BUREAU OF INDIAN STANDARDS
(WATER RESOURCES DEPARTMENT)

AGENDA

Hydraulic Structures Instrumentation Sectional Committee, WRD 16	27th Meeting

Day, Date & Time	Venue	Contact details
30-August-2024 11:00 AM	Virtual	wrd@bis.gov.in
Join from the meeting link: https://bismanak.webex.com/bismanak/j.php?MTID=m73b9af0589147a4318a46e8a9e2d9a62 **Meeting ID:** 2511 046 1004 **Meeting password:** 3fDj3kapMz2 (33353527 when dialing from a video system)		

CHAIRPERSON:	**MEMBER SECRETARY**:
Dr. R. Chitra, Director, Central Soil and Materials Research Station, New Delhi	Shri Vaibhav Yadav, Sc-B/Assistant Director, WRD

ITEM 0 WELCOME AND INTRODUCTORY REMARKS

ITEM 1 CONFIRMATION OF THE MINUTES OF THE PREVIOUS MEETING

The 26th meeting of WRD 16 was held on 08 April 2024 and the minutes duly approved by the Chairperson were circulated to members. No comments have been received on the circulated minutes.

The Committee may **CONFIRM** the minutes as circulated.

ITEM 2 COMPOSITION OF THE SECTIONAL COMMITTEE

2.1 The present composition along with attendance details of last three sectional committee meetings of WRD 16 is given at **ANNEX I**.

The Committee may NOTE.

2.2 The Committee in the last meeting decided to contact the higher authorities of the following organizations for their nominations. In this regard, communications were sent to the below organizations for the nomination. Reply against the same is awaited.

Sl. No.	Organization	Status
1.	Indian Institute of Technology Roorkee, Roorkee	The nominations are still awaited.
2.	Survey of India, Geodetic and Research Branch, Dehradun	
3.	Uttarakhand Jal Vidyut Nigam Limited, Govt. of Uttarakhand, Dehradun	

The Committee may NOTE & DECIDE.

2.3 During the last meeting, the Committee decided to pursue the following organizations once again for co-option. In this regard, communications were sent to the organizations. Reply against the same is awaited.

Sl. No.	Organization	Status
1.	Prof. Suresh Bhalla, IIT Delhi	The nominations are still awaited.
2.	IIT Madras	
3.	IIT Kharagpur	
4.	Karnataka Neeravari Nigam limited	
5.	SJVN Limited, Shimla	
6.	Narmada Control Authority	
7.	WRD Meghalaya	
8.	North Eastern Electric Power Corporation Limited	
9.	Jindal Steel Works	
10.	Greenko Group	

The Committee may NOTE and DECIDE.

ITEM 3 PROGRAMME OF WORK

3.1 Title, Scope and POW of WRD 16 Sectional Committee are given at **ANNEX II**.

The Committee may NOTE.

3.2 During the last meeting, the Committee decided to reaffirm the followings standards and requested members to review these standards and submit their inputs. However, no inputs have been received.

Sl. No.	IS No.	Title of Standard	Last Reaffirmation
1.	IS 10334: 1982	Code of practice for selection, splicing, installation and providing protection to the open ends of cables used for connecting resistance type measuring devices in concrete and masonry dams	March, 2020
2.	IS 10434 (Part 2): 1996	Guidelines for installation, maintenance and observation of preformation measuring devices in concrete and mas - Orry dams: Part 2 vibrating, wire type joint meter	March, 2020
3.	IS 13073 (Part 2): 2000	Code of practice for installation, maintenance and observation of displacement measuring devices for concrete and masonry dams: Part 2 geodetic observation - Crest collimation	March, 2020
4.	IS 14248: 1995	Guidelines for instrumentation of barrages and weirs	March, 2020
5.	IS 14278: 1995	Stress measuring devices ln concrete and masonry dams - Installation, commissioning and observations - Code of practice	March, 2020
6.	IS 14750: 2014	Code of practice for installation, maintenance and observation of seepage measuring devices for concrete/masonry and earth/ rockfill dams (First Revision)	March, 2020
7.	IS 6532: 1972	Code of practice for design, installation, observation and maintenance of uplift pressure pipes for hydraulic structures on permeable foundations	March, 2020
8.	IS 7500: 2000	Code of practice for installation and observation of cross arms for measurement of internal vertical movement in earth dams (First Revision)	March, 2020
9.	IS 8282 (Part 2): 1996	Installation, maintenance and observations of pore pressure measuring devices in concrete and masonry dams - Code of practice: Part 2 vibrating wire type cell	March, 2020
10.	IS 17158: 2019	Guide for type of measurement, choice of location and type of instruments for underground power house	2024
11.	IS 7436 (Part 2): 2019	Guide for types of measurements for structures in river valley projects and criteria for choice and location of measuring instrument: Part 2 concrete and masonry dams (Second Revision)	2024

The Committee may NOTE and DECIDE.

3.3 Review of Pre-2000 Standards:

During the last meeting the following standards were put in wide circulation. The following organizations were requested to review the documents and provide inputs.

Sl. No	IS No.	Title of Standard	Status
1.	IS 10334: 1982	Code of practice for selection, splicing, installation and providing protection to the open ends of cables used for connecting resistance type measuring devices in concrete and masonry dams	Inputs awaited.
2.	IS 6532: 1972	Code of practice for design, installation, observation and maintenance of uplift pressure pipes for hydraulic structures on permeable foundations	Inputs awaited from AIMIL.
3.	IS 6524: 1972	Code of practice for installation and observation of instruments for temperature measurements inside dams: resistance type thermometers	Inputs awaited from CWPRS.
4.	IS 8282 (Part 1): 1976	Code of practice for installation, maintenance and observations of pore pressure measuring devices in concrete and masonry dams: Part 1 electrical resistance type cell	Inputs awaited from CWC.
5.	IS 10434 (Part 2): 1996	Guidelines for installation, maintenance and observation of preformation measuring devices in concrete and mas - Orry dams: Part 2 vibrating, wire type joint meter	Inputs awaited from CWPRS.
6.	IS 14248: 1995	Guidelines for instrumentation of barrages and weirs	Inputs awaited from CWPRS.
7.	IS 14278: 1995	Stress measuring devices ln concrete and masonry dams - Installation, commissioning and observations - Code of practice	Inputs awaited from CWPRS.
8.	IS 8282 (Part 2): 1996	Installation, maintenance and observations of pore pressure measuring devices in concrete and masonry dams - Code of practice: Part 2 vibrating wire type cell	Inputs awaited from CWPRS.
9.	IS 13232: 1992	Installation, maintenance and observations of electrical strain measuring devices in concrete dams - Code of practice	Inputs awaited from CWPRS.

10.	IS 7436 (Part 1): 1993	Guide fort types of measurements for structures in river valley projects and criteria for choice and location of measuring instruments: Part 1 for earth and rockfill dams (First Revision)	Inputs awaited from CWPRS.

The Committee may NOTE and DECIDE.

3.4 Standards National Action Plan (2022 – 27)

During the last meeting, the following subject areas were identified for standardization under SNAP 2022-27.

Sl. No.	Subjects	Allotted to the member	Status
1.	Maintenance of instruments in existing dams	Mr. M. S. Hanumanthappa, CWPRS	Draft document is awaited.
2.	Canal automation	A Working Group to be formed with the following Composition: 1. Dr. Nayan Sharma, Convenor 2. Mr. M. S. Bist, CWPRS 3. Water Resources Department, Tamil Nadu 4. Mr. Vivek Kapadia, SSNNL	WRD 06 is already working on the subject hence this committee may consider dropping the subject.
3.	Guidelines for uplift pressure measurement in rock strata	Mr. M. S. Hanumanthappa, CWPRS	Draft document is awaited.
4.	Displacement and settlement measurement in dams	1. Mr. M S Hanumanthappa, CWPRS 2. CSMRS	Draft document is awaited.
5.	Measurement of cavitation	Mr. Heman Manchanda, AIMIL Limited	Draft document is awaited.
6.	Automation of Plumb Line	Mr. M. S. Hanumanthappa, CWPRS	Draft document is awaited.

The Committee May NOTE and DECIDE.

ITEM 4 DRAFT STANDARDS FOR CONSIDERATION

4.1 Code of Practice for Installation, Maintenance, and Observation of Instruments for Tunnels

During the last meeting, the committee noted and deliberated on the status of the draft document pending from SJVN Limited. The Committee also noted that a fresh nomination from SJVN Limited is awaited and asked BIS to approach SJVN once more for nominations to the Committee. In this regard, communication was sent to the organization. However, no response has been received yet.

The Committee may NOTE and DECIDE.

4.2 Guidelines for Performance, Monitoring, and Surveillance of Hydraulic Structures

During the last meeting, the Committee noted and deliberated on the status of the draft document pending from the working group. Dr. Nayan Sharma informed the committee that they are currently working on the document and will submit their comments soon. The committee requested BIS to circulate the document among the members after receiving it from the working group, to gather further inputs for deliberation in the upcoming meeting. However, the draft document is still awaited.

The composition of the working group is as follows:

1. Prof. Nayan Sharma, Convenor
2. Shri. Brijesh Gupta, SJVNL
3. Shri. Sachin Khupat, Sc C CWPRS
4. Shri A. K. Nanda, National Manager AIMIL
5. Shri M S Verma, Director, Instrumentation CWC

The Committee may NOTE and DECIDE.

ANNEX I

(*Item 2.1*)

COMPOSITION OF HYDRAULIC STRUCTURES INSTRUMENTATION SECTIONAL COMMITTEE, WRD 16

Last 3 Meeting	**24th meeting - 10 Nov 2022**	**25th meeting – 21 Jul 2023**	**26th meeting – 08 Apr 2024**

Sl. NO.	**NAME OF THE ORGANIZATION**	**REPRESENTED BY**	**MEETINGS ATTENDED**		
			24th	**25th**	**26th**
1.	Central Soil & Materials Research Station, New Delhi	Dr. R. Chitra, Director [Presently *Chairperson*]	Y	Y	Y
2.	AIMIL Ltd, New Delhi	Shri A. K. Nanda, National Manager Shri Heman Manchanda, Deputy General Manager (Alternate)	Y	Y	Y
3.	Bhakra Beas Management Board, Nangal Township	Shri A. K. Agarwal, Chief Engineer Shri S. K. Bedi, Director Design (Alternate)	Y	Y	Y
4.	Central Institute of Mining and Fuel Research	Shri Abhay Kumar Singh Principal Scientist Ms. Pallavi Das Assistant manager (Alternate)	Y	Y	Y
5.	Central Soil & Materials Research Station, New Delhi	Shri Hari Dev, Sc E Shri R. S. Sehra, Sc C (Alternate)	Y	Y	Y
6.	Central Water & Power Research Station, Pune	Mr. M. S. Hanumanthappa, Sc D Shri Sachin Khupat, Sc C (Alternate) Mr. M. S. Bist, Sc D (Alternate)	Y	Y	Y

7.	Central Water Commission, New Delhi	Shri Ashish Kumar, Director (Instrumentation) Mr. Somesh Kumar Director, Emb. (N&W) (Alternate)	Y	Y	Y
8.	CRRI, New Delhi	Shri G K Sahu, Senior Principal Scientist	X	X	X
9.	CSIR - Structural Engineering Research Centre [SERC], Chennai.	Ms. N. Anandavalli, Director	X	X	X
10.	CSIR-Central Scientific Instruments Organisation Chennai	Dr. G.S. Ayyappan, Sr. Principal Scientist	NR	NR	NR
11.	DMR Hydroengineering and Infrastructures Limited, Faridabad	Shri S. L. Kapil, Senior Vice President Shri Subrata Laha, Senior Engineer –Geology (Alternate)	NR	NR	NR
12.	Damodar Valley Corporation, Jharkhand	Shri Prabhat Kiran Superintending Engineer (Civil)	X	X	X
13.	ENCARDIO-Rite Electronics Pvt Ltd, Lucknow	Shri Prateek Mehrotra (Vice president Technical)	X	X	X
14.	HCC Limited, Mumbai	Shri Suryarao Chalamkuri, General Manager - Engineering Management Shri Praveen H Shettigar, Chief Technology Officer & Head – Tendering (Alternate)	NR	NR	NR
15.	Indian Institute of Technology Bombay, Mumbai	Prof. Eldho T.I, Professor (HAG)	NR	NR	NR
16.	Indian Institute of Technology Roorkee	Prof Rhythm Singh, HRED Prof. Deepak Ronanki, HRED (Alternate)	X	X	X

17.	Irrigation Research Institute, Roorkee	Shri Dinesh Chandra, C.E. Shri Naveen Singhal, Superintending Engineer (Alternate)	X	X	X
18.	Kerala State Electricity Board, Kerala	Shri Bibin Joseph, Director Generation Civil Shri Manikandan A. K., Executive Engineer (Alternate)	X	X	Y
19.	Narmada and Water Resources, Water Supply and Kalpsar Deptt., Gujarat	Shri R. M. Patel, Chief Engineer and Director Shri R. S. Vasava, Research Officer, Soil Mechanics Division (Alternate)	Y	Y	X
20.	Narmada Hydroelectric Development Corporation Ltd., Bhopal	Shri Shashank Shukla GM (Civil) DGM (Civil) (Alternate)	X	Y	X
21.	National Hydroelectric Power Corporation Ltd, Faridabad	Shri R. K. Dubey, GM (Civil) Shri Thota Venugopal, Senior Manager Civil (Alternate) Ms. Suchismita Das, Dy. Manager (Civil), (Alternate)	Y	X	Y
22.	National Thermal Power Corporation Limited, Noida	Shri R. C. Senan, AGM Shri Madhukar Agarwal (Addl General Manager (Alternate)	X	X	X
23.	Progressive Machine Tools, Jaunpur	Shri A K Dron,	Y	Y	Y
24.	Satluj Jal Vidyut Nigam Ltd., New Shimla	Shri Brijesh Kumar Gupta,	Y	X	X
25.	Survey of India, Dehradun	Shri Shyam Veer Singh, Shri Neeraj Gurjar, Deputy Director (Alternate)	X	X	X

26.	Tamil Nadu Generation and Distribution Corporation Limited, Chennai	Er. C Ramesh, Er. V Santhana Krishnan, (Alternate) Er. S Sivakumar, (Alternate)	Y	Y	X
27.	THDC India Ltd., Rishikesh	Shri Atul Jain, Shri Vibhash Pathania Manager (Alternate) Shri T. S. Routela AGM (G&G/IT) (Alternate)	Y	X	X
28.	UJVN Ltd., Dehradun	Shri Vyas Dev Ajmani, (Executive director) Mr. Ajay Patel, GM Civil (Alternate)	X	X	X
29.	Water Resources Department, Andhra Pradesh	Shri K Srinivas, CE Shri A. Suribabu, Superintending Engineer (Alternate)	X	X	Y
30.	Water Resources Department, Maharashtra	Superintending Engineer Dam Circle Executive Engineer Masonry Dam Division-2 (Alternate)	Y	X	X
31.	Water Resources Department, Govt. Of Punjab	Dr. K.K. Gupta, Shri D.S. Salija, (Alternate)	Y	X	X
32.	Water Resources Organization, Public Works Deptt., Tamil Nadu	Supted. Engineer Design WRO Shri R Sridharan, (Alternate)	Y	Y	Y
33.	In Personal Capacity, New Delhi	Dr. A K Dhawan	Y	Y	X
34.	In Personal Capacity, New Delhi	Dr. Nayan Sharma	X	Y	Y

ANNEX II

(*Item 3.1*)

PROGRAM OF WORK

WRD16: HYDRAULIC STRUCTURES INSTRUMENTATION

SCOPE: Standardization of criteria for selection, installation, usage and maintenance of instruments used for the measurement of displacement, strain, stress, temperature etc. in hydraulic structures.

STANDARDS PUBLISHED

Sl. No.	IS No.	Title	Reaffirm
1.	IS 10334: 1982	Code of practice for selection, splicing, installation and providing protection to the open ends of cables used for connecting resistance type measuring devices in concrete and masonry dams	March, 2020
2.	IS 10434 (Part 1): 2003	Installation, maintenance and observation of deformation measuring devices in concrete and masonry dams - Guidelines: Part 1 resistance type joint meters (First Revision)	March, 2023
3.	IS 10434 (Part 2): 1996	Guidelines for installation, maintenance and observation of preformation measuring devices in concrete and masonry dams: Part 2 vibrating, wire type joint meter	March, 2020
4.	IS 12949: 2013	Installation, maintenance and observation of instruments for pore pressure measurements in earth and rockfill dams - Vibrating wire type electrical pore pressure cell - Code of practice (First Revision)	March, 2023
5.	IS 13073 (Part 1): 2002	Installation, maintenance and observation of displacement measuring devices in concrete and masonry dams - Code of practice: Part 1 deflection measurement using plumb lines (First Revision)	March, 2023
6.	IS 13073 (Part 2): 2000	Code of practice for installation, maintenance and observation of displacement measuring devices for concrete and masonry dams: Part 2 geodetic observation - Crest collimation	March, 2020
7.	IS 13232: 1992	Installation, maintenance and observations of electrical strain measuring devices in concrete dams - Code of practice	March, 2023
8.	IS 14248: 1995	Guidelines for instrumentation of barrages and weirs	March, 2020
9.	IS 14278: 1995	Stress measuring device's In concrete and masonry dams - Installation, commissioning and observations - Code of practice	March, 2020
10.	IS 14750: 2014	Code of practice for installation, maintenance and observation of seepage measuring devices for concrete/masonry and earth/ Rockfill dams (First	March, 2020

		Revision)	
11.	IS 14793: 2013	Installation, maintenance and observation of the instruments for vibration studies other than earthquakes on hydraulic structures and machines - Code of practice (First Revision)	March, 2023
12.	IS 17158: 2019	Guide for type of measurement, choice of location and type of instruments for underground power house	-
13.	IS 6524: 1972	Code of practice for installation and observation of instruments for temperature measurements inside dams: resistance type thermometers	March, 2023
14.	IS 6532: 1972	Code of practice for design, installation, observation and maintenance of uplift pressure pipes for hydraulic structures on permeable foundations	March, 2020
15.	IS 7356 (Part 1): 2002	Code of practice for installation, maintenance and observation of instruments for pore pressure measurements in earth dams and rockfill dams - Part 1: porous	April, 2021
16.	IS 7356 (Part 2): 2003	Installation, observation and maintenance of instruments for pore pressure measurements in earth and rockfill dams - Code of practice: Part 2 twin tube hydraulic piezometers (Second Revision)	March, 2023
17.	IS 7436 (Part 1): 1993	Guide fort types of measurements for structures in river valley projects and criteria for choice and location of measuring instruments: Part 1 for earth and rockfill dams (First Revision)	March, 2023
18.	IS 7436 (Part 2): 2019	Guide for types of measurements for structures in river valley projects and criteria for choice and location of measuring instrument: Part 2 concrete and masonry dams (Second Revision)	-
19.	IS 7500: 2000	Code of practice for installation and observation of cross arms for measurement of internal vertical movement in earth dams (First Revision)	March, 2020
20.	IS 8226: 2017	Installation and observation of base plate apparatus for measurement of foundation settlement in embankments - Code of practice (First Revision)	December, 2022
21.	IS 8282 (Part 1): 1976	Code of practice for installation, maintenance and observations of pore pressure measuring devices in concrete and masonry dams: Part 1 electrical resistance type cell	March, 2023
22.	IS 8282 (Part 2): 1996	Installation, maintenance and observations of pore pressure measuring devices in concrete and masonry dams - Code of practice: Part 2 vibrating wire type cell	March, 2020