एनटीपीसी
NTPC
A MAHARATAN COMPANY

एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)
(Formerly National Thermal Power Corporation Ltd.)
केन्द्रीय कार्यालय/Corporate Centre

CC: ESE: 9591:2015: GEN

Date: 16.11.2015

Director, IA-Thermal
Ministry of Environment and Forests and Climate Change
3rd Floor, Vayu Block,
Indria Paryavaran Bhawan,
Jor Bagh Road, Aliganj,
New Delhi – 110 003

Sub.: Environmental Clearance for Telangana STPP, Stage-I (2 x 800) MW – Reg.

Ref.:- J-13012/112/2010– IA.II (T)

Dear Sir,

This has reference to EAC meeting held on 29.10.2015 during which proposal for accord of Environmental Clearance (EC) for Telangana STPP Stage-I (2x800) MW was considered.

During the EAC meeting certain clarifications have been sought including obtaining a letter from Coal India Limited (CIL) for allotting tapering coal linkage based on MOC letter dated 21.06.2015. In this regard a letter dated 06.11.2015 is attached herewith vide which Coal India Limited (CIL) has communicated allotment of tapering coal linkage for the Telangana Stage-I STPP (2x800) MW from Western Coalfield Ltd. (WCL).

As per the minutes of EAC meeting uploaded on MOEF website a point wise reply to issues mentioned therein is attached herewith.

In view of the foregoing, it is requested to consider accord of Environmental Clearance (EC) for Telangana STPP, Stage-I (2x800) MW at the earliest.

Looking forward for kind consideration

Thanking you

Yours faithfully,

(R.K. Baderia)
HOD (Environmental Engineering)

Encls: As above.

अभियांत्रिका कार्यालय परिसर, प्लाट नं. ए–8ए, सैक्टर–24, पोस्ट बाक्स नं. 13, नोयडा (उ.प्र.) पिन–201301
ENGINEERING OFFICE COMPLEX, Plot No. A-8A, Sector-24, Post Box No. 13, NOIDA (U.P.) Pin-201301
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Regd. Office : NTPC Bhawan, SCOPE Complex, 7, Institutional Area, Lodhi Road, New Delhi-110003

POINT WISE REPLY AGAINST THE QUERIES POSTED BY MOEF&CC AS UNDER MOM OF EAC MEETING

1. ***Commitment and Action Plan for compliance to the Ministry's Notification dated 02.01.2014 regarding use of coal with ash content not exceeding thirty-four per cent, on quarterly average basis.***

   The coal with ash content not exceeding thirty four percent on quarterly basis will be used for the project. Accordingly the modified Ash Utilization Plan with 34 % maximum ash content is enclosed as ***Annexure-I.***

2. ***Detailed note on rise in temperature in consultation with IMD. The data shall be as old as possible.***

   A brief write-up on temperature is enclosed as ***Annexure-II.***

3. ***Certificate from the concerned authority that the site is not located on economically feasible mineable mineral deposit (TOR 15).***

   A letter has been written by NTPC on 02.11.2015 (Copy enclosed as ***Annexure-III****) to Deputy Director General, Geological Survey of India requesting to issue the certificate on mineable deposits in the proposed project location. Necessary Certificate is awaited.*

4. ***Occupational health and epidemic health disorders survey of the study area.***

   A survey on Environmental Human Health Risk Assessment was conducted by M/s. Pollucon Laboratories Pvt. Ltd, Surat in and around Ramagundam area. The study revealed that there is no specific endemic disease in the surrounding area & the health status of study population was satisfactory and health problems reported during the study were not showing any unusual pattern. The health related problems found during the study like General health related complains, High blood pressure, Malnutrition, Anaemia, Refractive error were mainly due to life style related factors and not due to above mentioned pollutants in emission. The executive summary of the survey report is enclosed as ***Annexure-IV.***

5. ***The quality of effluent from ash pond area vis – a –vis the river water quality. The impact on agricultural fields in terms of heavy metals in food chain and ground water/soil.***

   The water quality analysis reports at intake point and the confluence point at river Godavari are enclosed as ***Annexure-V (A).***
   The soil quality analysis of agricultural field are enclosed as ***Annexure-V (B).***

6. ***Plan for cycling and reuse of ash pond effluent after minimizing the discharge of cooling water blow down etc. to the ash pond. No untreated ash pond effluent shall be discharged.***

   Entire ash pond effluent (ash water) of Telangana STPP Stage-I (2x800) MW will be recycled for use in the plant and ash handling system. Ash water recirculation system comprising of pumps and piping are envisaged for the same.

7. ***Detailed report on water drawl, water channels and diversion duly certified by the irrigation & flood control department of the state government.***

   Irrigation & CAD Department, Government of Telangana vide its letter dated 02.09.2015 has accorded and certified permission for drawl of 60 cusecs (2.00 TMC) water throughout the year from Sreepada Yellampalli Barrage from the net available yield. The copy of letter is enclosed as ***Annexure-VI.***

8. ***Satellite map showing the existing green belt. Revised plant layout by maintain thick three-tier green belt in minimum 33 % area.***

   The photographs relating to green belt development is enclosed as ***Annexure-VII.*** *The revised General Layout Plan with additional proposed Green belt is enclosed as* ***Exhibit-I.*** *Satellite map is being procured through NRSA and the same shall be submitted shortly**..***

9. ***As committed, revised CSR action plan for the proposed expansion with a minimum budget of Rs. 20 Crores (only for the construction phase).***

   The CSR-CD Activities for Telangana STPP is enclosed as ***Annexure-VIII.***

10. ***Budgetary action plan for the public hearing issues.***

    The Budgetary estimate for proposed Telangana project (total one-time tentative cost provision for 05 years) excluding expenditure under regular CSR activities of Ramagundam STPS has been detailed out under ***Annexure-VIII*** *above.*

11. ***Reply to the representation received by the EAC, a copy of which was provided to the PP.***

    Reply to the representation is enclosed as ***Annexure-IX.***

12. ***Revised AAQ modeling results***

    The prediction of maximum Ground Level Concentrations (GLC's) on AAQ due to the proposed power project has been carried out taking in to consideration the

worst coal characteristics and worst micro climatic condition. The revised AAQ modelling results is enclosed as ***Annexure-X.***

13. Commitment for installation of FGD

Space provision has been kept in General Layout Plan for retrofitting FGD System in future, if required.

14. Detailed document/permission for tapering coal linkage.

Coal India Limited (CIL) vide its letter dated 06.11.2015 has allotted tapering coal linkage for the Telangana Stage-I STPP (2x800) MW from Western Coalfield Ltd. (WCL). Copy enclosed as ***Annexure-XI.***

15. ***All the discrepancies, if any, in the EIA report/EMP shall be addressed and submitted.***

All the issues raised in the minutes of EAC meeting have been addressed and the same stands as part of EIA report.

ANNEXURE-I

1.0 Ash Utilization Plan

For gainful utilization of fly ash in various applications, Ministry of Environment and Forests and Climate Change has issued a Gazette Notification dated 03-11-2009 which is an amendment to its earlier notifications dated 14-09-1999 and amendment dated 27-08-2003. The new notification stipulates that all coal based power stations / units commissioned after the date of issue of notification have to utilize at least 50% of ash generated within 1 year, 70% within 2 years, 90% within 3 years and 100% within 4 years respectively from the commissioning of the units.

The unutilized fly ash with respect to the target during a year, if any, shall be utilized within next two years in addition to the targets stipulated for those years and the balance unutilized ash accumulated during the first 4 years shall have to be utilized progressively over next 5 years in addition to 100% utilization of current generation of ash.

The NTPC - a socially conscious utility considers utilization of ash produced at its coal based power station as a thrust area of its activities. Telangana Super Thermal Power Project (2x800 MW) planned to be set up near NTPC Ramagundam, District- Karimnagar in Telangana. It is estimated that about 8,200 tonne of ash per day i.e. about 2.72 million tonne per annum would be produced in the power generation process. The ash market survey was carried out by a Consultant covering cement plants located within 100/ 300/ 500 km, brick manufacturing plants and major construction activities within the 100 km radius of Telangana STPP. Based on the survey report, sector wise ash utilization potential in the vicinity of proposed Telangana project is presented as below.

1.1 Cement Sector

Cement plants provide a potential for Ash Utilization on sustainable basis and demand of PPC is increasing in market, keeping this in mind, the cement plants located around Telangana STPP were surveyed. There are around 23 existing cement manufacturing plants within 500 km radius of proposed project. These plants are having total installed capacity of 45.50 million tonne per annum and also have expansion plan of 5.9 million tonne per annum. In addition to this, there are about 32 RMC manufacturing plants located within a radius of 300 km from proposed project. These cement & RMC plants will require about 12 million tonne fly ash per annum. Further, some cement plants such as Orient Cement, Kesoram Cement and Vasavadatta Cement plants have shown interest for lifting dry fly ash from Telangana Stage-I (2x800 MW). Considering all the above, about 1.90 million tonne fly ash per annum is expected to be utilized in this sector from proposed project.

1.2 Brick, blocks, tiles & other ash based products

Within 100 km radius from proposed project, there are about 70 Fly Ash brick units with an average installed capacity of 8000 bricks. In addition to this, there are 15 major clusters of clay ash bricks located within 100 km of proposed project. It is expected that MoEF&CC mandate for use of fly ash based bricks, blocks, tiles & other ash based products within 100 km of power plant in the building and other construction activities would be implemented and result in demand for fly ash brick, blocks, tiles & other ash based products will rise. It is

estimated that about 0.57 million tonne fly ash per annum is expected to be utilized in this segment.

1.3 Road and Highway Development

There are 2 nos. of existing National Highways i.e. NH-16 (Chinnur - Mancherial - Nizamabad) and NH-202 (Palampet - Jangaon) that fall within 100 km radius of proposed project, that are presently two lanned and there are plans to four lane these highways in the coming years. In addition to this State Highways & Urban roads of total approx length 480 Km are being constructed/ repaired per year on an average within a radius of 100 km from proposed project. These projects have potential to utilize about 0.25 million tonne ash per annum.

1.4 Balance/ unutilized ash (if any)

In line with provisions of MoEF&CC gazette notification dated 03.11.2009, for utilization of balance ash (if any), required studies such as (i) Ash Characterization, Environment Base Line Data Generation & Feasibility Study (ii) Hydro-geological Investigation (iii) Environment Impact Assessment cum mitigation Plan etc. shall be carried out through reputed institutes/ laboratories like BARC, CMPDIL, NEERI for identified mines of SCCL.

Based on the results of these studies, Environment Clearance from MoEF&CC shall be obtained. No Objection Certificate from State Pollution Control Board as well as permission from DGMS for shall also be obtained.

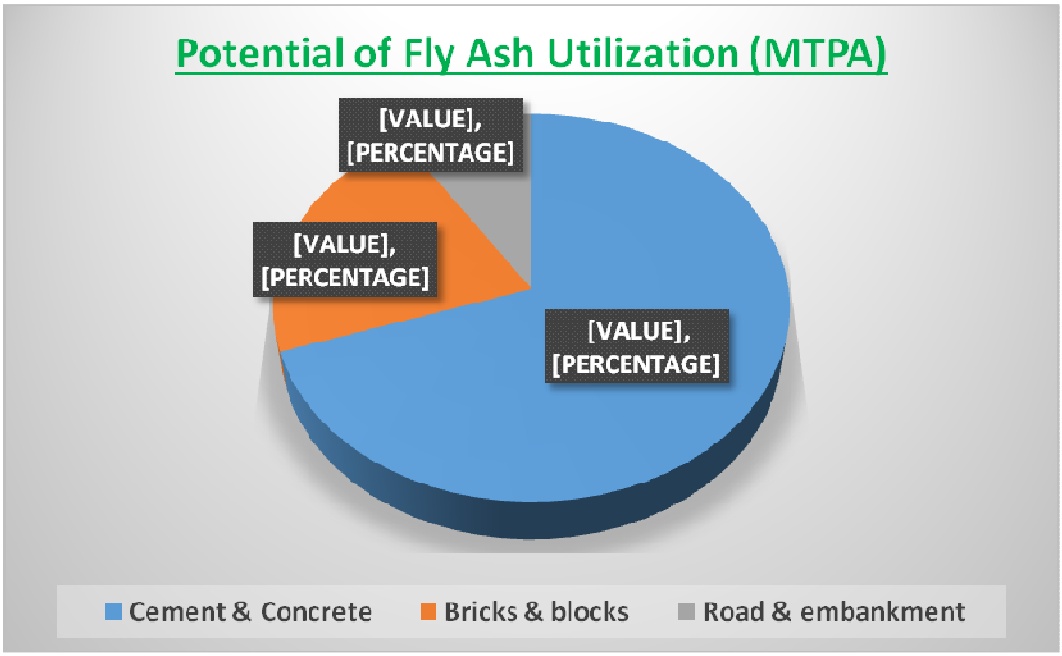
1.5 Overall Potential of Fly Ash Utilization

The potential areas of ash utilization are cement & concrete, manufacturing of building products, road embankment construction etc. Based on the survey report potential of ash utilization from Telangana STPP is given in **Table-1.0.**

TABLE-1.0

POTENTIAL OF FLY ASH UTILIZATION

Sr. No.	Area of use	Potential of Utilization (MTPA)	End user
1.	Cement & Concrete	1.90	RMC, Cement units
2.	Bricks & blocks	0.57	Brick, blocks, tiles & other ash based products
3.	Road & embankment	0.25	PWD, NHAI
Total		**2.72**	



1.6 Action Plan for Ash Utilization

A tentative ash utilization plan proposed for Telangana STPP is presented at Table-1 for which support of regulatory authorities will be required. The plan would be revised from time to time based on the actual consumption pattern as well as emerging trends in ash utilization. In order to have maximum ash utilization in various areas and also to comply with the requirements of MoEF&CC notification, following actions are proposed to be taken up by NTPC:

- NTPC shall provide a system for 100% extraction of dry fly ash along with suitable storage facilities. Provision shall also be kept for segregation of coarse and fine ash, loading this ash in tankers/ bulkers and also for loading fly ash into rail wagons. This will ensure availability of dry fly ash required for manufacture of Fly Ash based Portland Pozzolana Cement (FAPPC) for cement plants, Ready Mix Concrete plants.

- Efforts shall be made to widely publicize the usage of fly ash in cement and other products through advertisements, expression of interest etc. interest expressed by the cement plants namely Orient Cement, Kesoram Cement and Vasavadatta Cement plants for using ash from Telangana STPP stage-I are enclosed as **Annexure-I.**

- In line with gazette notification, at least 20% of the dry ESP fly ash shall be reserved for the manufacturers of fly ash or clay fly ash bricks, blocks and tiles.

- Efforts shall be made to motivate and encourage entrepreneurs to set up ash based building products such as fly ash bricks, blocks tiles etc.

- All government/private agencies responsible for construction/ design of buildings, road embankment and flyover bridges within 100 km of the plant areas shall be persuaded to use ash and ash based products in compliance of MoEF&CC Gazette Notification on fly ash dated 03-11-2009.

1.7 Monitoring & Reporting Mechanism

The project shall be having ash management group to promote and coordinate the activities related to ash utilization. In compliance to the provisions of MOEF&CC notification, Annual Ash Utilization Implementation Report shall be submitted by the 30th day of April, every year to the Central Pollution Control Board, concerned State Pollution Control Board or Committee and the concerned Regional Office of the Ministry of Environment of Forests and Climate Change.

ANNEXURE-I

EXPRESSION OF INTEREST FOR LIFTING OF FLY ASH

BIRLA SHAKTI CEMENT

KESORAM
www.kesocorp.com

M/s NTPC Limited,
Ramagundam.

June 11, 2015

EXPRESSION OF INTEREST FOR LIFTING OF FLY ASH

We are interested in lifting of fly ash from NTPC proposed project of NTPC Telangana Super Thermal Power Project at Ramagundam, District-Karimnagar, Telangana State at mutually agreed terms and conditions. The quantity of fly ash requirement will be about 3,00,000 Tons/Annum for manufacture of Cement.

Thanking you,

Yours faithfully,
For Kesoram Cement
for Kesoram Industries Ltd.

Ch. S. Nageswara Rao,
Plant Head.

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+ 91 8728 228129
+ 91 8728 228152
F + 91 8728 228160
e-mail : dept.name@kesoramcement.com

Kesoram Industries Limited
Cement Division
Unit - Kesoram Cement Works
Post - Basantnagar - 505 187, Karimnagar Dist., Telangana.
Registered Office : Birla Building, 8th Floor, 9/1 R.N. Mukherjee Road, Kolkata - 700 001
CIN OF KIL-L17119WB1919PLC003429
e.mail : corporate@kesoram.net

BIRLA SHAKTI CEMENT

KESORAM

June 11, 2015

M/s NTPC Limited,
Ramagundam.

EXPRESSION OF INTEREST FOR LIFTING OF FLY ASH

We are interested in lifting of fly ash from NTPC proposed project of NTPC Telangana Super Thermal Power Project at Ramagundam, District-Karimnagar, Telangana State at mutually agreed terms and conditions. The quantity of fly ash requirement will be about 4,00,000 Tons/Annum for manufacture of Cement.

Thanking you,

Yours faithfully,
For Vasavadatta Cement
for Kesoram Industries Ltd.

A. Mallikarjunarao,
Head Procurement.

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HYD. P + 040 - 23342296 / 23348056
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Kesoram Industries Limited
Cement Division
Unit : Vasavadatta Cement, Works : Post. Sedam - 585 222.
Tq. sedam, Dist. Gulbarga, Karnataka
Registered Office : Birla Building, 8th Floor,
9/1 R.N. Mukherjee Road, Kolkata - 700 001.
CIN - L17119WB1919PLC003429
email : corporate@kesoram.net
Hyderabad Office : Crystal Towers, 10-3-316, 2nd Floor,
Above Andhra Bank, Masab Tank, Hyderabad - 500 028. (T.S.)

CK BIRLA GROUP | ORIENT CEMENT

EXPRESSION OF INTEREST FOR LIFTING OF FLY ASH

We are interested in lifting of fly ash from NTPC proposed project of NTPC Telangana Super Thermal Power project at Ramagundam, District- Karimnagar, Telangana State at mutually agreed terms and conditions. The quantity of fly ash requirement will be about 5.0 lac Tons/Annum for manufacture of Cement

Regards

11/6/2015

P. Bala Muralidhar
AGM - Procurement

Orient Cement Limited
Devapur Plant: PO Devapur Cement Works, District Adilabad, Telangana 504218, India
+91 8736 240709 Fax: +91 8736 240522
Registered Office: Unit VIII, Plot No 7, Bhoinagar, Bhubaneshwar, Odisha 751012, India www.orientcement.com
CIN No.: L26940OR2011PLC013933

ANNEXURE-II

Brief write up on temperature in the study area based on IMD data.

In the Environmental Impact Assessment (EIA) report the temperature variation in Figure-3.3.3 was prepared based on the India Meteorological Department (IMD) temperature data for period 1951-1980 (i.e *before commissioning of industries*) and IMD data for period 1971-2000 (*after commissioning of various industries*) and was compared with the latest 2014 annual temperature data recorded at Ramagundam. The IMD data Table of 1951-1980 and 1971-2000 are enclosed as Annexure-I.

The temperature difference observed based on IMD data for period 1951-1980 and for period 1971-2000 w.r.t the mean maximum and minimum temperature are detailed in below **Table-1**:

TABLE-1
MEAN MINIMUM AND MEAN MAXIMUM TEMPERATURE DATA AND ITS DIFFERENCE (1951-1980)/ (1971-2000)

Month	Mean Temperatures (^{0}C)					
	IMD (1951-1980)		IMD (1971-2000)		Min Temp Difference (^{0}C)	Max Temp Difference (^{0}C)
	Min	Max	Min	Max		
Jan	10.9	33.3	10.5	33.4	-0.4	+0.1
Feb	13.8	37.1	13.3	36.5	-0.5	-0.6
March	17.4	40.6	16.5	40.7	-0.9	+0.1
April	21.5	43.6	21.2	43.7	-0.3	+0.1
May	23.8	**45.6**	23.4	**45.3**	**-0.4**	**-0.3**
June	22.4	43.8	22.6	43.8	+0.2	0
July	22.0	36.8	22.2	36.6	+0.2	-0.2
August	22.2	35.0	22.6	34.8	+0.4	-0.2
Sep	21.8	35.7	22.1	35.7	+0.3	0
Oct	18.1	35.9	17.7	35.8	-0.4	-0.1
Nov	13.8	33.9	13.4	34.1	-0.4	+0.2
Dec	11.0	32.6	10.4	32.4	-0.6	-0.2

From the above Table-1, it can be observed that the mean maximum temperature during 1951-1980 (May) is 45.6^{0}C and the mean maximum temperature during 1971-2000 (May) is 45.3^{0}C. Therefore, the difference in temperature shows a decrease of 0.3^0 C before and after commissioning of project.

Based on the above data the mean maximum temperature variation during the last 50 years is about 0.3 ^{0}C decrease in the month of May.

The temperature difference observed based on IMD data for period 1951-1980 and for period 1971-2000 w.r.t the extreme maximum and minimum temperature are detailed below in **Table-2**:

TABLE-2
EXTREME MINIMUM AND EXTREME MAXIMUM TEMPERATURE DATA AND ITS DIFFERENCE (1951-1980)/ (1971-2000)

Month	Extreme Temperatures (^{0}C)					
	IMD (1951-1980)		IMD (1971-2000)		Min Temp Difference (^{0}C)	Max Temp Difference (^{0}C)
	Min	**Max**	**Min**	**Max**		
Jan	8.4	35.3	8.0	35.3	-0.4	0
Feb	9.4	39.4	8.4	39.4	-1	0
March	13.0	42.8	13.0	43.0	0	+0.2
April	15.4	45.6	15.4	45.6	0	0
May	**20.4**	**47.2**	**20.4**	**47.3**	**0**	**+0.1**
June	19.4	47.2	19.4	47.2	0	0
July	18.8	41.0	18.8	41.0	0	0
August	19.6	37.4	19.8	37.9	+0.2	+0.5
Sep	17.8	38.0	17.8	38.6	0	+0.6
Oct	15.4	38.4	15.0	38.4	-0.4	0
Nov	9.0	36.6	9.0	36.6	0	0
Dec	7.8	34.5	7.5	35.5	-0.3	+1

From the above Table-2, it can observed that the extreme maximum temperature during 1951-1980 (May) is 47.2 ^{0}C and the extreme maximum temperature during 1971-2000 (May) of is 47.3^{0}C. Therefore, the difference in temperature shows an increase of 0.1^0 C in the month of May. Further, an increase of 0.2^0 C is observed in the month of March during this period.

However, an increase of 4^{0}C in a span of 30 years has inadvertently been mentioned under subsection 3.3.3.3 of chapter-3 of the EIA report due to erroneous comparison of mean maximum IMD data for a period 1951-1980 and 1971-2000 with the latest 2014 annual temperature data as recorded at Ramagundam STPP.

CLIMATOLOGICAL TABLES (1951-1980)

जलवायवी सारणी
CLIMATOLOGICAL TABLE

स्टेशन : रामगुंडम
STATION :Ramgundam

अक्षांश LAT 18°46′ N देशांतर LONG 79°26′ E समुद्री तल माध्य से ऊँचाई HEIGHT ABOVE M. S. L. मीटर 156 METRES

1951 से 1980 तक के प्रेक्षणों पर आधारित
BASED ON OBSERVATIONS FROM 1951 TO 1980

महीना MONTH		स्टेशन का सतह दाब STATION LEVEL PRESSURE एच. पी. ए. hPa	वायु तापमान AIR TEMPERATURE: माध्य MEAN: शुष्क बल्ब DRY BULB °C	नम बल्ब WET BULB °C	दैनिक अधिकतम DAILY MAX °C	दैनिक न्यूनतम DAILY MIN °C	माह में उच्चतम HIGHEST IN THE MONTH °C	माह में निम्नतम LOWEST IN THE MONTH °C	चरम EXTREMES: उच्चतम HIGHEST °C	दिनांक और वर्ष DATE AND YEAR	निम्नतम LOWEST °C	दिनांक और वर्ष DATE AND YEAR	आर्द्रता HUMIDITY: सापेक्ष आर्द्रता RELATIVE HUMIDITY %	वाष्प दाब VAPOUR PRESSURE एच.पी.ए. hPa	मेघ की मात्रा CLOUD AMOUNT आकाश के अष्टमांश Oktas of sky: समस्त मेघ ALL CLOUDS	निम्न मेघ LOW CLOUDS	वर्षा RAINFALL: मासिक योग MONTHLY TOTAL मि.मि. mm	वर्षा के दिनों की संख्या NO. OF RAINY DAYS	वर्षसहित सबसे नम महीने का योग TOTAL IN WETTEST MONTH WITH YEAR मि.मि. mm	वर्षसहित सबसे शुष्कतम महीने का योग TOTAL IN DRIEST MONTH WITH YEAR मि.मि. mm	24 घंटोंकी सबसे भारी वर्षा HEAVIEST FALL IN 24 HOURS मि.मि. mm	दिनांक और वर्ष DATE AND YEAR	माध्य पवन गति MEAN WIND SPEED कि.मी. प्र. घ. Kmph
जनवरी JAN	I	998.1	20.0	16.4	30.8	15.8	33.3	10.9	35.3	28 1974	8.4	10 1972	68	15.9	1.7	0.8	7.8	0.5	53.0 1966	0.0	47.6	20 1979	4.5
	II	994.1	26.8	19.2									37	14.5	1.6	0.7							
फरवरी FEB	I	996.2	23.0	18.0	33.9	18.8	37.1	13.8	39.4	29 1980	9.4	08 1949	60	16.8	1.7	0.9	5.1	0.6	32.4 1975	0.0	24.0	21 1968	5.3
	II	991.9	32.3	20.3									30	14.1	1.6	0.8							
मार्च MAR	I	994.4	26.8	20.2	37.5	22.3	40.6	17.4	42.8	27 1953	13.0	11 1979	53	18.3	1.7	0.8	12.0	1.0	71.6 1951	0.0	39.2	05 1970	6.4
	II	989.5	35.9	21.6									25	14.1	1.8	1.0							
अप्रैल APR	I	991.6	30.2	23.1	40.3	26.2	43.6	21.5	45.6	29 1973	15.4	20 1971	53	22.5	2.3	0.7	15.7	1.1	68.6 1962	0.0	62.0	24 1961	7.9
	II	986.3	38.6	23.5									25	16.6	3.2	1.7							
मई MAY	I	987.6	32.9	23.9	42.4	29.0	45.6	23.8	47.2	19 1948	20.4	01 1977	46	22.3	2.6	0.9	28.4	2.0	142.2 1977	0.0	111.2	01 1977	7.9
	II	982.6	40.4	24.6									25	17.9	3.6	2.1							
जून JUN	I	985.4	30.0	24.3	37.8	27.1	43.8	22.4	47.2	08 1953	19.4	03 1973	63	25.7	5.3	2.3	171.3	8.4	366.8 1956	0.0	140.7	20 1953	8.4
	II	981.2	35.5	25.4									45	24.1	5.7	3.5							
जुलाई JUL	I	985.4	27.0	24.2	32.5	24.5	36.8	22.0	41.0	06 1966	18.8	14 1973	79	28.0	6.6	3.6	309.2	15.2	599.6 1976	104.3 1970	130.7	23 1977	7.0
	II	982.2	30.7	25.4									65	28.0	6.6	3.9							
अगस्त AUG	I	986.4	26.4	24.1	31.6	24.2	35.0	22.2	37.4	28 1960	19.8	31 1965	82	28.1	6.4	3.6	243.8	13.8	487.4 1953	59.6 1968	104.4	21 1960	5.8
	II	983.3	29.8	25.2									68	28.2	6.5	3.9							
सितम्बर SEP	I	989.0	26.9	24.3	32.5	24.1	35.7	21.8	38.0	02 1968	17.8	30 1972	80	28.4	5.1	2.3	190.7	9.2	404.8 1966	65.8 1971	128.0	20 1969	4.8
	II	985.5	30.2	25.1									66	27.7	5.7	3.2							
अक्तूबर OCT	I	993.1	26.1	22.8	33.1	22.3	35.9	18.1	38.4	11 1957	15.4	14 1972	75	25.2	3.1	1.2	94.5	4.4	539.6 1973	0.0	135.8	24 1973	3.9
	II	989.5	30.4	23.4									55	23.2	3.9	2.1							
नवम्बर NOV	I	996.7	22.8	19.0	31.2	18.1	33.9	13.8	36.6	06 1977	9.0	30 1970	69	19.1	2.2	0.7	18.8	1.2	118.0 1962	0.0	70.2	05 1961	3.5
	II	993.3	28.4	20.5									46	17.7	2.6	0.9							
दिसम्बर DEC	I	998.5	19.7	16.3	29.9	14.9	32.6	11.0	34.5	26 1976	7.8	10 1970	69	16.0	1.7	0.5	9.7	0.6	109.4 1962	0.0	101.2	02 1966	3.2
	II	994.8	27.3	18.8									41	14.9	2.0	0.4							
वार्षिक योग व माध्य ANNUAL TOTAL OR MEAN	I	991.9	26.0	21.4	34.5	22.3	45.7	9.9	47.2		7.8		66	22.2	3.4	1.5	1107.0	58.0	1672.8 1973	565.2 1952	140.7		5.7
	II	987.9	32.4	22.8									44	20.1	3.7	2.0							
वर्षोंकी संख्या NUMBER OF YEARS	I	30	30	30	30	30	30	30	33		33		30	30	30	24	30	30	33	33	33		24
	II	30	30	30									30	30	30	24							

CLIMATOLOGICAL TABLES (1971-2000)

जलवायवी सारणी
CLIMATOLOGICAL TABLE

BACK

स्टेशन : रामगुंडम — अक्षांश — देशांतर — समुद्री तल माध्य से ऊंचाई — मीटर — प्रक्षणों पर आधारित
STATION : Ramgundam — LAT. 18°46' — LONG. 79°26' — HEIGHT ABOVE M.S.L. 156 METRES — BASED ON OBSERVATIONS 1971-2000

माह / MONTH		स्टेशन का सतह दाब / STATION LEVEL PRESSURE	वायु तापमान / AIR TEMPERATURE — माध्य / MEAN: शुष्क बल्ब / DRY BULB	नम बल्ब / WET BULB	दैनिक अधिकतम / DAILY MAX	दैनिक न्यूनतम / DAILY MIN	माह में उच्चतम / HIGHEST IN THE MONTH	माह में निम्नतम / LOWEST IN THE MONTH	चरम / EXTREMES: उच्चतम / HIGHEST	दिनांक और वर्ष / DATE AND YEAR	निम्नतम / LOWEST	दिनांक और वर्ष / DATE AND YEAR	आर्द्रता / HUMIDITY: सापेक्ष आर्द्रता / RELATIVE HUMIDITY	वाष्प दाब / VAPOUR PRESSURE	मेघ की मात्रा / CLOUD AMOUNTS: समस्त मेघ / ALL CLOUDS	निम्न मेघ / LOW CLOUDS	मासिक योग / MONTHLY TOTAL	वर्षा के दिनों की संख्या / NO. OF RAINY DAYS	वर्षा / RAINFALL: वर्षसहित सबसे नम महीने का योग / TOTAL IN WETTEST MONTH WITH YEAR	वर्षसहित शुष्कतम महीने का योग / TOTAL IN DRIEST MONTH WITH YEAR	24 घंटोंकी सबसे भारी वर्षा / HEAVIEST FALL IN 24 HOURS	दिनांक और वर्ष / DATE AND YEAR	माध्य पवन गति / MEAN WIND SPEED
		एच.पी.ए hPa	डि. से °C	डि. से °C	डि. से °C	डि. से °C	डि. से °C	डि. से °C	डि. से °C		डि. से °C		प्रतिशत %	एच.पी.ए hPa	आकाश के अष्टमांश Oktas of sky		मि.मि. mm		मि.मि. mm	मि.मि. mm	मि.मि. mm		कि.मी. प्र. घं. Kmph
जनवरी / JAN	I	998.3	19.9	17.0	30.7	15.6	33.4	10.5	35.3	28 1974	8.0	4 1991	74	17.4	1.6	0.7	11.5	0.7	53.0 1966	0.0	47.6	20 1979	2.6
	II	994.4	28.2	20.2									45	17.2	1.5	0.6							
फरवरी / FEB	I	996.3	22.9	18.8	33.5	18.5	36.5	13.3	39.4	29 1980	8.4	22 1993	65	18.6	1.8	0.9	9.7	0.7	77.2 1998	0.0	56.8	6 1998	3.3
	II	992.1	31.4	21.3									38	17.2	1.3	0.7							
मार्च / MAR	I	994.5	26.9	21.0	37.5	21.8	40.7	16.5	43.0	29 1996	13.0	11 1979	57	20.2	1.3	0.5	9.2	0.7	71.6 1951	0.0	40.4	12 1987	3.5
	II	989.6	35.3	22.7									30	17.4	1.5	0.7							
अप्रैल / APR	I	991.6	30.5	23.7	40.5	25.7	43.7	21.2	45.6	30 2000	15.4	20 1971	55	23.8	1.8	0.5	13.7	1.1	97.7 1997	0.0	62.0	24 1961	4.6
	II	986.2	38.2	24.1									29	18.8	2.7	1.3							
मई / MAY	I	988.2	32.8	24.4	42.1	28.3	45.3	23.4	47.3	24 1984	20.4	1 1977	49	23.9	2.5	0.7	34.7	2.4	142.2 1977	0.0	111.2	1 1977	4.5
	II	983.1	39.7	25.2									29	20.4	3.3	1.6							
जून / JUN	I	985.5	29.8	24.5	37.4	26.8	43.8	22.6	47.2	8 1953	19.4	3 1973	65	26.6	5.2	1.8	180.1	8.7	373.3 1989	0.0	158.8	15 1998	4.9
	II	981.4	34.9	25.8									49	25.9	5.6	2.4							
जुलाई / JUL	I	985.9	27.2	24.5	32.6	24.8	36.6	22.2	41.0	6 1966	18.8	14 1973	79	28.5	6.3	2.4	328.2	14.5	727.2 1988	104.3 1970	131.6	17 1986	3.6
	II	982.7	30.5	25.7									68	29.2	6.5	2.7							
अगस्त / AUG	I	986.7	26.7	24.4	31.4	24.5	34.8	22.6	37.9	4 1990	19.8	31 1965	82	28.7	6.3	2.6	285.8	13.1	638.9 1986	46.4 1984	161.9	13 1986	2.9
	II	983.6	29.5	25.5									72	29.4	6.6	2.8							
सितम्बर / SEP	I	989.8	27.3	24.7	33.1	24.3	35.7	22.1	38.6	28 1987	17.8	30 1972	80	29.2	4.9	1.9	166.9	8.2	430.4 1998	13.1 1985	145.3	20 1998	2.0
	II	986.2	30.2	25.6									69	29.3	5.7	2.5							
अक्तूबर / OCT	I	993.5	26.2	23.1	33.3	22.1	35.8	17.7	38.4	11 1957	15.0	30 1992	76	26.0	3.0	1.1	102.5	4.7	539.6 1973	0.0	135.8	24 1973	1.6
	II	989.9	29.9	24.1									61	25.5	3.8	1.7							
नवम्बर / NOV	I	996.7	23.1	19.7	31.5	18.0	34.1	13.4	36.6	6 1977	9.0	30 1970	71	20.4	2.0	0.6	24.0	1.7	118.0 1962	0.0	70.2	5 1961	1.5
	II	993.2	27.8	21.3									54	20.3	2.6	0.9							
दिसम्बर / DEC	I	999.1	19.6	16.6	30.0	14.4	32.4	10.4	35.5	14 1984	7.5	24 1994	72	16.8	1.5	0.3	6.5	0.6	109.4 1962	0.0	101.2	2 1966	1.7
	II	995.3	26.6	19.5									49	17.2	1.9	0.5							
वार्षिक योग या माध्य ANNUAL TOTAL OR MEAN	I	992.2	26.0	21.8	34.5	22.1	45.6	9.4	47.3	24	7.5	24	69	23.3	3.2	1.2	1172.8	57.0	1747.1	565.2	161.9	13	3.0
	II	988.2	31.8	23.4					5	1984	12	1994	49	22.3	3.6	1.5			1983	1952	8	1986	
वर्षोंकी सं NUMBER OF YEARS	I																						
	II	30	30	30	30	30	30	30	53		53		30	30	30	30	30	30	50	50	50		24

एनटीपीसी
NTPC

A MAHARATNA COMPANY

ISO 14001
DNV
REGISTERED FIRM

रामगुण्डम
RAMAGUNDAM

REF: 09/EMG/B2/2015/ **DATE: 02.11.2015**

To

The Dy. Director General & HOD
Geological Survey of India
Bandlaguda, Hyderabad – 500 068

Sub : Mineable mineral deposits in proposed Telangana phase I project to be located within existing area of NTPC Ramagundam - Reg

Dear Sir,

As per the AP State Re-Organisation Act 2014, NTPC has been mandated to set up 4000 MW power project for the state of Telangana. In this connection NTPC Ltd has proposed to set up stage I 1600MW (2x800MW) coal based thermal power project in the existing premises of M/S NTPC Ltd Ramagundam in the name of Telangana Super Thermal Power Project, conducted necessary EIA and approached MoEF&CC for Environmental Clearance (EC).

During the meeting of EAC in MoEF&CC on 29th October 2015, the EAC members asked NTPC to produce certificate from GSI that no mineable mineral deposits exist in the area of NTPC Ramagundam within which the Telangana project phase I is proposed.

We request GSI to kindly give the certificate for producing to MoEF&CC.

Thanking you,

Yours faithfully,

(V. Ravi Babu)
Additional General Manager (EMG)
NTPC Ramagundam
Telefax: 08728-272962, mobile: 9440918213
Email: vravibabu@ntpc.co.in

2009

"ENVIRONMENTAL HUMAN HEALTH RISK ASSESSMENT STUDY"

FOR

M/s. NTPC LIMITED,
RAMAGUNDAM SUPER THERMAL POWER STATION,
DIST. KARIMNAGAR, RAMAGUNDAM,
ANDHRAPRADESH, INDIA

PREPARED BY: M/S. POLLUCON LABORATORIES PVT. LTD.
544, BELGIUM TOWER, RING ROAD, SURAT- 395003,
PHONE 0261 – 2455751, WEB: www.polluconlab.com,
E. mail: pollucon@gmail.com, info@polluconlab.com

Table Of Contents

ACKNOWLEDGEMENT

Pollucon Laboratory Pvt. Ltd. is pleased to acknowledge with thanks for the job of Environmental Human Health Risk Assessment awarded by NTPC Ltd., Ramagundam

The live contribution and guidance was provided by Shri. V. Ravibabu DGM – EMG, Shri. Karitikey – Manager EMG during the course of study.

We are also thankful to all departments for furnishing data, without which it would have been difficult to accommodate the findings.

FOR POLLUCON LABORATORIES PVT. LTD.

Executive Team

The environmental human health risk assessment report for NTPC LIMITED, ramagundam has been prepared by m/s. Pollucon laboratories pvt. Ltd.

This report is based upon the USEPA guideline. The list of persons involved in preparing the EHHRA report is as follows.

SR. NO.	NAME	DESIGNATION	QUALIFICATION	EXPERIENCE
ENVIRONMENTAL TEAM				
1.	Mr. Madhukar Gandhi	Director Quality	B. Sc. Chemistry	32 Years
2.	Mr. Govind Patel	Sr. Chem. Engg.	B. E. Chemical	16 Years
3.	Mr. Devang Gandhi	Director Lab	M.Sc. Chemistry	14 Years
4.	Dr. Harshal Gandhi	Director Projects	Ph. D. Microbiology	12 Years
5.	Mr. Pranav Mody	Project Incharge	B.E. chem.	5 Years
6.	Mr. H. T. Shah	Lab. Manager	B. Sc. Chemistry	20 Years
7.	Mr. Reena Kakadia	Dy. Mgr	M. Sc. Microbiology	2 Years
HEALTH CHECKUP TEAM				
8.	Dr. Ranjit Parmar	Head – Medical	M.D. PSM	22 Years
9.	Dr. Dev. Verma	Head – Pathology	M.D. Pathology	15 Years
10.	Dr. Jelem Vaghela	Head Pathology	M.D. Pathology	11 Years
11.	Dr. Bharat Patel	Head - Statistician	Ph. D. statistics	8 Years
SOFTWARE DEVELOPMENT TEAM				
12.	Mr. Saurabh Doctor	Head – Software development	B.E. Computer	15 Years
13.	Mrs. Jignasha Desai	Manager	MCA	8 Years
14.	Mr. Jay Shah	Dy. Mgr.	M. Sc. Computer	6 Years

FOR POLLUCON LABORATORIES PVT. LTD.

Executive Summary

Risk assessment is a science used to evaluate the carcinogenic risk and non carcinogenic hazards to human health that are attributable to around a populated area.

The risk assessment evaluates the potential human health risk to people that may now, or at some time in the future, be expose to various contaminants that have been identified in the areas of the NTPC Limited, Ramagundam, Andhrapradesh.

The evaluation of assessment in this study is based on two types of risks. The first is a "total cancer" risk from all contaminants considered the acceptable level of risk based upon the United States Environmental Protection Agency [EPA Guideline]. The second type of risk is a "non cancer risk" from the contaminants through various pathways. This is measured through the use of a guidance documents and finally by software. The risk values calculated in this report represent a conservative estimate of risk for a reasonably maximally exposed individual.

Exposures to contaminants were assumed to potentially occur through incidental ingestion, dermal contact of soil. Exposure was also assumed to occur through, consumption of ground water as drinking water source, dermal contact with ground water during bathing, inhalation of volatile organic compounds from ground water during showering. However the Volatile organics are not found in the ground water samples. The Environmental health risk assessment is carried out covering following,

1. Preliminary site visit for selection of locations for epidemiological & environmental
2. Environmental and Epidemiological study monitoring
3. Statistical data evaluation
4. Software solutions for dispersion, carcinogenic & non carcinogenic and Human health risk assessment

The area covered for the study is 10 Kms around NTPC Ramagundam and the duration for the conducting is from April 2008 to February 2009.

For epidemiological study covering 10 locations and about 600 peoples and about 1000 livestock was selected as per medical statistical evaluation.

And for environmental data generation 10 locations were selected for Air, Water and Soil sampling.

The teams headed by Dr. Ranjit Parmar [M.D. PSM] with expert technocrats in the relevant field.

This Epidemiological study was carried out in the area of NTPC Plant, NTPC Colony and surrounding villages within 10 km radius from the NTPC plant, Ramagundam. Study population comprised of Employees of NTPC, Family members of employees of NTPC plant residing in NTPC colonies and Villagers residing in the villages within 10 km radius from NTPC plant, Ramagundam. The health check-up was carried out for all the sampled individuals. The health information from health check-up was collected and analyzed for total 491 individuals. Out of these 491 individuals, 166 were from Community (from villages within 10 km radius from NTPC plant, Surat) and 325 from Company (Employees of NTPC and Family members of employees of NTPC plant residing in NTPC colonies). These individuals were selected by appropriate sampling technique. Information related to health status of study sample was gathered through various ways that includes History, Physical examination, Blood tests, Electrocardiogram, Urine tests, Audiometry, Examination of eyes for refractive error and Spirometry.

The environmental data generated mainly from emissions, ground water, soil, and waste water for specified parameters through standard procedures, to enable to get outcome useful for software solution indicating health risk assessment and also, this data used to correlate epidemiological study.

The health status of study population was satisfactory and health problems reported during the study were not showing any unusual pattern. The health related problems like General health complains, High blood pressure, Malnutrition, Anemia, Refractive error were mainly due to life style related factors and not due to any pollutant because pollutants in Air, Water & Soil are not showing any marked level.

The modeling was done through software solutions for air & water dispersion which too indicated no marked level of effect of pollutants on health.

Through the RISC [as per USEPA guideline] software the hazard index observed less then one for almost all Chemicals of Potential concern [COP]. **The Hazard Quotient (HQ)** approach has a number

of features that make it particularly useful for estimating risks. First, it is a relatively simple and quick, and thus inexpensive, calculation. Secondly, because risk acceptability is based on comparison of the calculated HQ value to a single critical value (**HQs < 1.0 indicate acceptable risks, while HQs ≥ 1.0 indicate unacceptable risks**) it is very easy to communicate the results not only to the regulatory community but also to the public. Third, the HQ approach provides an efficient method for identifying low risks and very high risks for which risk management decisions may not require additional information. For example, an HQ of 10,000 may be considered to pose an immediate and very unacceptable risk that may warrant immediate action, **while an HQ < 0.1 may immediately support a no further action (NFA)** management decision. Lastly, the HQ approach is the approach used in human health risk assessments (HHRA) for evaluating risks from no carcinogenic contaminants. In determining non cancer risk, a hazard Index value of 1.0 or less, indicates that the risk is within an acceptable range, and value above 1.0 indicates that a person exposed consistent with the assumptions made may have an excess health hazard beyond what is considered acceptable by EPA criteria.

For Ground water COP are Arsenic, Cadmium, Chromium^{+6}, Fluoride, Lead, Mercury and Nickel and output of RISC software indicated carcinogenic risc for Adult Resident is **1.6E-08** and for adult worker it is **0.0E+00**, and Hazard Quotations for adult Resident is **1.6E-01** and for Adult worker **0.0E+00**. This is indicative of well within the USEPA Specification.

For Drinking Water COP are Aluminum, Arsenic, Cadmium, Copper, Cyanide, Fluoride, Lead, Mercury, PCBs, Selenium Nickel and Zinc and output of RISC software indicated carcinogenic risc for Adult Resident is **5.0E-06** and for adult worker it is **9.5E-07**, and Hazard Quotations for adult Resident is **1.5E-01** and for Adult worker **4.0E-01**. This is indicative of well within the USEPA Specification.

For Soil COP are Cadmium, Chromium^{+6}, Lead, Mercury, Nickel and Zinc and output of RISC software indicated carcinogenic risc for Adult Resident is **0.0E+0.0** and for adult worker it is **0.0E+0.0,** and Hazard Quotations for adult Resident is **3.9E-02** and for Adult worker **6.5E-04**. This is indicative of well within the USEPA Specification.

For Air COP are Arsenic, Lead and Mercury and output of RISC software indicated carcinogenic risc for Adult Resident is **2.4E-05** and for adult worker it is **2.8E-05** and Hazard Quotations for adult Resident is **34.7E-01** and for Adult worker **6.0E-01**. This is indicative of well within the USEPA Specification.

The overall findings of the software solution for all the media [Air, Water and Soil] found to be HQ < 1.0 indicates acceptable risks of health hazard due to indicated pollutants.

Vimta

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Test Report

ISSUED TO:

M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR,RAMAGUNDAM
KARIMNAGAR DIST.
TELANGANA.

Report Number: 13963/15/VLL/000/01

Issue Date : 2015-11-09

You'r Ref : TRF

and Date : 2015-11-04

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: WATER-I

Sample Registration Date: 2015-11-04
Analysis Starting Date : 2015-11-04 Analysis Completion Date: 2015-11-09
Samples Coded as: **River Up Stream water**
Quantity Received: 1Nos.about 5 L Can.
Tests required: pH, Colour ,Taste, Odour ,Conductivity, Turbidity, TDS, Total Hardness as $CaCO_3$, Total Alkalinity, Calcium as Ca, Magnesium as Mg, Residual Chlorine, Boron as B, Chlorides as Cl, Sulphates as SO4, Fluorides as F, Nitrates as NO3, Sodium as Na, Potassium as K, Phenolic Compounds, Cyanides as CN

SAMPLE NOT COLLECTED BY VIMTA LABS LTD; LAB REF:EC

TEST RESULTS

S.No	Parameters	Unit	IS: 10500 Limits	River Up Stream water
1	pH	-	6.5 – 8.5 (NR)	7.3
2	Colour	Hazen	5(15)	2
3	Taste	-	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable
5	Conductivity	µS/cm	$	346
6	Turbidity	NTU	1(5)	2
7	TDS	mg/l	500(2000)	235
8	Total Hardness as $CaCO_3$	mg/l	200(600)	116
9	Total Alkalinity	mg/l	200(600)	124
10	Calcium as Ca	mg/l	75(200)	22.4
11	Magnesium as Mg	mg/l	30(100)	14.6
12	Residual Chlorine	mg/l	0.2(1)	<0.2
13	Boron as B	mg/l	0.5(1)	0.11
14	Chlorides as Cl	mg/l	250(1000)	28.4
15	Sulphates as SO_4	mg/l	200(400)	15.0
16	Fluorides as F	mg/l	1.0(1.5)	0.6
17	Nitrates as NO_3	mg/l	45(NR)	0.1
18	Sodium as Na	mg/l	$	27.7
19	Potassium as K	mg/l	$	2.8
20	Phenolic Compounds	mg/l	0.001(0.002)	<0.001
21	Cyanides as CN	mg/l	0.05 (NR)	<0.02

Method of Testing :APHA 22nd edition &IS 3025
Instrument used :spectrophotometer(Thermo)&ICP-AES(Varian)

Dr. Subba Reddy Mallampati
Sr. Scientist-Environment

Vimta

Driven by Quality. Inspired by Science.

Test Report

ISSUED TO:
M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR,RAMAGUNDAM
KARIMNAGAR DIST.
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You'r Ref : TRF
and Date : 2015-11-04

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: WATER-I

Sample Registration Date: 2015-11-04
Analysis Starting Date : 2015-11-04 Analysis Completion Date: 2015-11-09
Samples Coded as: **River Up Stream Water**
Quantity Received: 1Nos.about 5 L Can.

Tests required: Anionic Detergents ,Mineral Oil ,Cadmium as Cd ,Arsenic as As ,Copper as Cu, Lead as Pb, Manganese as Mn, Iron as Fe, Chromium as Cr+6, Selenium as Se, Zinc as Zn, Aluminum as Al, Mercury as Hg.

SAMPLE NOT COLLECTED BY VIMTA LABS LTD; LAB REF:EC

TEST RESULTS

S.No	Parameters	Unit	IS: 10500 Limits	River Up Stream water
22	Anionic Detergents	mg/l	0.2 (1.0)	<0.2
23	Mineral Oil	mg/l	0.5 (NR)	<0.01
24	Cadmium as Cd	mg/l	0.003 (NR)	<0.001
25	Arsenic as As	mg/l	0.01 (0.05)	<0.01
26	Copper as Cu	mg/l	0.05 (1.5)	<0.01
27	Lead as Pb	mg/l	0.01 (NR)	<0.01
28	Manganese as Mn	mg/l	0.1 (0.3)	<0.01
29	Iron as Fe	mg/l	0.3(NR)	0.09
30	Chromium as Cr^{+6}	mg/l	0.05(NR)	<0.05
31	Selenium as Se	mg/l	0.01(NR)	<0.01
32	Zinc as Zn	mg/l	5(15)	<0.01
33	Aluminum as Al	mg/l	0.03(0.2)	0.17
34	Mercury as Hg	mg/l	0.001(NR)	<0.001
35	Total chromium as Cr	mg/l	0.05(NR)	0.02

Method of Testing :APHA 22nd edition &IS 3025
Instrument used :spectrophotometer(Thermo)&ICP-AES(Varian)

Dr. Subba Reddy Mallampati
Sr. Scientist-Environment

Vimta Labs Ltd., Analytical Division, Life Sciences Campus, # 5, Alexandria Knowledge Park
Genome Valley, Hyderabad - 500 078. INDIA. T:+91 40 6740 4040

NO: LSF-B 401059

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Test Report

ISSUED TO:
M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR,RAMAGUNDAM
KARIMNAGAR DIST.
TELANGANA.

Report Number: 13963/15/VLL/000/02

Issue Date : 2015-11-09

You'r Ref : TRF

and Date : 2015-11-04

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: WATER-II

Sample Registration Date: 2015-11-04
Analysis Starting Date : 2015-11-04 Analysis Completion Date: 2015-11-09
Samples Coded as: **Discharge Point Water**
Quantity Received: 1Nos.about 5 L Can.
Tests required: pH, Colour ,Taste, Odour ,Conductivity, Turbidity, TDS, Total Hardness as $CaCO_3$, Total Alkalinity, Calcium as Ca, Magnesium as Mg, Residual Chlorine, Boron as B, Chlorides as Cl, Sulphates as SO4, Fluorides as F, Nitrates as NO3, Sodium as Na, Potassium as K, Phenolic Compounds, Cyanides as CN

SAMPLE NOT COLLECTED BY VIMTA LABS LTD; LAB REF:EC

TEST RESULTS

S.No	Parameters	Unit	IS: 10500 Limits	Discharge Point Water
1	pH	-	6.5 – 8.5 (NR)	7.6
2	Colour	Hazen	5(15)	5
3	Taste	-	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable
5	Conductivity	µS/cm	$	1165
6	Turbidity	NTU	1(5)	6
7	TDS	mg/l	500(2000)	775
8	Total Hardness as $CaCO_3$	mg/l	200(600)	376
9	Total Alkalinity	mg/l	200(600)	164
10	Calcium as Ca	mg/l	75(200)	62.4
11	Magnesium as Mg	mg/l	30(100)	53.5
12	Residual Chlorine	mg/l	0.2(1)	<0.2
13	Boron as B	mg/l	0.5(1)	1.32
14	Chlorides as Cl	mg/l	250(1000)	130.5
15	Sulphates as SO_4	mg/l	200(400)	253.0
16	Fluorides as F	mg/l	1.0(1.5)	0.7
17	Nitrates as NO_3	mg/l	45(NR)	0.5
18	Sodium as Na	mg/l	$	100.2
19	Potassium as K	mg/l	$	10.1
20	Phenolic Compounds	mg/l	0.001(0.002)	<0.001
21	Cyanides as CN	mg/l	0.05 (NR)	<0.02

Method of Testing :APHA 22nd edition &IS 3025
Instrument used :spectrophotometer(Thermo)&ICP-AES(Varian)

Dr. Subba Reddy Mallampati
Sr. Scientist-Environment

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Test Report

ISSUED TO:
M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR,RAMAGUNDAM
KARIMNAGAR DIST.
TELANGANA.

Report Number: 13963/15/VLL/000/02

Issue Date : 2015-11-09

You'r Ref : **TRF**

and Date : 2015-11-04

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: WATER-II

Sample Registration Date: 2015-11-04
Analysis Starting Date : 2015-11-04 Analysis Completion Date: 2015-11-09
Samples Coded as: **Discharge Point Water**
Quantity Received: 1Nos.about 5 L Can.

Tests required: Anionic Detergents ,Mineral Oil ,Cadmium as Cd ,Arsenic as As ,Copper as Cu, Lead as Pb, Manganese as Mn, Iron as Fe, Chromium as Cr+6, Selenium as Se, Zinc as Zn, Aluminum as Al, Mercury as Hg.

SAMPLE NOT COLLECTED BY VIMTA LABS LTD; LAB REF:EC

TEST RESULTS

S.No	Parameters	Unit	IS: 10500 Limits	Discharge Point Water
22	Anionic Detergents	mg/l	0.2 (1.0)	<0.2
23	Mineral Oil	mg/l	0.5 (NR)	<0.01
24	Cadmium as Cd	mg/l	0.003 (NR)	<0.001
25	Arsenic as As	mg/l	0.01 (0.05)	<0.01
26	Copper as Cu	mg/l	0.05 (1.5)	<0.01
27	Lead as Pb	mg/l	0.01 (NR)	<0.01
28	Manganese as Mn	mg/l	0.1 (0.3)	<0.01
29	Iron as Fe	mg/l	0.3(NR)	0.10
30	Chromium as Cr^{+6}	mg/l	0.05(NR)	<0.05
31	Selenium as Se	mg/l	0.01(NR)	<0.01
32	Zinc as Zn	mg/l	5(15)	<0.01
33	Aluminum as Al	mg/l	0.03(0.2)	0.14
34	Mercury as Hg	mg/l	0.001(NR)	<0.001
35	Total chromium as Cr	mg/l	0.05(NR)	0.02

Method of Testing :APHA 22nd edition &IS 3025
Instrument used :spectrophotometer(Thermo)&ICP-AES(Varian)

Dr. Subba Reddy Mallampati
Sr. Scientist-Environment

Vimta Labs Ltd., Analytical Division, Life Sciences Campus, # 5, Alexandria Knowledge Park
Genome Valley, Hyderabad - 500 078. INDIA. T:+91 40 6740 4040

NO: LSF-B401057

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Test Report

ISSUED TO:
M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR,RAMAGUNDAM
KARIMNAGAR DIST.
TELANGANA.

Report Number: 13963/15/VLL/000/03
Issue Date : 2015-11-09
You'r Ref : TRF
and Date : 2015-11-04

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: WATER-III

Sample Registration Date: 2015-11-04
Analysis Starting Date : 2015-11-04 Analysis Completion Date: 2015-11-09
Samples Coded as: **River Downstream Water**
Quantity Received: 1Nos.about 5 L Can.
Tests required: pH, Colour ,Taste, Odour ,Conductivity, Turbidity, TDS, Total Hardness as $CaCO_3$, Total Alkalinity, Calcium as Ca, Magnesium as Mg, Residual Chlorine, Boron as B, Chlorides as Cl, Sulphates as SO4, Fluorides as F, Nitrates as NO3, Sodium as Na, Potassium as K, Phenolic Compounds, Cyanides as CN

SAMPLE NOT COLLECTED BY VIMTA LABS LTD; LAB REF:EC

TEST RESULTS

S.No	Parameters	Unit	IS: 10500 Limits	River Downstream Water
1	pH	-	6.5 – 8.5 (NR)	7.4
2	Colour	Hazen	5(15)	3
3	Taste	-	Agreeable	Agreeable
4	Odour	-	Agreeable	Agreeable
5	Conductivity	µS/cm	$	402
6	Turbidity	NTU	1(5)	4
7	TDS	mg/l	500(2000)	262
8	Total Hardness as $CaCO_3$	mg/l	200(600)	128
9	Total Alkalinity	mg/l	200(600)	126
10	Calcium as Ca	mg/l	75(200)	25.6
11	Magnesium as Mg	mg/l	30(100)	15.6
12	Residual Chlorine	mg/l	0.2(1)	<0.2
13	Boron as B	mg/l	0.5(1)	0.16
14	Chlorides as Cl	mg/l	250(1000)	34.0
15	Sulphates as SO_4	mg/l	200(400)	26.8
16	Fluorides as F	mg/l	1.0(1.5)	0.7
17	Nitrates as NO_3	mg/l	45(NR)	0.2
18	Sodium as Na	mg/l	$	32.2
19	Potassium as K	mg/l	$	3.2
20	Phenolic Compounds	mg/l	0.001(0.002)	<0.001
21	Cyanides as CN	mg/l	0.05 (NR)	<0.02

Method of Testing :APHA 22nd edition &IS 3025
Instrument used :spectrophotometer(Thermo)&ICP-AES(Varian)

Dr. Subba Reddy Mallampati
Sr. Scientist-Environment

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Test Report

ISSUED TO:
M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR,RAMAGUNDAM
KARIMNAGAR DIST.
TELANGANA.

Report Number: 13963/15/VLL/000/03

Issue Date : 2015-11-09

You'r Ref : **TRF**

and Date : 2015-11-04

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: WATER-III

Sample Registration Date: 2015-11-04
Analysis Starting Date : 2015-11-04 Analysis Completion Date: 2015-11-09
Samples Coded as: **River Downstream Water**
Quantity Received: 1Nos.about 5 L Can.

Tests required: Anionic Detergents ,Mineral Oil ,Cadmium as Cd ,Arsenic as As ,Copper as Cu, Lead as Pb, Manganese as Mn, Iron as Fe, Chromium as Cr+6, Selenium as Se, Zinc as Zn, Aluminum as Al, Mercury as Hg.

SAMPLE NOT COLLECTED BY VIMTA LABS LTD; LAB REF:EC

TEST RESULTS

S.No	Parameters	Unit	IS: 10500 Limits	River Downstream Water
22	Anionic Detergents	mg/l	0.2 (1.0)	<0.2
23	Mineral Oil	mg/l	0.5 (NR)	<0.01
24	Cadmium as Cd	mg/l	0.003 (NR)	<0.001
25	Arsenic as As	mg/l	0.01 (0.05)	<0.01
26	Copper as Cu	mg/l	0.05 (1.5)	<0.01
27	Lead as Pb	mg/l	0.01 (NR)	<0.01
28	Manganese as Mn	mg/l	0.1 (0.3)	<0.01
29	Iron as Fe	mg/l	0.3(NR)	0.09
30	Chromium as Cr^{+6}	mg/l	0.05(NR)	<0.05
31	Selenium as Se	mg/l	0.01(NR)	<0.01
32	Zinc as Zn	mg/l	5(15)	<0.01
33	Aluminum as Al	mg/l	0.03(0.2)	0.17
34	Mercury as Hg	mg/l	0.001(NR)	<0.001
35	Total chromium as Cr	mg/l	0.05(NR)	0.02

Method of Testing :APHA 22nd edition &IS 3025
Instrument used :spectrophotometer(Thermo)&ICP-AES(Varian)

Dr. Subba Reddy Mallampati
Sr. Scientist-Environment

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Test Report

ISSUED TO:
M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR, RAMAGUNDAM
KARIMNAGAR DIST.
TELANGANA

Report Number: 13959/15/VLL/000/01
Issue Date : 2015-11-14
You'r Ref : TRF
and Date : 2015-10-31

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: Soil samples

Sample Registration Date: 2015-10-31
Analysis Starting Date : 2015-11-02 Analysis Completion Date: 2015-11-13
Samples Coded as: **S1-Linga puram Village**
Quantity Received: 2 Kg x01 No.
Tests required: Aluminum as Al, Total Iron as Fe, Manganese as Mn, Boron as B, Zinc as Zn, Lead as Pb, Mercury as Hg, Arsenic as As Cadmium as Cd, Cobalt as Co, Chromium as Cr, Copper as Cu, Selenium as Se, Nickel as Ni

SAMPLE NOT COLLECTED BY VIMTA LABS LTD; LAB REF:EC

TEST RESULTS

Sr. No.	Parameter	UOM	S1
1	Aluminum as Al	%	2.1
2	Total Iron as Fe	%	1.9
3	Manganese as Mn	mg/kg	282.7
4	Boron as B	mg/kg	13.9
5	Zinc as Zn	mg/kg	61.9
6	Lead as pb	mg/kg	10.4
7	Mercury as Hg	mg/kg	<0.01
8	Arsenic as As	mg/kg	<0.1
9	Cadmium as Cd	mg/kg	1.04
10	Cobalt as Co	mg/kg	3.4
11	Chromium as Cr	mg/kg	45.1
12	Copper as Cu	mg/kg	25.7
13	Selenium as Se	mg/kg	<0.1
14	Nickel as Ni	mg/kg	36.4

Method of Testing: As per SSSA Soil Analysis & M.L.Jackson
Instrument used: ICP-AES (Varian) &ICP-MS (Azilent)

Dr. Subba Reddy Mallampati
Sr. Scientist- Environment

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Test Report

ISSUED TO:
M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR, RAMAGUNDAM
KARIMNAGAR DIST.
TELANGANA

Report Number: 13959/15/VLL/000/02

Issue Date : 2015-11-14

You'r Ref : TRF

and Date : 2015-10-31

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: Soil samples

Sample Registration Date: 2015-10-31
Analysis Starting Date : 2015-11-02 Analysis Completion Date: 2015-11-13
Samples Coded as: **S2-Rayadandi Village**
Quantity Received: 2 Kg x01 No.
Tests required: Aluminum as Al, Total Iron as Fe, Manganese as Mn, Boron as B, Zinc as Zn, Lead as Pb, Mercury as Hg, Arsenic as As Cadmium as Cd, Cobalt as Co, Chromium as Cr, Copper as Cu, Selenium as Se, Nickel as Ni

SAMPLE NOT COLLECTED BY VIMTA LABS LTD; LAB REF:EC

TEST RESULTS

Sr. No.	Parameter	UOM	S2
1	Aluminum	%	2.4
2	Total Iron	%	2.1
3	Manganese	mg/kg	499.6
4	Boron	mg/kg	12.6
5	Zinc	mg/kg	72.2
6	Lead as pb	mg/kg	12.9
7	Mercury as Hg	mg/kg	<0.01
8	Arsenic as As	mg/kg	<0.1
9	Cadmium as Cd	mg/kg	0.73
10	Cobalt as Co	mg/kg	3.1
11	Chromium as Cr	mg/kg	64.3
12	Copper as Cu	mg/kg	29.0
13	Selenium as Se	mg/kg	<0.1
14	Nickel as Ni	mg/kg	40.1

Method of Testing: As per SSSA Soil Analysis & M.L.Jackson
Instrument used: ICP-AES (Varian) &ICP-MS (Azilent)

Dr. Subba Reddy Mallampati
Sr. Scientist - Environment

Vimta

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Test Report

ISSUED TO:
M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR, RAMAGUNDAM
KARIMNAGAR DIST.
TELANGANA

Report Number: 13959/15/VLL/000/03

Issue Date : 2015-11-14

You'r Ref : **TRF**

and Date : 2015-10-31

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: Soil samples

Sample Registration Date: 2015-10-31
Analysis Starting Date : 2015-11-02 Analysis Completion Date: 2015-11-13
Samples Coded as: **S3-Peddam pet Village**
Quantity Received: 2 Kg x01 No.

Tests required: Aluminum as Al, Total Iron as Fe, Manganese as Mn, Boron as B, Zinc as Zn, Lead as Pb, Mercury as Hg, Arsenic as As Cadmium as Cd, Cobalt as Co, Chromium as Cr, Copper as Cu, Selenium as Se, Nickel as Ni

SAMPLE NOT COLLECTED BY VIMTA LABS LTD; LAB REF:EC

TEST RESULTS

Sr. No.	Parameter	UOM	S3
1	Aluminum	%	2.4
2	Total Iron	%	3.8
3	Manganese	mg/kg	820
4	Boron	mg/kg	13.32
5	Zinc	mg/kg	40.9
6	Lead as pb	mg/kg	13.3
7	Mercury as Hg	mg/kg	<0.01
8	Arsenic as As	mg/kg	<0.1
9	Cadmium as Cd	mg/kg	1.52
10	Cobalt as Co	mg/kg	1.5
11	Chromium as Cr	mg/kg	72.3
12	Copper as Cu	mg/kg	23.8
13	Selenium as Se	mg/kg	<0.1
14	Nickel as Ni	mg/kg	60.9

Method of Testing: As per SSSA Soil Analysis & M.L.Jackson
Instrument used : ICP-AES (Varian) &ICP-MS (Azilent)

Dr. Subba Reddy Mallampati
Sr. Scientist- Environment

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Test Report

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M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR,RAMAGUNDAM
KARIMNAGAR DIST.
TELANGANA.

Report Number: 13963/15/VLL/000/04
Issue Date : 2015-11-14
You'r Ref : TRF
and Date : 2015-11-04

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: Paddy samples

Sample Registration Date: 2015-11-04
Analysis Starting Date : 2015-11-04 Analysis Completion Date: 2015-11-13
Samples Coded as: **P1-Rayadandi Village;**
Quantity Received: 2 Kg x01 No.
Tests required: Lead as pb, Mercury as Hg, Arsenic as As, Zinc as Zn, Cadmium as Cd, Cobalt as Co, Chromium as Cr , Copper as Cu, Selenium as Se, Nickel as Ni, :

SAMPLE NOT COLLECTED BY VIMTA LABS LTD; LAB REF:EC

TEST RESULTS

S.No	Parameters	UOM	P1	Limits*
1	Lead as Pb	mg/kg	<0.1	2.5
2	Mercury as Hg	mg/kg	<0.01*	1.0
3	Arsenic as As	mg/kg	<0.1	1.1
4	Zinc as Zn	mg/kg	12.5	50.0
5	Cadmium as Cd	mg/kg	0.1	1.5
6	Cobalt as Co	mg/kg	<0.1	-
7	Chromium as Cr	mg/kg	2.2	-
8	Copper as Cu	mg/kg	2.4	30.0
9	Selenium as Se	mg/kg	<0.1	-
10	Nickel as Ni	mg/kg	2.3	-

***Limits as per MANUAL ON STANDARDS OF PADDY(Source: http:/agmarknet.nic.in/Paddy-manual.htm)**
Detection limit for Hg: < 0.01mg/kg
Detection limit for remaining metals : <0.1 mg/Kg
Instrument used : ICP-AES (Varian)
***Instrument used :ICP-MS (Azilent)**

Dr. Subba Reddy Mallampati
Sr. Scientist-Environment

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Test Report

ISSUED TO:
M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR,RAMAGUNDAM
KARIMNAGAR DIST.
TELANGANA.

Report Number: 13963/15/VLL/000/05

Issue Date : 2015-11-14

You'r Ref : TRF

and Date : 2015-11-04

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: Paddy samples

Sample Registration Date: 2015-11-04
Analysis Starting Date : 2015-11-04
Analysis Completion Date: 2015-11-13
Samples Coded as: **P2-Elkala pally**
Quantity Received: 2 Kg x01 No.
Tests required: Lead as pb, Mercury as Hg, Arsenic as As, Zinc as Zn, Cadmium as Cd, Cobalt as Co, Chromium as Cr , Copper as Cu, Selenium as Se, Nickel as Ni,:

SAMPLE NOT COLLECTED BY VIMTA LABS LTD;

LAB REF:EC

TEST RESULTS

S.No	Parameters	UOM	P2	Limits*
1	Lead as Pb	mg/kg	<0.1	2.5
2	Mercury as Hg	mg/kg	<0.01*	1.0
3	Arsenic as As	mg/kg	<0.1	1.1
4	Zinc as Zn	mg/kg	12.2	50.0
5	Cadmium as Cd	mg/kg	<0.1	1.5
6	Cobalt as Co	mg/kg	<0.1	-
7	Chromium as Cr	mg/kg	2.8	-
8	Copper as Cu	mg/kg	1.4	30.0
9	Selenium as Se	mg/kg	<0.1	-
10	Nickel as Ni	mg/kg	2.8	-

***Limits as per MANUAL ON STANDARDS OF PADDY(Source: http:/agmarknet.nic.in/Paddy-manual.htm)**
Detection limit for Hg: < 0.01mg/kg
Detection limit for remaining metals :<0.1 mg/Kg
Instrument used : ICP-AES (Varian)
***Instrument used :ICP-MS (Azilent)**

Dr. Subba Reddy Mallampati
Sr. Scientist-Environment

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Test Report

ISSUED TO:
M/S NATIONAL THERMAL POWER CORPORATION LIMITED
ADMINISTRATION BUILDING
JYOTHI NAGAR,RAMAGUNDAM
KARIMNAGAR DIST.
TELANGANA.

Report Number: 13963/15/VLL/000/06

Issue Date : 2015-11-12

You'r Ref : **TRF**

and Date : 2015-11-04

Kind Attn: Mr. V.RAVIBABU. [(AGM&HOD (EMG DEPT)]

Sample Particulars: River down stream water

Sample Registration Date: 2015-11-04
Analysis Starting Date : 2015-11-05
Samples Coded as: **River down stream water**
Quantity Received: 5 ltr x 01 No.
Tests required: Bio assay:

Analysis Completion Date: 2015-11-10

SAMPLE NOT COLLECTED BY VIMTA LABS LTD;

LAB REF:EC

TEST RESULTS

%Conc [v/v]	No of Fish	Mortality Record Time in hours				Symptoms of Toxicity
		24	48	72	96	
Control	10	0	0	0	0	No symptoms of Toxicity were observed
Test (100 %)	10	0	0	0	0	No symptoms of Toxicity were observed

Method of Testing: As per IS: 6582-1971(Reapproved 1992)
Fish species: *Puntius sophore* (Fresh water minor caro) size: 2.5 to 3.0 cm Quality of sample pH: 7.4 and DO: 5.2mg/L
Remarks: Survival of fish at 100% concentration of treated effluent after 96 hours of exposure is 100%

Dr. Subba Reddy Mallampati
Sr. Scientist-Environment

Government of Telangana
Irrigation & CAD Department

From
Sri. C.Muralidhar, B.Tech,
Engineer-in-Chief (Irrigation),
2nd floor, Jalasoudha,
Errum Manzil, Hyderabad.

To
The Principal Secretary to Government,
I & CAD Department,
B Block, 5th floor, Secretariat,
Hyderabad, Telangana State.

Letter No. ENC(I)/DCE-I/OT2/AEE3/NTPC/RMGM(4000 MW)/2015, Dt:02 -09-2015

Sir,

Sub: I&CAD Department – Request for allocation of 150 cusecs of water from Sri Pada Sagar Yellampally Project to NTPC for setting up of 4000 MW Thermal Power Project at Ramagundam, Telangana State – Report called for -Submission of Report-Reg.

Ref:
1 Govt. Memo No:4181/Reforms/A2/2014, Dt.14.11.2014.
2 Govt. Memo No:1221/Reforms/A2/2015, Dt.12.02.2015.
3 Govt. Memo No:4181/Reforms/A2/2014, Dt.18.04.2015
4 Lr. No. CE(P), Irr./KRMR/TS/T8/F44/2368 Dt.22/4/2015
5 **G.O Ms No.54, Dated: 31-03-2015.**
6 T.O Lr. No. ENC(I)/DCE-I/OT2/AEE3/NTPC/RMGM(4000 MW)/2015, dt: 11-05-2015

****

With reference to the above subject vide references 1st and 3rd cited the Government requested the Engineer-in-Chief (Irrigation) to furnish the report on allocation of 150 cusecs (4.73 TMC/Annum) of water from Sri Pada Sagar Yellampally Project to NTPC for setting up of **4000 MW Thermal Power Project** at Ramagundam in Telangana State

In this context in compliance to ref. 2nd cited, the allocation of 60 cusecs (2 TMC) of water for 2 x 800 MW was considered by the department and the Govt. vide **reference 5th** cited has accorded permission for drawl of **60 cusecs (2 TMC)** of water throughout the year from Sri Pada Sagar Yellampally Project to NTPC.

NTPC, SRHQ In / Out No. Dt. 10/9 GM (PE & M)

GM(P&E+M)
AGM (New Proj)
AGM (P+M)

7/9

9/9/15

It is to submit that as per the Chief Engineer(projects) report in ref(4th) cited above, the net available yield at 75% dependability at Sri Pada Sagar Yellampally Project is 60.36TMC.The total quantity of water allotted by Govt. for various components so far is 55.49TMC (including water allotted to GENCO and NTPC stage 1).

Considering for the present NTPC stage 2 from water requirements the balance available yield at Sri Pada Sagar Yellampally Project is (60.36-55.49)=4.87TMC .

In continuation of this office ref. 6th cited for the balance **2.73 TMC** of water per annum to NTPC for setting up of 3X800MW thermal power plant at Ramagundam in Karimnagar District is recommended for allotment at an early date.

~~Encl:Ref(4)~~

Yours Faithfully

Sd/- C. Murlidhar dt:02.09.2015
Engineer-in-Chief (Irrigation),

- Copy to the Chief Engineer (Projects), Irrigation, Irrigation & CAD Dept, LMD Colony, Karimnagar for information.
- Copy to the Regional Executive Director (South), NTPC Limited, Southern Region Head Quarters, MCH Commercial Complex, R.P.Road, Secunderabad-500003.

For Engineer-in-Chief(Irrigation),

ANNEXURE-VII

OVERALL VIEW OF PLANTATION WITHIN PLANT AREA

NEAR ADMINISTRATIVE BUILDING ENTRANCE

ALONG NTPC BOUNDARY

NEAR EMPLOYEE DEVELOPMENT CENTRE (EDC)

NEAR EMPLOYEE DEVELOPMENT CENTRE (EDC)

NEAR EMPLOYEE DEVELOPMENT CENTRE (EDC)

NTPC TOWNSHIP BOUNDARY

NTPC TOWNSHIP ENTRANCE

NTPC TOWNSHIP WEST

NTPC TOWNSHIP

INDIRA PRIYADARSHINI PARK IN TOWNSHIP

INDIRA PRIYADARSHINI PARK IN TOWNSHIP

NTPC SHOPPING AREA

NTPC JYOTHI FUNCTION HALL AND AMBEDKAR PARK

NTPC ST. CLAIRE SCHOOL AND RECREATION CLUB SURROUNDINGS

RECREATION CLUB SURROUNDINGS

MOTHER TERISSA PARK

GENERAL VIEW OF TOWNSHIP

MAIN SHOPPING CENTRE SURROUNDINGS

SURROUNDINGS OF KAKATIYA FUNCTION HALL

KV SCHOOL SURROUNDINGS

TEMPLE COMPLEX SURROUNDINGS

KAKATIYA FUNCTION HALL

GENERAL VIEW FROM RESERVOIR

BALANCING RESERVOIR AREA

RESERVOIR AREA

ADMINISTRATION BUILDING

OVER VIEW OF PLANT GATE SURROUNDINGS

LIST OF PLANTS PLANTED IN NTPC – RAMAGUNDAM.

Pongamia

Azadarachta Indica

Syzigium Cumini

Tamarindus Indica

Dalbergia Sissoo

Samania Saman

Albizia Lebbeek

Usiri (Amala)

Terminalia Arjuna

Cassia Siamea

Peltophorurum

Tabebuia Grandiflora

Millengtonia Horpensis

Mimosops Elengi

Kigelia Pinnata

Cardia Sebestina

Spthodia Campanulata

Grevelia Robusta

Bauhinia Purpurea

Millitia Thurigianensis

Cassia Nodosa

Lagrstroemia Flosreginae

Royal Palm

Anacarrdium Occidentala

Magifora Indica

Eucalyputus Clones

Casurina

Pomogranate

Coconut

Ramaphal

Custard apple

Fig (Ficuscarica)

Guava

Jack fruit

Kalajamun

Line (Citrus line tree)

Papaya (Carica Papaya)

Sapota (Acrus sapota)

Star fruit (Averrhoacarambola)

Water apple (syzygiumaquea)

Alstonia (scholaris)

Anthocephalus cadamba

Bambusaarundinaca

Caesalpinia cazan

Caryota urens (fishtailpalm)

Cassia alata

Cassia auriculata

Cassia fistula

Casurinaequisetifolia

Ashoka (Saraca indica)

Chandan (Santalumalbum)

Feronia limonia (Velaga)

Putranziva roxburaghii

Artemisia pallens	**Davanamu**
Aegle marmelos	**Maredu**
Datura alba	**Tella Umetta**
Achyranthes aspera	**Uttareni**
Mangifera indica	**Mamidi**
Evolvulus alsinoides	**Vishnukrantamu**
Cedrus deodara	**Devadaru**
Vitex negundo	**TellaVaavili**
Solanum nigrum	**Kamanchi**
Ficus religiosa	**Raavi**
Solanum indicum	**Tella Mulaka**
Cynodon dactylon	**Garika gaddi**
Ziziphus mauritiana	**Reegu**
Ocimum sanctum	**Tulasi**
Nerium oleander	**Ganneru**
Punica granatum	**Danimma**
Origanum marjorana	**Maruvamu**
Jasminum grandiflorum	**Jaji**
Prosopis cineraria	**Jammi**
Terminalia arjuna	**Tella maddi**
Calotropis gigantea	**Jilledu**

DRG. NO. 9591-999-POC-F-001 REV. NO. 4

LEGEND–

GREEN BELT

FACILITIES FOR TELENGANA STPP–I

TELANGANA SUPER THERMAL POWER PROJECT

PHASE–I (2X800MW)

PROPOSED GREEN BELT AREA

ANNEXURE – 1

ANNEXURE-VIII

Action Plan CSR – CD Activities for Telangana STPP

SN	Heads	Amount	Activities
Action plan CSR –CD Activities for Telangana (total one-time tentative cost provision for 05 years) excluding expenditure under regular CSR activities of Ramagundam STPS			
1	**Education**	1.50	Augmentation of infrastructure, additional classrooms, repairs, boundary walls, playgrounds, sports equipment's, support to aanganwadis, merit scholarships, etc.
2	**Health**	1.50	Conducting Health Camps, Health Awareness Camps, Support to primary health centres for additional rooms, necessary medical equipment's, furniture, conducting veterinary camps and animal health awareness camps, etc.
3	**Sanitation**	1.50	Support for constructing individual toilets matching with support under Govt. Scheme, Construction of Community Toilets, Repair of Drains systems, cleaning of drains, etc
4	**Water**	5.00	Augmentation of drinking water through Bore wells including laying pipelines, Overhead Tanks, RO plants, Water filters in Schools, De-silting of ponds, pondages for cattle, etc
5	**Electrification**	0.70	Providing street light fixtures, High lighting masts, Solar street lights, solar lamps, etc
6	**Infrastructure**		
6.1	**Construction of Community Centers**	2.00	Construction of new Community Centres, Renovation of Existing Community Halls, Panchayat Bhawan, etc.
6.2	**Roads**	3.00	Construction of CC roads, pathways, recarpeting, etc.
6.3	**Construction of other infrastructure**	1.00	Construction/ repair of existing facilities (Night Shelters/ Old Age homes), small bridges and culverts in villages, Bus shelters, Chabootras, etc.
7	**Vocational Training**	1.00	Vocational Training for women / youth

	and Women Empowerment		and support for income generation activities, providing sewing machines to women groups, Computer Training for students / youth, sponsoring ITI training, etc.
8	**Support to Vulnerable Groups and Specially abled**	0.50	Augmentation of Govt. support towards welfare of vulnerable persons, providing equipment's, etc.
9	**Promotion of Sports and Culture**	0.30	Organizing Rural Sports, Support to local Sport Tournaments, Cultural activities, etc.
10	**Miscellaneous CD activities**	2.00	As per need and requirement, contingent requirements, etc.
	Total	**20.00**	**Total Rs. 20 Cr**
Post commissioning of Telangana project, CSR funds will be allocated for Project as per Company Act 2013/ Govt. Guidelines/ NTPC Policy.			

ANNEXURE-IX

REPLY TO THE REPRESENTATION RECEIVED BY THE EAC

QUERY: Explanation for project nomenclature as Greenfield (Mail 1st Para)

NTPC Response:

- As per A.P. Re-organization Act 2014, NTPC has been mandated to set up 4000 MW Coal fired thermal power plant for Telangana State. NTPC informed Principal Secretary to Hon'ble Chief Minister, Govt. of Telangana vide letter dated 22.08.2014 confirming to set up 2 units of 800 MW under Stage-I within NTPC's existing Ramagundam Station.

  Although the project is being set up within the premise of NTPC Ramagundam STPP, the project may be treated as Green field entity.

POINT NO-1: At a period in human history with struggle all over the world for reduction in carbon emissions to save the human civilization, not even quantifying the emissions from the proposed plant and even talking of sustainable power generation with coal is unacceptable tobacco science.

NTPC Response:

It is well accepted that the thermal power plants is one of the most important element of the energy sector and they are masterworks that enable producing electrical energy which can be thought as one of the basic needs of life after water and food. However, it is also known fact that the coal-fired thermal power has the highest rate of carbon emissions among the fossil fuelled thermal power plants.

At present, about 80 percent of the World's production of electricity is carried out by fossil fuel power plants (coal, petroleum products, natural gas), 20 percent of the World use the different types of primary energy source like hydraulic, nuclear, wind, solar, geothermal and biogas.

There is no doubt that eliminating the existence of coal based power plant plays a major role in environmental issues seems true but at the same time it cannot be ignored that the role of energy, especially in economic framework, have a vital importance. Hence, various factors needs to be considered while decision making processes of financial & environmental management function in thermal power plants w.r.t the type, innovation and improvement efforts of thermal power plants.

The effective factors in the establishment and operation decision of thermal power plants can be classified as follows;

- ✓ Government Policies and Preferences
- ✓ Environmental Factors
- ✓ Macroeconomic Factors
- ✓ Research & Development Opportunities

As far as proposed Telangana STPP is concerned, NTPC has been mandated to set up 4000 MW Coal fired thermal power plant for Telangana State as per newly framed A.P. Re-organization Act 2014.

NTPC well accepts the facts of climate change and likely impacts of coal fired projects on environment. However, sustainable power generation has been one of the prime objectives of NTPC Limited since its inception. Towards achieving this objective,

various measures have been introduced to ensure minimum degradation of the environment due to the operation of the power stations. As a part of agreement under Kyoto Protocol the CDM has been introduced to enable trading of Certified Emission Reduction (CER) between the developed countries and the developing countries.

It is envisaged to take up NTPC's proposed 2X800 MW, coal based Telangana project designed with super-critical technology which has higher efficiency compared to the conventional sub- critical technology based units. Adoption of higher cycle parameters will improve power plant efficiency and thereby reduce coal consumption per unit of electricity generation with consequent reduction in CO2 emissions. The super critical technology is relatively new to the Indian Power sector; where till recently, plants were operating on sub-critical parameters. These super critical units have a cycle efficiency of around 4-5% more than conventional sub-critical technology and consume 5% less fuel for the same amount of energy generated. This results in consequent reduction in CO_2 foot print.

Further, due to the existing thick green belt (i.e. approx. 13 lakh of trees) and afforestation plan within and surrounding and all available spaces of the project area will play a vital role in offsetting the carbon footprint.

Parallally, NTPC is taking up solar power in a big way to promote renewable energy. To this extent, NTPC has added 10MW solar plant in NTPC Ramagundam.

Also NTPCs Vision statement is based on its commitment for generating and providing reliable power at competitive prices in a sustainable manner by optimising the use of multiple energy resource with innovative eco-friendly technologies thereby contributing to the economic development of the nation, social upliftment of the society and promoting a healthy environment.

NTPC has also diversified into renewable energy and other advance technology based power generation sectors *i.e, Hydro power, solar power, clean coal technology, super critical boilers etc* with total installed capacity of 45,548 MW (including 6,196 MW through JVs) comprising of 41 NTPC Stations (18 Coal based stations, 7 combined cycle gas/liquid fuel based stations, 1 Hydro based station), 7 Joint Venture stations (6 coal based and one gas based) and 8 renewable energy projects.

<u>POINT NO-2</u>: Results of the very first ToR on cumulative impacts including rise in temperature within 10/15 Km was not presented in draft EIA. No. increase in temperature was claimed. But after my query on it they admit that there is al slight increase of 4^0C in 30 years. What will be the results additional 1600 MW at the same time in a period global warming taking off? It is equivalent to putting an additional 2400 MW heater there. They went to press on 17 May 2015 just before the public hearing claiming NRSC, Hyderabad certified a 40C cooling in the area due to greenbelt developed. Is it not deception of people who are the owner of NTPC?

<u>NTPC Response:</u>

In the Environmental Impact Assessment (EIA) report the temperature variation in Figure-3.3.3 was prepared based on the India Meteorological Department (IMD) temperature data for period 1951-1980 (i.e *before commissioning of industries*) and IMD data for period 1971-2000 (*after commissioning of various industries*) and was compared with the latest 2014 annual temperature data recorded at Ramagundam. The IMD data Table of 1951-1980 and 1971-2000 are used.

The temperature difference observed based on IMD data for period 1951-1980 and for period 1971-2000 w.r.t the mean maximum and minimum temperature are detailed in below **Table-1**:

TABLE-1

MEAN MINIMUM AND MEAN MAXIMUM TEMPERATURE DATA AND ITS DIFFERENCE (1951-1980)/ (1971-2000)

Month	Mean Temperatures (^{0}C)					
	IMD (1951-1980)		IMD (1971-2000)		Min Temp Difference (^{0}C)	Max Temp Difference (^{0}C)
	Min	Max	Min	Max		
Jan	10.9	33.3	10.5	33.4	-0.4	+0.1
Feb	13.8	37.1	13.3	36.5	-0.5	-0.6
March	17.4	40.6	16.5	40.7	-0.9	+0.1
April	21.5	43.6	21.2	43.7	-0.3	+0.1
May	23.8	**45.6**	23.4	**45.3**	**-0.4**	**-0.3**
June	22.4	43.8	22.6	43.8	+0.2	0
July	22.0	36.8	22.2	36.6	+0.2	-0.2
August	22.2	35.0	22.6	34.8	+0.4	-0.2
Sep	21.8	35.7	22.1	35.7	+0.3	0
Oct	18.1	35.9	17.7	35.8	-0.4	-0.1
Nov	13.8	33.9	13.4	34.1	-0.4	+0.2
Dec	11.0	32.6	10.4	32.4	-0.6	-0.2

From the above Table-1, it can be observed that the mean maximum temperature during 1951-1980 (May) is 45.6^{0}C and the mean maximum temperature during 1971-2000 (May) is 45.3^{0}C. Therefore, the difference in temperature shows a decrease of 0.3^0 C before and after commissioning of project.

Based on the above data the mean maximum temperature variation during the last 50 years is about 0.3 ^{0}C decreases in the month of May.

The temperature difference observed based on IMD data for period 1951-1980 and for period 1971-2000 w.r.t the extreme maximum and minimum temperature are detailed below in **Table-2**:

TABLE-2

EXTREME MINIMUM AND EXTREME MAXIMUM TEMPERATURE DATA AND ITS DIFFERENCE (1951-1980)/ (1971-2000)

Month	Extreme Temperatures (^{0}C)					
	IMD (1951-1980)		IMD (1971-2000)		Min Temp Difference (^{0}C)	Max Temp Difference (^{0}C)
	Min	Max	Min	Max		
Jan	8.4	35.3	8.0	35.3	-0.4	0
Feb	9.4	39.4	8.4	39.4	-1	0
March	13.0	42.8	13.0	43.0	0	+0.2
April	15.4	45.6	15.4	45.6	0	0
May	**20.4**	**47.2**	**20.4**	**47.3**	**0**	**+0.1**
June	19.4	47.2	19.4	47.2	0	0
July	18.8	41.0	18.8	41.0	0	0
August	19.6	37.4	19.8	37.9	+0.2	+0.5
Sep	17.8	38.0	17.8	38.6	0	+0.6
Oct	15.4	38.4	15.0	38.4	-0.4	0
Nov	9.0	36.6	9.0	36.6	0	0
Dec	7.8	34.5	7.5	35.5	-0.3	+1

From the above Table-2, it can observed that the extreme maximum temperature during 1951-1980 (May) is 47.2 ^{0}C and the extreme maximum temperature during 1971-2000 (May) of is 47.3^{0}C. Therefore, the difference in temperature shows an increase of 0.1^0 C in the month of May. Further, an increase of 0.2^0 C is observed in the month of March during this period.

However, an increase of 4^{0}C in a span of 30 years has inadvertently been mentioned under subsection 3.3.3.3 of chapter-3 of the EIA report due to erroneous comparison of mean maximum IMD data for a period 1951-1980 and 1971-2000 with the latest 2014 annual temperature data as recorded at Ramagundam STPP.

POINT NO-3: Ash utilisation is an area where regulations confined to the paper. Every company claims to adhere to the 100% ash utilization but they hardly do so. The proponent denies ash leaching into groundwater stating that their studies conclude ash leaches only at a pH of 4 or less, but published studies by Central Institute of Mining and Fuel Research, Dhanbad on ash from NTPC, Ramagundam show considerable leaching of heavy metals.

NTPC Response:

It is to be noted that the Ash utilization / management Plan for 100% utilization of ash within four years of commissioning of the TSTPP, Stage-I (2x800 MW) has been duly prepared in compliance to the MOEF&CC notification dated 03.11.2009 and it shall be implemented effectively.

It is estimated that about 8200 tonne of ash per day i.e. about 2.72 million tonne per annum would be produced from the Telangana Super Thermal Power Project (2x800 MW) planned to be set within NTPC's Ramagundam STPP, District- Karimnagar in Telangana.

The ash market survey was carried out by a Consultant covering cement plants located within 100/ 300/ 500 km, brick manufacturing plants and major construction activities within the 100 km radius of Telangana STPP. Based on the survey report, sector wise ash utilization potential in the vicinity of proposed Telangana project is presented as below.

Cement Sector

Cement plants provide a potential for Ash Utilization on sustainable basis and demand of PPC is increasing in market, keeping this in mind, the cement plants located around Telangana STPP were surveyed. There are around 23 existing cement manufacturing plants within 500 km radius of proposed project. These plants are having total installed capacity of 45.50 million tonne per annum and also have expansion plan of 5.9 million tonne per annum. In addition to this, there are about 32 RMC manufacturing plants located within a radius of 300 km from proposed project. These cement & RMC plants will require about 12 million tonne fly ash per annum. Further, some cement plants such as Orient Cement, Kesoram Cement and Vasavadatta Cement plants have shown interest for lifting dry fly ash from Telangana Stage-I (2x800 MW). Considering all the above, about 1.90 million tonne fly ash per annum is expected to be utilized in this sector from proposed project.

Brick, blocks, tiles & other ash based products

Within 100 km radius from proposed project, there are about 70 Fly Ash brick units with an average installed capacity of 8000 bricks. In addition to this, there are 15 major clusters of clay ash bricks located within 100 km of proposed project. It is expected that MoEF&CC mandate for use of fly ash based bricks, blocks, tiles & other ash based products within 100 km of power plant in the building and other construction activities would be implemented and result in demand for fly ash brick, blocks, tiles & other ash based products will rise. It is estimated that about 0.57 million tonne fly ash per annum is expected to be utilized in this segment.

Road and Highway Development

There are 2 nos. of existing National Highways i.e. NH-16 (Chinnur - Mancherial - Nizamabad) and NH-202 (Palampet - Jangaon) that fall within 100 km radius of

proposed project, that are presently two lanned and there are plans to four lane these highways in the coming years. In addition to this State Highways & Urban roads of total approx length 480 Km are being constructed/ repaired per year on an average within a radius of 100 km from proposed project. These projects have potential to utilize about 0.25 million tonne ash per annum.

Balance/ unutilized ash (if any)

In line with provisions of MoEF&CC gazette notification dated 03.11.2009, for utilization of balance ash (if any), required studies such as (i) Ash Characterization, Environment Base Line Data Generation & Feasibility Study (ii) Hydro-geological Investigation (iii) Environment Impact Assessment cum mitigation Plan etc. shall be carried out through reputed institutes/ laboratories like BARC, CMPDIL, NEERI for identified mines of SCCL.

Based on the results of these studies, Environment Clearance from MoEF&CC shall be obtained. No Objection Certificate from State Pollution Control Board as well as permission from DGMS for shall also be obtained.

Overall Potential of Fly Ash Utilization

The potential areas of ash utilization are cement & concrete, manufacturing of building products, road embankment construction etc. Based on the survey report potential of ash utilization from Telangana STPP is given in below **Table.**

POTENTIAL OF FLY ASH UTILIZATION

Sr. No.	Area of use	Potential of Utilization (MTPA)	End user
1.	Cement & Concrete	1.90	RMC, Cement units
2.	Bricks & blocks	0.57	Brick, blocks, tiles & other ash based products
3.	Road & embankment	0.25	PWD, NHAI
Total		**2.72**	

The proposed project will have 4 Silos each of 1500 tonne capacity for storage of dry fly ash near the plant boundary. The user industries shall take the dry fly ash from the main storage silos. The silos shall also have the rail loading facility. It is also expected that fly ash garneted at the proposed project shall be utilized in the areas of cement, concrete & building products manufacturing, road embankment construction, land development and mine stowing/mine filling.

Moreover, NTPC has dedicated groups for utilization of ash (known as Ash Management Group, established at Corporate Center and all coal based projects) as well as for handling and disposal of unused ash (established at Corporate Center and all coal based projects).

- It is submitted that to avoid the ground water contamination due to leaching of toxics from the ash into groundwater following has been proposed;
  - ✓ High Concentration Slurry Disposal (HCSD) System has been envisaged for the disposal of unutilized fly ash generated from the proposed project. In HCSD System, the slurry is highly viscous and it sets to a dense compact deposit on drying by virtue of which it leads to solidification of the layers of ash slurry within 1-2 days. The solidified layers of ash shall be self supporting and act as

liners in the ash disposal area. Therefore, there will be no risk or possibility of ground water contamination due to the fly ash disposal overflows or leachates may occur in the surrounding areas.

- ✓ For disposal of bottom ash, a conventional slurry disposal system with ash water recirculation has been envisaged. The bottom ash lagoon shall be lined with HCSD layer with impervious liner of 300 MM compacted thicknesses during initial phase of slurry discharge. By using naturally available clayey soil of permeability not more than $1X10^{-06}$ cm/sec shall be used as impervious liner. However, if the naturally impervious soil is not available the soil shall be blended with bentonite to achieve the required permeability.

- Also outcome of several studies carried out by IIT Roorkee to assess the leaching characteristics of ash and potential for ground water contamination concludes that the leaching takes place under acidic environment only (pH 4 or less) while the pH of ash water is always above 7 (alkaline). In view of the above, the chances of leaching of metals from ash dyke are remote. The presence of rocky surface below the soil layer will prevent leachates if any, reaching the ground water. Further, the ground water quality around ash dyke area shall be regularly monitored.

POINT NO-4: No epidemiological studies are done around the coal fired plants either by the regulatory agencies or the companies. Peer reviewed published literature presents a grim picture of human health impacts from coal fired power plants. A village in the vicinity of the NTPC reports disproportionate number of skin disease cases in that village. As their groundwater is no longer potable NTPC supplies drinking water. Is it not an evidence of damage to groundwater from their ash pond? No mercury balance is provided. Where is it going?

NTPC Response:

During periodic check under medical camps arranged by NTPC in the nearby villages around the Project area case of fever, cough and cold pneumonia, diarrhoea & diseases related to ENT (Ear, Nose Throat) and eye etc were reported which cannot be be attributed to plant activities. Also mostly life style related problems like *, High blood pressure, Malnutrition, Anemia, Refractive error which are not due to plant emissions are encountered.*

NTPC also awarded consultancy to carry out survey on Environmental Human Health Risk Assessment to M/s. Pollucon Laboratories Pvt. Ltd, Surat in and around Ramagundam area. The study revealed that there is no specific endemic disease in the surrounding area & the health status of study population was satisfactory and health problems reported during the study were not showing any unusual pattern. The health related problems found during the study like *General health related complains, High blood pressure, Malnutrition, Anaemia, Refractive error* were mainly due to life style related factors and not due to above mentioned pollutants in emission.

The ground water analysis results indicate that the ground water at all locations is slightly alkaline and hard in nature. The water at all locations is free from Heavy metals. The concentration of all other parameters in all the samples were less than prescribed limits recommended for drinking water without conventional treatment but after disinfection.

However, under the CSR-CD schemes which are implemented based on need based survey in consultation with the village Panchayat and the District Administration supply of treated drinking water facilities are provided to nearby villages.

Moreover, Mercury values in all the surface and ground water samples collected at different locations in around the project area are observed well within the specified desirable limits (IS: 10500-2012 standards) i.e. <0.001.

POINT NO-5: Will the new draft regulations for power plants proposed apply to the projects seeking EC now? There is no proposal to meet the new standards in the EIA.

NTPC Response:
NTPC is always committed to comply with the all applicable environmental standards. The said new standards are in draft stage and we will make all effort to meet the norms once it is being enforced.

Further, Space provision has been kept in the layout of Telangana Stage-I for retrofitting Flue Gas De-sulphurisation (FGD) system for removal of excess sulphur dioxide content, if required in future.

POINT NO-6: There is no mention of externalities from the proposed plant. Who bears that burden? What happens to "Polluter pays principle"?

NTPC Response:

As every anthropogenic activity has some externalities, power generation through fossil fuel is also associated with some externalities which can be minimised only through proper environmental management systems supported by state of art technologies. The proposed project is envisaged with following to mitigate the externalities.

- ✓ 800 MW units of Telangana are designed with super-critical technology which has higher efficiency compared to the conventional sub- critical technology based units. The super critical technology is relatively new to the Indian Power sector; where till recently, plants were operating on sub-critical parameters. These super critical units have a cycle efficiency of around 4-5% more than conventional sub-critical technology and consume 5% less fuel for the same amount of energy generated. This results in consequent reduction in CO_2 foot print.
- ✓ Installation of high efficiency electrostatic precipitators (ESPs) to limit the particulate emission to 50 mg/Nm3, which is much lower than the national norm (100 mg/Nm3) for the same.
- ✓ Twin flue stack of 275 m height for wider dispersal of remaining particulates and gaseous pollutants resulting in lower ground level concentrations.
- ✓ Space is also provided for retrofitting of Flue Gas Desulphurization (FGD) system, if required in future.
- ✓ The furnace design has been modified for controlled emission of NOx.
- ✓ The ash disposal scheme for fly ash envisages collection of fly ash by DAES (dry ash extraction system) to the storage silos and residual fly ash transported through HCSD (High Concentration Slurry Disposal system), which uses thick – viscous – high concentration slurry of ash for disposal which gets solidified within 1-2 days, thereby minimizing the possibility of fugitive emission. Further, under the above disposal system there is no risk of Ash flying in the wind due to its being cemented
- ✓ Dust suppression and extraction system shall be installed at coal handling plant area and ash handling plant to control fugitive dust emission.
- ✓ Water spraying shall be done at all dust generation areas viz., the coal and ash handling areas.

- ✓ Regular monitoring of ambient air quality parameters through three nos. fixed Continuous Automatic Ambient Air Quality Monitoring Stations (AAQMS) as well as portable Ambient Air Quality Monitoring equipment.
- ✓ Continuous emission monitoring system in stack for all the flues.

Moreover NTPC will take up periodic health check-up under medical camps in the surrounding villages around the Project area.

POINT NO-7: Cumulative Impact Assessment was not done and presented in draft EIA. After raising the query the proponent/consultant included an Annexure XVIII to include some of the plants in the study area. But the data available on FCI emissions (Table 4.2 of FCI EIA) do not match with the data given in Table 2.0 (A) on page XVIII-3. Even the stack height is changed. NO_x and SO_2 emission from FCI are taken as zero. For Kesoram cement also these are taken as zero. It is deliberate manipulation of data and a Navaratna public sector indulging in such falsification of data is an indicator of the decay in our ethics of business. NO_x is a major pollutant from fertilizer plants and cement plants also. Proponent even manipulated the baseline data for SO2. Please check Table 3.4.9 comparison of AAQ data in the final EIA. SO2 was in the range of 7.9 – 29.5 in 2011-2012, in 2014-15 it became 12.1-23.5 ug/m^3. Minimum concentration increased but maximum concentration decreased only for SO_2 while it increased for every other pollutant. Query 16 also deals with the manipulation of data in the EIA report. This must attract the circular of MOEF notification 2006 clause 8(vi) for "deliberate concealment and/or submission of false or misleading information or data which is material to screening or scoping or appraisal or decision on the application shall make the application liable for rejection, and cancellation of prior environmental clearance granted on that basis."

NTPC Response:

Assessment of cumulative impact of all sources on air quality levels in the study area has been done in compliance to the TOR condition and the details are incorporated in the final EIA report. Erstwhile it was not included in draft EIA as it took time to collect information from secondary sources about the industries located in the vicinity of the project area.

The lists of industries existing within 10 km from the project boundary are;

Sr. No	Industry	Type of Industry	Distance/ Direction	Status
1	NTPC, Ramagundam	Thermal Power plant	Adjacent	Operating
2	FCI Ramagundam	Fertilizer	1.7 km, SE	Not working (Under revival)
3	Telangana State Electricity Board (62.5 MW)	Thermal Power Plant	2.1 km, NW	Operating
4	SCCL-OCP-IV	Coal mine	2.9 km, N	Operating

5	Singareni Power House at Godavarikhani (18 MW)	Thermal Power Plant	3.7 km, ENE	Operating
6	SCCL - OCP	Coal Mine	4.5 km, SE	Operating
7	Kesoram Cements Limited	Cement Plant	7.3 km, SW	Operating

Source: Secondary data

The predicted 24 hourly short term cumulative incremental concentrations due to the industries in study area (10 Km radius):

Pollutant	**Cumulative Concentration ($\mu g/m^3$)**	**Direction**	**NAAQS 2009**
PM_{10}	11.41	SW	100
SO_2	54.47		80
NOx	20.11		80

The modelling simulations have been done considering the worst case scenario that all industries are operating at a time. The cumulative incremental concentration due to the various industries in study area is observed to be within the limits. All the emissions are covered under baseline concentration and the additional load due to the operation of proposed 2x800 MW will be arrested by proposed mitigation measures to control the emissions at source.

The ambient air quality in the region with respect to the site specific meteorological conditions taken during the study period indicates that the predictions of cumulative incremental concentrations of the air quality is less when compared to National Ambient Air Quality Standards 2009 from industrial pollution and has sufficient carrying capacity to accommodate the industrial development.

Further, it is to be noted that presently FCI, Ramagundam is not operational and under revival stage hence, its stack emission is considered as zero.

As far as baseline environmental data variation is concerned, it is to be noted that the climate is very dynamic in nature and depends upon various atmospheric factor which is predominant in area in due interval of time and also on operational frequency of industries in the region. The impact may be also gets mitigated through various pollution control initiatives *i.e. green belt development, high efficiency pollution control devices etc.* It is therefore submitted that the contention made that NTPC gave wrong, false or fabricated information to the public is totally baseless, and true and correct information as obtaining on the date was submitted in the Draft EIA Report.

POINT NO-8: Radio activity of coal and ash data required under TOR was not presented in draft EIA even though the results of analysis were available much before the EIA was submitted for conduct of public hearing. There are already published studies on radioactivity of ash pond of NTPC, Ramagundam. Now with the coal linkage changed even the Final EIA available on MOEF website becomes invalid. Why is the opportunity to participate being denied to the people by withholding information from them and making it for the eyes of the EAC only against the spirit of environmental rights of the People?

NTPC Response:

Radio activity contents of coal to be sourced are incorporated in the final EIA report and its copy is available on MOEF&CC website.

It is to be noted that the MOEF&CC vide its circular dated 19.01.2011 clarifies that firm coal linkage is required only at the stage of grant of EC and not at the stage of TOR or at the stage of Public hearing, which implies that previous activities may be undertaken with tentative source of coal and tentative characteristics of coal. At the time of TOR & Public Hearing the coal source was anticipated as SCCL. However, the modelling was done taking into consideration of worst coal characteristics whereas the new coal quality parameters from tapering linkage as accorded by Coal India Ltd. are of much better quality.

Further, Coal India Limited (CIL) vide letter dated 06.11.2015 has communicated allotment of tapering coal linkage for the Telangana Stage-I, STPP (2x800) MW from Western Coalfield Ltd. (WCL). Copy is attached as **Annexure-I**.

1.0 Impact on Air Quality ANNEXURE-X

The impact on air quality is assessed based on emissions from the proposed 2x800 MW power plant by using coal which will be sourced from Western Coal Fields (WCL). Particulate Matter (PM), Sulphur Dioxide (SO_2) and Nitrogen Oxides (NOx) are the important pollutants emitting from the proposed project.

- ***Details of Mathematical Modelling***

For prediction of maximum Ground Level Concentrations (GLC's), the air dispersion modeling software (AERMOD version 7.1.0) was used. AERMOD is steady state advanced Gaussian plume model that simulates air quality and deposition fields upto 50 km radius. AERMOD is approved by USEPA and is widely used software. It is an advanced version of Industrial Source Complex (ISCST3) model, utilizes similar input and output structure to ISCST3 sharing many of the same features, as well as offering additional features. The model is applicable to rural and urban areas, flat and complex terrain, surface and elevated releases and multiple sources including point, area, flare, line and volume sources.

Dispersion modeling using AERMOD requires hourly meteorological data. Site specific data recorded during winter season 2014-15 at site is used for executing modeling studies. The site specific meteorological data is processed using AERMET processor.

- ***Model Set-up***

The model set-up details are presented in **Table-1.**

TABLE-1
MODEL SET-UP

Sr. No.	Parameter	Details
1	Model Name	AERMOD (Version 7.1.0)
2	Model Type	Steady State Gaussian Plume Air Dispersion model
3	Topography	Rural, Flat
4	Averaging Time	24 hours
5	Source Type	Point Source & Area Source
6	Boundary Limits	10 km X 10 km
7	Co-ordinate System	Uniform Polar Grid
8	Receptor Height	0
9	Anemometer	10 m
10	Surface meteorological data	Site Specific data processed by AERMET
11	Upper air Data	Upper air Estimator using AERMET processor

- ***Model Input Data***

The details of proposed stack emissions from 2x800 MW power plant are given in **Table-2.**

TABLE-2
DETAILS OF PROPOSED STACK EMISSIONS

Parameters	Units	Details		
Stack Height	m	275		
No. of Stacks	No.	01 (twin flue)		
Flue Diameter	m	8.15		
Flue gas velocity/ flue	m/sec	22		
Flue Gas Temperature/ flue	K	398		
Volumetric Flow Rate	Nm^3/sec	858.9		
Source of Coal		**EIA (SCCL)**	**As per CEA representative**	**WCL**
Quantity of Coal	MTPA	8.0	7.36	5.68
Sulphur	%	0.5	0.5	0.5
Gross Calorific value	Kcal/kg	3500	3900	4750
Estimated Emission Rates				
Sulphur dioxide	g/s/unit	1402.9	1151.4	900.0
NOx @ 260 g/Gjoule	g/s/unit	534.5	488.8	465.3
Particulate Matter @ 50 mg/Nm^3	g/s/unit	21.4	21.4	21.4

The simulations have been carried out to evaluate SO_2, NOx and PM likely to be contributed by the proposed project. For the short-term simulations, the concentrations were estimated to obtain an optimum description of variations in concentrations over the site in 10 km radius covering 16 directions. The predicted results for PM, SO_2 and NOx are presented in **Table-3** and isopleths showing the incremental concentrations are shown in **Figure-1** to **Figure-3.**

TABLE-3
PREDICTED SHORT-TERM MODELLING RESULTS (24-HOURLY)

Pollutants	Maximum Incremental Levels ($\mu g/m^3$)			Distance (km)	Direction
	SCCL	**CEA**	**WCL**		
Particulate Matter	0.52	0.52	0.52	2.2	SW
Sulphur Dioxide	34.22	27.1	21.5	2.2	SW
Nitrogen Oxides	13.04	11.7	11.1	2.2	SW

- ***Resultant Concentrations after Implementation of Project***

The resultant concentrations after the implementation of the proposed project are given in **Table-4.**

TABLE-4
RESULTANT GROUND LEVEL CONCENTRATIONS (24-HOURLY)

Pollutant	Concentrations (µg/m^3)							
	Max Baseline Conc	Incremental Concentration			Resultant Concentration			NAAQS Limits
		SCCL	CEA	WCL	SCCL	CEA	WCL	
PM	68.5	0.52	0.52	0.52	69.02	69.02	69.02	100
SO_2	23.5	34.22	27.10	21.50	57.72	50.60	45.00	80
NOx	32.8	13.04	11.70	11.10	45.84	44.50	43.90	80

Based on modelling predictions it can be concluded that the predicted incremental ground level concentration of SO_2 is about 21.5 µg/m^3 by using WCL coal. This value when compared to predicted GLCs of SCCL coal (ie; 34.22 µg/m^3) reduction of SO_2 emission rate by 37% is observed.

As per discussions with CEA representative of EAC emission load of SO_2 is observed as 27.1 µg/m^3 considering coal quantity as 7.36 MTPA.

Significant reduction in air emission load is envisaged with the use of Western Coal in place of coal from SCCL.

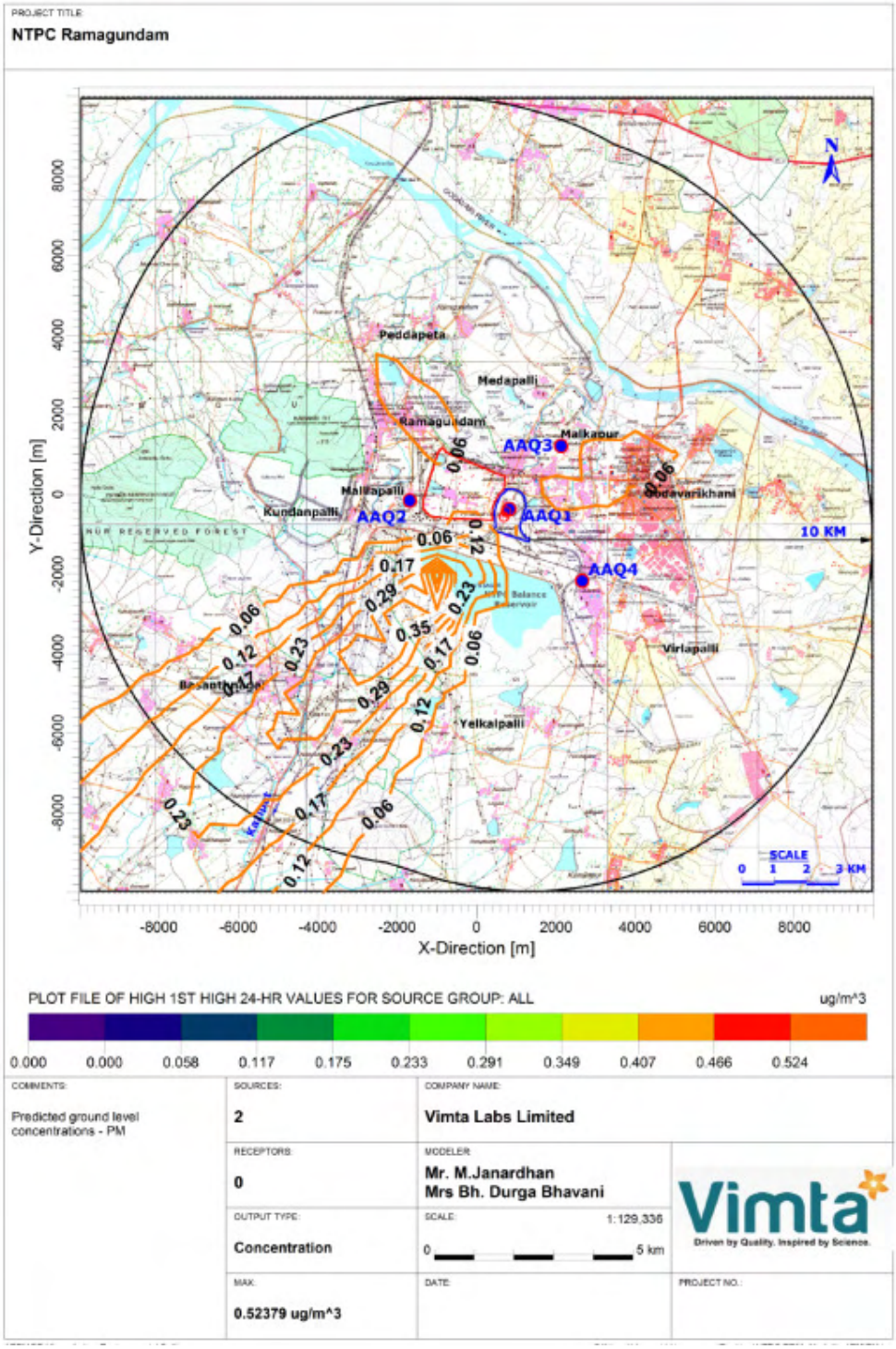


FIGURE-1
ISOPLETH SHOWING INCREMENTAL CONCENTRATION FOR PM-WCL

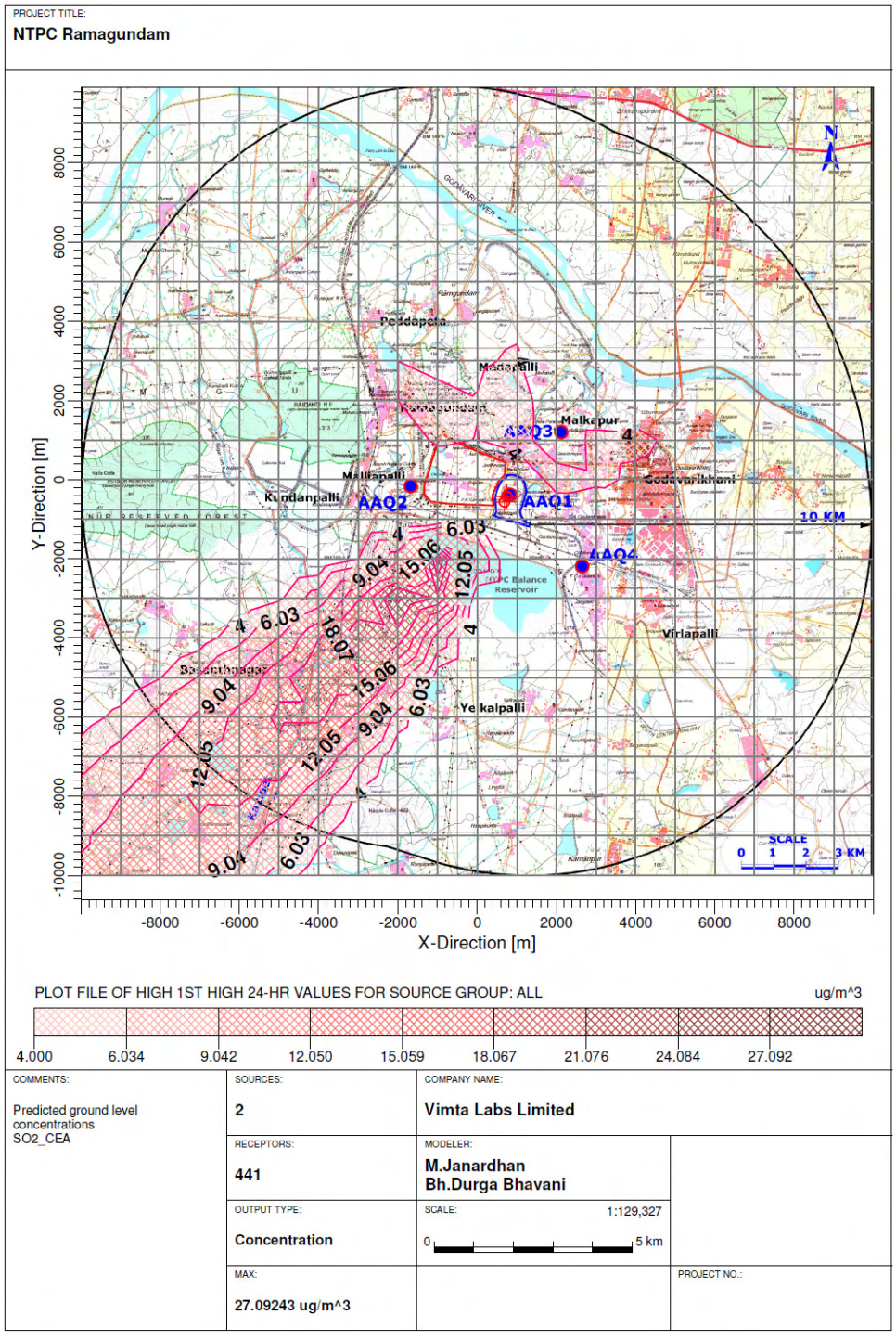


FIGURE-2(A)
ISOPLETH SHOWING INCREMENTAL CONCENTRATION FOR SO_2 – CEA

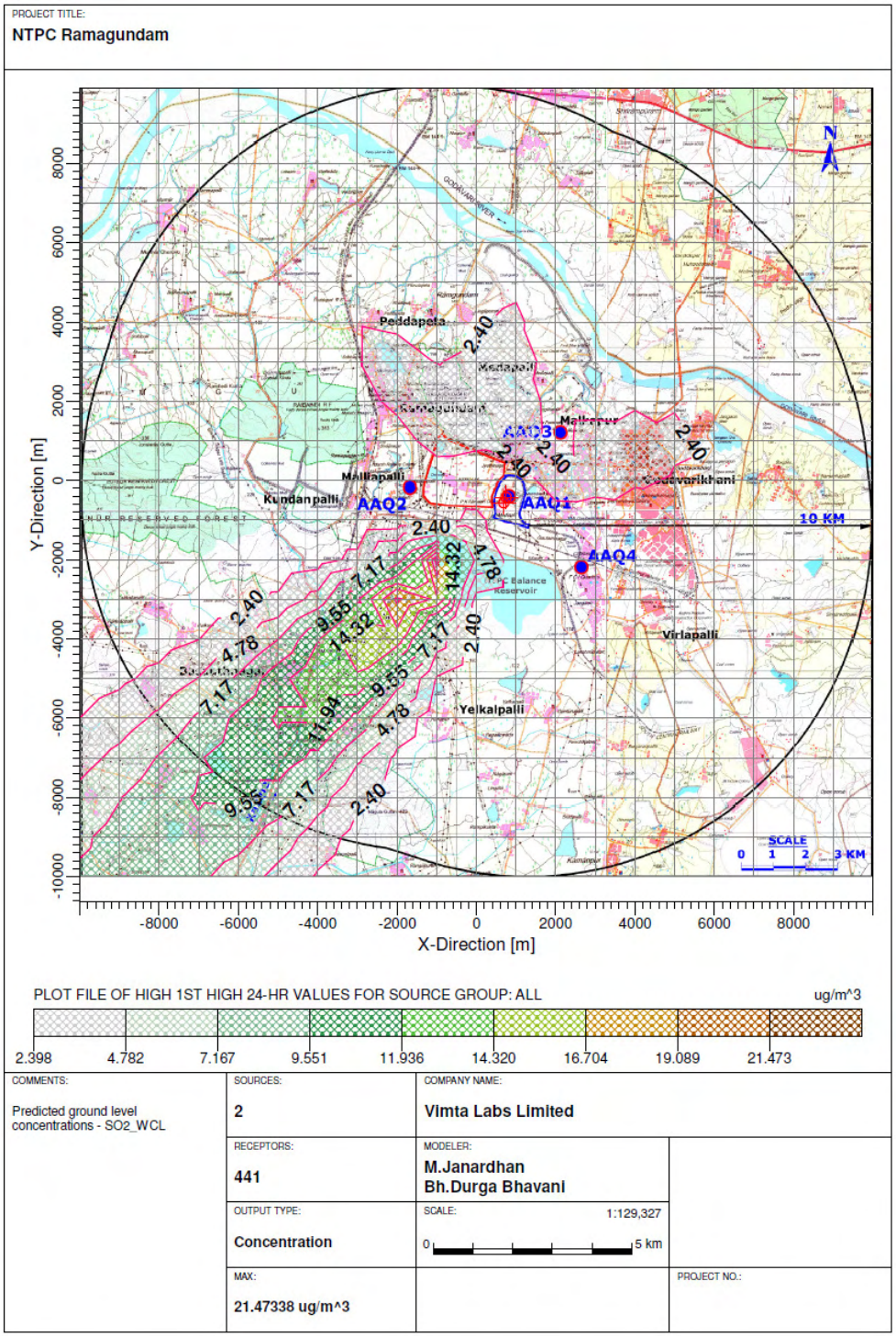


FIGURE-2(B)
ISOPLETH SHOWING INCREMENTAL CONCENTRATION FOR SO_2 – WCL

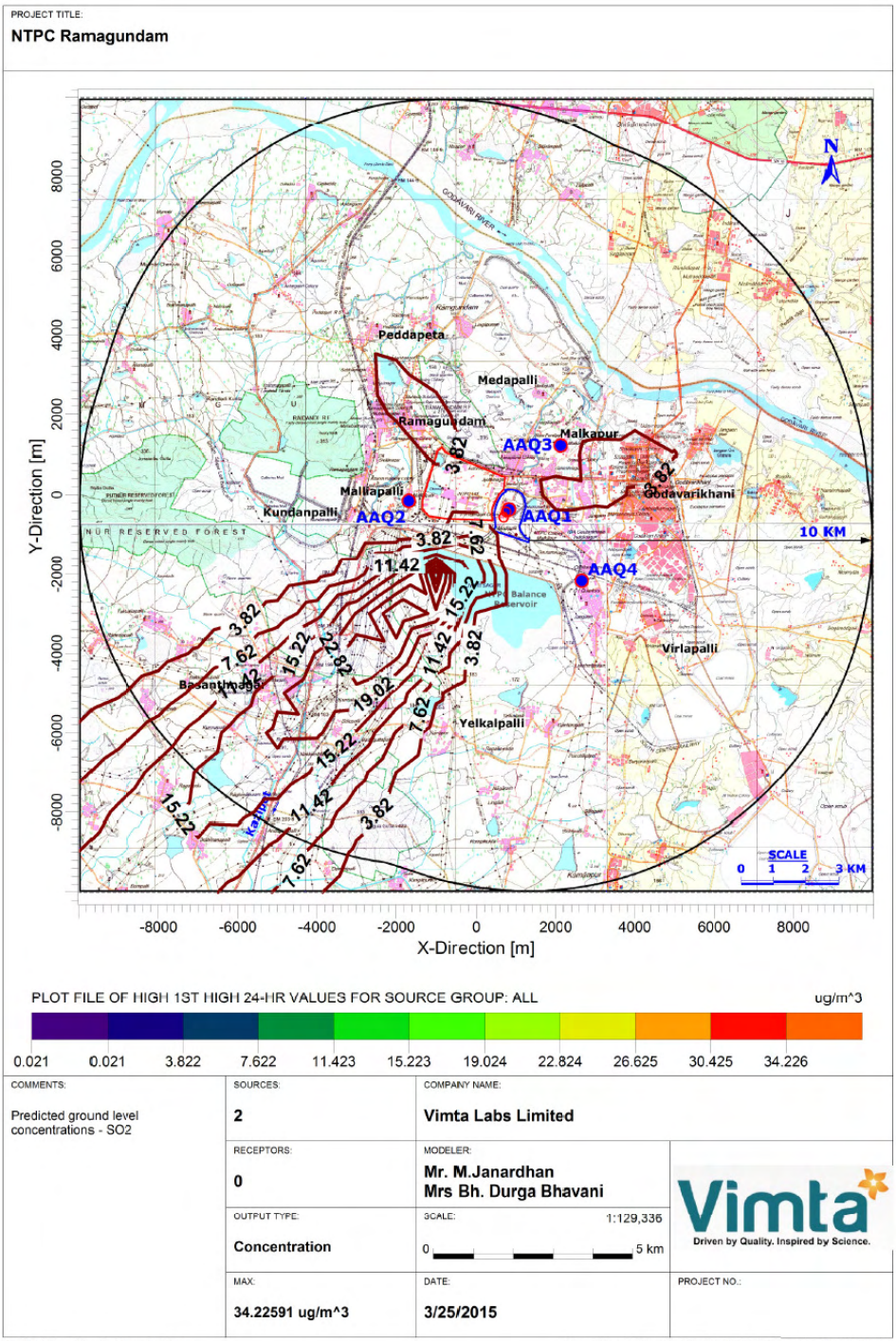


FIGURE-2(C)
ISOPLETH SHOWING INCREMENTAL CONCENTRATION FOR SO_2 - SCCL

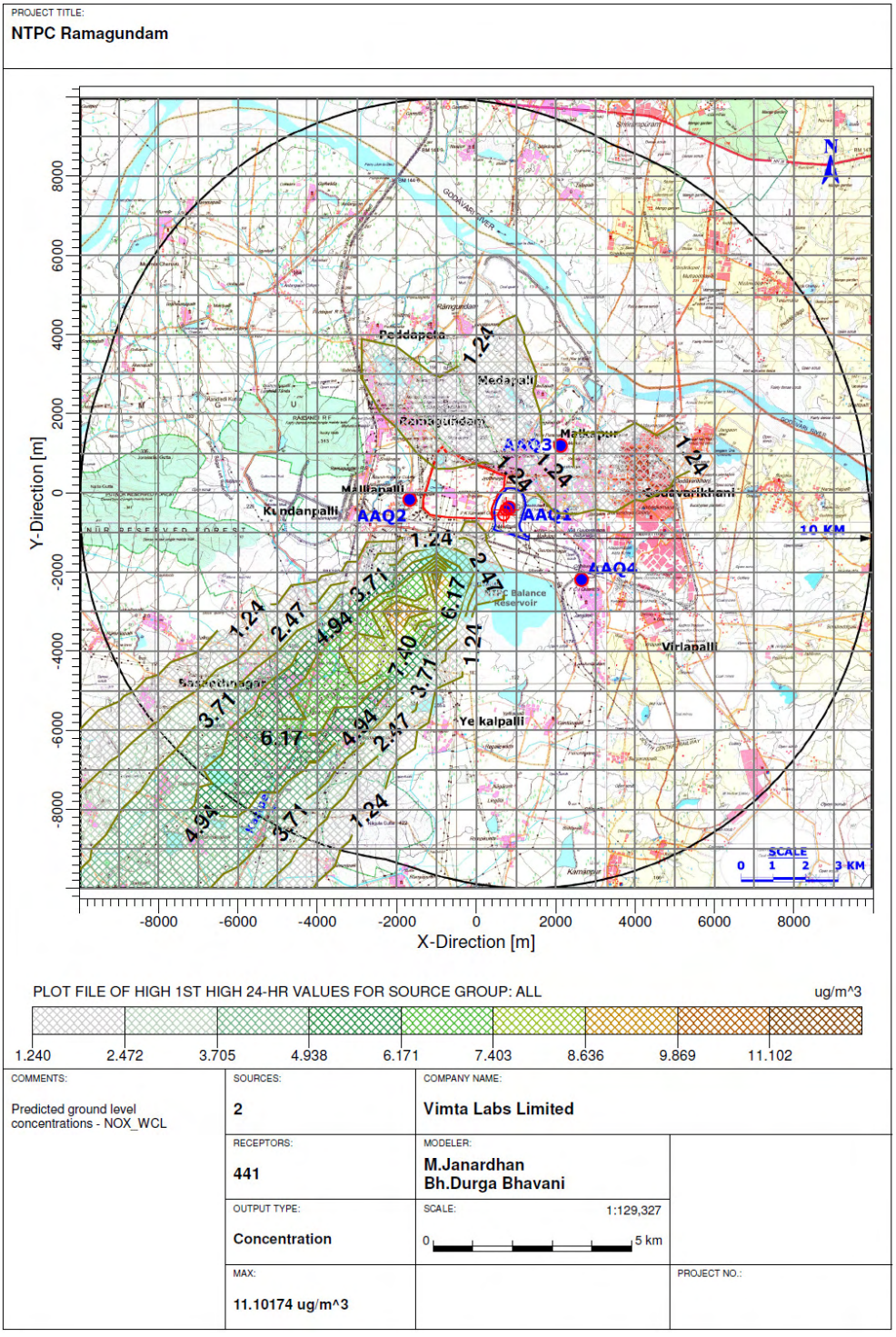


FIGURE-3
ISOPLETH SHOWING INCREMENTAL CONCENTRATION FOR NOx -WCL

2.0 Cumulative Predicted Impacts due to Industries in Study Area

Cumulative Modelling for nearby Industries located within 10 km radius

✓ Details of Industries within Study Area

The list of industries already existing within 10 km from the project boundary is shown in **Figure-4** and details of the same are provided in **Table-5.**

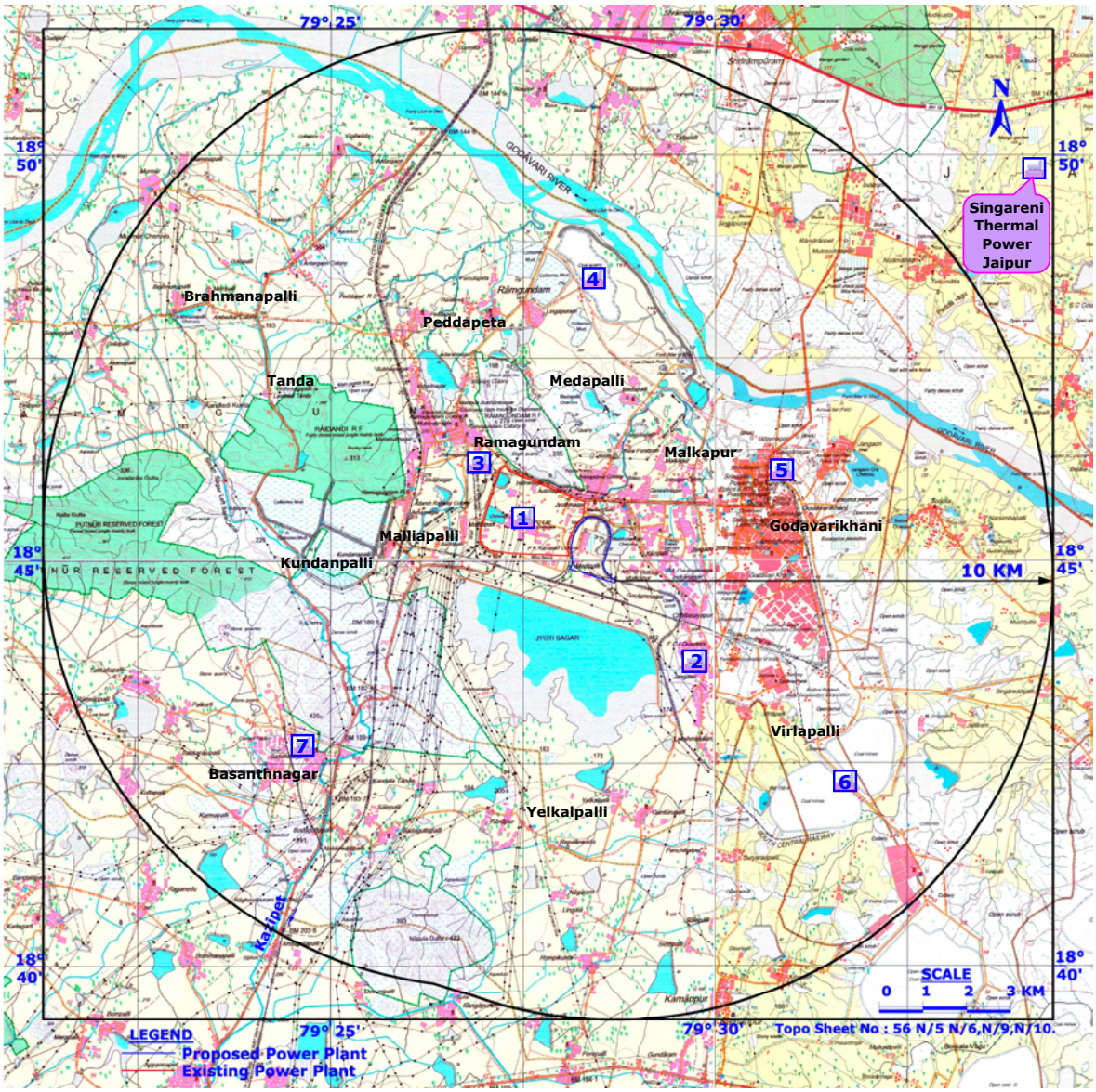
TABLE-5
LIST OF INDUSTRIES IN 10 KM RADIUS

Sr. No	Industry	Type of Industry	Distance (km) /Direction	Status
1	NTPC, Ramagundam	Thermal Power Plant	Adjacent	Operating
2	FCI Ramagundam	Fertilizer	1.7 km, SE	Not working (Under revival)
3	Telangana State Electricity Board (62.5 MW)	Thermal Power Plant	2.1 km, NW	Operating
4	SCCL-OCP-IV	Coal Mine	2.9 km, N	Operating
5	Singareni Power House at Godavarikhani (18 MW)	Thermal Power Plant	3.7 km, ENE	Operating
6	SCCL - OCP	Coal Mine	4.5 km, SE	Operating
7	Kesoram Cements Limited	Cement Plant	7.3 km, SW	Operating

Source: Secondary Data

➢ Modelling Input Details

The inputs considered for cumulative modelling in the study area representing 10 km from the project site is given below in **Table-6**.



1 : NTPC Ramagunadam STPP – Adjucent, West
2 : FCI Ramagundam (Not working) - 1.7 Km, SE
3 : Telangana State Electricity Board - 2.1 Km, NW
4 : SCCL OCP-IV – 2.9 Km, N
5 : 18 MW Singareni Power House at Godavarikhani - 3.7 Km, ENE
6 : Singareni Collieries Company Ltd - 4.5 Km, SE
7 : Kesoram Cements Ltd, Basanth nagar - 7.3 km SW

FIGURE-4
LIST OF INDUSTRIES

TABLE-6(A)
STACK EMISSION DETAILS OF INDUSTRIES CONSIDERED FOR MODELLING (WITHIN 10 KM RADIUS)

	H (m)	D (mm)	V (m/s)	T (^{0}K)	PM (g/s)	SO_2 (g/s)	NOx (g/s)
Kesoram Cements	59	1.8	12	376.0	16.28	0	0
FCI							
Primary Reformer	60	4.75	6.5	383.1	0	0.29	28.8
GT/HRSG	60	3.50	7.9	383.1	0	0.193	18.92
Prilling Tower Vent	100	28	0.85	343.1	20.80	0	0
SCCL Power House (18 MW)							
Stack-1	60	2.2	17	443	96.00	342	202
Stack-2	60	2.2	17	443	83.00	276	179
TS Genco (62.5 MW)	125	6.5	20.0	413	14.15	176	158.7

TABLE-6(B)
NTPC RAMAGUNDAM (3x200 MW)

Stage-I	**1 200 MW**	**2 200 MW**	**3 200 MW**
Height	Combined stack height of 225 m for all 3 flues		
Diameter	Duct size:5.1m x 5.25m		
Flue gas temperature design deg C	140 – 150	140 – 150	140 – 150
Flue gas flow rate, Nm^3/hr/unit design	7.73 Lakh Nm^3/hr	7.73 Lakh Nm^3/hr	7.73 Lakh Nm^3/hr
Sp.Coal consumption, kg/kwh during 2013-14	0.69	0.68	0.68
Sulfur % in coal as fired	0.7	0.7	0.7
Monitored Data	04.02.2015	04.02.2015	04.02.2015
Flue gas temperature deg C (measured value)	155	156	155
NOx (12% CO_2 basis),mg/Nm^3 measured value	442	435	439
SOx measured value mg/Nm^3	1256	1248	1251
Flue gas flow rate Nm^3/hr	925488	914256	919080

TABLE-6(C)
NTPC RAMAGUNDAM (3x500 MW)

Stage-II	**4 500 MW**	**5 500 MW**	**6 500 MW**
Height	225 m	225 m	225 m
Diameter	Duct Size: 5.29 X 6.16 m Shell OD at the exit is 7220 mm		
Flue gas velocity, km/hr	67.75	67.43	61.6
Av. Fg.flow rate, Nm^3/hr/unit	19.9 Lakh Nm^3/hr	19.9 Lakh Nm^3/hr	19.9 Lakh Nm^3/hr
Sp.coal consumption, kg/kwh (0.681 during 2013-14 for station)	0.65	0.62	0.62

Stage-II	**4 500 MW**	**5 500 MW**	**6 500 MW**
Sulfur % in coal as fired	0.7	0.7	0.7
Monitored Data	05.02.2015	05.02.2015	05.02.2015
Flue Gas Temperature deg C (measured value)	164	165	164
NOX (12% CO_2 basis),mg/Nm^3 measured value	489	497	484
SOx measured value mg/Nm^3	1382	1394	1386
Flue gas flow rate Nm^3/hr	3023424	3014856	2549520

TABLE-6(D)
NTPC RAMAGUNDAM (1x500 MW)

Stage-III	**7 500 MW**
Height	275 m
Diameter	Flue ID at 88.5 m is 6.75 Shell Outer dia at the exit: 7610 m
Fg.flow rate, Nm^3/hr/unit design	2188800
Sp.coal consumption, kg/kwh during 2013-14	0.65
Sulfur % in coal as fired	0.7
Monitored data	08.02.2015
Flue gas temperature deg C (measured value)	129
NO_X (12% CO_2 basis),mg/Nm^3 measured value	478
SOx measured value mg/Nm^3	1373
Flue gas flow rate Nm^3/hr	2217600

TABLE-6 (E)
DETAILS OF PROPOSED STACK EMISSIONS (2X800 MW)

Parameters	**Units**	**Details**		
Stack Height	m	275		
No. of Stacks	No.	01 (twin flue)		
Flue Diameter	m	8.15		
Flue gas velocity/ flue	m/sec	22		
Flue Gas Temperature/ flue	K	398		
Volumetric Flow Rate	Nm^3/sec	858.9		
Source of Coal		**SCCL**	**CEA**	**WCL**
Quantity of Coal	MTPA	8.0	7.36	5.68
Sulphur	%	0.5	0.5	0.5
Gross Calorific value	Kcal/kg	3500	3900	4750
Estimated Emission Rates				
Sulphur dioxide	g/s/unit	1402.9	1151.4	900.0
NOx @ 260 g/Gjoule	g/s/unit	534.5	488.8	465.3
Particulate Matter @ 50 mg/Nm^3	g/s/unit	21.4	21.4	21.4

➢ Presentation of Results

In the present case, model simulations have been carried for winter season using the hourly joint frequency data viz. stability, wind speed, mixing height and temperature. For the short-term simulations, the Ground Level Concentrations (GLCs) were estimated around 441 receptors to obtain an optimum description of variations in GLCs over the site within 10 km radius covering 16 directions. The predicted 24 hourly short term concentrations are given in **Table-7**. Isopleths representing are given in **Figure-5** to **Figure-6**.

TABLE-7(A)
CUMULATIVE CONCENTRATIONS
DUE TO THE INDUSTRIES IN STUDY AREA (10 KM RADIUS)

Pollutant	Cumulative Concentration (µg/m^3)		
	SCCL	CEA	WCL
PM_{10}	11.41	11.41	11.41
SO_2	54.47	47.58	41.60
NOx	20.11	18.60	17.35

TABLE-7(B)
RESULTANT CUMULATIVE CONCENTRATIONS WITH WCL COAL
DUE TO THE INDUSTRIES IN STUDY AREA (10 KM RADIUS)

Pollutant	Cumulative Concentration (µg/m^3)		Resultant concentration	NAAQS 2009
	Baseline	WCL		
PM_{10}	68.50	11.41	79.91	100
SO_2	23.50	41.60	65.10	80
NO_x	32.80	17.35	50.15	80

TABLE-7(C)
RESULTANT CUMULATIVE CONCENTRATIONS WITH SCCL COAL
DUE TO THE INDUSTRIES IN STUDY AREA (10 KM RADIUS)

Pollutant	Cumulative Concentration (µg/m^3)		Resultant concentration	NAAQS 2009
	Baseline	SCCL		
PM_{10}	68.50	11.41	79.91	100
SO_2	23.50	54.47	77.97	80
NO_x	32.80	20.11	52.91	80

TABLE-7(C)
RESULTANT CUMULATIVE CONCENTRATIONS - CEA
DUE TO THE INDUSTRIES IN STUDY AREA (10 KM RADIUS)

Pollutant	Cumulative Concentration (µg/m^3)		Resultant concentration	NAAQS 2009
	Baseline	CEA		
PM_{10}	68.50	11.41	79.91	100
SO_2	23.50	47.58	71.08	80
NO_x	32.80	18.60	51.40	80

2.1 Resultant Concentrations after Implementation of the Project

The cumulative concentration due to the various industries in study area is observed to be within the limits considering the worst case scenario that all industries are under operation. All the emissions are covered under baseline concentration and the additional load due to the operation of proposed 2x800 MW will be arrested by mitigation measures. Whereas the emission level contribution to ambient air quality due to the proposed project activities will be within the permissible limits.

2.2 Observations

The modelling simulations have been done considering the worst case scenario that all industries are operating at a time. Mitigation measures are proposed and are under implementation in existing units under operation to control the emissions at source.
Based on air dispersion modelling studies the predicted resultant concentration of PM_{10}, SO_2 and NO_x of the proposed 2 x 800 MW thermal power plant with WCL coal characteristics are complying with NAAQS 2009.

Hence, it can be stated that the ambient air quality in the region with respect to the site specific meteorological conditions taken during the study period indicates that the resultant cumulative concentrations of the air quality will be within the permissible limits.

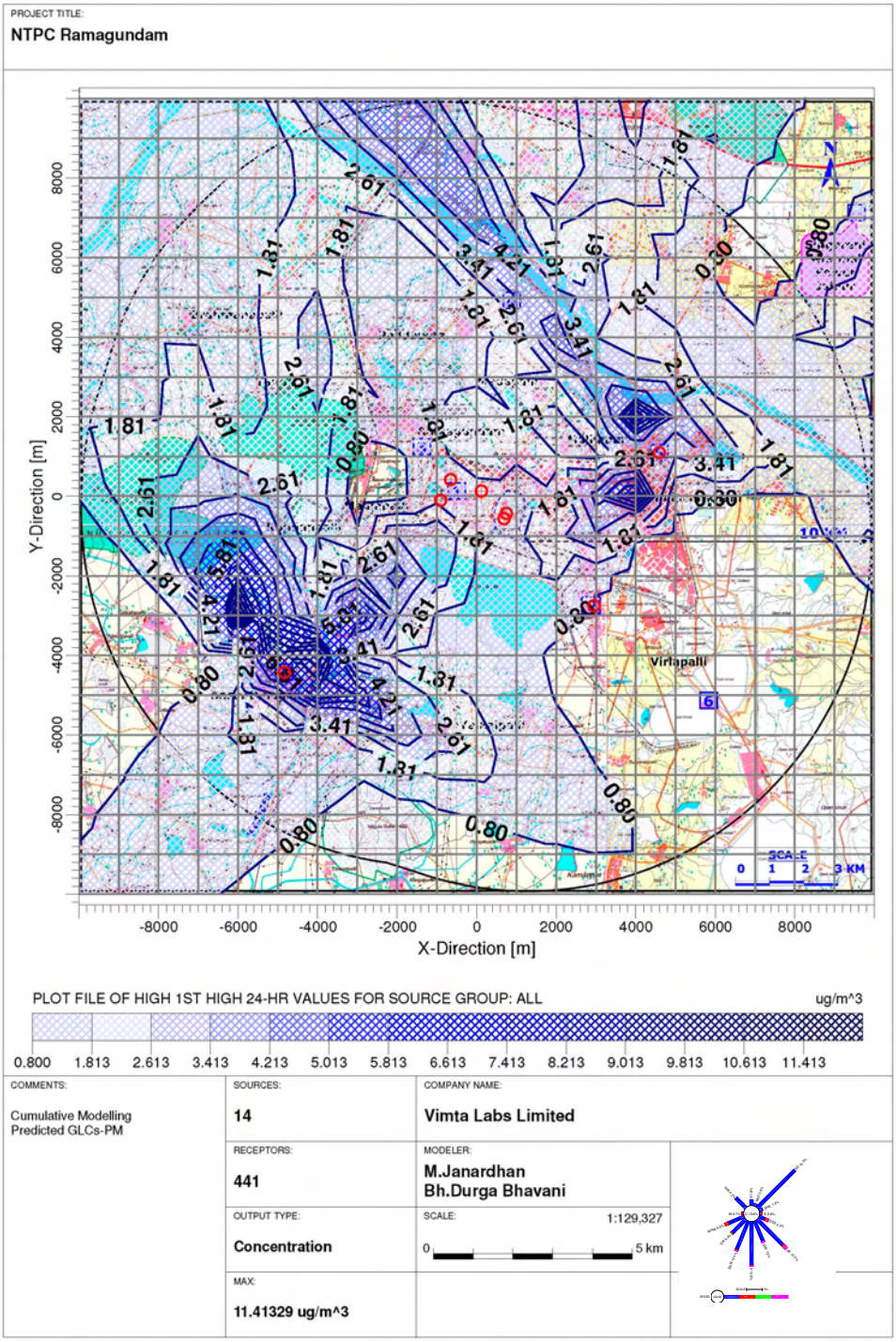


FIGURE-5
PREDICTED CUMULATIVE IMPACT OF PM: WCL

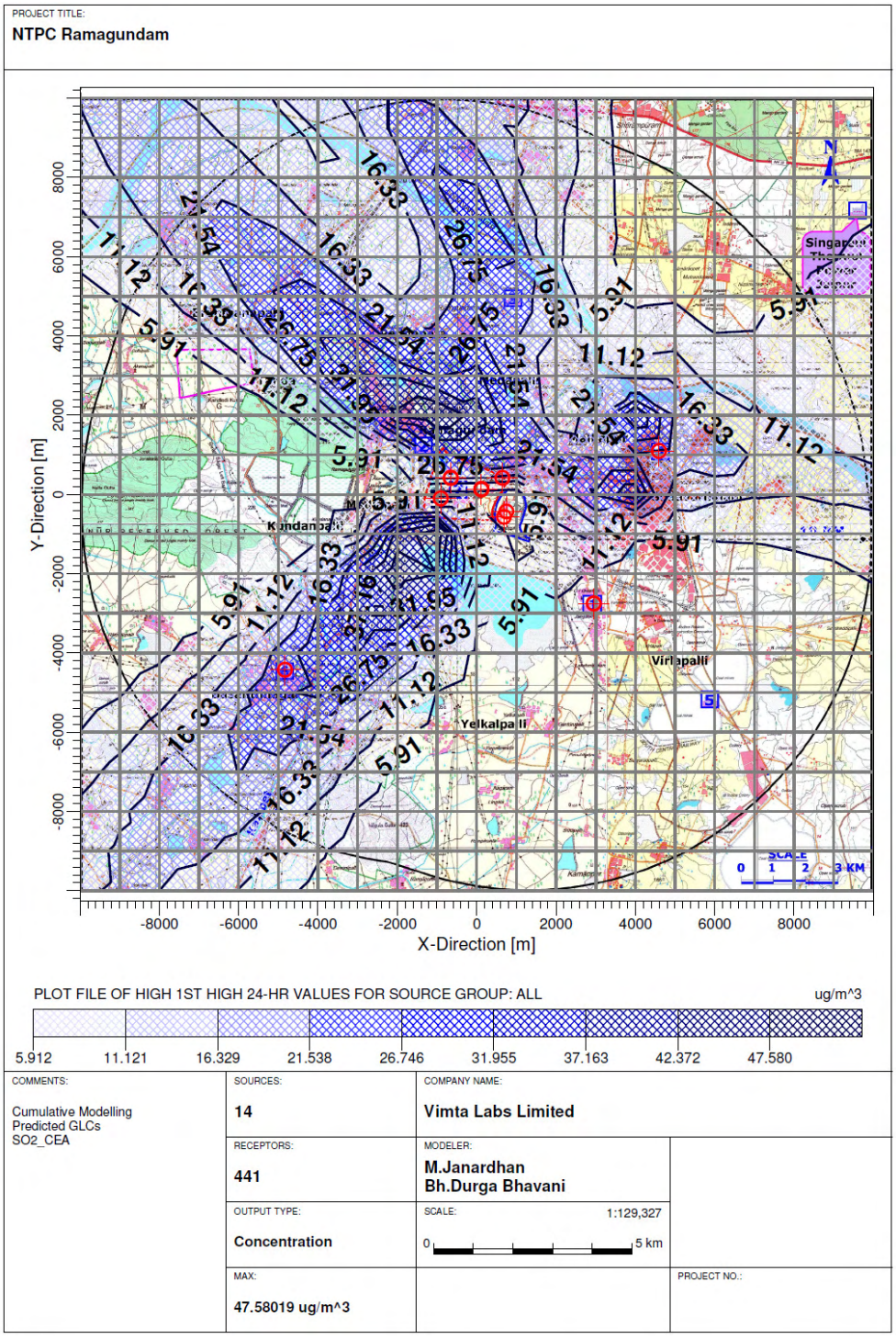


FIGURE-6(A)
PREDICTED CUMULATIVE IMPACT OF SO_2: CEA

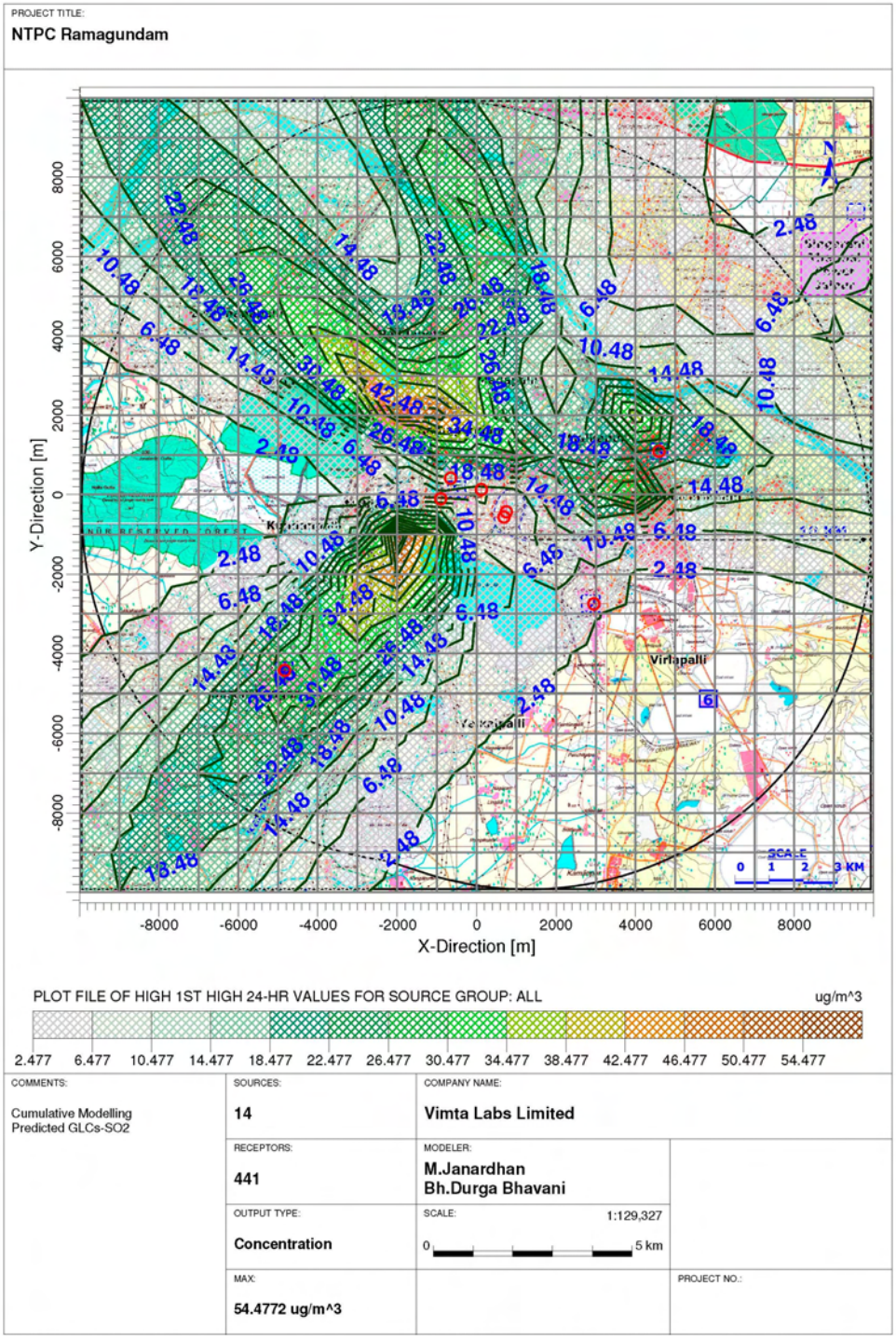


FIGURE-6(B)
PREDICTED CUMULATIVE IMPACT OF SO_2: SCCL

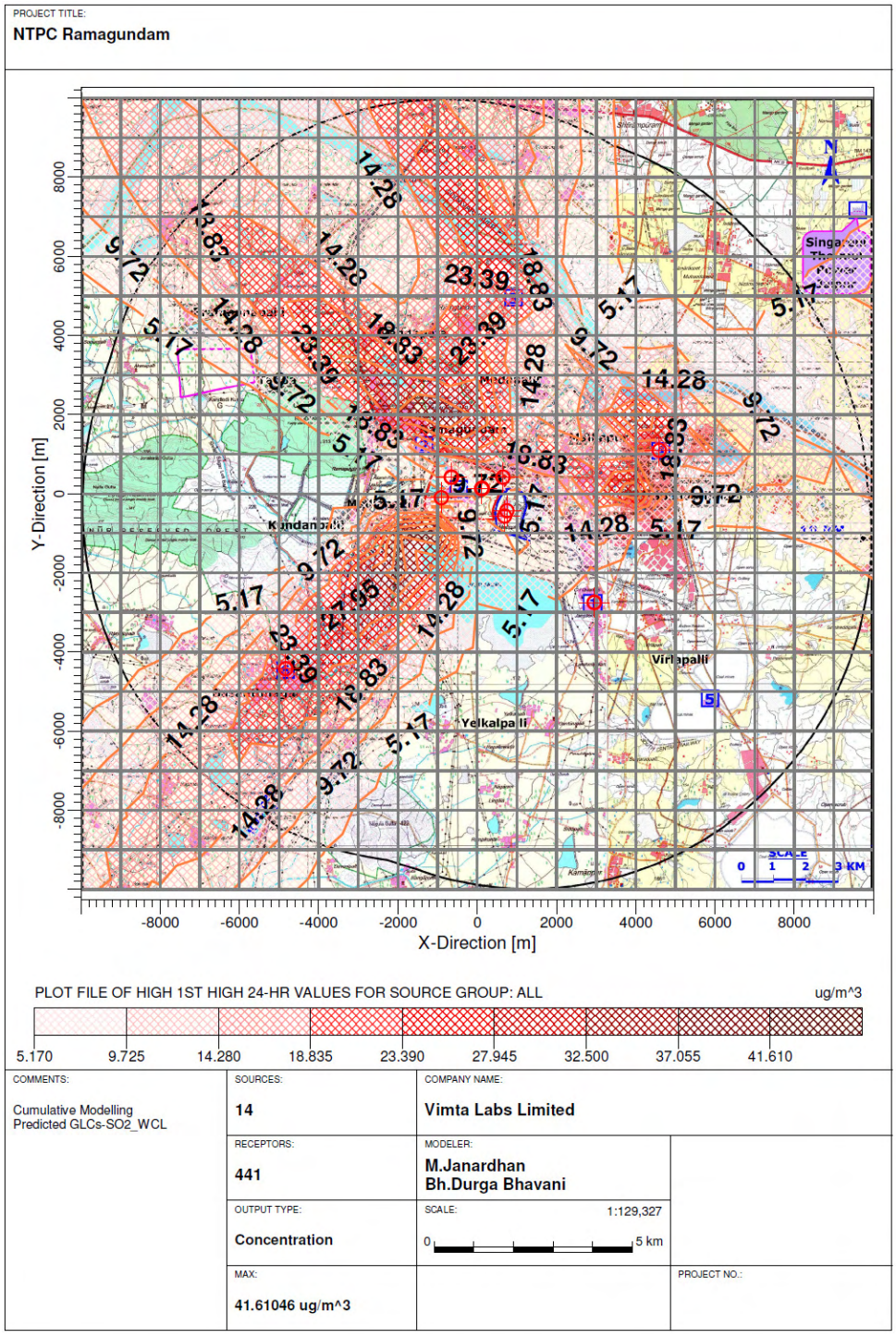


FIGURE-6(C)
PREDICTED CUMULATIVE IMPACT OF SO_2: WCL

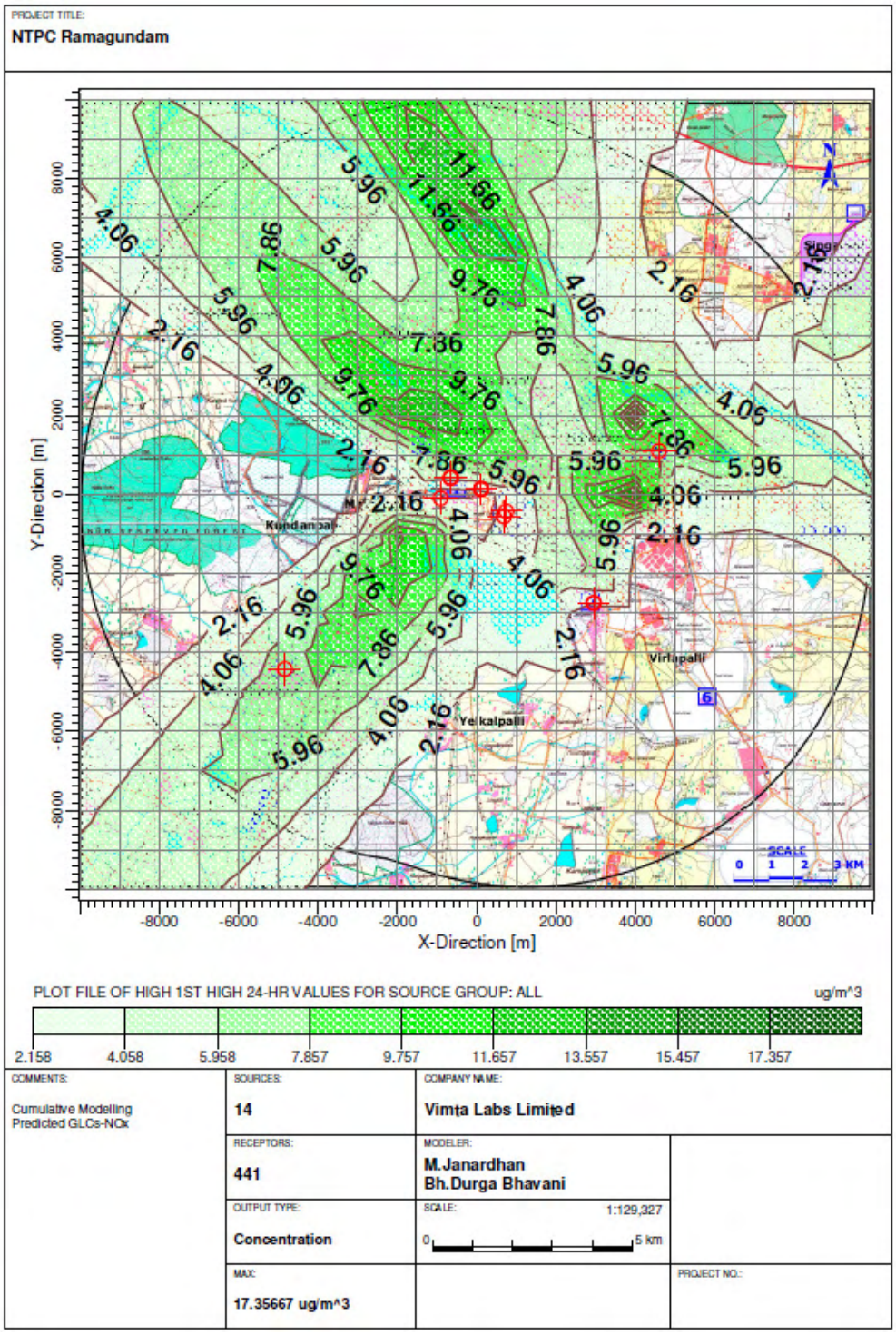


FIGURE-7
PREDICTED CUMULATIVE IMPACT OF NO_X: WCL

COAL INDIA LIMITED
A Maharatna Company : महारत्न कंपनी
Marketing Division विक्रय एवं विपणन विभाग
COAL BHAWAN Ground Floor
Rajarhat, New Town,
Kolkata/कोलकाता 700 156.

Phone: फोन सं 033-2324-6617
Fax: फैक्स सं 033-2324-4229
E-Mail:ई-मेल cilcontract@gmail.com
Website:वेब साइट www.coalindia.in

Ref.No.CIL/S&M/ 47252(New Por)/968 Dated: 06.11.2015

ED (Fin)
STA

To
The General Manager(S&M)
WCL, Nagpur.

Sub: Grant of tapering linkage in respect of Telangana Super Thermal Power Project Phase-I (2X800 MW) of NTPC at Village – Ramagundam, District – Karimnagar, Telangana

Dear Sir,

MOC vide its letter no. 23021/150/2010-CPD dated September 21, 2015 (copy enclosed as Annex-1) forwarded an in-principal approval for grant of Tapering Linkage to Telangana Super Thermal Power Project Phase-I (2X800 MW) of NTPC as an exceptional case. In the said letter, MOC inter-alia addressed the following:

1. NTPC vide its DO letter No.DO Sectt.30(A) dated 10.09.2015 had sought intervention of MOP for the recommendation of Tapering linkage to the said plant. MOP vide OM dated 15.09.2015 and email to MOC dated 16.09.2015 (copy enclosed) recommended the same.

2. M/s. NTPC has been allotted the Mandakini-B Coal mine in the state of Odisha for its 4000 MW Telangana STPP under recent auction procedure.

3. NTPC vide its said DO letter stated that they are in advance stage of bidding process of Phase-I (2X800 MW) of the project. The MoEF clearance for the project is pending due to want of coal data.

4. The matter was examined in the Ministry as a special case. It has been provided in the 12th Schedule of the Andhra Pradesh Reorganization Act, 2014 that new linkage shall be allotted to the successor States as per the New Coal Distribution policy by Government of India. It has further been provided in the 13th Schedule that NTPC shall establish a 4000 MW power facility in the successor States of Telangana after establishing necessary coal linkage.

5. Further, Section 93 of Andhra Pradesh Reorganization Act, 2014 provides that "The Central Government shall take all necessary measures as enumerated in the Thirteenth Schedule for the progress and sustainable development of the successor States within a period of ten years from the appointed day".

In view of the above stated facts and statuary requirement, and considering the recommendation of the MOP, the competent authority at MOC has accorded "in-principal" approval for grant of Tapering Linkage to Telangana Super Thermal Power Project Phase-I (2X800 MW) of NTPC as an exceptional case.

The issue was deliberated in the 321st CIL Board Meeting held on 15th October 2015 and the following decision has been taken (copy enclosed):

- The normative requirement of coal for the said project (2X800 MW) as per MOP norms would be 5.688 MT PA in erstwhile "E" grade (G9 to G11, provisionally) at 90% level as per extant guidelines. However, depending upon the availability of other grades of coal, the normative quantity may be reassessed.

- LOA would be issued for normative quantity which stands tapered to the tune of 75%, 50% and 25% of the LOA quantity for 1st, 2nd and 3rd year respectively from the normative date of production of the allocated coal block. The tapering linkage requested by NTPC for 2019-20 & 2021-22 onwards could be met only in accordance with the extant tapering linkage policy.

- LOA would be issued on cost plus basis from future cost plus projects of WCL.

WCL is requested to take immediate action on the above.

Encl: As above.

Yours faithfully,

General Manager (S&M)

1. Director (Marketing), CIL, Kolkata
2. Director (Operations), NTPC Limited, NTPC Bhawan, SCOPE Complex, New Delhi.
3. CGM/TS to Chairman, CIL, Kolkata.

Copy to Under Secretary to the Govt. of India, Shastri Bhawan, New Delhi for information.

6/11/15.
(DasBarman)

2/2