

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

MONITORING REPORT

PART I

F. No. EP/12.1/519/Karnataka

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| 1 | Name of the projects | 1x500 MW Bellary Thermal Power Stations Stage-I & II at Kuduthini, District Bellary, Karnataka by M/s. Karnataka Power Corporation Ltd. |
| 2 | Clearance letter No.& date | J-13011/17/1999-IA. II (T) dt. 9.8.2000
J-13011/28/2007-IA. II (T) dt. 18.10.2007 |
| 3 | Location: District & State / UT | Kuduthini, Bellary, Karnataka. |
| 4 | Address for correspondence: | Mr. B. T. Anjaneya Naik, Executive Engineer (Mech)-6
K.P.C. Ltd, Bellary Thermal Power Station,
Kudathini-583152 Bellary dt. Karnataka
Contact No: 09448290770 |
| 5 | Date of site visit for this report | 7 th December 2012 |
| 6 | Date of previous visit(s) if any | 22-09-2010 |
| 7 | Brief on the project along with the present status: | Site visit to Bellary Thermal Power Station was made along with Mr H.B. Kulkarni AEE (Electrical) of the plant. |

Karnataka Power Corporation Limited (KPCL) has established Coal Based Thermal Power Plant at Bellary Thermal Power Station near Kudatini Village, Bellary District of Karnataka. Presently two units of 500 MW capacities are commissioned and for the expansion of their Unit-3 (700MW) the construction works are in progress. The KPCL has obtained the following three environmental clearances from the Ministry:

- (1) For Unit-1 vide reference No J.13011/17/99-IA.II (T) dt.9.8.2000. This unit was commissioned during December 2008 potential of generating 3500 MU / annum @ 80PLF. During the visit only this Unit 1 was in operation
- (2) For Unit-2 vide reference No J-13011/28/2007-IA. II (T) dt. 18.10.2007. This unit was commissioned January 2012 & is having the potential of generating 3500 MU / annum @ 80PLF. During the visit the Unit 2 was under shut down due to some repair in the system.
- (3) For Unit-3 vide reference No J-13012/29/2008-IA. II (T) dt.18.05.2010 for the establishment of 700MW TPS and the construction works are under progress expected to be completed in 2014 and having the potential of generating 4900 MU / annum @ 80PLF. Construction works contract is awarded to M/s. BHEL on EPC contract concept. BHEL has taken up construction works presently; Grading works, TG & ESP foundation works are completed, TG & Boiler Column erection works are taken up, WT, CHP civil works are under progress, Chimney and Cooling tower civil works are under progress and Electro/Mechanical machineries/materials received at site.

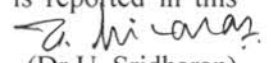
Karnataka State Pollution Control Board has concurred Consent for operation for Unit 1 & 2 vide CFO order No. KSPCB / 071/ HPI/ 2012-13/548 dtd.04.08.2012. For Unit -3 KSPCB concurred Consent for establishment vide their consent order No KSPCB /HPI /061 /BTPS-KPC /2011-12/997dtd.12.03.2012.

The Units are based on technology which would consist of boilers, turbo-generators with accessories, transformer and other complementary parts. The heat released by the burning coal is absorbed by the de-mineralized boiler feed water passing through the boiler wall tubing to produce high-pressure steam. The steam would then be discharged onto the turbine blades, which would make the turbine to rotate. The generators coupled to the turbines would also rotate and produce electricity. The electricity would pass to the transformer, which would increase the voltage to the desired level of the transmission grid system.

It was informed that they have an in-house environmental laboratory for the routine monitoring of air, water, noise, and soil quality. The monitoring of the environmental quality parameters is entrusted to a private agency. M/s. Sneha Test House Bangalore (empanelled laboratory of KSPCB) which is monitoring the environment related issues such as Micro Meteorology; Ambient Air Quality; Fugitive Emissions; Stack Emission; Ambient Noise Level; Water Quality and Trade Effluents Quality. Further, it was informed that automatic on line stack and ambient air quality monitoring system comprising of fixed and mobile laboratories/calibration system, data acquisition central management and processing software instruments have been procured and erection works are under progress. Monthly environment quality monitoring reports are being submitted to KSCPb and six monthly to MoEF and other statutory authorities. They have dedicated a fire station equipped with two fire engines & fire / safety crew established in their plant. They have also developed afforestation in an area of 250 ha inside the BTPS. However, necessary green belt of 500 m width is all around the plant is yet to be provided. It was informed that they have necessary fund allocation for environmental safeguards and KPCL has earmarked an amount of Rs. 275 Crores for the Environmental Protection and Corporate Social cost for the proposed expansion unit-3.

Their Unit 3 is in the initial stages of construction; several timebound actions as mentioned in the environmental clearance are yet to be complied. Like (1) Base line health data within study area shall be collected and prepared within three months. (2) Impact on agricultural crops (as applicable) due to operation of the power plant shall be studied from an institute of repute within six months. (3) Details on the action taken on the Rainwater harvesting within a period of three months. (4) Copy of these measures with full details to check/minimize spontaneous fires in coal yard with location plant layout shall be submitted. (5) Fund allocation and status of expenditure for environmental safeguards.

The project authorities have informed that they have an environment cell consisting of personnel from various divisions. However, they do not have an officer exclusively earmarked for environmental issues and it appears that the other senior officers were also not giving much importance for environmental issues of the project. No periodical reviews for environmental issues are taking place to improve the system. Even though, infrastructure & funds to comply with the conditions of the environmental clearance are in place, all the activities are taking place in a piece meal basis only without much co-ordination with the unit head or the head of environmental division. The compliance status needs improvement. During the visit the environmental safeguards are reviewed for all the three clearances. The construction of their Unit 3 has just initiated. Their Unit 1 & 2 are commissioned. Conditions for the Unit I and II are more or less the same and thus the point wise compliance status for the environmental clearance issued in 2007 is reported in this report.


(Dr U. Sridharan)
Scientist "SF"

PART-II

Status of compliance to the Environmental clearance issued for the Bellary Thermal Power Station Unit-2 of 500 MW Power Generating Capacity issued vide Ref: No. J-13011/28/2007-1A-II (T) DATED 18.10.2007

Compliance status in brief:

Sl. No	Conditions	COMPLIANCE
1	No additional land shall be acquired for the project.	Complied
2	Coal of ash not exceeding 34% & Sulphur not exceeding 0.4% be used	Being complied
3	Single stack of 275 m height with continuous online monitoring system.	Complied
4	ESP shall be provided to control the gaseous emissions	Complied
5	Space provision for installation of FGD, if required at a later stage.	Complied
6	Dust extraction and dust suppression system and water sprinklers	Agreed to comply
7	The water requirement be optimized & shall not exceed 1,638 m ³ /hr	Complied
8	Closed cycle cooling system. CoC of at least 4 shall be adopted.	Complied
9	There shall be zero discharge outside the plant boundary	Agreed to comply
10	Fly ash shall be utilized as per its notification	Not Complied
11	Regular monitoring of ground water quality including heavy metals.	Being Complied
12	Noise levels shall be limited to 75 dBA	Being Complied
13	Greenbelt development including 204 ha of area already afforested.	Being Complied
14	Off site conservation of Bear shall be undertaken	Agreed to comply
15	As part of CSR training to the local people	Being Complied
16	Regular monitoring of the air quality shall be carried out in and around.	Being Complied
17	Paper advertisement in two local newspapers	Complied
18	A separate environment monitoring cell with man power	Cell exists
19	Submission of six monthly compliance reports to RO.	Agreed to comply
20	Regional office of the ministry will monitor the implementation	Agreed to comply
21	Separate fund allocation for environmental management	Agreed to comply

PART – III

- i) No additional land shall be acquired for the project or any utilities/facilities relating to the project.**

The Unit-1 & 2 are established within their area already acquitted and specified in the CFE application and presently land 741 hectares utilized for Units 1&2 including ash disposal area and raw water storage requirements.

- 2 Coal with ash content not exceeding 34% and sulphur content not exceeding 0.4% shall be used.**

It was informed that as per the fuel supply agreement washed coal with ash content not exceeding 34% and sulphur content not exceeding 0.4% is being received and used.

- iii) A single stack of 275 m height with exit velocity of not less than 25 m/s shall be provided with continuous online monitoring system.**

Stacks of 275 m height with exit velocity of not less than 25 m/s has been constructed and commissioned with continuous online monitoring.

- iv) **High efficiency Electrostatic Precipitator (ESPs) shall be installed so as to ensure that particulate emissions do not exceed 100 mg/Nm³.**

High efficiency Electrostatic Precipitator (ESPs) having efficiency of 99.8% has been installed so as to ensure that particulate emissions do not exceed 100 mg/Nm³.

- v) **Space provision shall be made for installation of FGD of requisite efficiency of removal of SO₂, if required at a later stage.**

Space of about 1 ha has been left near Chimney for installation of the flue gas de-sulfurisation unit to facilitate installation of the same, if the need arises in future.

- vi) **Dust extraction and dust suppression system and water sprinklers shall be provided for controlling fugitive dust during transportation, in coal storage and handling area, transfer points and in other vulnerable areas of the plant.**

It was informed that they have necessary dust suppression and/or extraction system to control emission of fugitive dust from coal handling plant. However, during the visit it was observed that dry ash is dumped in the ash pond haphazardly, the entire area was dusty.

- vii) **The water requirement shall be optimized and in any case shall not exceed 1,638 m³/hr.**

The project authorities informed that the drawl of raw water are being governed and limited to within 1,500 m³/hr including the ash water recirculation.

- viii) **Closed cycle cooling system with cooling towers shall be provided. CoC of at least 4 shall be adopted.**

It was informed that Natural draught cooling tower (NDCT) has been commissioned and CoC of 3.5 to 4 are being maintained.

- ix) **There shall be zero discharge outside the plant boundary. The treated effluents conforming to the prescribed standards shall be re-circulated and reused within the plant boundary.**

It was informed that system such as CMB, ETP & ash water clarifier systems are commissioned to re-treat and reuse of trade effluent and to achieve zero discharge concept.

- x) **100% fly ash shall be collected in dry form and its full utilization shall be achieved within 9 years in accordance with the notification on fly ash utilization SO 763 (E) dated 15th September, 1999 and the amendments made therein from time to time. The bottom ash shall be disposed in the form of high concentration slurry in the ash pond which shall be lined with any suitable lining.**

It was observed that the ash is transported in open trucks to the ash pond and is dumped everywhere near the ash pond. It was informed that the bottom ash slurry will be pumped from the ash slurry sump to the ash pond and contract is awarded to M/s. L&T for lifting of fly ash

generated in Unit-2 for manufacture of cement and fly ash generated in Unit-2 the presently achieved 73% lifting. However, the project authorities need to improve their fly ash collection management and disposal system.

- xi) Regular monitoring of ground water quality including heavy metals shall be undertaken in and around the project area to ascertain the change, if any, in the water quality due to leaching.**

Regular monitoring works are entrusted to an approved private agency and they are monitoring the ground water quality including heavy metals are being undertaken in and around the project area. Monthly monitoring reports are being submitted to KSPCB.

- xii) Noise levels shall be limited to 75 dBA. For people working in the high noise area, protective devices such as earplugs etc, shall be provided.**

Adequate acoustic encloses have been provided for the generator, compressors, turbine and other sound emitting machineries. Regular noise levels are monitored and it is ascertained the noise levels within 75 dBA. Also, it was told that the working personnel are provided with appropriate protective equipment during operational phase.

- xiii) An area of 250 ha shall be covered under afforestation / greenbelt which would include the 204 ha of area already afforested. In the remaining areas to be covered under greenbelt, only native species shall be planted. Additionally, the 112 ha of reported unusable area shall also be covered under plantation.**

It was informed that they have developed plantation in 204 hectares, they have plans to develop further afforestation works around coal handling plants, ash disposal area and along road side and pathways. Necessary green belt with suitable native species of plants is yet to be developed.

- xiv) Off site conservation of Bear shall be undertaken.**

The Principal Chief Conservator of Forests (Wild Life), Government of Karnataka, Bangalore vide letter No. D/WL/CR-16/2007-08/ Dt. 27.08.2007 has concurred NOC for establishment of BTPS expansion units and the Bear sanctuary situated beyond 10Kms range from BTPS site.

- xv) As part of corporate social responsibility, besides providing employment opportunity to the local people in the power plant, arrangement shall also be made for imparting apprentice training to the local people so as to generate employment opportunity for them in their own units.**

It was informed that apprentice training facilities have been extended to local people and Government ITI college students.

- xvi) Regular monitoring of the air quality shall be carried out in and around the power plant and records shall be maintained. The location of the monitoring stations and frequency of monitoring shall be finalized in consultation with SPCB. Six monthly reports shall be submitted to this Ministry and its regional office at Bangalore.**

Regular environmental quality monitoring works are entrusted to M/s. SNEHA test House, Bangalore a private approved empanelled laboratories and monitoring are being carried out regularly as per the stipulations of MoEF / KSPCB for the parameters of Air, Water and Noise and

periodically reports are being submitted to statutory authorities. Additionally on line parameter analysis instruments are being commissioned.

- xvii) The project proponent should advertise in at least two local newspapers widely circulated in the region around the project.**

The information regarding the environmental clearance to BTPS Unit-2 has been notified in two local news papers, one of which is in local language (Kannada). Copies of the same have been sent to MoEF, New Delhi.

- xviii) A separate environment monitoring cell with suitable qualified staff should be set up for implementation of the stipulated environmental safeguards.**

An environment cell consisting of officers from various divisions exists on paper in this plant, however, during the visit it was observed that the officials including the head of the plant are not giving much importance to the Environmental issues at site. The house keeping was poor and dust levels are more in all the areas. Streamlining of the environment cell and making it functional is very much needed in this plant.

- xix) Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards should be submitted to this ministry, its regional office, CPCB and SPCB.**

Half yearly environmental quality monitoring reports are submitted by their consultants are sent to the Ministry regularly however, periodically 6 months point wise compliances were not submitted and is also not uploaded in their website.

- xx) A complete set of documents including EIA/EMP and the additional information should be forwarded to the regional office for their use during monitoring.**

A complete set of documents have already been submitted by the project authorities to MoEF regional office vide their letter No CE (EI&TA)/ENV/BTPS-UNIT-2/147, dated 18.05.2007.

- xxi) Separate funds should be allocated for implementation of environmental protection measures along with item wise break up.**

It was informed that separate funds have been earmarked for implementation of environmental protection measures. However year wise expenditure are not reported to the ministry.



(Dr U. Sridharan)
Scientist "SF"

F. No. EP/12.1/519/Karnataka
Government of India
Ministry of Environment and Forests
Regional Office (South Zone)

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26th December 2012

To

Executive Director, K.P.C. Ltd,
Bellary Thermal Power Station,
Kuditini village,
Bellary -583 113. Karnataka

Subject: Observations after the monitoring visit to Bellary Thermal Power Projects in
Kuditini village of Bellary Dist. of Karnataka Power Corporation Ltd –reg.

Sir/ Madam,

Monitoring visit by this office to the Bellary Thermal Power Station of the Karnataka Power Corporation Limited was made on the 7th December 2012. The undersigned is directed to communicate the following for the improvement in the compliance status of the environmental clearance conditions.

During the visit it was informed that an environment cell exists in BTPS consisting of personnel from various divisions, however, it was observed that no officer is exclusively earmarked for environmental issues and it appears that the senior officers are not giving much importance for environmental issues of the project. Streamlining of the environment cell and making it functional is very much needed in this plant by appointing a senior officer exclusively for environmental safeguards. At present no periodical reviews are taking place to improve the system under the chairmanship of the unit head on the conditions and compliances of the KSPCB Consents and the Ministry's Clearances. It appears that for this plant, the Environmental Management Plans are made only for statutory requirements and not for implementing. Even though, necessary infrastructure & funds to comply with the conditions of the environmental clearance are in place, now all the activities are taking place in a piece meal basis only without much coordination with the unit head or the head of environmental division.

House keeping is very poor and dust levels are more in all the areas.

Fly ash is poorly managed. The dry ash is dumped every where in the ash pond haphazardly, the entire area was fully dusty.

Even though some greenery is developed; necessary "green belt" with suitable native species of plants is yet to be developed.

Environmental quality analysis reports on different parameters provided by the consultants are being submitted periodically to the regional office, however the data collected needs to be reviewed in the environment cell and included in the detailed six monthly point-wise compliance reports on the environmental clearance conditions, which are not being submitted now. The six monthly compliance status reports are not being uploaded in the Company's website. Details on the compliance status of the KSPCB Consent conditions and breakup on the funds earmarked and spent for environment are not provided.

The Unit 3 is in the initial stages of construction; several time-bound actions as mentioned in the environmental clearance are yet to be complied with. Like (1) Base line health data within study area shall be collected and prepared within three months. (2) Impact on agricultural crops (as applicable) due to operation of the power plant shall be studied from an institute of repute within six months. (3) Details on the action taken on the Rainwater harvesting within a period of three months. (4) Copy of these measures with full details to check/minimize spontaneous fires in coal yard with location plant layout shall be submitted. (5) Fund allocation and status of expenditure for environmental safeguards.

You are requested to take corrective steps to improve the system and send action taken report within a month to this office.

Yours faithfully,



(Dr. U. Sridharan)
Scientist "F"

Copy for kind information to the Managing Director, Karnataka Power Corporation Ltd., Shakti Bhavan, 82, Race Course Road, Bangalore-560 001.