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THE MINUTES OF THE 4TH MEETING OF THE NATIONAL COMMITTEE  
ON SEISMIC DESIGN PARAMETERS (NCSDP) OF HYDRAULIC  
STRUCTURES IN RIVER VALLEY PROJECTS :

OPENING REMARKS :

The 4th Meeting of the National Committee on Seismic Design Parameters (NCSDP) of Hydraulic Structures in River Valley Projects was held in Room No. 306, Sewa Bhavan, Central Water Commission (CWC), New Delhi on 3.5.93 under the chairmanship of Sh. A.B. Joshi, Member (D&R), CWC. Chairman welcomed the committee members, Project officials and other participants of the meeting and took up the Agenda items for discussion and suggestion. (List of participants is at Annex. I.)

Item No. 1.

Confirmation of the Minutes of 3rd NCSDP meeting held  
on 11.11.92.

Minutes of the 3rd meeting which had been circulated to the members of NCSDP were confirmed by the committee with the suggestions/modifications suggested by Director, G.S.I., Hyderabad.

Item No. 2.

KISHAU PROJECT (UP)

During the 4th NCSDP meeting the project engineers handed over the revised DEQUOR report to the committee members. Para 3.3 of this report highlights TONS THRUST and its significance in fixing the heights of the dam. The Committee considered the accelerogram and felt that keeping in view the large height of the concrete dam and inadequate foundation exploration it would not be possible to come to any conclusion. It was, therefore,

decided that the geological investigation may be continued and sufficient data may be collected to check the soundness of the foundation rock. The Committee, decided that for the purpose of preliminary designs for DPR, the seismic parameters indicated in the DEQUOR report could be adopted. However, before taking up the construction on this project, the project authorities should again come before the committee for adopting suitable seismic parameters.

Item No. 3:

NAPTHA JHAKRI H.E. PROJECT (H.P.)

As per decision taken in the 24th Standing Committee Meeting (NCSIP), C.E., Designs (NW&S), CWC took a meeting with the project engineers on 28.4.93, in CWC. The minutes of the meeting and the DEQUOR report were circulated among the Committee members on the eve of the proceedings of the 4th NCSIP meeting. (Annex.II)

The <sup>Committee</sup> ~~members~~ members of NCSIP stressed on the need for considering earthquake potential ~~occurring~~ around the dam site. Members of NCSIP opined that the 'Dynamic Analysis' of the dam is Mandatory for the safety and stability of the foundation structures and dam itself.

Item No. 4:

LAKHWAR VYASI DAM (UP)

The Project engineers informed the members of NCSIP that the accelerogram given in the DEQUOR report is for DBE and not for MCE condition and a fresh study will have to be carried out to develop accelerogram for MCE condition.

The Committee felt that for a realistic dynamic analysis of Lakhwar dam, it is essential that a study should be carried out through consultants for the determination of seismic parameters. Since consideration is being given for changing the layout as 'arch-gravity' type, the consultants report should attempt evolving the motion to enable a 3-D analysis. The 3-D analysis could, however, be taken up as a research project, as 3-D analysis is not necessary for design and construction. The project authorities may get in touch with CWC's Design Organisation (Embankment (N&W) Dte.) with regard to the requirements before commissioning consultancy to evolve seismic parameters/ dynamic analysis.

Item No. 5 :

VANDHA MANALA WATER RESOURCES PROJECT (GUJARAT)

The Committee felt that the data presented is not adequate to give any specific recommendations about the seismic parameters. The geotectonic investigations already carried out should be reviewed considering the higher magnitude and potential of the earthquake shocks in the vicinity of this project. It was decided during the 23rd Standing Committee Meeting held on 31.5.93, that the seismic coefficient of 0.12g could be adopted for preliminary designs of various components of the projects as recommended for the other projects in the vicinity. The project engineers may also consult CWPRS, Pune and Nuclear Power Corporation in this regard. The project authorities may come before NCSDP with complete data for final recommendations.

Item No. 6 :

RANGANADI PROJECT (ARUNACHAL PRADESH).

The committee considered the Design Organisation's note with regard to the earlier decision. Since, the diversion dam under construction is close to the causative fault viz. 1.5 km, the parameters derived for ground motion should be reviewed to consider effect of 'near-fault'. This aspect can be reviewed by the consultants. M/S NEEPOO may contact the consultants to review their earlier report in the light of this fact. The consultants could also highlight and make suitable recommendations of the ground motion appropriate for associate structures like surface power house, etc.

With regard to Head Race Tunnel which ~~crosses~~ MBT which is active, the committee felt that the design could be on similar lines as that of Ichari Dak Pathar Tunnel for Yamuna Hydrel Scheme. The consultants' report may touch upon liquefaction aspects indicated in the note of the Design Organisation.

(Action NEEPOO)

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Sl. No.	Name & Designation	Complete Postal Address	Tel.No.	Fax/Telex No.	Re
15.	Mr. Zamir Ashraf, Director	Engineering Geology Project (HP), Geological Survey of India, Sector E, Aliganj, Lucknow.	71494		
16.	Mr. P.N. Agrawal, Member Prof. & Head	Deptt. of Earthquake Engineering Univ. of Roorkee, Roorkee.	72349		
17.	Dr. A.R.Chandrasekaran, Prof.	-do-			
18.	Dr. B.K. Mital, Director	614(S), Sewa Bhavan, R.K. Puram New Delhi.	602960		
19.	Mr. A.C. Gupta, Director C&MDD (NW&S)	West Block-2, R.K.Puram, N.Delhi.			
20.	Mr. M.V.K. Unjayyappan, C.E.	R.H.E.P., NEEPSCO, Arunachal Pradesh.			
21.	Mr. K.L. Zutushi	Director Civil, N.T.P.C.			
22.	Dr. S.N. Chatterjee, Member	Meteorological Office, Lodi Road, IMD New Delhi,	4611305		
23.	Mr. S.S. Rana	Executive Director, Nathpa Jhakri Project Jhakri, Distt. Shimla (H.P.)	3255		
24.	Mr. D.P. Goyal	S.E., (CPD), NTPC, Gole Market, New Delhi-1	3746081		
25.	Mr. Vinod K. Verma	E.E., DID (Desings), NTPC, Himed Building Shima (H.P.)	3255		
26.	Mr. Ram Dass Singh	S.E., (Design), NTPC, Shimla	4725		
27.	Mr. D.M. Pancholi	H.E. (Geology), C.D.O., 9-Dr. Jivraj Mehta, Gandhinagar, Gujrat.	20775		
28.	Mr. N.K. Sonetha	S.E., C.D.O., Gujrat, Gandhinagar			

LIST OF THE PARTICIPANTS ATTENDING THE MEETING

<u>Sl.No.</u>	<u>Name &amp; Designation</u>	<u>Complete Postal Address</u>	<u>Tel.No.</u>	<u>Fax/Telex No.</u>	<u>Remark</u>
1.	Mr. Jai Krishna, Member	61, Civil Lines, Roorkee-247667	72338	854164	
2.	Mr. S.C. Bhatia, Member	Scientist E-II, National Geophysical Research Institute, No. 6, Uppal Road Hyderabad-500007.	850141		
3.	Mr. B.C. Roy	G&RB, Survey of India, 17 E.C. Road, Dehradun-248001.	24528		
4.	Prof. A.K. Roy	Head, Geosciences Div., Indian Institute of Remote Sensing, 4, Kalidas Road, Dehradun-248001.	25516		
5.	Mr. M.N. Yadav	S.E., Tons Const. Grade I,	24042		
6.	Mr. U.C. Mittal	S.E., Designs, Roorkee	72162		
7.	Mr. S.S. Manocha	C.E. (Yamuna), Irrigation Deptt. Dehradun.	28219		
8.	Mr. B.N. Asthana	S.E. (Designs), I.D.O., Roorkee.	72147		
9.	Mr. B.K. Aalok	Director, Engg. Geology Divn. I, Dakpattar.	28658 & 29034		
10.	Mr. S.Kumar	Director, Engg. Geology, NER, Shillong	230195		
11.	Mr. R.B. Gupta	Computer, Kishau Dam Const. Divn. I, Dakpathar.			
12.	Mr. R.C. Gupta	E.E., U-P.I.D., Rookree	72265-219		
13.	Mr. M.C. Jaisingh	Ex. Engr.(K), I.D.O., Roorkee			
14.	Mr. Sheo Pijan Singh	E.E., Kishau Dam Const. Divn. I, Dakpathar (P.Divn)			

Annex II

CENTRAL WATER COMMISSION  
(DESIGNS WING)

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MINUTES OF THE MEETING REGARDING FINALISATION OF  
DESIGN SEISMIC COEFFICIENT FOR NATHPA JHAKRI PROJECT  
HELD ON 28TH APRIL 1993 IN THE CHAMBER OF SH. T. SUBBA RAO,  
CHIEF ENGINEER, DESIGNS (NW&S).

The meeting was chaired by Sh. T. Subba Rao,  
Chief Engineer, Designs(NW&S) and attended by the following  
officers:-

NATHPA JHAKRI PROJECT CORPORATION

1. Sh. D.P. Goyal, Superintending Engineer
2. Sh. Vinod Verma, Executive Engineer

CENTRAL WATER COMMISSION

1. Sh. A.C. Gupta, Director, C&MDD(NW&S) DTE.

Officers from Department of Earthquake Engineering,  
University of Roorkee and GSI did not come for the meeting.

During the meeting, the draft report submitted  
by DEQUOR on Seismic Parameters for Nathpa Jhakri H.E. Project  
site (H.P.) was discussed. The horizontal seismic coefficient  
based on the Acceleration Response Spectra for MCE and DBE  
as given in Figure 3 of the report, were estimated to be  
0.56g and 0.28g, respectively. These values, generally, look  
to be on the higher side keeping in view the values already  
recommended by the Standing Committee for other projects in  
near vicinity. As per IS1893-1984, horizontal seismic  
co-efficient for Nathpa Jhakri Dam, works out to be 0.15g.  
In absence of any representative from the DEQUOR in this meeting,  
no further discussions could take place.

Since this project has already been included  
in the forth-coming meeting of National Committee on Seismic  
Design Parameters (NCSDP) for River Valley projects, it was  
necessary, to have a final report prior to NCSDP Meeting.  
Project authorities informed that they have already discussed  
this aspect with DEQUOR and this report can be considered  
as final. It was, therefore, decided that further discussions  
on this project can take place in the 4th meeting of NCSDP on  
3rd May 1993, in case final report is submitted by Department  
of Earthquake Engineering, University of Roorkee before the  
meeting. Project authorities informed that they have already  
discussed this aspect with DEQUOR and shall be discussing  
again with them before the meeting of NCSDP. A final report  
may be available before the meeting.

The meeting ended with Vote of Thanks to the Chair.