

## 1) Purpose, Scope, and Salient terms of EOI

### General:

At Koldam, Chute Spillway with ski-jump has been provided and a Plunge pool has been created for dissipation of energy. Flip bucket has been provided with invert level as 527m. From that level RCC cladding has been provided upto El 485m with berms at El 516m & 501m. A cut-off has been provided at toe level i.e. at El 485m. End of cladding at El 485m is 60m away from Flip-bucket d/s face. Drawing attached as Annexure-I.

### Purpose

- 1.1** NTPC intends to carry out inspection and repairing of toe wall (if required) for future stability and robust performance of spillway, flip bucket and plunge pool, NTPC has to publish an EOI to determine the capability, methodology, capacity and willingness of vendors to carry out the Dewatering of plunge pool and associated works using modern techniques. This EOI is open to Indian companies. Based on this EOI, the final decision pertaining to award of work and services will be taken by NTPC.

**1.2** Scope

In order to empty the plunge pool following would be needed:

**A. Construction of Cut-off:**

First of all, it would be required to stop the river flow from entering into the plunge pool. In order to isolate the plunge pool from the main river course, it would be required to construct a Cut-off from left side to right side of Plunge pool as indicated in Pic-1. Since the power generation will continue in morning and evening hours, Methodology (proposed by agency) should be that keeping it in consideration.

The proposed Cut-off would be EITHER a Secant Piling OR a Dyke OR PCC wall with water proofing admixture along with water sealing sheets constructed of soil/ debris/ muck. Approximate length would be 300m.

**Dyke:** Indicative drawing attached as Annexure-II

Cut-off can also be provided by constructing a dyke by putting muck and compacting the same. Length would be about 300m. An impervious vertical cut-off would be required to arrest seepage from river bed to plunge pool which would be started from minimum level of 3m below river bed i.e.  $\pm 497$ m. Still there would be seepage for which a continuous dewatering arrangement would be established in the plunge pool by having a deeper pit (say at El 482m) so as to maintain plunge pool in drier condition.

- Thus, for construction of dyke scope includes,
  - Making local bunds, Dewatering and Removal of RBM in Dyke formation area (say about 3m deep)
  - Subsequently, a trench about 2m wide and 3m deep (min.) would be excavated for formation of impervious (lesser pervious) cutoff which would be comprising of finer material.
  - Dyke would be constructed from El  $\pm 500$ m to El 508m or 510m depending upon the Bhakra reservoir level (keeping a free board of 2m).

- Side slopes of Dyke may be kept as 1:1 OR 1:2
- Total quantity to be filled for construction of Dyke would be about 50,000 to 60,000 cum.

**B. Secant Piling:** Indicative drawing attached as [Annexure-III](#)

If cut-off is provided of secant piling, it would be about 3m below the riverbed level. Keeping in view that river water level during non-monsoon would be around  $\pm 506\text{m}$  during running of all 4 units, total height of secant piling would be about 13m (from El 495m to El 508m or 510m depending upon the Bhakra reservoir level).

Execution of this work would be possible from riverbed by constructing a temporary access from right bank by putting muck in the river bed with provision of Hume pipes as passage for normal river flow.

**C. PCC wall:** Indicative drawing attached as [Annexure-IV](#)

If cut-off is provided of 5500 Cum. PCC (using water proofing admixtures) wall as cut off, it would be about 3m below the riverbed level. Also using water proofing sheet on either side or one side for more resistance to water to ingress

**D. Excavation in Plunge pool:** [making road](#)

Indicative drawing attached as [Annexure-V](#).

Once a cut-off is constructed, next work is to excavate the muck/slush filled in the plunge pool. About  $\pm 30000$  cum muck/ slush would be required to be removed.

- For excavation/ removal of muck scope includes,
  - Initial dewatering of Plunge pool (see part E)
  - An access would be provided from top of Dyke OR side of Secant piling; from El 508m or 510m to lowering down in a gradient of 1 in 20 keeping loaded dumper to ply on a moist soil.

**E. Dewatering in Plunge pool:**

- For dewatering of plunge pool about 2,00,000 KL to 3,60,000 KL (approx. 225m\*160m\*10m),
  - Scope includes sufficient number of pumps with sufficient capacity including dewatering of slushy water.
  - Head required 20 to 30m minimum.

**F. Concreting and consolidation grouting**

Indicative drawing attached as [Annexure-VI](#).

- Concreting behind cladding wall from EL 501.5 to EL486.0m is anticipated to be done including underwater concreting.
- Consolidation grouting (30m deep dia 80mm to 120mm) needs to be done after concrete filling of the anticipated cavity from EL 501.5 to 486.0m.

**G. Concrete blocks 10-15 tons (Anticipated work) 400 nos (approx.) OR in-situ concrete of equivalent quantity.**

Indicative drawing attached as [Annexure-VII](#).

- Pre-casted Concrete blocks of weight 10-15 Ton (2m\*2m\*1.5m) at toe i.e. EL486.0m is anticipated to be placed either with crane or by winch/cables.
- Alternatively, these concrete blocks can be made in situ at EL 486

### **1.3 Salient Terms**

- i. Vendors should have experience for carrying out the construction of coffer dams/dykes, dewatering/de-slushing, concreting/underwater concreting, grouting with advance techniques in limited time.
- ii. Vendors should necessarily have organizational & Technical capabilities for doing such works.
- iii. Vendors should have requisite financial capacity with adequate machinery to undertake the work.

### **2) Following documents are required from interested agencies**

- 1.Previous order copies for similar work i.e. " Construction of coffer dams/dykes, dewatering/de-slushing, concreting/underwater concreting, grouting ".
- 2.Details (including methodology) of similar work (as mentioned above) executed previously with advance/other/analogous technology for achieving required Progress of work of work.
- 3.Details of Time taken for completion (including deployed machinery details) for similar work (as mentioned above) if executed previously.

further in addition to above following documents are required but not be limited to.

1. Details of equipments available with agency and related data sheets.
2. Technical brochures and catalogues if available for related work execution (videos may also be uploaded or mailed).

Details may be sent to following ID.

1. [Sureshkumar02@ntpc.co.in](mailto:Sureshkumar02@ntpc.co.in) .
2. [Rakeshrathee@ntpc.co.in](mailto:Rakeshrathee@ntpc.co.in)
3. [Durgeshkumar02@ntpc.co.in](mailto:Durgeshkumar02@ntpc.co.in)