surface (2%)

W = Vehicle gross mass in tonnes

EF_{PM10}=emission factor in Kg per vehicle per km (Kg/VKT)

$EF_{PM10\ for\ 100\ T\ dumper\ with\ load} = 0.733*(2/12)^{0.8}*(144/3)^{0.4}/(10/0.2)^{0.3} = 0.2543x8570 = 2179.351$

$EF_{PM10\ for\ 100\ T\ dumper\ with\ empty} = 0.733*(2/12)^{0.8}*(74/3)^{0.4}/(10/0.2)^{0.3} = 0.1948x8570 = 1669.436$

$EF_{PM10\ for35T\ dumper\ withload} = 0.733*(2/12)^{0.8}*(55/3)^{0.4}/(10/0.2)^{0.3} = 0.1730x28850 = 4991.050$

$EF_{PM10\ for35T\ dumper\ with\ empty} = 0.733*(2/12)^{0.8}*(31/3)^{0.4}/(10/0.2)^{0.3} = 0.1375x28850 = 3966.875$

Total emissions from OB transport is 12806.712 Kg/day

5.1.11. Dumping of Coal

The USEPA uses the same equation for unloading coal as it does for loading coal

Coal to be dumped in a day = 7575 T

Emission factor = 0.0103

Emissions from coal dumping = 0.0103*18940=195.08 Kg/day

5.1.12. Dumping of OB

The USEPA uses the same equation for unloading overburden as it does for loading coal

EF = 0.0004314 Kg/ton

OB to be dumped in a day = 110000 T

Emissions from OB dumping = 0.0004314*310180=133.811 Kg/day

5.1.13. Grading in Coal & OB

Grading of haul roads is required to carryout to sweep the loose material pilfered from the loaded dumpers, flying fragments during blasting, etc. As per the USEPA (1998) and NPI EET Manual 2012 the emission factor for PM_{10} for grading in coal & OB is:

EF= 0.0034*(S)2 kg/VKT

S= Mean Vehicle Speed in Kmph (5 kmph)

No. of Motor graders = 7

Distance travelled by each grader = 60 Km /day

Total distance travelled = 60x7 = 420 Km

EF_{PM10} = 0.0034*(5) = 0.085

Emissions due to Grading operation = 0.085*420 = 35.70 Kg/day

5.1.14. Wind Erosion of Coal Dump (Stock Yard)

Dumping of coal in the coal stock yard is required to be carried as an alternate arrangement at the surface, when the bunker/pre-weigh bin is full of its capacity. Wind provides the

mechanical energy for particle entrainment. A certain minimum wind velocity, often called threshold wind velocity is responsible for air borne of the dust from the dumps. For long term emission estimations, average soil moisture content or the number of rainy days, silt content of the dumping material, wind speed are influencing parameters. As per the USEPA (1998) and NPI EET Manual 2012 the emission factor for PM_{10} for wind erosion of dump is:

EF = 1.9*(s/1.5)*365*((365-p)/235)*(f/15)

EF = emission factor for TSPM kg/ha/Year

Taking

s = silt content in exposed area of the coal heap will be around 2%

p = number of days when rain fall > 0.25 mm is 80 days

f = 6% of time that wind speed is > 5.40 m/sec at the mean height of the dump

EF_{TSPM} = 1.9*(2/1.5)*365*((365-80)/235)*(6/15)/365 = 1.23 Kg/ha/day

EF_{PM10} = 50% of TSPM = 1.23x0.50 = 0.61

Total area of coal stock yards = 20.0 Ha

Emissions due to wind erosion of coal stock yard = 0.61x20.0 = 12.20 Kg/day

5.1.15. Wind Erosion of OB dumps

As per the USEPA (1998) and NPI EET Manual 2011 the emission factor for PM_{10} for wind erosion of dump is:

EF = 1.9*(s/1.5)*365*((365-p)/235)*(f/15)

EF = emission factor for TSPM kg/ha/Year

Taking

s = silt content in exposed area of the coal heap will be around 2%

p = number of days when rain fall > 0.25 mm is 80 days

f = 6% of time that wind speed is > 5.40 m/sec at the mean height of the dump

EF_{TSPM} = 1.9*(2/1.5)*365*((365-80)/235)*(6/15)/365 = 1.23 Kg/ha/day

EF_{PM10} = 50% of TSPM = 1.23x0.50 = 0.61

Total OB dump area = 1070.06+1426.74= 2496.80 Ha (Ext+Int)

Average dump expose without plantation = 2496.80/45(Life of the project) = 55.48

Emissions due to wind erosion of OB dump yards = 0.61x55.48 = 33.84 Kg/day

5.1.16. Loading to Trains

As per the USEPA (1998) and NPI EET Manual 2012 the emission factor for PM_{10} for loading on to the trains is: EF_{PM10} = 0.00017 Kg/ton

Coal to be loaded per day is 18940 T

Emissions due to coal loading to trains = 0.00017*18940 = 3.2198 Kg/day

Summary of Emissions:

The summary of emissions for peak rated production capacity from different mining activities (without EMP) envisaged from the 5.1.1 to 5.1.16 are summarised and the multiplying factor for control measures was applied. After applying the control factor for each activity the dust emission in grams/sec is given in **Table No. 5.1.1**

Table No. 5.1.1: Emission of Particulate Matter (PM_{10}) for Peak Production capacities from different mining activities

Activity	Operation Coal/OB	Emission Factor	Day Activity	Unit	Emissions	Control Method	% of Control	Multiplying factor for % of Emissions After control	Emissions after control	Source wise Emissions	Reamrks
Drilling	Coal	0.31	58	Holes	17.98	Wet drilling	90	0.10	1.80		
	OB	0.31	403	Holes	124.93	Wet drilling	90	0.10	12.49		
Blasting	Coal		2104	Area	148.74	No Control	0	1.00	148.74		
	OB		19386	Area	143.55	No Control	0	1.00	143.55		
Loading	Coal	0.01039	18940	Tons	196.77	Water sprinkling	80	0.20	39.35		
	OB	4.3141E-04	310180	Tons	133.82	Water sprinkling	80	0.20	26.76		
Dozing	Coal	12.11267449	36	Dozing Hours	436.06	Water sprinkling	70	0.30	130.82		
	OB	0.306276657	72	Dozing Hours	22.05	Water sprinkling	70	0.30	6.62	510.13	Pit Emissions
Transport	Coal(Load)	0.170511557	1500	KM Travelled	255.77	Water sprinkling	90	0.10	25.58	5.90	Gms/Sec
	Empty	0.137590405	1500	KM Travelled	206.39	Water sprinkling	90	0.10	20.64		
	OB(100T)(Load)	0.254324657	8570	KM Travelled	2179.56	Water sprinkling	90	0.10	217.96		
	Empty	0.194866040	8570	KM Travelled	1670.00	Water sprinkling	90	0.10	167.00		
	OB(35T)(Load)	0.173056751	28850	KM Travelled	4992.69	Water sprinkling	90	0.10	499.27		
	Empty	0.137590405	28850	KM Travelled	3969.48	Water sprinkling	90	0.10	396.95	1327.39	Pit&Haul Raod Emissio
Dumping	Coal	0.01039	18940	Tons	196.77	Water sprinkling	75	0.25	49.19	15.36	Gms/Sec
	OB	4.3141E-04	310180	Tons	133.82	Water sprinkling	75	0.25	33.45		
Grader		0.085	420	KM Travelled	35.70	Water sprinkling	75	0.25	8.93		
Wind erosion	Coal yard	0.61	20	Area in Ha	12.29	No Control	0	1.00	12.29		
	OB dump yard	0.61	55.48	Area in Ha	34.09	Plantation	70	0.30	10.23		
Loading to train	CHP	0.00017	18940	Tons	3.22	Water sprinkling	70	0.30	0.97		
Total PM10 Emissions in Kg/day without any control measure					**14913.66**	After Taking Control Measures in Kg/day			**1951.61**	115.05	Poly area only
Grams/sec									**22.59**	1.33	Gms/Sec

Emissions from Open Pit	:	13.59	
Pit Retention (5% for PM10)		0.68	
Net emission from openpit		12.91	
(Openpit sources are Drilling, Blasting, Loading, Dozing and 50% of Haul road Emissions)			
Net Emissions from Poly area Sources	:	9.01	
(Poly area sources are Dumping, Grading, Wind Erosion, Loading to Train etc and 50% of Haul road Emissions)			

5.1.2.1 Air Quality Modeling

An ISCST – 3 Latest AERMOD Air Dispersion Model was used to predict changes in air quality in and around the project site i.e., maximum ground level concentration (GLC's) of particulate matter at the receptors (i.e. nearby villages, project area, sensitive areas if any) due to the various mining activities of the proposed mine. The model uses the steady state Gaussian plume equation for continuous source. 14000 m X 14000 m, modelling block by reference point in the SW corner of the modelling block coordinates as (X = 3185565.145; Y =855309.429) has been selected for modelling so as to include all the air quality baseline AAQ monitoring stations in the study area.

The inputs required for the model is:

- Hourly meteorological data consisting of year, month, date, hour, cloud cover, solar radiation, wind speed, wind direction, ceiling height, rainfall, relative humidity, etc.
- Source data such as open pit sources, area sources, line sources etc.
- Receptor data such as baseline AAQ was collected at 10 monitoring stations to compare the status of Air Quality after inception of the project.
- Programme control parameters, area characteristics like Albedo, Bowen ratio, Surface roughness based on land use type and season.

The emission rates have been taken considering the control measures proposed in Table No. 5.1.1. The emission rates were calculated for peak production achievement of 6.25 MTPA. The total emissions from MNG OC-II Expansion Project mine after taking the proposed control measures is coming around 22.59 grams/sec.

Out of total emissions, 12.91 grams/sec emissions are coming due the activities in open pit and 9.01 grams/sec emissions are due to poly area sources and surface activities.

Taking consideration into the five months meteorological data collected during Jan 2013 to May 2013 and the PM_{10} emissions from different mining activities the model was run for prediction of GLC's with respect to PM_{10}.

Results and Conclusions:

The quarry area has been taken as a open pit source for all the dust emitting sources from different mining activities and the dump area and the road leading to dump yard from the quarry has been selected as poly area source for plying of dumpers/trucks and unloading of OB material. Appropriate emission factors, programme control parameters

such as land use, UTM zone, Albedo, Bowen Ratio, Surface roughness, surrounding surface features, etc. and micrometeorological data was taken. The emission reduction by implementation of proposed control measures was also considered. The ground level concentrations are computed for ***HIGH 1ST HIGH 24-HR CONCENTRATION VALUES*** for all the baseline air quality monitoring stations by selecting them as discrete Cartesian receptors in the modelling area so that 10 receptors points taken for computation ***24 -HR. AVERAGE CONCENTRATIONS*** of particulate matter and the predicted increment of PM_{10} concentration at receptors for peak production capacities of the project are furnished in the **Table No. 5.1.2.1** and depicted in the **Figure No.5.1.2**.2 The total predicted concentration at the receptors after coming of this project are furnished in **Table No. 5.1.2.3**

Table No. 5.1.2.1 Predicted increment in Ground Level PM $_{10}$ concentration of Manuguru OC-II Expansion Project

```
* AERMOD ( 11353): MNG OC II EXPN\MNG                                                    08/21/13
* MODELING OPTIONS USED:                                                                 12:10:08
* NonDFAULT CONC                                  FLAT
*          PLOT FILE OF  HIGH   1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL
*          FOR A TOTAL OF    10 RECEPTORS.
*          FORMAT: (3(1X,F13.5),3(1X,F8.2),3X,A5,2X,A8,2X,A5,5X,A8,2X,I8)
*         X             Y      AVERAGE CONC    ZELEV    ZHILL    ZFLAG    AVE     GRP       RANK      NET ID   DATE(CONC)
* ____________  ____________  ____________  ______  ______  ______  ______  ________  ________  ________  ________
 3186614.94000  856838.08000       1.67073  100.00  100.00    0.00   24-HR  ALL         1ST        CA1    13031424
 3190256.96000  855924.45000      20.19671  100.00  100.00    0.00   24-HR  ALL         1ST        CA2    13011324
 3187862.78000  862756.61000      18.59418  100.00  100.00    0.00   24-HR  ALL         1ST        BA1    13011124
 3193609.84000  857885.87000      15.79169  100.00  100.00    0.00   24-HR  ALL         1ST        BA2    13010424
 3192387.06000  857641.32000      21.74044  100.00  100.00    0.00   24-HR  ALL         1ST        BA3    13010424
 3192509.34000  856092.46000      16.72612  100.00  100.00    0.00   24-HR  ALL         1ST        BA4    13010424
 3190430.62000  853381.97000       7.10461  100.00  100.00    0.00   24-HR  ALL         1ST        BA5    13031824
 3182625.21000  853157.79000      32.59569  100.00  100.00    0.00   24-HR  ALL         1ST        BA6    13010624
 3183256.98000  859190.17000      39.30162  100.00  100.00    0.00   24-HR  ALL         1ST        BA7    13031224
 3192937.31000  853687.66000       8.42115  100.00  100.00    0.00   24-HR  ALL         1ST        BA8    13011524
** CONCUNIT ug/m^3
** DEPUNIT g/m^2
```

Figure No. 5.1.2.2: Predicted GLCs of PM_{10} in the Study Area

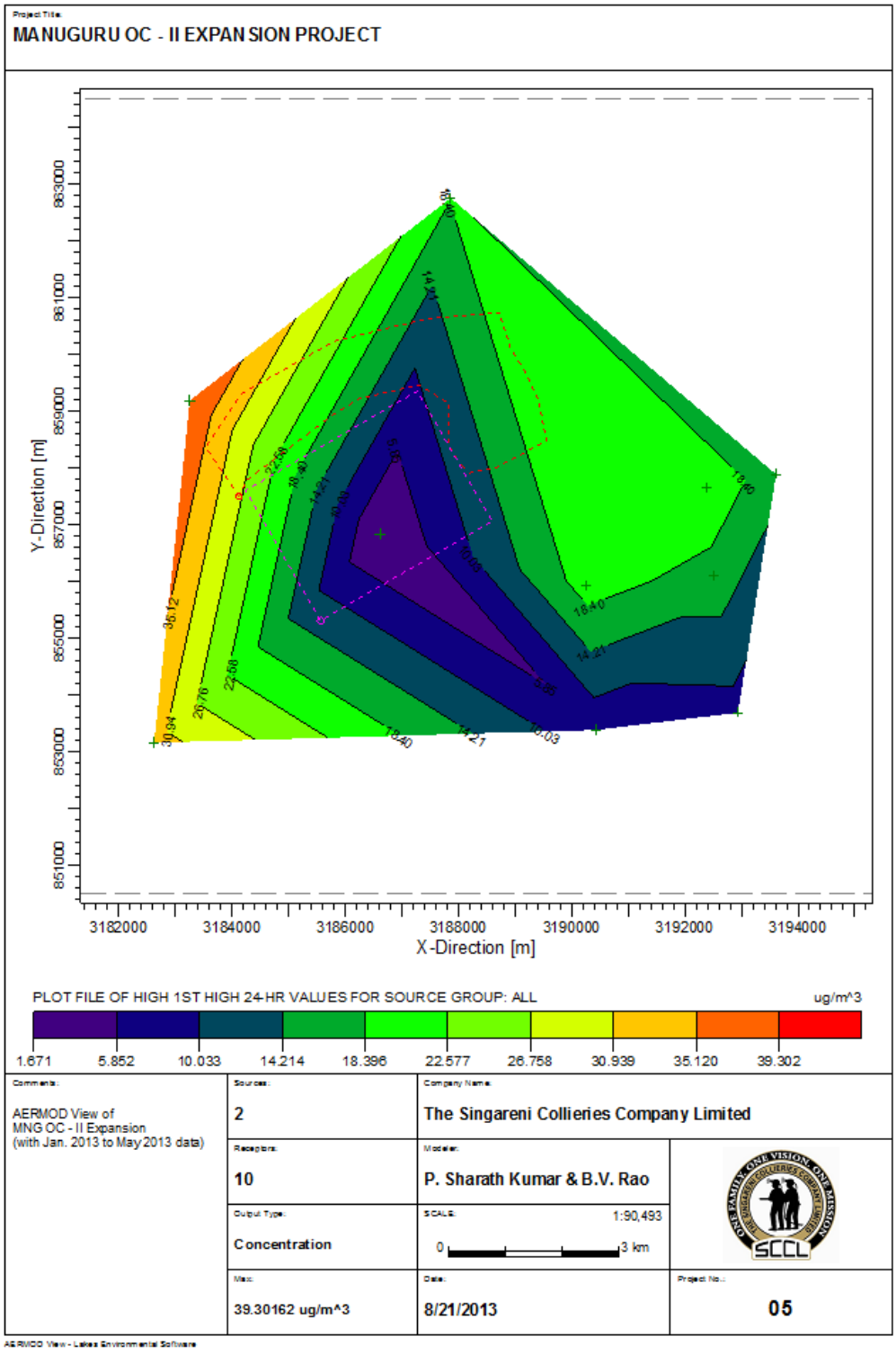


Table No. 5.1.2.3: Total concentrations (PM_{10}) at the Baseline AAQ Stations (Receptors)

Figures in $\mu g/m^3$

STN	LOCATION	Present Base Levels with 5.0 MTPA (98 Percentile)	Predicted Increment for 6.25 MTPA	Predicted Increment for 25% Increment in Production(i.e. 1.25 MTPA)	Total concentration Predicted	Category	STANDARD
CA1	MNG OC-II Exp	161.6	1.67	0.33	161.93	I	250
CA2	MNG OC-IV Exp	180.9	20.20	4.04	184.94	I	250
BA1	Ramanujavaram	82.9	18.60	3.72	86.62	R	100
BA2	PK-1 Incline(core of PK-1 Incline)	163.4	15.80	3.16	166.56	I	250
BA3	Sivalingapuram	87.2	21.75	4.35	91.55	R	100
BA4	Bandarugudem	84.7	16.73	3.34	88.04	R	100
BA5	Kunavaram	85.3	7.10	1.42	86.72	R	100
BA6	Bugga	69.8	32.60	6.52	76.32	R	100
BA7	Pagaderu	80.8	39.30	7.86	88.66	R	100
BA8	Mallavaram	85.3	8.42	1.68	86.98	R	100

From the above table, the concentration values at all the stations are within the standards prescribed. However, the concentration may further decrease once the black topped roads are established and also by taking dust preventive measures. Hence the control measures suggested for each activity shall be strictly complied to keep the concentrations within the limits. It is also envisaged to restrict the coal transportation fleet within the quarry by establishing the in-pit crushers and from there by belt conveyors up to the CHP.

Air pollution Control measures:

Description of pollution Control measures	Existing 5.00 MTPA	Proposed 6.25 MTPA
Dust extractors / Wet drilling arrangements	All the drills provided with wet drilling arrangement	All the drills provided with wet drilling arrangement
Mobile water sprinklers	28 KL – 6 No.s 12 KL – 2 No.s	28 KL – 8 No.s 10 KL – 5 No.s
Fixed sprinklers at CHP	All transfer points provided with water sprinklers	All the transfer points will be provided with water sprinkling points. 3 K.m length of sensor controlled water spraying arrangement along CHP approach road.
Pre-weigh bin arrangements for road dispatch	Two pre-weigh bins with enclosing system available in the project	Existing pre-weigh bins will cater the needs of proposed production

Water requirement for dust suppression	1650 KLD	2000 KLD
Cleaning of / sweeping of dust on coal transport roads	Cleaning/sweeping is being carried through motor graders	Same as earlier
Black topping of Roads	• Black topping of 3 Km long internal roads completed	• All the block topped roads will be maintained • It is proposed to extend black topping of 4.0 Km of additional internal roads.
Green belt development for control of dust	267.50 Ha (March 2013) 6,14,700 No.s	30 Ha (for 2013-14) 1967.78 Ha (by end of life)
Ambient air quality monitoring	AAQ is being monitored with network of one core zone and three buffer zone stations and two stations along the coal transportation is carried.	The AAQ will be monitored with existing network and if any additional stations prescribed by APPCB will be carried.
Coal transport from quarry to pit head	Coal is being transported from in-pit crushers to Kondapuram CHP through belt conveyor	Coal is being transported from in-pit crushers to Kondapuram CHP through belt conveyor
Coal transport from pit head to CHP		

General Air Pollution Control measures:

- The permanent roads, like route to the pit head coal handling arrangements, permanent internal roads at site office etc., were black topped.
- Regular maintenance of the vehicles is being carried out to control fuel exhaust emissions.
- Effective dust suppression measures are being taken at pit head coal handling arrangement. The crusher house, conveyors, transfer points, discharge hoppers are enclosed to the extent possible to control the dust generation.
- Automatic water spraying arrangement was provided by using photo sensors at crushers. A wetting point is provided to wet loaded coal transport Lorries.
- Pre-weigh truck dispatch system is provided at this project, so that the re-handling of the coal is minimized during dispatch.
- The wet drilling is being adopted.
- Controlled blasting techniques with NONEL are being practiced for effective blasting and control the generation of dust during blasting operation.
- Post-project air quality monitoring is being carried out by external agency M/s Environment Protection Training & Research Institute (EPTRI) as per the frequencies stipulated by MoEF for coal mining industry and all the necessary precautions is being

taken to maintain the concentration of critical parameters well within the stipulated standards.

- A Regional Lab will be established by EPTRI with all required facilities at kothagudem is under process.

5.2. Impact on water quality

The possible sources of water due to the proposed project activates are mine discharge water, OB runoff, effluents from the workshop and sewage from the township. The increase in production was planned by capacity utilization of existing equipment with out lateral expansion. As such, there will not be any additional mine discharge from the project over the earlier EMP but the water requirement will increase from the earlier proposal or present consumption due to increase in water spraying, fire fighting, etc. The additional mitigative measures proposed to control the water pollution over the earlier EMP are listed below:

Description of pollution Control measures	Existing 5.00 MTPA	Proposed 6.25 MTPA
Water requirement	3300 KLD	3500 KLD
Water requirement for dust suppression	1650 KLD	2000 KLD
Effluent Treatment Plant	Oil and grease trap	Oil and grease trap
Sewage Treatment	Septic tank followed by soak pits	Septic tank followed by soak pits
Garland drains	12.50 Km	16.50 Km
Settling ponds	5 No.s	5 No.s
Toe walls	3.25 Km	9.25 Km
Check dams/ RFD	7 No.s	10 No.s
Gabians	5 No.s	10 No.s
Water storage tanks (Settling ponds)	5 No.s	Settling ponds will be utilized as water storage

Impact on Hydrogeology:

Groundwater occurs in both water table and semi-confined conditions in the buffer zone of the project area. The attitude of phreatic surface is being monitored periodically on long term basis since 1997 in 22 observation wells in this area and the same is furnished in table-3. The depth of these shallow wells varies widely from 5.50 to 14.00m, with a diameter of 1.0 to 3.0 m. The depth to water level is in conformity with the topographic slope. It varies over a wide range from 1.0m to 8.45m during pre-monsoon period and 0.45m to 4.6 m during post-monsoon period of the year 2012.

Water level fluctuations: The water level fluctuations are the level difference between pre-monsoon and post monsoon seasons in a year. This refers the recharge and draft

conditions of the ground water reservoir of the area. It is observed that water level fluctuation range from 0.25m to 6.20m with a net fluctuation of 3.39 m.

Water level trends: On analyzing the long term water levels data of this area, it is observed that the general trend of water level during pre-monsoon varies 0.30m to 0.12m/year and post-monsoon period varies from -0.04m to 0.13m/year .The hydrographs of the wells with reference to their distance from the mine for both pre and post monsoon seasons are depicted in Figure -5.

Around the existing open cast coal mines, twelve piezometric wells were constructed at various distances from 100m to 1km from the edge of the project. In these wells the attitude of piezometric surface is being monitored during four seasons in a year. The piezometric head in these piezometers varies from 0.45m to 26.96.

The overall status of attitude is maintained and the downward trend in some wells during pre-monsoon period is due to their location on high ground or the presence of bore wells nearby. The data indicates that within the proximity of mining area also, there is no adverse impact of mining on ground water regime.

Aquifer Performance Test:

An Aquifer Performance Test (APT) was conducted in the adjacent OC-III project of this mine. The well field comprising one test well and two observation wells is constructed, to a depth of 85 m, tapping all the potential aquifers. The test was conducted at a constant discharge of 220.5 m^3 per day for 1000 minutes.

The maximum drawdown recorded in test well was 6.08 m, while in observation well-1 was 3.94m and 4.38 m in observation well-2. From this test data, the hydraulic parameters are estimated to be:

Hydraulic Conductivity: 2.34×10^{-1} m/day.
Transmissivity : 13.49 m^2/ day
Storativity : 1.10×10^{-2}

GROUND WATER RESOURCE ESTIMATION

The ground water potential in the 10km buffer zone area of Manuguru Opencast-II Expansion Project has been estimated as per the methodology given by the ***Ground Water resource Estimation Committee (GEC) -1997.***

Rainfall is the major source of recharge in this area, besides Godavari River, its tributaries and a number of tanks.

I. CURRENT GROSS GROUND WATER DRAFT

a. Domestic consumption

Within the buffer zone of proposed Project, there are 18 revenue villages falling in Manuguru, Pinapaka and Aswapuram mandals of Khammam district of Andhra Pradesh. As per 2011 census the population of this area is 88,063. Of this, 32,091 people living in Manuguru town have protected water supply from Godavari River. As per 2011 census, the rural population of this area is 55,972. As per the projection by 2035 the rural population will be 72,777 at the growth rate of 1.10% for Andhra Pradesh. (Source of information: National Commission of Population).

They draw ground water from open wells/Bore wells. At the per capita consumption rate of 60 lit/day, as per GEC-97 procedure, this amounts to 4366m^3/day or 1.59MCuM/year.

b. Cattle Consumption

Cattle Consumption is assumed to be of 10% of projected domestic Consumption, which comes to 0.15 MCuM/year.

c. Agricultural requirement

In the buffer zone, the major crops being irrigated are Paddy, Chillies, Cotton, Groundnut, Maize, Vegetables etc,. The season wise source wise irrigated land as detailed below: (source: A.P. Agricultural census data).

Season	Source of water	
	Surface water	Groundwater
Kharif (Ha)	2886	465
Rabi (Ha)	347	715
Total (Ha)	3233	1180

Crop wise, season wise ground water requirement is given below:

Crop	Water requirement (cm)	Area irrigated (Ha) depend on groundwater			Groundwater requirement (MCuM)/Year
		Kharif	Rabi	Total	
Paddy	105	357	213	570	5.99
Chillies	65	0	159	159	1.03
Total Veg.	60	97	29	126	0.76
Maize	45	8	62	70	0.32
Ground nut	50	0	111	111	0.55

Fruits	60	0	36	36	0.22
Cotton	105	3	0	3	0.03
Janumu	65	0	49	49	0.32
Turmeric	100	0	56	56	0.56
Total		465	715	1180	9.77

d. Inflow of water into the existing coal mines

There are 3 coal mines in operation in the buffer zone of the proposed project. The quantum of water presently being pumped from these mines and its utilisation is as follows:

Sl No	Name of the mine	Total quantity of water (m^3/ day)				
		Pumped per day	Mine requirement	Domestic use	For plantation	* let out into the streams
1	PK-1 inc.	2015	1414	140	230	231
2	Mng OC- II	5890	1435	0	100	4355
3	Mng OC- IV	6200	1270	-	100	4830
	Total	14105	4119	140	430	9416
'*' being utilised for irrigation of down stream side lands						

The total water being pumped from the above mines is 14,105m^3/ day or 5.14 M.Cu.M./year.

Thus the total ground water draft in this area is:

Consumption	M.Cu.M./ year
a. Domestic	1.59
b. Cattle	0.15
c. Agricultural requirement	9.77
d. Discharge from Coal mines	5.14
Total draft	**16.65**

II. RECHARGE

1 A. Recharge from water table fluctuation

The attitude of phreatic surface is being periodically monitored in 22 observation wells in both pre-monsoon and post-monsoon seasons in the buffer zone (532.86 sq.km) of the project. It varies over a wide range from 1.0m to 8.45m during pre-monsoon period and 0.45m to 4.6 during post - monsoon period. The water level fluctuation, on an average, is 0.25m to 6.20m m with a net fluctuation of 3.39 m. The hilly area of 106.36 sq. km. is not considered in assessing the recharge.

Recharge = Geographical Area X water table fluctuation X sp. yield.

= 427sq.km. X 3.39m x 0.03 = 43.42 MCuM / Year.

1B. Recharge from rainfall

The mean annual rainfall of this area is 1343.44mm. Within the buffer zone of the project, the hilly area is about 106.36 sq. km. This area is not considered in groundwater recharge estimation of the study area.

In the buffer zone area of the mine:

i. Recharge in sedimentary terrain (of semi-consolidated sandstone formation):
= 322.50 sq. km X 12% of rainfall = 51.97 MCuM / Year

ii. Recharge in hard rock terrain:
= 104.5 sq. km X 11% of rainfall = 15.43 MCuM / Year

Recharge from rainfall in buffer zone area (i+ii) = 67.40 MCuM / Year

Comparison of recharge:

A. Recharge from water table fluctuation method = 43.42 MCuM/ Year

B. Recharge from Rainfall infiltration method = 67.40 MCuM/ Year

PD = ((A-B)/B) X100 = ((43.42 -67.40)/ 67.40) X100 = -80%

Since, the Percentage of deviation is < -20%, the recharge component obtained above by infiltration factor method is multiplied by 0.8

Recharge from rainfall = 0.8 X 67.40 = 53.92 MCuM / Year

2. Recharge from other sources

a. Recharge from return flow from surface water applied for irrigation :

= For Paddy 50% of (105cm X 3185 ha) = 16.72 MCuM / Year

= For Non-Paddy 30% of (105cm X 48 ha) = 0.15 MCuM / Year

b. Recharge from return flow from groundwater applied for irrigation:

= For Paddy, 45% of (5.99MCuM) = 2.69MCuM / Year

= For Non-Paddy, 25% of (3.79 MCuM) = 0.94 MCuM / Year

c. Recharge from Return flow of mine water let out into streams:

= 20% of (3.43 MCuM / Year) = 0. 68 MCuM / Year

Total Recharge from other sources (*a*+*b*+*c*) = 21.18 MCuM / Year

Gross recharge = Recharge from rainfall + Recharge from other sources.

= 53.92 +21.18 = 75.10 MCuM / Year

III. GROUNDWATER ALLOCATION FOR DOMESTIC AND INDUSTRIAL USE

For the domestic use of population within the buffer zone of the project, projected by the year 2035, an allocation of 4366 m^3/day or 1.59 M m^3/year of groundwater is made.

IV. TREND OF PHREATIC SURFACE

The pre-monsoon and post-monsoon trend of phreatic surface of observation wells located at various distances from the edge of the boundary of the proposed project, is shown in the hydrographs

V. NET ANNUAL GROUNDWATER AVAILABILITY FOR FUTURE USE

This is obtained by deducting 10% of total groundwater resources from the gross groundwater recharge as:

= 75.10– 7.51 = 67.59 M m^3 / year

VI. CURRENT STAGE OF GROUND WATER DEVELOPMENT

The gross annual groundwater availability within the buffer zone area of Manuguru Opencast-II Expansion Project is arrived at by adding recharge from 1) Rain fall, 2) Return flow from water applied for irrigation and 3) Recharge from return flow of mine water let out into streams. This amounts to 75.10 M m^3/Year. After deducting unaccounted losses (10% of gross recharge) the net annual groundwater available is 67.59M m^3/year. The current annual gross groundwater draft all uses of this area is 16.65 M m^3/Year. This leaves a net balance of 50.94M m^3/year.

$$\textbf{The stage of groundwater development} = \frac{\textbf{Current annual gross ground water draft}}{\textbf{Net annual groundwater available}} \textbf{ X100}$$

Present stage of ground water development = 16.65/67.59X100 = 24.63%

VII.CATEGORISATION OF AREA FOR GROUND WATER DEVELOPMENT

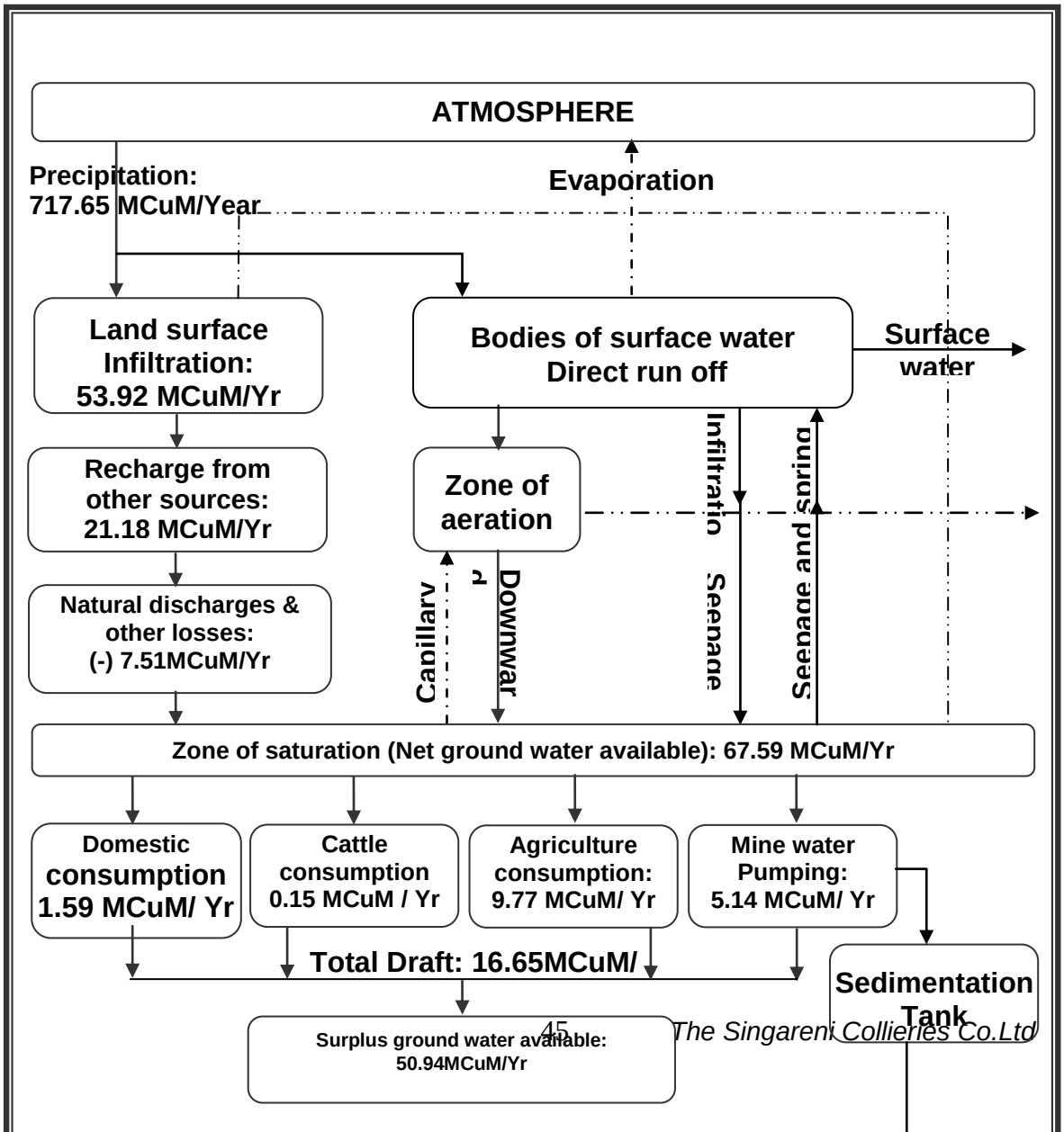
As per GEC-97 methodology, *the stage of development is less than 70 and at least one season the water levels are not falling trend is categorized as Safe*. The present stage of ground water development within the buffer zone area of Manuguru Opencast-II Expansion Project is 24.71%. Based on this, the study area is categorized as "safe".

Summary of Ground water budget: (MCuM/year)

1.	Gross Annual ground water recharge	75.10
2.	Un accounted losses	7.51
3.	Net Annual ground water available	67.59
4.	Net Annual ground water draft	16.65
5.	Balance groundwater available	50.94
6.	Stage of groundwater development:	24.63%
7.	Categorization of area	Safe

Based on the above data a flow diagram of hydrologic system is prepared (Figure-A).

FLOW DIAGRAM OF HYDROLOGIC SYSTEM IN NATURAL CONDITIONS



INFLOW OF WATER INTO PROPOSED PROJECT

The seepage of water into the quarry is from three sources:

i). Rainfall over the excavated quarry area.
ii). Surface run-off water.
iii). Ground water seepage from the aquifers exposed in the quarry side.

1. Rainfall over the excavated quarry area:

The excavated quarry area of Manuguru OC-II Expn. Project, during the mine life period varies as a function of time in a phased way. The normal rain water intake will be during the period of about four months (June to September) in a year. The mean rainfall on a rainy day at Manuguru is 19.43 mm (during an av. number of 69.3 rainy days per year). All the rainfall occurring over the excavated quarry area is taken for computation of the quantum of inflow of water, which varies from a minimum of 65,673 m^3/day to a maximum of 1, 57,188 m^3/day as shown below:

Sl. No.	Period	Excavated quarry area (ha)	Internal dump area (ha)	Balance Quarry area (ha)	Inflow of water (m^3/day)
1	At present	596	258	338	65673
2	Final stage	1426.74	972.17	809	157188

2. Surface run - off water:

Run-off from slopes of internal dumps, in-pit slopes and access road of the project shall be channeled to flow through a common drain into the surface drains. To avoid the flow of surface water towards and into the quarry, suitable precautionary measures like changing the gradient of the topography to be away from the quarry area and OB dumps as barrier and garland drains around them shall be provided. General topography and development of drainage net work in the Project area shows that the surface drainage is not likely to pose any problem. Hence this component of water flow into the quarry can be ignored.

3. Ground water seepage from the aquifers exposed in the quarry side:

From the aquifer performance test conducted in this area, the hydraulic conductivity of the aquifer system is estimated to be $2.34x10^{-1}$ m/day. The max. depth of the quarry is 420m and the cumulative hydraulic head of the aquifers in this block area is 253m. From this, the ground water inflow into the quarry at the final stage is estimated to be:

$$Q = 2\pi Kh^2/w\ (u, r/L)$$

Where,

Q is the quantum of inflow,
K is hydraulic conductivity,
h is hydraulic head of aquifers, and
w (u, r/L) is a function.

$$= 2 \times 3.14 \times 2.34 \times 10^{-1} \times 253^2 / 5.5 = 17{,}102\ m^3/day.$$

Thus the total quantum of inflow of water into the quarry during monsoon period shall vary from about 82,775 m^3/day initially to a maximum of 1,74,290m^3/day at the final stage, while during non-monsoon period the maximum inflow into the quarry will be about 17,102 m^3/day.

ANTICIPATED ENVIRONMENTAL IMPACTS OF MINING ON WATER REGIME

The proposed OCP covers a total area of about 3205.76ha. (Including dump yards, service buildings, stream & road diversion etc). This project area is falling in a water shed area of an ephemeral stream viz., Gorripeta vagu, a tributary of Godavari River.

I. Impact on surface water regime

During the course of mining, the seasonal nallahs/streams/vagus are envisaged to be disturbed. The existing drainage within the proposed project area is mostly of 1st and 2nd orders and flow can be seen during the rain only. These streams flow towards northeast and east and join in Godavari River.

The proposed project is an expansion project and is located to the north of existing MNG OC-II project and north west of OC-IV Expn. Project. While obtaining the Environmental Clearance for OC-II Expn. Project, permission was taken for diversion of ephemeral stream Gorripeta vagu from Irrigation Department.

Effect of drainage diversion/removal

The block area is drained by Gorrepeta Vagu, an ephemeral tributary of Godavari River, flowing towards northeast. The high flood level of this stream is 105m above mean sea level. Gorrepeta Vagu was planned for diversion along the periphery of the MNG OCP-II Expansion project. The design and alignment for diversion is being firmed up in consultation with Irrigation department. The proposed length of diversion is about 16.69 Km.

The quarry area will be surrounded by garland drains with intermediate settling provision so that only clear water is discharged into the natural water bodies. The mine seepage water will be pumped out & discharged into settling tanks where the coal fines will be settled and only clear water will be discharged into the water bodies.

It is assumed that there will be no reduction in the total quantity of flow in the downstream due to the diversion / removal of the existing drainage in the project area. As the rain that falls over the area will ultimately flow into the nearby nallas or tanks either by diversion or pumping from mine towards downstream side. The diversion/removal of streams will not affect the gradient or velocity of the flow in the downstream side. Hence there will be no impact of mining on Hydrology of the area or to the existing users in surrounding villages.

II. Impact on Groundwater regime

The impact of mining on local ground water regime depends on the mine parameters like depth and rate of expansion, ground water recharge and hydraulic parameters of the aquifers intercepted in the quarry.

During the mining operations, when mine depth goes below the water table, inflow of ground water from the intercepted aquifers will start accumulating in the mining pits. The rate of flow will increase with depth and open area depending on aquifer properties and the inflow will be maximum when the mine pit goes maximum depth and open area.

Presently two OC projects and two underground mines are in operation. The average total quantity of water being pumped per day from these mines is about 14105m^3. After meeting the mine requirements, about 9416m^3/day is being discharged into nearby streams/ tanks.

The maximum depth of the quarry is about 420m in OC II project and 270m in OC IV. Based on the aquifer properties, the probable inflow of groundwater into the Project is assessed to be a maximum of about 17,102 m^3 /day during the final stage.

The attitude of phreatic surface varies from 1.0m to 8.45m during pre-monsoon period and 0.45m to 4.6 m during post-monsoon season.

Water requirement

The mine discharge water will be stored in settling ponds for removal of suspended solids. About 2000m^3/day is required for various purposes for the mine such as dust suppression, washing of HEMM, plantation, domestic needs etc. water.

Radius of influence

The continuous pumping of ground water from the mine will result the depletion of water table around the project area. The radius of influence of pumping of water from the proposed mining pit has been determined by using Thiem's equation.

$$Q = \frac{2\pi k\, b(H_0 - hw)}{2.3 \log R_o / rw}$$

where,

Q	is Discharge (m^3/sec)
k	is Coefficient of permeability (m/sec)
b	is Thickness of the aquifer (m)
H_0	is Initial piezometric head in the aquifer (m)
hw	is Target drawdown level in the equivalent well (m)
Ro	is Radius of influence (m)
rw	is Radius of the well/sump/pit

At the end of final year, taking the value of 'k' as 2.70 x10^{-6} m/sec, 'b' as 300m, '(H_0 –h_w)' as 40m, 'r_w' as 1605m (assumed as the final void of mine area being about 809 ha) and 'Q' as 0.197 m^3/sec, the value of "Ro" is calculated as :

$$0.197 = \frac{2 \times 3.14 \times 2.70\times10^{-6} \times 210 \times 40}{2.3 \log R_o /1605}$$

Radius of influence R_o = 3.2 km from centre of the project.

Thus, the area of influence of proposed project on the water regime at the end of final stage is assessed that it may extend up to 1.6 km from the edge of the mine.

Mitigate measures

Garland drains are to be provided all along the periphery of quarry area. The streamlets that originate out side the proposed project and flow across the quarry are to be re-oriented through garland drains along the periphery of the project/quarry, so that, the flow should meet the original course in the down stream and the impact on regional hydrology will be negligible.

Pollution of surface water is mainly due to soil erosion and wash off from loose overburden, coal yards and associated material in monsoon season. Hence, check dams and sedimentation tanks are to be constructed around the OB dump and the lease area

to reduce soil erosion and arrest suspended solids before discharging the run-off water into the natural water regime. The water that stored in the quarry during rains and mine seepage will be discharged into the local irrigation tanks after conventional treatment.

Pollution of Groundwater takes place where the mine rejects contain toxic chemical substances. As coal mine is not a chemical industry, no such pollution takes place. Excess water from opencast mine is to be pumped into a settling pond before letting out into the local drainage net work. Water from the workshops is to be circulated through oil and grease trap before letting out into the local drainage so that there will be no pollution or contamination of ground water due to coal mining.

As per the Groundwater Resource Estimation, the present stage of groundwater development is 24.63% and the area is categorized as "safe". The total groundwater draft in the buffer zone area is about 16.65 M m^3/Year. Of this, from mines it is about 5.14 M m^3/Year and cultivation requirements is about 9.77 M m^3/Year.

A review of the Ground water flow Model indicates that zero (0) drawdown extends up to 1.6km towards north and northwest from the quarry surface boundary and it is negligible in south and western sides. The excess mine water discharged into diverted Gorrepeta vagu will minimise the impact on north and North West side of the project if the water is stored in Perantala cheruvu and other tanks on the flow direction towards Godavari River. Hence, there will not be any impact of mining on water sources.

The attitude of phreatic surface is being monitored in 22 observation wells in the buffer zone for the last 15 years. As, this monitoring is aimed at studying the impact of coal mining on ground water regime, the monitoring of the water table is to be continued. Water samples of both surface and ground water are to be analysed periodically to observe the changes in quality so that to take required remedial measures.

CONCLUSIONS

In Manuguru area, mining operations commenced in 1974. The attitude of phreatic and piezometric surface is being monitored in the buffer zone for the last 15 years. From the analysis of long term monitoring of phreatic and piezometric surface data, it is observed that, there is no considerable impact of mining on groundwater regime in this area.

As per the Groundwater Resource Estimation, the present stage of groundwater development is 24.63%. The total quantum of water pumped out from the existing mines in the buffer area is about 5.14 M m^3/Year, while the ground water used for cultivation it is

about 9.77 M m^3/Year. The proposed project will add a maximum of about 4 M m^3/Year during final stage of development.

Presently, the surplus water from the Manuguru OC projects is being let out into nearby Gorrepeta vagu and Singaram tank which is being utilized by the local people to meet their agricultural needs and also to augment the recharge of ground water regime of the area.

It is assumed that there will be no reduction in the total quantity of flow in the downstream due to the diversion / removal of the existing drainage in the project area.

From the hydrogeological studies carried out in this area, it is assumed that the mining influence of proposed project on the ground water regime may extend up to 1.6km towards north and northwest from the quarry surface boundary, which is mostly covered by SCCL, acquired lands.

Due to stratification, the permeable beds act as individual units and develop multi-aquifer system as such; the propagation of drawdown cone is limited to a small distance from the edge of the mine. Due to prominent boundaries/faults, the propagation of this cone of influence is further restricted.

After cessation of mining, the rain water infiltrates rapidly in to the back filled unconsolidated material in the mine pit and the water levels will recoup in a short time. The final void left (i.e., about 514.49 M m^3. It is proposed to reduce the depth of the void to 35m (from surface). This void will become a water reservoir in order to store rain water and run off from the surroundings to cater the water requirements of the local communities, besides augmenting recharge to the ground water regime.

In view of the above, it can be inferred that there will be no further impact on water regime in this area. In the event of any adverse impact due to mining on the surrounding area, SCCL shall take suitable water conservation measures around the project to maintain the ground water regime.

The impact of mining on groundwater system, if any, will only be a temporary phase and localized phenomenon.

However, it is proposed to continue the monitoring of phreatic and piezometric surfaces around the project periodically, to observe the adverse impact, if any that may arise. In the event of any adverse impact on the surrounding area, the advice of A.P State Ground Water Department shall be followed to recharge the ground water regime.

5.3. Impact on Noise

The main sources of noise in this mine are the electrical and diesel-powered machines, pumps, drilling machines, dumpers, shovels, workshop, coal transportation trucks, Coal handling at pit head, etc. Mining operations and CHP are the main sources of the noise pollution. Noise due to vehicular movement is intermittent but also adds to the background noise level.

Noise Levels from Existing HEMM

HEMM	Noise Levels dB(A)
Drills	90-100
Shovels	85-95
Dumpers	95-100
Dozers	95-110
Crushers	85-95

It is observed that at the mine site where the heavy earth moving machinery is in operation, it is more than 90 dB (A). However, the noise levels are observed within the tolerance limits at a distance of 15 to 20 m. The protection measures for operators have to be planned.

The noise generated by blasting is neither continuous nor shorter duration, but it is instantaneous. It takes less than 5 seconds to occur. Noise of blast is site specific and depends on type of blast, quantity of explosive, dimensions of drill hole, degree of compaction of explosive in the drill hole, nature of rock, VOD of the explosive used, charge per delay, mode of ignition, sequence of blasting, depth level of blasting site, etc. Noise levels generated due to blasting are studied in the existing project to evaluate the impact of blasting and results are as follows:

Existing Noise Levels and Ground Vibration Due to Blasting

Date	PPV (in mm) Max. 10mm/sec	Air over pressure dB(L)(max. 135dB(L)
03.11.2011	3.06	115.6
25.12.2011	3.62	120.8
29.12.2011	6.24	126.4
02.01.2012	1.64	114.0
05.01.2012	7.06	119.1
08.01.2012	4.94	122.3
17.01.2012	1.83	115.6
19.01.2012	2.49	122.3
25.01.2012	5.10	120.0
20.02.2012	0.65	106.0
20.02.2012	3.32	115.6
21.02.2012	1.13	109.5
21.02.2012	0.41	Less than 100.0
21.02.2012	1.29	112.0
25.02.2012	4.08	118.1
25.02.2012	2.38	126.8
28.02.2012	2.57	114.0
28.02.2012	3.92	112.0
08.03.2012	1.56	116.9
08.03.2012	1.98	132.3
08.03.2012	3.37	115.6
10.03.2012	1.00	109.5
10.03.2012	0.96	120.8
10.03.2012	4.25	121.6
14.03.2012	1.71	114.0
14.03.2012	2.16	112.0

Source: Monitoring record at Pilot colony (Manuguru Town)

The existing noise level in the buffer zone of the project is recorded less than the prescribed limits. As the mining operations are continued further below and the dump heights increases from the present height, this will act as a barrier and the noise levels will come down comparatively with the present noise levels. However, effective green belt around the project, avenue plantation, maintenance of vehicles will reduce the impact of noise.

Mitigative Measures:

- All the HEMM machineries are fitted with silencers
- Height of fall would be minimized at all coal transfer points and internal lining will also reduce the impact on sides of receiving hopers and there by noise.
- Ear muffs or ear plugs or any other suitable protective equipment would be provided to workmen working in the high noise intensity areas.

- Besides carrying regular periodic health check up of the workers, 10% of the workers identified from the workforce engaged in active mining operations would be subjected to health check up for occupational disease and hearing impairment through the doctors trained as per the ILO guidelines in the company hospital.
- Green belt around the project and vacant areas
- Avenue plantation along the coal transportation road and approach roads.

5.4. Impact on land use

The present proposal is for increase in production without lateral expansion in mining lease area. As such there will not be any additional impact over the earlier EMP.

Description	Existing for 5.00 MTPA	Proposed for 6.25 MTPA
Total land requirement	3205.76 Ha	Same as earlier
Mining lease area	3205.76 Ha	Same as earlier
Forestland	2673.70 Ha	Same as earlier
Non-forestland	532.06 Ha	Same as earlier
Quarry area	1426.74 Ha	Same as earlier
External dump area	1070.06 Ha	Same as earlier

807.83 Ha of Forest land will be used for dumping of OB

The post Mining land use will be as follows:

Sl. No	Description	LAND USE DETAILS (Ha.)				
		Plantation	Water body	Public Use	Other Uses	Total
1	Excavation Area					
	(a) Backfilled area	616.80	--	--	--	616.80
	(b) Void area left	--	809.90	--	--	809.90
2	External waste dump	1070.10	---	---	---	1070.10
3	Nallah Diversion & Bund	136.46	230.67			367.13
4	Diversion of Road			2.04		2.04
5	Service Buildings & CHP				106.03	106.03
6	Protective bund around quarry & dump area	138.42			95.34	233.76
	TOTAL	**1961.78**	**1040.57**	**2.04**	**201.37**	**3205.76**

5.5. Rehabilitation and Resettlement:

Total 171 families were displaced .Out of which 42 families were paid compensation as part of Manuguru OCP-II in 1998 before R&R policy and remaining were displaced under the provisions of State R&R policy.

Name of affected village/Hamlet	No. of PDFs	Year of evacuation	Name of R&R Centre where PDFs settled	Compensation paid for acquisition of houses for villagers	Amount paid towards R&R Benefits	Cost of development of R&R centres
kondapuram (prior to R&R Policy)	42	1998	-Nil-	642629.00	--	Acs.2-00 Gts per family free of cost. House plots were allotted in company acquired land with infrastructure facilities.
Srirangapuram	129	2010	Paid cash compensation in lieu of developed house plot as requested by PDFs.	1607080.00	19656500.00(include Rs.55,000/-per house plot/per family)	--
Total	171			2249709.00	19656500.00	--

The following measures will be taken up for minimize the impact on land:

- The land use pattern and post mining land use is being monitored for both core zone and buffer zone based on satellite imagery from the start of the project to end of the life at a time series of once in three years and report is being submitted to Regional Office, MoEF and the same will be continued for monitoring of land use.
- It is proposed to take up plantation in 1967.78 Ha out of the 3205.76 Ha of the mine take area. The plantation in the subsidence areas will be taken up soon after stabilization of subsidence. The plantation will be carried with native species so as create congenial conditions for the fauna present in the area.
- Plantation in the mine premises, CHP and along the coal transportation route and approach roads.

5.6. Impact on flora & fauna

The present proposal does not involve any additional land requirement including forestland. The additional coal produced is also proposed by the existing railway infrastructure. As such, no additional impact is anticipated by the present proposal. However, SCCL will implement the Habitat Amelioration Scheme for conservation of flora and fauna in consultation with A.P. Forest department.

Mitigative measures:

Plantation was carried in 57 ha of degraded forestland with native species under beyond mandatory concept for overall development of area. 702.5 Ha of the area was planted as on 31.3.2013 in the Manuguru Area. The details are as follows:

Sl. No	Year of raising	Location	Species	Area in Ha	No. of seedlings planted	Survivals in Nos.	Legal status	Lat & Long
1	1989	PKOC – II, OB	M	1.0	2500	1250	RF	N 17.9303 E 80.7525
2	1990	PKOC – II, OB	M	5.0	12500	6250	RF	N 17.9339 E 80.7523
3		PV colony and C type qrts., Block	M	16.0	41182	8236	RF	N 17.9089 E 80.8200
4	1991	PK-2, Block	M	1.0	2000	380	RF	N 17.9764 E 80.8294
5		PK-1, Block	M	6.0	15000	1500	RF	N 17.9604 E 80.8217
6	1992	PKOC – II, OB	M	29.0	70800	35400	RF	N 17.9378 E 80.7842
7	1993	PKOC – II, OB	M	10.0	25000	12500	RF	N 17.9305 E 80.7536
8		Mallaram colony, Block	M	9.0	13846	5500	RF	N 17.9105 E 80.8027
9	1994	PKOC-II, OB	M	3.0	7500	3750	RF	N 17.9342 E 80.7543
10	1995	Manuguru avenue	M	22.0	7650	4590	SCCL	N 17.9098 E 80.8031
11	1996	PKOC – II, OB	M	8.0	20000	10000	RF	N 17.9332 E 80.7530
12	1997	PKOC – II, OB	M	3.0	7500	3750	RF	N 17.9379 E 80.7842
13		Block plantation near Mallaram	M	5.0	5555	1670	RF	N 17.9092 E 80.7981
14	1998	PKOC – II, OB	M	7.0	17500	8750	RF	N 17.9378 E 80.7843
15		Mallaram colony, Block	M	3.0	1875	375	RF	N 17.9098 E 80.8038
16		Reginal work shop, Block	M	1.0	500	250	RF	N 17.9372 E 80.7773
17		Auto work shop, Block	M	2.0	1250	620	RF	N 17.9372 E 80.7772
18		GM office to weigh bridge, Avenue	M	2.0	400	50	SCCL	N 17.9469 E 80.8089
19	1999	PKOC – II, OB	M	5.0	12500	7500	RF	N 17.9380 E 80.7844
20		Bungalow area, Block	M	10.0	11110	6666	RF	N 17.9110 E 80.8271
21		Misc pl' near Annaram village, Block	M	3.0	3333	670	SCCL	N 17.9638 E 80.8398

22		Eucalyptus clonal pl' near Annaram village, Block	EC	22.0	24442	5380	SCCL	N 17.9644 E 80.8380
23	2000	PKOC – II, OB	M	8.0	20000	12000	RF	N 17.9378 E 80.7845
24		Near PK-I, Block	M	3.0	3100	1705	SCCL	N 17.9584 E 80.8194
25		Opposite to Sivalayam, Block	M	7.5	8500	4675	SCCL	N 17.9599 E 80.8309
26	2001	PKOC – II, OB	M	5.0	12500	7500	RF	N 17.9378 E 80.7846
27		COC, OB	M	3.0	7000	4200	RF	N 17.9469 E 80.8089
28		EC pl' Near Kotha kondapuram, Block	EC	3.0	3100	1790	SCCL	N 17.9603 E 80.8299
29	2002	PKOC – II, OB	M	10.0	25000	15000	RF	N 17.9332 E 80.7528
30		COC, OB	M	8.0	20000	12000	RF	N 17.9360 E 80.7948
31		Misc. pl' near GM Office, Block	M	13.0	5200	2600	SCCL	N 17.9375 E 80.8065
32		Misc. Pl' adjacent to Sivalayam, Block	M	2.0	700	435	SCCL	N 17.9568 E 80.8263
33	2003	PKOC – II, OB	M	28.0	70000	42000	RF	N 17.9332 E 80.7528
34		Misc. pl' near Annaram village, Block	M	20.0	22000	11000	SCCL	N 17.9622 E 80.8293
35		Weigh bridge to Godavari intake well, Avenue	M	5.0	1993	1695	SCCL	N 17.9550 E 80.8141
36	2004	PKOC – II, OB	M	40.0	100000	60000	RF	N 17.9339 E 80.7523
37		Fruit orchard near Sai mandir P.V colony, Block	M	1.0	175	140	RF	N 17.9109 E 80.8190
38	2005	PKOC – II, OB	M	40.0	100000	90000	RF	N 17.9332 E 80.7528
39		PKOC – IV,OB	M	6.0	15260	13887	RF	N 17.9519 E 80.8056
40	2006	PKOC – II, OB	M	35.0	87500	75836	RF	N 17.9339 E 80.7523
41		PKOC – IV,OB	M	25.0	62500	54375	RF	N 17.9360 E 80.7952
42	2007	PKOC – II, OB	M	30.0	75000	53423	RF	N 17.9303 E 80.7525
43		PKOC – IV,OB	M	5.0	12500	9470	RF	N 17.9360 E 80.7952
44	2009	PKOC-II Manuguru-RF,OB	M	4.0	10000	8000	RF	N 17.9365 E 80.7522, N 17.9496

								E 80.7737
45		Small patches in MNG area, Block	M	5.0	2000	1500	SCCL	N 17.9195 E 80.8028
46	2010	OCP-II, OB	M	15.0	16235	15361	RF	N 17.9375 E 80.7677
47		OCP-III, OB	M	15.0	16404	15201	RF	N 17.9371 E 80.7510
48		OCP-IV, OB	M	20.0	18387	11952	RF	N 17.9358 E 80.7917
49		Along OC-IV Extn boundary, Block	EC	4.0	3500	2000	RF	N 17.9358 E 80.7917
50		Block pl' in small patches in colonies	M	2.0	2222	2020	SCCL	N 17.9100 E 80.8043
51		Avenue pl' along Bayyaram R&B road	EC	3.0	1487	912	SCCL	N 17.9558 E 80.806
52		Avenue pl' along internal roads of colonies and mines	M	5.0	2000	1835	SCCL	N 17.9382 E 80.7838
53	2011	OCP-II, OB	M	31.0	77004	66994	RF	N17.93263 E80.75396
54		OCP-III&II, OB	M	31.0	76470	72647	RF	N17.93464 E80.75298
55		OCP-IV, OB	M	25.0	61845	48663	RF	N17.94214 E80.79069
56		Green belt in OCP-II, Block	EC&M	5.0	5335	5089	RF	N17.96196 E80.76690
57		Green belt in OCP-IV, Block	EC&M	3.0	2414	2253	RF	N17.95836 E80.79179
58		Near Kunavaram colony, Block	M	6.0	3048	2865	SCCL	N17.91648 E80.79236
59		Near PK-I Incl. sand yard, Block	M	5.0	3485	3171	SCCL	N17.96651 E80.81795
60		Avenue pl' along Bayyaram R&B road	M	5.0	900	900	SCCL	N17.96829 E80.79698
61	2012	OCP-II OB dumps	M	14.0	34650	34650	RF	N17.93558 E80.75980
62		OCP-IV OB dumps	M	29.0	71790	57400	RF	N17.94335 E80.79008
63		Avenue plantation along internal roads of PV Colony new MC Qrts.	M	5.0	1000	1000	SCCL	N17.91251 E80.80001
		Total for Manuguru		**702.5**	**1366147**	**953181**	0	

5.7. Impact on Socio Economic Environment

No significant changes have been visualized in the traditional way of life and occupation of the local people in coal mining areas. The local people are rather benefited due to the provision of more infrastructure facilities provided by the management.

The proposed expansion proposal can have beneficial impact on socio-economic front. The employment avenues will increase due to increased coal transportation, material supply and the additional production which will be supplied to Thermal Power Stations will also help in the development of the area.

The following CSR Works were taken up in Manuguru area:
The Company CSR Policies aimed

- To contribute to sustainable economic development, working with employees, their families, the local community and society at large.
- To provide humane, healthy and safe working conditions for the employees.
- To put in sustained efforts to improve the quality of life of employees and their families.
- To promote harmonious industrial relations weaning away from the strike culture.
- To constantly improve upon the welfare measures for the employees and their families.
- To continuously endeavor for decent working and living environment by controlling air, water and noise pollution.
- To augment the efforts for providing civic amenities in and around the SCCL command area.

The following needs of the Community were identified by SCCL:

- Unemployment
- Illiteracy
- Lack of awareness of the opportunities
- Lack of support from the Govt. agencies / Financial agencies.

The Associates in CSR (Concern for Social Rehabilitations)

- Singareni Seva Samithi (SSS)
- Surrounding Habitat Assistance Programme (SHAPE)

- Singareni Employees Wives Association (SEWA)
- Local Communities

Singareni Seva Samithi (SSS)

Singareni Seva Samithi (SSS) is registered under Andhra Pradesh Public Societies Act to take up all Educational Training Programs, Self-employment Schemes, help for Army Recruitment etc. and other Educational Training programs for the children of employees who died in harness and unemployed youth which includes daughters and sons of employees & Ex-employees and also to spouses of Ex-employees.

Activities of Singareni Seva Samithi:

- Employment training for children of workers
- Workers Education Programme
- Women's literacy
- Educare Initiatives
- Army/ Police/Para-Military Recruitment Training
- Medical and Health Measures
- Mobile Medical Services
- Health Awareness Programs
- S.T Orphan Home for Girls at Manuguru
- Welfare of Project Affected Persons
- Entrepreneurship Development Program

Social and Community Initiatives

SCCL is carrying out coal mining operations in the four Districts of Andhra Pradesh namely Khammam, Warangal, Karimnagar and Adilabad. **Surrounding Habitat Assistance Programme (SHAPE),** started during the year 2003-04 with a concept that partner in progress.

The mechanism adopted to identify the community needs is very pragmatic. The local bodies in these habitats will identify the works in association with the community and Rural Development Agencies of the State Government.

The funds are provided under SHAPE program by the company for the Government to execute the work. Under this programme, Drinking water supply, education facilities and infrastructure development in the surrounding habitats of SCCL are taken-up.

Habitats which are less than 8.00 Km from townships or 10.00 Km from mine entries and having SCCL workmen at 25% of total population or 200 Nos., whichever is less are generally considered.

About 15 Lakhs population in nearly 81 Gram Panchayaths, 7 Municipalities and the District Administration of 4 Districts in Andhra Pradesh are partners in the Community Development Projects of "SHAPE" launched by SCCL. Modalities of the developmental work are being finalized in consultation with District Collectors and Peoples representatives (Sarapanch, Village Chief etc.).

About 229 works in Adilabad, 221 works in Karimnagar, 101 works in Warangal and 327 works in Khammam districts are taken up such as protected drinking water supply, education facilities and infrastructure development in the surrounding habitats of SCCL.

Details of social infrastructure developed under "SHAPE" at Manuguru Area

SCCL has taken up certain developmental activities in surrounding villages of Manuguru area under "SHAPE" Scheme from the year 2003 about Rs. 796 Lakhs were spent and the details of expenditure incurred are as given below.

Expenditure under SHAPE – 1 (2003-04)

Sl. No.	Name of the Work	Cost of work in Rs. Lakh
1	BT Road from Gas Godown to Kotha kondapuram	43.50
2	Construction of additional class rooms at Zilla Parishad High School and Junior College	40.00
3	CC Road at Sundaraiah Nagar	43.50
4	Widening of BT Road from TDP Centre to Junior College	15.00
5	Improvements to Eturunagaram road including widening, bridges and central lighting	278.00
	TOTAL	**420.00**

Expenditure under SHAPE – 2 (2004-05)

Sl. No.	Name of the Work	Cost of work in Rs. Lakh
1	CC Roads and drains at BS Nagar, MRO Office and ST Hostel, etc.	67.50
2	M&R Works to Police Station, Staff Quarters at Manuguru	9.50
3	Repair works to ST Home for Girls	5.00

4	Additional accommodation to SC Boys Hostel at Ashok Nagar	6.00
5	School building at Besthagudem	2.00
6	Construction of OHSR and pipe line to Ippala Singaram	10.00
	TOTAL	**100.00**

Expenditure under SHAPE – 3 (2005-06)

Sl. No.	**Name of the Work**	**Cost of work in Rs. Lakh**
1	Flood bank to Katta Vagu	50.00
2	CC Roads and Side drains etc., at Sheshagiri Nagar	35.00
	TOTAL	**85.00**

Expenditure under SHAPE – 4 (2008-09)

Sl. No.	**Name of the Work**	**Cost of work in Rs. Lakh**
1	Desiltation of Kattavagu irrigation tank & bund strengthening	21.20
2	Laying of pumping main to elevated service reservoir, Bhagath Singh Nagar	13.00
3	Special repairs and BT Road from Government Junior College to Railway Gate, Kunavaram	36.00
4	Construction of BT Road from PK-1 Incline Centre to Government School, Manuguru	8.75
5	Providing shed and approach road for proposed burial ground at PV Colony.	4.60
6	Construction of side drains and lying of CC road in Manuguru	36.50
7	Construction of side drains and lying of CC road in Samithisingaram Grampanchayat	11.50
	TOTAL	**131.55**

Expenditure under SHAPE – 5 (2011-12)

Sl. No.	**Name of the Work**	**Cost of work in Rs. Lakh**
1	Widening of Government Junior College Road	60.00
	TOTAL	**60.00**

Medical Camps:

Besides the above, Medical camps are being conducted frequently for benefit of surrounding villagers of proposed opencast project. The medical camps conducted at Pagideru, Tirlapur, Bugga, Golla Kothur, Kotha Kondapur, Shanthi Nagar, Padma Gudem, Khammam Togu, Eggadigudem, Chinna Ramavaram and Mallepalli.

Free treatment for Project Affected Families as inpatients in case of emergency. They have provided with Health Cards to avail the facility at SCCL Hospitals. Mobile medical camps in surrounding villages including free medicines.

Other CSR Activities at Manuguru:

- Supply of protected drinking water about 26,50,000 Litres/day from River Godavari to surrounding Villages namely, Manuguru, Mallepalli, Eggadigudem, Kommugudem, Rajupet, Shivaligapuram, Bhagathsingh Nagar, Sheshagiri Nagar, Sundaraiah Nagar, Sri Sri Nagar, etc.
- Supply of surplus mine water is being provided to agricultural purpose by diverting the water to Naidu Kunta, Burudavaikunta and Gopidevikunta tanks, etc.
- Surplus water from the STP at Pilot colony is being provided for agriculture to about 72 Ha of agriculture field.
- Providing logistic support for ST Home, Deaf and Dumb school children with financial and free education in Singareni Collieries High School and Singareni Collieries Women's Degree College.
- Free Distribution of fruit bearing and shady plants in surrounding villages.
- Avenue Plantation 10 Km along the R&B Road leading to Bayyaram.
- Plantation in other vacant areas, schools, government offices, colleges, surrounding villages under "Green Manuguru Programme" in two years with 15500 and 11000 plants respectively in 2010 and 2011.
- Regular desilting of irrigation tanks, feeder channels in the surrounding villages.
- Conducting training camps for PDFs in tailoring, driving, beautification, computer, DTP, etc.
- Environmental awareness programmes like quiz, essay and elocution competitions are being conducted every year in all mines, departments for employees and officers, house wives in Colonies & and schools children in Schools in the area, to bring awareness on environment protection (i.e.

conservation of water, power, waste management, pollution and preventive measures from time to time and winners are being encouraged with prizes.

- Environment Slogans in English and Telugu were distributed to mines and departments for display at their premises. Posters with pictures on Bio-medical waste disposal distributed to Hospitals for display at conspicuous places for awareness & for implementation.
- Fruit bearing and shaded plants were distributed in the colonies and in R&R villages.

5.8. Additional Capital provision for environmental safe guards:

(Figures in Lakhs)

Sl. No	Item	Capital requirement
1	Pollution Abatement Cost	12.50
2	Effluent Treatment plant / Oil & Grease Traps	Already constructed
3	Env.Baseline Data Generation & Preparation of EMP	25.00
4	Green Belt Development around Quarry, Service Buildings, and over dumps and construction of engineering structures on OB dump slopes.	85.00
5	Pollution Monitoring , CFE fees and public hearing	15.00
7	Construction of Toe Walls, Rock Filled Dams	30.00
8	Construction of setting Tanks	15.00
9	Scientific studies	10.00
10	Add for Contingencies	10.00
	TOTAL	**202.50**

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Certified Report of Compliance status of Environmental Clearance Conditions

GOVERNMENT OF INDIA
Ministry of Environment and Forests
(Regional Office, Southern Zone)
Bangalore-34

MONITORING REPORT

PART I

F. No. EP/12.1/715/AP

1	Name of the projects	Manuguru OC-II Opencast Coal Mine Expansion Project (4.0 MTPA with a peak production of 5 MTPA) of M/s Singareni Collieries Company Ltd., located in village and Mandal Manuguru, District Khammam, Andhra Pradesh.
2	Clearance letter No.& date	J-11015/144/2007-IA.II (M) dated 31st July, 2008.
3	Location: District & State / UT	Manuguru, Khammam AP
4	Address for correspondence:	Mr. M. Vasanth Kumar GM (Environment) M/s Singareni Collieries Company Ltd., Kothagudam -507 101 Khammam Dist., Andhra Pradesh. Phone: 08744-243059 Cell: 9491144192 Email: gm.env@scclmines.com
5	Date of site visit for this report	20th July 2013
6	Date of previous visit(s) if any	--
7	Brief on the project along with the present status:	

The site visit to this Coal mine was made along with Mr. K.V. Ramana Murthy GM of Manuguru area, Mr M. Vasanth Kumar GM (Environment) and other senior officers of M/s SCCL.

Manuguru Opencast-II expansion Project (MNG OC-II) is an existing opencast project in the Manuguru Area of Singareni Collieries Company Limited. The expansion project was started in the Mining lease area of 3205.70 Ha on 01.01.2009 with a rated capacity of 4.00 MTPA and peak capacity of 5.00 MTPA after obtaining environmental clearance vide J-11015/144/2007-IA.II (M) dated 31.07.2008. Earlier this project started in the year 1990 with a rated capacity of 1.25 MTPA with EC Ref. No. J-11015/6 /84 /ENV.5 /IA-II dated 06.07.90 and subsequently obtained this EC for the enhanced capacity. In Manuguru area the project authorities are having other environmental clearances also; the details of the others ESs are as follows:

1) MNG OC-IV: EC letter no J-11015/9/92-IA, II (M) dated 6th Dec 1996 with a rated capacity of 1.25MT. A proposal has been submitted to MoEF for enhancement of production in the name of MNG OC-IV Expansion for a annual rated capacity of 3.0 (Normative) / 3.5 (Peak) and EAC meeting has been completed and EC is yet to be issued by MoEF.
2) MNG OCP: This is the conversion project of PK -2 Underground Coal Mine with EC No. J-11015/905/2007-IA.II (M), dated 24.10.2008 with rated capacity of 1.5 MTPA . Project has not yet commenced due to delay in forest land diversion.

3) PK-I Incline: This is an underground coal mine working as per 93-94 base levels 0.220 MT. Hence EC was not obtained for this mine. However, this mine is going to be closed shortly.
4) Kondapuram UG Mine: EC was obtained for Kondapuram UG Mine vide letter no. J-11015/328/2008-IA.II (M), dt. 05.03.2010 for an annual rated capacity of 0.51 / 0.54 MT. The mine has not yet commenced for want of wild life clearance.

This MNG OC-II expansion Project is located in Manuguru village & tehsil of Khammam district of Andhra Pradesh and the project consists of 344.88 MT total geological reserves, out of which 264.20 MT is extractable and the life of the project is 66 years. The total OB to be removed will be 1948.37 M.Cu.M with stripping ratio of 1:6.2 and the top soil quantity is 18.62 M.Cu.M. Out of the total 3205.76 Ha of lease area 2673.70 Ha is Forest land and 532.06 Ha is non-forest land. The land required for Quarry is 1426.74 Ha and land required for dumping will be 1070.06 Ha. So far, forest clearance was obtained for a total land of 942.58 Ha in different stages. Mining plan was approved by Ministry of coal on 18.03.2008, CFE was granted by APPCB on 06.01.2009 vide Lr. No.52/PCB /CFE /RO-KTM /HO /2008-2638 and consent for operation was valid up to 30.06.2012 and renewal application was submitted on 25.05.2012. This project is operating since January 2009 and so far 20.978 MT of coal, 353.558 M.Cu.M of OB and 8.47 M.Cu.M of top soil were excavated in the project. The balance life of the project is 61 years with coal seams being presently worked are 4 out of 12. A total 171 families from three villages namely Srirangapuram, Gollakothuru and Shantinagar villages were displaced for this project. Out of which, 42 families were paid compensation as part of Manuguru OCP-II in 1998 before enactment of R&R policy and remaining were displaced under the provisions of State R&R policy.

Necessary environmental safeguards are being taken by the project authorities. The mine discharge is being channeled through settling ponds for removal of suspended solids and part of mine discharge water is being used for various purposes such as dust suppression, washing of HEMM, plantation, domestic needs etc. Stability of the OB dumps is being monitored by taking appropriate mitigation measures such as construction of 05 nos. gabions, 80 nos. Crib structures and rising of multi species of plantation on the slopes of the dumps for slope stability. A length of 12.50 km garland drains (2mx2m) are made and maintained around external OB Dump and Quarry for regulating and arresting the flow of surface run-off silt. Rock Toe wall of 3.25 K.M Length with proper dimensions (Bottom width-3m, height- 2m and top width -1m) and toe wall with OB soil at the toe of the dumps and OB benches has been constructed around the OB Dump yard for arresting soil erosion by considering rainfall data. Afforestation is being done as per the reclamation plan in the EMP. Plantation/afforestation has been done on decks and slopes of the OB dumps in an area of 215.50 Ha (with 5, 57,500 Nos saplings) as against 131 Ha as per EMP. Green belt is developed along mine boundary, drains, near CHP, service buildings and all along the haul roads in an area of 52 Ha. Plantation has been taken up in the township, block plantation – 155 Ha. and avenue plantation along the roads in the colonies, R&B road of Bayyaram for length of 47 km. Digital processing of the entire lease area based on satellite imagery is being done regularly once in 3 years for monitoring changes in land use pattern. Environmental quality monitoring is being carried out through EPTRI, Hyderabad. The monitoring result indicates that the parameters are within the stipulated norms.

The project authorities are complying with the conditions of the environmental clearance. This report is filed on the basis of the field visit and as per the information provided by the project authority. Detailed point wise compliance status is given below in Part II and III.

(Dr U. Sridharan)
Scientist "SF"

PART-II

Status of compliance to the Environmental clearance issued by the Ministry of Environment and Forests for the Manuguru OC-II Opencast Coal Mine Expansion Project (4.0 MTPA with a peak production of 5 MTPA) of M/s Singareni Collieries Company Ltd., located in village and Mandal Manugur, District Khammam, Andhra Pradesh. issued vide Ref: No. J-11015/144/2007-IA.II,M) dated 31st July, 2008.

Compliance status in brief:

	Specific Conditions	Status
1	No mining operations in the forestland until FC	Being Complied
2	Diversion of Gorripetu Vagu for a length of 16.68 Km be under taken	Agreed to comply
3	Diversion of State Highway road passing through the lease shall be done	Agreed to comply
4	Topsoil should be stacked properly with proper slope at earmarked site(s)	Being Complied
5	OB should be stacked at earmarked dumpsite(s) within ML area	Being Complied
6	Monitoring of the stability of OB dumps	Being Complied
7	Catch drains and siltation ponds of appropriate size should be constructed	Being Complied
8	Dimension of the retaining wall should be based on the rainfall data	Being Complied
9	Crushers at the CHP be operated with system to check fugitive emissions	Being Complied
10	Mechanical sweeping of the main haul roads shall be undertaken.	Being Complied
11	Drills should be wet operated only.	Being Complied
12	Controlled blasting should be practiced only during day time	Being Complied
13	Afforestation shall cover a total area of not less than 393.13 ha	Being Complied
14	Progressive Mine Closure Plan be implemented by reclaiming quarry	Agreed to comply
15	Conditions stipulated by the State Ground Water Dept. be implemented.	Being Complied
16	Regular monitoring of groundwater level and quality be carried out	Being Complied
17	Company shall put up artificial groundwater recharge measures	Being Complied
18	Periodic health check up of their workers & other health check ups	Being Complied
19	ETP should be provided for Work shop and CHP waste water	Being Complied
20	A Sewage treatment plant shall be installed in the combined township	Being Complied
21	Monitoring land use pattern and for post mining land use	Being Complied
22	A Final Mine closure plan with details of Funds should be submitted	Agreed to comply
23	R&R of 3 villages be done as per the norms of National R&R Policy	Agreed to comply
	General Conditions	
1	No change in mining technology and scope of working should be made	Agreed to comply
2	No change in the calendar plan should be made.	Agreed to comply
3	Four ambient air quality monitoring stations should be established	Being Complied
4	Fugitive dust emissions from all the sources should be controlled	Being Complied
5	Data on ambient air quality should be regularly submitted	Being Complied
6	Adequate measures should be taken for control of noise levels	Being Complied
7	Industrial wastewater should be properly collected, treated	Being Complied
8	Vehicular emissions should be kept under control & regularly monitored.	Being Complied
9	Environmental laboratory should be established	Outsourced
10	Personnel safety devices & occupational health surveillance programme	Being Complied
11	A separate environmental management cell with personnel be set-up	Complied
12	Funds for environmental protection be kept in separate account	Being Complied
13	Extend full cooperation of the office(s) during monitoring	Complied
14	Copy of clearance letter be marked to concern Panchayat / local NGO	Complied
15	SPCB should display the clearance letter in their office	Complied
16	The project authorities should advertise at least in two local newspapers	Complied

PART-III

Detailed Compliance status

A. SPECIFIC CONDITIONS:

I. No mining operations shall be undertaken in the forestland for which forestry clearance has not been obtained under the provisions of the FC Act, 1980.

Total Forestland is involved in the project is 2673.70 Ha. The project authorities informed that they are proposing to obtain the forest land diversion in a phased manner, and so far, forest clearance was obtained for a total land of 942.58 Ha which is in different stages. It was informed that the present mining operations are being carried out only in the already diverted forestland of 175 Ha under the provisions of Forest (Conservation) Act Vide letter No.8-7/2008-FCdated30.12.2008.

II. Diversion of the Gorripeta Vagu for a length of 16.68km shall be undertaken with the approval of the State Flood and Irrigation Department and with minimal disturbance to the downstream users.

The project authorities have informed that the diversion of the Gorripeta Vagu will be undertaken with the approval of State Flood and Irrigation department considering the requirements of downstream users. Now an application is submitted to State Irrigation & CAD department for NOC, after the approval, it was told that the diversion will be taken up through Irrigation department.

III. Diversion of the State Highway and roads for a total road length of 2036m passing through the lease shall be done with prior approval of the competent authorities.

It was informed that the diversion of State Highway is not required at this stage of mining operations and it is required only after the 25th year of the project. It was assured that the diversion will be with prior approval of the competent authority and diversion will be taken up through Road and Buildings Department.

IV. Topsoil shall be stacked properly with proper slope at earmarked site(s) and shall not be kept active and shall be used for reclamation and development of green belt

Topsoil is being stacked at the ear marked site and being used for reclamation and development of green belt. It was informed that the total topsoil removed as on 31.03.2013 from the Quarry is 8.47 M.Cu.m. Total top soil spread on the dump yards for reclamation till now is 7.87 M.Cu.m. Topsoil of 6.00 L.cu.m is being preserved in an area of 6.50 Ha.

V. OB shall be stacked at earmarked external OB dumpsite(s) within ML area and shall be a maximum height of 120m only consisting of 4 benches of 30m each. The ultimate slope of the dump shall not exceed 28". Backfilling shall begin at the end of 5th year in the decoaled area. Monitoring and management of existing reclaimed dumpsites shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional office located at Bangalore on a yearly basis

Overburden is being dumped at the ear marked dump yards within the mining lease area to a maximum height of 120 mtrs with 4 benches of 30 mtr each and overall slope less than 28°. It

was informed that the existing reclaimed dump in an area of 215.50 Ha is being monitored, revisiting of the dumps is being done regularly and will be done until the vegetation becomes self sustainable. Compliance status is being submitted to the MoEF and its Regional office located at Bangalore on half yearly basis.

VI. Monitoring of the stability of the OB dumps vis-à-vis the Model and its validation and taking appropriate mitigative measures such as construction of gabions, further compaction of OB, use of different particle size to reduce the failures, greater stabilization through geo-textile material, and plantation including species of grasses in areas in the dumps which are susceptive to slope stability failures.

Stability of the OB dumps is being monitored by taking appropriate mitigative measures such as construction of 05 nos. gabions, 80 nos. Crib structures and raising of multi species plantation and hamata grass, agave suckers and bamboo etc. on the slopes of the dumps for slope stability. It was told that further 10 more gabions and rock fill dams structures are proposed to be constructed in the gullies of OB dumps and garland drains respectively.

VII. Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green belt development, etc. The drains shall be regularly de-silted and maintained properly. Garland drains of suitable size, gradient and length and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide for adequate retention period to allow proper settling of silt material.

It was informed that for a length of 12.50 km, garland drains (2mx2m) are made and maintained around external OB Dump and Quarry for regulating and arresting the flow of surface run-off silt. The water from catch drains in and around quarry and OB dumps is collected in 4 nos. sedimentation ponds at appropriate site for arresting runoff of silt. The water so collected after settling is being utilized for water spraying in the mine, green belt development and excess water let out in to near by nallahs. The drains and settling ponds are being desilted regularly. Safety margin is being maintained while formation of drains with regard to size, gradient and length as per the stipulation. It was also informed that as of now desilting of garland drains is completed for a length of 3.5 km and also desilting of settling ponds was completed in 3 nos., further deck drains for a length of 2.5 km completed on west external dump yard.

VIII. Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.

The project authorities have informed that rock toe wall of 3.25 K.M Length with proper dimensions (Bottom width-3m, height- 2m and top width -1m) and toe wall with OB soil at the toe of the dumps and OB benches has been constructed around the OB Dump yard for arresting soil erosion by considering rainfall data.

IX. 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

Mist and dry fog dust suppression system is provided and maintained at crushers, coal transfer points, haul roads, and unloading points. Continuous water spraying arrangement is provided at crushers, unloading and transfer points as an alternative arrangement

X. **Mechanical sweeping of the main haul roads shall be regularly undertaken. The main haul roads and approach roads shall be black topped and have thick avenue plantation. The 3 km road to CHP shall be black topped and avenue plantation developed on both sides.**

It was informed that regular sweeping of Haul roads and approach roads is being done with Motor graders. Mechanical sweeper is not engaged but coal transport road is being cleaned manually (12 persons/day) and also water spraying is being done with 12 KL tanker regularly in three shifts. All the approach roads to CHP were block topped and maintained. Avenue plantation has been done along the Haul roads and approach roads for a length of 10.50 kms

XI. **Drills shall be wet operated only.**

All drill machines have been provided with dust collectors, dust disposal arrangement and wet drilling arrangement and it was told they are working effectively.

XII. **Controlled blasting shall be practiced only during daytime with use of delay detonators. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.**

It was informed that controlled blasting techniques are being practiced by adopting delay action non-electrical (Nonel) detonators to control ground vibrations and fly rocks risks and also noise. Secondary blasting is avoided by engaging rock breaker for boulders.

XIII. **Afforestation shall cover a total area of not less than 1967.78 ha which includes reclaimed external OB dump, reclaimed topsoil dump, backfilled area (616.84 ha), along ML boundary, along drains, and along main approach roads, major haul roads, near CHP, parking area and service buildings, undisturbed/vacant area (173.95 ha) within the lease and in the township by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.**

Afforestation is being done and it was informed that plantation/afforestation has been done on decks and slopes of the OB dumps in an area of 215.50 Ha. (with 5, 57,500 Nos. saplings) as against 131 Ha proposed in the EMP. Green belt is developed along mine boundary, drains, near CHP, service buildings and along haul roads in an area of 52 Ha. Plantation has been taken up in the township, block plantation – 155 Ha and avenue plantation along the roads in the colonies, R&B road of Bayyaram for length of 47 km. A program by name "Green Manuguru" programme has been taken up since 2010 for plantation along roads, vacant places at Govt. depts. Schools, Hostels and Hospitals with the help of NGOs and local associations. Free distribution of fruit bearing, flowering and shady plants about 10,200 nos. are distributed in the surrounding villages during year 2012.

XIV. **A Progressive Mine Closure Plan shall be implemented by reclamation of quarry area of 616.84 ha which shall be backfilled and afforested by planting native plant species in consultation with the local DFO / Agriculture Department. The density of the trees shall be around 2500 plants per ha. The balance 809.90 ha left at the end of mine life being converted into a water reservoir of a max, depth of 45m, shall be**

gently sloped, and the upper benches of which shall be stabilized and reclaimed with plantation and the reservoir peripherally fenced.

The project authorities assured that the reclamation measures are being complied as per EMP at the appropriate stages of the project.

XV. The company shall obtain prior approval of CGWA/CGWB Regional Office for use of groundwater if any, for mining operations.

It was informed that they have obtained the clearance for ground water from A.P. Ground water department vide letter no.483/T/SCCL/2007, dt.20.10.2007.

XVI. Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment & forests and to the Central Pollution Control Board quarterly within the month of monitoring.

It was informed that the project authorities are monitoring the ground water levels and quality in this area in the existing wells and by constructing a net work with new peizometers. Ground water level is being monitored four times per year in the nearby villages and the results are communicated to the concerned departments.

XVII. **The Company shall put up artificial ground water recharge measures for augmentation of groundwater resource in case of monitoring of water table indicates a declining trend. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to de-watering of mine.**

It was informed that the rain water and seepage water is collected in to sumps in the Quarry, which helps in ground water recharging. Also garland drains are made around the OB Dumps and Quarry to regulate rain water flow and this water is collected in siltation ponds,(four siltation ponds provided) which helps in augmentation of ground water table. Excess mine water during Monsoon is also let out in to nearby tanks/nallahs after proper treatment which also helps for augmentation of ground water recharge. Further their old OC – III void is used to collect rain water and also used as summer storage tank which helps for augmentation of ground water. SCCL is supplying treated Godavari drinking water for surrounding villages approx 26.50 lakh liters/day.

XVIII. Besides carrying out regular periodic health check up to 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, Ahmedabad within a period of one year and the results reported to this Ministry and to DGMS.

The project authorities are undertaking occupational health surveillance as per rules. It was informed that all the workmen engaged in active mining operations are sent to health check up for Occupational diseases and hearing impairment at the Company's Hospital and occupational health checkup has been done for 147 workmen during last six months.

XIX. 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.

ETP is provided at the Base Workshop and it was informed that it is working effectively and the ETP out let water is being used for washing of HEMM and also for green belt development in the Workshop. Two settling ponds were made at CHP for treatment of the water. It was told that they are proposing to construct ETP at CHP for treatment of effluents and conservation of water, energy. Mine discharge is being treated at settling pond. Water analysis report shows that all parameters are within the prescribed standards.

XX. A sewage treatment plant shall be installed in the township established for the Project.

A sewage treatment plant (1.5 MLD) has been operating at P.V. colony for treating domestic sewage. Treated water is being used for gardens, plantation and also supplying to agricultural fields (72 Acrs). During the visit it was found that the STP was operating efficiently and the area is maintained well.

XXI. For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1:5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which in consistent in the time series), and the report submitted to MOEF and its Regional office at Bangalore.

It was informed that monitoring of land use pattern and for post mining land use is being done based on satellite imaginary once in 3 years and the reports are being submitted along with the periodic progress reports.

XXII. A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

The project authorities assured that this condition will be complied at the appropriate stage of the project.

XXIII. R&R for 3 villages, namely Srirangapuram (50), Shantinagar (208), and Gollakotturu (72) involving 330 PAFs and 55 land oustees, shall be not less than that given in the National R&R Policy and the R&R Package shall be not less than Rs.12.37 crores

It was informed that R & R for the two villages Shantinagar and Gollakotturu are required in future after 10 years. R&R Package is implemented for 127 families of Srirangapuram (V) as approved by A.P. Government and an amount of Rs.2.13 Crores has been spent so far.

B. <u>GENERAL CONDITIONS</u>

I. No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.

It was assured that there is no change in mining technology and scope of working.

II. **No change in the calendar plan including excavation, quantum of mineral coal and waste shall be made.**

It was assured that the Coal production and OB excavation quantities are being maintained as per their calendar plan.

III. **Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for SPM, RPM, SO2 and NOx monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.**

It was informed that four Ambient Air Quality monitoring stations are established in the core zone as well as buffer zone based on micro-meteorological data in consultation with Regional Office, AP Pollution Control Board, Kothagudem.

IV. **Fugitive dust emissions (SPM and RPM) from all the sources shall be controlled regularly monitored and data recorded properly. Water spraying arrangement on haul roads, wagon loading and dump trucks (loading and unloading) points shall be provided and properly maintained.**

It was informed that fugitive dust emissions from all the sources are being controlled and it is being monitored. Six nos. 28KL Water sprinklers are being engaged for water spraying along haul roads regularly in three shifts. Continuous water spraying arrangement is provided at loading, unloading and wagon loading (pre weigh bin and rapid loading systems are provided for lorry and wagons respectively for proper loading and also to control dust) and also along coal transport roads.

V. **Data on ambient air quality (SPM, RPM, SO2 and NOx) shall be regularly submitted to the Ministry including its Regional Office at Bangalore and to the State Pollution Control Board and the Central Pollution Control Board once in six months.**

The Post project Air Quality is being monitored at four locations in the core and buffer zones of the project and the results are being communicated to the concerned departments periodically.

VI. **Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operation, operation of HEMM, etc shall be provided with ear plugs/muffs.**

The project authorities are taking adequate measures to control the noise levels below 85 dB in the work environment further A.C Cabins are provided and maintained for all HEMMs for protection from noise and dust to the operators. All the operation crew working in blasting, drilling and on other works are provided with ear plugs/muffs wherever required. Control blasting techniques are being adopted with non-electrical delay action detonators to mitigate dust, noise and also ground vibrations.

VII. **Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.**

The waste water from the base workshop is being treated in ETP provided with oil & grease trap and treated water is being utilized for plantation, water spraying for dust suppression and washing of vehicles at Base Workshop. Mine discharge is being treated at settling ponds for removal of suspended solids from water. The water quality data of ETP and Mine discharge provided shows that the parameters are within the prescribed standards.

VIII. **Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.**

It was informed that the vehicles are being maintained as per the manufacturers guidelines including engine tuning, oil changing etc., to keep the emissions under control. All the coal transport vehicles moving outside the project area are being covered with tarpaulins and also optimally loaded to prevent coal spillage and dust emissions.

IX. **Environmental laboratory shall be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.**

SCCL has engaged an outside approved agency for environmental monitoring of Air, Water and Noise quality.

X. **Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects. occupational health surveillance programme of the workers shall be undertaken periodically.**

It was informed that occupational health surveillance programme is being under taken and records are periodically maintained also the persons working in dusty area are being provided with protective respiratory devices (Dust caps issued) with proper training.

XI. **A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the Company.**

It was informed that they have one Environmental Management Committee for MNG OC –II Extension Project for implementing environmental safe guards. Meetings are being held regularly for improving environmental safe guards. The details of the cell, minutes of their meeting are provided during the visit.

XII. **The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bangalore**

The project authorities assured that the funds earmarked for environmental protection as per their EMP are being utilized and the records are being maintained. The expenditure details on their environmental protection measures are periodically furnished and a copy was provided during the visit also.

XIII. **The Regional Office of this Ministry located at Bangalore shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports**

Necessary co-operation was provided during the visit and the project authorities are submitting the periodical progress reports regularly to ministry and the regional office.

XIV. A copy of the clearance letter will be marked to concerned Panchayat/local NGO, if any, from whom any suggestion / representation on has been received while processing the proposal.

It was informed that a copy of the clearance letter was marked to concerned panchayats i.e., Pagideru (V) and Ramanjavaram (V).

XV. State Pollution Control Board shall display of the clearance letter at the Regional Office, District Industry Centre and Collectors Office/Tahsildar Office for 30 days

It was informed that the A.P. Pollution Control Board, Kothagudem displayed Environment clearance letter at Regional office, Kothagudem, District Industry Centre, Collectors Office, Khammam and Thahasildar Office, Manuguru in 2008 for 30 days.

XVI. **The Project authorities shall advertise at least in two local newspapers informing that the project has been accorded environmental clearance.**

The project authorities have already advertised in news papers and a copy of the news paper clipping has already been submitted to MoEF, Bangalore.

(Dr U. Sridharan)
Scientist "SF"

Compliance status of issues raised in Public Hearing

Public Hearing conducted on 28.08.2007 for MNG OC-II Ext project.
Minutes and compliance status

Sl.No.	Issues Raised	Clarification given by General Manager on the day of public hearing	Status of Compliance
01	**Sri B. Ayodhya Chary, Vice Chairman, Zilla Parishad, Khammam** said that he partly agrees with the views of the CGM, Manuguru Area that development has taken place in Manuguru town due to SCCL mines. While stressing for extension of such a good project, requested SCCL authorities to look into the following – • Due to mining operations in Manuguru, ground water levels are falling. • Drinking water is not being supplied sufficiently to the local people. • SCCL should take care of the villagers of New Kondapuram. • Srirangapuram village is adversely affected by the blasting operations of Manuguru.OC-II project and some of the families in the village have migrated to near village and demanded for proper R&R package to them. • The villagers of Srirangapuram,	The reply given by Sri B.Ramesh Kumar, CGM, SCCL is as follows. • The estimation of Rs. 12.35 crores given in the executive summary is for R&R only and the cost of land acquisition has not been loaded into this fund. • As per the Hydro-Geological studies of Andhra Pradesh Ground Water Department, the Manuguru area has been categorized as safe. • All the displaced families will be suitably rehabilitated and will be resettled with a human approach and he informed that Shanthinagar and Golla Kothuru villages will be rehabilitated after 10 years or even more and Srirangapuram villagers will be rehabilitated immediately.	• Opencast mining impacts on ground water levels up to 160m to 200m from the quarry boundary as per the study of hydrogeologists of SCCL. • River Godavari drinking water supply to Manuguru town and surrounding villages approx.4,38,165 kilo gallons/year. • Mobile health camps being conducted regularly at Kotha Kondapur and also surrounding villages. • Community halls constructed for Kotha Kondapur villagers. • Vacancies exist at Bellampalli and Mandamarri,but 170 persons not accepted to go. • R&R package is being implemented as per GO MS No.68 for Srirangapuram villagers. • Displacement of Shantinagar and Golla Kothuru villages will be done after 10 years. • 90-100 land oustees were placed in out sourcing works.

	Shanthinagar and Golla Kothuru villages fear displacement due to the extension project as they are dependant on agriculture only for their livelihood. • R&R package may be prepared in consultation with the PAFs and public representatives and the details of the package should be clearly explained to the affected people. • The said R&R package should be implemented before commencement of the project. Employment may be provided to the land oustees.		
02	• **Smt. Kunja krishna kumari, Sarpanch, Pagideru village** said that – • The people of Pagideru village fear displacement due to extension project. • To open u/g mines instead of opencast projects that may not displace people. • Manuguru is developed by SCCL but, Pagideru village was ignored in SHAPE programme. • Roads, bund along the surface tanks and other infrastructural facilities may be provided till they are evacuated. The extension project is accepted subject to implementation of R&R prior to the commencement	• Roads were constructed, drinking water is being supplied and Power supply was provided in consultation with APSEB • After implementation of R&R package only, the extension project will be commenced. • The Municipal authorities of Manuguru have failed to make any memorandum of understanding (MoU) in last three years in SHAPE works for implementation of distribution of Godavari water to local people. • It is learnt that there is an unspent amount of about Rs.16 lakhs	• Opening of Underground mine is un-economical.

	of the extension project.	deposited with the District Authorities allocated for Manguru area under SHAPE programme. SCCL management will take up with district authorities for utilization of these funds for the repairs of the road from Bandarugudem to Kunavaram.	
03	**Sri Kataboina Nageshwar Rao, Sarpanch, Samithi Singaram village** said that - • The extension project should be commissioned by SCCL. • There are mixed benefits from mines such as pollution and economic development. • Village environment is being polluted by trucks transporting coal which are also jeopardising the safety in the village. • Alternate route may be provided for coal transport. Proper care may be exercised while preparing R&R package by considering the views of the PAFs.	• SCCL is a Government Company. Coal produced by this company is a national resource and is being used for the progress of the nation. Some families may have to be displaced due to mining activities, but it is inevitable in the interest of the nation. The displaced families will be rehabilitated as per the government rules in vogue. • The estimation of Rs. 12.35 crores given in the executive summary is for R&R only and the cost of land acquisition has not been loaded into this fund • Environmental protection measures in the EIA/EMP will be taken up as given in the EIA/EMP	• Proper pollution control measures are being implemented by SCCL like controlled blasting techniques,water spraying and also covering coal transport lorries with tarpaulin cloth.
04	**Sri Payam Narsimha Rao, President, Mandal Parishad, Manuguru** said	• The estimation of Rs. 12.35 crores given in the executive summary	• R&R package is being implemented as per GO MS No.68

	that - • He wants clarification on the details of R&R package of Rs.12.35 Crores. • An agreement may be entered into regarding the R&R package by SCCL and State Govt. in the presence of a Judge. • The ground water may deplete due to extension of mine up to 420m. depth. • Micro eco-balance may get disturbed due to removal of large extent of forest and requested for taking appropriate measures to control the same. • The rehabilitation site may be identified in advance and R&R package may be implemented before commencement of the project. • 20% of the profits may be utilized for the development of the surrounding villages. • Extension project can come if the above steps are taken.	is for R&R only and the cost of land acquisition has not been loaded into this fund. • Ambient Air quality, Water quality and noise level in the mining areas is within the stipulated standards. • R&R package will be prepared by the Administrator appointed by the State Govt. as per GOMs No. 68. and SCCL abides by the package decided by the Government. After implementation of R&R package only, the extension project will be commenced	• Opencast mining impacts on ground water levels up to 160m to 200m from the quarry boundary as per the study of hydrogeologists of SCCL
05	**Sri Guvva Rambabu, Vice Sarpanch, Pagideru Village** said that **-** • SCCL authorities have stated that only three villages are being affected, but in fact six villages will be affected. Therefore, R&R benefits to be extended to all the		Mobile health camps are being conducted regularly in the surrounding villages

	six villages. • SCCL to improve Medical facilities in the villages. • The environmental public hearing for the proposed extension should have been conducted at one of the villages proposed for displacement. • He demanded compensation of land for land and house for house besides R&R package. Out of 70 families in Srirangapuram village, nearly 40 families migrated to nearby villages due to blasting in Manuguru OC-II project.		
06	**Sri. Puli Soma Narasaiah, Farmer, Golla Kothuru said that -** • Suitable R&R package should be implemented before commencement of the project.		
07	**Sri. Posham Narasimha Rao, District Committee member, CPI(M), Khammam said that -** • Extending the existing Manuguru OC-II project is a welcome step taken by SCCL but, complained that compensation as per R&R package will be insufficient, therefore, it should be as per current market rates. • As villagers of Srirangapuram village		

	will be displaced immediately, the views of public representatives will have to be taken into account for preparation of a suitable R&R package.		
08	**Sri. Polamuri Raju, Congress president, Manuguru town said that -** • The then Chief Minister late Sri. Jalagam Vengal Rao has inquired about the envisaged life of coal mining at Manuguru in 1970s. In reply SCCL officials have informed that there is a life of 100 years for mining. Today, the SCCL has lived up to their commitment made then and extended the life of Manuguru OC-II project to 66 years more. Extension of Manuguru OC-II is accepted by the people however, delay in implementation of the R&R package for Kondapuram villagers agreed by the company has infused fears on implementation of R&R in respect of Manuguru OC-II extension project. • SCCL should allay these fears. • Compensation to be paid considering the land as agricultural land. Employment may be provided in the offloading works.	• As per the orders of RDO, Rs, 4,68,800/- was paid as compensation to 7 persons for acquiring assigned land. • .Rs. 5,40,000/- was paid to 9 families for acquiring their patta land. • Each family was allotted 2 acres of land for agricultural purpose. • The compensation will be implemented as per the provisions of G.O.Ms.No.68 of Govt. of AP.	
09	**Sri. Bojja Ramulu, Samithi Singaram said that –**		The compensation will be implemented as per the provisions of G.O.Ms.No.68

	• Suitable R&R package to be implemented for affected people.		of Govt. of AP
10	**Sri. Puli Komaraiah, Farmer, Srirangapuram said that –** • Suitable R&R package to be implemented for affected people.		The compensation will be implemented as per the provisions of G.O.Ms.No.68 of Govt. of AP
11	**Sri. Karne Ramulu, Srirangapuram said that –** • For three generations we have been cultivating the land therefore, should be treated as pattedars on par with the real pattedars.		
12	**Sri. Md. Khader baba, SCCL Employee, Sambaiahgudem village said that –** • We welcome the proposal for commissioning of extension project. But, due to diversion of Gorrepeta vagu, the agriculture activities in the villages of Dammakkapeta, Chikkudugunta, Sambaiahgudem, Ramanujavaram and Kondaigudem will be affected, therefore, compensation be paid to all these villagers.	• Gorrepeta Vagu will be re-aligned as per the advice of the retired irrigation engineers to benefit maximum villages in its course. • Gorrepeta Vagu will be re-aligned as per the advice of the retired irrigation engineers to benefit maximum villages in its course.	• R&R package is being implemented as per GO MS No.68 • Gorrepeta vagu diversion alignment as per approval of minor irrigation gepartment and feeder channels for the irrigation tanks will be considered.
13	**Sri. Dandam Nageshwar Rao, Cheruvumundu Singaram village said that –** • SCCL failed to implement the R&R in case of Kondapuram land loosers. Employment is being		• 90-100 persons placed in out sourcing works

	provided in off-loading works to the employees children only. Preference should be given to unemployed youth of surrounding villagers.		
14	**Sri. Akki Guravaiah, Sarpanch, Ramanujavaram said that-–** Diversion of Gorrepetavagu will affect the agricultural land to the extent of 3000 acres in six villages of Ramanujavaram Grampanchayat. Therefore, diversion of Gorrepetavagu should be reviewed and do justice.	• Gorrepeta Vagu will be re-aligned as per the advice of the retired irrigation engineers to benefit maximum villages in its course. • Gorrepeta Vagu will be re-aligned as per the advice of the retired irrigation engineers to benefit maximum villages in its course. Each family was allotted 2 acres of land for agricultural purpose	• Gorrepeta vagu diversion alignment as per approval of minor irrigation gepartment and feeder channels for the irrigation tanks will be considered
15	**Sri. Nama Venkateswara Rao, Branch Secretary, AITUC stressed that-–** • Extension of Manuguru OC-II project is essential and inevitable but, displaced families should be paid suitable compensation. The opinion of surrounding villagers should be taken into consideration while implementing R&R packages. • Environmental protection measures should be strictly implemented in the project. • Infrastructural facilities should be provided to surrounding villages. The details of R&R packages should be explained to surrounding villagers.	• Roads were constructed, drinking water is being supplied and Power supply was provided in consultation with APSEB • Coal reserves are available upto a depth of 1500 mts. However, there is no proven technology to exploit the same. Coal gasification, a recent technology for exploitation of seams at greater depth is still in experimental stage. SCCL has entered into technical collaboration with a firm in this regard. • The estimation of Rs. 12.35 crores given in the executive summary is for R&R only and the	• 90-100 persons placed in out sourcing works • R&R package is being implemented as per GO MS No.68

		cost of land acquisition has not been loaded into this fund. • As per the Hydro-Geological studies of Andhra Pradesh Ground Water Department, the Manuguru area has been categorized as safe. • As regards Environmental protection measures, the suggestions of local people will also be considered. All the displaced families will be suitably rehabilitated and will be resettled with a human approach and he informed that Shanthinagar and Golla Kothuru villages will be rehabilitated after 10 years or even more and Srirangapuram villagers will be rehabilitated immediately	
16	**Sri. M.Pitcheswara Rao, Vice President, INTUC, Manuguru said that** • SCCL is the largest government organisation spread over four districts. The activities undertaken by the company should not cause any inconvenience to the surrounding villages. The company should get the favour of the people. Thus the company can progress. • There is a necessity of commissioning new projects for	• SCCL is a Government Company. Coal produced by this company is a national resource and is being used for the progress of the nation. Some families may have to be displaced due to mining activities, but it is inevitable in the interest of the nation. The displaced families will be rehabilitated as per the government rules in vogue. • As per the agreement entered into with the villagers of	• 90-100 persons placed in out sourcing works • R&R package is being implemented as per GO MS No.68

	development. • Formulation of extension projects and new projects should also envision preparation and implementation of proper R&R package and emphasized that Manuguru OC-II extension project should be accepted by one and all. • Environmental protection measures should be strictly implemented in the project. • Details of R&R packages should be explained to surrounding villagers. The short comings in the implementation of R&R package to the villagers of Kondapuram should be avoided in other cases.	Kondapuram, house sites were allotted near sivalayam at sivalingapuram and Rs.6,42,000/- was paid as compensation against losing houses • As regards Environmental protection measures, the suggestions of local people will also be considered. • Environmental protection measures in the EIA/EMP will be taken up as given in the EIA/EMP.	
17	**Sri. V. Ravindra Rao, Zonal Incharge, BMS said that-–** • He welcomes extension of Manuguru OC-II project • He requested for commencement of the project after implementation of R&R package only. • R&R package be implemented to those who left Srirangapuram village due to the effect of blasting of MNG.OC-II Project. • Employment be provided to the local youth in out sourcing	• Presently, Srirangapuram village will be rehabilitated. Shanthinagar and Gollakothuru villages will be rehabilitated after 10 years of commencement of extension project. • Employment to the displaced families in outsourcing works will be explored. • While referring to the question on employment, he informed that as there were no vacancies at Manuguru then, the 170 persons in	• 90-100 persons placed in out sourcing works

	works. Proper development works be taken up in Golla kothuru and Shanthinagar villages which are said to be rehabilitated after 10 years.	question were directed to work at Bellampalli and Madaram areas. Since they refused to move to BPA/Madaram, their orders were cancelled. • With regard to providing employment to 17 persons of Cheruvumundu Singaram Village, it has been clarified that as the case is pending in the Court, it will be sub-judice to make any comment at this juncture. • All the displaced families will be suitably rehabilitated and will be resettled with a human approach and he informed that Shanthinagar and Golla Kothuru villages will be rehabilitated after 10 years or even more and Srirangapuram villagers will be rehabilitated immediately. • The issue of employment to the displaced persons in the out sourcing works will be examined in consultation with corporate authorities.	
18	**Sri. Y. Srinivasa Murthy, TNTUC State Secretary said that** • SCCL has taken a right step by extending the existing Manuguru OC-II project.	• R&R package will be prepared by the Administrator appointed by the State Govt. as per GOMs No. 68. and SCCL abides by the package	• 90-100 persons placed in out sourcing works • R&R package is being implemented as per GO MS No.68

	• There should be humanitarian approach in implementing R&R package to the project affected families. • The agricultural labour who are homeless and landless are also to be taken into consideration while implementing the R&R compensation. • Some funds are to be provided for the developmental works of the surrounding villages. As per the guidelines of A. P. Pollution Control Board, Environmental Protection Measures should be implemented.	decided by the Government • Each family was allotted 2 acres of land for agricultural purpose. • Ambient Air quality, Water quality and noise level in the mining areas is within the stipulated standards. • The estimation of Rs. 12.35 crores given in the executive summary is for R&R only and the cost of land acquisition has not been loaded into this fund.	
19	**Sri. Ketha Srinivasa Rao, HMS Organiser said that-–** • There is necessity of new projects for development but, R&R Package should be implemented judiciously. Some percentage of jobs should be provided to the land losers in the out sourcing works.	• Employment to the displaced families in outsourcing works will be explored. • While referring to the question on employment, he informed that as there were no vacancies at Manuguru then, the 170 persons in question were directed to work at Bellampalli and Madaram areas. Since they refused to move to BPA/Madaram, their orders were cancelled. • With regard to providing employment to 17 persons of Cheruvumundu Singaram Village, it has been clarified that as the case is pending in the Court, it will be sub-judice to make any	• 90-100 persons placed in out sourcing works

		comment at this juncture. • Roads were constructed, drinking water is being supplied and Power supply was provided in consultation with APSEB	
20	**Sri. Sd. Nasar Pasha, EP Operator, Manuguru OC-II said that-–** • There is necessity of new projects for development hence, extension of existing project is a right step in this direction and stressed that there is every need to protect the interest of the public. • Proper implementation of R&R package to be ensured.		• R&R package is being implemented as per GO MS No.68
21	**Sri. Komaram Sammaiah, Kotha Kondapuram village said that-–** The people should invite extension of Manuguru OC-II project but, the short comings identified in implementation of R&R package to the villagers of Kondapuram should be avoided. The land losers should be provided jobs in contract works.	• After implementation of R&R package only, the extension project will be commenced. • It is assured to provide medical treatment to the residents of New Kondapuram village who are suffering from chronic diseases, as the village is adopted by SCCL • As per the agreement entered into with the villagers of Kondapuram, house sites were allotted near sivalayam at sivalingapuram and Rs.6,42,000/- was paid	• 90-100 persons placed in out sourcing works • R&R package is being implemented as per GO MS No.68

		as compensation losing houses	
22	**Sri. B.V.S. Murthy, EP Fitter, Group Workshop said that—** Industries are required for development of any area. For acquiring the land needed for the project, proper R&R package should be implemented.	• R&R package will be prepared by the Administrator appointed by the State Govt. as per GOMs No. 68. and SCCL abides by the package decided by the Government • The estimation of Rs. 12.35 crores given in the executive summary is for R&R only and the cost of land acquisition has not been loaded into this fund.	• R&R package is being implemented as per GO MS No.68
23	**Sri. Nagamallu, Golla Kothuru said that-–** • Due to the diversion of Gorrepeta Vagu, Voora Cheruvu tank will be affected and the agriculture in its surrounding will be damaged. • Due to the vibrations of blasting, the Golla Kothuru village houses also are being affected. Hence, proper R&R package should also be implemented to these people also.	The reply given by Sri Ramesh Kumar, CGM, SCCL is as follows. • Gorrepeta Vagu will be re-aligned as per the advice of the retired irrigation engineers to benefit maximum villages in its course. • The issue of diversion of Gorripeta vagu will be taken up as per the advice of the State irrigation department.	• R&R package is being implemented as per GO MS No.68

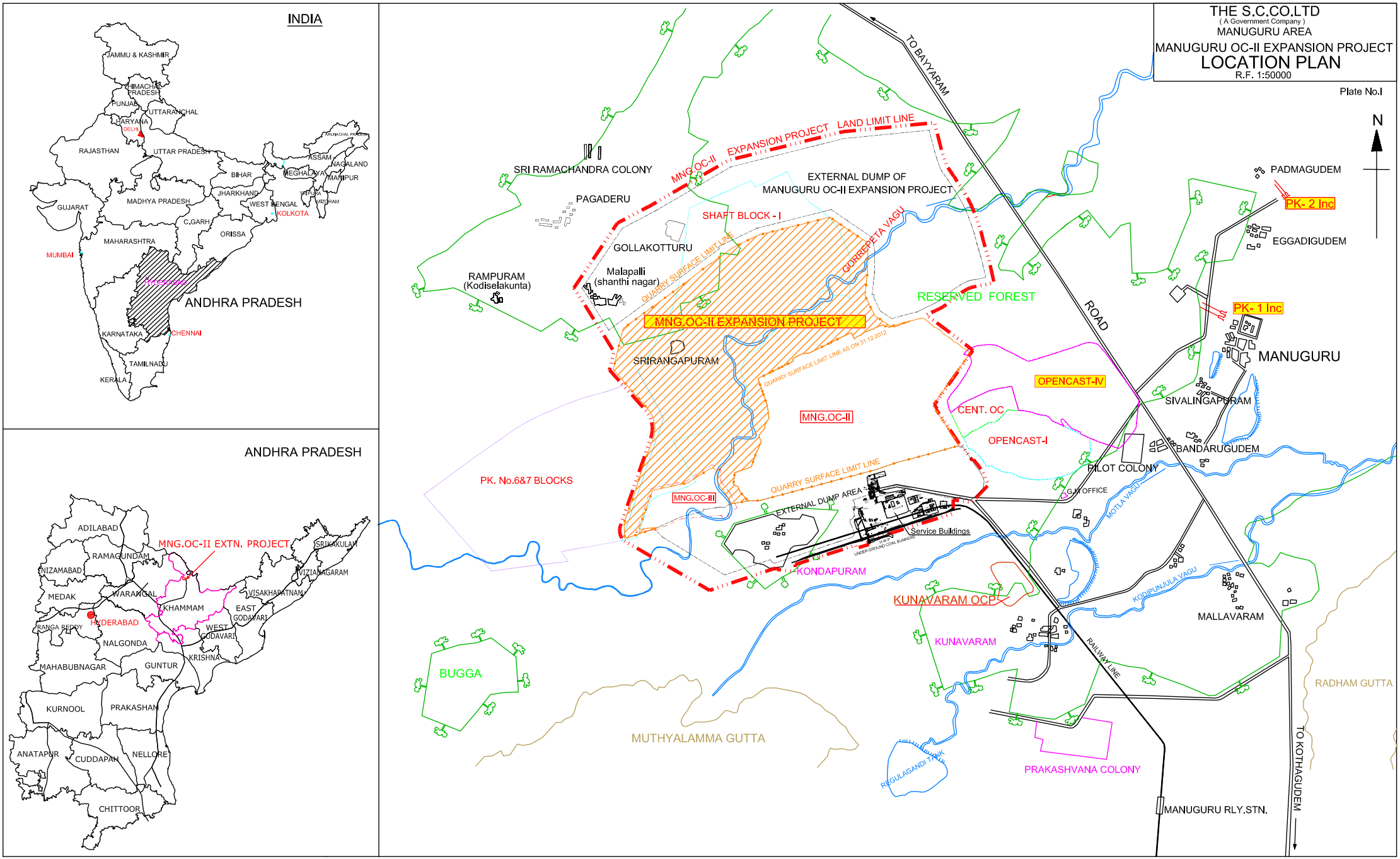
Compliance status of Rehabilitation & Resettlement

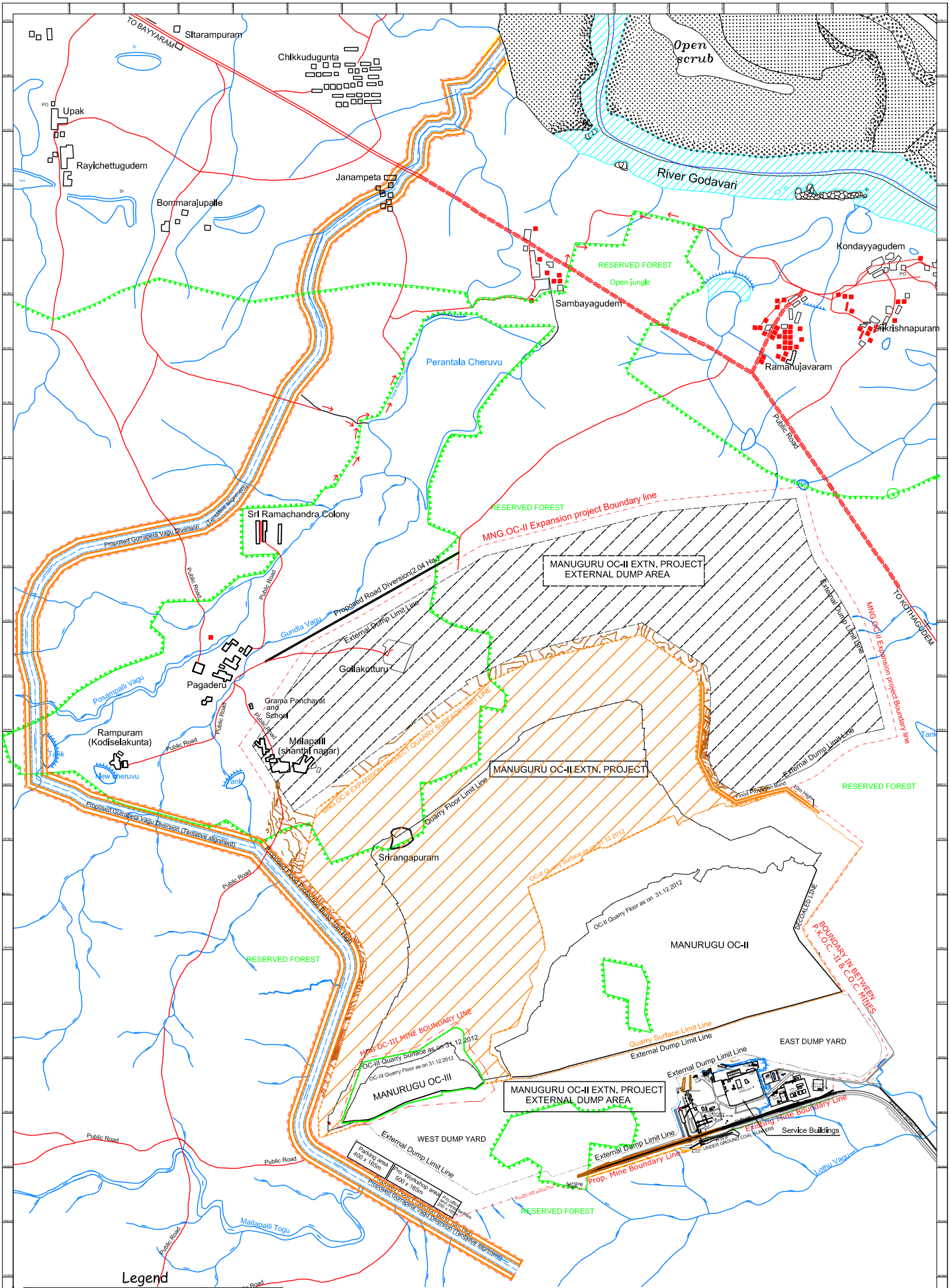
Rehabilitation and Resettlement:

Total 171 families were displaced .Out of which 42 families were paid compensation as part of Manuguru OCP-II in 1998 before R&R policy and remaining were displaced under the provisions of State R&R policy.

Name of affected village/Hamlet	No. of PDFs	Year of evacuation	Name of R&R Centre where PDFs settled	Compensation paid for acquisition of houses for villagers	Amount paid towards R&R Benefits	Cost of development of R&R centres
kondapuram (prior to R&R Policy)	42	1998	-Nil-	642629.00	--	Acs.2-00 Gts per family free of cost. House plots were allotted in company acquired land with infrastructure facilities.
Srirangapuram	129	2010	Paid cash compensation in lieu of developed house plot as requested by PDFs.	1607080.00	19656500.00(include Rs.55,000/-per house plot/per family)	--
Total	171			2249709.00	19656500.00	--

Plans


INDIA
JAMMU & KASHMIR
HIMACHAL PRADESH
PUNJAB
UTTARANCHAL
HARYANA
DELHI
RAJASTHAN
UTTAR PRADESH
BIHAR
SIKKIM
ASSAM
NAGALAND
MEGHALAYA
MANIPUR
TRIPURA
MIZORAM
JHARKHAND
WEST BENGAL
KOLKOTA
GUJARAT
MADHYA PRADESH
C.GARH
ORISSA
MAHARASHTRA
MUMBAI
Hyderabad
ANDHRA PRADESH
KARNATAKA
CHENNAI
TAMILNADU
KERALA
ANDHRA PRADESH
ADILABAD
MNG.OC-II EXTN. PROJECT
SRIKAKULAM
RAMAGUNDAM
NIZAMABAD
VIZIANAGARAM
MEDAK
WARANGAL
VISAKHAPATNAM
KHAMMAM
EAST GODAVARI
RANGA REDDY
HYDERABAD
WEST GODAVARI
NALGONDA
KRISHNA
MAHABUBNAGAR
GUNTUR
KURNOOL
PRAKASHAM
ANATAPUR
CUDDAPAH
NELLORE
CHITTOOR
THE S.C.CO.LTD
(A Government Company)
MANUGURU AREA
MANUGURU OC-II EXPANSION PROJECT
LOCATION PLAN
R.F. 1:50000
Plate No.I
N
TO BAYYARAM
MNG.OC-II EXPANSION PROJECT LAND LIMIT LINE
SRI RAMACHANDRA COLONY
EXTERNAL DUMP OF MANUGURU OC-II EXPANSION PROJECT
PAGADERU
SHAFT BLOCK - I
GOLLAKOTTURU
QUARRY SURFACE LIMIT LINE
GORREPETA VAGU
RAMPURAM (Kodiselakunta)
Malapalli (shanthi nagar)
RESERVED FOREST
MNG.OC-II EXPANSION PROJECT
SRIRANGAPURAM
QUARRY SURFACE LIMIT LINE AS ON 31.12.2012
ROAD
PADMAGUDEM
PK- 2 Inc
EGGADIGUDEM
PK- 1 Inc
MANUGURU
OPENCAST-IV
SIVALINGAPURAM
CENT. OC
MNG.OC-II
OPENCAST-I
BANDARUGUDEM
PILOT COLONY
PK. No.6&7 BLOCKS
MNG.OC-III
QUARRY SURFACE LIMIT LINE
EXTERNAL DUMP AREA
G.M OFFICE
MOTLA VAGU
Service Buildings
KONDAPURAM
KODURUPULA VAGU
KUNAVARAM OCP
MALLAVARAM
KUNAVARAM
RAILWAY LINE
BUGGA
RADHAM GUTTA
MUTHYALAMMA GUTTA
REGULAGANDI TANK
PRAKASHVANA COLONY
MANUGURU RLY.STN.
TO KOTHAGUDEM



Legend

Particulars	Symbol
Mine boundary line	
Quarry surface Limit Line	
Quarry floor Limit Line	
Forest Boundary	
Borehole No. with surface RL	793 818.06
Fault	F2 F2
Vagu	
Road	

PLATE NO-II

The S.C.CO.LTD.,
KEY PLAN
MANUGURU OC-II EXPN.PROJECT
MANUGURU AREA
Not to scale

INDIA

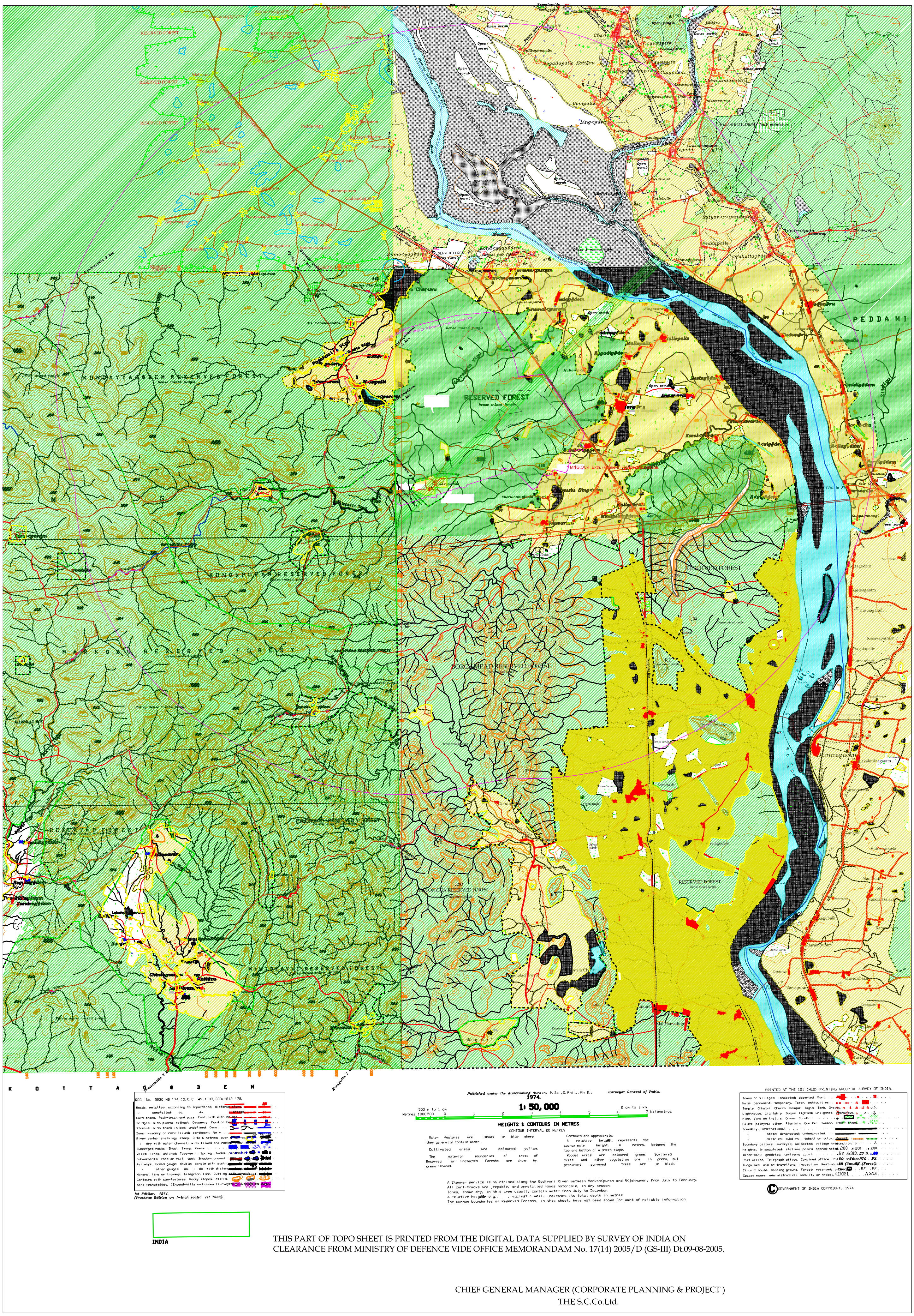
REFER TO THIS MAP AS :- 1:50,000

SHEET 65B/16(PART),65B/12(PART), 65C/9 (PART) AND 65C/13(PART) FIRST EDITION

MANUGURU OC - II EXPANSION PROJECT

KHAMMAM DISTRICT Surveyed 1979-80. ANDHRA PRADESH

Magnetic Variation from True North about 1° West in 1980.
(Annual change negligible).



Published under the direction of Hari Narain, M. Sc., D. Phil., Ph. D., Surveyor General of India, 1974.

1: 50,000

500 m to 1 cm — 2 cm to 1 km

Metres 1000 500 0 1 2 3 4 5 6 7 Kilometres

HEIGHTS & CONTOURS IN METRES

CONTOUR INTERVAL 20 METRES

Water features are shown in blue where they generally contain water.

Cultivated areas are coloured yellow.

The exterior boundaries of areas of Reserved or Protected Forests are shown by green ribands.

Contours are approximate.

A relative height, represents the approximate height, in metres, between the top and bottom of a steep slope.

Wooded areas are coloured green. Scattered trees and other vegetation are in green, but prominent surveyed trees are in black.

A Steamer service is maintained along the Godāvari River between Venkatāpuram and Rājahmundry from July to February.
All cart-tracks are jeepable, and unmetalled roads motorable, in dry season.
Tanks, shown dry, in this area usually contain water from July to December.
A relative height e.g., , against a well, indicates its total depth in metres.
The common boundaries of Reserved Forests, in this sheet, have not been shown for want of reliable information.

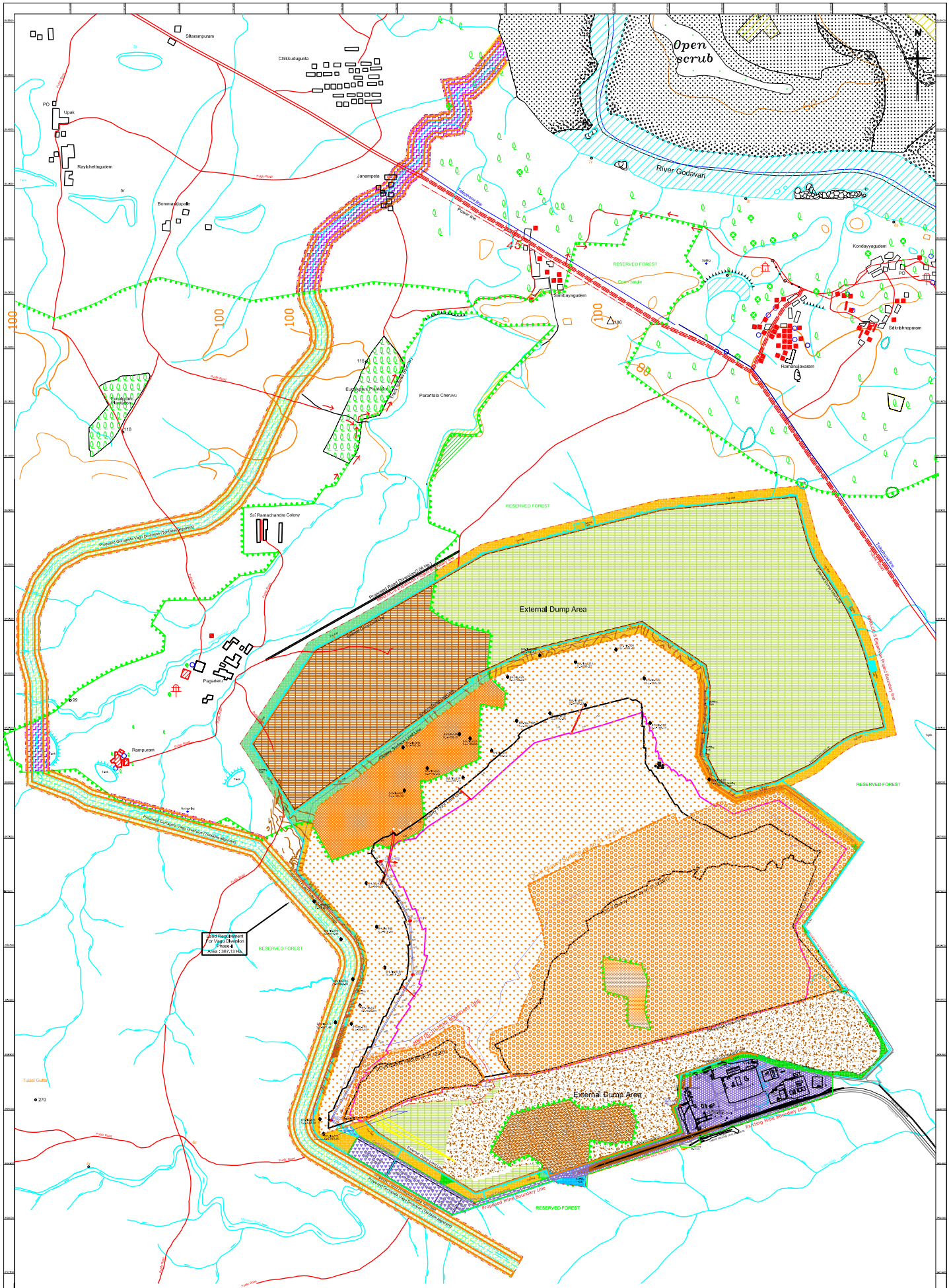
1st Edition 1974.
(Previous Edition on 1-inch scale: 1st 1926).

PRINTED AT THE 101 (HLO) PRINTING GROUP OF SURVEY OF INDIA.

INDIA

THIS PART OF TOPO SHEET IS PRINTED FROM THE DIGITAL DATA SUPPLIED BY SURVEY OF INDIA ON CLEARANCE FROM MINISTRY OF DEFENCE VIDE OFFICE MEMORANDAM No. 17(14) 2005/D (GS-III) Dt.09-08-2005.

CHIEF GENERAL MANAGER (CORPORATE PLANNING & PROJECT)
THE S.C.Co.Ltd.



Land use details: Total (in Ha.)

Particulars	Land Requirement in Ha.				
	Additional Land Requirement		Land Under Possession of SCCL		Total
	Private	Forest	Private	Forest	
Quarry Area	121.54	1305.20	0.31	0.07	1426.74
OB Dumps	262.23	807.83	0.00	0.00	1070.06
Safe Barrier and Drainage along Dump Yard	59.01	174.75	0.00	0.00	233.76
Service buildings, Railway siding, CHP etc.	--	0.00	0.00	0.00	106.03
Vagu diversion	0.00	0.00	--	--	367.13
Road diversion	1.79	0.25	--	--	2.04
Total Land Requirement	484.46	1679.56	77.60	994.14	3205.76

Land Requirement: Total (in Ha.)

Particulars	Total Land Required			Land Under Possession of SCCL
	Non-Forest	Forest	Total (5)	
Quarry Area	121.54	1305.20	1426.74	678.99
OB Dumps	262.23	807.83	1070.06	279.8
Safe Barrier, Drainage, Protection bund etc.	59.01	174.75	233.76	39.78
Service buildings, Railway siding, CHP etc.	2.27	103.86	106.03	77.17
Vagu diversion	85.31	281.82	367.13	-
Road diversion	1.79	0.25	2.04	-
Total Land Requirement	532.06	2673.70	3205.76	1071.74

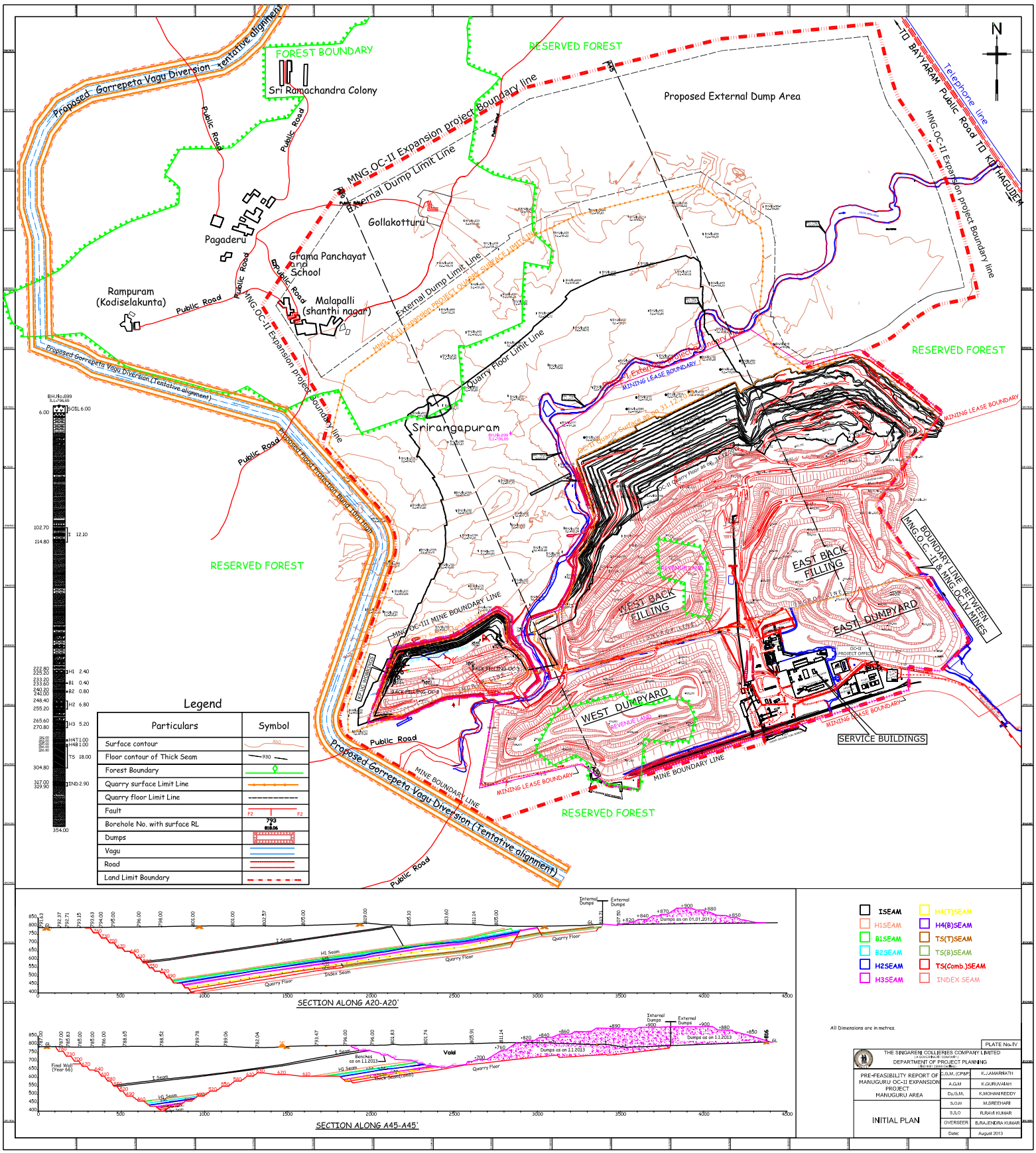
All dimensions are in metres. PLATE No-III

THE SINGARENI COLLIERIES COMPANY LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE)
DEPARTMENT OF PROJECT PLANNING
KOTHAGUDEM

PRE-FEASIBILITY REPORT OF MANUGURU OC-II EXPANSION PROJECT MANUGURU AREA

Land requirement plan

C.G.M. (CP&P)	K.LAXMINATH	
A.G.M	K.GURUVAIAH	
Dy.G.M.	K.MOHAN REDDY	
S.O.M	M.SREEHARI	
S.S.O	R.RAVI KUMAR	
OVERSEER	B.RAJENDRA KUMAR	
RJF-1101000	Date:	August 2013



Legend

Particulars	Symbol
Surface contour	860
Floor contour of Thick Seam	930
Forest Boundary	
Quarry surface Limit Line	
Quarry floor Limit Line	
Fault	F2 F2
Borehole No. with surface RL	793 / 818.06
Dumps	
Vagu	
Road	
Land Limit Boundary	

SECTION ALONG A20-A20'

SECTION ALONG A45-A45'

ISEAM
H1SEAM
B1SEAM
B2SEAM
H2SEAM
H3SEAM
H4(T)SEAM
H4(B)SEAM
TS(T)SEAM
TS(B)SEAM
TS(Comb.)SEAM
INDEX SEAM

All Dimensions are in metres.

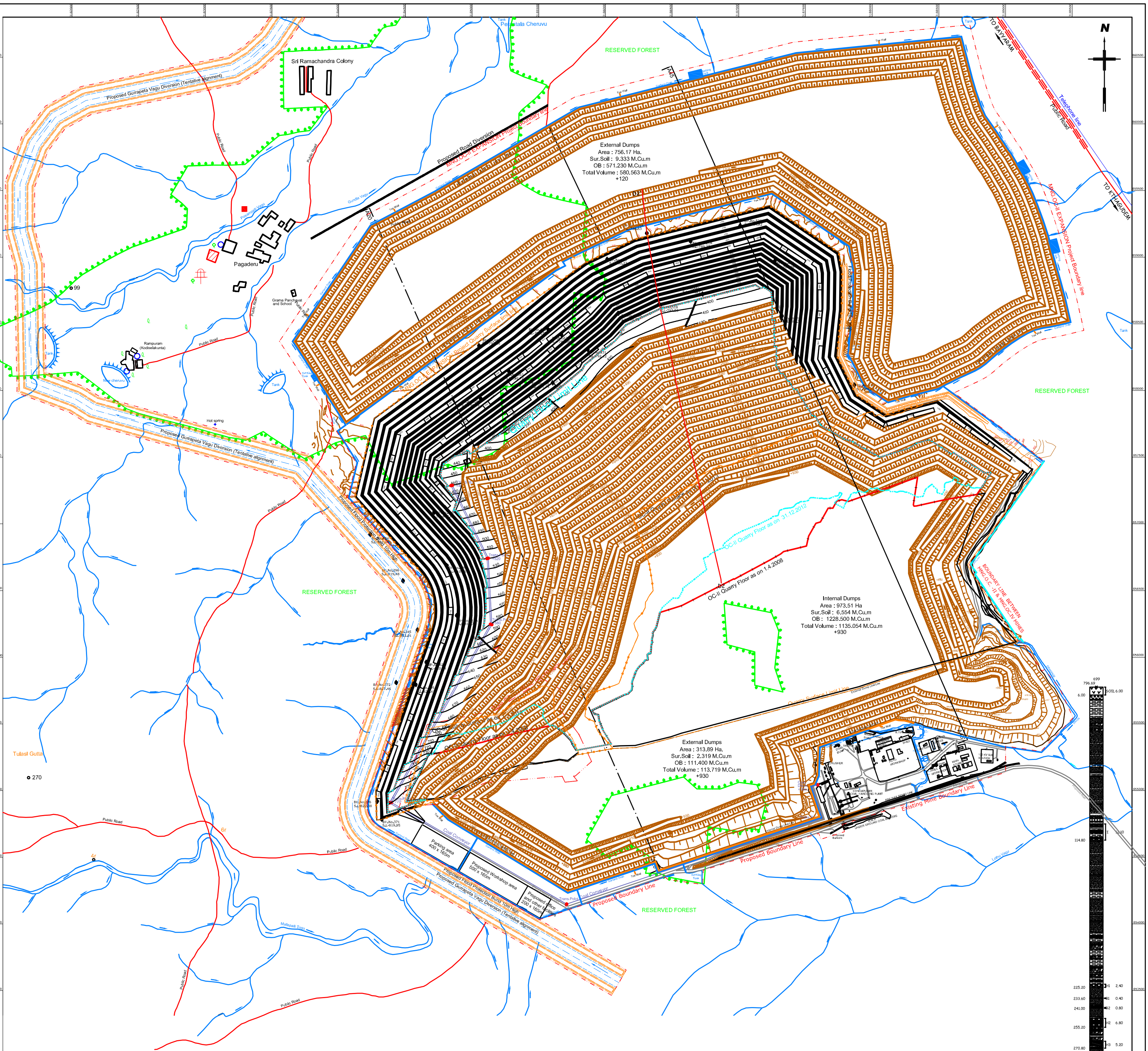
PLATE No-IV

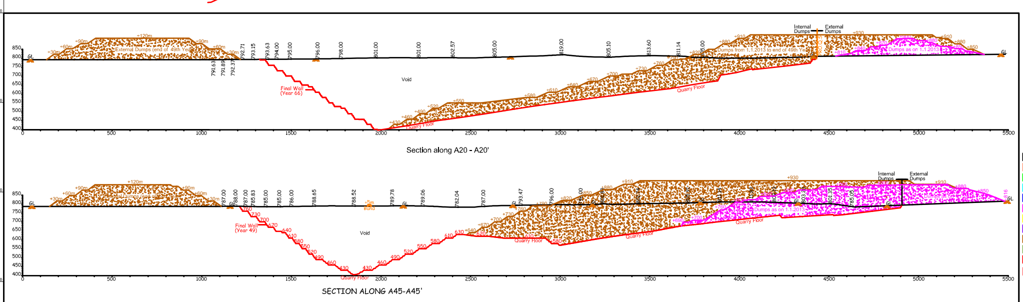
THE SINGARENI COLLIERIES COMPANY LIMITED
(A GOVERNMENT COMPANY)
DEPARTMENT OF PROJECT PLANNING

PRE-FEASIBILITY REPORT OF MANUGURU OC-II EXPANSION PROJECT MANUGURU AREA

INITIAL PLAN

C.G.M. (CP&P)	K.JAMARNATH
A.G.M	K.GURUVAIAH
Dy.G.M.	K.MOHAN REDDY
S.O.M	M.SREEHARI
S.S.O	R.RAVI KUMAR
OVERSEER	B.RAJENDRA KUMAR
Date:	August 2013





COAL PRODUCTION		OVERBURDEN REMOVAL M.Cu.m.(Bank)			TOTAL EXCAVATION M.Cu.m.(Bank)	Hard OB		TOP SOIL PLACEMENT M.Cu.m.(Bank)				VOID LEFT M.Cu.m.
						INTERNAL DUMPING M.Cu.m. (Bank)	EXTERNAL DUMPING M.Cu.m. (Bank)	SPREADING OVER DUMPS		TEMPORARY STORAGE	TOTAL	
M.T	M.Cu.m.	TOP SOIL	HARD O.B.	TOTAL				INTERNAL	EXTERNAL			
264.198	168.321	18.620	1911.130	1929.750	2098.071	1228.50	682.630	6.554	11.652	0.414 (Bund)	18.620	1363.497

ISEAM
H1SEAM
B1SEAM
B2SEAM
H2SEAM
H3SEAM
H4(T)SEAM

Legend

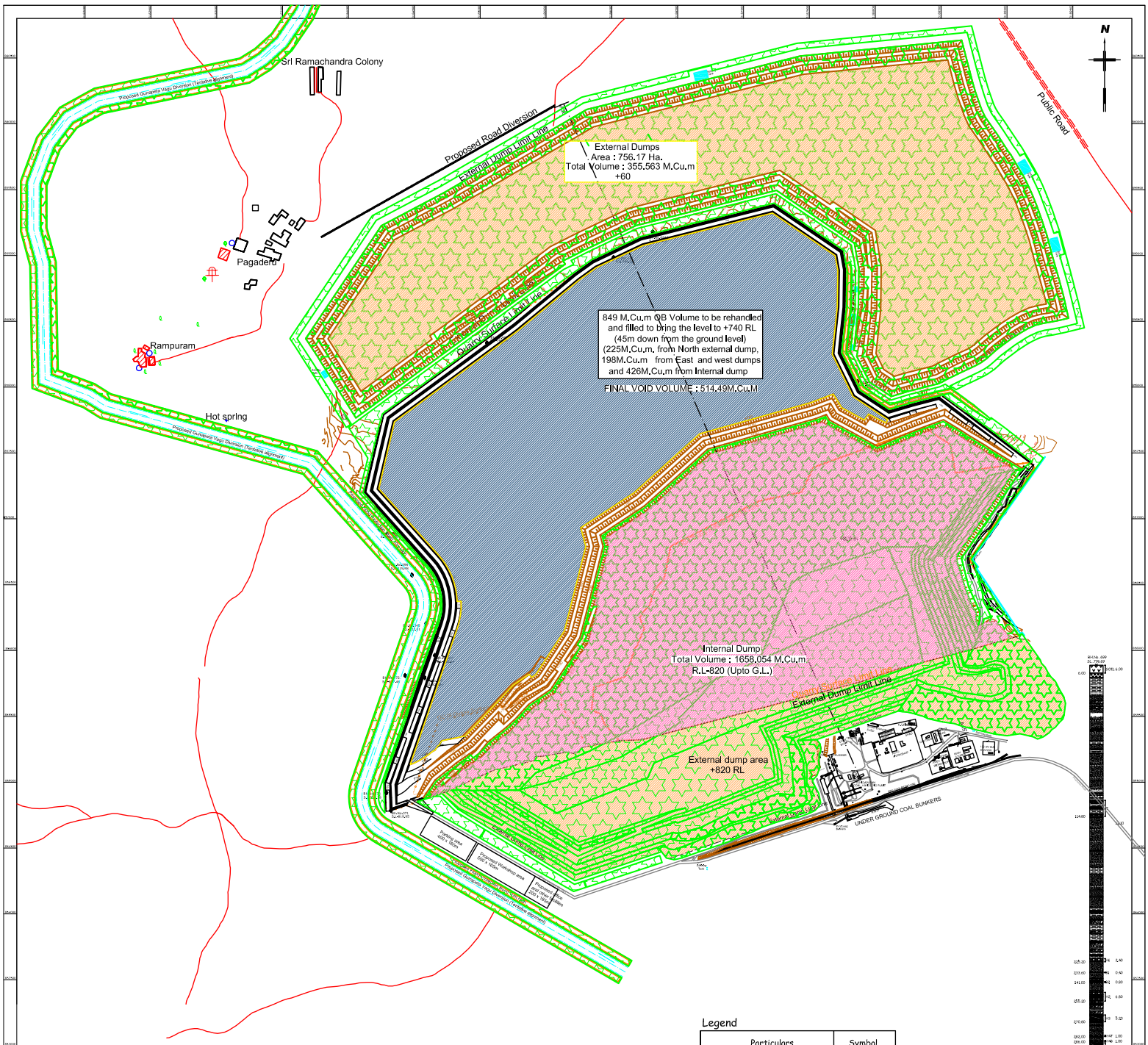
Particulars	Symbol
Surface contour	
Floor contour of Thick Seam	
Forest Boundary	
Quarry surface Limit Line	
Quarry floor Limit Line	
Fault	
Borehole No. with surface RL	
Dumps	
Vagu	
Road	
Land Limit Boundary	

All Dimensions are in metres.

PLATE No- V

THE SINGARENI COLLIERIES COMPANY LIMITED
(A GOVERNMENT COMPANY)
DEPARTMENT OF PROJECT PLANNING
(ISO 9001 : 2000 Certified)

PRE-FEASIBILITY REPORT OF MANUGURU OC-II EXPANSION PROJECT MANUGURU AREA	C.G.M. (CP&P)	K.J.AMARNATH
	A.G.M	K.GURUVAIAH
	Dy.G.M.	K.MOHAN REDDY
Stage Plan at the end of 45th Year	S.O.M	M.SREEHARI
	S.S.O	R.RAVI KUMAR
	OVERSEER	B.RAJENDRA KUMAR
R.F.1:10000	Date:	August 2013



Land requirement and End Land use details:

Sl. No.	Particulars	Land requirement			Reclaimed area			Final void left as water body			Miscelleneous purpose		
		Forest	Non-Forest	Total	Forest	Non-Forest	Total	Forest	Non-Forest	Total	Forest	Non-Forest	Total
1.	Quarry Area	1305.20	121.54	1426.74	600.45	16.39	616.84	704.66	105.24	809.90	-	-	-
2.	External Dumping Area	807.83	262.23	1070.06	807.84	262.22	1070.06	-	-	-	-	-	-
3.	Safe Barrier, drainage, protection bund etc.	174.75	59.01	233.76	107.27	31.15	138.42	-	-	-	67.48	27.86	95.34
4.	Service buildings, Railway siding, CHP etc.	103.86	2.17	106.03	-	-	-	-	-	-	103.86	2.17	106.03
5.	Vagu diversion	281.81	85.32	367.13	97.01	39.45	136.46	184.80	45.87	230.67	-	-	-
6.	Road diversion	0.25	1.79	2.04	-	-	-	-	-	-	0.25	1.79	2.04
	TOTAL	2763.70	532.06	3205.76	1612.57	349.21	1961.78	889.46	151.11	1040.57	171.59	31.82	203.41

Legend

Particulars	Symbol
Surface contour	
Floor contour of Thick Seam	
Forest Boundary	
Quarry surface Limit Line	
Quarry floor Limit Line	
Fault	
Borehole No. with surface RL	
Dumps	
Vagu	
Road	
Land Limit Boundary	

All Dimensions are in metres

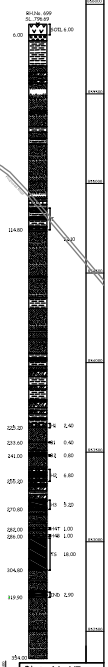
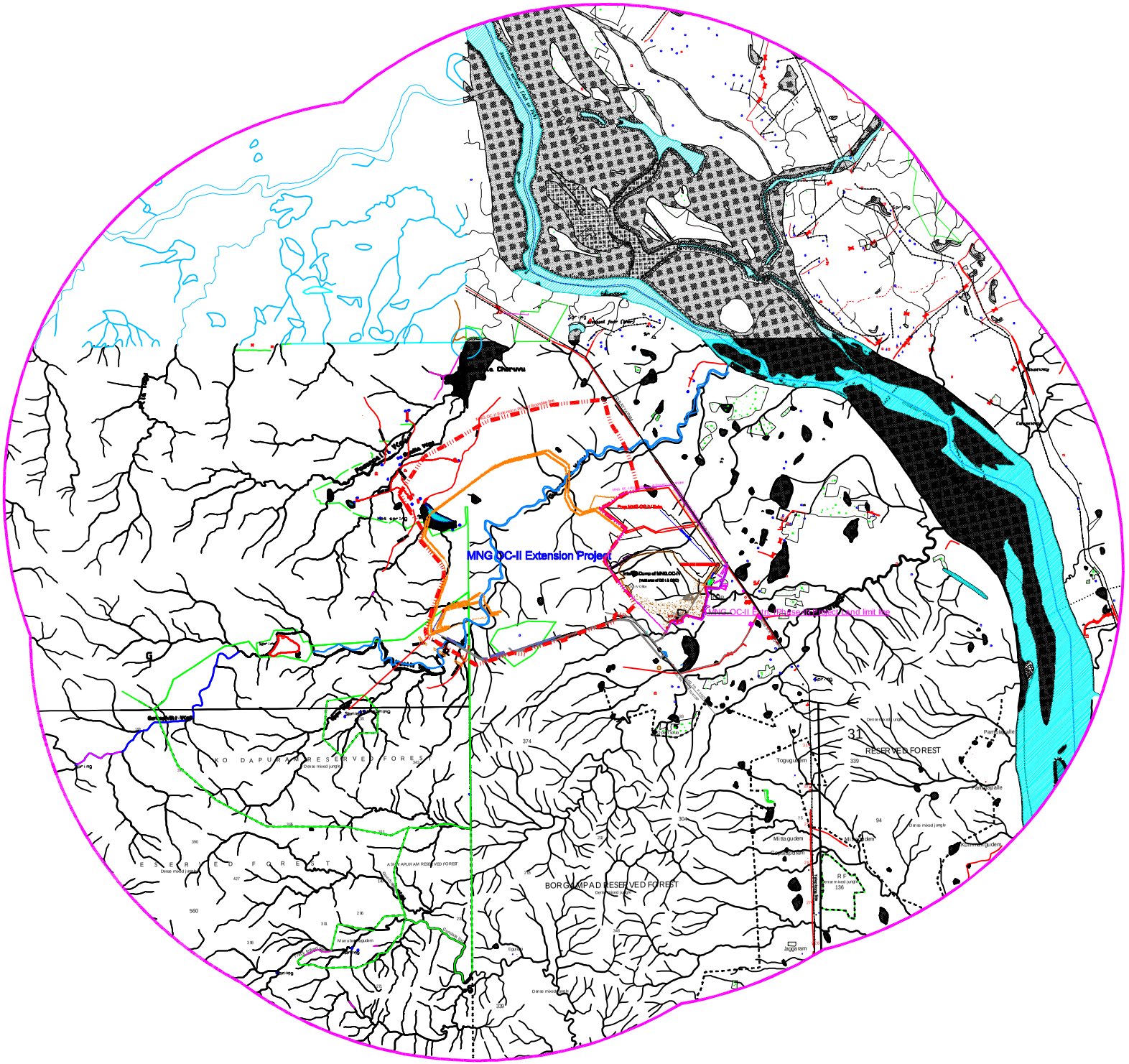


Plate.No.VI

THE S.C.Co.Ltd.,
(A GOVERNMENT COMPANY)
DEPARTMENT OF ENVIRONMENT
(ISO - 9001:2000 Certified)

ENVIRONMENT MANAGEMENT PLAN OF MANUGURU OC-II EXPANSION PROJECT MANUGURU AREA	C.G.M. (EMP)	K.T.AMARNATH
	A.G.M.	K.GURUVAIAH
	Dy.G.M.	K.MOHAN REDDY
MINE CLOSURE PLAN	S.O.M.	M.SREEHARI
	S.S.O	R.RAVI KUMAR
	OVERSEER	B.RAJENDRA KUMAR
R.F. 1:5000	DATE	August 2013



THE SINGARENI COLLIERIES COMPANY LIMITE

(A GOVERNMENT COMPANY)

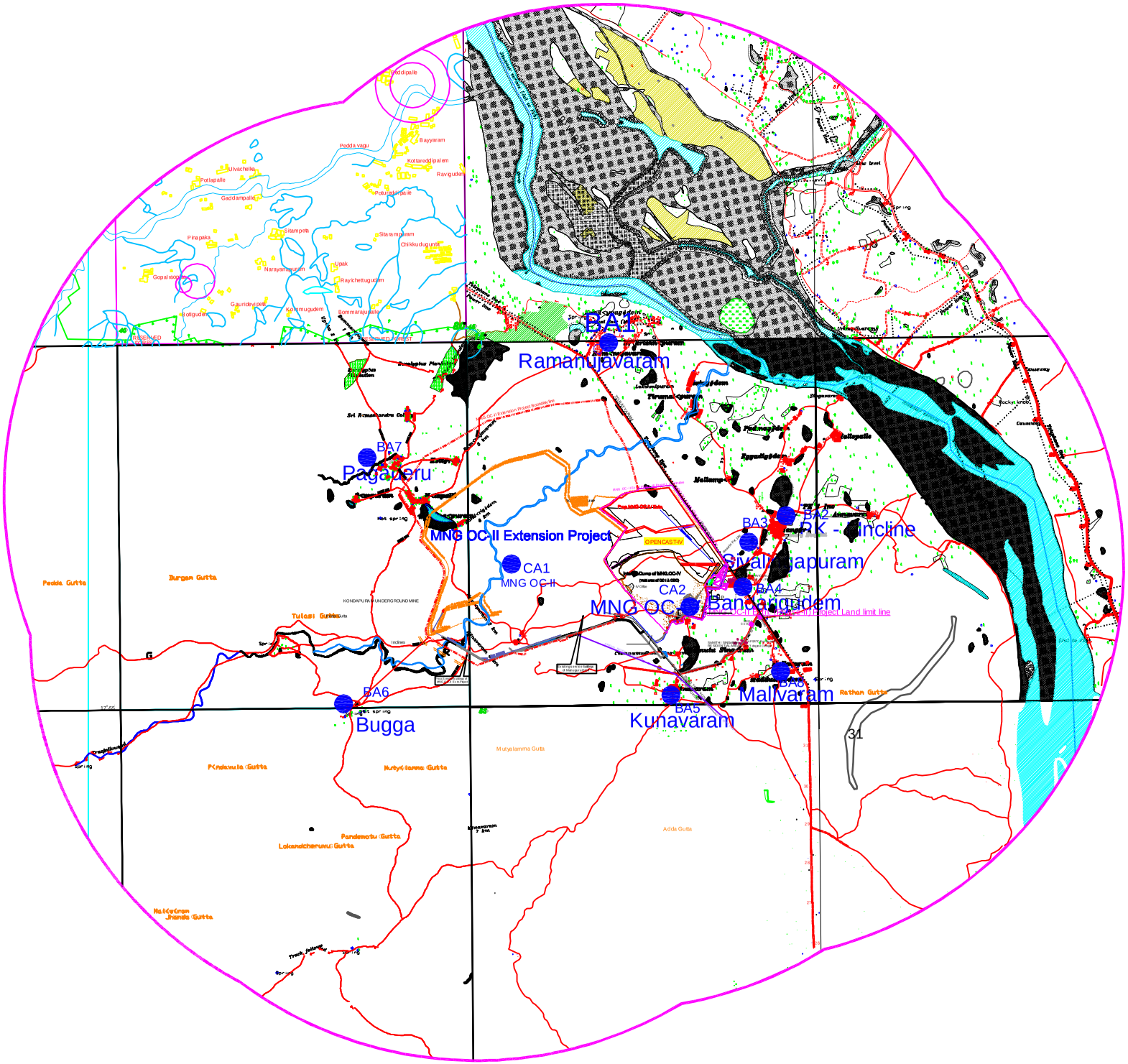
DEPARTMENT OF PROJECT PLANNING

(ISO 9001 : 2000 Certified)

MANUGURU OC II EXPANSION OPENCAST PROJECT

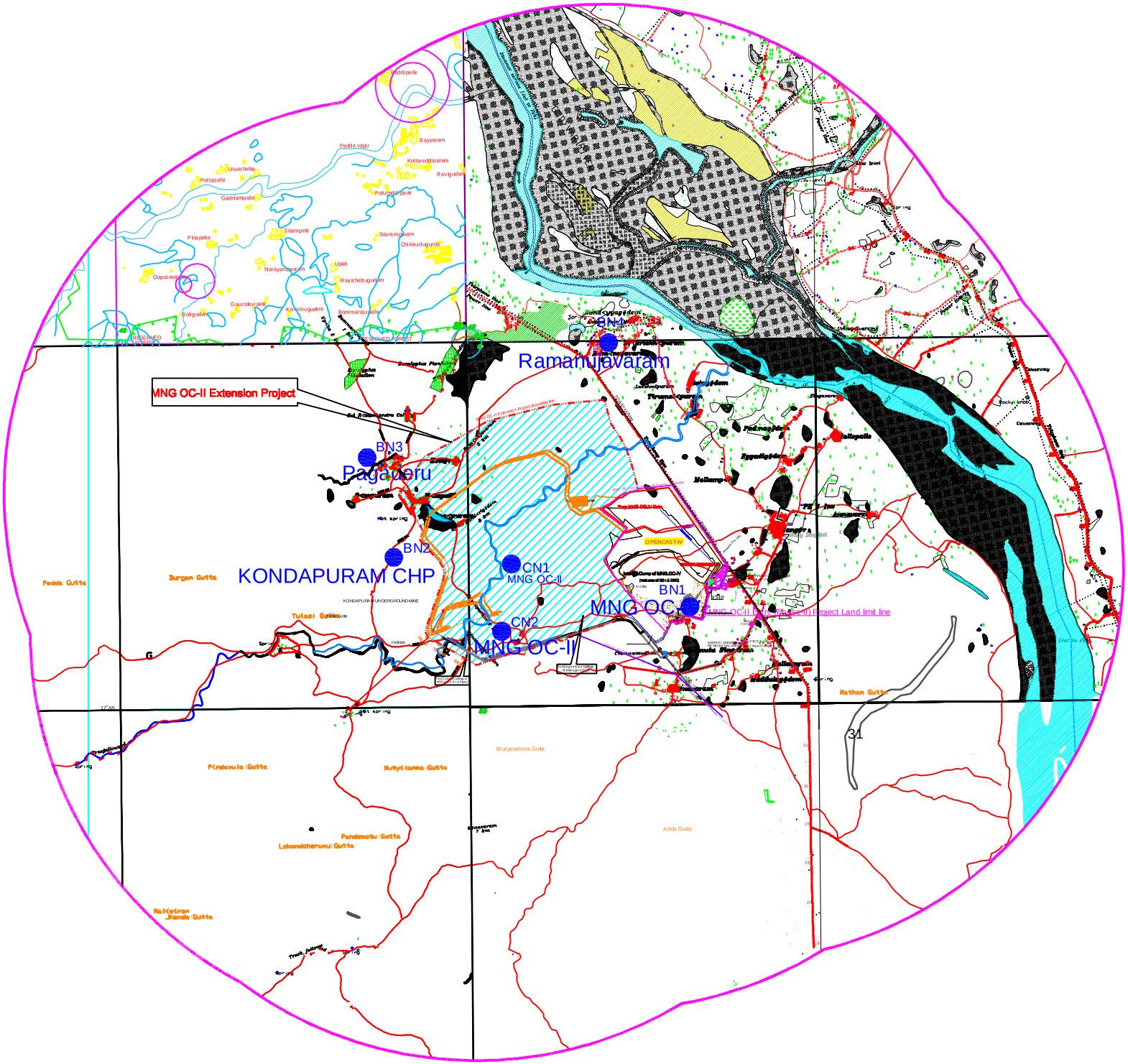
MANUGURU AREA

PLAN SHOWING DRAINAGE PATTERN WITH IN 10 KM RADIUS OF THE PROJECT



STN Code	Location
CA1	MNG OC - II EXPN
CA2	MNG OC - IV EXPN
BA1	RAMANUJAVARAM VIL
BA2	PK - I INCLINE
BA3	SIVALINGAPURAM VIL
BA4	BANDARUGUDEM VIL
BA5	KUNAVARAM VIL
BA6	BUGGA VIL
BA7	PAGADERU VIL
BA8	MALLAVARAM VIL

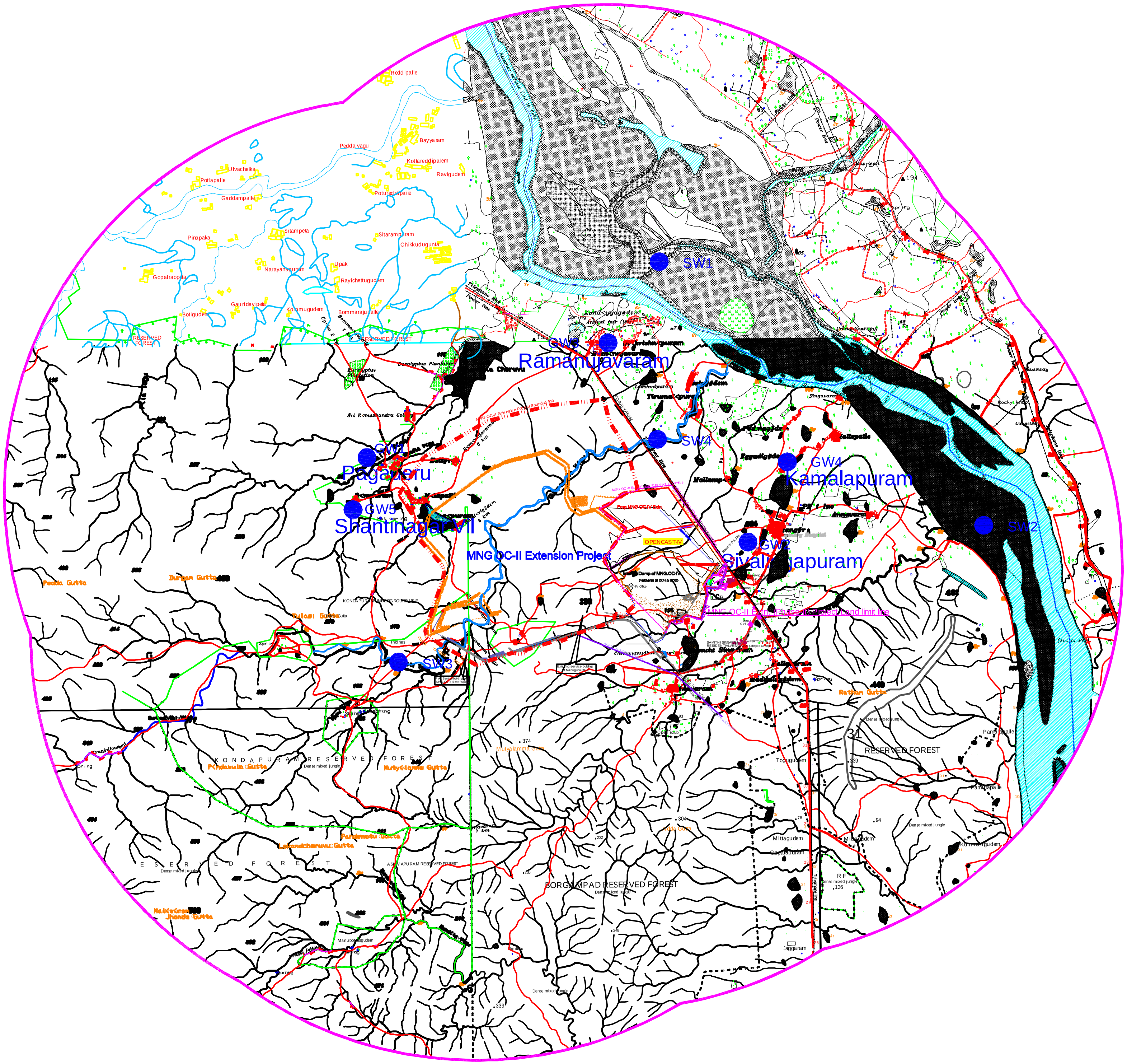
THE SINGARENI COLLIERIES COMPANY LIMITE
(A GOVERNMENT COMPANY)
DEPARTMENT OF PROJECT PLANNING
(ISO 9001 : 2000 Certified)
MANUGURU OC II EXPANSION OPENCAST PROJECT
MANUGURU AREA
PLAN SHOWING AIR QUALITY MONITORING STATIONS



STN Code	Location
CN1	MNG OC - II EXPN SITE OFFICE
CN2	MNG OC - II BASE WORKSHOP
BN1	MNG OC IV SITE OFFICE
BN2	KONDAPURAM CHP
BN3	PAGADERU VIL
BN4	RAMANUJAVARAM VIL

THE SINGARENI COLLIERIES COMPANY LIMITE
(A GOVERNMENT COMPANY)
DEPARTMENT OF PROJECT PLANNING
(ISO 9001 : 2000 Certified)

MANUGURU OC II EXPANSION OPENCAST PROJECT
MANUGURU AREA
PLAN SHOWING NOISE QUALITY MONITORING STATIONS



STN Code	Location
GW1	B/W at Pagaderu
GW2	B/W at Sivalingapuram
GW3	B/W at Ramanujavaram
GW4	B/W at Kamalapuram
GW5	B/W at Shantinagar Vil
SW1	Godavari River Upstream
SW2	Godavari River Downstream
SW3	Gorripetavagu Upstream
SW4	Gorripetavagu Downstream

THE SINGARENI COLLIERIES COMPANY LIMITE

(A GOVERNMENT COMPANY)

DEPARTMENT OF PROJECT PLANNING

(ISO 9001 : 2000 Certified)

MANUGURU OC II EXPANSION OPENCAST PROJECT

MANUGURU AREA

PLAN SHOWING WATER QUALITY MONITORING STATIONS

Annexure

Environment Clearance Letter

No.J-11015/144/2007-IA.II(M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
C.G.O.Complex,
New Delhi -110510.

Dated: 31st July 2008

To
M/s Singareni Collieries Company Ltd.,
Kothagudam Collieries – 507 101,
Bhadrachalam Road Railway Station,
Khammam District, A.P.

Sub: **Manuguru OC-II Opencast Coal Mine Expansion Project (4.0 MTPA with a peak production of 5 MTPA) of M/s Singareni Collieries Company Ltd., located in village and Mandal Manuguru, District Khammam, Andhra Pradesh- environmental clearance – reg.**

Sir,

This is with reference to your letter No. CRP/ENV/A/431/128 dated 16.02.2007 for Terms of Reference which was granted vide MOEF letter dated 24.04.2007 and with reference to your application for environmental clearance based on the prescribed Terms of Reference vide letter No. CRP/ENV/A/431/766 dated 28.10.2007 and your subsequent letters dated 08.02.2008 and 15.04.2008 on the above-mentioned subject. The Ministry of Environment & Forests has considered your application. It has been noted that the project is for amalgamation of three leases – Manuguru OC-II (of which Manuguru OC forms a part) and Manuguru OC-III. Of the total ML area of 3205.7 ha, 277.99 ha is agricultural land, 2673.70 ha is forestland falling within Bugampad RF, 8.71 ha is wasteland, 161.76 ha is grazing land, 26 ha is water bodies and 77.60 ha is Govt. land and 30 ha is habitation. Forestry clearance has been obtained for 818.45 ha of forestland. Of the total lease area, area for excavation is 1426.74 ha, 1070.06 ha is for external OB dumps, 106.03 ha is for infrastructure, 233.76 ha is safety zone, 367.13 ha is for diversion of nala, and 2.04 ha is for diversion of road. The Ml falls within an ecologically sensitive area as the Kinnersani WL Sanctuary is at a distance of 7.5km form the core zone. The main drainage of the lease is Gorripetu Vagu, a tributary of River Goidavari, which is to be diverted during the 5th year for a length of 16.68 km. It is also proposed to construct a Flood Protection Bund of 10m height between the diverted course of Gorripetu Vagu and the mine. Approval of the Flood and Irrigation Department has been sought.

The rated capacity of the project is 4 MTPA with a peak production of 5 MTPA to be achieved by year 21 of start of mining operations. Mining is opencast by mechanised method with controlled blasting, and involving in-pit crushing and 1300m long belt conveyor for transport of the coal to the surface. Mineral transportation of coal is by road to CHP of 5.5 MTPA capacity at Kondapuram covering a road length of 3 km. An estimated 3000 TPD of coal would be transported by road, 1500 TPD by ropeway and 12,000 TPD of coal by rail. Ultimate working depth o the mine is 420m below ground level (bgl). Water table in the core zone is in the range of 0.95m - 13.0m bgl during the pre-monsoon and in the range of 0.75m – 7.65m bgl during post-monsoon period. Clearance from the State Ground Water Department ahs been sought. Peak water requirement is 3300 m3/d, which will be met form mine pit water. Mine discharge water during lean period is 3300 m3/d and peak mine discharge Is 1,09,571 m3/d, which would be let into the natural water course. An estimated 1948.37 Mm3 of OB including 18.62 Mm3 of topsoil will be generated in life of mine; of which about 64% of the OB will be backfilled and the balance would be dumped in three external OB dumps of a max. Height of 120m in 4 benches of 30m each. Of this, an estimated 849 Mm3 of OB would be rehandled. Backfilling will begin from 1st year onwards. The final void would be 809.90 ha of a max. depth of 45m which will be converted into a water reservoir. Project involves R&R of 3 villages, namely Srirngapuram (50), Shantinagar (208), and Gollakotturulu (72) involving 330 PAFs and 55 land oustees. Public Hearing was held on 28.08.2007. Life of the mine at a peak production of 5 MTPA is

66 years. Mining Plan has been approved by Ministry of Coal on 18.03.2008. Capital cost of the project is Rs. 44.21 crores.

2. The Ministry of Environment & Forests hereby accords environmental clearance for the above-mentioned **Manuguru Opencast-II Coal Mine Project of M/s Singareni Collieries Company Ltd. for production of coal at 4 MTPA with a peak production of 5 MTPA rated capacity within a lease area of 3205.76 ha** under Section 12 of the Environmental Impact Assessment Notification, 2006 and subsequent amendments thereto and under Para 2.1.1 of MOEF Circular dated 13.10.2006 subject to the compliance of the terms and conditions mentioned below:

A. Specific Conditions

(i) No mining operations shall be undertaken in the forestland for which forestry clearance has not been obtained under the provisions of the FC Act, 1980.

(ii) Diversion of the Gorriapetu Vagu for a length of 16.68km shall be undertaken with the approval of the State Flood and Irrigation Department and with minimal disturbance to the downstream users.

(iii) Diversion of the State Highway and roads for a total road length of 2036m passing through the lease shall be done with prior approval of the competent authorities.

(iv) Topsoil shall be stacked properly with proper slope at earmarked site(s) and shall not be kept active and shall be used for reclamation and development of green belt.

(v) OB shall be stacked at earmarked external OB dumpsite(s) within ML area and shall be a maximum height of 120m only consisting of 4 benches of 30m each. The ultimate slope of the dump shall not exceed 28°. Backfilling shall begin at the end of 5th year in the decoaled area. Monitoring and management of existing reclaimed dumpsites shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional office located at Bangalore on an yearly basis.

(vi) Monitoring of the stability of the OB dumps vis-à-vis the Model and its validation and taking appropriate mitigative measures such as construction of gabions, further compaction of OB, use of different particle size to reduce the failures, greater stabilisation through geo-textile material, and plantation including species of grasses in areas in the dumps which are susceptive to slope stability failures.

(vii) Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilised for watering the mine area, roads, green belt development, etc. The drains shall be regularly desilted and maintained properly.

Garland drains of suitable size, gradient and length and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also provided for adequate retention period to allow proper settling of silt material.

(viii) Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.

(ix) 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.

(x) Mechanical sweeping of the main haul roads shall be regularly undertaken. The main haul roads and approach roads shall be black topped and have thick avenue plantation. The 3km road to CHP shall be black topped and avenue plantation developed on both sides.

(xi) Drills shall be wet operated only.

(xii) Controlled blasting shall be practiced only during daytime with use of delay detonators. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.

(xiii) Afforestation shall cover a total area of not less than 1967.78 ha which includes reclaimed external OB dump, reclaimed topsoil dump, backfilled area (616.84 ha), along ML boundary, along drains and along main approach roads, major haul roads, near CHP, parking area and service buildings, undisturbed/vacant area (173.95 ha) within the lease and in the township by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.

(xiv) A Progressive Mine Closure Plan shall be implemented by reclamation of quarry area of 616.84 ha, which shall be backfilled and afforested by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. The balance final void of 809.90 ha left at the end of mine life being converted into a water reservoir shall be of a max. depth of 45m and shall be gently sloped, and the upper benches of which shall be stabilised and reclaimed with plantation and the reservoir peripherally fenced.

(xv) The company shall obtain prior approval of CGWA/CGWB Regional Office for use of groundwater if any, for mining operations.

(xvi) Regular monitoring of groundwater level and quality shall be carried out by establishing a network of exiting wells and construction of new peizometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment & Forests and tot eh Central Pollution Control Board quarterly within one month of monitoring.

(xvii) The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case of monitoring of water table indicates a declining trend. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.

(xviii) 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, Ahmedabad within a period of one year and the results reported to this Ministry and to DGMS.

(xix) 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.

(xx) A sewage treatment plant shall be installed in the township established for the project.

(xxi) For monitoring land use pattern and for post mining land use, a time series of landuse maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bangalorel.

(xxii) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

(xxiii) R&R for 3 villages, namely Srirngapuram (50), Shantinagar (208), and Gollakotturulu (72) involving 330 PAFs and 55 land oustees. Shall be not less than that given in the National R&R Policy and the R&R Package shall be not less than Rs. 12.37 crores.

B. General Conditions

(i) No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.

(ii) No change in the calendar plan including excavation, quantum of mineral coal and waste shall be made.

(iii) Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for SPM, RPM, SO2 and NOx monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.

(iv) Fugitive dust emissions (SPM and RSPM) from all the sources shall be controlled regularly monitored and data recorded properly. Water spraying arrangement on haul roads, wagon loading, dump trucks (loading and unloading) points shall be provided and properly maintained.

(v) Data on ambient air quality (SPM, RSPM, SO2 and NOx) shall be regularly submitted to the Ministry including its Regional Office at Bangalore and to the State Pollution Control Board and the Central Pollution Control Board once in six months.

(vi) Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.

(vii) Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.

(viii) Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.

(ix) Environmental laboratory shall be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.

(x) Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.

Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.

(xi) A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.

(xii) The funds earmarked for environmental protection measures shall e kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bangalore.

(xiii) The Regional Office of this Ministry located at Bangalore shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.

(xiv) A copy of the will be marked to concerned Panchayat/ local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.

(xv) State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.

(xvi) The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board and may also be seen at the website of the ministry of Environment & Forests at http://envfor.nic.in.

3. The Ministry or any other competent authority may stipulate any further condition for environmental protection.

4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.

5. The above conditions will be enforced *inter-alia*, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules.

(Dr.T.Chandini)
Director

Copy to:

1. Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. Secretary, Department of Environment & Forests, Government of Andhra Pradesh, Secretariat, Hyderabad.
3. Chief Conservator of Forests, Regional office (SZ), Ministry of Environment & Forests, 4th Floor, F-Wing, Kenriya Sadan Block, Kormangala, Bangalore – 560034.
4. Chairman, Andhra Pradesh State Pollution Control Board, Paryavaran Bhawan, A-3 Industrial Estate, Sanatnagar,Hyderabad – 500038.
5. Chairman, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, New Delhi -110032.
6. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
7. District Collector, Khammam, Government of Andhra Pradesh.
8. Monitoring File 9. Guard File 10. Record File

Copy of Mining Lease

GOVERNMENT OF ANDHRA PRADESH
ABSTRACT

MINES AND MINERALS – 1st Renewal of Mining Lease for Coal over an extent of 2186 Hectares (1312.00 Hectares of Forest Land and 874.00 Hectares of Non-Forest land) in Manuguru Village and Mandal, Khammam District, in favour of M/s Singareni Collieries Company Limited, for a further period of 30 years – Sanction - Orders - Issued.

INDUSTRIES AND COMMERCE (M-III) DEPARTMENT

G.O. Ms. No. 217 **Dated 12-08-2008.**
Read the following:-

1. G.O.Ms.No.810, Ind. & Com. (M-III) Dept., dated 9.08.1974.
2. M/s SCCL, 1st RML application dt.19-03-2004.
3. From DMG, F.No. 10340/R6-2/2004, dated 01.05.2006.
4. Govt. Lr.No.6314/M.III(2)/2007-1, dt.20-02-2008
5. From the Ministry of Coal, GOI,, Lr.No.13016/02/2008-CA.II, dt.07-02-2008.

OFFICE OF THE CHAIRMAN & M.D. SINGARENI COLLIERIES CO. LTD. ★ 3435 13 AUG 2008 HYDERABAD.

...

ORDER:

In the reference 1st read above, Government have granted Mining Lease for Coal over an extent of 21. 86 Sq.Kms. (6401-10 Acres) covering an extent of 13.12 Sq.Kms. in R.F. area of Kondapur Block and an extent of 8.74 Sq.K.s. in Government and Patta lands of Gundlasingaram, Thirumalapuram, Ramanjavaram, Manugoor and Sianithi Singaram villages and R.F., Burgampad Taluk in Khammam District in favour of M/s Singareni Collieries Company Limited, for a period of 30 years. The lease period is from 23-07-1975 to 22-07-2005.

2) In the reference 2nd read above, M/s Singareni Colleries Company Limited have filed a 1st Renewal of Mining lease application for grant of Coal over an extent of 2186 Hectares involving 1312 hectares of Forest land and 874 hectares of Non-Forest land in Manuguru Village & Mandal, Khammam District for a further period of 30 years

3) In the reference 3rd read above, the Director of Mines and Geology has sent proposals for grant of 1st Renewal of Mining Lease for Coal over an extent of 2186 Hectares involving 1312 hectares of Forest land and 874 hectares of Non-Forest land in Manuguru Village & Mandal, Khammam District in favour of M/s Singareni Collieries Company Limited, for a further period of 30 years, subject to submission of Consent for Establishment (CFE) from A.P. Pollution Control Board and Environmental and the Forest Clearance from Ministry of Environmental & Forests, Government of India and also subject to the terms and conditions of MM (D&R) Act, 1957 and M.C.Rules, 1960.

In the reference 4th read above, Government have proposed to grant of 1st Renewal of Mining Lease for Coal over an extent of 2186 Hectares involving 1312 hectares of Forest land and 874 hectares of Non-Forest land in Manuguru Village & Mandal, Khammam District in favour of M/s Singareni Collieries Company Limited, subject to clearance from Ministry of Coal, Government of India and subject to satisfaction of MM(D&R) Act, 1957, and rules made thereunder.

5) in the reference 5th read above, the Ministry of Coal, Government of India, have conveyend prior approval for grant of 1st Renewal of Mining Lease for Coal over an extent of 2186 Hectares involving 1312 hectares Forest land and 874 hectares Non-Forest land in Manuguru Village & Mandal, Khammam District in favour of M/s Singareni Collieries Company Limited, for a period of 30 years, uder Section 5(1) (b) and relaxation of Section 6(1) (b) of M.M.(D&R) Act,1957, since the total area of Mining Lease granted so far exceeds 10 Sq. kms, in the interest of development of the Minerals..

{PTO}

6) Government, after careful examination of the matter, hereby grant a 1st Renewal of Mining Lease for Coal over an extent of 2186 Hectares involving 1312 hectares of Forest land and 874 hectares of Non-Forest land in Manuguru Village & Mandal, Khammam, in favour of M/s Singareni Collieries Company Limited, for a further period of 30 years w.e.f. 23-07-2005, subject to submission of Consent for Establishment (CFE) from A.P. Pollution Control Board and Environmental and Forest Clearance from MoEF and also subject to the terms and conditions of MM (D&R) Act, 1957 and M.C.Rules, 1960 and the rules made thereunder in general, and also subject to the conditions in Form-K prescribed under the Mineral Concession Rules, 1960 and to the additional conditions specified in the Appendix to this order.

7) The rates of royalty, dead rent, surface rent and water charges shall be collectable as follows:

I. Rates of Royalty:

COAL:

A. Coal produced in all States and Union Territories except the State of West Bengal.

(1) Royalty on Coal:

The rates of royalty, which shall be a combination of specific and ad valorem rates of royalty which shall be as follows:

R(Royalty Rupees/tonnes)=a+bP

Where 'P' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges and the values of '**a**' (fixed component) and '**b**' (variable or ad-valorem component) would be as follows:

Group	Grade of coal	Royalty on coal in Rupees per tonne
Group-I	Steel Gr.-I Steel Gr.II Washery-I Direct Feed	a=Rs.180.00 b=5 per cent i.e. Rs.180+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-II	Washery-II Washery-III Semi Coking Gr.I Semi Coking Gr.II Grade-A Grade-B	A=Rs.130.00 b=5 per cent i.e. Rs.130+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-III	Washery-IV Grade-C	a=Rs.90.00 b=5 per cent i.e. Rs.90+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-IV	Grade-D Grade-E	a=Rs.70.00 b=5 per cent i.e. Rs.70+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-V	Grade-F Grade-G	a=Rs.55.00 b=5 per cent i.e. Rs.55+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.

{Contd...3}

II. Dead rent:	Rates of dead rent in rupees per hectare per annum or as revised by Government from time to time.
First Two years of lease	3rd year onwards
100/-	400/-

III. Surface rent & water charges and also Cess	As fixed by the Government from time to time

8) The grantee should pay a deposit of Rs.10,000/- as prescribed under rule 32 of the Mineral Concession Rules, 1960 before the lease is actually executed.

9) The grantee should execute the lease deed within the time limit specified in Rule 31 of Mineral Concession Rules, 1960.

10) The terms and conditions referred to in para (6) of this order are subject to such further modifications, additions and alterations as may be ordered before the lease deed is executed.

11) The Director of Mines and Geology shall take necessary further action for the execution of the lease deed after satisfying himself that the grantee fulfils all the required provisions of the amended Act and Rules. As soon as the deed is executed, the date of such execution should be reported to the Government.

NOTE: The grant is liable for cancellation, should it be found at a later date that it was grossly inequitable or was made under a mistake of fact or owing to misrepresentation or fraud or in excess of authority.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

Y. SRILAKSHMI
SECRETARY TO GOVERNMENT.

To
M/s Singareni Collieries Company Limited,
Kothagudem -507 101, Khammam District.
The Director of Mines and Geology, Hyderabad.[w.e: File & MP]
Copy to:
The Asst. Director of Mines and Geology, Kothagudem, Khammam District.
The Collector, Khammam District.
The Secretary to Govt. of India, Ministry of Coal, Shastry Bhavan,
New Delhi-110 001.
The Controller General, Indian Bureau of Mines, "A" Block, 2nd Floor,
Indira Bhavan, Civil Lines, Nagpur-440 001.
The Director General of Mines Safety, Dhanbad, Bihar.
The Regional Controller of Mines, Koti, Hyderabad..
SF/SC(**C.No.6314/M.III(2)/2007**)

"Copy of this order is available on Internet and can be accessed at address http://www.ap.gov.in/goir".

//Forwarded :: By Order//

SECTION OFFICER.

GOVERNMENT OF ANDHRA PRADESH
ABSTRACT

Mines and Minerals – 1st renewal of Mining Lease for Coal over an extent of 125.90 Hectares of forest land in Compartment Nos. 3, 4 & 9 of Kondapuram RF., Paloncha Division of Khammam District for a further period of 20 years from 10.04.2007 to 09.04.2027 in favour of M/s Singareni Collieries Company Limited - Sanction - Orders - Issued.

INDUSTRIES AND COMMERCE (M-III) DEPARTMENT

G.O. Ms. No.259. **Dated 23-09- 2008.**

Read the following:-

1) From the Director of Mines & Geology, Hyderabad, F.No.32721/R6-2/2007, dt. 18.10.2007.
2) Govt. Lr.No.15973/M.III(2)/2007-1, dt.28-12-2007
3) From the Ministry of Coal, GOI,, Lr.No.13016/02/2008-CA.II, dt.7-2-2008.

ORDER:

In the reference 1st read above, the Director of Mines and Geology has sent proposals for grant of 1st renewal of Mining Lease for Coal over an extent of 125.90 Hectares of forest land in Compartment Nos. 3, 4 & 9 of Kondapuram RF., Paloncha Division of Khammam District for a further period of 20 years from 10.04.2007 to 09.04.2027 in favour of M/s Singareni Collieries Company Limited, subject to obtain prior approval of Government of India under Section 5(1) and also in relaxation of Section 6(1) (b) of M.M.(D&R) Act,1957 and also subject to the satisfaction of other terms and conditions laid down in MM(D&R) Act, 1957 and M.C.Rules, 1960, subject to obtaining clearances from Ministry of Environment & Forests and Forest (Conservation) Act, 1980 and amendments issued by Government from time to time.

2. In the reference 2nd read above, Government have proposed to grant of 1st renewal of Mining Lease for Coal over an extent of 125.90 Hectares of forest land in Compartment Nos. 3, 4 & 9 of Kondapuram RF., Paloncha Division of Khammam District for a further period of 20 years from 10.04.2007 to 09.04.2027 in favour of M/s Singareni Collieries Company Limited,, subject to prior approval of Ministry of Coal, Government of India under section 5(1) and 6 (1) (b) of M.M.(D&R) Act,1957 and other terms and conditions of M.M. (D&R) Act, 1957 and M.C.Rules,1960 and subject to obtaining clearance from Ministry of Environment & Forests and Forests (Conservation) Act, 1980 and amendments issued by the Government from time to time and requested the Ministry of Coal, Government of India to convey the prior approval for grant of 1st renewal of Mining Lease for Coal in favour of M/s Singareni Collieries Company Limited for a further period of 20 years from 10-04-2007 to 09-04-2027.

3. The Ministry of Coal, Government of India, in the reference 3rd read above, have conveyed prior approval of Central Government under section 5(1) (b) of M.M. (D&R) Act, 1957 for grant of renewal of Mining Lease for Coal over an extent of 125.90 Hectares of forest land in Compartment Nos. 3, 4 & 9 of Kondapuram RF., Paloncha Division of Khammam District of Andhra Pradesh for a period of 20 years in favour of M/s Singareni Collieries Company Limited and also granted relaxation under 6(1) (b) of M.M.(D&R) Act,1957, as the area so far granted exceeds 10 Sq.Km in the interest of development of the minerals. along with their comments mentioned therein.

4. Government, after careful examination of the matter, hereby grant of 1st renewal of Mining Lease for Coal over an extent of 125.90 Hectares of forest land in Compartment Nos. 3, 4 & 9 of Kondapuram RF., Paloncha Division of Khammam District for a further period of 20 years from 10.04.2007 to 09.04.2027 in favour of M/s Singareni Collieries Company Limited, subject to the satisfaction of terms and conditions laid down in MM(D&R) Act, 1957 and M.C.Rules, 1960 and amendments issued by the Government from time to time and subject to obtaining Consent for Establishment from Andhra Pradesh Pollution Control Board and Environment Clearance from Ministry of Environment & Forests,

{PTO}

Government of India as per S.O. 1533 dt.14-09-2006 and also clearances under Forest (Conservation) Act,1980 and also subject to the conditions in Form-K prescribed under the M.C. Rules, 1960 and to the additional conditions specified in the Appendix to this order.

5. The rates of royalty, dead rent, surface rent & water charges and cess shall be collectable as follows:

I. Rates of Royalty:

COAL:

A. Coal produced in all States and Union Territories except the State of West Bengal.

(1) Royalty on Coal:

The rates of royalty, which shall be a combination of specific and ad valorem rates of royalty which shall be as follows:

R(Royalty Rupees/tonnes)=a+bP

Where 'P' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges and the values of '**a**' (fixed component) and '**b**' (variable or ad-valorem component) would be as follows:

Group	Grade of coal	Royalty on coal in Rupees per tonne
Group-I	Steel Gr.-I Steel Gr.II Washery-I Direct Feed	a=Rs.180.00 b=5 per cent i.e. Rs.180+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-II	Washery-II Washery-III Semi Coking Gr.I Semi Coking Gr.II Grade-A Grade-B	A=Rs.130.00 b=5 per cent i.e. Rs.130+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-III	Washery-IV Grade-C	a=Rs.90.00 b=5 per cent i.e. Rs.90+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-IV	Grade-D Grade-E	a=Rs.70.00 b=5 per cent i.e. Rs.70+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-V	Grade-F Grade-G	a=Rs.55.00 b=5 per cent i.e. Rs.55+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.

{Contd....3}

II. Dead rent:	Rates of dead rent in rupees per hectare per annum or as revised by Government from time to time.
First Two years of lease	3rd year onwards
100/-	400/-

III. Surface rent & water charges and also Cess	As fixed by the Government from time to time

6. The grantee should pay a deposit of Rs.10,000/- as prescribed under Rule 32 of the Mineral Concession Rules, 1960 before the lease is actually executed.

7. The grantee should execute the lease deed within the time limit specified in Rule 31 of Mineral Concession Rules, 1960.

8. The terms and conditions referred to in paras 4-5 of this order are subject to such further modifications, additions and alterations as may be ordered before the lease deed is executed.

9. The Director of Mines and Geology shall take necessary further action for the execution of the lease deed after satisfying himself that the grantee fulfils all the required provisions of the amended Act and Rules. As soon as the deed is executed, the date of such execution should be reported to the Government.

Note:- The grant is liable for cancellation, should it be found at a later date that it was grossly inequitable or was made under a mistake of fact or owing to misrepresentation or fraud or in excess of authority.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

Y. SRILAKSHMI
SECRETARY TO GOVERNMENT

To
M/s Singareni Collieries Company Ltd.,
Kothagudem Collieries,
Khammam District, A.P., Pin. 507 101 (BY RPAD) (we)
The Director of Mines & Geology, A.P., Hyderabad (we.File &MP)

Copy to:
The Asst. Director of Mines & Geology, Kothagudem, Khammam District.
The Collector, Khammam District.
The Secretary to Government of India, Ministry of Coal,
Shastry Bhavan, New Delhi-110 001.
The Controller General, Indian Bureau of Mines, "A" Block, 2nd Floor,
Indira Bhavan, Civil Lines, Nagpur- 440 001.
The Director General, Mines Safety, Dhanbad, Bihar.
The Regional Controller of Mines, Koti, Hyderabad.
SF/SC(C.No.15973/M.III(2)/2007)

"Copy of this order is available on Internet and can be accessed at address http://www.ap.gov.in/goir".

//Forwarded :: By Order//

SECTION OFFICER

GOVERNMENT OF ANDHRA PRADESH

ABSTRACT

Mines and Minerals - Mining Lease for Coal over an extent of 198.220 Hectares in S.Nos.311, 312 & 314 in Samithi Singaram and Manugur Villages of Manugur Mandal, Khammam District - A/o M/s Singareni Collieries Company Limited -Sanctioned.

INDUSTRIES AND COMMERCE (M.III) DEPARTMENT

G.O.Ms.No.63 Dated the 6th March, 1999.
Read the following:-

1. M.L. application dt.20.11.95 of M/s S.C.C.Limited.
2. G.O.Ms.No.153, E.F.S. & T (For.I) Deptt., dt.11.11.97.
3. Govt. of India, Ministry of Coal, New Delhi, Lr.No.13016/7/98-C.A, dt.3.12.98.
4. From the DMG, F.No.35044/R7-2/95, dt.17.2.99.

Est. Map

***

O R D E R:-

In pursuance to the prior approval under section 5(1) of Mines and Minerals (R&D) Act, 1957 and relaxation under section 6(1)(b) of the Act granted by the Government of India in the letter 3rd cited, Government sanction the grant of a mining lease forCoal over an extent of 198.220 Hectares in S.Nos.311, 312 & 314 in Samithi Singaram and Manuguru Villages of Manuguru Mandal, Khammam District in favour of M/s Singareni Collieries Company Limited for a period of 30 (thirty) years subject to the conditions stipulated in the G.O. 2nd read above and also subject to the provisions of Mines and Minerals (R&D) Act, 1957 and the rules made thereunder in general, subject also to the conditions in Form-K prescribed under the Mineral Concession Rules, 1960 and to the additional conditions specified in the Appendix to this order.

2. The rates of royalty, dead rent, surface rent and water charges shall be collectable as follows:

I. Rates of Royalty : COAL:

A. Coal produced in all States Union Territories except the States of West Bengal and Assam

i) Group-I coals:	
(a) Coking coal Steel Grade-I Steel Grade-II, Washery Grade-I	One hundred and fifty rupees only per tonne.
(b) Hand picked coal produced in the States of Arunachal Pradesh, Meghalaya and Nagaland.	
ii) Group-II coals:	
(a) Coking coal Washery Grade-II Coking coal Washery Grade-III	
(b) Semi-coking Coal Grade-I Semi-coking Coal Grade-II	
(c) Non-coking Coal Grade-A Non-coking Coal Grade-B	One hundred and twenty rupees
(d) Ungraded Run of Mine coal produced in the State of Arunachal Pradesh, Meghalaya	only per tonne

7.30

(iii) Group-III coals:
(a) Coking coal Washery Grade-IV) Seventy five rupees
(b) Non-coking coal Grade-G) only per tonne

(iv) Group-IV coals:
(a) Non-coking coal Grade-D) Forty five rupees
(b) Non-coking coal Grade-E) only per tonne

v) Group-V coals:
(a) Non-coking coal Grade-F) Twenty five rupees
(b) Non-coking coal Grade-G) only per tonne.

Lignite ... Two rupees and fifty paise only per tonne

vi) Group VI coals:
Coal produced in the State of Andhra Pradesh (Singareni Collieries Company Limited).) Seventy rupees) only per tonne)

Explanation:- For the purpose of this Item, the specification of Each grade of coal shall be as prescribed under clause 3 of the Colliery Control Order, 1945)

II. Dead rent
(Rates of Dead rent in Rupees per hectare per annum)

Category of the Mining Lease	1st year of the lease	2nd to 5th year of the lease	6th to 10th year of the lease	11th year of the lease & onwards
Lease area above 100 Hectares	NIL	120	200	300

III. Surface rent and Water charges : As fixed by the Government from time to time.

3. The grantee should pay a deposit Rs.2000/- as prescribed under rule 32 of the Mineral Concession Rules, 1960 before the lease is actually executed.

4. The grantee should execute the lease deed within the time limit specified in Rule 31 of Mineral Concession Rules, 1960.

5. The terms and conditions referred to in para 1 of this order are subject to such further modifications, additions and alterations as may be ordered before the lease deed is executed.

6. The Director of Mines and Geology is requested to take necessary further action for the execution of the lease deed after satisfying himself that the grantee fulfils all the required provisions of the amended Act and Rules. As soon as the deed is executed, the date of such execution should be reported to the Government.

NOTE: The grant is liable for cancellation should it be found it was grossly inequitable or was made under a mistake of fact or owing to mis-representation or fraud or in excess of authority.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

7.35 C.RAGHAVENDRA RAO
OFFICER ON SPECIAL DUTY

The Asst.Director of Mines & Geology, Khammam.
Copy to:

M/s Singareni Collieries Company Limited,
Kothagudem Collieries - 507 101,
Bhadrachalam Road Railway Station.
The Collector, Khammam.
The Secretary to Government of India, Ministry of Coal,
CA Section, New Delhi.
The Controller General, Indian Bureau of Mines, Nagpur.
The Director General, Mines Safety, Dhanbad, Bihar.
The Regional Controller of Mines, Koti, Hyderabad.
sf/rc.

//forwarded by order//

Section Officer.

7.36

45

GOVERNMENT OF ANDHRA PRADESH
A B S T R A C T

Mines and Minerals - Mining Lease for Coal over an extent of 75.00 Hectares of OCP-III Manuguru in Sy.No. 853 of Ramanujavaram Village, Manuguru Mandal, Khammam District for a period of 20 years in favour of M/s Singareni Collieries Company Limited - Granted - Orders - Issued.

INDUSTRIES AND COMMERCE [M.III] DEPARTMENT

G.O.Ms.No. 91, **Dated the 24th March, 2005.**
Read the following:-

1. From the DMG F.No. 38410/R2-3/2000, dt.19.8.2004.
2. Govt., Memo. No. 4786/M-III/A2/2004-2, Dated 12.7.2004.
3. From the Government of India letter No.13016/38/2004-CA, Dated 11.02.2005.

*****

O R D E R:-

Pursuant to the prior approval of the Central Government in the reference 3rd read above, the State Government has sanction the grant of Mining Lease for Coal over an extent of 75.00 Hectares of OCP-III Manuguru in Sy.No. 853 of Ramanujavaram Village, Manuguru Mandal, Khammam District for a period of 20 years in favour of M/s Singareni Collieries Company Limited subject to the conditions stipulated by Govt., of India in the reference 3rd read above to the provisions of Mines and Minerals [D&R] Act, 1957 and the rules made thereunder in general, subject also to the conditions in Form-K prescribed under the Mineral Concession Rules, 1960 and to the additional conditions specified in the Appendix to this order.

2. The rates of royalty, dead rent, surface rent and water charges shall be collectable as follows:

I. Rates of Royalty:

Coal:

A. Coal produced in all States and Union Territories except the State of West Bengal and Assam

(i) Group I Coals:

(a)	Coking coal Steel Grade - I, Steel Grade - II, Washery Grade-II	Two hundred and fifty rupees only per tonne.
(b)	Hand Picked coal produced in the States of Arunachal Pradesh, Assam, Meghalaya and Nagaland.	

Contd...2.

(ii) Group II Coals:

(a)	Coking coal Washery Grade -II Coking Coal Washery Grade-III	One hundred and sixty five rupees only per tonne.
(b)	Semi - Coking Coal Grade I Semi - Coking Coal Grade II	
(c)	Non-coking Coal Grade – A Non-coking Coal Grade – B	
(d)	Ungraded Run of Mine Coal produced in the State of Arunachal Pradesh, Assam, Meghalaya and Nagaland	

(iii) Group III Coals:

(a)	Coking coal Washery Grade-IV	One hundred and fifteen rupees only per tonne.
(b)	Non-coking Coal Grade - C	

(iv) Group IV Coals:

(a)	Non-Coking Coal Grade - D	Eighty five rupees only per tonne.
(b)	Non-Coking Coal Grade – E	

(v) Group V Coals:-

(a)	Non-Coking Coal Grade - F	Sixty five rupees only per tonne
(b)	Non-Coking Coal Grade – G	

Lignite : :Fifty rupees only per tonne.

(vi) Group-VI coals:

Coal produced in the State of Andhra Pradesh :Ninety rupees per tonne

II. Dead rent:

[Rates of dead rent in rupees per hectare per annum]

First Two years of lease	3rd year onwards
100/-	400/-

III. Surface rent & water charges :: As fixed by the Government from time to time

Contd..3.

3. The grantee should pay a deposit Rs.10,000/- as prescribed under rule 32 of the Mineral Concession Rules, 1960 before the lease is actually executed.

4. The grantee should execute the lease deed within the time limit specified in Rule 31 of Mineral Concession Rules, 1960.

5. The terms and conditions referred to in para-1 of this order are subject to such further modifications, additions and alterations as may be ordered before the lease deed is executed.

6. The Director of Mines and Geology is requested to take necessary further action for the execution of the lease deed after satisfying himself that the grantee fulfils all the required provisions of the amended Act and Rules. As soon as the deed is executed, the date of such execution should be reported to the Government.

NOTE:- The grant is liable for cancellation should it be found it was grossly inequitable or was made under a mistake of fact or owing to misrepresentation or fraud or in excess of authority.

[BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH]

B. KRIPANANDAM
SECRETARY TO GOVERNMENT

To
M/s Singareni Collieries Company Limited,
Kothagudem Collieries -507 101,
Khammam District [RPAD]

The Director of Mines and Geology, Hyderabad.[w.e: F& MP]
Copy to:
The Asst. Director of Mines and Geology, Khammam.
The Collector, Khammam.
The Secretary to Govt. of India, Ministry of Mines,
Dept. of Mines, New Delhi.
The Controller General, Indian Bureau of Mines, Nagpur.
The Director General of Mines Safety,Dhanbad, Bihar.
The Regional Controller of Mines, Koti, Hyderabad.
The Ind. & Com.[IF-Cell] Deptt.
SF/SC

"A copy of this order is available on the Internet and can be accessed at the address- "http://apts.gov.in/apgos".

-// FORWARDED :: BY ORDER //-

K V Subbarao
SECTION OFFICER

GOVERNMENT OF ANDHRA PRADESH
ABSTRACT

MINES AND MINERALS - Mining Lease for Coal over an extent of 175.69 Hectares of Forest Land in Compartment No.5, 6 and 8 of Kondapuram RF,Paloncha Division, Khammam District in favour of M/s Singareni Collieries Company Limited, for a period of 20 years - Sanction - Orders - Issued.

INDUSTRIES & COMMERCE (M-III) DEPARTMENT

G.O. Ms. No.238. **Dated:27-08-2008**
Read the following:-

1) From M/s Singareni Collieries Company Limited, Mining Lease Application, dated 08-05-2007
2) From Director of Mines & Geology, File No. 32722/ R6-2/2007, dated 11-10-2007.
3) Govt. Letter. No.15609/M.III(2)/2007-1, dated 28-12-2007.
4) Govt. Memo.No.15609/M.III(2)/2007-2, dated 28-12-2007.
5) From GOI, Ministry of Coal, Lr. No.13016/03/2008-CA.II, dated 07-02-2008.
6) From Director of Mines & Geology, Suppl.File No. 32722/ R6-2/2007, dated 29-07-2008

...

ORDER:

In the reference 3rd read above, State Government have proposed for grant of Mining Lease for Coal over an extent of 175.69 Hectares of Forest Land in Compartment No.5, 6 and 8 of Kondapuram RF,Paloncha Division, Khammam District in favour of M/s Singareni Collieries Company Limited, for a period of 20 years, subject to the prior approval of Government of India, under Section 5(1) and also in relaxation of Section 6(1) (b) of M.M.(D&R) Act,1957, as recommended by the Director of Mines & Geology vide reference 2nd read above.

2) In the reference 5th read above, the Ministry of Coal, Government of India, have conveyed their prior approval under Section 5(1)(b) of MM(D&R) Act,1957 for grant of Mining Lease for coal over an extent of 175.69 Hectares of Forest Land in Compartment No.5, 6 and 8 of Kondapuram RF,Paloncha Division, Khammam District in favour of M/s Singareni Collieries Company Limited, for a period of 20 years, in relaxation under section 6(1)(b) of MM(D&R) Act, 1957, as the area so far granted in favour of M/s SCCL exceeds 10 Sq. Kms., subject to condition that mining lease to be granted to M/s SCCL by the State Government, only after submission of mining plan duly approved by Central Government.

3) In the reference 6th read above, the Director of Mines & Geology has furnished the Approved Mining Plan duly approved by the Ministry of Coal for grant of Mining Lease for coal over an extent of 175.69 Hectares of Forest Land in Compartment No.5, 6 and 8 of Kondapuram RF,Paloncha Division, Khammam District in favour of M/s Singareni Collieries Company Limited, for a period of 20 years.

4) Government, after careful examination of the matter, hereby grant a Mining Lease for Coal over an extent of 175.69 Hectares of Forest Land in Compartment No.5, 6 and 8 of Kondapuram RF,Paloncha Division, Khammam District in favour of M/s Singareni Collieries Company Limited, for a period of 20 years, subject to submission of Consent for Establishment from Andhra Pradesh Pollution Control Board, Environmental clearance from Ministry of Environment & Forests, Government of India under Environment Impact Assessment as per S.O.No.1553, dt.14-09-2006 and Forest Clearance under Forest (Conservation) Act, 1980 by Ministry of Environment & Forests before execution of lease deed and also subject to the conditions in Form-K prescribed under the Mineral Concession Rules, 1960 and subject to satisfying all other applicable Acts & Rules in this regard and to the additional conditions specified in the Appendix to this order and subject to satisfaction of all other applicable Acts and Rules in this regard.

{PTO}

5) The rates of royalty, dead rent, cess, surface rent and water charges shall be collectable as follows or as revised by Government from time to time:

I. Rates of Royalty:

COAL:

A. Coal produced in all States and Union Territories except the State of West Bengal.

(1) Royalty on Coal:

The rates of royalty, which shall be a combination of specific and ad valorem rates of royalty which shall be as follows:

R(Royalty Rupees/tonnes)=a+bP

Where 'P' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges and the values of '**a**' (fixed component) and '**b**' (variable or ad-valorem component) would be as follows:

Group	Grade of coal	Royalty on coal in Rupees per tonne
Group-I	Steel Gr.-I Steel Gr.II Washery-I Direct Feed	a=Rs.180.00 b=5 per cent i.e. Rs.180+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-II	Washery-II Washery-III Semi Coking Gr.I Semi Coking Gr.II Grade-A Grade-B	A=Rs.130.00 b=5 per cent i.e. Rs.130+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-III	Washery-IV Grade-C	a=Rs.90.00 b=5 per cent i.e. Rs.90+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-IV	Grade-D Grade-E	a=Rs.70.00 b=5 per cent i.e. Rs.70+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.
Group-V	Grade-F Grade-G	a=Rs.55.00 b=5 per cent i.e. Rs.55+5 per cent where '**P**' (price) shall mean basic pithead price of ROM (run-of-mine) coal and lignite as reflected in the invoice, excluding taxes, levies and other charges.

(Contd...3)

II. Dead rent:	Rates of dead rent in rupees per hectare per annum or as revised by Government from time to time
First Two years of lease	3rd year onwards
100/-	400/-

III. Surface rent & water charges and also Cess	As fixed by the Government from time to time

6) The grantee should execute the lease deed within the time limit specified in Rule 31 of Mineral Concession Rules, 1960.

7) The grantee should pay a deposit of Rs.10,000/- as prescribed under rule 32 of the Mineral Concession Rules, 1960 before the lease is actually executed.

8) The terms and conditions referred to in paras 4-5 of this order are subject to such further modifications, additions and alterations as may be ordered before the lease deed is executed.

9) The Director of Mines and Geology shall take necessary further action for the execution of the lease deed after satisfying himself that the grantee fulfils all the required provisions of the amended Act and Rules. As soon as the deed is executed, the date of such execution should be reported to the Government.

NOTE: The grant is liable for cancellation should it be found at a later date that it was grossly inequitable or was made under a mistake of fact or owing to misrepresentation or fraud or in excess of authority.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

Y. SRILAKSHMI
SECRETARY TO GOVERNMENT

To
M/s Singareni Collieries Company Limited,
Kothagudem -507 101, Khammam District.
The Director of Mines and Geology, Hyderabad.[w.e: File & AMP]
Copy to:
The Asst. Director of Mines and Geology, Kothagudem, Khammam District.
The Collector, Khammam District.
The Secretary to Govt. of India, Ministry of Coal, New Delhi.
The Controller General, Indian Bureau of Mines, "A" Block,
2nd Floor, Indira Bhavan, Civil Lines, Nagpur440 001.
The Director General of Mines Safety, Dhanbad, Bihar.
The Regional Controller of Mines, Koti, Hyderabad..
SF/SC(**C.No.15609/M.III(2)/2007**)

"Copy of this order is available on Internet and can be accessed at address http://ap.gov.in/goir"

// FORWARDED BY ORDER //

SECTION OFFICER

Copy of Forest Clearance

GMB 35(1) 0878-2230004

No.8-24/86-FC
Government of India
Ministry of Environment & Forests
Dptt. of Environment, Forests & Wildlife

Paryavaran Bhavan,
CGO Complex,
Lodi Road,
New Delhi-110003.

Dated the 19th December, 1988.

To

The Secretary,
Forest, Animal Husbandary and
Fisheries Department,
Government of Andhra Pradesh,
Hyderabad.

Subject:- Release of 412.40 ha. of forest land in Khammam District for opencast mining.

.....

Sir,

I am directed to refer to your letter No.34930/Fr.I/84-3 dated 15.1.86 on the above mentioned subject seeking prior approval of the Central Government in accordance with Section-2 of the Forest(Conservation) Act, 1980 and to say that the proposal has been examined by the Advisory Committee constituted by the Central Government under Section-3 of the aforesaid Act.

2. After careful consideration of the proposal of the State Government and on the basis of the recommendation of the above mentioned Advisory Committee, the Central Govt. hereby conveys its approval under Section-2 of the Forest (Conservation) Act, 1980 for release of 412.40 ha. of forest land in Khammam District for open cast mining and subject to the following conditions:-

i. Legal Status of the forest will remain unchanged.

ii. Compensatory plantation will be raised over equivalent non-forest land at the cost of the project. The non-forest land identified for this purpose should be handed over to the Forest Department and notified as Protected Forests before the release of forest lands now being diverted by these orders.

iii. Mined over area should be reclaimed within a period of five years.

iv. In order that the labour and staff while working on the Project in the forest area may not cause destruction to the forest area for meeting their fuelwood needs, the Project Authority will establish fuelwood depots, and will provide the fuelwood

Contd...2/-

I.A

coal, other fuel like kerosene oil, LPG, biogas electricity, etc. to the labourers free of cost and free or at subsidised rate to the other staff as may be determined by the Project Authority.

v. No explosives should be allowed to be stored in the forest area.

vi. The above condition may be varied or additional condition may be imposed depending on forestry and environmental requirements.

Yours faithfully,

(ANSAR AHMED)
ASSISTANT INSPECTOR GENERAL OF FORESTS.

Copy to:

1. Secretary, Department of coal, Ministry of Energy, New Delhi.
2. Chief Conservator of Forests, Govt. of Andhra Pradesh, Hyderabad.
3. Conservator of Forests(Cehtral), Regional Office, South Zone, V-Block, 1034, Chord Road, Rajaji Nagar, Bangalore-10, (KARNATAKA).
4. M/S Singareni Collieries company Ltd., Kothagudam

(ANSAR AHMED)
ASSISTANT INSPECTOR GENERAL OF FORESTS.

Copy for information, also to:

DIA II, Impact Assessment Division.

तार
Telegram : PARYAVARAN, NEW DELHI
दूरभाष :
Telephone :
टेलेक्स (द्विभाषीय) :
Telex : (bi-lingual) : W-66185 DOE IN
FAX : 4360678

भारत सरकार
पर्यावरण एवं वन मंत्रालय
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
पर्यावरण भवन, सी॰ जी॰ ओ॰ कॉम्प्लेक्स
PARYAVARAN BHAWAN, C.G.O. COMPLEX
लोदी रोड, नई दिल्ली - 110003
LODHI ROAD, NEW DELHI - 110003

No.8-14/94-FC 2377

Dated: 14.02.1997

To

The Secretary (Forests),
Govt of Andhra Pradesh,
HYDERABAD.

Sub:- Diversion of 104 ha. of Reserve Forest land for Manuguru Open Cast Project-IV in favour of M/s. SCCL.

***

Sir,

I am directed to refer to your letter No.25103/For.I/1/93-1 dated 10/24.12.93 on the above mentioned subject seeking prior approval of the Central Government in accordance with Section-2 of the Forest (Conservation) Act, 1980.

After careful consideration of the proposal of the State Government, the Central Government, hereby, conveys its approval under Section-2 of the Forest (Conservation) Act for diversion of 104 ha. of Reserve Forest land for mining activities which was included in the approval no.8-24/86-FC dated 19/21.12.1988 as area meant for construction of magazine for Manuguru Open Cast Project-IV in favour of M/s. SCCL, subject to fulfilment of following conditions:-

(i) The legal status of forest land will remain unchanged.

(ii) Compensatory afforestation will be raised at the cost of user agency over equivalent non-forest land which will be notified as forest land under Indian Forest Act.

(iii) Reclamation of mined area will be done at the cost of user agency.

(iv) Free fuelwood/alternate energy source will be provided to labourers working at project site.

(v) Lease period shall be coterminus with lease under the MMRD Act subject to a maximum of 30 years.

(vi) Environmental clearance..

Contd..2/p...

(43)

(vii) The forest land shall not be used for any purpose other than that specified in the proposal.

(viii) Any other condition that the State Government may impose from time to time in the interest of afforestation and protection of forests.

Yours faithfully,

ANSharan
14.2.97

(A.N. SHARAN)
ASSTT. INSPECTOR GENERAL OF FORESTS

-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X

THE SINGARENI COLLIERIES COMPANY LIMITED
(A GOVERNMENT COMPANY)

Ref.No.EM/ FL/8/9 Date: 17.3.1997.

Copy forwarded to:-

CGM Manuguru(P).
G.M.,OC-II & III RG.
G.M.,(PP).

for kind information please. A letter is being written to State Govt., and copy marked to Prl.CCF that the SCCL has already handed over the equivalent non-forest land in Karimnagar District and also paid C.A. charges which was confirmed by Prl.CCF vide letter No. 16533/93/F2 dated 17.1.1996 addressed to MOEF GOI with a request to arrange to issue G.O. for diversion of the above forest land in favour of SCCL at the earliest.

M/File.

ESTATES MANAGER.

CSN*

Telegram : PARYAVARAN,
NEW DELHI
दूरभाष :
Telephone :
टेलेक्स (द्विभाषीय) :
Telex : (bi-lingual) : W-66185 DOE IN
FAX : 4360678

भारत सरकार
पर्यावरण एवं वन मंत्रालय
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
पर्यावरण भवन, सी० जी० ओ० कॉम्प्लेक्स
PARYAVARAN BHAWAN, CGO COMPLEX
लोदी रोड, नई दिल्ली-110003
LODHI ROAD, NEW DELHI-110003

No.8-8/96-FC

Dated: 10.10.1997

To

The Secretary (Forests),
Govt. of Andhra Pradesh,
HYDERABAD.

Sub:- Diversion of 305 ha. of forest land on lease basis for mining towards balance requirement of Open Cast Project-II Phase-III in Kondapuram Extension-I and Kandaigudem, Paloncha Division, Khammam District in favour of M/s. SCCL.

Sir,

I am directed to refer to your letter No.9603/For.1/95-2 dated 9.11.95 on the above mentioned subject seeking prior approval of the Central Government in accordance with Section-2 of the Forest (Conservation) Act, 1980.

After careful consideration of the proposal of the State Government, the Central Government hereby conveys its approval under Section-2 of the Forest (Conservation) Act, for diversion of 286.25 ha. (i.e. 305 - 18.75, excluding forest area required for safety zone) of forest land on lease basis for mining towards balance requirement of Open Cast Project-II Phase-III in Kondapuram Extension-I and Kandaigudem, Paloncha Division, Khammam District in favour of M/s. SCCL, subject to fulfilment of following conditions:-

(i) Legal status of forest land shall remain unchanged.

Pl. get 4 Copies.

(ii) Compensatory afforestation will be raised at the cost of user agency over equivalent non-forest land which will be notified as forest land under Indian Forest Act.

18/10/97

(iii) Fencing, protection and regeneration of the safety zone area shall be carried out at the project cost. Further, enrichment plantation over degraded forest land equivalent in extent to one and a half times of safety zone area will be carried out at the project cost.

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(iv) This approval is subject to environmental clearance.

(v) The period of lease will be co-terminus with the period of lease granted under MMRD Act subject to maximum of 30 years.

(vi) Reclamation of mined over areas shall be done at the cost of user agency to the satisfaction of forest department.

(vii) The forest land shall not be used for any purpose other than that specified in the proposal.

(viii) Any other condition that the State Government may impose from time to time in the interest of afforestation and protection of forests.

Yours faithfully,

(A.N. SHARAN)
ASSTT. INSPECTOR GENERAL OF FORESTS

Copy to:-

1. Principal Chief Conservator of Forests, Govt. of Andhra Pradesh, Hyderabad.
2. Nodal Officer, Office of PCCF, Govt. of Andhra Pradesh, Hyderabad.
3. The CCF (Central), Regional Office, Bangalore.
4. RO(HQ), New Delhi.
5. Guard File.

A.N. Sharan 15.10.97

(A.N. SHARAN)
ASSTT. INSPECTOR GENERAL OF FORESTS

F. No. 8-56/2004-FC
Government of India
Ministry of Environment and Forests
(F.C. Division)

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi – 110003.
Dated: 14th July, 2008.

OFFICE OF THE CHAIRMAN & M.D. SINGARENI COLLIERIES CO. LTD.
3015
16 JUL 2008
HYDERABAD.

To

Principal Secretary (Forests),
Government of Andhra Pradesh,
Hyderabad.

Sub: Diversion of 125.9 ha of forest land for renewal of Manuguru OCP-II, Phase-III, mining project in favour of Singareni Collieries Company Limited (SCCL), in Khammam district of Andhra Pradesh.

Sir,

I am directed to refer to the State Government's letter No. 2972/For.1(1)/2004-1 dated 19.05.2004 on the subject mentioned above seeking prior approval of the Central Government under the Forest (Conservation) Act, 1980. After careful consideration of the proposal by the Forest Advisory Committee constituted under Section-3 of the said Act, in-principle approval for the said Mining Lease was granted vide this Ministry's letter of even number dated 10.01.2005 and Temporary Working Permission for a period of six months w.e.f. 14.03.2005 to continue mining over already broken up area subject to fulfilment of certain conditions. The State Government has furnished compliance report in respect of the conditions stipulated in the in-principle approval and has requested the Central Government to grant final approval.

In this connection, I am directed to say that on the basis of the compliance report furnished by the State Government vide letter 2972/FOR.I(1)/2007 dated 03.03.2008, approval of the Central Government is hereby granted under Section-2 of the Forest (Conservation) Act, 1980 for diversion of 125.9 ha of forest land for renewal of Manuguru OCP-II, Phase-III, mining project in favour of Singareni Collieries Company Limited (SCCL), in Khammam district of Andhra Pradesh subject to fulfilment of the following conditions:

1. Legal status of the diverted forest land shall remain unchanged.

2. Wherever possible and technically feasible, the User Agency shall undertake afforestation measures in the blanks within the lease area, as well as along the roads outside the lease area diverted under this approval, in consultation with the State Forest Department at the project cost.

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3. Following activities shall be undertaken by the State Forest Department at the project cost:

   (i) Proper mitigation measures to minimize soil erosion and choking of streams shall be prepared.

   (ii) Planting up of all vacant land and dumps with suitable species to arrest soil erosion and its protection.

   (iii) Construction of a series of check dams and toe walls along the contour on the hill slopes to avoid rolling down of the excavated material.

   It will be done in 100 mt. belt around the diverted forest land in addition to safety zone.

4. The period of diversion under this approval shall be twenty (20) years subject to possession of valid lease by the User Agency under the MMDR Act, 1957 so that is shall be co-terminus.

5. (i) The User Agency shall take up planting work on the static dumps during the advance mining operations.

   (ii) All the dumps shall be fully reclaimed by afforestation immediately after closure of the mine in the shortest possible period under supervision of the State Forest Department.

6. Any tree felling shall be done only when it is absolutely necessary and unavoidable, and that too under strict supervision of the State Forest Department.

7. No damage to the flora and fauna of the area shall be caused.

8. Reclamation Plan shall be strictly implemented which shall be monitored regularly by the State Forest Department.

9. It shall be ensured that no labour-camps are set up inside the forest area.

10. The mining lease area shall be demarcated on ground at the project cost, using four feet high RCC pillars, with each pillar inscribed with the serial number, forward and backward bearings and distance between two adjacent pillars.

11. The forest land shall not be used for any purpose other than that specified in the proposal.

12. Any other condition that the CCF (Central), Regional Office, Bangalore, may impose from time to time for protection and improvement of flora and fauna in the forest area, shall also be applicable.

Yours faithfully,

(B.K. Singh)
Sr. Assistant Inspector General of Forests

Copy to:

1. Principal Chief Conservator of Forests, Andhra Pradesh, Hyderabad.
2. Nodal Officer, Office of the PCCF, Andhra Pradesh, Hyderabad.
3. Chief Conservator of Forests (Central), Regional Office, Bangalore.
4. The CMD, Singareni Collierieis Company Limited, PB No. 18, Khairatabad, PO Singareni Bhawan, Red Hills, Hyderabad-500004 (Andhra Pradesh).
5. RO(HQ), MoEF, New Delhi.
6. Monitoring Cell, FC Division, MoEF, New Delhi.
7. Guard File.

(B.K. Singh)
Sr. Assistant Inspector General of Forests

F. No. 8-7/2008-FC
Government of India
Ministry of Environment and Forests
(F.C. Division)

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi – 110003.
Dated: 30th December , 2008.

To

The Special Secretary to Government,
Environment, Forests, Science & Technology Deptt.,
A.P. Secretariat,
Hyderabad.

Sub: Diversion of **175.69 ha** of forest land in Ploncha Division of Khamam District for open cast coal mining (OCP-II Managuru) in favour of Singareni Collieries Company Limited.

Sir,

I am directed to refer to State Government's letter No. 6763/For.I(1)/2007-1 dated 20/23.09.2007 on the subject cited above seeking prior approval of the Central Government under the Forest (Conservation) Act, 1980. After careful consideration of the proposal by the Forest Advisory Committee constituted by the Central Government under Section-3 of the said Act, in-principle approval for the said Mining Lease was granted vide this Ministry's letter of even number dated 24.10.2008 subject to fulfillment of certain conditions. The State Government has furnished compliance report in respect of the conditions stipulated in the in-principle approval and has requested the Central Government to grant final approval.

2. In this connection, I am directed to say that on the basis of the compliance report furnished by the State Government vide letter No. 6763/FOR.I(1)/2007-3 dated 20.11.2008, approval of the Central Government is hereby granted under Section-2 of the Forest (Conservation) Act, 1980 for diversion of **175.69 ha** of forest land in Ploncha Division of Khamam District for open cast coal mining (OCP-II Managuru) in favour of Singareni Collieries Company Limited, in Andhra Pradesh, subject to fulfillment of the following conditions:-

1. Legal status of forest land shall remain unchanged.
2. The land identified for the purpose of CA for raising Compensatory Afforestation shall be notified by the State Government as RF under Section-4 or PF under Section-29 of the Indian Forest Act, 1927 or under the relevant Section(s) of the local Forest Act, as the case may be, within a period of six months.
3. a. Wherever possible and technically feasible, the User Agency shall undertake afforestation measures in the blanks within the lease area as well as within 100 Meter radius from the lease area inside RF if density is lesser than 0.4 and maintain it till the life of the project, in consultation with the State Forest Department.
   b. The User Agency shall raise and maintain the Afforestation including enrichment plantation over surface area diverted as in in-principle approval.
   c. Fencing, protection and regeneration of the safety zone area (7.5 metres strip all

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along the outer boundary of the mining lease area) shall be done at the project cost and a half times the area under safety zone, shall also be done at the project cost.. Besides this, afforestation on 100 meter radius of mining lease granted in degraded forest land if density is less then 0.4/enrichment plantation shall be taken up by the user agency in consultation with the Forest department.

4. The period of diversion under this approval shall be twenty (20) years subject to possession of valid lease by the User Agency under the MMDR Act, 1957 so that it shall be co-terminus.
5. Additional amount of the NPV of the diverted forest land, if any, becoming due after finalization of the same by the Hon'ble Supreme Court of India shall be charged by the State Government from the User Agency. The User Agency shall furnish an undertaking to this effect.
6. Any tree felling shall be done only when it is absolutely necessary and unavoidable.
7. No damage to the flora and fauna of the area shall be caused.
8. Reclamation Plan shall be strictly implemented which shall be monitored regularly by the State Forest Department/Regional Office, Bangalore.
9. It shall be ensured that no labour camps are set up inside the forest area.
10. The mining lease area shall be demarcated on ground at the project cost, using four feet high RCC pillars, with each pillar inscribed with the serial number, forward and backward bearings and distance between two adjacent pillars.
11. The forest land shall not be used for any purpose other than that specified in the proposal
12. All other conditions mentioned in the in principle approval shall be complied with.
13. Any other condition that the CCF (Central), Regional Office, Bangalore/ State Government may impose from time to time for protection and improvement of flora and fauna in the forest area, shall also be applicable.

Yours faithfully,

sd

(B.K. Singh)
Sr. Assistant Inspector General of Forests

Copy to:

1. Principal Chief Conservator of Forests, Andhra Pradesh, Hyderabad.
2. Nodal Officer, Office of the PCCF, Andhra Pradesh, Hyderabad.
3. Chief Conservator of Forests (Central), Regional Office, Bangalore.
4. User Agency.
5. RO(HQ), MoEF, New Delhi.
6. Monitoring Cell, FC Division, MoEF, New Delhi.
7. Guard File.

(B.K. Singh)
Sr. Assistant Inspector General of Forests

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F.No. 8-37/2001-FC
Government of India
Ministry of Environment and Forests
(F.C. Division)

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi - 110003,
Dated : 31st December, 2003

To,

The Principal Secretary (Forests),
Government of Andhra Pradesh,
Hyderabad.

Sub. : Diversion of 75.00 ha. of forest land for OCP-III Manuguru coal mine in favour of M/s. SCCL in district Khammam, Andhra Pradesh.

Sir,

I am directed to refer to your letter No. 1492/For.I (1)/2001-1, dated 01.03.2001 on the above mentioned subject seeking prior approval of the Central Government in accordance with Section 2 of the Forest (Conservation) Act, 1980 and to say that the proposal has been examined by the Forest Advisory Committee constituted by the Central Government under Section 3 of the aforesaid Act.

After careful consideration of the proposal of the State Government, the Central Government hereby conveys its approval under Section 2 of the Forest (Conservation) Act, 1980 for diversion 75.00 ha. of forest land for OCP-III Manuguru coal mine in favour of M/s. SCCL in district Khammam, Andhra Pradesh, **for a period co-terminus with the lease-period granted under the MMRD Act,** subject to fulfilment of the following conditions:

1. Legal status of the forests shall remain unchanged.
2. Compensatory afforestation shall be raised and maintained over equivalent non-forest land at the project cost by the State Forest Department.
3. The non-forest land shall be notified as Reserved Forest under Indian Forest Act, 1927 by the State Government immediately.
4. The mining lease area shall be demarcated on ground using four feet high RCC pillars, each written with the serial number, forward and backward bearings and distance from pillar to pillar.
5. Fencing, protection and regeneration of the safety zone area will be done at the project cost. Besides this, afforestation on degraded forest land, to be selected elsewhere, measuring about one and a half times the area under safety zone, will be done at the project cost.
6. Tree felling shall be done only when it becomes indispensable, under the supervision of the State Forest Department. .
7. No damage to the flora and fauna of the area shall be caused.

8. No construction shall be allowed on the forest land.
9. The forest land shall not be used for any purpose other than that specified in the proposal.
10. The approval under the Forest (Conservation) Act, 1980 is subject to clearance under the Environment (Protection) Act, 1986, if required.
11. The Reclamation Plan and the Rehabilitation Plan shall be implemented in spirit, which shall be monitored regularly by the State Forest Department.
12. It shall be ensured that no labour-camps are set up inside the forest area.
13. The labourers shall be provided coal free of cost by the User Agency.
14. Any other condition that the State Government and/or the CCF (Central), Regional Office, Bangalore, may like to impose from time to time for protection and improvement of flora and fauna in the forest area.

Yours faithfully,

(Sandeep Kumar)
Assistant Inspector General of Forests

Copy to :

1. The Principal Chief Conservator of Forests, Andhra Pradesh, Hyderabad.
2. Nodal Officer, O/o The PCCF, Andhra Pradesh, Hyderabad.
3. The CCF(Central), Regional Office, Bangalore.
4. The Executive Director (P&TM), M/s SCCL, Kothagudam Collieries, Bhadrachalam Road Railway Station, Andhra Pradesh-507101.
5. Regional Office, Hq., New Delhi.
6. Guard file.

(Sandeep Kumar)
Assistant Inspector General of Forests