

ACTION PLAN FOR
CLEANER WAY OF COAL TRANSPORTATION BY RAIL

1.0 PROJECT DESCRIPTION

The project involves operation of coal based thermal power project consisting of Stage-I (3x660 MW) and Stage-II (2x500 MW) near Sipat village in Bilaspur district of Chhattisgarh state. Sipat Stage-I (3x660 MW) is a super critical technology boiler and Stage-II (2x500 MW) based on sub critical parameters. The project site is located at about 22 km north east of Bilaspur city and approachable via Bilaspur-Baloda State Highway, which passes through Sipat.

2.0 COAL SOURCE AND COAL REQUIREMENT

Coal is the main fuel for the project, which is sourced from operating mines of SECL. The coal consumption would be about 9.8 million tons/ annum for Stage-I (3X660 MW).

3.0 COAL TRANSPORTATION SYSTEM

Sipat STPP is a pithead station. Coal is transported from operating mines of SECL located at about 42 km North East of the plant by captive Merry Go Round System of NTPC.

4.0 PURPOSE OF ACTION PLAN FOR CLEANER WAY OF COAL TRANSPORTATION BY RAIL

The Action Plan for Cleaner Way of Coal Transportation by Rail has been prepared for complying the environmental management requirements for the transportation of coal for Sipat Super Thermal Power Plant. The plan specifies methods to control fugitive dust emission and the responsibilities of parties involved in the coal transportation system, environmental control measures, monitoring parameters and corrective actions proposed to be taken in the event of any failures.

5.0 ACTION PLAN FOR CONTROL OF FUGITIVE EMISSIONS DURING COAL TRANSPORTATION

Objectives	To prevent emission of fugitive dust due to loading, unloading activities, movement of wagons and transportation of coal from coal mines to plant.
Control Measures	The following control measures would be implemented: <ol style="list-style-type: none">1. Ensure sprinkling of water in vulnerable areas like overhead silos surrounding.2. Ensure the transportation of coal by sprinkling of water on top surface of coal at loading point.
Monitoring	<ol style="list-style-type: none">1. Operation status of water spray arrangements at loading area provided at mine end is monitored on daily basis.2. Regular inspection of Water Sprinklers/dust suppression system at unloading hoppers.3. Regular inspection during coal loading in open wagons to

	<p>avoid fugitive emission.</p> <p>4. Checking of adequate sprinkling of water on top surface of coal to prevent fugitive emissions in each rake, at mine end.</p> <p>5. Adequate sprinkling of water at mid section is being installed.</p>
Corrective Action	Water spray systems preventive maintenance is carried out to ensure availability > 95% and breakdown maintenance if required.

6.0 PARTIES INVOLVED IN COAL TRANSPORTATION

The following four principal parties would be involved, with specific responsibilities during transportation:

1. Coal Handling Plant (CHP) Department NTPC, Sipat
2. Merry Go Round (MGR) department, NTPC, Sipat
3. Environmental Management Group (EMG) of NTPC, Sipat
4. SECL Staff

NTPC's MGR & CHP group would ensure timely repair and maintenance of water sprinkling system at unloading point in plant. NTPC MGR group coordinates with SECL mines officials to ensure adequate water sprinkling on top surface of coal laden wagons before leaving the mine end. Sipat EMG will monitor particulate emission in the ambient air quality and fugitive emissions during unloading and transportation of coal. If any increase in dust emissions is observed, then it is immediately informed to respective department to mitigate the same on priority. Plant management in consultation with Mine management will ensure that top surface of coal should be adequately sprinkled to mitigate fugitive emissions during rail transportation.

7.0 MONITORING AND COMPLIANCE

There are specific conditions in Environmental Clearance regarding regular sprinkling of water in coal handling and other vulnerable areas. EMG Department at site ensures the compliance of EC and consent conditions regarding fugitive emissions. If any pollution control equipment gets out of order EMG department raises the issue in Daily Plant meeting and ensure its restoration with top priority. Regular mines visit by NTPC officials of different levels to ensure the water sprinkling on top surface of coal on open wagons before leaving the mine end.

NTPC Sipat STPP is also ISO-14001 compliant which ensures a comprehensive action plan for Environmental Management and Protection. In ISO-14001, various internal audits by internal auditor and annual surveillance audit by external auditor are being carried out to ensure proper implementation of Environmental measures at plant.

8.0 MEASURES TAKEN BY NTPC FOR CLEANER WAY OF TRANSPORTATION OF COAL BY RAIL

NTPC has installed water sprinkler system in coal unloading areas to prevent fugitive emissions during unloading. Beside this SECL has also installed water sprinkling system in coal silos and wagon loading areas for adequate sprinkling of water on top surface of coal to prevent fugitive emission during transportation along the way. Some of the photographs are as below.



Figure 1. : Water Spray System on Open Rail Wagons



Figure 2. : Water Sprinkling System at Coal Unloading Areas at Sipat STPP



Figure 3. : Water Spray System at Loading Site



Figure 4. : Water Spray at Loading Site

J-13011/10/1996 -IA.II (T)
Government of India
Ministry of Environment, Forests and Climate Change

3rd Floor, Vayu Block,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi-110003

Dated: 8th September, 2014.

To

M/s NTPC Ltd.
Engineering Office Complex,
Plot No. A-8A, Sector-24,
Post Box No. 13,
Noida (U.P.) - 201301

Ph: 0120-2410333; Fax: 0120-2410136/2410137

Sub: 3x660 MW (Stage-I) Sipat Super Thermal Power Project at District Bilaspur in Chhattisgarh by M/s NTPC Ltd. - reg. amendment in EC for change of source of coal.

Sir,

This has reference to your letters dated 22.05.2013 and 29.11.2013 on the above subject. It is noted that EC was accorded by MoEF for 2000 MW (4x500) on 22.02.1999 and subsequent amendment dated 30.04.2002 for change of fuel composition and unit size (3x660 MW).

2. The matter was placed before the Expert Appraisal Committee (Thermal Power) in its 8th Meeting held during January 9-10, 2014. In acceptance of the recommendation of the Expert Appraisal Committee (Thermal Power) and in view of the information/clarification furnished by you, with respect to the above mentioned power project, the Ministry accords amendment in the said EC for sourcing coal from operating mines of SECL with a maximum sulphur content of 0.4% instead of sourcing from Dipika mines with sulphur content not exceeding 0.36% and transportation of coal by open wagons with suitable measures instead of closed wagons, depending on the availability. However, permission for transportation of coal by open wagons is accorded **only for one year** with the stipulation that within one year, NTPC will come out with a plan of carrying coal in a cleaner way.

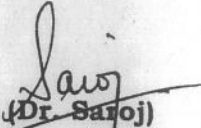
3. Further, the following conditions are stipulated in addition to the conditions of the EC dated 22.02.1999 and its amendment dated 30.04.2002.

- (i) *The transportation of coal shall be by Rail only.*
- (ii) Harnessing solar power within the premises of the plant particularly at available roof tops shall be undertaken and status of implementation shall be submitted periodically to the Regional Office of the Ministry.
- (iii) A long term study on radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.
- (iv) Mercury emissions from stack shall also be monitored on periodic basis.

- (v) Fugitive emissions shall be controlled to prevent impact on agricultural or non-agricultural land.
- (vi) No ground water shall be extracted for use in operation of the power plant even in lean season. No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up / operation of the power plant.
- (vii) Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.
- (viii) Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season.
- (ix) Fly ash shall not be used for agricultural purpose. No mine void filling will be undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close co-ordination with the State Pollution Control Board.
- (x) Green belt shall also be developed around the Ash Pond over and above the Green Belt around the plant boundary.
- (xi) CSR schemes should address Public Hearing issues and shall be undertaken based on need based assessment in and around the villages within 5.0 km of the site and in constant consultation with the village Panchayat and the District Administration. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. Vocational training programme for possible self employment and jobs shall be imparted to identify villagers free of cost.
- (xii) For proper and periodic monitoring of CSR activities, a CSR committee or a Social Audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.
- (xiii) An Environmental Cell comprising of at least one expert in environmental science/ engineering, ecology, occupational health and social science, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the Head of the Plant who would


be accountable for implementation of environmental regulations and social impact improvement/mitigation measures.

- (xiv) The project proponent shall formulate a well laid Corporate Environment Policy and identify and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with the conditions stipulated in this clearance letter and other applicable environmental laws and regulations.
- (xv) The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.
4. All other conditions mentioned in this Ministry's letter of even no. dated 22.02.1999 and its amendment dated 30.04.2002 shall remain the same, as applicable.
5. This issues with the approval of the Competent Authority.


(Dr. Saroj)
Scientist 'F'

Copy to:

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
2. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
4. The Secretary, Department of Environment, Government of Madhya Pradesh, Bhopal.
5. The Chairman, Madhya Pradesh Pollution Control Board, E-5, Arera Colony, Paryavaran Parisar, Bhopal-462016, Madhya Pradesh.
6. The Chief Conservator of Forests, Regional Office (WZ), E-5, Kendriya Paryavaran Bhawan, Arera Colony, Ravishankar Nagar, Bhopal - 462016.
7. The Collector, District Bilaspur, M.P.
8. Guard file.


(Dr. Saroj)
Scientist 'F'