

**BUREAU OF INDIAN STANDARDS****MINUTES**

<b>Foundation and Foundation Treatment Sectional Committee, WRD 08</b>	<b>26<sup>th</sup> Meeting</b>
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<b>Day, Date and Time</b>	<b>Venue</b>	<b>Contact details</b>
Wednesday, 28 August 2024	Virtual	wrd@bis.gov.in

<b>CHAIRPERSON:</b> Dr. R. Chitra, Director CSMRS	<b>MEMBER SECRETARY:</b> Shri Vaibhav Yadav, SC- B/ AD, WRD
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**PARTICIPANTS:**

<b>Sl. No.</b>	<b>Name</b>	<b>Email</b>
1.	Dr. R. Chitra, Director, CSMRS	director-csmrs@nic.in
2.	Shri Heman Manchanda, Deputy General Manager, AIMIL	hemanmanchanda@aimil.com
3.	Dr. Sunil Basarkar, GM – Design, Afcons	sunil.basarkar@afcons.com
4.	Dr Lakshmana Rao Mantri, Assistant GM – Design, Afcons	lakshmana.mantri@afcons.com
5.	Dr. Manish Gupta, Sc-E, CSMRS	sm.pullela@nic.in
6.	Shri P.S. Krishna Murthy, Sc-E, CSMRS	
7.	Shri Samir Kumar Shukla, Director (FE&SA), CWC	bcdnw-cwc@nic.in
8.	Shri Somesh Kumar, Director, Emb. (N&W), CWC	someshkumar-cwc@nic.in
9.	Dr. Sanjay A. Burele, Sc-C, CWPRS	burelesanjay@cwprs.gov.in
10.	Dr. Mahavir Bidasaria, Ferro	ferroco2011@gmail.com
11.	Ms. Anindita Chaudhuri, Deputy Manager (Civil), NHPC	aninditachaudhuri@nhpc.nic.in
12.	Shri R. Ranjan, Sr. Manager (Geo), NEEPCO	oshoraman@rediffmail.com
13.	Shri Avkesh Kumar, Dy. Manager (Design - Civil), THDCIL	avkesh_hbti@yahoo.com
14.	Superintending Engineer, PWD, Designs Circle, WRD	sedesignstnpwdwrd@gmail.com

15.	Shri Ajay Kumar, SE Design Irrigation Department Uttarakhand	sedesignrke@gmail.com
16.	Dr. A. K. Dhawan, Consultant, In Personal Capacity	akd847@gmail.com

## ITEM 0 WELCOME BY THE CHAIRPERSON

The Chairperson welcomed all the members to the 26<sup>th</sup> meeting of the WRD 08 Sectional Committee. The Chairperson requested all the members for their continued contributions and regular participation in the meeting so that long pending documents in the Committee can be finalized.

## ITEM 1. CONFIRMATION OF THE MINUTES OF THE LAST MEETING

The Committee NOTED that no comments had been received on the circulated minutes of 25<sup>th</sup> meeting of the Committee. The Committee, therefore, CONFIRMED the minutes of the previous meeting as circulated.

The Committee NOTED item 2.5 of the agenda. After deliberation, the Committee decided to approve the corrigendum to the last meeting's minutes as:

**“2.4 The Committee NOTED item 2.4 of the agenda, fresh nomination has been received from new organization. The Committee further decided to co-opt the organization to the committee.”**

SL. NO.	ORGANIZATION	NOMINATION
1.	DMR Hydro Engineering & Infrastructures Limited, Faridabad, Haryana	Shri N. K. Mathur, Senior Vice President & Geology Head  Miss Subrata Laha, Senior Engineer- Geology (Alternate)

## ITEM 2. COMPOSITION OF THE COMMITTEE

**2.1** The Committee NOTED the present composition of the Committee as given in ANNEX 1 of the agenda.

**2.2** The Committee NOTED item 2.2 of the agenda and decided to pursue the following organizations once again and contact to the higher authorities of the organizations for co-option in the Sectional Committee.

SL. NO.	ORGANIZATIONS
1.	SJVNL
2.	Karnataka Neeravari Nigam Ltd. (KNNL)
3.	WAPCOS

4.	WRD, Meghalaya
5.	IIT (ISM), Dhanbad
6.	IIT Roorkee (Rock Mechanics Divisions)
7.	IIT Guwahati
8.	IIT Bombay, Mumbai

**2.3** The Committee NOTED item 2.3 of the agenda and decided to pursue the following organizations once again and contact to the higher authorities for their active participation/fresh nominations in the work of the Sectional Committee.

SL. NO.	ORGANIZATIONS
1.	Gammon Engineers and Contractors Pvt. Ltd., Mumbai
2.	Uttarakhand Jal Vidyut Nigam Ltd, Uttarakhand
3.	Water Resources Department., Govt. of Madhya Pradesh
4.	Water Resources Department, Punjab

**2.4** The Committee NOTED item 2.4 of the agenda for the following fresh nominations received from the member's organization below.

SL. NO.	ORGANIZATION	NOMINATION
1.	Central Water Commission, New Delhi	Shri Samir Kumar Shukla, Director, FE&SA  Shri Somesh Kumar, Director, Emb. (N&W) (Alternate)
2.	Hindustan Construction Company Limited, Mumbai	Monika Patil, Sr. Manager – Engineering Management  Shri Praveen H Shettigar, Chief Technology Officer & Head – Tendering (Alternate)

### **ITEM 3. TITLE, SCOPE AND ACTIVITIES OF WRD 08**

The Committee NOTED present Programme of work as given at Annex 2 of the agenda.

## ITEM 4. DRAFT STANDARDS UNDER WIDE CIRCULATION

### 4.1 Doc. No. WRD 08 (21401), IS 4410 (PART 19): 1996 Glossary of Terms Relating to River Valley Projects Part 19 Grouting

The Committee NOTED item 4.1 of the agenda and the following decision were taken on the comments received from Dr. Sanjay A. Burele, CWPRS:

Sl. No.	Title	Comments	Committee Decision
1.	<b>Drainage Gallery</b>	A passage in the gravity dam that runs parallel to the top of the dam and occupies about two-thirds of the width of the base from the upstream face. It stops water from seeping in from the water face and moves it away from the downstream face. It also allows drilling operations and drains the part of the foundation that is downhill from the water face.	After deliberation, the Committee decided that there is no need to incorporate these terms in the document.
2.	<b>Grouting gallery</b>	In these galleries, the supply, return, and vent headers of the grout pipe system can be located. The grouting gallery also houses pipes for artificially cooling the blocks.	
3.	<b>Gate Gallery</b>	A passage in the gravity dam that gives access to and houses the mechanical equipment needed to open and close gates in outlet conduits, power penstocks, or spillway crests. The location and size of the gate gallery depend on the need and size of the mechanical equipment.	
4.	<b>Fold</b>	A wave-like geologic structure that forms when rocks deform by bending instead of breaking under compressional stress. Folds typically occur in anticline-syncline pairs	
5.	<b>Inspection gallery</b>	A passage in the gravity dam that gives access to the inside of the dam so that the structure can be inspected and the behavior of the dam can be studied. It also helps to get rid of water that seeps into the ground. Inspection galleries can also be found in the foundation, drainage, gate, and grouting galleries.	
			Agreed to incorporate in the document as:  A passage in the dam that gives access to the inside of the dam so that the structure can be

			inspected and the behavior of the dam can be studied.
6.	<b>Cement Grouting</b>	<p><b>Original:</b> The injection of hydraulic cement-based grouts for the purpose of altering the properties of a soil or rock mass.</p> <p><b>Corrected:</b> The injection of hydraulic cement-based grouts for the purpose of altering the properties of a soil or rock mass. Also, the injection of hydraulic cement consolidates the subsurface strata/PCC, etc.</p>	<p>Agreed to incorporate in the document as:</p> <p>The injection of hydraulic cement-based grouts for the purpose of altering the properties of a soil or rock mass.</p>
7.	<b>Drill</b>	<p><b>Original:</b> A machine or piece of equipment designed to penetrate earth or rock formations, or both, using either rotary, rotary-percussive, sonic, or driving techniques.</p> <p><b>Corrected:</b> A machine or piece of equipment designed to penetrate earth or rock formations, or both, using either rotary, rotary-percussive, sonic, or driving techniques. The bit used may be of hollow or solid type</p>	<p>Agreed to incorporate in the document as:</p> <p>A machine or piece of equipment designed to penetrate earth or rock formations, or both, using either rotary, rotary-percussive, sonic, or driving techniques.</p>
8.	<b>Foundation Gallery</b>	A passage along most of the length of the gravity dam, close to the rock surface and parallel to the dam axis. It collects the seepage of water through the foundation of the dam. Holes are drilled to the floor of the gallery for curtain grouting in the foundation as well as the body of the dam.	The committee agreed to addition of this term in the document.

In view of the comments received, the committee decided to recirculate the document afresh after incorporating the changes received from Shri Basavaraj Rajashekhar, L & T, and Dr. Sanjay A. Burele, CWPRS among the members for comments. The Committee authorized the Chairperson to FINALIZE the document for ADOPTION and PRINTING if no further comments are received on the recirculated document.

## ITEM 5. DRAFT STANDARDS UNDER REVISION

### 5.1 WRD 08, IS 4999: 1991 Recommendations for Grouting of pervious Soils

The Committee NOTED item 5.1 of the agenda and decided that, after deliberation, the Committee decided to rewrite the equation as:

$$\frac{D_{85_{Grout}}}{D_{15_{Soil}}} < \frac{1}{20}$$

After deliberation, the Committee requested BIS Secretariat to circulate the document incorporating the above decision as P-DRAFT document among all the members of the Committee.

### 5.2 WRD 08, IS 6066: 1994 Pressure grouting of rock foundations in river valley projects – Recommendations

The Committee NOTED item 5.2 of the agenda and decided to form a working group with the following composition for the preparation of the draft document.

1. Central Water Commission (Convener)
2. Ferro Concrete Construction (India) Private Limited
3. Central Water and Power Research Station
4. Public Works Department, Government of Tamil Nadu

The Committee requested the working group to submit the draft document latest by Dec 2024 to BIS Secretariat.

### 5.3 WRD 08, IS 12584: 1989 Bentonite for Grouting in Civil Engineering Works

The Committee NOTED item 5.3 of the agenda and deliberated on the suggestions received from Shri Mahavir Bidasaria, which were given in Annex 4 of the agenda. The Committee decided to incorporate Point No. 1 i.e. Definition of Bentonite, into the document and decided to reject Points No. 2, 3, and 4.

After deliberation, the Committee requested BIS Secretariat to circulate the document incorporating the above decision as P-DRAFT document among all the members of the Committee.

### 5.4 WRD 08, IS 14343: 1996 Choice of grouting materials for alluvial grouting – Guidelines

The Committee NOTED item 5.4 of the agenda and deliberated on the suggestions received from Shri Mahavir Bidasaria, was given in Annex 5 of the agenda. The Committee also decided to recirculate the standard as working draft document along with the suggestions provided by Shri Mahavir Bidasaria to the committee members for comments. The Committee DECIDED to review the working draft along with any subsequent comments to deliberate in the next meeting.

### **5.5 WRD 08, IS 11973: 1986 Code of practice for treatment of rock foundations, core and abutment contacts with rock, for embankment dams**

The Committee NOTED item 5.5 of the agenda and requested Dr. Sanjay A. Burele from CWPRS and Er. S. Sridharan from TNWRD to review the document and submit their comments. The Committee DECIDED to review the standard along with any comments received in the next meeting.

### **5.6 WRD 08, IS 5050: 1992 Code of practice for design, construction and maintenance of relief wells (First Revision)**

The Committee noted item 5.6 of the agenda and decided to request CSMRS to review the document and submit their comments before the next meeting. The Committee DECIDED to review the standard along with any comments received in the next meeting.

## **ITEM 6. DRAFT STANDARDS UNDER PREPARATION**

### **6.1 Guidelines for treatment of defects in the foundation of Masonry and Concrete dams**

The Committee NOTED item 6.1 of the agenda and deliberated on the status of the draft document. CSMRS informed that the draft document is being sent to CWC for further inputs. Telephonically, CSMRS informed the BIS Secretariat that the draft document has been sent to CWC on 30.08.2024. The Committee requested BIS Secretariat to forward the received draft to CWC for further inputs. Subsequently, it may be circulated as a P-Draft among the Committee members for additional inputs.

### **6.2 Foundation treatment for barrages on gravelly and boundary reaches**

The Committee NOTED item 6.2 of the agenda and deliberated on the pending draft. The Committee requested CWC and panel members to submit the draft document so that it can be discussed in the next meeting.

The composition of the working group is as follows:

1. Director Embankment, Central Water Commission, New Delhi (Convener)
2. Dr. Manish Gupta, CSMRS, New Delhi,
3. Shri Anirudh Bishnoi, Tehri Hydro Development Corporation, Rishikesh
4. Shri Rajesh Kumar, NHPC Ltd, Faridabad
5. Shri Dharmendra Kumar, Geological Survey of India