MINUTES OF THE 10TH MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF THERMAL POWER PROJECTS

The 10th Meeting of the re-constituted EAC (Thermal Power) was held on 25th September, 2017 in the Ministry of Environment, Forest & Climate Change at Indus Meeting Hall, Jal Wing, Ground Floor, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi under the Chairmanship of Dr. Navin Chandra. The following members were present:

1.	Dr. Navin Chandra	-	Chairman
2.	Dr. Narmada Prasad Shukla	-	Member
3.	Dr. Sharachchandra Lele	-	Member
4.	Dr. Jai Krishna Pandey	-	Member
5.	Shri Suramya Dolarray Vora	-	Member
6.	Dr. Manjari Srivastava	-	Member
7.	Shri N. S. Mondal	-	Member (Representative of CEA)
8.	Professor Om Prakash	-	Member (Representative of ISM Dhanbad)
9.	Dr. S. K. Paliwal	-	Member (Representative of CPCB)
10.	Dr. S. Kerketta	-	Member Secretary

Shri N. Mohan Karnat, Shri Gururaj P. Kundargi and Dr. R. K. Giri (Representative of IMD) could not be present.

Item No.10.0: CONFIRMATION OF THE MINUTES OF THE 9th EAC MEETING.

The Minutes of the 9th EAC (Thermal Power Sector) meeting held on 30th August, 2017 were confirmed.

Item No. 10: CONSIDERATION OF PROJECTS

10.1 3x800 MW NLC Talabira Thermal Power Palnt at Village Khumberi, Taraikela and Thelkolai, Tehsil and District Jharsuguda, Odisha by M/s NLC India Ltd. -reg. ToR (File No.: J-13012/14/2017-IA.I(T) & Online No.: IA/OR/THE/67938/2017)

(10.1.1) Project Proponent (PP) submitted online application on 5.9.2017 for grant of ToR. PP made the presentation *inter-alia*, submitted the following information:

i. NLCIL is planning to implement NLC Talabira TPP in 2 Stages (Stage-I - 3x800 MW and Stage-II – 1x800 MW). The present proposal is for setting up of 3x800 MW Talabira Thermal Power Plant in Odisha.

ii. Ministry of Coal, Govt. of India vide Order No. 103/I/ 2016-NA dated 02.05.2016 have allotted Talabira-II & III captive coal mining blocks in Odisha to NLCIL. The rated capacity of Talabira-II & III mines is 20 MTPA. Talabira mines were initially envisaged to supply coal to proposed 4,000 MW Sirkali project in Tamil Nadu.

iii. The plant and Township of the project are located near Kumbhari and Taraikela villages, on south west of Brajarajnagar town, on Sambalpur-Rourkela highway in Jharsuguda district and ash disposal area is located near Thelkolai village in Sambalpur district. The total land identified for the project is 1,511 acres. The project site is approachable from Sambalpur–Jharsuguda highway after crossing Bedhen river bridge *via* state PWD road. Two separate 4 lane roads from Sambalpur-Jharsuguda highway have been envisaged for main approach to the project site. The nearest airports are at Bhubaneswar at a distance of 350 km and Raipur airport is at a distance of approx. 290 km. Nearest railway station is located at Jharsuguda at a distance of 11 km on Howrah-Nagpur main (trunk) section.

iv. The project has been planned in the identified 1,511 acres of land comprising of Plant area – 661 acres, Green Belt - 250 acres, Ash Disposal Area – 400 acres,

Common Township – 100 acres and Corridors - 100 acres. Proposal for acquisition of land is to be submitted to IPICOL.

v. Additional land (approximately 60 acres) for make up water pipelines from Intake Pump House at Hirakud Reservoir up to plant shall be taken up on right of way basis after finalization of its alignments.

vi. Coal requirement is 11 MTPA having GCV of 3,700 Kcal/kg, Station Heat Rate of 2,163 kcal/kwh and PLF of 85%.

vii. From the linked coal mine located across Bedhen river through Pipe/ Belt Conveyor system. It is proposed that a separate chute shall be provided in the fast loading silo for meeting the power plant's requirement. Further conveyor system shall be in the scope of TPP. Exact location of Silo tap off & routing of the conveyor shall be firmed up at a later date after finalization of MDO for Talabira Open Cast coal mines.

viii. Consumptive water requirement for present stage of 2,400 MW is 60 Cusec (80 cusecs for ultimate capacity). The water is proposed to be drawn from Hirakud reservoir at a distance of about 20 km. In-principle approval of State Govt. has been obtained. However, the point of water drawal, pipe routing and other terms are yet to be finalized with WRD. Additional water requirement for FGD plant would be 2 cusec/unit i.e. 6 cusec for all the three units. Thus, the total consumptive water requirement shall be 66 cusecs (88 cusecs for all 4 units).

ix. Total project cost is Rs. 16,073.86 crores.

(10.1.2) eRC, an NGO has given a representation to the Chairman and other Members of the Committee. The complaints include - Pre-feasibility report has not been prepared as per the guidelines. Typographical errors such as public hearing to be conducted by Tamilnadu State Pollution Control Board, etc. So, the Committee suggested that the PP has to submit the revised PFR in accordance with the guidelines. Committee noted that the proposed project is surrounded by water bodies and reserved forest areas. Submergence of Hirakud dam is also not far away from the project site. Even though the proposed area is far from any wildlife sanctuary, the committee felt that a specific recommendations of Chief Wildlife Warden on the impacts of proposed project is required. The social impact assessment due to proposed project is to be prepared. The consultant who will prepare the EIA needs to be declared.

(10.1.3) Committee after deliberations, noted that the proposed Thermal Power Plant and ash pond are located on both sides of the river Bheden, tributury to river IB which finally joins river Mahanadi. In fact the Thermal Power Power Plant is proposed on the fringe of Hirakud Dam. **Considering the environmental sensitivity and location of the project, the committee deferred the project for making a site visit by the following Sub-committee members**:

1.	Dr. N.P. Shukla	-	Chairman
2.	Dr. Sharachchandra Lele	-	Member
3.	Shri N.S. Mondal	-	Member
4.	Dr. S. Kerketta	-	Member Secretary

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10.2 Expansion by additional of 1x600 MW (Stage-IV) at Rayalseema Coal Based Thermal Power Plant near V.V. Reddy Nagar in Yerraguntla Mandal in Kadapa District in Andhra Pradesh by M/s Andhra Pradesh Power Generation Corporation Ltd.-reg. amendment in EC.
(File No.: J-13012/87/2008-IA.II(T) & Online No.: IA/AP/THE/10613/2008)

(10.2.1) Project Proponent (PP) submitted the online application on 31.8.2017 for amendment in Environmental Clearance. PP made the presentation and *inter-alia*, submitted the following information:

i. Environmental Clearance for setting up of 1x600 MW Thermal Power Plant has been issued vide Ministry's letter dated 21.10.2010.
ii. However, as per specific condition No. i of the said EC, the EC was applicable only for generation of 500 MW capacity until further firm coal linkage for balance 100 MW is available. However, at later stage, when firm coal linkage for balance 100 MW is confirmed, the PP may request the Ministry for inclusion of entire capacity of 1x600 MW which the Ministry shall consider appropriately.
iii. Now, the Standing Linkage Committee, Ministry of Coal in its meeting held on 21.8.2017 has agreed in-principle to allocate firm coal linkage for the balance capacity of 100 MW of RTPP Stage-IV. The Ministry of Coal, Govt. of India vide File No. 23014/4/2017-CLD dated 19.9.2017, has allocated the coal linkage to generate the entire capacity.
iv. 99.89% of BTG works completed. 66.91% of BOP works completed. Expenditure incurred as on 8.8.2017 is Rs. 3,852.2 Crores. Total project cost is Rs. 4,516 crores.
v. Unit has been synchronized on 02.07.2017. COD is scheduled on 31.10.2017.

(10.2.2) **Committee after deliberations, recommended for amendment of EC and recommended that the PP can now generate power from the entire capacity i.e. 1x600 MW as the PP has now received coal linkage for the remaining 100 MW with the following additional conditions:**

i. Ministry's notification vide dated 07.12.2015 to be followed.
ii. Treated water from the STP located within 50 km distance from the project be reused in the project.
iii. An Environmental Officer be declared to look after the matter related to the implementation of various environmental control measures. In case of any non-implementation of such control measures, the Environmental Officer shall be held responsible.

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10.3 1200 MW (4x300 MW) Coal Based Thermal Power Plant at villages Binjkot & Darramura, Taluk Kharsla, District Raigarh, Chhatisgarh by M/s SKS Power Generation (Chhattisgarh) Ltd.- reg. extension of validity of EC.
(File No: J-13012/64/2008-IA II(T) & Online No.: IA/CG/THE/12023/2008)

(10.3.1) Project Proponent (PP) submitted online application on 08.09.2017 for extending the validity of Environmental Clearance. PP made the presentation *inter-alia*, submitted the following information:

i. Environmental Clearance for 4x300 MW power project has been issued vide Ministry's letter dated 05.10.2010 which was valid for five years, i.e. upto 04.10.2015. The validity has been extended for a further period of two years, i.e. till 04.10.2017.
ii. Unit-1 (1x300 MW) & Unit-2 (1x300 MW) are scheduled to be commissioned on 27.09.2017 and 27.12.2017, respectively. Unit-III and IV are to be commissioned

before 31.3.2022. The delay has been caused primarily due to firm linkage of coal, power policy and funds availability.

iii. SPGCL requires 874 acres of land for setting up of 1,200 MW power plant, out of which 568 acres is already under possession. There was a delay in land acquisition by Chhattisgarh State Industrial Corporation leading to delay in project execution. About 348 acres of balance land is still under litigation pending before the Hon'ble Supreme Court for adjudication due to stay proceedings put up by the local villagers.

iv. SPGCL was allocated 73.85 MT of coal in Fatehpur coal block along with M/s Prakash Industries on 06.02.2008. However, the coal block was cancelled vide ruling of Hon'ble Supreme Court in its order dated 24.09.2014.

v. LOA for 1,200 MW was assigned to the Company by SECL in 2009 but LOA was converted to FSA for 600 MW only in 2013 after a delay of 4 years. LOA for Phase II is available.

vi. The EPC contractor, Cethar Ltd. could not implement the project due to financial constrain leading to delay in project execution. PP then took over the control of site management from Cethar Ltd. in January, 2014 to expedite the project execution including payment to many suppliers for Cethar, which further delayed the supply contract for SPGCL. Active Site management by SPGCL has helped in bringing back the project on track.

vii. PPA was signed between SPGCL and Govt. of Chhattisgarh (GoCG) on 05.11.2011 for supply of 35% power from the Project capacity, out of which, 30% aggregate capacity was to be at CERC Tariff and 5% Net power was to be supplied at variable charges. However, GoCG vide its letter dated 25th September, 2013 has refused to take 30% aggregate power at CERC Tariff but would like to continue with 5% net power at variable charges.

viii. Sithe Global (subsidiary of Blackstone), Joint Venture investor, had committed to invest equity of Rs. 965 Crore for both the phases against which, they invested Rs. 493 Crore and stopped investment after December, 2013 leading to delay in project execution and cost overrun due to lack of PPAs, lack of secured fuel, constraints in transmitting power to various regions, etc.

ix. SPGCL requested MoEF to extend the validity of Environmental Clearance for a further period of 5 years with effect from 04.10.2017.

(10.3.2) Committee noted that Project Proponent has not provided the exact physical progress. It appears from their application that construction of the remaining two units is yet to be started as they have requested for extension of validity of EC for further period of five years. Committee noted that Unit-1 and Unit-2 will be commissioned in September, 2017 and December, 2017, respectively. Committee noted that PP has to connect online emission monitoring system with CPCB. Committee also noted that PP has to comply with the new emission standards vide notification dated 7.12.2015 from the date of commissioning of the Units. Committee expressed the concern over the progress of FGD installation and compliance to the new emission norms. Two units are scheduled to be commissioned by this year. However, PP has not made any progress in achieving the compliance to the new standards. PP mentioned that Feasibility Report is under preparation which will be submitted to banks to get the funds. Thereafter the tendering and installation work will start. With this pace, Project proponent will take another 2-3 years to achieve the new emission standards.

(10.3.3) **Committee after detailed deliberations, recommended for extension of validity of EC for further period of three years, i.e. till 03.10.2020 with the following additional conditions:**

i. Ministry's notification vide dated 07.12.2015 to be followed.

ii. Treated water from the STP located within 50 km distance from the project be reused in the project.
iii. An Environmental Officer be declared to look after the matter related to the implementation of various environmental control measures. In case of any non-implementation of such control measures, the Environmental Officer shall be held responsible.

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10.4 Modernization & Expansion in Power Plant from 125.3 MW to 141 MW at Tehsil Ladpura, District Kota, Rajasthan by M/s DCM Shriram Ltd.- reg. amendment in ToR.
(File No.: J-13012/07/2017-IA I(T) & Online No.: IA/RJ/THE/64601/2017)

(10.4.1) PP submitted online application on 19.8.2017 for amendment in ToR. PP made presentation inter-alia submitted the following information:

i. Terms of Reference for the proposed project has been issued vide Ministry's letter dated 3.7.2017.
ii. The condition No.i of the said ToR stipulates as "*The ToR issued is only for the coal as 100% fuel in the proposed project. Petcoke fuel is not permitted as Ministry/State Govt. is yet to modify petcoke as an approved fuel as per the NGT Delhi vide Order dated 16.05.2017 in OA No. 471/2016".*
iii. Rajasthan State Pollution Control Board vide Office Order dated 15.6.2017 has declared 'Pet Coke' as an approved fuel.
iv. MoEF&CC vide letter dated 14.7.2017 stated that 'Pet Coke' is not a hazardous waste. Petcoke is a by-product in the refinery process. Use of Pet Coke as fuel will lead to higher SO_2 and NOx emissions. It is also stated that cement and other industries can use Pet Coke as fuel with appropriated pollution control measures. With respect to Captive Power Plants, emission norms as pertaining to thermal power plants shall apply.
v. In view of this, it is requested to permit to use maximum of 25% pet coke and 77% Coal on weight basis in the proposed project.

(10.4.2) Committee noted that both SPCB and MoEF&CC have not banned the use of petcoke fuel. With appropriate pollution control measures, petcoke can be used.

(10.4.3.) **Committee after deliberations, recommended for amendment of ToR condition for using maximum blending ratio of Coal and petcoke (domestic) in the ratio of 3:1. The Pet coke shouldn't be imported.**

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10.5 2x150 MW (Phase-I) and 2x150 MW (Phase-II) Middling and Coal fine based captive Thermal Power Plant at Village Dongamahua, District Raigarh, Chhattisgarh by M/s Jindal Steel & Power Ltd.- reg. Amendment in EC.
(File No.: J-13012/127/2008-IA.II(T) & Online No.: IA/CG/THE/10354/2008)

(10.5.1) The proposal for amendment in EC for change in coal source from middlings and coal fines to raw coal has been earlier considered by the EAC in its 5th meeting held on 26.04.2017. PP requested for change in coal source from a) Middlings from the washery/ coal fines to raw coal and b) transportation from conveyor to road transportation. PP was earlier permitted for drawing mine sump water. However, due to de-allocation of mines, PP proposed to draw water from Mahanadi river. EAC in its meeting held on 26.4.2017 sought the following additional information:

i. Since Project Proponent is not permitted by SECL to dispose fly ash in the mine void, PP has to have firm plan how the flyash would be disposed off, and would come out with a disposal plan.
ii. If coal source is changing, then PP need to bring out a coal transport plan and its traffic study.
iii. Environmental impacts on aquatic life, downstream users including fisherman needs due to water withdrawal from Mahanadi River shall be assessed.
iv. A layout plan of the pipeline from the point of drawal of Mahanadi river to the outlet point be provided alongwith details of water balance.

(10.5.2) PP submitted the reply to the additional information sought by EAC on 21.08.2017. PP made the presentation *inter-alia*, submitted the following information:

i. JSPL has written to MoEF&CC Regional Office for a Certified compliance report. Till date no communication has been received from the Regional Office.
ii. No ash pond for the project has been constructed and entire unutilised ash is being utilised for backfilling of Gare-Pelma IV/1 coal mines. Same is continuing as per the interim order of High Court of Delhi.
iii. As an alternative, suitable land for construction of ash dyke is being identified. Once same is finalised, further actions will be taken up for land acquisition through State Govt. including permission from the Ministry.
iv. State Level Environment Impact Assessment Authority, Chhattisgarh vide letter dated 22.05.2014 has granted Environment clearance for the construction of Sheorinarayan barrage from where the raw water will be drawn for plant use and therefore, the downstream impacts have already been looked into.
v. Water pipeline has already been laid subsequent to permission from Water Resource Department for drawl of 42 MCM water from Sheorinaryan Barrage (off take point at Kalma Barrage) across Mahanadi River. A line diagram depicting pipeline laid from drawl point on Mahanadi river to the power plant has been provided including water balance diagram.

(10.5.3) The PP submitted that a study on impact assessment due to coal transportation by road has been undertaken through M/s Min Mec Consutancy Pvt. Ltd. The coal is proposed to be sourced from Gare Pelma IV/1, IV/2, Barod/Jampali coal mines of SECL and Kulda/Basundhara Mines of MCL. Study has been conducted to assess the likely impact of coal transportation from Barud coal mines and Jampali Coal mines of SECL and Kulda Coal Mines and Basundhara Coal Mines of MCL to DCCP, Tamnar Chhatisgarh. Coal via Route-1 to be transported will be 3,343 TPD from SECL mines to DCPP and that via Route-2 will be 5,370 TPD from MCL mines to DCPP by 21 tonners truck. There would be an additional movement of about 318 coal carrying tippers (to & fro) on Route-1 and 512 trucks (to & fro) on Route-2. Based on the various aspects studied, the following conclusions furnished:

i. **Traffic Volume and carrying capacity of the road**: All the two routes are feasible for coal transportation, but with varying degree of DSV and Maximum Capacity. All the Census Points on the two routes will have sufficient carrying capacity to sustain the present and additional traffic due to coal transportation.
ii. **Impact on Ambient Air quality**: There shall be increment in air pollutants due to exhaust emissions and dust from road. The resultant pollutant concentrations will be 23.33 $\mu g/m^3$ for NOx and 19.83 $\mu g/m^3$ for SO_2 in case of Route-1 and 23.575 $\mu g/m^3$ for NOx and 16.7 $\mu g/m^3$ for SO_2 in Route-2. The additional maximum concentration of PM_{10} and $PM_{2.5}$ would be 72.3 and 42.104 $\mu g/m^3$, respectively for Route-1 and 72.4075 and 43.704 $\mu g/m^3$ for PM_{10} and $PM_{2.5}$,

respectively for Route-2. The PP further suggested that all vehicles will be covered with tarpaulin and shall be spill-proof. The trucks to have periodic PUC certification as per manufacturers norms and shall be ensured that unadulterated diesel shall be taken from authorized dealers only. Water sprinkling shall be done along the select stretches of road during high wind and dry seasons to control dust generation.

iii. **Impact on Ambient Noise**: The sound level from the movement of a truck passing on the road is approximately 90 dBA. This will be for short duration during passing of truck. There will be a short time increase in the noise level during plying of the vehicles. The overall Leq noise level will be slightly higher but within the prescribed standards of both daytime and nighttime.

iv. **Impact on Human Health**: The incremental values have been compared against the Air Quality Guidelines, Second Edition, World Health Organization Regional Office for Europe, Copenhagen, Denmark, 2000 and found to be lower than the significant figures of 10 $\mu g/m^3$.

v. **Impact on Ecology**: Under normal scenario and absence of mitigation measures, the plying of additional 318 (to & fro) trucks per day on Route-1 can lead to a reduction in yield of road side plantation to 0.76%, whereas on Route-2 when 512 trucks (to & fro) will ply per day, it can lead to a reduction of yield to the tune of 1.64%. Therefore, it has been suggested by the PP that maintenance of existing plantation shall be carried out including raising of fresh plantation along the traffic route for dust and noise control on either side of road, in consultation with villagers, wherever possible.

(10.5.4) Committee noted that the source of middlings and coal fines earlier permitted were located closeby to the power plant. However, the proposed coal sources are located at 56 km and 37 km for Baraud/Jampali mines and Kulda mines, respectively. The committee noted that the area is highly polluted and the proposed road transportation will increase the air pollution levels, however, certain mitigative measures have also been suggested to reduce various impacts. Committee also suggested that the PP can get the coal from SECL mines which are located closeby to the power plant to minimize the air pollution. Committee also noted that though, environmental impacts on aquatic life, downstream users including fisherman needs due to water withdrawal from Mahanadi River have not been assessed by the PP, but as the State Level Environment Impact Assessment Authority, Chhattisgarh vide letter dated 22.05.2014 has granted Environment clearance for the construction of Sheorinarayan barrage from where the raw water will be drawn for plant use, has taken care of the downstream impacts in *pari pasu*. Committee noted that there are a total of 23 villages with population varying between 137 to 5,465 within 100 m of the route proposed for road transportation.

(10.5.5) Committee after deliberations and the facts as presented by the PP, **recommended for transfer of coal by road as per the suggested routes for one year** subject to the following additional conditions:

i. Optimization of various environmental impacts shall be carried out for the best combination of coal to be transported from both the routes.

ii. As the State Level Environment Impact Assessment Authority, Chhattisgarh has granted environment clearance for the construction of Sheorinarayan barrage from where the raw water will be drawn for plant use, the inferences drawn on the downstream impacts including instream users of the river be submitted to this EAC forthwith.

iii. Ministry's notification vide dated 07.12.2015 to be followed.

iv. Treated water from the STP located within 50 km distance from the project be reused in the project.

v. An Environmental Officer be declared to look after the matter related to the implementation of various environmental control measures. In case of any non-implementation of such control measures, the Environmental Officer shall be held responsible.

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10.6 Proposed Expansion of 1x700 MW Thermal Power Project within the premises of existing 2x700 MW Rajpura TPP at Village Nalash, Tehsil Rajpura, District Patiala, Punjab by M/s Nabha Power Limited – reg. ToR.
(File No. J-13012/12/2017-IA.I(T) & Online No. IA/PB/THE/62359/2017)

(10.6.1) Project Proponent submitted online application on 9.8.2017 for grant of ToR. PP along with environmental consultant M/s Grass Root Research & Creations Pvt. Ltd. made the presentation inter-alia submitted the following information:

i. Nabha Power Limited (NPL), is a 100% subsidiary of L&T Power Development Limited (LTPDL) is operating 1,400 MW (2x700 MW) coal fired Thermal Power Plant near village Nalash of Rajpura Tehsil in District Patiala, Punjab, India. The plant is based on supercritical technology.

ii. NPL intends to establish an additional 1x700 MW Coal-fired Thermal Power Plant as an expansion unit.

iii. The Latitude and Longitude of the plant site is $30^0$32'36" to $30^0$33'51"N and $76^0$33'42" to $76^0$35'05"E. The nearest railway station is Sarai Banjara about 5 km from the plant site. National Highway-1 passes about 5 km away from the plant site. The distance of main towns from the project site are as follows: Patiala 28 km, Chandigarh airport 28 km, Rajpura 7 km and Ambala 32 km.

iv. There are no national parks, wildlife sanctuaries, biosphere reserve, migratory corridors and other protected areas within 15 km radius of the project.

v. EC for 2x660 MW TPP at this location was issued to NPL vide letter J-13011/44/2008-IA.II(T) dated 03.10.2008. This EC was amended for change in configuration from 2x660 MW to 2 x700 MW TPP vide letter dated 15.11.2010. Thereafter, NPL applied for TOR for 1x700 MW expansion unit and the Ministry issued TOR vide letter J-13012/181/2010-IA.II(T) dated 13.01.2011. The EIA report was prepared and Public Hearing was conducted on 7th March, 2012. Meanwhile, NPL could not get firm coal linkage. NPL requested the Ministry to extend the validity of TOR vide letter dated 3rd March, 2014. MoEF&CC advised NPL to submit fresh application for the expansion.

vi. The existing plant is located on 1,078 acres land which is under possession of NPL. The Main Power Plant is located in 500 acres land. Ash dyke is built in 197 acres land. Water reservoir is located in 95 acres of land and greenbelt has been developed in 261 acres of land. The proposed expansion comprises Main Power Block (3rd unit) adjacent to the 1st and 2nd unit, Flue Gas Desulphurization and Natural Draft Cooling Tower. Existing Ash Pond, Water Reservoir and Treatment Plant, 400 kV Switchyard, Coal Handling Plant, Central Monitoring Basin and other Utilities shall be augmented suitably to accommodate the expansion.

vii. Water and coal requirement for the existing plant is 4,706 m^3/h and 5.8 MTPA, respectively. Coal is brought from SECL Mines. Ash and sulphur content in coal are 34% and 0.5%, respectively. Ash generation is 1.972 MTPA. Ash utlilization will be done as per the prevailing guidelines.100% wastewater is reused inside the plant premises. Permission from Irrigation Department has been obtained to draw water from Rajpura Distributary (Canal).

viii. Railway siding and approach road exist. No additional land shall be required for expansion. Entire land is in the possession of NPL, hence there are no R&R involved. Evacuation of power from the proposed unit will be done at 400 kV switch yard through 400 kV existing transmission lines.

ix. The estimated project cost of the expansion is Rs.4,400 crores. 36 months will be required for completion of the project. Manpower requirement is 500. Water requirement is 1,750 m^3/hour. Permission for drawing 25 cusecs water (2,548 m^3/hour) from Rajpura Distributary (Canal) is available from the Irrigation Department. This canal is located about 1 km away from the proposed plant site. Water reservoir, water pipeline, pump house and water treatment plant exist. Coal requirement for the proposed project is 2.958 MTPA (85% PLF, PHR 2,176 kcal/kwh and GCV 3,900 kcal/kg). Coal will be transported through rail.

x. Now, ash is utilized for cement making and brick making. 100% Ash utilization is achieved since 2016-17. Entire wastewater is treated and reused for various purposes.

xi. Baseline data will be collected during December, 2017- February, 2018. Proposed monitoring stations *viz.* Meteorological station: 01, AAQ: 5, Groundwater: 5 locations, Surface water: 2.

(10.6.2) Committee noted that PM_{10} values of the existing power plant are high and close to 100 µg/m^3 in the plant premises as well as nearby villages. Therefore, the Committee felt that in the later stage, the ambient air quality levels may be high after commissioning of the proposed power plant. Hence, careful planning and mitigative measures are required so that additional load would not cause any detrimental effect to the ambient. PP mentioned that the coal was earlier transported by road as the railway siding to the plant is not fully operational. Due to transportation of coal by road, the AAQ levels particularly PM_{10} and $PM_{2.5}$ are high. Committee also felt that number of AAQ locations proposed for baseline monitoring to be done as per the guidelines and AAQ monitoring is to be done at all villages located within the study area. Also water quality samples are to be taken and analysed at all the nallah/canal both in the upstream and downstream points.

(10.6.3) Committee after deliberations, **recommended for grant of ToR with the following additional conditions** in addition to standard ToR appended as ***Annexure-A1***:

i. Committee noted that PM_{10} values of the existing power plant are high and close to 100 µg/m^3 in the plant premises as well as nearby villages. Therefore, the Committee felt that in the later stage, the ambient air quality levels may be high after commissioning of the proposed power plant. Hence, careful planning and mitigative measures are required so that additional load would not cause any detrimental effect to the ambient.

ii. Continuous online sampler and analyser for measuring the coal quality including ash content shall be installed for the existing plant and proposed project.

iii. Traffic density and impact assessment study shall be conducted.

iv. Dust fall mesurement be carried out for inventorization of source apportionment of contribution from different sources.

v. Number of AAQ locations proposed for baseline monitoring to be done as per the guidelines and AAQ monitoring is to be done at all villages located within the study area.

vi. Water quality samples are to be taken and analysed at all the nallah/canal both in the upstream and downstream points.

vii. Ministry's notification vide dated 07.12.2015 to be followed.

viii. Groundwater shall not be used for construction purposes.

ix. Treated water from the STP located within 50 km distance from the project be reused in the project.

x. An Environmental Officer be declared to look after the matter related to the implementation of various environmental control measures. In case of any non-implementation of such control measures, the Environmental Officer shall be responsible.

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10.7 Expansion by addition of 1x350 MW Super Critical Thermal Power Plant within the existing 2x300 MW Plant at Haldia, Village Jhikurkhali, Tehsil Sutahata-I, Dist. East Medinipur, West Bengal by M/s Haldia Energy Limited – reg. TOR.
(File No.J-13012/13/2017-IA.I(T) & Online No. IA/WB/THE/36544/2015)

(10.7.1) Committee deferred the project as the project proponent did not attend the meeting.

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10.8 Standardisation of EC conditions for all Thermal Power Plants (Coal, Lignite, Petcoke, Gas, Bio-mass & Municipal Solid Waste)

(10.8.1) As per the decision taken in the Ministry, standardization of Specific EC conditions for Thermal sector has been presented before the EAC by the EAC secretariat. After deliberations and considering the presentation made by the EAC Secretariat, the Committee decided that the standardization of Specific EC conditions for Thermal Sector may be circulated again for offering comments by the Members and shall be reconsidered again in the next EAC meeting for finalization. The proposal has accordingly been **deferred.**

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10.9 ANY OTHER ITEM WITH THE PERMISSION OF THE CHAIR.

10.9.1 3x800 MW Patratu Super Thermal Power Project (PSTPP), Phase-1 at village Patratu, Distt. Ramgar, Jharkhand by M/s Patratu Vidyut Utpadan Nigam Limited-reg. reconsideration of EC.
(File No: J-13012/21/2015-IA.I(T) & Online No: IA/JH/THE/32025/2015)

(10.9.1.1) The proposal for grant of EC has been considered by the EAC in its 7th meeting held on 28.6.2017. EAC recommended for grant of EC subject to submission of certain information and also sought the following specific information regarding existing ash pond and proposed ash mound:

i. Details of volume of ash dykes and quantity of flyash. Plan along with timelines for evacuating and using flyash before starting the operations of proposed project. Undertaking by PP that the ash mound shall not be constructed.

(10.9.1.2) The EAC in its 8th meeting held on 24.7.2017 corrected the said condition as follows:

i. "Details of Volumes of ash dykes and quantity of fly ash planned along with timelines for evacuating and using fly ash before starting the operation of proposed project. A three-member committee shall visit the Project site and viability of having ash mound be examined and a report in this regard be submitted before the EAC for considering feasibility of having ash mound for the proposed Project."

(10.9.1.3) Accordingly, Ministry vide Officer Order dated 30.8.2017 constituted a sub-committee comprising of following members for examining the feasibility of setting up of ash mound for the proposed project.

i. Shri Gururaj P. Kundargi (Member-EAC) - Chairman
ii. Dr. J. K. Pandey (Member-EAC) - Member
iii. N. Subrahmanyam, Scientist 'C' - Member Secretary

(10.9.1.4) Ministry has also requested Regional Office, MoEF&CC, Ranchi to nominate a scientist for accompanying the sub-committee for site visit. The sub-committee visited the Patratu Power Plant on 08.09.2017. Dr. T.H. Mahato, Scientist 'C', Regional Office, MoEF&CC, Ranchi accompanied the sub-committee and provided inputs during the site visit.

(10.9.1.5) Sub-committee observed that existing ash pond has been breached and the bund is broken for a length of approx. 200 m. Ash has washed off into a nallah (a stream which meets Nalkari river downstream). It is estimated that approx.. 8.5 Lakh Cubic metres of ash is lying in the existing poind. Sub-committee made certain recommendations to arrest wash off of ash into the nearby stream.

(10.9.1.6) The quantity of flyash expected to be generated is about 10-13,000 Tons per day at 85% Plant Load Factor in the proposed power project. Total ash generation is 4.8 MTPA considering the average ash content of 37%. PP proposed dry ash mound in 340 acres of land which is located in South-East direction at a distance of 1.2 km from the power plant area. The capacity of the ash mound proposed is 35 million m^3 with approx. height of 50 m. Sub-committee also made certain recommendations for the proposed ash mound. The report of the sub-committee is enclosed as ***Annexure-A3***.

(10.9.1.7) EAC deliberated the site visit report of the sub-committee and **recommended for grant of EC** with the following additional conditions:

i. **Flyash deposits along the water body shall be excavated immediately. The removal of flyash deposits in the water bodies shall be completed before the onset of next monsoon.**
ii. If ash in the existing pond is not evacuated as per the recommendations given by previous sub-committee, embankment shall be constructed around the periphery of ash pond. A retaining wall shall also be constructed alongside of the stream to prevent wash off.
iii. The ash pond shall be covered with sweet soil of sufficient width so that surface runoff can be controlled and also can act as slope stabilisation.
iv. Reclamation and stabilisation of the existing ash pond shall be carried out in scientific manner (both biological and engineering measures).
v. All other measures such as constructing gabian wall, spillways & filters, drains on the toe, slope protection, etc. shall be implemented. Regional Office of the Ministry shall inspect the progress atleast once in three months. The status of the ash pond and dredging of ash deposits shall be submitted along with the six monthly compliance report to Regional Office as well as MoEF&CC, New Delhi.
vi. If the breach of ash pond is reported in future, PP shall have to evacuate the total ash from the pond.
vii. Construction and demolition waste from dismantling the existing power plant shall be disposed of in accordance with the Construction and Demolition Waste Management Rules, 2016.
viii. Minimum distance of 500 m from the HFL of Nalkari river shall be maintained. Ash mound shall be developed in 340 acres and the height of the ash mound shall be restricted to 35 m (in two benches of 20 m and 15 m height each).

ix. Ash mound shall be used only in case of emergency. Fly ash utilisation shall be done as per the flyash notification and its subsequent amendments issued from time to time.

x. Garland drains along with stone pitching and gabian wall around the ash mound/existing ash pond shall be constructed so that no wash off is let out into the Nalkari river.

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As there being no agenda item left, the meeting ended with a vote of thanks to the Chair.

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ANNEXURE- A1

Terms of Reference (TOR):

i) The proposed project shall be given a unique name in consonance with the name submitted to other Government Departments etc. for its better identification and reference.

ii) Vision document specifying prospective long term plan of the project shall be formulated and submitted.

iii) Latest compliance report duly certified by the Regional Office of MoEF& CC for the conditions stipulated in the environmental and CRZ clearances of the previous phase(s) for the expansion projects shall be submitted.

iv) The project proponent needs to identify minimum three potential sites based on environmental, ecological and economic considerations, and choose one appropriate site having minimum impacts on ecology and environment. A detailed comparison of the sites in this regard shall be submitted.

v) Executive summary of the project indicating relevant details along with recent photographs of the proposed site (s) shall be provided. Response to the issues raised during Public Hearing and the written representations (if any), along with a time bound Action Plan and budgetary allocations to address the same, shall be provided in a tabular form, against each action proposed.

vi) Harnessing solar power within the premises of the plant particularly at available roof tops and other available areas shall be formulated and for expansion projects, status of implementation shall also be submitted.

vii) The geographical coordinates (WGS 84) of the proposed site (plant boundary), including location of ash pond along with topo sheet (1:50,000 scale) and IRS satellite map of the area, shall be submitted. Elevation of plant site and ash pond with respect to HFL of water body/nallah/River and high tide level from the sea shall be specified, if the site is located in proximity to them.

viii) Layout plan indicating break-up of plant area, ash pond, green belt, infrastructure, roads etc. shall be provided.

ix) Land requirement for the project shall be optimized and in any case not more than what has been specified by CEA from time to time. Item wise break up of land requirement shall be provided.

x) Present land use (including land class/kism) as per the revenue records and State Govt. records of the proposed site shall be furnished. Information on land to be acquired including coal transportation system, laying of pipeline, ROW, transmission lines etc. shall be specifically submitted. Status of land acquisition and litigation, if any, should be provided.

xi) If the project involves forest land, details of application, including date of application, area applied for, and application registration number, for diversion under FCA and its status should be provided along with copies of relevant documents.

xii) The land acquisition and R&R scheme with a time bound Action Plan should be formulated and addressed in the EIA report.

xiii) Satellite imagery and authenticated topo sheet indicating drainage, cropping pattern, water bodies (wetland, river system, stream, nallahs, ponds etc.), location of nearest habitations (villages), creeks, mangroves, rivers, reservoirs etc. in the study area shall be provided.

xiv) Location of any National Park, Sanctuary, Elephant/Tiger Reserve (existing as well as proposed), migratory routes / wildlife corridor, if any, within 10 km of the project site shall be specified and marked on the map duly authenticated by the Chief Wildlife Warden of the State or an officer authorized by him.

xv) Topography of the study area supported by toposheet on 1:50,000 scale of Survey of India, along with a large scale map preferably of 1:25,000 scale and the specific information whether the site requires any filling shall be provided. In that case, details of filling, quantity of required fill material; its source, transportation etc. shall be submitted.

xvi) A detailed study on land use pattern in the study area shall be carried out including identification of common property resources (such as grazing and community land, water resources etc.) available and Action Plan for its protection and management shall be formulated. If acquisition of grazing land is involved, it shall be ensured that an equal area of grazing land be acquired and developed and detailed plan submitted.

xvii) A mineralogical map of the proposed site (including soil type) and information (if available) that the site is not located on potentially mineable mineral deposit shall be submitted.

xviii) Details of fly ash utilization plan as per the latest fly ash Utilization Notification of GOI along with firm agreements / MoU with contracting parties including other usages etc. shall be submitted. The plan shall also include disposal method / mechanism of bottom ash.

xix) The water requirement shall be optimized (by adopting measures such as dry fly ash and dry bottom ash disposal system, air cooled condenser, concept of zero discharge) and in any case not more than that stipulated by CEA from time to time, to be submitted along with details of source of water and water balance diagram. Details of water balance calculated shall take into account reuse and re-circulation of effluents.

xx) Water body/Nallah (if any) passing across the site should not be disturbed as far as possible. In case any Nallah / drain is proposed to be diverted, it shall be ensured that the diversion does not disturb the natural drainage pattern of the area. Details of proposed diversion shall be furnished duly approved by the concerned Department of the State.

xxi) It shall also be ensured that a minimum of 500 m distance of plant boundary is kept from the HFL of river system / streams etc. and the boundary of site should also be located 500 m away from railway track and National Highways.

xxii) Hydro-geological study of the area shall be carried out through an institute/ organization of repute to assess the impact on ground and surface water regimes. Specific mitigation measures shall be spelt out and time bound Action Plan for its implementation shall be submitted.

xxiii) Detailed Studies on the impacts of the ecology including fisheries of the River/Estuary/Sea due to the proposed withdrawal of water / discharge of treated wastewater into the River/Sea etc shall be carried out and submitted along with the EIA Report. In case of requirement of marine impact assessment study, the location of intake and outfall shall be clearly specified along with depth of water drawl and discharge into open sea.

xxiv) Source of water and its sustainability even in lean season shall be provided along with details of ecological impacts arising out of withdrawal of water and taking into account inter-state shares (if any). Information on other competing sources downstream of the proposed project and commitment regarding availability of requisite quantity of water from the Competent Authority shall be provided along with letter / document stating firm allocation of water.

xxv) Detailed plan for rainwater harvesting and its proposed utilization in the plant shall be furnished.

xxvi) Feasibility of near zero discharge concept shall be critically examined and its details submitted.

xxvii) Optimization of Cycles of Concentration (COC) along with other water conservation measures in the project shall be specified.

xxviii) Plan for recirculation of ash pond water and its implementation shall be submitted.

xxix) Detailed plan for conducting monitoring of water quality regularly with proper maintenance of records shall be formulated. Detail of methodology and identification of monitoring points (between the plant and drainage in the direction of flow of surface / ground water) shall be submitted. It shall be ensured that parameter to be monitored also include heavy metals. A provision for long-term monitoring of ground water table using Piezometer shall be incorporated in EIA, particularly from the study area.

xxx) Socio-economic study of the study area comprising of 10 km from the plant site shall be carried out through a reputed institute / agency which shall consist of detail assessment of the impact on livelihood of the local communities.

xxxi) Action Plan for identification of local employable youth for training in skills, relevant to the project, for eventual employment in the project itself shall be formulated and numbers specified during construction & operation phases of the Project.

xxxii) If the area has tribal population it shall be ensured that the rights of tribals are well protected. The project proponent shall accordingly identify tribal issues under various provisions of the law of the land.

xxxiii) A detailed CSR plan along with activities wise break up of financial commitment shall be prepared. CSR component shall be identified considering need based assessment study and Public Hearing issues. Sustainable income generating measures which can help in upliftment of affected section of society, which is consistent with the traditional skills of the people shall be identified. Separate budget for community development activities and income generating programmes shall be specified.

xxxiv) While formulating CSR schemes it shall be ensured that an in-built monitoring mechanism for the schemes identified are in place and mechanism for conducting annual social audit from the nearest government institute of repute in the region shall be prepared. The project proponent shall also provide Action Plan for the status of implementation of the scheme from time to time and dovetail the same with any Govt. scheme(s). CSR details done in the past should be clearly spelt out in case of expansion projects.

xxxv) R&R plan, as applicable, shall be formulated wherein mechanism for protecting the rights and livelihood of the people in the region who are likely to be impacted, is taken into consideration. R&R plan shall be formulated after a detailed census of population based on socio economic surveys who were dependant on land falling in the project, as well as, population who were dependant on land not owned by them.

xxxvi) Assessment of occupational health and endemic diseases of environmental origin in the study area shall be carried out and Action Plan to mitigate the same shall be prepared.

xxxvii) Occupational health and safety measures for the workers including identification of work related health hazards shall be formulated. The company shall engage full time qualified doctors who are trained in occupational health. Health monitoring of the workers shall be conducted at periodic intervals and health records maintained. Awareness programme for workers due to likely adverse impact on their health due to working in non-conducive environment shall be carried out and precautionary measures like use of personal equipments etc. shall be provided. Review of impact of various health measures undertaken at intervals of two to three years shall be conducted with an excellent follow up plan of action wherever required.

xxxviii) One complete season site specific meteorological and AAQ data (except monsoon season) as per latest MoEF Notification shall be collected and the dates of monitoring shall be recorded. The parameters to be covered for AAQ shall include PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO and Hg. The location of the monitoring stations should be so decided so as to take into consideration of the upwind direction, pre-dominant downwind

direction, other dominant directions, habitation and sensitive receptors. There should be at least one monitoring station each in the upwind and in the pre-dominant downwind direction at a location where maximum ground level concentration is likely to occur.

xxxix) In case of expansion project, air quality monitoring data of 104 observations a year for relevant parameters at air quality monitoring stations as identified/stipulated shall be submitted to assess for compliance of AAQ Standards (annual average as well as 24 hrs).

xl) A list of industries existing and proposed in the study area shall be furnished.

xli) Cumulative impacts of all sources of emissions including handling and transportation of existing and proposed projects on the environment of the area shall be assessed in detail. Details of the Model used and the input data used for modeling shall also be provided. The air quality contours should be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any. The windrose and isopleths should also be shown on the location map. The cumulative study should also include impacts on water, soil and socio-economics.

xlii) Radio activity and heavy metal contents of coal to be sourced shall be examined and submitted along with laboratory reports.

xliii) Fuel analysis shall be provided. Details of auxiliary fuel, if any, including its quantity, quality, storage etc should also be furnished.

xliv) Quantity of fuel required, its source and characteristics and documentary evidence to substantiate confirmed fuel linkage shall be furnished. The Ministry's Notification dated 02.01.2014 regarding ash content in coal shall be complied. For the expansion projects, the compliance of the existing units to the said Notification shall also be submitted

xlv) Details of transportation of fuel from the source (including port handling) to the proposed plant and its impact on ambient AAQ shall be suitably assessed and submitted. If transportation entails a long distance it shall be ensured that rail transportation to the site shall be first assessed. Wagon loading at source shall preferably be through silo/conveyor belt.

xlvi) For proposals based on imported coal, inland transportation and port handling and rail movement shall be examined and details furnished. The approval of the Port and Rail Authorities shall be submitted.

xlvii) Details regarding infrastructure facilities such as sanitation, fuel, restrooms, medical facilities, safety during construction phase etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase should be adequately catered for and details furnished.

xlviii) EMP to mitigate the adverse impacts due to the project along with item - wise cost of its implementation in a time bound manner shall be specified.

xlix) A Disaster Management Plan (DMP) along with risk assessment study including fire and explosion issues due to storage and use of fuel should be carried out. It should take into account the maximum inventory of storage at site at any point of time. The risk contours should be plotted on the plant layout map clearly showing which of the proposed activities would be affected in case of an accident taking place. Based on the same, proposed safeguard measures should be provided. Measures to guard against fire hazards should also be invariably provided. Mock drills shall be suitably carried out from time to time to check the efficiency of the plans drawn.

l) The DMP so formulated shall include measures against likely Fires/Tsunami/Cyclones/Storm Surges/Earthquakes etc, as applicable. It shall be ensured that DMP consists of both On-site and Off-site plans, complete with details of containing likely disaster and shall specifically mention personnel identified for the

task. Smaller version of the plan for different possible disasters shall be prepared both in English and local languages and circulated widely.

li) Detailed scheme for raising green belt of native species of appropriate width (50 to 100 m) and consisting of at least 3 tiers around plant boundary with tree density of 2000 to 2500 trees per ha with a good survival rate of around 80% shall be submitted. Photographic evidence must be created and submitted periodically including NRSA reports in case of expansion projects. A shrub layer beneath tree layer would serve as an effective sieve for dust and sink for CO_2 and other gaseous pollutants and hence a stratified green belt should be developed.

lii) Over and above the green belt, as carbon sink, plan for additional plantation shall be drawn by identifying blocks of degraded forests, in close consultation with the District Forests Department. In pursuance to this the project proponent shall formulate time bound Action Plans along with financial allocation and shall submit status of implementation to the Ministry every six months.

liii) Corporate Environment Policy

a. Does the company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
b. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
c. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions. Details of this system may be given.
d. Does the company has compliance management system in place wherein compliance status along with compliances / violations of environmental norms are reported to the CMD and the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism should be detailed in the EIA report.

All the above details should be adequately brought out in the EIA report and in the presentation to the Committee.

liv) Details of litigation pending or otherwise with respect to project in any Court, Tribunal etc. shall invariably be furnished.

ANNEXURE- A2

Specific Conditions related to Thermal Power Projects:

(i) Vision document specifying prospective plan for the site shall be formulated and submitted to the Regional Office of the Ministry within **six months**.

(ii) Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring report.

(iii) A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analyzed every two year and reported along with monitoring reports. 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) Online continuous monitoring system for stack emission, ambient air and effluent shall be installed.

(v) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 30 mg/Nm^3 or as would be notified by the Ministry, whichever is stringent. Adequate dust extraction system such as cyclones/bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided along with an environment friendly sludge disposal system.

(vi) Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.

(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 also be undertaken and results/findings submitted along with half yearly monitoring report.

(viii) A well designed rain water harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open area in the plant premises and detailed record kept of the quantity of water harvested every year and its use.

(ix) 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.

(x) Additional soil for leveling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.

(xi) Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) shall be monitored in the bottom ash. No ash shall be disposed off in low lying area.

(xii) 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.

(xiii) Fugitive emission of fly ash (dry or wet) shall be controlled such that no agricultural or non-agricultural land is affected. Damage to any land shall be mitigated and suitable compensation provided in consultation with the local Panchayat.

(xiv) Green Belt consisting of three tiers of plantations of native species all around plant and at least 50 m width shall be raised. Wherever 50 m width is not feasible a 20 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not be less than 2500 per ha with survival rate not less than 80 %.

(xv) Green belt shall also be developed around the Ash Pond over and above the Green Belt around the plant boundary.

(xvi) 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.

(xvii) CSR schemes identified based on need based assessment shall be implemented in consultation with the village Panchayat and the District Administration starting from the development of project itself. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generating programmes.

(xviii) 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.

Annexure-A3

Site Visit report of the sub-committee for the "3x800 MW Patratu Super Thermal Power Project, Phase-I at Village Patratu, Dist. Ramgarh, Jharkhand" on 08th September, 2017.

1.0. Background:

1.1. The proposal for establishing **3x800 MW Patratu Super Thermal Power Project, Phase-I at Village Patratu, Dist. Ramgarh, Jharkhand** has been received by the M/s Patratu Vidyut Utpadan Nigam Limited for grant of Environmental Clearance. The proposed project will be established within the premises of the existing power plant of 840 MW (4x50 MW, 2x100 MW and 4x110 MW). The existing power plant being older than 30 years, it has been completely shut down since 24.1.2017 and will be dismantled. The proposed power plant (3x800 MW) will be established adjacent to the existing power plant within the premises. The proposal has been considered in the EAC (Thermal Power) in its 7th meeting held on 28.6.2017. Project Proponent in their proposal requested for permission to construct ash mound on the existing ash dyke. The existing ash dyke is adjacent to the a tributary to the Nalkari river and sharing a common boundary (bund). Sub-committee of EAC visited the site on 28.1.2013 before accord of Terms of Reference (ToR) and made certain observations on the operation of existing ashdyke and ash leaking into the adjacent stream (tributary to Nalkari) and the stream is eventually meeting river Nalkari which is polluted. The sub-committee in their visit on 28.1.2013 made recommended mitigation measures for controlling the pollution from the ash pond.

1.2. The EAC in its 7th meeting held on 28.6.2017 sought following details regarding existing ash pond and proposed ash mound:

i. Details of volume of ash dykes and quantity of flyash. Plan along with timelines for evacuating and using flyash before starting the operations of proposed project. Undertaking by PP that the ash mound shall not be constructed.

1.3. The EAC in its 8th meeting held on 24.7.2017 corrected the said condition as follows:

"*Details of Volumes of ash dykes and quantity of fly ash planned along with timelines for evacuating and using fly ash before starting the operation of proposed project.* ***A three member committee shall visit the Project site and viability of having ash mound be examined and a report in this regard be submitted before the EAC for considering feasibility of having ash mound for the proposed Project****."*

1.4. Accordingly, Ministry vide Officer Order dated 30.8.2017 constituted a sub-committee comprising of following members for examining the feasibility of setting up of ash mound for the proposed project.

i.	Shri Gururaj P. Kundargi (Member-EAC)	-	Chairman
ii.	Dr. J. K. Pandey (Member-EAC)	-	Member
iii.	N. Subrahmanyam, Scientist 'C'	-	Member Secretary

1.5. Ministry has also requested Regional Office, MoEF&CC, Ranchi to nominate a scientist for accompanying the sub-committee for site visit. The sub-committee visited the Patratu Power Plant site on 8.9.2017. Dr. T. H. Mahato, Scientist 'C', Regional Office, MoEF&CC, Ranchi accompanied the sub-committee and provided inputs during the site visit (**Annexure-E**). There are about 13 representatives from M/s Patratu Vidyut Utpadan Nigam Limited present during the discussions held at the site. The details of members are enclosed as (**Annexure-F)**.

2.0. Observations regarding existing ash pond:

2.1. As per the information provided by the Project Proponent, there is an area of about 70 acres of land in which flyash was dumped during the operations of old plant. There is about approximately 8.5 Lakh cubic metres (70 acres x average 3 m depth) ash filled in that low lying area (ash pond) which is sharing a bund with stream/tributary of Nalkari river. PP stated that evacuation of 3 Lakh cubic metres is in progress out of which 40-50,000 tons of ash had already been lifted for construction of road project.

2.2. Sub-committee visited the site and observed that the depth of flyash is more than 3 m and the average depth of flyash would be about 5 metres. The ash pond has breached and the bund is broken for a length of approx. 200 m. Ash flowed in to the

nallah (a stream which meets Nalkari river downstream) and stream contains flyash deposits. The same is evident in photographs annexed to this report. PVUNL representatives explained that the hume pipe constructed for collecting overflow water from ash pond has broken and resulted into breach of ashpond. There is also one more breach/small puncture observed at other location and the runoff along with flyash is flowing in to the stream. It is observed that nearly 500 metres of bund sharing the boundary between the stream and the ash pond which needs to be strengthened. It also appears that ash was disposed in the low lying area without any protection measures.

2.3. Another Sub-committee visited the site in 2013 and made the same observations that ash deposits were found along the stream and Nalkari river. During their visit, it was recommended that the total ash in the ash pond is to be removed and utilized for various purposes such as cement, brick manufacturing, road making, etc. The flyash along the streams/river beds to be dredged or de-silted as it is polluting the water body. The nalkari river is eventually meeting the Damodar river which has chance of flyash reaching there also. However, project proponent has evacuated 40-50,000 cubic metres till date. De-silting or dredging of ash deposits along the stream/rivers is yet to be done.

2.4. Project Proponent has submitted the action plan for existing ash dyke (***Annexure-A***). However, PP proposed to keep the ash pond in the existing state. PP provided the following justification.

"*During the recent monsoon, it has been observed that the evacuated areas from where the ash was lifted and was filled with water thus jeopardizing the safety of the dyke. It is also perceived, that complete lifting of ash from the existing dyke will make the total evacuated area filled with water. With such stagnated water together with rain/ storm water particularly during monsoon, there will be every possibility of scouring/ undercutting of bund and thus flooding of nearby population.*"

2.5. PP proposed to protect the bund by constructing spill-way followed by filter, toe drains and slope protection. Sub-committee noted that if the ash pond is not evacuated and bund is not strengthened, there is always a scope for breaching as the ash pond is located in the catchment area of the stream/water body. Committee felt that either ash is to be totally evacuated or embankment with retaining wall shall be constructed to protect breaching of ashpond into the water body. Additionally, the top surface of the ash pond is to be stabilized by growing vegetation to prevent ash into runoff. The flyash

deposits along the river/streams still needs to be removed. Committee felt that this is the best time to remove the ash along the stream as there is a very little flow in the water body. Photographs w.r.t to existing ash pond and proposed ash mound are enclosed as ***Annexure-D***.

3.0. Observations regarding proposed ash mound:

3.1. Annual coal requirement is 13 MTPA which will be obtained from Banardih coal block. Ash content of Banardih coal is expected to be in the range of 10-51%. Total ash generation is 4.8 MTPA considering the average ash content of 37%. Fly ash is 3.84 MTPA and Bottom ash is 0.96 MTPA. The quantity of flyash expected to be generated is about 10-13,000 Tons per day at 85% Plant Load Factor. PP proposed dry ash mound in 340 acres of land which is located in South-East direction at a distance of 1.2 km from the power plant area. Nalkari river is flowing close to the power plant. Distance of nalkari river from proposed ash mound varies between approx.700 m -1.5 km. The capacity of the ash mound proposed is 35 million cubic metres with approx. height of 50 m. The details of ash mound proposed by PP is enclosed as ***Annexure-B***. PP during discussions, mentioned that the ash mound will be set up like Dadri ash mound.

3.2. PP also submitted the flyash utilisaiton plan (***Annexure-C***). It is mentioned that there are 36 cement plants with installed capacity of 69 Million tons located within 500 km radius from the power plant. Cement plants with 3 Lakh Ton per annum are located within 5 km radius. There are about 200 private brick manufacturing set ups with the capacity of 54.4 flyash bricks per annum. NHAI, State Highways Authority of Jharkhand and Rural Works Department (RWD) of Jharkhand are planning for construction of various road projects in the region under Pradhan Mantri Gram Sadak Yojana (PMGSY), Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA). Hence, there is a scope of utilisaiton of flyash in the region. In addition, there several coal mines which can be used for filling mine voids if these are abandoned. PP submitted that there is a scope for utilisaiton of 4.0 MTPA in cement, brick, construction of roads/embankments/structures, and reclamation in mines. Committee noted that PP should have submitted the 100% flyash utlisation plan for 4.8 MTPA as per Ministry's notification on flyash utilization.

3.3. Committee felt that PP has to lift and utilize the 100% flyash generated power plant from the zero date as per Flyash notification and its subsequent amendments. As submitted by PP, quantity of 4.0 MTPA will be utilized. Accordingly, committee felt that there is no need to have an ash mound. However, as proposed by PP, it is permitted only in case of emergency to store the unutilized flyash including bottom ash. Committee also deliberated that sufficient distance from Nalkari river is to be maintained so that similar incident of ash mound breach is not repeated. All protection measures shall be taken to check the ash leakage during monsoon.

4.0. Recommendations:

i. For existing ash pond & ash deposits along the water bodies:
   a. If ash in the existing pond is not evacuated as against the recommendations given by previous sub-committee, embankment shall be constructed around the periphery of ash pond. A retaining wall shall also to be constructed alongside of the stream to prevent breach in future.
   b. All other measures proposed by the PP like constructing spill way & filters, toe drains, slope protection, etc.
   c. Vegetation on the surface of ash pond shall be grown to arrest the surface runoff preferably by adding soil cover. Soil cover should added wherever it is required for stabilisation.
   d. Flyash deposits along the water body shall be excavated immediately. The removal of flyash deposits in the water bodies shall be completed before onset of next monsoon.
   e. Regional Office of the Ministry shall inspect the progress made by PP atleast once in six months. The status of the ash pond and dredging of ash deposits shall be submitted along with the six monthly compliance report to RO as well as MoEF&CC, New Delhi.
   f. Environmental protection measures as recommended at Sl. no. a-e as above shall be implemented before start of operations of the proposed 3x800 MW Power plant.
   g. If the breach of ash pond is reported in future, PP shall have to evacuate the total ash from the pond.

h. Construction and demolition waste from dismantling the existing power plant shall be disposed in accordance with the Construction and Demolition Waste Management Rules, 2016.

ii. For proposed ash mound:

a. Minimum distance of 500 m from the proposed ash mound shall be maintained from Nalkari river. Ash mound shall be developed in 340 acres and the height of the ash mound shall be restricted to 35 metres.

b. Ash mound shall be used only in case of emergency. Fly ash utilisation shall be done as per the flyash notification and its subsequent amendments issued time to time. Only unutilised flyash shall be disposed in the ashmound.

c. Any further increase in the ash mound height may be considered based on a scientific study on stability & consolidation of ash mound and satisfactory site inspection report by RO supporting heightening beyond 35 m and maximum height upto 50 m.

d. Garland drains along with stone pitching is to be done for the ash mound on the side of Nalkari.

***

(Dr. Jai Krishna Pandey)
Member

N. Subrahmanyam
(N Subrahmanyam)
Member Secretary

(Gururaj P Kundargi)
Chairman

ACTION PLAN FOR EXISTING ASH DYKE OF OLD PROJECT (PTPS)

Introduction to Existing Ash Dyke for Old Station:

The ash dyke of old power station of Erstwhile Patratu Thermal Power Station (PTPS) is spread over an area of approx. 70 acre, where ash was being filled earlier. Since January 2017, old station (i.e. PTPS) is under shutdown and under the process of phasing out therefore, there is no further disposal/ accumulation of ash in the same existing dyke.

Estimation of Ash in the Existing Ash Dyke:

The quantity of ash presently lying at the existing dyke of PTPS is estimated to be approx. 8,50,000 cu.m. The calculation is as follows:

70 Acre of dyke corresponds to	*= 70 x 4,047 sq.m*
	= 2,83,290 sq.m
Avg. depth of Borehole nos. 66, 73 & 74 from where ash has been obtained.	*= 3 m*
Volume/ quantity of ash in 70 acres	*= 2,83,290 x 3*
	= 8,49,870 cu.m
	≃ 8,50,000 cu.m

Utilization of Ash from the Existing Ash Dyke:

After the transfer of assets to the JV company i.e. Patratu Vidyut Utpadan Nigam Limited (PVUNL), PVUNL initiated the process of utilization of ash lying in the existing dyke in compliance to the condition no. (v) stipulated vide TOR dated 07.06.2016 accorded by MoEF&CC. Till date, approx. 40,000 – 50,000 cu.m of ash has already been utilized.

Action Plan for Strengthening the Dyke:

During the recent monsoon, it has been observed that the evacuated areas from where the ash was lifted and was filled with water thus jeopardizing the safety of the dyke. It is also perceived, that complete lifting of ash from the existing dyke will make the total evacuated area filled with water. With such stagnated water together with rain/ storm water particularly during monsoon, there will be every possibility of scouring/ undercutting of bund and thus flooding of nearby population.

Alternatively, PVUNL proposes to keep the ash as it is basis at dyke since it has stabilized over a period of time with growth of grass cover on top of it. However, to avoid damage to bund and overflowing of ash water particularly during monsoon, the vulnerable and week sections of ash dyke of PTPS shall to be suitably protected and strengthened with the provision of water escape structures like:

- spill-way followed by filter,
- toe drains and
- slope protection at affected locations.

However, PVUNL has already initiated the repair works of damaged portion of ash dyke of old project as under:

- Cracked bund with disturbed soil of dyke of length of about 280 m is thoroughly removed up to the level of hard strata,
- The soil thus excavated is used along the length of affected portion with widening of dyke width and slope to strengthen the affected portion,

- Necessary provision of water escape structures like spill way followed by filter, toe drains and slope protection at affected locations will be executed to ensure proper protection and strengthening of dyke.
- Toe drain and other drain at dyke to be regularly cleaned particularly before and after monsoon to ensure smooth flow of water.

Provisions for Safety of Ash Dyke (Old)

Spillway:

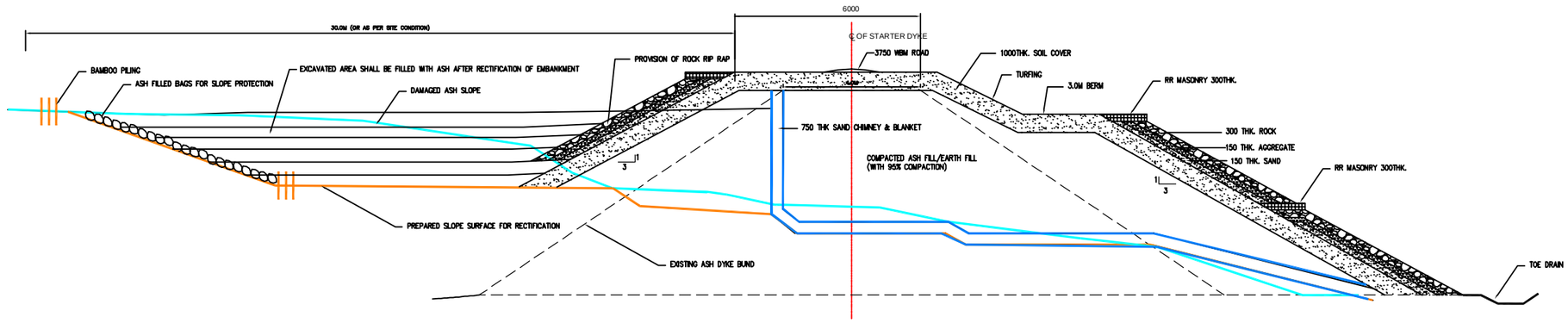
Spillway is box top structure provided over the top of dyke embankment with fixed opening to spill out the excess water from inside ash dyke, thus avoid the overtopping of ash dyke embankment, which is one of the major cause of ash dyke breach.

Stability of Bund:

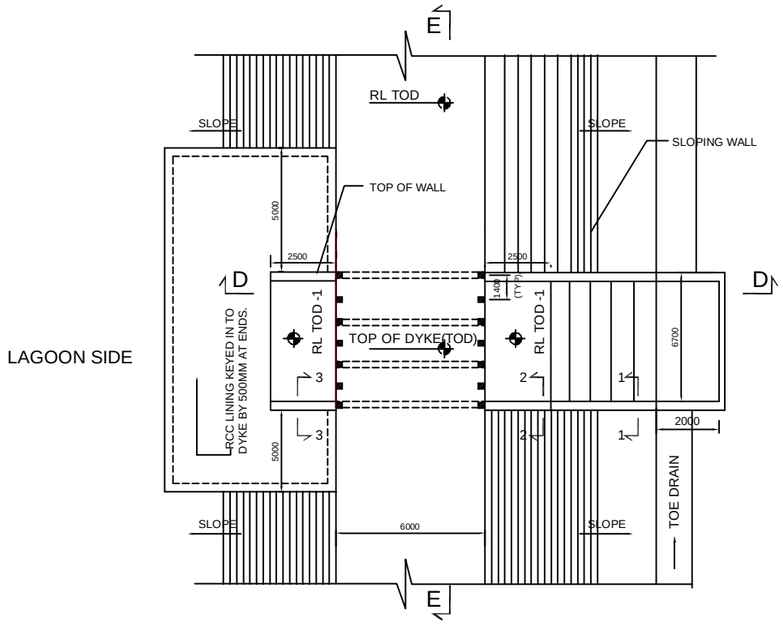
Stability of bund to be ensured with provision of spill way followed by filter, toe drain and slope protection at affected locations.

No Breach of Ash Pond/ Over-flow During Monsoon Season:

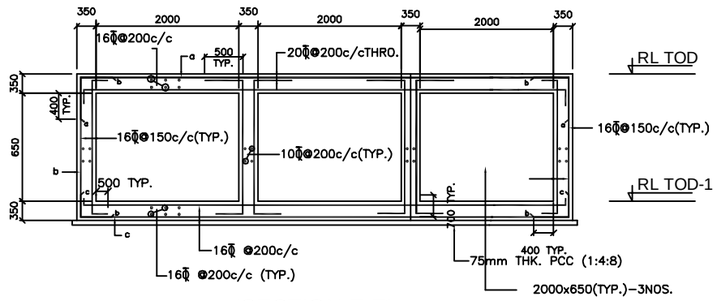
To ensure stability of slope particularly during monsoon respective damaged section of dyke will be protected/ strengthened with earth filling, filter material, drain with a provision of spillway as per requirement at site to be decided in consultation with Project Engineering group of Corporate Centre.



RECTIFICATION MEASURES FOR DAMAGED LOCATION OF ASH DYKE-2 AT PATRATU

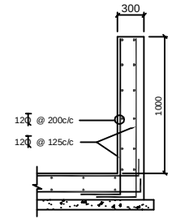


PLAN OF PROPOSED SPILLWAY AT EXISTING DYKE -2

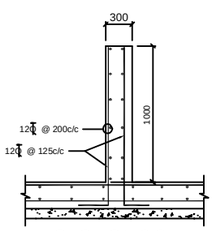


(SECTION E-E)

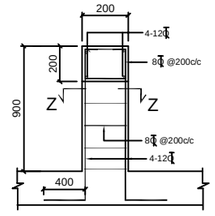
REINFT. DETAILS FOR BOX CULVERT



SECTION 1-1 / 2-2

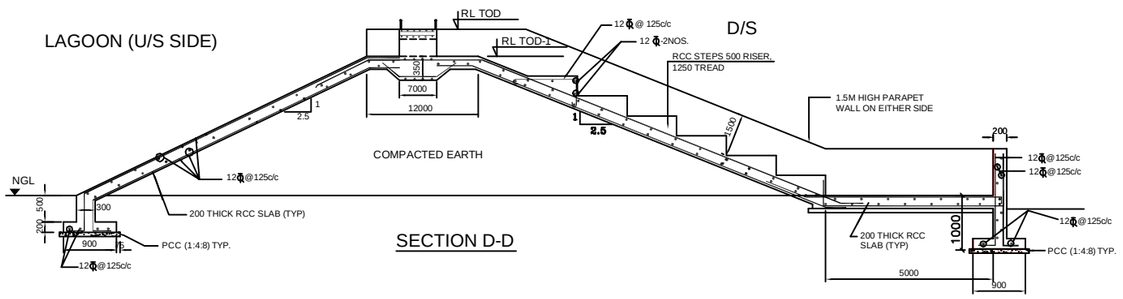


SECTION 3-3

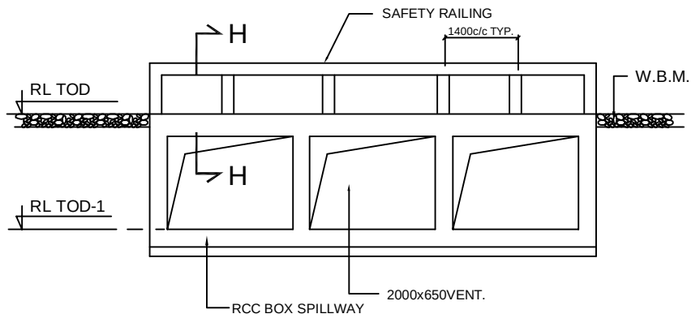


SECTION H-H

SECTION Z-Z



SECTION D-D



SECTION E-E

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES UNLESS NOTED OTHERWISE.
2. PCC, RCC, REINFORCEMENT, FORM WORK AND OTHER ITEMS OF WORK SHALL BE AS PER SPECIFICATION.
3. GRADE OF CONCRETE SHALL BE M-25 AND STEEL SHALL BE Fe 500.
4. CLEAR COVER TO THE CONCRETE SHALL BE 25mm.
5. DEVELOPMENT LENGTH OF R/F BARS SHALL BE 50xDIA OF BAR.
6. EMBANKMENT TO BE MADE UP TO FULL HEIGHT AND CONSTRUCTION OF BOX CULVERT TO BE DONE AFTER CUTTING THE EMBANKMENT.

RELEASED FOR CONSTRUCTION

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					
0	RELEASED FOR CONSTRUCTION	P.DASS								

NTPC Limited
(A GOVERNMENT OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT: PATRATU SUPER THERMAL POWER PROJECT STAGE-I, (3X800 MW)

TITLE: CROSS SECTIONAL DETAILS OF RECTIFICATION AND DETAILS OF RCC BOX CULVERT

SIZE: A0 | SCALE | DRG.NO. 9585-330-POC-C-001 | REV. 0

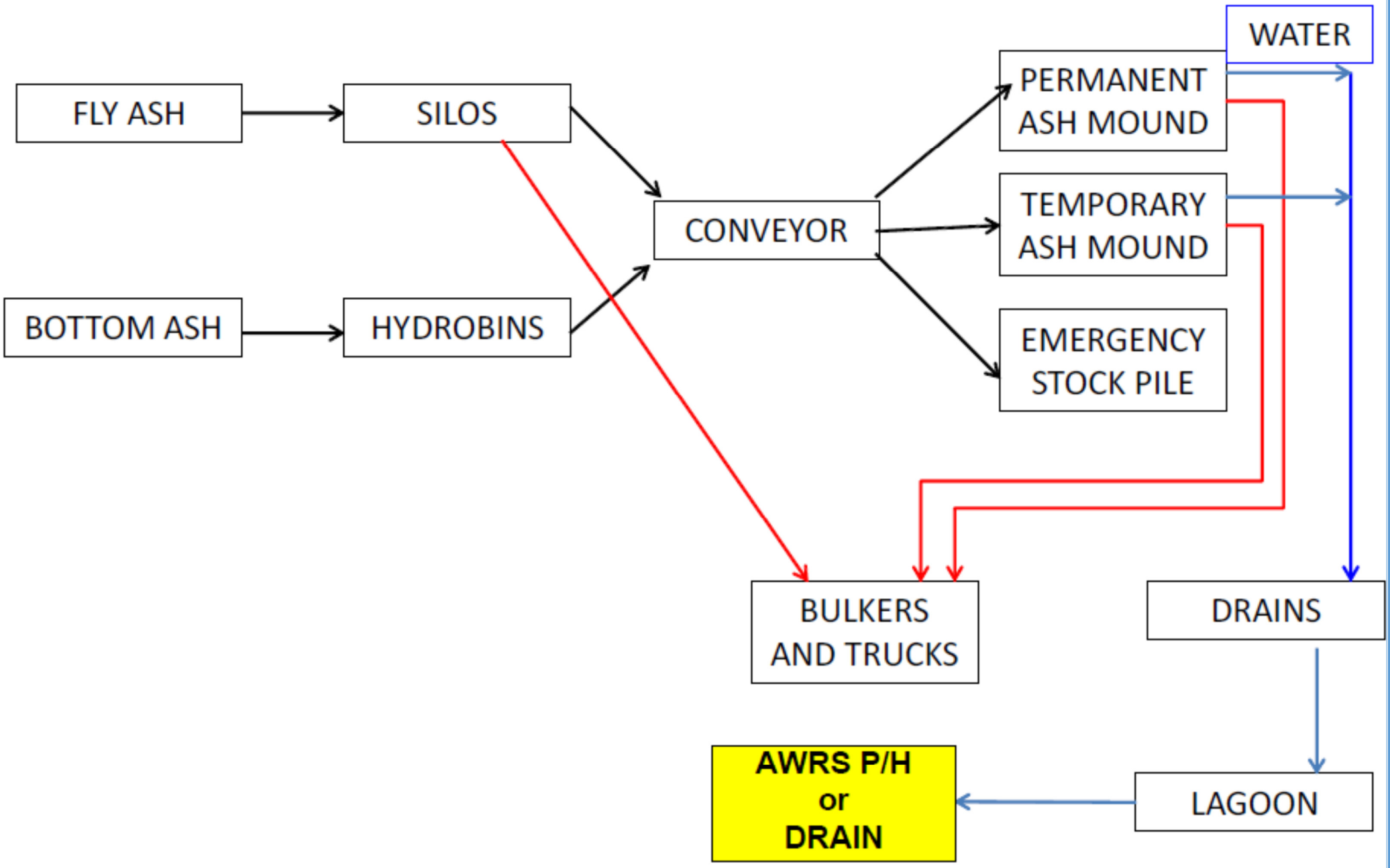
Details of Proposed Dry Ash Mound for Patratu STPP, Phase-I (3x800MW)

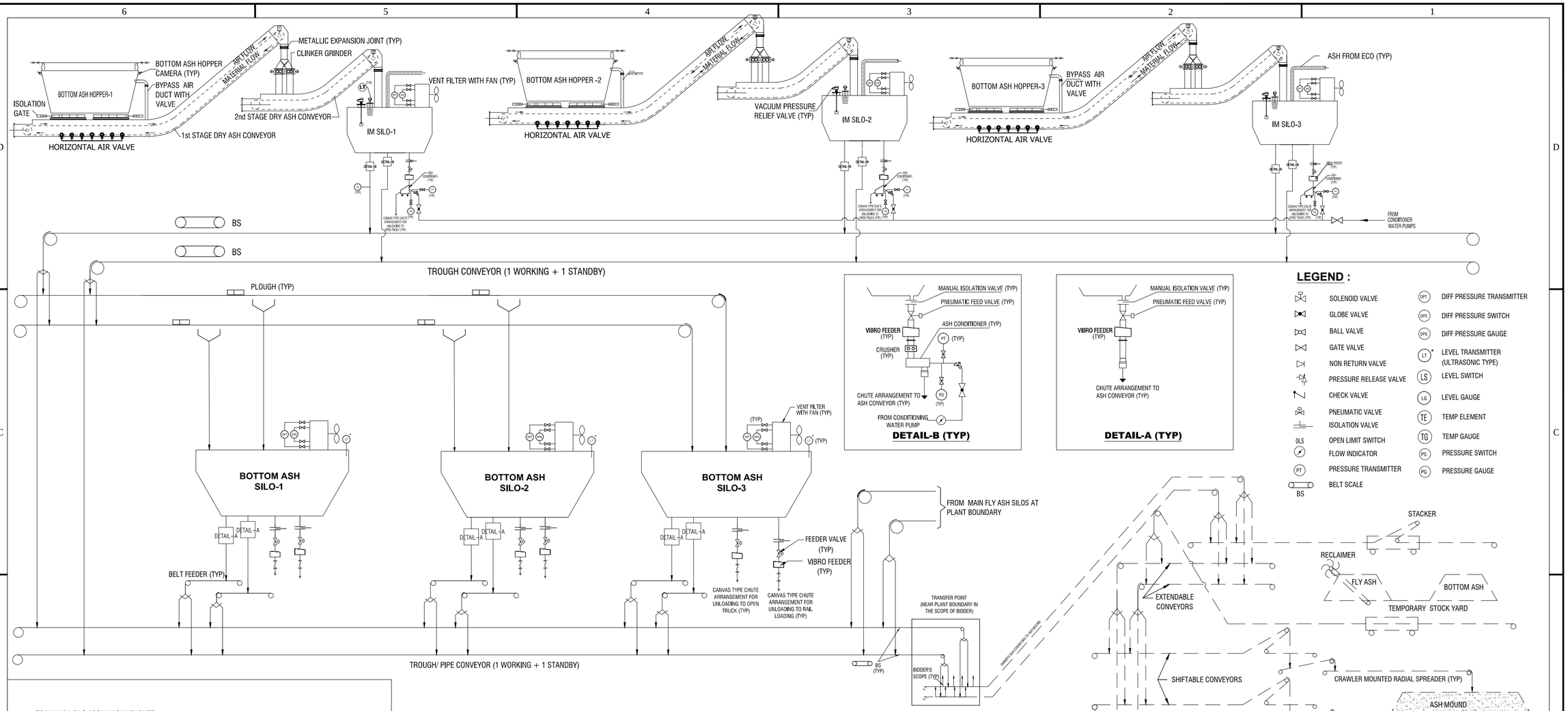
- The scope of work for Ash Mound generally involves Topographical Survey of proposed Ash disposal area, geotechnical investigation, design, planning, programming and construction of the mound complete with all associated civil, mechanical, electrical and C&I works, including aspects of maintenance & care , health & safety, records & tests and for dealing with emergencies etc.
- The identified disposal area for ash mound is about 340 acres and is about 1500m from plant boundary. To know the ground levels at the proposed ash mound area and soil data, topographical survey and geo tech investigation work has to be carried out by NTPC Ltd.
- Annual ash generation from Patratu STPP, Phase-I, shall be about 4.82 Million cu.m.
- Ash Mound Shall be designed to cater ash disposal up-to a maximum height (about 50 m) required for ash storage volume of 35 Million cu.m in the available ash disposal area. The actual height of ash mound shall be as per the design.
- The design of stability analysis and seepage analysis shall be safe for full height of ash mound.
- The ash disposal area shall consist of main ash mound for bottom ash and fly ash (250 acres), 20 acres for temporary yard and 2.5 acres for emergency yard and balance 65 acres for peripheral ditch, inspection road, amenity area, workshop, nursery, green-belt and filter lagoons etc.
- The ash disposal mound is to be of the dry ash placement type formed using mechanical equipment to place the ash to the predetermined lines and levels. Proven principles of mound construction are to be used, due consideration being given to the local geology and climate including conditions that will arise during the monsoon period. The ash mound is required to be capable of storing all the ash derived from the Patratu STPS during all stages of development, i.e. Furnace Bottom Ash (FBA) and Pulverized Fly Ash (PFA).
- The procedures for construction shall be such that stability is ensured at all times and pollution of the atmosphere and ground water is minimized. The majority of surface water runoff will be collected by drainage ditches leading to settlement lagoons to prevent pollution of the adjacent natural drain and ground water.
- The final surfaces of the ash mound will be planted with natural vegetation to provide a self-perpetuating surface which will give both protection and stability.
- Ash Mound shall be designed as an earthen embankment as per IS: 12169 with drainage system i.e. filter blanket shall be provided as per design use of Bottom Ash could be explored & designed to be used for filter material.
- Seepage analysis shall be done for thickness of internal drainage as per IS code.
- Based on soil test report of foundation soil suitable lining below ash mound shall be provided to stop the ground water pollution.
- Slope stability of ash mound embankment shall be done for steady seepage condition, both for static and dynamic (seismic) cases as per IS: 7894. However, in any case the slope of embankment shall not be steeper than 1V:4.0H with berms of 10.0 m width at every 15.0 m height intervals.
- To prevent pollution of the natural drains during rains, runoff from active ash disposal areas of the ash mound disposal site shall be collected by a perimeter ditch and

conveyed to lagoons (filter + storage) to be constructed for this purpose at one side of the site before discharge in to the Ash Water Recirculation System Pump House (AWRS PH)/ drains. Filter lagoons shall be provided with filter under-drainage system.

- To permit ash disposal during periods of heavy monsoon rainfall a temporary stockpile area is to be provided with its own drainage system. To tackle any break down of conveyor system in the mound area, emergency stockpile area shall also be provided.
- The ash handling plant and proposed method of construction of the ash mound shall be designed to control & minimize the extent of any dust emissions. Infrastructural arrangement for dust control shall be provided. Details of measures to be adopted to overcome the dust nuisance during operation shall also be provided.
- To ensure long term stability and to give an environmentally acceptable appearance to the ash mound, the surface is to be landscaped with appropriate vegetation cover. The procedure for improving and enriching the ash surface in order to propagate and maintain vigorous vegetation growth, as well as the selection of species, will be determined from experience gained from the plant growing trials. A trial planting area and plant nursery will be set up within the mound site during the early stage of ash production/ mound formation.
- Immediately after an area of completed ash mound surface becomes available, land scape works should be commenced.
- The overall scope/specification for planning, design, construction and operation complete of the ash mound shall be as per the recommendation of the consultant appointed by NTPC Ltd.
- The provisions submitted are tentative and shall be firmed up as per the consultant report**.**

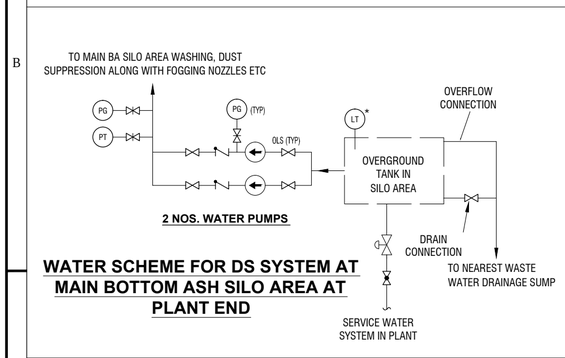
FLOW CHART


WATER
FLY ASH
SILOS
PERMANENT ASH MOUND
CONVEYOR
TEMPORARY ASH MOUND
BOTTOM ASH
HYDROBINS
EMERGENCY STOCK PILE
BULKERS AND TRUCKS
DRAINS
AWRS P/H or DRAIN
LAGOON

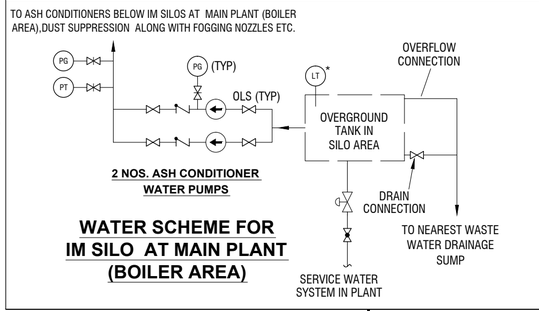


LEGEND :

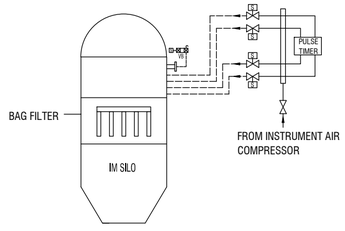
- SOLENOID VALVE
- GLOBE VALVE
- BALL VALVE
- GATE VALVE
- NON RETURN VALVE
- PRESSURE RELEASE VALVE
- CHECK VALVE
- PNEUMATIC VALVE
- ISOLATION VALVE
- OLS — OPEN LIMIT SWITCH
- FLOW INDICATOR
- PT — PRESSURE TRANSMITTER
- BS — BELT SCALE
- DPT — DIFF PRESSURE TRANSMITTER
- DPS — DIFF PRESSURE SWITCH
- DPG — DIFF PRESSURE GAUGE
- LT* — LEVEL TRANSMITTER (ULTRASONIC TYPE)
- LS — LEVEL SWITCH
- LG — LEVEL GAUGE
- TE — TEMP ELEMENT
- TG — TEMP GAUGE
- PS — PRESSURE SWITCH
- PG — PRESSURE GAUGE



WATER SCHEME FOR DS SYSTEM AT MAIN BOTTOM ASH SILO AREA AT PLANT END



WATER SCHEME FOR IM SILO AT MAIN PLANT (BOILER AREA)



TYPICAL BAG FILTER ARRANGEMENT ON IM SILO AT BOILER AREA

NOTES :

1. REQUIRED NUMBER OF INTERMEDIATE CONVEYORS & TRANSFER POINTS SHALL BE PROVIDED AS PER SYSTEM AND LAYOUT REQUIREMENT.
2. BELT FEEDER AT BA MAIN SILOS ALONG WITH ITS SUPPORTING STRUCTURES, TRANSFER POINTS AND SPACE PROVISION FOR CONVEYOR SYSTEM NEAR SILO AREA FOR TRANSPORTING ASH ON TO OWNER'S ASH MOUND CONVEYORS (WHICH IS LOCATED NEAR PLANT BOUNDARY,EXACT LOCATION & TERMINAL POINT WILL BE DECIDED DURING DETAILED ENGINEERING) IS IN THE SCOPE OF BIDDER.
3. ONE (1) NO. PITLESS TYPE WEIGH BRIDGE BELOW EACH BA INTERMEDIATE SILO AT BOILER AREA OF EACH UNIT, ONE NO. BELOW EACH MAIN BOTTOM ASH SILO (SUITABLE FOR RAIL & TRUCK LOADING) AT PLANT BOUNDARY AREA COMPLETE WITH ALL ELECTRICAL, CONTROLS, CIVIL AND STRUCTURAL WORKS FOR WEIGHMENT OF TRUCKS DURING FILLING FROM SILOS.
4. THE SCHEME IS INDICATIVE ONLY SHOWING THE OVER ALL REQUIREMENTS & BROAD PARAMETERS (REFER RELEVANT CLAUSES OF TECH. SPECS. FOR SYSTEM DESIGN AND GUIDE LINES.)
5. INSTRUMENTS/CONTROL SHOWN ARE INDICATIVE ONLY. COMPLETE INSTRUMENTATION SHALL BE PROVIDED AS PER SYSTEM & FUNCTIONAL REQUIREMENTS SPECIFIED UNDER PART–B OF TECH. SPEC.
6. INSTRUMENT AIR PIPING IS NOT SHOWN IN THE DRG. IT SHALL BE ROUTED TO DIFFERENT VALVES, BAG FILTERS ETC. IN BOTTOM ASH HANDLING SYSTEM AS PER SYSTEM DESIGN AND REQUIREMENTS.
7. THE SCHEME & NO. OF EQUIPMENT SHOWN ARE TENTATIVE ONLY AND THE SAME SHALL BE FINALISED DURING DETAIL ENGG. BASED ON TECHNICAL SPECIFICATION & SYSTEM REQUIREMENTS.
8. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH TECH.SPECS. AND OTHER TENDER DOCUMENTS.
9. BIDDER SHALL PROVIDE INDIVIDUAL MONORAIL AND HOIST(ELECTRIC OPERATED) FOR EACH BOTTOM ASH INTERMEDIATE SILO AND MAIN BOTTOM ASH SILO AT PLANT BOUNDARY.
10. ONE NO. BELT WEIGHER SHALL BE PROVIDED ON EACH CONVEYOR TAKING FEED FROM EACH BOTTOM ASH INTERMEDIATE SILO.

FOR TENDER PURPOSE ONLY

REV.	DESCRIPTION	DRAWN	DESIGN	CHKD.	C	M	E	C&I	APPD	DATE
					CLEARED BY					
D	REVISED AS MARKED RELEASED FOR TENDER	JITENDRA	-sd-	-sd-		-sd-	-sd-	-sd-	-sd-	01.05.17
C	REVISED AS MARKED RELEASED FOR TENDER	JITENDRA	-sd-	-sd-		-sd-	-sd-	-sd-	-sd-	01.02.17
B	REVISED AS MARKED RELEASED FOR TENDER	JITENDRA	-sd-	-sd-		-sd-	-sd-	-sd-	-sd-	18.12.16
A	RELEASED FOR TENDER	JITENDRA	-sd-	-sd-		-sd-	-sd-	-sd-	-sd-	02.09.16

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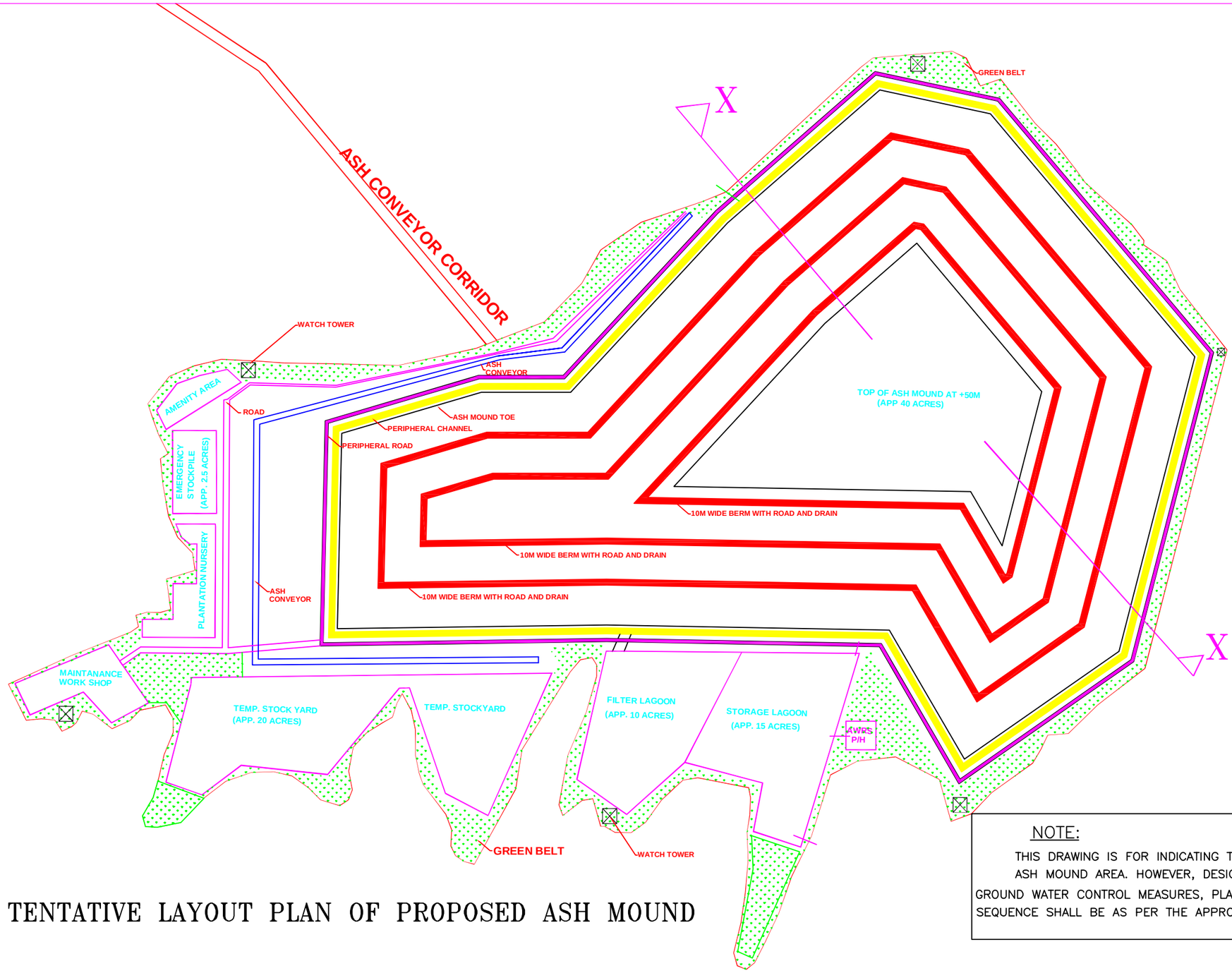
NTPC Limited
(A GOVT. OF INDIA ENTERPRISE)
ENGINEERING DIVISION

PROJECT: PATRATU SUPER THARMAL POWER PROJECT
STAGE-I (3x800 MW)

TITLE: **EPC PACKAGE - ASH HANDLING SYSTEM**
SINGLE LINE FLOW DIAGRAM OF DRY BOTTOM ASH HANDLING & DISPOSAL SYSTEM

SIZE	SCALE	DRG.NO.	REV.
A2		9585-001-POM-A-025	D

CAD FILE NAME : 9585-001-POM-A-025.dwg



TENTATIVE LAYOUT PLAN OF PROPOSED ASH MOUND

NOTE:

THIS DRAWING IS FOR INDICATING TENTATIVE LOCATIONS OF VARIOUS FACILITIES OF ASH MOUND AREA. HOWEVER, DESIGN, SLOPES, SECTIONS, HEIGHT, FILTER , LINER FOR GROUND WATER CONTROL MEASURES, PLANTATION OF VEGETAION , ASH MOUND CONSTRUCTION SEQUENCE SHALL BE AS PER THE APPROVED DRAWING & REPORT OF ASH MOUND CONSULTANT.

REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ES	APPD	DATE
0	FOR TENDER PURPOSE ONLY	MANOJ									11.09.17
					CLEARED BY						

PROJECT

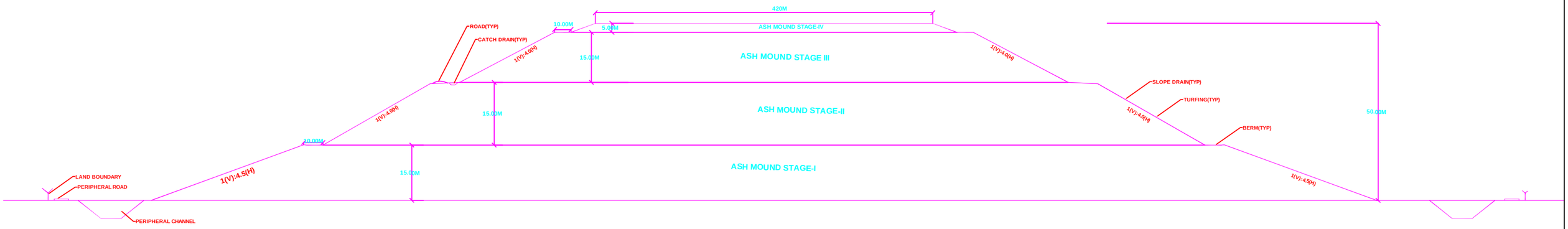
PATRATU SUPER THERMAL POWER PROJECT

STAGE-I (3X800MW), STAGE-II (2X800MW)

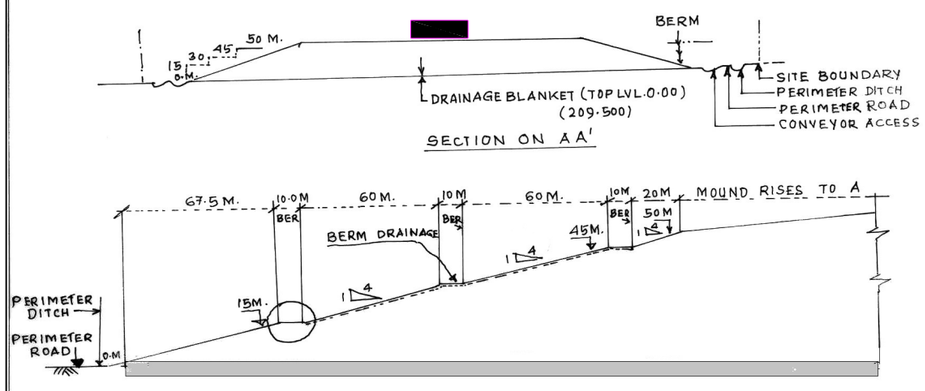
TITLE

AREA PLAN OF ASH MOUND

SIZE	SCALE	DRG. NO.	REV. NO.
A0	NTS	9585-731D-POC-A-001	A



TYPICAL CROSS SECTION X-X FOR ASH MOUND



NOTE:
THIS DRAWING IS FOR INDICATING TENTATIVE CROSS SECTION OF ASH MOUND WITH IN ASH MOUND AREA. HOWEVER, ASH MOUND CONSTRUCTION SHALL BE AS PER THE APPROVED DRAWING & REPORT OF ASH MOUND CONSULTANT.

REV.NO.	DESCRIPTION	DRAWN	DESIGN	CHKD.	M	E	C	C&I	ES	APPD	DATE
0	FOR TENDER PURPOSE ONLY	MANOJ									11.09.17

CLEARED BY

PROJECT: PATRATU SUPER THERMAL POWER PROJECT
STAGE-I (3X800MW), STAGE-II (2X800MW)

TITLE: TYPICAL CROSS SECTION OF MOUND

SIZE	SCALE	DRG. NO.	REV. NO.
A0	NTS	9585-731D-POC-A-002	15A

Ash Utilization Plan for Patratu STPP, Phase-I (3x800 MW)

1.0 Introduction

MoEF&CC has issued a Gazette Notification dated 03.11.2009, 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 notification dated 03.11.2009 further amended on 25.01.2016, and additional measures have been stipulated to thermal power plants so as to facilitate 100% Ash Utilization.

2.0 Ash Utilization Plan

Patratu Super Thermal Power Project, Phase-I (3x800 MW) planned to be set up by NTPC through Patratu Vidyut Utpadan Nigam Limited (A Subsidiary of NTPC in Joint Venture with Jharkhand Bijli Vitran Nigam Limited) at Patratu, District Ramgarh, Jharkhand. The estimated coal requirement for the plant at 90% PLF is 13 Million Tonne Per Annum (MTPA), with average ash content of about 34%. Coal to Patratu STPP, Phase-I shall be supplied from Banhardih coal block which is about 60 Km away from the proposed plant. It is estimated that about 12,000 Tonnes of ash per day (TPD) i.e. about 4.0 Million Tonne ash Per Annum (MTPA) would be produced in the power generation process. In order to assess ash utilization potential around the Patratu STPP a study has been carried out through a Consultant. In this study, the potential areas covered include cement plants located within 100/ 300/ 500 Km, brick manufacturing plants and major construction activities like roads & flyover embankments within the 300 Km radius of Patratu STPP etc. Based on the survey report, sector wise ash utilization potential in the vicinity estimated around the proposed power project is presented as below.

2.1 Cement Sector

There are around 36 existing cement manufacturing plants having total installed capacity of about 69 MTPA within 500 Km radius of proposed project. Two cement plants each of 3 lakh TPA capacity, M/s Burnpur Cement Ltd., Patratu and M/s Rishi Cement Company Ltd., Ramgarh, are within 5 Km distance from the proposed project. Currently, these plants are producing OPC & PSC. However, it is anticipated that when the fly ash will be available from Patratu STPP, these plants may switchover to PPC. Considering that these plants will produce 50% PPC of their installed capacity, about 0.1 Million Tonnes ash will be consumed by these plants. Further, there are 4 RMC manufacturing plants and some new cement plants/ grinding units are being set up. It is anticipated that during the year 2021-22 (1st year of commissioning of units of PATRATU STPP), these plants (other than the two adjacent plants) shall collectively produce approx 54 Million Tonnes of PPC and shall require about 12 Million Tonnes of DFA. It is expected that about 20% fly ash requirement of these cement and concrete plants shall be met from Patratu STPP, about 2.4 Million Tonnes fly ash per annum is expected to be utilized in this sector from proposed project. Thus, estimated ash utilization in the Cement & RMC sector will be about 2.5 Million TPA from proposed project.

2.2 Brick, Blocks, Tiles & Other Ash Based Products

In the region, fly ash bricks/ blocks are being manufactured by about 200 private agencies using fly ash with total capacity about 54.4 crore fly ash bricks per annum. In line with provisions of MoEF&CC notification Patratu STPP shall bear the cost of transportation of ash or shall make available fly ash free of charge to fly ash based building products manufacturing units and thus demand for fly ash brick, blocks, tiles

& other ash based products will rise in nearby areas. It is estimated that about 0.4 MTPA fly ash is expected to be utilized in this segment.

2.3 Road and Highway Development

The Road Development Authorities such as Project Implementation Unit of National Highways Authority of India (NHAI), State Highways Authority of Jharkhand and Rural Works Department (RWD) of Jharkhand are planning for construction of various road projects in the region under Pradhan Mantri Gram Sadak Yojana (PMGSY), Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) etc.

National Highway projects are being taken up by NHAI during 2017-2020 within 300 Km of PATRATU STPP are (i) NH-30: Four laning of Patna to Koilwar, Bihar under NHDP-III by Madhucon Projects (ii) NH-84: Four laning of Koilwar to Bhojpur under NHDP-III by PNC – SPSCPL (iii) NH-84: Four laning of Bhojpur to Buxar, Bihar under NHDP-III by PNC – SPSCPL (iv) NH-31: Four laning of Bakhtiyarpur – Mokama, Bihar under NHDP-III by BSCPL Infrastructure Ltd. The estimated total requirement of ash in these road projects is about 1.7 Million Tonnes.

Further, National Highway projects are being taken up by RCD-Govt of Jharkhand during 2018-2023 within 300 Km of Patratu STPP are: 2 laning of Ranchi-Gumla-Birmitrapur , Jharkhand under NHDP-IV, 2 laning of balance stretch Dobhi-Chatra-Balumath-Chandwa, Jharkhand, 2 laning of balance stretch of Renukut-Nagarutari-Garhwa-Parwa More-Datolganj-Ranchi section, Jharkhand, 2 laning of balance stretch of Khunti-Murhu-Chakradharpur-Chaibasa-Jaitgarh section , Jharkhand, 2 laning of balance stretch of Kuku-Gumla, Four Laning of Govindpur (Raigunj) - Cahs - WB border under NHDP-IV by Ashoka Buildcon Ltd-Indian, Six laning of Chauparan(Bihar border) to Chirkunda (WB border) in Jharkhand. The estimated total requirement of ash in these road projects is about 5.2 Million Tonnes.

Patratu STPP will take up with concern departments & shall bear the cost of transportation of ash for road construction projects in line with the provisions of MoEF&CC notification dated 25.01.2016. It is expected the entire existing old ash stock of about 0.9 Million Tonnes shall be utilized in this sector during 2017-20 (prior to commissioning of 1st unit of Patratu STPP). Also it is expected about 0.8 Million Tonnes ash per annum is expected to be utilized in this sector on regular basis as few road projects are also planned during 2018-25 and beyond this period.

2.4 Reclamation of Mine Voids

National Green Tribunal, vide its order dated 20.08.2015 has allowed for use of ash in mine voids/ development as per provision of MoEF&CC's gazette notification. Therefore, mine voids etc. can be reclaimed with fly ash. Patratu STPP would take necessary steps for utilization of unutilized fly ash/ bottom ash for back filling of coal mines and reclamation of other mines of minerals.

2.5 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 Patratu STPP shall be as follows:

Table-1

S. No.	Area of use	Potential of Utilization (MTPA)	End user
1.	Cement & Concrete	2.5	Cement & RMC units
2.	Bricks & blocks	0.4	Brick, blocks, tiles & other ash based products

3.	Road & embankment	0.8	PWD, NHAI, Local Bodies/ Agencies
4.	Mine voids	0.3	Coal mines and reclamation of other mines of minerals
	Total	**4.0**	100%

3.0 Action Plan for Ash Utilization

Based on the study a tentative ash utilization plan proposed for Patratu 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's notification, following actions are proposed to be taken up by Patratu STPP:

- Patratu STPP 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. 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.
- Patratu STPP shall make tie-up with user agencies well in advance before commissioning of units so as to utilize the ash as and when it produced.
- Patratu STPP shall set up the ash based product manufacturing facilities within its premises & fly ash brick thus produced shall be utilized in in-house construction works as well as for supply in the market on price.
- Patratu STPP shall make efforts to motivate and encourage entrepreneurs to set up ash based building products such as fly ash bricks, blocks tiles etc in the vicinity of proposed power plant.
- To comply the provisions of MOEF&CC notification dated 25.01.2016, transportation cost of ash shall be borne by Patratu STPP in line with provisions of notification.
- Separate bottom ash collection shall be made so as to make available bottom ash for stowing of underground mines located in the vicinity, for use of ash as drainage media in ash mound construction & for other construction activities.
- All government/ private agencies responsible for construction/ design of buildings, road embankment, flyover bridges and reclamation areas within 300 Km of the plant areas shall be motivated for use of ash and ash based products in compliance of MoEF&CC's Gazette Notification on fly ash.
- 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.

4.0 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 & Climate Change.

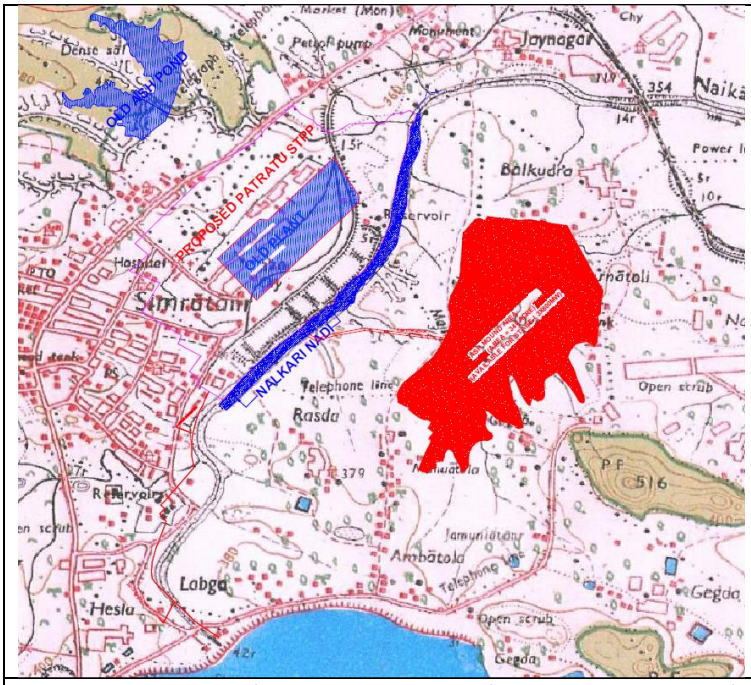


Figure 1: Map showing power plant, existing ash pond and proposed ashd mound

Figure 2: Areas proposed for ash mound (SE of Nalkari River)

Figure 3: Discussions by Sub-committee with PVUNL representatives at proposed ash mound area

Figure 4: Existing ash pond area filled up to ground level with vegetation

Figure 5: Existing ash pond area filled up to ground level without vegetation

Figure 6: Hume pipe from ash pond in to nalla/stream

Figure 7: Bund sharing between ash pond (on left) and a nallah/stream (on right)

Figure 8: Breach of ash pond and water logging.

Figure 9: Temporary arrangement to control ash pond breach.

Figure 10: Drainage from ash pond passing beneath the bund into the stream.

Figure 11: Flyash deposits along the stream at railway crossing entering into the plant.

Figure 12: Flyash deposits along the stream near railway crossing entering into the plant.

Representative of MoEF&CC, Regional Office, Ranchi along with the sub-committee of EAC (Thermal Power) for the site visit of Patratu Thermal Power Station on 08.09.2017

Name	Signature
Dr. T.H.Mahato Scientist 'C' MoEF&CC, RO, Ranchi	

Meeting with MOEF - EAC Members & MOEF Represntatives at PVUNL, Patratu held on 08-09-2017

Participants

Sl. No.	Name (S/Sh.)	Signature
1.	S.K. Patnaik, ED & CEO (PVUNL)	
2.	P.R. Rao, AGM (Envt Engg.) CC	
3.	A.K Dutta, AGM (Ash handling) NTPC Dadri	
4.	B. Manjul, AGM (Operation)	
5.	P. K. Biswas AGM (HR)	
6.	K. Majumder AGM (Civil)	
7.	Ravi Mukhopadhaya, AGM (EMG/ Chemistry)	
8.	Tushar Kumar, AGM (TS/Comml.)	
9.	Rohit Goswami, DGM (P&S)	
10.	Anmol Xalco, Sr. Manager (Operations)	
11.	Manoj Kumar Sahu, Manager (PE- Civil)	
12.	Abuzar Ahmed, Manager (PE- Civil)	
13.	Kumar Niket, Manager (Mech. Maintenance)	

No. J-13012/21/2015-IA.I (T)
Government of India
Ministry of Environment, Forest and Climate Change

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

Dated: 30.08.2017

OFFICE ORDER

Sub: 3x800 MW Patratu Super Thermal Power Project (PSTPP), Phase-I at village Patratu, Distt. Ramgar, Jharkhand by M/s Patratu Vidyut Utpadan Nigam Limited- regarding Environmental Clearance.

Sir,

This has reference to the online application No. IA/JH/THE/32025/2015 dated 9.6.2017 of M/s Patratu Vidyut Utpadan Nigam Limited for grant of EC for setting up of 3x800 MW Super Thermal Power Project. The EAC (Thermal Power) in its 7th and 8th Meeting held on 28.6.2017 and 24.7.2017 recommended for a site visit by Sub-committee for examining the viability of ash mound in the proposed project.

2. The Ministry accepts the recommendations and hereby constitutes a sub-committee comprising of following members which would make site inspection and submit a report on findings with respect the concerned project by M/s Patratu Vidyut Utpadan Nigam Limited. Ministry also hereby requests Regional Office (Ranchi) Jharkhand to nominate its representative for site inspection alongwith Sub-Committee.

i. Shri Gururaj P. Kundargi (Member EAC) - Chairman

ii. Shri J.K. Pandey (Member EAC) - Member

iii. *Shri N. Subrahmanyam, Scientist 'C', IA Division* - *Member Secretary*

3. The Committee shall make a site inspection during 7-9th September, 2017 and submit the report within 15 days to the Ministry for further consideration.

4. TA/DA of the Sub-committee nominated by the Ministry for undertaking site visit shall be met by the Ministry of Environment, Forest and Climate Change as per rules.

This issues with the approval of the Competent Authority.

Yours faithfully,

(Dr. S. Kerketta)
Director

Copy to;-

1. Shri Gururaj P. Kundargi, Member EAC (Thermal Power)

2. Shri J.K. Pandey, Member EAC (Thermal Power)
3. The Additional Principal Chief Conservator of Forests Ranchi (C), MoEF&CC, Regional Office (ECZ), Bungalow No. A-2, Shyamali Colony, Ranchi-834002- ***– with a request to nominate a Scientist to accompany the Sub-committee during the site visit.***
4. Shri N. Subrahmanyam, Scientis 'c', IA.I (Thermal), Vayu, 3rd Floor, IPB, New Delhi-110003.
5. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi 110001.
6. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.
7. The Secretary, Department of Forests & Environment, Government of Jharkhand, Ranchi.
8. The Project Head, M/s Patratu Vidyut Utpadan Nigam Ltd, (A JV of NTPC Ltd. and JBVNL) NTPC Bhawan, Core-7, Scope Complex, 7, Institutional Area, Jharkhand.
9. Guard file/Monitoring file.
10. Website of MoEF&CC.

(Dr. S. Kerketta)
Director

Attendance of the 10th Meeting of the Re-constituted Expert Appraisal Committee (EAC) for Thermal Power Projects Meeting held on 25th September, 2017.

DATE & TIME : 25th September , 2017

VENUE : ~~TEESTA~~ INDUS HALL, INDIRA PARYAVARAN BHAWAN.

Sr.No.	Name of Member	Signature
1.	Dr. Navin Chandra Chairman	Navinchandra
2.	Dr. Narmada Prasad Shukla Member	
3.	Sh. N. Mohan Karnat, IFS Member	Absent
4.	Dr. Sharachchandra Lele Member	
5.	~~Sh. P.D. Siwal~~/ Sh. N.S. Mondal, Member	
6.	Dr. R.K. Giri, Member	Absent
7.	Dr. S.K. Paliwal, Member	25/9/2017
8.	Prof. D.C. Panigrahi/ Prof. S.K. Sinha/ Prof. Om Prakash Member	25/9/17
9.	Dr. Jai Krishna Pandey, Member	Pandey 25/9/17
10.	Dr. Manjari Srivastava, Member	25.9.17

11.	Dr. Gururaj P Kundargi, Member	Absent
12.	Shri Suramya Dolarray, IFS (Retd.) Member	
13.	Dr. S. Kerketta Member Secretary MoEFCC	

Subject: **Re: Draft MoM of 10th EAC meeeeting of Thermal Sector - approval reg.** Date: 09/28/17 09:37 PM
To: Dr S Kerketta <s.kerketta66@gov.in> From: navin chandra <navinchandrarrl@yahoo.com>

28/09/2017

Dear Dr. Kerketta,

I have gone through the final draft of the Minutes of the EAC meeting held on 25th September, 2017. The Minutes are in order. You can upload it now on the website.
Regards,
yours sincerely,

(NAVIN CHANDRA)

Dr. Navin Chandra,
Director General
M P Council of Science and Technology (MPCST),
Vigyan Bhawan, Nehru Nagar, Bhopal - 462003 (M.P.) India
Phone : 91-755- 2671800 (Office)
e-mail : dg@mpcost.nic.in
navinchandrarrl@yahoo.com, navinchandraampri@gmail.com

On Thursday, September 28, 2017, 5:50:29 PM GMT+5:30, Dr S Kerketta <s.kerketta66@gov.in> wrote:

Dear Sir,

Please find the attached draft MoM of 10th EAC meeting of Thermal Sector held on 25.09.2017. It is submitted after incorporating the comments of EAC members.

May please approve it.

--
regards,

Dr. S. Kerketta
Director- IA (Thermal, River Valley & HEP)
MoEF&CC, New Delhi
Phone: 011-24695314 (O), 26113096 (R)

AGENDA OF 10th MEETING OF THE RE-CONSTITUTED EXPERT APPRAISAL COMMITTEE ON THERMAL POWER PROJECTS

DATE : 25th September, 2017

TIME : 10.30 A.M. ONWARDS

VENUE : TEESTA MEETING HALL, VAYU WING, FIRST FLOOR, INDIRA PARYAVARAN BHAWAN, JORBAGH ROAD, NEW DELHI-110003.

ITEM	
Item No. 10.0	**CONFIRMATION OF MINUTES OF 9th EAC (Thermal) MEETING**
Item No.	**CONSIDERATION OF PROJECTS**
10.1	3x800 MW NLC Talabira Thermal Power Palnt at Village Khumberi, Taraikela and Thelkolai, Tehsil and District Jharsuguda, Odisha, by **M/s NLC India Ltd. -reg. ToR** **File No:** J-13012/14/2017-IA.I(T) & **Online no:** IA/OR/THE/67938/2017.
10.2	Expansion by additional of 1x600 MW (Stage-IV) at Rayalseema Coal Based Thermal Power Plant near V.V. Reddy Nagar in Yerraguntla Mandal in Kadapa District in Andhra Pradesh by **M/s Andhra Pradesh Power Generation Corporation Ltd.-reg. amendment in EC**. **File No:** J-13012/87/2008-IA.II(T)& **Online no:** IA/AP/THE/10613/2008.
10.3	1200 MW (4x300 MW) Coal Based Thermal Power Plant at villages Binjkot & Darramura, Taluk Kharsla, District Raigarh, Chhatisgarh by **M/s SKS Power Generation (Chhattisgarh) Ltd.- reg. extension of validity of EC.** **File No:** J-13012/64/2008-IA II(T) & **Online no:** IA/CG/THE/12023/2008.
10.4	Modernization & Expansion in Power Plant from 125.3 MW to 141 MW at Tehsil Ladpura, District Kota, Rajasthan by **M/s DCM Shriram Ltd.- reg. amendment in ToR.** **File No**: J-13012/07/2017-IA I(T) & **Online no:** IA/RJ/THE/64601/2017.
10.5	2x150 MW (Phase-I) and 2x150 MW (Phase-II) Middling and Coal fine based captive Thermal Power Plant at Village Dongamahua, District Raigarh, Chhattisgarh by **M/s Jindal Steel & Power Ltd.- reg. Amendment in EC**. **File No:** J-13012/127/2008-IA.II(T) & **Online no**: IA/CG/THE/10354/2008.
10.6	Proposed Expansion of 1x700 MW Thermal Power Project within the premises of existing 2x700 MW Rajpura TPP at Village Nalash, Tehsil Rajpura, District Patiala, Punjab by **M/s Nabha Power Limited – reg. ToR.** **File No.** J-13012/12/2017-IA.I(T) & **Online No.** IA/PB/THE/62359/2017.
10.7	Expansion by addition of 1x350 MW Super Critical Thermal Power Plant within the existing 2x300 MW Plant at Haldia, Village Jhikurkhali, Tehsil Sutahata-I, Dist. East Medinipur, West Bengal by **M/s Haldia Energy Limited – reg. TOR.** **File No.**J-13012/13/2017-IA.I(T) & **Online No.** IA/WB/THE/36544/2015**.**
10.8	Standardisation of EC conditions for all Thermal Power Plants (Coal, Lignite, Petcoke, Gas, Bio-mass & Municipal Solid Waste)
10.9	**ANY OTHER ITEM WITH THE PERMISSION OF THE CHAIR.**

Note: If project documents are not submitted to Committee Members on time along with brief summary/basic information as per pro-forma, it will be the Committee's discretion to consider the project. Project proponents shall bring shape file (.kml file) containing project boundaries & facilities and shall be saved on computer in the meeting hall. Project Proponents shall submit the attendance form duly filled to the Member Secretary before starting the presentation.