No.CWC/FED/2/2/94/ 299-322
Government of India
Central Water Commission
Foundation Engineering Directorate
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712, Sewa Bhawan
R.K.Puram, New Delhi-66.

Dated: 5th Aug. 1994.

To

Subject: Minutes of the Fifth Meeting of the National Committee on Seismic Design Parameters (NCSDP) held on 20.5.94 in New Delhi - regarding.

Sir,

Please find enclosed herewith the Minutes of the Fifth Meeting of the National Committee on Seismic Design Parameters of Hydraulic Structures in River Valley Project held on 20.5.94 at Sewa Bhawan in New Delhi.

Yours faithfully,

Encl: as cited above.

(A.N.Rao)
Director (FED),CWC.

MINUTES OF THE FIFTH MEETING OF THE NATIONAL COMMITTEE ON SEISMIC DESIGN PARAMETERS (NCSDP) OF HYDRAULIC STRUCTURES IN RIVER VALLEY PROJECTS.

OPENING REMARKS :

The 5th Meeting of the National Committee on Seismic Design Parameters (NCSDP) of Hydraulic Structures in River Valley Projects was held held in Room No. 307, Sewa Bhawan, CWC, , New Delhi on 20th May, 1994 under the Chairmanship of Shri A.B.Joshi, Member (D&R), CWC. Shri Joshi 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 Minutes of 4th Meeting held on 3.5.1993.

Minutes of the 4th Meeting which were circulated vide letter No. CWC/FED/2/2/93/Vol.II/307-314 dated 5.7.1993 to the members of the NCSDP meeting were confirmed with amendment to Item No.3 regarding Nathpa Jhakri Hydro-electric project (H.P.), vide letter No. FED/2/2/94/428-449 dated 21st September, 1993.

ITEM NO. 2 .

2.0 Dhauli Ganga H.E. Project (STAGE-I) U.P.

2.1 The Project Authorities of Dhauli Ganga Project described the salient features to the Committee members. The project lies in Zone V of Seismic zoning map of India. The representative from project authorities presented the DEQUOR Report and requested the Committee members to suggest suitable design seismic parameters for the Dhauliganga H.E.Project.

2.2 It was felt by the Committee members that the checking the designs of the dam and its appurtenant structures by dynamic analysis with site response spectra as well as considering the geo-tectonic features and the magnitude of Uttarkashi Earthquake which occured on 20th Oct., 1991, it is desirable to know the response of the structure as well as safety of the project.

2.3 It was also considered that in view of the proposed revision to the IS Code (IS-1893-84) in persuance to the Uttarkashi Earthquake, it may be desirable to treat this location to be in higher zone for the above compulation.

ITEM NO. 3

3.0 Sindh Project (Phase-II), Madikheda Dam Distt. Shivpuri (M.P.).

3.1 The representative from the project narrated the salient features of Sindh Project which is a straight gravity masonry cum rockfill earth dam with central spillway and 5 Nos. saddles in the right periphery of the dam with outlet works in Ukalia Saddle No.2. The dam is 460 metre long and 61.9 metre high. The deepest foundation level of straight gravity masonry dam is RL : 288 metres. The project is located in Zone I of seismic Zoning Map of India (IS : 1893-1984).

3.2 The committee after going through the modified proforma and GSI reports submitted by the Project authorities, recommended that the project to be designed for Zoen-II instead of Zone-I , as per Seismic Zoning Map of INDIA (IS : 1893-1984).

ITEM NO. 4

4.0 Srisailam H.E.Project (Andhra Pradesh)

4.1 This project was discussed in the 2nd meeting of the Standing Committee of CWC on 6.4.1970 and values of horizontal and vertical design seismic co-efficients were recommended as zero in the year 1970. The Dam Safety Panel then constituted by Dr.Y.K.Murthy (the then Chairman of Dam Safety Panel) had suggested for reviewing the recommended seismic coefficient value for the project.

4.2 The entire project lies within Zone-I of seismic Zoning Map of India (IS: 1893-1984). The Committee members considered the report on "Seismicity around Nagarjuna Sagar and Srisailam Reservoir - July, 1993" prepared by National Geo-physical Research Institute, Hyderabad.

4.3 The member representing NGRI opined that the seismic co-efficients taken earlier appears to be alright. However, the Committee members expressed that the safety of dam to be checked for the observed magnitude around the lake as reported by NGRI in their report of July, 1992 around Nagarjuna Sagar & Srisailam Reservoirs, considering the response spectra by dynamic analysis and the results of the analysis to be submitted to the committee in the next meeting to enable the members to suggest the modified design seismic coefficient for the project.

ITEM NO. 5

5.0 Nagarjuna Sagar Dam (A.P.)

5.1 The project authorities from Nagarjuna Sagar Dam described its salient features. The dam is located in seismic Zone-I of seismic Zoning map of India (IS:1893-1984). The project authorities submitted the NGRI report on "Seismicity around Nagarjuna Sagar Reservoir, A.P. - July, 1993", which was circulated to the Committee Members during the meeting. The representatives from the project authority requested for suggesting horizontal seismic coefficient applicable to Nagarjuna Sagar Dam.

5.2 The Committee Members requested the NGRI representatives to compile the information about geo-tectonic features and to submit the report to enable the Committee to review the earlier recommended design seismic parameters of the dam and its component structures to enable it to withstand the future earthquakes of higher magnitude which occured in the nearby zones, like Koyna, Latur and Osmanabad earthquake in Maharashtra.

ITEM NO. 6

6.0 Doyang H.E.Project (Nagaland)

6.1 The project authorities narrated the salient features of Doyang Projec t and requested the Committee members to suggest seismic coefficients for the project.

6.2 The committee, after going through the DEQUOR report prepared 10 years ago and submitted by project authorities, expressed the necessity of analytical reports of the dam and its component structures. The project authorities were requested to carry out dynamic analysis and submit to the committee for study and for recommending the design seismic coefficient.

6.3 The members also expressed to remove the overb-urden material from the downstream portion of coffer dam, and also to study the liquification effects considering the response spectra suggested by Roorkee University in their old report. Based on the above studies and report; the Committee will be in a position to suggest a suitable design seismic coefficients for the project.

ITEM NO. 7

7.0 Latur and Osmanabad Earthquake

7.1 The National Committtee of Seismic Design Parameters discussed the catestrophical earthquake of Sept.'93 experienced in the Latur and Osmanabad of Marathwada region of Maharashtra.

7.2 Sh.R.K.Kalsi, Director (Dam Safety),CWC informed the Committee members that an Expert Committee was constituted by G overnment of India under the Chairmanship of C.E.(DSO), CWC. The Committee examined the structural status and safety of large dams and important irrigation structures in Latur and Osmanabad districts. The recommendations of the report submitted by the committee were presented by Sh.Kalsi to the members of NCSDP. Sh.Kalsi requested that the committee may consider in wake of earthquake of magnitude 6.3 on the Ritcher Scale, in this region, whether the seismic parameters as given in BIS Code 1893-1984 require any upgradation from Zone-I. The members of the committee, however, felt that without their going through the full report & see the recommendations therein, they are not in a position to appriciate this point and enable to take a decision.

7.3 Dr.Jaikrishna opined that all engineered structures are to be checked up for their safety in view of this catestrophical earthquake. He informed that IS Code was not upgraded even after Koyna Earthquake. The committee members unanimously ppined that upgradation of this region at this stage is not warranted. However, the committee members opined that before reaching a conclusion, report of GSI must be obtained for Latur and Osmanabad areas.

ITEM NO. 8

8.0 Deformation of earths Lithosphere due to reservoir surface loading

8.1 The proposal regarding deformation of earths Lithosphere due to reservoir surface loading has been received from the Govt. of Andhra Pradesh. The State Government has selec-ted Nagarjuna Sagar P oject for the studies.

8.2 The committee members after going through the proposal opined for submitting details of the proposal to the Committee. After going through thses proposals, the Committee may suggest the suitability of carryihg out such studies.