



रामगुण्डम
RAMAGUNDAM

Ref.No:09/EMG/ /2017/

Date: 30.11.2017

To

THE DIRECTOR

Regional Office (SEZ)

Ministry of Environment Forests & Climate Change

1st and 2nd Floors, Handloom Export Promotional Council

4 Cathedral Garden Road

Nungambakkam, Chennai -560 034

Dear Sir

Sub: Six Monthly Compliance report of EC issued to NTPC Ramagundam-Reg

We are herewith submitting the six monthly compliance reports for Environmental Clearance given to our station pertaining to the period **April 2017 to September 2017**. Also we are submitting the stack data, ambient air quality data and dust concentration data for the period along with report. Also please find enclosed the Soft copy of the report in CD.

Thanking you

Yours faithfully
For NTPC Ltd

(Y.S.GUPTA)

Additional General Manager (EMG)

**STATUS OF IMPLEMENTATION OF CONDITIONS STIPULATED IN ENVIRONMENTAL
CLEARANCE**

NAME OF THE PROJECT: RAMAGUNDAM STPP STAGE-III (1X500MW)

LETTER NO: OMNOJ-1301/20/94-IA-II DATED 25/09/1995.

S. No.	STIPULATIONS	STATUS
1.	All the conditions stipulated by the State Pollution Control Board shall be implemented effectively.	All the conditions stipulated by the State Pollution Control Board are being implemented effectively.
2.	A stack of height not less than 275 meters shall be provided along with stack monitoring devices.	Stack height of 275 meter with stack monitoring facilities have been provided.
3.	The Electrostatic Precipitators having efficiency of not less than 99.8 percent shall be installed.	ESP having more than 99.8% efficiency have been provided.
4.	The particulate emission shall not exceed the prescribed limit of 150 mg/Nm ³ at any time.	Particulate emissions are being maintained within the prescribed limit of 115 mg/Nm ³ by Telangana SPCB.
5.	Space provision shall be made for installation of FGD plant, if felt necessary, at future time.	Adequate Space has been provided in the layout for installation of FGD plant in future.
6.	Regular monitoring of air quality (at least two days a week) in and around the power plant shall be carried out and records maintained. Periodic report (on six monthly basis) on air quality shall be submitted to this Ministry.	Ambient Air Quality monitoring for the station for PM ₁₀ , PM _{2.5} , SO ₂ and NO _x is being carried out twice a week at 3 locations identified with SPCB through MoEF&CC recognized laboratory and record maintained. Other parameters as per NAAQ standards are being monitored and submitted along with this report.
7.	Recycling and reuse of ash pond effluents shall be undertaken to the extent possible. There shall be no direct discharge into the river Godavari.	The station has AWRS along with treatment system and the ash pond water is treated and reused to the maximum extent. The existing AWRS is being augmented with additional pipeline and pumping system (already contract awarded) for complete reuse of ash pond water.
8.	The proposed study on leaching of heavy metals from the ash pond to ground water will be undertaken early and report furnished to this Ministry. Based on the results of the study, corrective measures if any felt necessary shall be implemented.	A geo-hydrological study under the Indo-Dutch collaboration has been completed. The report was submitted to MoEF & CC on 02.06.1977.
9.	NOC from State Pollution Control Board shall be obtained and furnished.	No Objection Certificate (NOC) was obtained and submitted to MoEF&CC on 23.08.1999.

10.	Dust suppression and dust extraction devices shall be installed in the coal handling areas to ensure that the level of dust is well within the prescribed limits.	Dust Suppression and Extraction System in coal handling areas are provided to ensure that the level of dust is well within the prescribed limits.
11.	Closed circuit cooling with induced draft cooling tower shall be provided.	Closed cycle cooling system with induced draft cooling towers has been provided.
12.	The workers in the high noise areas will be provided with ear protection devices.	The workers in the high noise area are provided with appropriate ear protection devices.
13.	A workable plan for ash Utilisation starting with at least 20% in the first year and gradually increasing by 10 during subsequent years so as to achieve 100% Utilisation by the end of the ninth year shall be prepared and submitted to this Ministry within six months.	The stage III has been provided with 100% Dry ash extraction system since the inception stage itself. The dry ash is being issued to manufacturers of cement, RMC and brick/blocks. Balance ash of Stage III is being issued to mine stowing and clay brick manufacturers. Revised Ash Utilization Plan submitted to MoEF&CC on 03.08.2000 and the same is being implemented. In compliance to the latest fly ash notification dated 03.11.2009, revised action plan has also been submitted. In FY 2016-17, the station has achieved ash utilization of 93.16%. For 100% ash utilization, station has created following facilities. • Station has installed Dry Ash Extraction System. Also Rail loading facilities commissioned in unit 4&5 to meet the distance customer's demand. • Pond ash is utilized in Mine stowing purpose, ash dyke raising, clay brick units, etc.
14.	In order to conserve water at thermal power station, efforts should be made to utilize the treated water to the maximum extent possible.	1. The treated DM effluent, Coal settling ponds effluent and plant effluent are reused for ash handling. The cooling tower blow down is reused in dust suppression system and as service water. 2. To conserve precious water a closed circuit cooling water system with induced draft cooling towers has been adopted. For further reducing water consumption, cooling water treatment is being carried out by chemical dosing to operate the cooling water system at increased COC.
15.	Liquid effluents shall be treated to conform to the standards prescribed by State/Central Pollution Control Board.	An integrated Effluent Treatment Plant (ETP) cum Ash Water Recirculation System (AWRS) has been provided at the station. All effluents from plant area are finally treated and effluent conforming to the standards by SPCB/CPCB are discharged from the plant.

16.	Adequate measures for protection against various hazards such as fire, shall be taken to the satisfaction of the respective authorities concerned.	Extensive Fire detection and protection system are provided to the satisfaction of the respective authorities concerned.
17.	Green belt of adequate width shall be developed all around the power plant by selecting suitable species in consultation with the authorities of State Forest Department.	Green belt in and around the plant and township has been developed.
18.	As the liquid effluents are finally being discharged into river Godavari, a study on bio-magnification of heavy metals in the aquatic life may be taken up and the report submitted to this Ministry.	The study was undertaken through M/s. Shriram Institute of Industrial Research, Delhi and the report has been forwarded to MoEF&CC vide letter dated 16.08.2004.
19.	During ash pond reclamation, the selection of species to be planted may be made very carefully taking into consideration the nature of the soil and the total climatic conditions in consultation with the authorities of the State Forest Department.	A pioneering attempt of growing selected species like <i>Casuarinas Equisetifolia</i> , <i>Acacia Auriculiformis</i> , <i>Cassia Siamea</i> , <i>Eucalyptus Globules</i> on the ash directly has already been successfully implemented in the abandoned temporary ash pond of RSTPS (before 1990). In the present ash pond reclamation has not yet started. Shall be complied as and when the ash pond is reclaimed.
20.	Stack data to be furnished within three months.	Data is regularly being furnished through six monthly compliance reports. Continuous emission monitoring system (CEMS) for gaseous emissions also has been installed and being monitored continuously.
21.	Information on change of emission load with ESP field failures may be furnished.	Adequate care has been taken in the ESP design and function to ensure emission within stipulated standards all the times.
22.	Copy of the confirmation regarding coal linkage to be provided.	Coal linkage had been accorded vide letter dated 02.09.1999. A copy of this letter is submitted to MoEF&CC on 03.08.2000.
23.	Only washed coal shall be used for the project. Fuel; analysis of the washed coal so used shall be carried out every month and records maintained. The analysis report shall form part of the six monthly report to be submitted to this Ministry.	Permission has been granted for uses of raw coal vide MoEF&CC letter dated 14.12.1998.
24.	Reduction in fresh water requirement may be examined taking into account the plant as a combined unit by adopting suitable size of the condenser, flow rate and drift.	The closed cooling water system along with dedicated treatment system for CW water enabled the COC increase from 2.0 to 3.5, which has reduced the water requirement. Blow down of CW system is used for equipment cooling and service water purpose before joining plant effluent.

25.	Separate funds should be allocated for implementation of environment protection measures along with item wise breakup. These costs should be included as part of the project cost. The funds earmarked for the environmental protection measures should not be diverted for other purposes and year wise expenditure should be reported to this Ministry.	The funds on environmental protection measures along with item – wise break-up is provided in the project cost. The total funds earmarked for environmental protection has not been diverted for other purposes.
26.	Regional office of this Ministry at Bangalore will monitor the implementation of above conditions.	Noted.
27.	The project authorities shall submit to this Ministry a half yearly report on the implementation of the stipulated conditions and environmental safeguards.	This report for the period of April 2017 to September 2017 report submitted along with soft copy and is being submitted regularly on half-yearly basis.

STATUS OF IMPLEMENTATION OF CONDITIONS STIPULATED IN ENVIRONMENTAL CLEARANCE

**NAME OF THE PROJECT: RAMAGUNDAM STPP STAGE-III (1X500MW)
LETTER NO.J.13011/20/94-I All (T) DT.NOVEMBER 8, 2000**

S. NO.	STIPULATIONS	STATUS AS ON 30.09.2017
1.	All the stipulations made in our environmental clearance letter dated 25 th September, 1995 referred to above should be strictly implemented	Status is enclosed separately.
2.	100% fly ash utilization should be ensured by 9 th year as per the broad utilization Plan submitted along with NTPC's communication no. CC: ESE: 3100:2000: GEN: 4B dated 3 rd August 2000.	The stage III has been provided with 100% Dry ash extraction system since the inception stage itself. The dry ash is being issued to manufacturers of cement, RMC and brick/blocks. Balance ash of Stage III is being issued to mine stowing and clay brick manufacturers. Revised Ash Utilization Plan submitted to MoEF&CC on 03.08.2000 and the same is being implemented. In compliance to latest fly ash notification dated 03.11.2009, revised action plan has also been submitted. In FY 2016-17, the station has achieved ash utilization of 93.16% and during 2017-18. For 100% ash utilization, station has created following facilities. Station has installed Dry Ash Extraction

		System. Rail loading facilities commissioned in unit 4&5 to meet the distance customer's demand. Pond ash is utilized in Mine stowing purpose, ash dyke raising, clay brick units, etc.
3.	The findings of the study on Bio-magnification of heavy metals in the aquatic life due to discharge of liquid effluents into Godavari river should be submitted along with the Management Plan within one year.	The study was undertaken through M/s. Shriram Institute of Industrial Research, Delhi and the report has been forwarded to MoEF&CC vide letter dated 16.08.2004.
4.	A copy of the Geo-hydrological study under Indo-Dutch collaboration should be submitted along with the plans for necessary corrective measures to avoid leaching of heavy metals from ash pond area to ground water.	A Geo-hydrological study under the Indo-Dutch collaboration has been completed. The report was submitted to MoEF on 2 nd June, 1997. (A detailed study to understand Geology of N2 Ash Pond as recommended in the Indo-Dutch Report has been completed.)
5.	Rs.162.38 crores earmarked for environmental measures should not be diverted for any other activity and provision should be made for additional funds, if required.	The earmarked amount of environmental measures was not diverted for any other activity. Any additional funds required for environmental mitigation measures would be met from miscellaneous fund kept in the Operation & Maintenance fund kept for the project.

**TABLE-1: AMBIENT AIR QUALITY MONITORING DATA
FOR APRIL ' 2017 TO SEPTEMBER '2017**

Month/Date	Location	Concentration (µg/m ³)			
		PM-10	PM-2.5	SO2	NO _x
APRIL '2017					
03.04.2017	Balancing Reservoir	59	29	15	14
	Ramagundam Pump House	74	28	17	14
	Guest House	74	29	14	16
04.04.2017	Balancing Reservoir	56	25	14	12
	Ramagundam Pump House	72	26	16	13
	Guest House	68	25	13	15
10.04.2017	Balancing Reservoir	63	22	16	14
	Ramagundam Pump House	69	30	18	15
	Guest House	71	26	16	17
11.04.2017	Balancing Reservoir	61	24	13	11
	Ramagundam Pump House	70	25	15	14
	Guest House	65	23	14	16
17.04.2017	Balancing Reservoir	59	27	14	13
	Ramagundam Pump House	68	23	14	12
	Guest House	59	22	14	15
18.04.2017	Balancing Reservoir	61	22	15	14
	Ramagundam Pump House	72	26	16	14
	Guest House	68	25	15	17
24.04.2017	Balancing Reservoir	63	26	16	13
	Ramagundam Pump House	67	23	15	12
	Guest House	70	26	13	14
25.04.2017	Balancing Reservoir	66	26	14	12
	Ramagundam Pump House	69	22	17	15
	Guest House	59	24	12	15
MAY'17					
02.05.2017	Balancing Reservoir	62	30	16	15
	Ramagundam Pump House	77	27	18	15
	Guest House	77	31	16	18
03.05.2017	Balancing Reservoir	58	26	15	13
	Ramagundam Pump House	75	25	17	14
	Guest House	71	26	15	17
08.05.2017	Balancing Reservoir	66	24	18	16
	Ramagundam Pump House	64	29	19	15
	Guest House	73	27	17	18
09.05.2017	Balancing Reservoir	59	22	14	12
	Ramagundam Pump House	65	24	14	13
	Guest House	62	21	13	15
15.05.2017	Balancing Reservoir	63	29	15	14
	Ramagundam Pump House	71	24	16	14
	Guest House	56	20	13	14
16.05.2017	Balancing Reservoir	59	21	14	12
	Ramagundam Pump House	75	25	17	15
	Guest House	65	23	13	15
22.05.2017	Balancing Reservoir	68	27	17	15
	Ramagundam Pump House	64	24	14	11
	Guest House	73	27	15	16
23.05.2017	Balancing Reservoir	64	25	15	14
	Ramagundam Pump House	61	23	18	16
	Guest House	57	23	13	16
29.05.2017	Balancing Reservoir	60	21	14	12
	Ramagundam Pump House	69	25	17	15
	Guest House	62	22	14	17
30.05.2017	Balancing Reservoir	65	22	16	15
	Ramagundam Pump House	71	24	16	14
	Guest House	60	24	15	18

**TABLE-1: AMBIENT AIR QUALITY MONITORING DATA
FOR APRIL ' 2017 TO SEPTEMBER '2017**

Month/Date	Location	Concentration (µg/m ³)			
		PM-10	PM-2.5	SO2	NO _x
JUNE '2017					
05.06.2017	Balancing Reservoir	67	22	15	12
	Ramagundam Pump House	79	31	19	14
	Guest House	56	28	14	17
06.06.2017	Balancing Reservoir	62	27	13	11
	Ramagundam Pump House	73	26	16	12
	Guest House	68	25	17	19
12.06.2017	Balancing Reservoir	69	21	17	13
	Ramagundam Pump House	68	28	17	13
	Guest House	62	31	12	16
13.06.2017	Balancing Reservoir	72	28	19	15
	Ramagundam Pump House	69	25	15	11
	Guest House	55	24	16	18
19.06.2017	Balancing Reservoir	70	26	16	13
	Ramagundam Pump House	72	30	17	16
	Guest House	60	21	11	16
20.06.2017	Balancing Reservoir	59	24	17	16
	Ramagundam Pump House	60	27	15	12
	Guest House	52	20	7	14
26.06.2017	Balancing Reservoir	55	21	16	11
	Ramagundam Pump House	62	23	18	15
	Guest House	50	19	9	15
27.06.2017	Balancing Reservoir	69	24	13	10
	Ramagundam Pump House	68	25	19	17
	Guest House	54	22	12	17
JULY'2017					
03.07.2017	Balancing Reservoir	71	25	17	14
	Ramagundam Pump House	75	30	17	12
	Guest House	55	23	13	16
04.07.2017	Balancing Reservoir	66	23	14	16
	Ramagundam Pump House	71	27	14	10
	Guest House	66	27	15	18
10.07.2017	Balancing Reservoir	68	24	13	17
	Ramagundam Pump House	66	25	12	10
	Guest House	60	29	13	17
11.07.2017	Balancing Reservoir	74	30	18	14
	Ramagundam Pump House	62	21	10	8
	Guest House	69	31	17	19
17.07.2017	Balancing Reservoir	67	28	15	11
	Ramagundam Pump House	74	29	15	13
	Guest House	62	22	14	17
18.07.2017	Balancing Reservoir	62	22	14	10
	Ramagundam Pump House	69	24	18	14
	Guest House	55	19	9	12
24.07.2017	Balancing Reservoir	59	20	17	13
	Ramagundam Pump House	70	26	15	13
	Guest House	61	21	11	14
25.07.2017	Balancing Reservoir	75	26	19	15
	Ramagundam Pump House	65	21	14	16
	Guest House	57	23	15	18

**TABLE-1: AMBIENT AIR QUALITY MONITORING DATA
FOR APRIL ' 2017 TO SEPTEMBER '2017**

Month/Date	Location	Concentration (µg/m ³)			
		PM-10	PM-2.5	SO2	NO _x
AUGUST'2017					
01.08.2017	Balancing Reservoir	65	24	14	12
	Ramagundam Pump House	72	28	15	11
	Guest House	52	21	12	14
02.08.2017	Balancing Reservoir	70	28	16	14
	Ramagundam Pump House	69	25	13	10
	Guest House	58	23	14	16
07.08.2017	Balancing Reservoir	62	22	15	12
	Ramagundam Pump House	75	24	15	13
	Guest House	60	25	15	18
08.08.2017	Balancing Reservoir	78	32	17	13
	Ramagundam Pump House	69	22	13	10
	Guest House	63	30	13	15
14.08.2017	Balancing Reservoir	65	27	13	11
	Ramagundam Pump House	70	24	17	14
	Guest House	59	24	16	19
15.08.2017	Balancing Reservoir	71	23	15	13
	Ramagundam Pump House	67	26	16	12
	Guest House	57	21	10	14
21.08.2017	Balancing Reservoir	66	20	12	10
	Ramagundam Pump House	73	27	18	14
	Guest House	64	23	13	17
22.08.2017	Balancing Reservoir	73	27	18	15
	Ramagundam Pump House	69	23	17	12
	Guest House	59	24	11	14
28.08.2017	Balancing Reservoir	71	22	16	14
	Ramagundam Pump House	71	24	16	13
	Guest House	62	22	14	17
29.08.2017	Balancing Reservoir	69	26	14	12
	Ramagundam Pump House	68	22	14	11
	Guest House	65	26	13	15
SEPTEMBER'2017					
04.09.2017	Balancing Reservoir	63	22	13	14
	Ramagundam Pump House	69	27	14	12
	Guest House	57	24	13	15
05.09.2017	Balancing Reservoir	72	30	15	13
	Ramagundam Pump House	71	23	12	11
	Guest House	55	20	15	17
11.09.2017	Balancing Reservoir	65	24	16	14
	Ramagundam Pump House	72	21	16	14
	Guest House	58	22	14	16
12.09.2017	Balancing Reservoir	76	31	18	15
	Ramagundam Pump House	68	20	14	12
	Guest House	60	28	15	18
18.09.2017	Balancing Reservoir	69	30	14	12
	Ramagundam Pump House	73	22	16	13
	Guest House	62	26	14	15
19.09.2017	Balancing Reservoir	73	25	17	14
	Ramagundam Pump House	69	24	15	11
	Guest House	56	23	12	13
25.09.2017	Balancing Reservoir	68	23	13	11
	Ramagundam Pump House	70	29	17	15
	Guest House	61	21	14	16
26.09.2017	Balancing Reservoir	70	26	17	14
	Ramagundam Pump House	71	25	16	13
	Guest House	63	25	11	14

OTHER PARAMETERS AS PER NAAQ STANDARDS								
Month/Locations	O3	Pb	CO	NH3	AS	Ni	C6H6	B(a)P
	(µg/m3)	(µg/m3)	(mg/m3)	(µg/m3)	(ng/m3)	(ng/m3)	(µg/m3)	(ng/m3)
Apr-17								
Balancing Reservoir	13.8	<0.01	0.487	<20	<1	<1	<0.01	<0.01
Ramagundam Pump House	12.7	<0.01	0.405	<20	<1	<1	<0.01	<0.01
Guest House	10.2	<0.01	0.346	<20	<1	<1	<0.01	<0.01
May-17								
Balancing Reservoir	14.2	<0.01	0.494	<20	<1	<1	<0.01	<0.01
Ramagundam Pump House	13.2	<0.01	0.419	<20	<1	<1	<0.01	<0.01
Guest House	10.8	<0.01	0.359	<20	<1	<1	<0.01	<0.01
Jun-17								
Balancing Reservoir	13.7	<0.01	0.44	<20	<1	<1	<0.01	<0.01
Ramagundam Pump House	12.6	<0.01	0.39	<20	<1	<1	<0.01	<0.01
Guest House	11.2	<0.01	0.31	<20	<1	<1	<0.01	<0.01
Jul-17								
Balancing Reservoir	13.2	<0.01	0.48	<20	<1	<1	<0.01	<0.01
Ramagundam Pump House	14.7	<0.01	0.37	<20	<1	<1	<0.01	<0.01
Guest House	11.9	<0.01	0.35	<20	<1	<1	<0.01	<0.01
Aug-17								
Balancing Reservoir	12.8	<0.01	0.45	<20	<1	<1	<0.01	<0.01
Ramagundam Pump House	13.8	<0.01	0.3	<20	<1	<1	<0.01	<0.01
Guest House	12.8	<0.01	0.38	<20	<1	<1	<0.01	<0.01
Sep-17								
Balancing Reservoir	10.7	<0.01	0.40	<20	<1	<1	<0.01	<0.01
Ramagundam Pump House	11.9	<0.001	0.35	<20	<1	<1	<0.01	<0.01
Guest House	13.1	<0.01	0.32	<20	<1	<1	<0.01	<0.01

TABLE-2 : STACK MONITORING DATA FOR APRIL 2017 TO SEPTEMBER 2017

TABLE-2 : STACK MONITORING DATA FOR APRIL 2017 TO SEPTEMBER 2017							
Month/ Date	SPM (mg/Nm ³)						
	Unit -1	Unit -2	Unit -3	Unit -4	Unit -5	Unit -6	Unit -7
APRIL' 17							
27.04.2017	85	89	unit under Shut down				
28.04.2017				81	86	94	75
MAY'17							
18.05.2017			unit under Shut down		89	90	78
19.05.2017	81	86		79			
JUNE'17							
29.06.2017	84	unit under Shut down	89	80			
30.06.2017					86	92	75
JULY'17							
21.07.2017			Shut down		82	90	72
22.07.2017	80	85		79			
AUGUST'17							
17.08.2017	78	72	75				
18.08.2017				86	89	92	62
SEPTEMBER'17							
14.09.2017	73	68	70	83			
15.09.2017					85	90	59

TABLE-3 : DUST MONITORING (PM-10) DATA FOR APRIL 2017 TO SEPTEMBER 2017

DATE	LOCATION	Dust Concentration (PM 10) in $\mu\text{g}/\text{m}^3$
APRIL'2017		
06.04.2017	ESP Stage - II Area	89
07.04.2017	DAETP Stage -II Area	92
11.04.2017	BURNER FLOOR Stage - I	90
12.04.2017	BRICK PLANT	75
13.04.2017	ASH POND AREA	73
14.04.2017	MILL AREA STAGE - I	95
MAY'2017		
04.05.2017	ESP Stage - I Area	93
05.05.2017	DAETP Stage -I Area	88
08.05.2017	BURNER FLOOR Stage - I	92
09.05.2017	BRICK PLANT	68
10.05.2017	ASH POND AREA	75
11.05.2017	MILL AREA STAGE -II	94
JUNE'2017		
05.06.2017	ESP Stage - II Area	84
06.06.2017	DAETP Stage -I Area	90
08.06.2017	BURNER FLOOR Stage - II	88
09.06.2017	BRICK PLANT	72
14.06.2017	ASH POND AREA	77
15.06.2017	MILL AREA STAGE - I	93
JULY'2017		
04.07.2017	ESP Stage - I Area	92
06.07.2017	DAETP Stage -I Area	86
07.07.2017	BURNER FLOOR Stage - I	90
10.07.2017	BRICK PLANT	66
13.07.2017	ASH POND AREA	76
20.07.2017	MILL AREA STAGE - II	95
AUGUST'2017		
03.08.2017	ESP Stage - I Area	94
04.08.2017	DAETP Stage -I Area	88
09.08.2017	BURNER FLOOR Stage - I	95
10.08.2017	BRICK PLANT	72
17.08.2017	ASH POND AREA	79
18.08.2017	MILL AREA STAGE - I	92
SEPTEMBER '2017		
05.09.2017	ESP Stage - I Area	95
07.09.2017	DAETP Stage -I Area	88
08.09.2017	BURNER FLOOR Stage - I	92
13.09.2017	BRICK PLANT	70
14.09.2017	ASH POND AREA	78
15.09.2017	MILL AREA STAGE - I	94