



STATE POLLUTION CONTROL BOARD, ODISHA

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No. 21964 IND-II-PH-291

Date 28-11-13

PUBLIC NOTICE

M/s. Lanco Babandh Power Limited., At/Po : Kharagprasad, Dist – Dhenkanal (Odisha)-759 121, India proposes to establish the “Ash Pond” over an area of 413.24 Acres in the revenue village of Sanamunda and Janhamunda of Hindol Block in the district of Dhenkanal (Odisha) for disposal of coal ash of its “2x660 MW – Super Critical Coal Based Thermal Power Plant” located at village Kharagprasad, Dhenkanal (Odisha), by pumping ash slurry through pipe line and adopting “High Concentration Slurry Disposal (HCSD)” method.

In this connection it is notified that any stakeholder interested in making comments and objections regarding establishment of the Ash Pond, may do so in writing, so as to reach the undersigned latest within 30 (thirty) calendar days from the date of publication of this notification. Further details of the new ash pond location and system of conveyance using “HCSD” will be available in the head office of the Odisha State Pollution Control Board, Parivesh Bhawan, A/118, Nilakantha Nagar, Unit -8, Bhubaneswar / at our Regional Office, State Pollution Control Board, S-3/3, Industrial Estate, Hakimpara, Angul – 759 143, Tel : 06764-236389, Fax : 06764-237189, (Email : rospcb.angul@ospcboard.org) on any working day during office hours and same can be downloaded from the website of the Board www.ospcboard.org.

MEMBER SECRETARY

Memo No. 21965 /dt. 28-11-13

Copy along with write-up (both hard and soft copy) forwarded to Regional Officer, SPC Board, Angul for information and necessary action.

Encl : As above

Memo No. 21966 /dt. 28-11-13

Copy forwarded to Administrative Officer, SPC Board, , Bhubaneswar for information and necessary action. The cost of the publication of notices in national daily will be borne by the project proponent.

SR. ENV. ENGINEER-II

Memo No. 21967 /dt. 28-11-13

Copy forwarded to Sri Ashok Patnaik, Dy. Gen. Manager, M/s. Lanco Babandh Power Limited, Lanco House, Plot No. 4, Software Units Layout, Hitech City, Madhapur, Hyderabad-81 for information and necessary action.

SR. ENV. ENGINEER-II

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ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ଼, ଓଡ଼ିଶା

ଏ/୧୧୮, ନୀଳକଣ୍ଠ ନଗର, ନୟାପଲ୍ଲୀ,
ଭୁବନେଶ୍ୱର - ୭୫୧ ୦୧୨

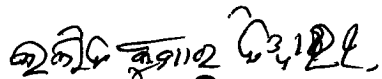
No. 21968 IND-II.PH - 291

Dtd. 28-11-13

ସର୍ବସାଧାରଣ ବିଜ୍ଞାପନ

ଏତଦ୍ୱାରା ସମସ୍ତଙ୍କ ଅବଗତ ନିମନ୍ତେ ସୂଚୀତ କରାଯାଉଛି ଯେ ମେସର୍ସ ଲାନକୋ ବାବନ୍ଦ ପାୱାର ଲିମିଟେଡ୍ (ଏଲ୍.ବି.ପି.ଏଲ୍), ଦେଙ୍କାନାଳ ଜିଲ୍ଲାର ଖଡ଼ଗପ୍ରସାଦ ଠାରେ ଅବସ୍ଥିତ ୨x୨୭୦ ମେଗାୱାଟ୍ ସୁପର କ୍ରିଟିକାଲ କୋଇଲା ଭିତ୍ତିକ ତାପଜ ବିଦ୍ୟୁତ୍ କେନ୍ଦ୍ରର ପାଇଁ ବିସ୍ତାପନ ପାଇଁ ହିନ୍ଦୋଳ ବ୍ଲକ୍ ଅନ୍ତର୍ଗତ ସାନମୁଣ୍ଡା ଓ ଜହ୍ନମୁଣ୍ଡା ଗ୍ରାମ ଠାରେ ୪୧୩.୨୪ ଏକର ପରିମିତ ଅଞ୍ଚଳରେ ଏକ ପାଇଁ ପୋଖରୀ ପ୍ରତିଷ୍ଠା ନିମନ୍ତେ ପ୍ରସ୍ତାବ ରଖିଛନ୍ତି । ଏହି ପାଇଁ ପୋଖରୀ ଟି High Concentration Slurry Disposal (HCSD) ପଦ୍ଧତିରେ କାର୍ଯ୍ୟକ୍ରମ କରାଯିବ ।

ଯେ କୌଣସି ବ୍ୟକ୍ତି ବିଶେଷ ବା ସଂସ୍ଥା ଉପରୋକ୍ତ ପ୍ରକଳ୍ପର ପାଇଁ ପୋଖରୀ ସମନ୍ୱୟ ଅଭିଯୋଗ କିମ୍ବା ମତାମତ ପ୍ରକାଶିତ ବିଜ୍ଞାପନର ୩୦ ଦିନ ମଧ୍ୟରେ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ଼ର ସଦସ୍ୟ ସଚିବଙ୍କୁ ଲିଖିତ ଆକାରରେ ଦେଇ ପାରିବେ । ପ୍ରସାବିତ ପାଇଁ ପୋଖରୀ ବିଷୟରେ ଅଧିକ ବିବରଣୀ ଜାଣିବା ପାଇଁ ଯେ କୌଣସି କାର୍ଯ୍ୟ ଦିବସରେ ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ବୋର୍ଡ଼, ଓଡ଼ିଶା, A/118, Nilakantha Nagar, Unit-8, Bhubaneswar ବୋର୍ଡ଼ର ୱେବସାଇଟ୍ - www.ospcboard.org କିମ୍ବା ଆଞ୍ଚଳିକ କାର୍ଯ୍ୟାଳୟ, ଅନୁଗୁଳ, S-3/3, Industrial Estate, Hakimpara, Angul-759143, Tel-06764-236389, FAX- 06764-237189, E-mail : rospcb.angul@ospcboard.org ଠାରୁ ପ୍ରାପ୍ତ କରିପାରିବେ ।


ସଦସ୍ୟ ସଚିବ

Memo No. 21969 /dt. 28-11-13

Copy along with write-up (both hard and soft copy) forwarded to Regional Officer, SPC Board, Angul for information and necessary action.

Encl : As above


SR. ENV. ENGINEER-II

Memo No. 21970 /dt. 28-11-13

Copy forwarded to Administrative Officer, SPC Board, , Bhubaneswar for information and necessary action. The cost of the publication of notices in national daily will be borne by the project proponent.


SR. ENV. ENGINEER-II

Memo No. 21971 /dt. 28-11-13

Copy forwarded to Sri Ashok Patnaik, Dy. Gen. Manager, M/s. Lanco Babandh Power Limited, Lanco House, Plot No. 4, Software Units Layout, Hitech City, Madhapur, Hyderabad-81 for information and necessary action.


SR. ENV. ENGINEER-II

METHODOLOGY
of
HIGH CONCENTRATION SLURRY DISPOSAL SYSTEM
for
2 x 660 MW Lanco Babandh Thermal Power Plant



LANCO
LANCO BABANDH POWER LIMITED
Vill: Kurunti and Kharagprasad
Dist: Dhenkanal, Odisha

1.0 Introduction

Lanco Babandh Power Limited is executing 2x660 MW coal fired Thermal Power Project in Dhenkanal District in the State of Odisha. The Project construction work has started and the Project will start generating power by the First quarter of FY 2015-16.

The Project is based on Supercritical Technology using the coal sourced from Talcher Coal fields.

The power generated from the Project will be evacuated at 400 KV voltage and will be connected to Local State Grid Transmission Line Meramundali –Dubri LILO and National Grid of PGCIL at Angul Pooling Point at about 24 Km away from the Power Station.

2.0 Site Selection

For disposal of Ash from Power Project, Lanco Babandh Power Ltd. has selected the location at Village Janmunda/Sanamunda in Hindol Block of Dhenkanal district. This location is about 3.5 km from the Bhushan Steel Power Limited, 6.2 Km from Mangalilal Rangta, 7.2 Km from Hind Metal and industries, 7.1Km from Navabharat Venture, 8.2 Km from BRG Group of industries, 8.5 km from Ranvirun Vinmay Pvt. Ltd.

Selection of this site was done considering following factors to minimize negative impact of the proposed activities on the socio-economic condition of the people residing near the selected location and also to minimize negative impact on the land and environment of the area.

- No Homestead land involved/ No Displacement & Resettlement
- Land use pattern is mostly barren/ un-irrigated.
- No Forest Land involved and away from Reserve forest location.
- No wild life presence
- No negative impact on Ground Water & run off
- Negligible Leachability of the area
- Favourable geological & hydro geological conditions
- No elephant corridor
- No ayacut interference

Considering above factors, LBPL approached Govt. of Orissa and State Pollution Control Board for their consent and approval. As per the observation made by the Govt. Authorities, a detailed hydro-geological study was conducted and the results were found to be suitable for use of the selected land for Ash Pond purpose and approved the selected location on 20 Feb 2013.

3.0 Ash Generation:

Combustion of coal in a thermal power plant results in generation of ash which needs to be disposed off. The amount of ash generated from the plant depends on Technology of Boiler, quality of coal particularly its calorific value and its ash content. Lanco Babandh Power Ltd. has selected "**Supercritical Technology**" at a higher cost than subcritical technology. This initiative was taken considering the aspect of reduction in environmental pollutions from plant and resource conservation. . With this technology and the use of good coal (High Caloric Value and Low Ash Content), there will be reduced environmental emission, reduced ash generation, better resource conservation, thus minimizing overall negative impact on environment.

4.0 New Technology for Ash Disposal

In lean phase ash slurry disposal system, traditionally used in most of the Indian power plants, 20% ash is mixed with 80% water and the slurry is disposed to ash pond. In this method of ash disposal, the ash-water mixture is stored in a huge pond, generally called **Ash Pond**, and water is recovered from the ash pond and sent back to the main plant for other use.

This method of ash disposal has limitations/disadvantages on account of higher amount of water wastage/contamination, ground water pollution, potential for ash pond embankment collapse, vast land required for ash dykes and other environmental issues. There have been several safety issues noticed in past where the breach of ash pond have caused ash water flow in nearby villages and loss of crop along with negative impact on livelihood condition of villagers.

Over a period of time, there have been several technological developments in this field and International technology was brought in India to address the negative impact of **Lean Slurry Disposal System**. The new technology of HCSD (**High Concentration Slurry Disposal**) system is one of them.

The High Concentration Slurry System operates on a higher concentration & for ash slurry it is about 60% solids (ash) and 40% water by weight thereby water consumption is drastically reduced and hardly any water is released at the disposal area.

5.0 The Disposal System :

The disposal system shall operate on 'sloped disposal' technology. In technology of high concentration slurry disposal, the slurry shall be spread over the site at a low slope (5% approx.) with excess water being lost by evaporation, rather than running from the deposit and further creating a disposal problem. When the **thick slurry** is released at the disposal area, the slurry mixing liquid shall be retained within the fresh slurry deposit and not released as free liquid. The system is designed as not to

contaminate ground water by way of leaching. Fresh slurry deposit shall dry out to a stable trafficable surface within 24 Hours. See Figure 1.1 and 1.2 showing the discharge from pump and reaching in the Ash Pond.



Figure 1.1



Figure 1.2

6.0 Geological & Hydrogeological Observations of Proposed Ash Pond area:

Detailed Investigation/study conducted in the area indicates following facts:

- i) Major portion of study area is occupied by Precambrian basement rocks consisting of mainly granites and gneisses.
- ii) Geophysical survey indicates that the site consists of shallow aquifers spread all over the area and deep aquifer is limited to few places.
- iii) TCLP test results indicate that the leachate from the ash slurry is devoid of heavy metal concentration and not pose any pollution to ground water, even it

percolates. Permeability tests indicate that chances of percolation into subsoil and ground water is negligible.

iv) Surface geology and sub surface geology of the site as evaluated during detailed investigation/study does support for ash pond construction.

7.0 Environmental Protection and Ash Pond Design:

To avoid ground water pollution, MoEF stipulates liner for the ash disposal area. The liner may be natural or synthetic depending upon the substrata encountered and the permeability of soil. To avoid the contamination of nearby fields, toe drain is provided all around the periphery of outer dyke which will collect the seepage water from storage lagoon which is either lead to the nearest natural drain or channel.

Fugitive dust is minimal as compared to Lean Slurry, due to rare possibility for segregation of ash particles (coarse & fine). Because of minimum/less water accumulation at disposal site, there will be rare possibility for breach of the dyke. Due to minimum segregation of ash particles (fine & coarse), even pond ash suitability for ash utilization is better in comparison to lean phase disposal. This is major relief in the safe disposal of ash by HCSD system.

8.0 Proposed Ash Dyke Advantage and Design:

The other advantage of this system is that the fine ash in the form of lumps is discharged to the ash pond. Since the ash discharge is in the lump form, it occupies lesser space in the ash pond compared to the same volume of slurry ash in the ash pond, resulting in extension of the useful life of the ash pond" Also the slurry is selfsetting and also self-limiting so that in the ash pond it is expected that the ash will deposit and dry by itself to form a hard surface. Refer Figure 1.3 and 1.4.



Figure 1.3



Figure 1.4

Ash dyke shall be planned in the plot of land shown in the general lay out plan for dumping of unutilised fly ash and bottom ash by HCS D. Height of starter dyke shall be 12.M. The starter dyke shall be constructed using selected earth for a height as per approved scheme. Provision for subsequent raising of ash dyke, in future in no. of stages (as per approved scheme) of 3 m each by upstream method using pond-ash as core material and suitable earth cover with adequate thickness, shall be considered in design and construction. The ultimate ash dyke height shall be as per the finalized arrangement. The slope of dyke shall be considered not steeper than 2 horizontal (H) to 1 vertical (V) in case of earth and 3H: 1V in case of ash. The starter dyke construction shall be carried out by the successful Contractor. The slope stability analysis of the dyke for ultimate stage shall be done for steady seepage condition both for static and dynamic (earthquake) cases as per IS: 7894. Provision of filters, rock toe, suitable lining & grass turfing shall be provided as per the requirement for ensuring stability of ash pond dyke.

9.0 Conveyance System

For disposal of ash slurry from the project site to ash pond, there will be total three (3) parallel independent A106 Gr B/ API 5L Gr.B seamless ash pipe lines one from each pump discharge to disposal area complete with bends, fittings, couplings, supports etc. shall be provided. The actual size and thickness of the disposal pipeline, depending upon the ash characteristics, shall be finalised during detail engineering after the approval of Purchaser/ Consultant. Slurry velocities for pipe line selection shall be in the range of 1.5 to 1.8 m/sec. The ash piping and fittings shall have minimum 500 BHN hardness. The dense slurry disposal pipelines shall be installed above ground on concrete pedestals and shall be welded.

The complete piping route shall have monitoring arrangement by providing service road along with the pipeline and there will guard or fencing at location which needs such arrangement.

10.0 Reclamation of Abandoned Ash Pond (future plan)

Green capping with suitable plant species, is one of the popular methods to re-vegetate abandoned ash ponds thereby lowering the risk of contamination to the surrounding environment. It has innumerable advantages such as prevention of dust emission, checking soil erosion, stabilizing the surface areas of ash pond, preventing potential ground water contamination, and finally, adding native vegetation cover, which is very vital in the long term. Once the ash is filled upto the final height, the ash surface will be covered with 300mm thick soil. Required slope and run off water drainage arrangement shall be maintained for stability of abandoned ash pond. The area shall be reclaimed for future use.

Few photographs of other power plant shown below for the reclaimed ash pond shown below:



Figure 1.5



Figure 1.6



Figure 1.7

*****End of Resport*****