

केवल कार्यालय उपयोग हेतु



भारत सरकार

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जल गुणवत्ता आँकड़े पुस्तक

Water Quality Data Book

नर्मदा बेसिन

Narmada Basin

जून 2023-मई 2024



June 2023 May 2024



केन्द्रीय जल आयोग
नर्मदा बेसिन संगठन
भोपाल

CENTRAL WATER COMMISSION

Narmada Basin Organisation
Bhopal

फरवरी 2025 / February 2025

प्रकाशन पंजीयन संख्या: CWC/2025/14

केवल सरकारी उपयोग के लिये

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जल गुणवत्ता आँकड़े पुस्तक
नर्मदा बेसिन
जून 2023 - मई 2024

WATER QUALITY DATA BOOK
Narmada Basin
June 2023 – May 2024



केन्द्रीय जल आयोग
नर्मदा बेसिन संगठन
फरवरी 2025

CENTRAL WATER COMMISSION
Narmada Basin Organisation
February 2025

प्रस्तावना

हमारे पूर्वज यह जानते थे कि पृथ्वी पर जीवों का जीवन तभी स्वस्थ , सुखी और दीर्घ रह सकता है, जब शुद्ध जल और शुद्ध वायु की उपलब्धता हो ।

नदी घाटियों के समुचित नियोजन, संरक्षण और विकास में प्रभावी कार्यवाही के लिये केंद्रीय जल आयोग एक शीर्षस्थ तकनीकी संस्था के रूप में कार्यरत है । इस संस्था द्वारा विभिन्न जल विज्ञानीय प्रेक्षण तंत्र का प्रबोधन भारत की वृहद तथा मध्यम नदियों पर स्थित विभिन्न स्थलों से संचालित है । जल के प्रबोधन के लिये इन्हीं कुछ महत्वपूर्ण स्थलों से जल नमूने एकत्रित किये जाते हैं । नर्मदा नदी के जल गुणवत्ता प्रबोधन से संबंधित आकड़ों का संकलन, नर्मदा मंडल, भोपाल तथा ताप्ती मंडल, सूरत स्थित प्रयोगशालाओं में किया जाता है । नर्मदा बेसिन के लिये इन आकड़ों का संकलन वर्ष 1978-79 में सात स्थलों से शुरू किया गया था, जिसमें क्रमिक बढ़ोतरी कर वर्ष 2019 तक 16 स्थल किया गया था । नदी आंकड़ा संकलन निदेशालय - II के पत्र क्रमांक File No.T-100014/5/2019-RD-II DTE, दिनांक- 15.10.2019 के निर्देशानुसार वर्ष 2019-20 में 16 नवीन जल गुणवत्ता स्थलों पर जल गुणवत्ता का कार्य शुरू किया गया । मार्च 2023 से स्थानीय जल निकाय, भोपाल (म.प्र.) के अंतर्गत भोजताल की जल गुणवत्ता विश्लेषण का कार्य आरंभ किया गया है । वर्तमान में 33 स्थलों पर जल गुणवत्ता आकड़ों का आकलन कार्य किया जा रहा है ।

नर्मदा नदी की जल गुणवत्ता के प्रभावी प्रबोधन हेतु जल गुणवत्ता आंकड़े पुस्तक का प्रकाशन किया जा रहा है । इस पुस्तक में वर्ष 20 23-24 के दौरान नर्मदा बेसिन में 33 स्थलों के विश्लेषण आकड़ें संकलित किये गए हैं । संकलित आकड़ों के आधार पर ही जानकारी इस पुस्तक में समाहित है इसके अलावा प्रेक्षण तकनीक, आकलन पद्धति, स्थलवार वृत्तपत्र, रासायनिक घटक आदि भी इस पुस्तक में उल्लेखित हैं ।

वर्ष 2022 में नर्मदा बेसिन नदी जल गुणवत्ता प्रयोगशाला (NBRWQL), CWC, भोपाल का परीक्षण के क्षेत्र में मानक ISO/IEC 17025:2017 "परीक्षण और अंशांकन प्रयोगशालाओं की क्षमता के लिए सामान्य आवश्यकताएं " के अनुसार राष्ट्रीय परीक्षण और अंशशोधन प्रयोगशाला प्रत्यायन बोर्ड (NABL) द्वारा मूल्यांकन और मान्यता दी गई है ।

आशा है इस पुस्तक में दी गयी जानकारीयां एवं संकलित आकड़ें, जल-गुणवत्ता एवं प्रबंधन के क्षेत्र में कार्य कर रही संस्थाओं के लिए काफी लाभप्रद रहेंगे, इस पुस्तक को और अधिक उपयोगी बनाने के लिये सुझाव आमंत्रित है ।

इस पुस्तक के आकड़ों से संकलन, विश्लेषण तथा प्रकाशन हेतु नर्मदा बेसिन संगठन के अधिकारियों एवं कर्मचारियों ने समर्पण की भावना से एक दल के रूप में जो कार्य किया है, वह प्रशंसनीय है, मैं सभी का आभार व्यक्त करता हूँ ।

स्थान- भोपाल
फरवरी 2025


(नीलम नारोलिया)
अधीक्षण अभियंता (समन्वय)

PREFACE

The Central Water Commission is functioning as an apex technical body for effective action in proper planning, conservation and development of river basins. The monitoring of various hydrological observation systems by this institution is conducted from various sites located on the major and medium rivers of India. Water samples are collected from some of these important places for monitoring of water quality. The data related to water quality monitoring of Narmada River is collected in laboratories located in Narmada Division, Bhopal and Tapi Division, Surat. The compilation of these data for Narmada basin was started in the year 1978-79 from seven sites ,further it was gradually increased to 16 sites by the year 2019. As per the instructions given by River data compilation-II Directorate, letter number File No.T-100014/5/2019-RD-II DTE, dated-15.10.2019, water quality work has been started at 16 new water quality sites in the year 2019-20. From March 01, 2023, the work of water quality analysis of Bhojtal has been started under the local water body at Bhopal (M.P.). At present the work of assessment of water quality data is being done at 33 places.

The “Water Quality Data Book” is being published for effective monitoring of the water quality of Narmada River. In this book, analysed data of 33 sites in Narmada basin have been compiled during the year 2023-24. Information contained in this book is only on the basis of the collected data. Apart from this, observation techniques, estimation method, site wise circular, chemical components etc. are also mentioned in this book.

During year 2022 Narmada Basin River Water Quality Laboratory (NBRWQL), CWC, Bhopal had been assessed and accredited in accordance with the standard ISO/IEC 17025:2017 "General Requirements for the Competence of Testing & Calibration Laboratories" in the field of Testing by National Accreditation Board for Testing and Calibration Laboratories (NABL).

Hope the information and collected data given in this book will be very beneficial for the organizations working in the field of water quality and management; suggestions are invited to make this book more useful.

The work done by the officers and employees of Narmada Basin Organization in the form of a team with the spirit of dedication for compilation, analysis and publication of the data for this book is commendable for which I express my gratitude to all.

(Neelam Narolia)
Superintending Engineer (C)

Place-Bhopal
February 2025



National Accreditation Board for
Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

**NARMADA BASIN RIVER WATER QUALITY
LABORATORY, CWC, BHOPAL**

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

**"General Requirements for the Competence of Testing &
Calibration Laboratories"**

for its facilities at

3RD BLOCK, 5TH FLOOR, PARYAWAS BHAWAN, BHOPAL, MADHYA PRADESH, INDIA

in the field of

TESTING

Certificate Number: TC-14594

Issue Date: 25/09/2024

Valid Until: 24/09/2026

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Entity: CENTRAL WATER COMMISSION

Signed for and on behalf of NABL



N. Venkateswaran
Chief Executive Officer

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Abbreviation and Symbols Used

S.No.	Abbreviation /Symbol	Meaning
1	W YEAR	Water Year
2	cumec	Cubic metre per second
3	mmhos/cm	Micro mhos per centimetre
4	+	Cation
5	-	Anion
6	ppm	Part per million
7	m.eq./ L	Mili equivalent per litre
8	$^{\circ}\text{C}$	Temperature in degree centigrade
9	pH	Negative logarithm of hydrogen ion concentration
10	K^{+}	Potassium ion
11	Na^{+}	Sodium ion
12	Ca^{++}	Calcium ion
13	Mg^{++}	Magnesium ion
14	NH_4^{+}	Ammonium ion
15	CO_3^{--}	Carbonate ion
16	HCO_3^{-}	Bicarbonate ion
17	Cl^{-}	Chloride ion
18	F^{-}	Fluoride ion
19	SO_4^{--}	Sulphate ion
20	SO_3^{--}	Sulphite ion
21	NO_3^{-}	Nitrate ion
22	NO_2^{-}	Nitrite ion
23	PO_4^{---}	Phosphate ion
24	SiO_3^{--}	Silicate ion
25	DO	Dissolved oxygen
26	BOD	Bio-chemical oxygen demand
27	Na %	Sodium percentage
28	SAR	Sodium Adsorption ratio
29	RSC	Residual Sodium Carbonate
30	NDN	Narmada Division
31	TDN	Tapi Division
32	NBO	Narmada Basin Organisation
33	MPN	Most probable number
34	mg/l	Milligram per litre
35	max	Maximum
36	min	Minimum
37	WQ	Water Quality
38	Sq km	Square Kilometre
39	m	Metre
40	TDS	Total Dissolved Solids
41	SNR	Sample not received
42	NF	No flow
43	RD	River dry
44	NTU	Nephelometric Turbidity Unit
15	BDL	Below Detection Limit of equipment

1. Introduction

1.1 Water Quality Activities of CWC

Central Water Commission (CWC) is playing an important role in the field of water quality monitoring of river water. CWC is monitoring the water quality of river since 1963. In the beginning, water quality observation work was started for observing the river water for its suitability for irrigation purpose. By year 2000, water quality parameters were observed in CWC at 353 locations as a value addition to water quality. As on 01.01.2022, CWC is observing water quality at 790 key locations (655 on Hydrological Observation network and 135 Water Quality Sampling Sites).

At present, CWC follows a three-tier laboratory system which consists of Level I, II and III types of laboratories for providing analytical facilities for the analysis of river water samples collected from water quality monitoring stations covering all the important river basins of India.

1. Level-I Laboratories: These are the field laboratories located at field water quality monitoring stations on various rivers of India, where analysis of 6 in-situ parameters: Temperature, Colour, Odour, pH, Electrical Conductivity (EC) and Dissolved Oxygen (DO) of river water are being monitored. As on January 2022, there are 410 Level-I laboratories located at field water quality monitoring stations situated on various rivers of India.

2. Level-II Laboratories: There are 19 level-II laboratories located at division offices of CWC to analyse 25 physico-chemical and biological parameters of river water.

(* Divisional Laboratory, Bhopal is a Level-II laboratory.) (refer table 2-2)

3. Level-III Laboratories: There are 5 regional Level-III laboratories for analysis of 41 parameters including trace & toxic metals and pesticides. Level-III labs are located at New Delhi, Varanasi, Guwahati, Hyderabad and Coimbatore.

1.2 Scope

Watersheds are valuable resource for the country. Adequate knowledge of these watersheds is necessary for a rational formulation of water management policies. Moreover, growth of anthropogenic activities in river basins may lead to river pollution. Keeping this in mind, Central Water Commission observed a number of Physico-chemical parameters of surface water to understand the water quality of large watersheds.

Narmada Basin is the fifth largest among the twelve major river basins of the country. Narmada is an interstate river having total length of 1312 km, of which 1079 km flows in Madhya Pradesh, 35 km flows along the common border of Madhya Pradesh and Maharashtra, 39 km flows along the border of Maharashtra, and Gujarat and 159 km flows in Gujarat. The total basin area is approximately 98796 sq km, out of which 85859 sq km lies in Madhya Pradesh, 1538 sq km in Maharashtra and 11399 sq km. lies in Gujarat. The river originates from the Amarkantak Plateau of Maikal range at about 1057 metre above Mean Sea Level (MSL) and major part flows through

narrow elongated through running east to west with slight inclination towards the south, before it drains into the Arabian Sea at the Gulf of Khambhat near Bharuch in Gujarat.

In its 1312 km long stretch, tributaries of various sizes contribute water and their pollution load to the Narmada River. A characteristic change in the water quality is expected when the tributaries join the river. There are about 19 major tributaries of Narmada listed by Narmada Water Disputes Tribunal, out of which eight are being considered for water quality assessment during present observation period.

1.3 Sources of Information

During the reporting period of 2023-24 the results of water sample analysis carried out in the laboratory at Narmada Division Bhopal are compiled in this report. The water samples were collected at 35 hydro meteorological and water quality monitoring stations in Narmada basin on monthly basis, the same are shown in Plate-1. Out of 35, 33 water quality stations are functioning under the administrative control of Narmada Division, Bhopal while two stations (at Sl No. 1 and 2 of the Table1-1) are under the administrative control of Tapi Division, Surat. These stations are functioning under plan scheme viz. “Development of Water Resources Information System”, during 12th Five Year Plan. The sites and the codes of Water Quality Observation Stations in the Narmada basin are given in Table 1-1.

Table 1-1, Water Quality Observation Stations in Narmada Basin Organization

Sr.	Name of River/ Stations	Code No.	Type of Site	Sr.	Name of River/ StatWQions	Code No.	Type of Site
1.	Orsang at Chandwada	CW1NAL000513	GDSQ	19.	Narmada at Gorakhpur	WQSS-202001	GQ
2.	Narmada at Garudeshwar	CW1NAL000434	GDSQ	20.	Narmada at U/S Dindori (Badaipur)	WQSS-202002	WQSS
3.	Narmada at Mandleshwar	CW1NAM000189	GDSQ	21.	Narmada at D/S Dindori (Jogi Tikariya)	WQSS-202003	WQSS
4.	Kundi at Kogaon	CW1NAM000442	GDQ	22.	Narmada at Malpur	WQSS-202004	GQ
5.	Narmada at Handia	CW1NAM000392	GDSQ	23.	Narmada at Mandla (Rangrejghat)	WQSS-202005	WQSS
6.	Ganjal at Chhidgaon	CW1NAM000379	GDQ	24.	Narmada at Bargi Nagar	WQSS-202006	GQ
7.	Narmada at Narmadapuram	CW1NAM000278	GDSQ	25.	Narmada at U/S Jabalpur	WQSS-202007	WQSS
8.	Narmada at Sandia	CW1NAU000450	GDSQ	26.	Narmada at D/S Jabalpur	WQSS-202008	WQSS
9.	Shakkar at Gadarwara	CW1NAU000391	GDSQ	27.	Hiran at D/S Patan	WQSS-202009	WQSS
10.	Narmada at Barmanghat	CW1NAU000188	GDSQ	28.	Sher at D/S Point of Sher before cof. Narmada	WQSS-202010	WQSS
11.	Sher at Belkheri	CW1NAU000395	GDQ	29.	Narmada at U/S Narmadapuram	WQSS-202011	WQSS
12.	Hiran at Patan	CW1NAU000530	GDQ	30.	Narmada at D/S Narmadapuram	WQSS-202012	WQSS
13.	Banjar at Bamni	CW1NAU000781	GDSQ	31.	Ganjal at Papan	WQSS-202013	WQSS
14.	Burhner at Mohgaon	CW1NAU000390	GDSQ	32.	Narmada at Mortakka	WQSS-202014	GQ
15.	Narmada at Manot	CW1NAU000378	GDSQ	33.	Narmada at U/S Mandleshwar	WQSS-202015	WQSS
16.	Narmada at Dindori	CW1NAU000672	GDQ	34.	Uri at Dhulsar	WQSS-202016	GDQ
17.	Narmada at Mandla	CW1NAU000327	GDQ	35.	Bhojtal at Bhopal	LWB-202317	Water Body
18.	Gaur at Bhalwara	CW1NAU001445	GDQ				

1.4 Availability of Water Quality Data

The dates of starting water quality observations on the various water quality stations are given in **Table 1-2**. Long-term monitoring data may facilitate to access and give an idea of the status of the aquatic environment in the Narmada basin.

Table 1-2, Details of Sites on Narmada River, Tributaries & Local Water Body

Group	Sl. No	Name of Site	Site Opening Date	Data availability
Group 'A' : Sites in operation	1	Orsang at Chandwada	15.03.1980	Up to date
	2	Narmada at Garudeshwar	15.06.1977	- do -
	3	Narmada at Barmanghat	01.06.1979	- do -
	4	Narmada at Mandleshwar	18.06.1979	- do -
	5	Narmada at Narmadapuram	15.07.1979	- do -
	6	Narmada at Handia	01.08.1979	- do -
	7	Shakkar at Gadarwara	16.08.1979	- do -
	8	Narmada at Sandia	15.09.1979	- do -
	9	Narmada at Manot	01.01.1980	- do -
	10	Hiran at Patan	01.09.1986	- do -
	11	Sher at Belkheri	01.09.1986	- do -
	12	Burhner at Mohgaon	16.09.1986	- do -
	13	Kundi at Kogaon	01.08.1986	- do -
	14	Ganjal at Chhidgaon	16.09.1986	- do -
	15	Narmada at Dindori	15.03.1990	- do -
	16	Banjar at Bamni	20.06.1999	- do -
	17	Narmada at Mandla	03/09/2019	-do-
	18	Gaur at Bhalwara	01.06.2019	-do-
	19	Narmada at Gorakhpur	07.08.2020	-do-
	20	Narmada at U/S Dindori (Badaipur)	07.08.2020	-do-
	21	Narmada at D/S Dindori (Jogi Tikariya)	07.08.2020	-do-
	22	Narmada at Malpur	07.08.2020	-do-
	23	Narmada at Mandla (Rangrejghat)	07.08.2020	-do-
	24	Narmada at Bargi Nagar	07.08.2020	-do-
	25	Narmada at U/S Jabalpur	07.08.2020	-do-
	26	Narmada at D/S Jabalpur	07.08.2020	-do-
	27	Hiran at D/S Patan	07.08.2020	-do-
	28	Sher at D/S Point of Sher before cof.	07.08.2020	-do-
	29	Narmada at U/S Narmadapuram	07.08.2020	-do-
	30	Narmada at D/S Narmadapuram	07.08.2020	-do-
	31	Ganjal at Papan	07.08.2020	-do-
	32	Narmada at Mortakka	07.08.2020	-do-
	33	Narmada at U/S Mandleshwar	07.08.2020	-do-
	34	Uri at Dhulsar	07.08.2020	-do-
	35	Bhojtal at Bhopal	01.03.2023	-do-
Group 'B' Sites closed	1	Uri at Dhulsar	01.07.2008	Closed on
	2	Goi at Pati	01.07.2008	Closed on
	3	Narmada at Jamtara	28.10.1971	Closed on
	4	Narmada at Rajghat	15.06.1979	Closed on
	5	Chhota Tawa at Ginnore	16.07.1979	Closed on
	6	Banjar at Hridaynagar	01.09.1986	Closed on
	7	Tawa at Manegaon	15.09.1986	Closed on
	8	Narmada at Mortakka	01.09.1999	Closed on

2. Water Quality Observation

2.1 Sampling

The periodicity of collection of water samples is Ten daily basis i.e. thrice in a month provided that the samples reaches to the Divisional Laboratory at Bhopal on the next day. These water samples are collected at 0.6 times the depth from surface without disturbing the bottom sediments, from the point across the river section having maximum depth or maximum flow along the cross section of the river, so that sample must be representative of the source (i.e. water stream) that is to be evaluated. The samples are collected in clean and pre-rinsed plastic bottles of one litre capacity, filled up to their full capacity without air bubbles. Measurements of some other parameters like in-situ temperature; depth, velocity of water etc. are written on paper and a label containing name of site, date of collection etc is pasted on the polythene bottles for identification. The water samples thus collected are sent for analysis to Divisional Laboratory Bhopal by special messenger so as to reach within 24 hours of collection for minimum changes.

2.2 Analysis of Parameters at Laboratories.

Six In-situ parameters are analysed at Nine Level-I laboratories situated at WQ sites. The water samples received at Divisional Laboratories are stored in Cooling Cabinet and analysed for various physical, chemical and biological parameters as mentioned in **Table 2-1**

Table 2-1, Parameters analysed at the Level-I Laboratory (at sites)

S.No.	In-Situ Parameters	Methods of Analysis	Remarks
1	Colour	Visual observation(in-situ) method	Physical parameters
2	Odour	Qualitative human receptor method	
3	Temperature	APHA 2550 B (Laboratory and field Methods)	
4	pH	APHA 4500-H+ B (Electrometric Method)	
5	Electrical Conductivity	APHA 2510 B (Laboratory Method)	
6	Dissolved Oxygen	APHA 4500, O-C (Azide Modification Method)	

Table 2-2, Parameters analysed at the Divisional Laboratory (Level-II)

Sl.No.	Parameters	Methods of Analysis	Remarks
1	TEMPERATURE	APHA 2550 B (Laboratory and field Methods)	Physical parameters
2	pH	APHA 4500-H+ B (Electrometric Method)	
3	EC	APHA 2510 B (Laboratory Method)	
4	Total Dissolved Solids	APHA 2540 C (TDS dried at 180°C)	
5	Turbidity	APHA 2130 B Nephelometric Method	
6	Ammonia	APHA 4500 APHA NH ₃ - D (Ammonia- Selective Electrode Method)	Chemical parameters
7	Sodium	APHA 3500 Na-B (Flame Emission Photometric Method)	
8	Calcium	APHA 3500 Ca-B (EDTA Titrimetric Method)	
9	Magnesium	APHA 3500 Mg-B (Calculation Method)	
10	Potassium	APHA 3500 K-D (Flame Emission Photometric Method)	
11	Boron	APHA 4500 B (Curcumin Method)	
12	Carbonate	APHA 2320 B (Titration Method)	
13	Bicarbonate	APHA 2320 B (Titration Method)	
14	Fluoride	APHA 4500 F-C (ISE Method), APHA 4500-D (SPADNS Method)	
15	Chloride	APHA 4500 Cl ⁻ B (Argentometric Method)	
16	Sulphate	APHA 4500- SO ₄ ²⁻ E (Turbidimetric Method)	
17	Nitrate	APHA 4500 NO ₃ ⁻ D (Nitrate Electrode Method)	
18	Nitrite	APHA 4500 NO ₂ ⁻ B (Colorimetric Method)	
19	Silicate	APHA 4500 -SiO ₂ C (Molybdosilicate Method), APHA 4500 – SiO ₂ - D. (Heteropoly Blue Method)	
20	Phosphate	APHA 4500- P E(Ascorbic Acid Method) (as total phosphate)	
21	Dissolved Oxygen (DO)	APHA 4500, O-C (Azide Modification Method)	
22	Biochemical Oxygen Demand	APHA 5210 B (5 day BOD Test)	
23	Chemical Oxygen Demand	APHA 5220 D (Closed Reflux Colorimetric Method), APHA 5220 B (Open Reflux Method-when observed less than 4 mg/L)	
24	Total Coliform	MPN method	Biological parameters
25	Fecal Coliform	MPN method	

2.3 Method of Analysis

The water sample preserved in laboratory is analysed using “STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTE WATER” – APHA 24th Edition 2023, AWWA & WEF, which are quick, usually much faster than purely chemical procedures and suited for number of routine analysis. The quantitative estimation for the parameters detailed above are determined by titrimetric methods, electrical methods and optical methods. The applications of different methods to analyse physical and chemical characteristics of water sample are summarized below.

Physical Characteristics

The major physical characteristics or parameters of water are,

- **Discharge** in cumecs is measured by current meter and this average rate of volume of water with concentration of pollutant give the possibility to detect significant pollution sources and its peaking factor.
- **Colour** in water is the result of dissolved extracts from metals in rocks and soil, from organic matter in soil and plants, and occasionally from industrial by-products. The colour of the water sample is determined by visual comparison method.
- **Odour** of the water sample is determined by qualitative human receptor method.
- The in-situ **temperature** in degree centigrade is measured by thermometer and is recorded to decide the intended use of water, the treatment process to remove impurities and its transport.
- The **pH** of water is measure of the acidic or basic nature of the water. Water with pH lower than 7 are acidic and those with a higher pH are basic. This is observed with a pH meter which actually measures the electrical potential exerted by the H^+ ions.
- Measuring its **electrical resistance** between two electrodes dipped in the sample and comparing its resistance with the resistance of a standard solution of potassium chloride at 25° C by Electrical Conductivity meter determines the conductivity of the water sample. The value of conductivity coefficient is measured in micro-mhos/cm and is an indicator of type of dissolved salts in water.
- **Total Dissolved Solids (TDS)** concentration in mg/l, in conjunction with a detailed chemical analysis, is used to assess the suitability of various water sources for alternative uses such as industry or agriculture. Its value should be between 0.55 and 0.70 of the conductivity coefficient. This is measured with a potentiometer.
- **Turbidity** is defined as the presence of soil particles, clay, silt and other colloidal impurities in the water which obstruct the passage of light through water and hence decreases the clarity of water. The degree of turbidity measured in NTU depends on the fineness of the particles and their concentration. This is measured with a turbidity meter (discussed under nepHelometric method) by measuring the interference to the passage of light through a water sample. Surface waters in which there is significant increase in the level of turbidity after a rainfall are often identified as "flashing waters". Such water is more difficult to treat than waters in which the level of turbidity remains reasonably constant.

Chemical Characteristics

The common tests used to quantify the inorganic constituents of water are:

- **Titrimetric Method:** The term titrimetric analysis refers to quantitative chemical analysis carried out by determining the volume of a solution of accurately known concentration (standard solution), which is required to react with the known volume of solution of the substance to be determined. The end point of titration is detectable by perceptible change of colour of the solution produced usually by the addition of an auxiliary reagent known as indicator. Parameters determined by this technique are **Carbonate, Bicarbonate, Chloride, Calcium, Magnesium, Dissolved Oxygen [DO] and Biochemical Oxygen Demand [BOD]**.
- **Spectrophotometric/ Colorimetric Method:** This instrument works on measurement of the amount of optical energy of a particular wavelength absorbed/transmitted by the solution. The instruments used in this method are UV Double Beam Spectrophotometer. A series of standard solutions of known concentration are prepared and treated with appropriate reagents to produce colored solution. Then the light of specific wavelength is passed through the standard solutions. The transmittance / absorbency is plotted against the concentration and this is termed as calibration or reference curve. Water samples are treated with the same reagents for colour development under the same experimental conditions and then transmittance/ absorbance is measured. Concentration of the constituent is being determined from calibration curve. Parameters analysed by this method are **Nitrate, Nitrite, Phosphate and Silicate, Chemical Oxygen Demand [COD]**.
- **Ion Selective Electrode Method:** Ion selective electrode (ISE) is an analytical technique used to determine the activity of ions in aqueous solution by measuring the electrical potential. Parameters analysed by this method are **Ammonia-N, Fluoride**.
- **Flame Spectrophotometry Method:** This is also an optical method of analysis based on measurement of the amount of energy of a particular wavelength emitted. If a solution containing 'a metallic salt is aspirated into a flame, the metal atoms are excited by the thermal energy of the flame and then electrons in the ultimate shell go to higher energy levels and eventually return to ground state and emit the energy in form of radiation. The filter, interposed between the flame and the photocell detector, is used to select a given emission line. To convert the measured emission values into the concentration of the substance being determined, a calibration curve is plotted by aspirating into the flame, samples of solutions containing known concentration of salts (standard solution). A graph is plotted with measured emission against the concentration of solutions. Then the test samples are aspirated for flame emission and emission intensity is measured. From these values of emission from unknown test solution, concentration of substance can be determined from the calibration curve. Parameters estimated through this method are **Sodium and Potassium**.
- **Nephelometric Method:** The measurement of the intensity of the scattered light at right angles to the direction of the incident light as a function of the concentration of the solution is the basis of nephelometric analysis. The calibration curve is plotted by measuring the scattering intensity of standard sulphate solutions added with barium chloride to inhibit the growth of micro crystals of barium sulphate against concentration of solution. Then the test samples are allowed for scattering. The concentration of sulphate-ion content of unknown solution is determined from the calibration curve. Turbidity of the water sample is measured directly by calibrating the instrument with standard turbid solution of 10% Hexamethylene

and 1 % Hydrazine sulphate. The parameter analysed by nephelometric method are **Sulphate and turbidity**.

2.4 Explanatory Notes

For dissemination of processed information, the water quality database has been tabulated in succeeding pages for making realistic assessments. The information is grouped under two headlines, namely, History Sheet and Water Quality Data of hydrological station. Tabular summaries bring together processed data from selected stations detailed previously in this book. These explanatory notes below are designed to assist in the interpretation of characteristics incorporated in the book.

- Frequency of publication of “**Water Quality Data Book**” is annual and water year starts from 1st June of every calendar year to the 31st May of the next calendar year and covers one complete hydrological cycle. This book presents updated water quality data for the period 1st June 2023 to 31st May 2024.
- In the history sheet, a catalogue is designed to identify the hydrological records grouping name of river basin, site, drainage area, latitude & longitude of site, station type, period of the stream flow.
- Every permanent site is given a unique identifier code that will be used to denote all data and other Information pertinent to the site. A unique nine-column numeric code system is used for site identification to facilitate multi data storage and its retrieval. The first two columns are identifiers measuring authority. Third and fourth columns are for drainage zone/basin. Fifth and Sixth columns are for Independent River and last three i.e. seventh, eighth and ninth columns are for station numbers within the region.
- The following four chemical indices namely Hardness number, Sodium percentage, Sodium Absorption Ratio and Residual Sodium Carbonate are calculated by empirical formula taking different observed values. These are detailed below:

Hardness number

Calcium and Magnesium are the principle ions that make the water hard. Hardness is expressed in milligrams per litre of equivalent Calcium Carbonate. Hardness Number is expressed by:

$$\text{Hardness Number} = (\text{Ca}^{++} + \text{Mg}^{++}) \times 50$$

Sodium percentage

Salts of Calcium, Magnesium, Sodium and Potassium in irrigation water are critical for almost all crops. In excessive quantities these salts reduce the osmotic activity of plants, preventing the absorption of nutrients by plant and indirect chemical effects on the metabolism of the plant. These ions also affect soil permeability, preventing adequate drainage or aeration. Percent Sodium is defined as the percentage of the Sodium content of water in the total cations content.

Sodium percentage is determined by dividing the Sodium content by the sum of Calcium, Magnesium, Sodium and Potassium contents by formula given below:

$$\text{Sodium Percentage} = \frac{\text{Na}^+ \times 100}{\text{Ca}^{++} + \text{Mg}^{++} + \text{Na}^+ + \text{K}^+}$$

(all expressed as milliequivalents per litre)

Sodium Absorption Ratio

Since Calcium and Magnesium will replace Sodium more readily than vice versa, the ratio reflects the Sodium hazard. The SAR indicates the relative activity of the Sodium ions in exchange reactions with the soil. Irrigation water with a high SAR will cause the soil to tighten up. The Sodium Adsorption Ratio (SAR) is defined as:

$$\text{Sodium Absorption Ratio} = \frac{\text{Na}^+}{\left[\frac{(\text{Ca}^{++} + \text{Mg}^{++})}{2} \right]^{1/2}}$$

Residual Sodium Carbonate

Residual Sodium Carbonate is calculated using the following formula

$$\text{Residual Sodium Carbonate} = (\text{CO}_3^{--} + \text{HCO}_3^-) - (\text{Ca}^{++} + \text{Mg}^{++})$$

The U.S. Department of Agriculture has classified irrigation waters in four groups depending on SAR and the specific conductance (Diagram for classification and use of Irrigation Water is given at **Annexure -1**. Classification of water sample for suitability of agriculture as per salinity diagram is indicated lastly on compilation sheet.)

2.5 Validation of Water Quality data

Primary validation of water quality data is done by the laboratory where the water samples are analysed and analysis results entered.

Prior to primary validation, results and entries should be again inspected for complete information and errors. Make sure that data entry and typing mistakes are not there, check for the significant figures and fractional digits. Check whether result is within the detection limits of the method of analysis and within the expected range of a parameter.

Primary Validation

Ion balance between major cations and major anions should not exceed 5 %.

$$\text{Ionic Balance} = \frac{[\text{Total Cations} - \text{Total Anions}] * 100}{[\text{Total Cations} + \text{Total Anions}]}$$

all concentrations in milli equivalents/litre (m.eq/L)

- Sodium and Chlorine ratio – the ratio should be between 0.8 and 1.2 (concentrations in milli equivalents/L).
- Total Dissolved Solids (TDS) and Conductivity (EC) ratio – the ratio should be between 0.55 and 0.9
- COD and BOD ratio – COD values should always be higher than BOD values
- Carbonate and pH relationship – carbonate should be zero for pH values below 8.3
- Total coliform and faecal coliform ratio – TC values should be higher than FC values
- Total hardness = Ca hardness + Mg hardness
- The value of measured EC should be close to the value of calculated EC.
- TDS calculated and TDS measured ratio – the ratio should be between 1.0 and 1.2
- Presence of nitrate in the absence of dissolved oxygen may indicate an error since nitrate is rapidly reduced in the absence of oxygen.

Primary validation of analysis results is required to be completed immediately, preferably within one week. This time schedule ensures that any obvious problems (e.g., indicating an instrument malfunction, observer error etc.) are spotted at the earliest opportunity and resolved. Other problems may not become apparent until more data have been collected, and data can be viewed in a longer-term context during secondary validation.

Secondary validation

Secondary validation is largely concerned with detecting outliers. An outlier is an observation that does not match the pattern of earlier observations. They may be identified by using the historical dataset for a particular parameter for a particular station using control charts/graphical analysis (Refer Chapter 5: Water Quality Handbook: Sediment and Water Quality, HP II, Indian Hydrology Project, May 2014). Outliers in water quality datasets may occur due to practical mistakes or instrumental failure in all aspects of water quality sampling and analysis: from sample collection, transport, storage, analysis or data entry. They may also result from transcription or

data entry errors, or can be the result of instrument breakdowns, calibration problems or power failures.

However, outliers may be an indication of a true change in the system under study, such as an accidental spill on a river stretch. The presence of one or more outliers within a data set may greatly influence any calculated statistics and yield biased results, so outliers should be identified, flagged and, if truly erroneous, possibly removed from a dataset.

If outliers are identified

- i. The value may be confirmed by rechecking/recalculation. If an obvious mistake is detected, the correct data value may be entered, if available. Remove from the dataset, if they are truly erroneous and retesting of sample is not possible.
- ii. If retesting is possible, outliers may be removed by reanalysis of the sample in the laboratory itself.
- iii. If outlier is not removed by step ii, the sample may be sent to the nearest laboratory of CWC.
- iv. If the value is confirmed; outlier is not removed by step iv also, the values may be entered in the WQ bulletin; flagged. The probable reason of the unusual value may be indicated in remarks.

Source:

Water Quality Handbook: Sediment and Water Quality, HP II, Indian Hydrology Project, may 2014

2.6 Details of Samples:

Total number of samples collected and number of parameters analyzed during the **Water year 2023-24** by the laboratories under Narmada Division are given below –

Divisional Laboratory	No. of samples		Total Parameters analyzed (Sample X parameter)
	Collected	Analyzed	
NBRWQL-Divisional laboratory (Level- II), ND, Bhopal Samples	1153	1153	23994

2.7 Comments on Site-wise Data of Water Quality for 2023-24 (Refer Annexure-2)

1. Orsang at Chandwada

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH values were within their tolerance limits for class A throughout the year except 8.7, 8.6 & 8.6 on 03.10.2023, 11.10.2023 & 01.11.2023 respectively (Class C). DO values were within their tolerance limits for class A throughout the year except 5.6 mg/l on 21.08.2023 (Class B). BOD values were within their tolerance limits for class A throughout the year except 2.9 mg/l on 11.09.2023 & 2.1 mg/l on 21.09.2023 (Class B).

2. Narmada at Garudeshwar

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their tolerance limits for class A throughout the year except DO four times for class B & one time for class C (4.6 mg/l on 12.06.2023).

3. Narmada at Mandleshwar

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB.

4. Kundi at Kogaon

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB.

5. Narmada at Handia

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB.

6. Ganjal at Chhidgaon

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB.

7. Narmada at Narmadapuram

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB.

8. Narmada at Sandia

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB.

9. Shakkar at Gadarwara

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB. DO values were within their tolerance limits for class A throughout the year except 5.8 mg/l on 11.07.2023 (Class B)

10. Narmada at Barmanghat

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB. DO values were within their tolerance limits for class A throughout the year except 5.8 mg/l on 01.08.2023 (Class B)

11. Sher at Belkheri

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB. DO values were within their tolerance limits for class A throughout the year except 5.7 mg/l on 01.06.2023 (Class B)

12. Hiran at Patan

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH & BOD values were within their respective tolerance limits for class B for designated best use of water by CPCB. DO values were within their tolerance limits for class B throughout the year except 3.6 mg/l on 01.06.2023, 4.0 mg/l on 12.06.2023, 3.7 mg/l on 21.06.2023, 4.8 mg/l on 03.07.2023, 4.2 mg/l on 11.07.2023 & 4.9 mg/l on 21.08.2023 (Class C)

13. Banjar at Bamni

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB.

14. Burhner at Mohgaon

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB.

15. Narmada at Manot

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB. DO values were within their tolerance limits for class A throughout the year except 5.1mg/l on 01.06.2023, 5.4 mg/l on 12.06.2023 & 5.6 mg/l on 21.06.2023 (Class B)

16. Narmada at Dindori

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were within their tolerance limits for class A throughout the year except 2.2 mg/l on 21.03.2024. pH values were within their tolerance limits for class A throughout the year. The DO values were above the tolerance limits 09 times in a year for class B and for 03 times for class C in which lowest value was 4.5 mg/l on 01/06/2023.

17. Narmada at Mandla

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB. DO values were within their tolerance limits for class A throughout the year except 5.2 mg/l on 01.04.2024, 5.4 mg/l on 09.04.2024 & 5.3 mg/l on 22.04.2024 (Class B)

18. Gaur at Bhalwara

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH values were within their respective tolerance limits for class A for designated best use of water by CPCB. The BOD values were within their tolerance limits for class A throughout the year except 2.1 mg/l on 01.02.2024 & 2.3 mg/l on 12.02.2024 (Class B). DO values were within their tolerance limits for class A throughout the year except 5.6 mg/l on 11.07.2023, 5.8 mg/l on 01.012.2023 & 5.8 mg/l on 01.02.2024 (Class B)

19. Narmada at Gorakhpur

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH & BOD values were within their respective tolerance limits for class A for designated best use of water by CPCB. DO values were within their tolerance limits for class A throughout the year except 5.8 mg/l on 01.03.2024, 5.9 mg/l on 11.03.2024, 5.2 mg/l on 01.04.2024, 5.6 mg/l on 09.04.2024 & 5.5 mg/l on 22.04.2024 (Class B)

20. Narmada at U/S Dindori (Bidaipur)

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were within their tolerance limits for class A throughout the year except 2.2 mg/l on 21.03.2024 (Class B). pH values were within their tolerance limits for class A throughout the year. The DO values were above the tolerance limits 08 times in a year for class B and for 01 time which was 4.9 mg/l on 01/06/2023.

21. Narmada at D/S Dindori (Jogitikariya)

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH & BOD values were within their tolerance limits for class A throughout the year. The DO values were above the tolerance limits 09 times in a year for class B and for 02 times for class C in which lowest value was 4.5 mg/l on 01/06/2023.

22. Narmada at Malpur

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH & BOD values were within their tolerance limits for class A throughout the year. The DO values were above the tolerance limits 06 times in a year for class B and 01 time for class C which was 4.7 mg/l on 01/06/2023.

23. Narmada at Mandla (Rangrejghat)

The water stream at this site has been found to be generally within 'Medium Hard' range. The BOD values were within their tolerance limits for class A throughout the year except 2.1 mg/l on 01.06.2023 (Class B). pH values were within their tolerance limits for class A throughout the year. The DO values were above the tolerance limits 04 times in a year for class B in which lowest value was 5.4 mg/l on 01/04/2024.

24. Narmada at Barginagar

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their tolerance limits for class A throughout the year except DO on 01.08.2023 was 5.8 mg/l.

25. Narmada at U/S Jabalpur

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their tolerance limits for class A throughout the year except DO values 5.9 mg/l on 01.06.2023 & 5.6 mg/l on 01.08.2023.

26. Narmada at D/S Jabalpur

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their tolerance limits for class A throughout the year except DO values 5.9 mg/l on 01.06.2023 & 5.8 mg/l on 11.07.2023 & 5.6 mg/l on 01.08.2023.

27. Hiran at D/S Patan

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH & BOD values were within their respective tolerance limits for class B for designated best use of water by CPCB. The DO values were above the tolerance limits 5 times in a year for class C in which lowest value was 3.4 mg/l on 01/06/2023. (Class C)

28. Sher at D/S point of Sher before Conf. Narmada

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their tolerance limits for class A throughout the year except DO on 01.06.2023 was 5.7 mg/l.

29. Narmada at U/S Narmadapuram

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their tolerance limits for class A throughout the year except DO on 01.06.2023 was 5.9 mg/l.

30. Narmada at D/S Narmadapuram

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their tolerance limits for class A throughout the year.

31. Ganjal at Papan

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their tolerance limits for class A throughout the year except BOD 2.1 mg/l on 01.06.2023 (Class B) & DO values were 4.5, 4.6 & 4.7 mg/l on 1st, 6th & 21st June 2023 respectively (Class C).

32. Narmada at Mortakka

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their tolerance limits for class A throughout the year.

33. Narmada at U/S Mandleshwar

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their tolerance limits for class A throughout the year.

34. Uri at Dhulsar

The water stream at this site has been found to be generally within 'Medium Hard' range. The pH, DO & BOD values were within their tolerance limits for class A throughout the year.

35. Bhojtal at Bhopal

The water body at this site has been found to be generally within 'Medium Hard' range. The pH & DO values were within their tolerance limits for class A throughout the year. BOD values were within their respective tolerance limits for class B for designated best use of water by CPCB

3. Analysis Results

3.1 General

Based on discussion presented in Chapter 1 and 2, the results of chemical analysis carried out at each of 35 sites in respect of 21 parameters are presented in this chapter.

Method of Presentation

In the succeeding pages station wise water quality data/ parameters are presented comprising of history sheet and water quality analysis results in tabular form. The series of the water quality observation stations is arranged from the mouth of the river to the upstream giving priority to an intermediate tributary station in a similar fashion.

History sheets give brief description of the water quality observation station. The water analysis result tables are given for the river water only and for the parameters analysed at the site and at the laboratory. The table showing tolerance limits of water quality parameters for various uses of water as per IS: 2296-1992 is given as Annexure -2.

Plate 1: Line Diagram of Narmada Basin

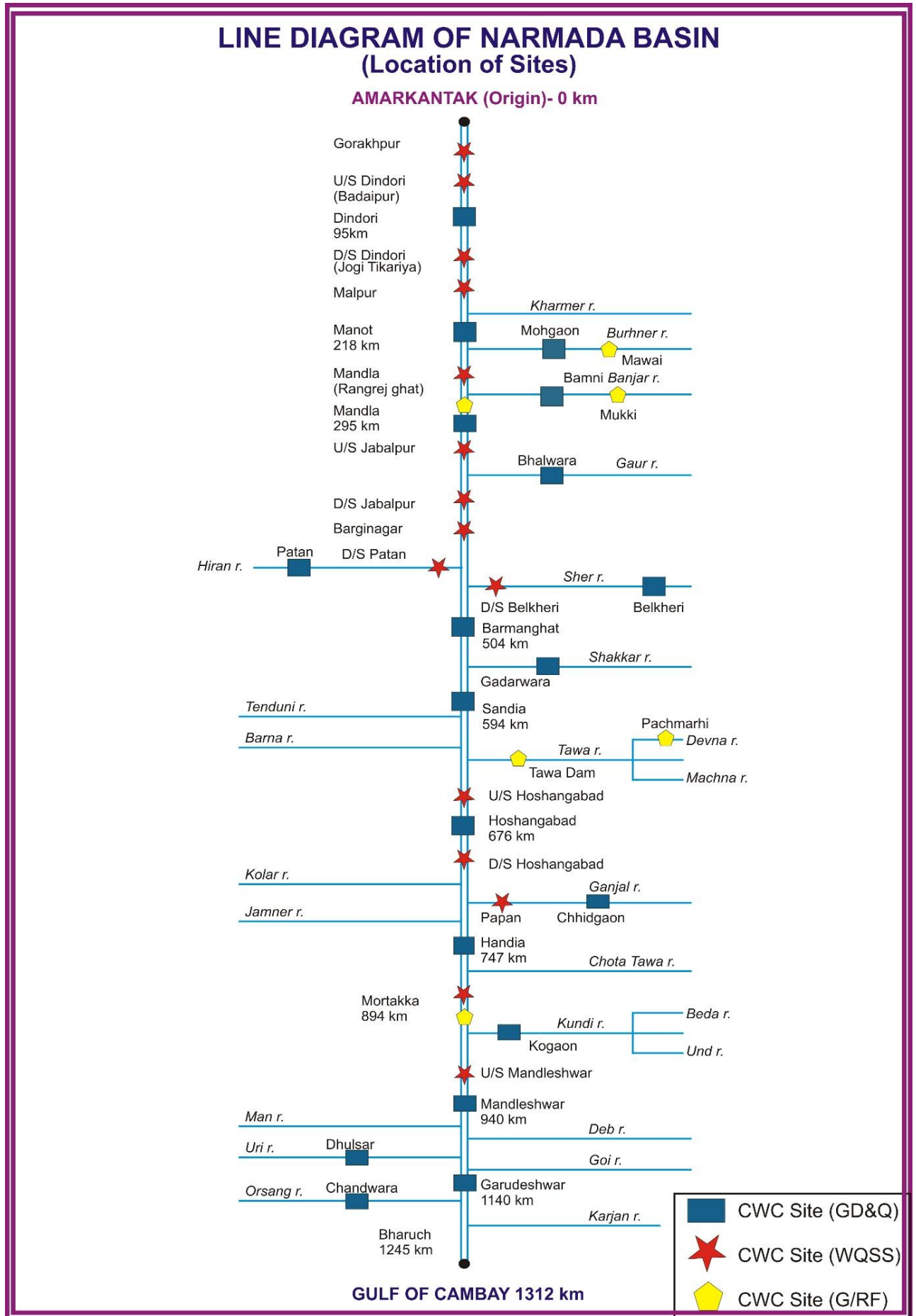
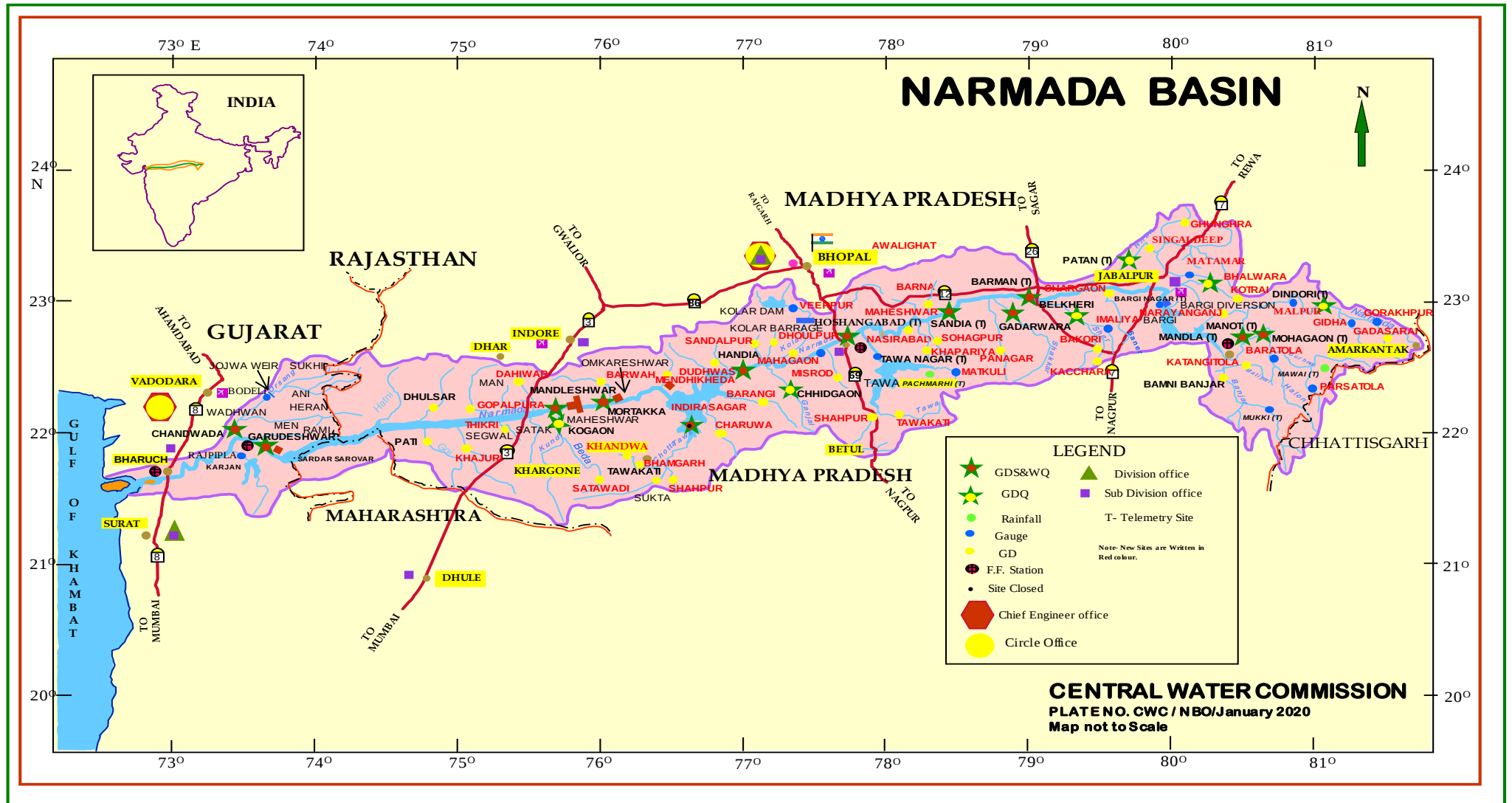


Plate 2: Index Map of Narmada Basin



For International / State boundaries and Coast Line refer to Survey of India Maps

3.2 Orsang at Chandwada

HISTORY SHEET

		Water Year	: 2023-24
Site	: Orsang at Chandwada	Code	: CW1NAL000513
State	: Gujarat	District	Vadodara
Basin	: Narmada	Independent River	: Narmada
Tributary	: Orsang	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Orsang
Division	: Tapi Division, Surat	Sub-Division	: LNSD, Bharuch
Drainage Area	: 3846 Sq. Km.	Bank	: Right
Latitude	: 22°30'00"	Longitude	: 73°27'55"
		Opening Date	Closing Date
Gauge	: 11/09/1979		
Discharge	: 01/11/1979		
Sediment	: 01/08/1988		
Water Quality	: 15/03/1980		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Orsang at Chandwada (CW1NAL000513)

Local River : Orsang

Division : Tapi Division, Surat

Sub-Division: LNSD Bharuch

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	01-07-2023	11-07-2023	21-07-2023	01-08-2023	11-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)							106.60	32.16	30.73	22.57	63.22	219.85
2	Colour_Cod (-)							Light Brown	Clear	Clear	Clear	Clear	Light Brown
3	EC_FLD (µmho/cm)							774	740	511	745	264	716
4	EC_GEN (µmho/cm)							317	440	473	508	387	365
5	Odour_Code (-)							odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)							8.6	8.7	11.7	9.4	6.3	9.5
7	pH_GEN (pH units)							8.4	8.5	8.5	8.5	8.5	8.4
8	TDS (mg/L)							177	246	264	283	219	208
9	Temp (deg C)							26.0	26.0	25.0	27.0	28.0	26.0
10	Turb (NTU)							96.6	2.1	5.6			
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)							5.9	6.9	8.4	7.1	7.4	8.8
2	ALK-TOT (mgCaCO3/L)							117	161	162	132	125	141
3	Ca (mg/L)							36	37	36	37	34	40
4	Cl (mg/L)							22.4	35.9	38.5	14.8	35.2	25.5
5	CO3 (mg/L)							7.1	8.3	10.1	8.5	8.9	10.6
6	F (mg/L)							0.19	0.51	0.54	0.66	0.64	0.48
7	HCO3 (mg/L)							128	180	177	144	135	151
8	K (mg/L)							1.5	1.6	1.7	1.3	2.1	1.3
9	Mg (mg/L)							8.0	15.8	17.5	12.7	10.5	12.0
10	Na (mg/L)							16.6	27.8	32.6	11.3	28.2	19.6
11	NH3-N (mg N/L)							0.30	0.35	0.30	0.24	0.30	0.26
12	NO2+NO3 (mg N/L)							2.43	3.05	3.28	1.77	1.65	1.58
13	NO2-N (mgN/L)							1.22	1.53	1.65	0.03	0.02	0.02
14	NO3-N (mgN/L)							1.21	1.52	1.63	1.74	1.63	1.56
15	P-Tot (mgP/L)							0.010	0.010	0.010	0.010	0.010	0.010
16	SiO2 (mg/L)							27.4	26.6	28.4	29.0	29.4	23.8
17	SO4 (mg/L)							8.9	9.6	10.5			
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)							1.3	1.3	0.5	1.1	2.9	2.1
2	DO (mg/L)							6.6	6.9	5.6	7.5	6.8	8.5
3	DO_SAT% (%)							81	85	68	94	87	104
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)							89	92	89	92	85	101
2	HAR_Total (mgCaCO3/L)							123	158	162	145	129	151
3	Na% (%)							23	28	30	14	32	22
4	RSC (-)							0.0	0.1	0.0	0.0	0.0	0.0
5	SAR (-)							0.7	1.0	1.1	0.4	1.1	0.7

Note-Data published as given by Tapi division, Surat

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Orsang at Chandwada (CW1NAL000513)

Local River : Orsang

Division : Tapi Division, Surat

Sub-Division: LNSD Bharuch

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	21-10-2023	01-11-2023	11-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	21-01-2024
	PHYSICAL												
1	Q (cumec)	67.52	30.28	219.85	105.00								
2	Colour_Cod (-)	Clear	Clear	Clear	Clear								
3	EC_FLD (µmho/cm)	626	760	760	762								
4	EC_GEN (µmho/cm)	416	487	478	478								
5	Odour_Code (-)	odour free	odour free	odour free	odour free								
6	pH_FLD (pH units)	8.9	9.5	9.5	10.5								
7	pH_GEN (pH units)	8.7	8.6	8.5	8.6								
8	TDS (mg/L)	232	268	269	271								
9	Temp (deg C)	26.0	23.0	23.0	28.0								
10	Turb (NTU)												
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	11.3	10.4	7.7	5.8								
2	ALK-TOT (mgCaCO3/L)	166	171	170	164								
3	Ca (mg/L)	30	36	36	42								
4	Cl (mg/L)	10.9	39.1	40.3	39.1								
5	CO3 (mg/L)	13.6	12.5	9.3	7.0								
6	F (mg/L)	0.63	0.58	0.58	0.69								
7	HCO3 (mg/L)	175	183	188	186								
8	K (mg/L)	1.2	0.3	1.4	1.2								
9	Mg (mg/L)	7.1	21.6	21.5	14.8								
10	Na (mg/L)	10.4	29.4	30.7	29.7								
11	NH3-N (mg N/L)	0.26	0.24	0.32	0.39								
12	NO2+NO3 (mg N/L)	2.10	2.60	2.35									
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.02								
14	NO3-N (mgN/L)	2.09	2.59	2.34									
15	P-Tot (mgP/L)	0.010	0.010	0.010	0.020								
16	SiO2 (mg/L)	21.5	23.5	22.0	26.9								
17	SO4 (mg/L)												
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.7	0.8	0.5	0.6								
2	DO (mg/L)	7.9	6.8	6.7	6.7								
3	DO_SAT% (%)	97	79	78	86								
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	76	89	89	104								
2	HAR_Total (mgCaCO3/L)	105	179	178	166								
3	Na% (%)	18	26	27	28								
4	RSC (-)	1.2	0.0	0.0	0.0								
5	SAR (-)	0.4	1.0	1.0	1.0								

Note-Data published as given by Tapi division, Surat

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Orsang at Chandwada (CW1NAL000513)

Local River : Orsang

Division : Tapi Division, Surat

Sub-Division: LNSD Bharuch

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	12-04-2024	22-04-2024	01-05-2024	13-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)												
2	Colour_Cod (-)												
3	EC_FLD (µmho/cm)												
4	EC_GEN (µmho/cm)												
5	Odour_Code (-)												
6	pH_FLD (pH units)												
7	pH_GEN (pH units)												
8	TDS (mg/L)												
9	Temp (deg C)												
10	Turb (NTU)												
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)												
2	ALK-TOT (mgCaCO3/L)												
3	Ca (mg/L)												
4	Cl (mg/L)												
5	CO3 (mg/L)												
6	F (mg/L)												
7	HCO3 (mg/L)												
8	K (mg/L)												
9	Mg (mg/L)												
10	Na (mg/L)												
11	NH3-N (mg N/L)												
12	NO2+NO3 (mg N/L)												
13	NO2-N (mgN/L)												
14	NO3-N (mgN/L)												
15	P-Tot (mgP/L)												
16	SiO2 (mg/L)												
17	SO4 (mg/L)												
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)												
2	DO (mg/L)												
3	DO_SAT% (%)												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)												
2	HAR_Total (mgCaCO3/L)												
3	Na% (%)												
4	RSC (-)												
5	SAR (-)												

Note-Data published as given by Tapi division, Surat

Water Quality Data Book 2023-24

Water Quality Summary for the period: 2023-24

Station Name: Orsang at Chandwada (CW1NAL000513)

Local River : Orsang

Division : Tapi Division, Surat

Sub-Division : LNSD Bharuch

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_FLD (μmho/cm)	10	774	264	666
3	EC_GEN (μmho/cm)	10	508	317	435
4	pH_FLD (pH units)	10	11.7	6.3	9.3
5	pH_GEN (pH units)	10	8.7	8.4	8.5
6	TDS (mg/L)	10	283	177	244
7	Temp (deg C)	10	28.0	23.0	25.8
8	Turb (NTU)	3	96.6	2.1	34.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	10	11.3	5.8	8
2	ALK-TOT (mgCaCO3/L)	10	171	117	151
3	Ca (mg/L)	10	42	30	36
4	Cl (mg/L)	10	40.3	10.9	30.2
5	CO3 (mg/L)	10	13.6	7.0	9.6
6	F (mg/L)	10	0.69	0.19	0.55
7	HCO3 (mg/L)	10	188	128	165
8	K (mg/L)	10	2.1	0.3	1.4
9	Mg (mg/L)	10	21.6	7.1	14.2
10	Na (mg/L)	10	32.6	10.4	23.6
11	NH3-N (mg N/L)	10	0.39	0.24	0.3
12	NO2+NO3 (mg N/L)	9	3.28	1.58	2.31
13	NO2-N (mgN/L)	10	1.65	0.01	0.45
14	NO3-N (mgN/L)	9	2.59	1.21	1.81
15	P-Tot (mgP/L)	10	0.020	0.010	0.011
16	SiO2 (mg/L)	10	29.4	21.5	25.8
17	SO4 (mg/L)	3	10.5	8.9	9.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	10	2.9	0.5	1.2
2	DO (mg/L)	10	8.5	5.6	7
3	DO_SAT% (%)	10	104	68	86
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	10	104	76	91
2	HAR_Total (mgCaCO3/L)	10	179	105	149
3	Na% (%)	10	32	14	25
4	RSC (-)	10	1.2	0.0	0.1
5	SAR (-)	10	1.1	0.4	0.8

Note-Data published as given by Tapi division, Surat

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period: 2019-2024

Station Name : Orsang at Chandwada (CW1NAL000513)

Local River : Orsang

Division : Tapi Division, Surat

Sub-Division : LNSD Bharuch

River Water

S.No	Parameters	Flood (Jun - Oct)					Winter (Nov-Feb)					Summer (Mar-May)				
		2019	2020	2021	2022	2023	2019-20	2020-21	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)															
2	EC_FLD (µmho/cm)			664	544	655					762					
3	EC_GEN (µmho/cm)	386	486	367	402	430	572	637	535		478					
4	pH_FLD (pH units)			7.4	8.6	9.1		8.1			10.5					
5	pH_GEN (pH units)	8.1	8.4	8.1	8.3	8.5	8.2	8.3	8.4		8.6					
6	SS (mg/L)	208	72	115			67	70	71							
7	TDS (mg/L)	236	285	222		241	340	385	326		271					
8	Temp (deg C)	26.0	28.0	26.2	25.5	25.6	21.0	19.7	20.0		28.0					
9	TS (mg/L)															
10	Turb (NTU)				48.9	34.8										
	CHEMICAL															
1	Alk-Phen (mgCaCO3/L)	0.0	3.9	0.0	3.8	8.2	0.0	6.6	3.7		5.8					
2	ALK-TOT (mgCaCO3/L)	120	158	117	135	149	170	190	167		164					
3	Ca (mg/L)	32	41	31	35	36	40	36	41		42					
4	Cl (mg/L)	41.0	44.0	39.6	40.6	29.2	67.0	84.0	67.0		39.1					
5	CO3 (mg/L)	0.0	4.7	0.0	4.5	9.9	0.0	7.9	4.4		7.0					
6	F (mg/L)	0.39	0.33	0.41		0.53	0.61	0.46	0.41		0.69					
7	HCO3 (mg/L)	147	183	142	155	162	208	215	195		186					
8	K (mg/L)	2.1	3.8	2.7	2.8	1.4	2.7	3.2	2.9		1.2					
9	Mg (mg/L)	13.5	15.8	11.6	12.7	14.1	19.1	22.8	17.3		14.8					
10	Na (mg/L)	30.0	32.7	27.8	30.6	23.0	48.6	60.6	45.2		29.6					
11	NH3-N (mg N/L)	0.29	0.07	0.11		0.29	0.05	0.32	0.12		0.39					
12	NO2+NO3 (mg N/L)	1.90	2.25	1.75		2.31	1.95	1.76	2.17							
13	NO2-N (mgN/L)	0.05	0.02	0.01		0.50	0.02	0.02	0.03		0.02					
14	NO3-N (mgN/L)	1.85	2.23	1.74		1.81	1.94	1.74	2.14							
15	o-PO4-P (mg P/L)															
16	P-Tot (mgP/L)	0.090	0.030	0.055		0.010	0.040	0.030	0.050		0.020					
17	SiO2 (mg/L)	35.3	32.1	22.0		25.7	30.8	26.1	22.5		26.9					
18	SO4 (mg/L)	14.1	12.7	9.4		9.7	12.7	13.3	10.2							
	BIOLOGICAL															
1	BOD3-27 (mg/L)	1.9	1.1	1.9	1.4	1.2	1.7	2.0	1.2		0.6					
2	COD (mg/L)	12.0	7.9	13.6			10.8	14.7	9.7							
3	DO (mg/L)	6.8	6.6	7.2	6.9	7.0	7.0	8.7	7.4		6.7					
4	DO_SAT% (%)	84	84	89	84	86	78	96	82		86					
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	80	102	77	88	89	101	91	103							
2	HAR_Total (mgCaCO3/L)	137	168	126	141	148	181	185	175							
3	Na% (%)	33	29	32	31	24	36	42	36		104					
4	RSC (-)	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0		166					
5	SAR (-)	1.1	1.1	1.1	1.1	0.8	1.6	2.0	1.5		28					

River Dry

River Dry

Note-Data published as given by Tapi division, Surat

3.3 Narmada at Garudeshwar

HISTORY SHEET

		Water Year	: 2023-24
Site	: Narmada at Garudeshwar	Code	: CW1NAL000434
State	: Gujarat	District	Bharuch
Basin	: Narmada	Independent River	: Narmada
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Narmada
Division	: TAPI DIVISION SURAT	Sub-Division	: LNSD, Bharuch
Drainage Area	: 87892 Sq. Km.	Bank	: Right
Latitude	: 21°53'11"	Longitude	: 73°39'16"
		Opening Date	Closing Date
Gauge	: 22/11/1971		
Discharge	: 23/03/1972		
Sediment	: 21/03/1973		
Water Quality	: 15/06/1977		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Narmada at Garudeshwar (CW1NAL000434)

Local River : Narmada

Division : Tapi Division, Surat

Sub-Division : LNSD Bharuch

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	01-07-2023	11-07-2023	21-07-2023	01-08-2023	11-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	28.06	31.53	28.03	119.71	116.71	280.95	700.74	1233.11	1253.18	48.40	19.05	711.09
2	Colour_ Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Light Brown	Brown
3	EC_FLD (µmho/cm)	139	138	132	146	168	305	287	280	264	294	710	271
4	EC_GEN (µmho/cm)	313	310	310	334	340	307	291	286	273	324	274	271
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	6.5	6.5	6.5	6.6	6.6	6.5	6.6	6.7	6.6	6.4	9.5	6.4
7	pH_GEN (pH units)	8.1	8.0	8.3	8.2	8.2	8.4	8.4	8.4	8.5	8.3	8.2	8.3
8	TDS (mg/L)	190	179	174	195	191	173	162	164	153	181	162	162
9	Temp (deg C)	28.0	28.0	29.0	29.0	29.0	28.0	32.0	29.0	29.0	29.0	26.0	28.0
10	Turb (NTU)	0.9	1.0	1.1	3.4	0.9	2.5	3.5	1.5	1.7			
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	6.1	0.0	0.0	0.0	5.7	7.3	5.1	7.1	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	123	125	122	121	137	113	117	116	115	132	108	116
3	Ca (mg/L)	29	30	27	32	44	30	31	28	31	36	34	33
4	Cl (mg/L)	16.6	18.3	17.9	22.1	18.4	16.7	14.7	13.8	12.2	14.8	17.0	9.9
5	CO3 (mg/L)	0.0	0.0	7.4	0.0	0.0	0.0	6.9	8.8	6.2	8.5	0.0	0.0
6	F (mg/L)		0.22	0.24	0.21	0.86	0.20	0.19	0.20	0.21	0.27	0.20	0.23
7	HCO3 (mg/L)	150	153	134	148	168	138	128	124	128	144	132	142
8	K (mg/L)	2.2	0.9	1.0	4.6	4.5	1.2	1.1	1.1	1.2	1.3	1.1	1.2
9	Mg (mg/L)	11.4	11.1	12.4	14.6	7.8	13.4	11.4	12.0	10.2	12.7	6.5	9.5
10	Na (mg/L)	14.1	16.8	16.8	16.2	13.5	12.6	11.3	12.3	11.2	11.3	15.8	8.9
11	NH3-N (mg N/L)	0.34	0.45	0.38	0.37	0.32	0.26	0.22	0.15	0.19	0.21	0.19	0.19
12	NO2+NO3 (mg N/L)	0.65	0.75	0.96	1.33	1.45	1.20	1.22	1.17	1.34	1.44	1.34	1.26
13	NO2-N (mgN/L)	0.02	0.03	0.02	0.02	0.02	0.02	0.10	0.01	0.02	0.01	0.02	0.01
14	NO3-N (mgN/L)	0.63	0.72	0.94	1.31	1.43	1.18	1.12	1.16	1.32	1.43	1.32	1.25
15	P-Tot (mgP/L)	0.010	0.010	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.010
16	SiO2 (mg/L)	23.7	26.0	26.7	28.5	30.5	26.2	24.7	24.1	21.2	20.3	21.2	19.6
17	SO4 (mg/L)	10.0	9.7	10.4	12.2	13.5	5.6	8.2	9.1	7.8			
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.0	0.7	0.9	0.6	0.3	0.9	1.7	0.9	1.1	1.3	0.9
2	DO (mg/L)	6.3	4.6	5.7	7.2	6.7	6.6	7.2	7.0	7.7	8.4	5.5	7.9
3	DO_SAT% (%)	80	59	73	93	87	84	99	90	100	109	68	101
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	74	74	68	80	110	74	77	70	77	90	85	82
2	HAR_Total (mgCaCO3/L)	121	121	120	141	142	130	125	120	120	143	112	122
3	Na% (%)	20	23	23	19	17	17	16	18	17	15	23	14
4	RSC (-)	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.6	0.7	0.7	0.6	0.5	0.5	0.4	0.5	0.4	0.4	0.7	0.4

Note-Data published as given by Tapi division, Surat

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Narmada at Garudeshwar (CW1NAL000434)

Local River : Narmada

Division : Tapi Division, Surat

Sub-Division : LNSD Bharuch

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	21-10-2023	01-11-2023	13-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	23-01-2024
	PHYSICAL												
1	Q (cumec)	481.27	553.80	106.07	19.24	21.00	18.17	26.91	17.27	17.28	547.97	18.27	593.95
2	Colour_Cod (-)	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	241	241	254	232	247	307	297	295	291	283	329	225
4	EC_GEN (µmho/cm)	241	260	263	270	268	324	258	298	277	277	326	265
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	6.1	6.5	6.6	6.6	6.5	6.3	6.6	6.5	6.6	6.7	6.2	6.4
7	pH_GEN (pH units)	8.2	8.5	8.2	8.5	8.2	8.3	8.2	8.1	8.2	8.2	8.2	8.4
8	TDS (mg/L)	134	153	150	152	149	182	149	168	161	160	183	153
9	Temp (deg C)	28.0	28.0	28.0	27.0	26.0	27.0	28.0	26.0	25.0	24.0	24.0	23.0
10	Turb (NTU)												
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	7.8	0.0	5.1	0.0	5.0	0.0	0.0	0.0	0.0	0.0	3.6
2	ALK-TOT (mgCaCO3/L)	105	110	111	112	107	119	109	115	112	112	138	109
3	Ca (mg/L)	30	30	30	30	27	22	28	24	24	33	35	23
4	Cl (mg/L)	10.9	15.6	15.8	14.2	16.2	25.0	13.8	19.3	15.0	15.3	17.7	17.3
5	CO3 (mg/L)	0.0	9.4	0.0	6.1	0.0	6.0	0.0	0.0	0.0	0.0	0.0	4.3
6	F (mg/L)	0.23	0.21	0.21	0.31	0.21	0.56	0.55	0.58	0.64			
7	HCO3 (mg/L)	128	115	136	124	130	133	133	140	136	137	169	124
8	K (mg/L)	1.0	0.7	1.1	0.9	2.0	2.1	2.1	2.4	3.0	3.0	3.2	3.2
9	Mg (mg/L)	7.0	10.0	10.0	10.2	10.3	17.0	9.7	14.3	12.6	8.6	12.6	11.1
10	Na (mg/L)	10.4	11.5	11.7	10.5	12.1	16.8	10.5	13.7	10.7	10.5	13.2	13.3
11	NH3-N (mg N/L)	0.14	0.15	0.13	0.25	0.30	0.28	0.30	0.30	0.28	0.25	0.27	0.27
12	NO2+NO3 (mg N/L)	1.13	0.82	0.88									
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.02
14	NO3-N (mgN/L)	1.12	0.81	0.87									
15	P-Tot (mgP/L)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
16	SiO2 (mg/L)	23.5	26.4	24.5	21.3	22.4	19.6	21.9	20.7	20.7	19.9	19.6	20.5
17	SO4 (mg/L)												
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	0.9	0.9	1.3	1.6	1.5	1.7	0.9	0.8	0.8	1.4	1.9
2	DO (mg/L)	7.6	7.5	7.4	6.7	7.5	7.5	8.0	7.1	6.7	7.5	6.4	8.8
3	DO_SAT% (%)	98	95	95	84	93	95	102	88	80	89	76	102
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	76	75	74	74	68	55	71	59	61	83	86	58
2	HAR_Total (mgCaCO3/L)	105	116	116	117	111	126	111	119	114	118	139	105
3	Na% (%)	18	18	18	16	19	22	17	20	17	16	17	21
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
5	SAR (-)	0.4	0.5	0.5	0.4	0.5	0.7	0.4	0.6	0.4	0.4	0.5	0.6

Note-Data published as given by Tapi division, Surat

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Narmada at Garudeshwar (CW1NAL000434)

Local River : Narmada

Division : Tapi Division, Surat

Sub-Division : LNSD Bharuch

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	12-04-2024	22-04-2024	01-05-2024	13-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	608.97	587.54	18.07	19.29	17.02	17.01	17.25	17.13	25.13	221.85	261.70	260.26
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_FLD (µmho/cm)	285	296	782	359	157	357	304	266	288	252	288	297
4	EC_GEN (µmho/cm)	280	284	307	355	356	385	299	297	314	284	283	345
5	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
6	pH_FLD (pH units)	6.6	6.9	6.5	6.5	7.2	6.1	6.0	6.0	6.4	6.3	7.8	7.4
7	pH_GEN (pH units)	8.4	8.3	8.3	8.2	8.0	8.2	8.3	8.3	8.2	8.3	8.3	8.4
8	TDS (mg/L)	158	158	173	201	202	225	171	170	179	169	162	197
9	Temp (deg C)	23.0	24.0	23.0	23.0	25.0	23.0	29.0	30.0	29.0	29.0	29.0	30.0
10	Turb (NTU)												
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	3.6	3.3	2.4	0.0	0.0	0.0	5.6	6.3	0.0	6.5	5.9	8.6
2	ALK-TOT (mgCaCO3/L)	111	113	123	147	190	166	124	123	130	123	125	142
3	Ca (mg/L)	30	30	28	25	36	36	43	28	39	32	34	35
4	Cl (mg/L)	19.1	18.8	18.8	22.5	21.1	22.5	19.5	20.7	21.1	15.8	16.0	23.6
5	CO3 (mg/L)	4.3	4.0	2.9	0.0	0.0	0.0	6.8	7.6	0.0	7.8	7.1	10.4
6	F (mg/L)												
7	HCO3 (mg/L)	127	130	144	180	232	202	137	135	159	134	139	152
8	K (mg/L)	2.1	2.1	3.3	2.8	2.1	2.3	1.2	3.0	2.7	3.1	3.0	8.1
9	Mg (mg/L)	8.8	10.1	13.0	19.0	14.8	17.9	4.8	11.7	7.6	9.9	9.1	11.6
10	Na (mg/L)	14.0	13.9	14.4	16.3	13.3	15.1	14.9	15.9	16.0	11.1	12.2	18.1
11	NH3-N (mg N/L)	0.22	0.23	0.21	0.36	0.34	0.35	0.32	0.32	0.27	0.21	0.29	0.27
12	NO2+NO3 (mg N/L)												
13	NO2-N (mgN/L)	0.02	0.02	0.02	0.05	0.04	0.05	0.04	0.04	0.05	0.02	0.02	0.03
14	NO3-N (mgN/L)												
15	P-Tot (mgP/L)	0.010	0.010	0.010	0.010	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010
16	SiO2 (mg/L)	21.5	21.4	20.6	22.4	23.5	24.1	25.7	24.4	25.1	26.3	21.5	25.4
17	SO4 (mg/L)												
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.9	1.3	1.7	1.8	1.0	1.7	1.5	1.3	1.3	0.9	1.2	1.0
2	DO (mg/L)	6.2	7.8	7.0	7.1	4.9	5.3	5.7	6.7	6.9	6.6	6.7	6.5
3	DO_SAT% (%)	73	93	81	83	59	62	73	88	90	86	88	85
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	76	74	71	63	89	90	107	71	98	79	85	87
2	HAR_Total (mgCaCO3/L)	113	116	125	142	151	164	127	119	129	120	123	135
3	Na% (%)	21	20	20	20	16	17	20	22	21	16	17	21
4	RSC (-)	0.0	0.0	0.0	0.1	0.8	0.1	0.0	0.1	0.0	0.1	0.1	0.1
5	SAR (-)	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.4	0.5	0.7

Note-Data published as given by Tapi division, Surat

Water Quality Data Book 2023-24

Water Quality Summary for the period: 2023-24

Station Name : Narmada at Garudeshwar (CW1NAL000434)

Local River : Narmada

Division : Tapi Division, Surat

Sub-Division : LNSD Bharuch

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	36	1253.18	17.01	6.69
2	EC_FLD (µmho/cm)	36	782	132	286
3	EC_GEN (µmho/cm)	36	385	241	299
4	pH_FLD (pH units)	36	9.5	6.0	6.6
5	pH_GEN (pH units)	36	8.5	8.0	8.3
6	TDS (mg/L)	36	225	134	171
7	Temp (deg C)	36	32.0	23.0	27.1
8	Turb (NTU)	9	3.5	0.9	1.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	8.6	0.0	2.6
2	ALK-TOT (mgCaCO3/L)	36	190	105	123
3	Ca (mg/L)	36	44	22	31
4	Cl (mg/L)	36	25.0	9.9	17.4
5	CO3 (mg/L)	36	10.4	0.0	3.2
6	F (mg/L)	20	0.86	0.19	0.33
7	HCO3 (mg/L)	36	232	115	143
8	K (mg/L)	36	8.1	0.7	2.3
9	Mg (mg/L)	36	19.0	4.8	11.2
10	Na (mg/L)	36	18.1	8.9	13.4
11	NH3-N (mg N/L)	36	0.45	0.13	0.27
12	NO2+NO3 (mg N/L)	15	1.45	0.65	1.13
13	NO2-N (mgN/L)	36	0.10	0.01	0.03
14	NO3-N (mgN/L)	15	1.43	0.63	1.11
15	P-Tot (mgP/L)	36	0.020	0.010	0.013
16	SiO2 (mg/L)	36	30.5	19.6	23.2
17	SO4 (mg/L)	9	13.5	5.6	9.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.9	0.3	1.2
2	DO (mg/L)	36	8.8	4.6	6.9
3	DO_SAT% (%)	36	109	59	86
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	110	55	77
2	HAR_Total (mgCaCO3/L)	36	164	105	124
3	Na% (%)	36	23	14	19
4	RSC (-)	36	0.8	0.0	0
5	SAR (-)	36	0.7	0.4	0.5

Note-Data published as given by Tapi division, Surat

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period: 2019-2024

Station Name : Narmada at Garudeshwar (CW1NAL000434)

Local River : Narmada

Division : Tapi Division, Surat

Sub-Division : LNSD Bharuch

River Water

S.No	Parameters	Flood (June-Oct.)					Winter (Nov.-Feb)					Summer (Mar.-May)				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	91.24	7308.19				430	83.87				210.52	208.03			
2	EC_FLD (µmho/cm)				225	258				266	322				257	285
3	EC_GEN (µmho/cm)	358	393	355	263	293	403	352	325	279	286	513	363	348	309	324
4	pH_FLD (pH units)	6.4	7.3	7.1	7.1	6.7	7.2	7.2	6.8	7.0	6.5	7.0	7.1	6.8	6.8	6.6
5	pH_GEN (pH units)	7.8	8.3	8.0	8.0	8.3	8.2	8.2	8.2	8.3	8.3	8.1	8.1	8.0	8.2	8.2
6	SS (mg/L)	38	65	56			37	38	44			36	41			
7	TDS (mg/L)	216	232	209		168	234	205	194	187	162	299	211		192	186
8	Temp (deg C)	26.8	27.8	26.1	25.9	28.5	24.4	23.5	19.3	22.4	25.0	27.3	25.8	24.9	24.7	27.4
9	TSS (mg/L)															
10	Turb (NTU)				8.9	1.8				0.8					0.9	
	CHEMICAL															
1	Alk-Phen (mgCaCO3/L)	0.0	1.6	0.3	0.6	2.6	0.0	0.0	0.0	2.4	1.9	0.0	0.0		2.2	3.7
2	ALK-TOT (mgCaCO3/L)	119	138	131	102	118	139	126	120	113	115	182	137		128	141
3	Ca (mg/L)	31	34	33	27	32	36	31	31	31	28	42	35		34	34
4	Cl (mg/L)	35.0	33.0	28.1	16.0	15.6	32.0	28.5	25.7	14.9	17.5	42.8	24.8		15.9	20.3
5	CO3 (mg/L)	0.0	2.0	0.3	0.8	3.1	0.0	0.0	0.0	2.9	2.3	0.0	0.0		2.6	4.4
6	F (mg/L)	0.30	0.21	0.27		0.26	0.35	0.25	0.23	0.25	0.47	0.36	0.29		0.23	
7	HCO3 (mg/L)	145	165	159	123	138	169	154	146	133	135	222	167		151	163
8	K (mg/L)	2.5	3.2	2.5	2.0	1.6	2.1	2.7	2.2	2.0	2.4	2.2	2.2		2.0	3.1
9	Mg (mg/L)	12.2	14.9	13.5	9.5	10.7	14.3	14.0	12.6	10.3	11.5	21.5	14.5		11.3	11.8
10	Na (mg/L)	24.4	22.7	19.7	12.4	13.0	22.6	20.0	18.1	12.3	12.8	29.5	17.6		14.4	14.8
11	NH3-N (mg N/L)	0.05	0.15	0.02		0.25	0.11	0.07	0.06		0.26	0.21	0.00		0.21	0.30
12	NO2+NO3 (mg N/L)	1.18	1.30	1.31		1.13	2.17	1.43	1.73			1.41	1.34		2.10	
13	NO2-N (mgN/L)	0.03	0.02	0.02		0.02	0.01	0.01	0.02	0.01	0.02	0.08	0.02		0.02	0.04
14	NO3-N (mgN/L)	1.15	1.28	1.28		1.11	2.15	1.42	1.71			1.33	1.32		2.08	
15	o-PO4-P (mg P/L)															
16	P-Tot (mgP/L)	0.046	0.038	0.015		0.016	0.022	0.018	0.027	0.010	0.010	0.062	0.017		0.008	0.012
17	SiO2 (mg/L)	30.7	25.1	23.6		24.5	31.7	27.0	23.7	21.3	20.8	27.9	26.0		21.8	24.3
18	SO4 (mg/L)	9.3	9.0	7.7		9.6	7.6	7.1	7.1	9.0		8.9	8.0		10.0	
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	1.9	1.6	1.5	1.1	0.9	1.4	1.3	1.6	1.3	1.4	1.5	1.5		1.3	1.3
2	COD (mg/L)	13.6	11.7	10.5			10.3	9.4	11.1			10.1	11.9		10.7	
3	DO (mg/L)	6.8	7.1	6.6	7.5	6.9	7.3	8.1	7.5	7.4	7.3	7.8	6.9		7.1	6.3
4	DO_SAT% (%)	85	91	81	92	89	88	96	84	85	88	98	85		85	79
5	FCol-MPN (MPN/100mL)															
6	Tcol-MPN (MPN/100mL)															
	TRACE & TOXIC															
1	Al (mg/L)	0.05														
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	78	86	83	1.1	79	91	76	77	77	70	104	86		85	85
2	HAR_Total (mgCaCO3/L)	129	148	140		123	150	135	129	120	118	194	147		132	134
3	Na% (%)	29	24	23	7.5	18	24	23	23	18	19				19	19
4	RSC (-)	0.0	0.0	0.0	92	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.2
5	SAR (-)	0.9	0.8	0.7	1.1	0.5	0.8	0.7	0.7	0.5	0.5				0.5	0.6

Analysis data not available as laboratory was under renovation.

Note-Data published as given by Tapi division, Surat

3.4 Narmada at Mandleshwar

History Sheet

HISTORY SHEET			
		Water Year	: 2023-24
Site	: Narmada at Mandleshwar	Code	: CW1NAM000189
State	: Madhya Pradesh	District	Khargone
Basin	: Narmada	Independent River	: Narmada
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Narmada
Division	: Narmada Div. Cwc Bhopal	Sub-Division	: MNSD III CWC INDORE
Drainage Area	: 72809 Sq. Km.	Bank	: Right
Latitude	: 22°10'18"	Longitude	: 75°39'39"
	Opening Date	Closing Date	
Gauge	: 16/12/1970		
Discharge	: 28/08/1971		
Sediment	: 14/04/1972		
Water Quality	: 18/06/1979		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Narmada at Mandleshwar (CW1NAM000189)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-III, Indore

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	132.00	351.00	966.00	510.00	989.00	1330.00	1150.00	1920.00	1970.00	2000.00	387.00	1140.00
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Brown	Brown	Brown	Brown	Light Brown	Brown
3	EC_GEN (µmho/cm)	248	246	242	271	265	258	238	215	221	173	249	258
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.1	8.0	7.7	8.1	8.1	7.9	7.9	7.9	8.0	7.8	7.9	7.9
6	TDS (mg/L)	165	170	168	180	175	171	155	143	152	118	162	171
7	Temp (deg C)	26.0	29.0	28.0	28.0	27.0	28.0	28.0	28.0	27.0	27.0	25.0	25.0
8	Turb (NTU)	3.0	2.8	2.7	12.6	14.5	54.6	29.2	28.1	25.5	23.1	19.8	13.5
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	139	130	130	134	134	139	107	107	113	113	115	117
3	Ca (mg/L)	34	33	29	28	29	30	36	35	36	37	38	39
4	Cl (mg/L)	22.9	23.1	20.9	18.8	19.5	17.7	17.5	17.9	18.3	16.2	19.1	20.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	169	158	159	163	164	170	131	131	138	138	140	143
8	K (mg/L)	1.7	1.6	1.6	1.9	1.9	1.8	1.6	1.7	1.7	1.6	1.6	4.4
9	Mg (mg/L)	10.2	10.1	11.3	11.7	11.7	12.1	2.5	2.5	2.5	2.6	2.6	2.8
10	Na (mg/L)	14.8	13.3	13.9	10.1	10.3	9.9	9.8	9.4	10.0	8.5	9.8	13.2
11	NH3-N (mg N/L)	0.06	0.08	0.08	0.06	0.08	0.06	0.07	0.08	0.08	0.10	0.09	0.09
12	NO2+NO3 (mg N/L)	0.23	0.20	0.16	0.36	0.37	0.39	1.01	1.03	0.98	0.81	0.79	0.78
13	NO2-N (mgN/L)	0.02	0.01	0.01	0.04	0.05	0.05	0.06	0.07	0.06	0.07	0.08	0.08
14	NO3-N (mgN/L)	0.21	0.18	0.15	0.32	0.32	0.34	0.94	0.96	0.92	0.74	0.71	0.70
15	o-PO4-P (mg P/L)	0.121	0.133	0.105	0.145	0.155	0.168	0.151	0.159	0.141	0.134	0.140	0.147
16	SiO2 (mg/L)	24.4	21.6	22.0	22.4	22.7	23.6	32.9	33.1	32.3	20.7	20.9	21.1
17	SO4 (mg/L)	8.3	9.1	5.0	9.1	8.8	8.4	8.5	8.6	8.3	8.2	7.9	8.1
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	0.8	0.8	1.2	1.0	0.8	1.4	1.0	1.0	1.2	1.4	1.4
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	6.6	6.9	7.0	7.7	7.5	7.6	7.0	7.2	7.1	7.1	7.3	7.3
4	DO_SAT% (%)	81	90	89	99	94	98	89	91	89	89	89	88
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	85	82	72	70	73	75	90	88	90	92	95	96
2	HAR_Total (mgCaCO3/L)	127	124	119	119	122	126	101	99	100	103	106	108
3	Na% (%)	20	19	20	15	15	14	17	17	17	15	17	20
4	RSC (-)	0.2	0.1	0.2	0.3	0.3	0.3	0.1	0.2	0.3	0.2	0.2	0.2
5	SAR (-)	0.6	0.5	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Mandleshwar (CW1NAM000189)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-III, Indore

River Water Analysis

Parameters	03/10/2023	11/10/2023	20/10/2023	01/11/2023	09/11/2023	21/11/2023	01/12/2023	11/12/2023	21/12/2023	01/01/2024	11/01/2024	24/01/2024
PHYSICAL												
Q (cumec)	668.00	1400	811	684	482	341	57.6	42.4	249	316	209	407.82
Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
EC_GEN (µmho/cm)	250	253	258	220	228	235	448	415	391	300	268	254
Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
pH_GEN (pH units)	8.0	7.9	7.9	7.9	8.2	8.2	7.6	7.7	7.6	7.9	7.9	8.1
TDS (mg/L)	166	169	174	139	147	153	290	271	261	200	176	167
Temp (deg C)	28.0	26.0	25.0	26.5	25.0	25.0	23.0	21.0	20.0	21.0	20.0	21.0
Turb (NTU)	16.0	14.6	13.7	3.4	3.2	2.8	4.0	3.9	4.6	3.6	3.6	4.3
CHEMICAL												
Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALK-TOT (mgCaCO3/L)	102	105	108	89	91	96	173	161	154	134	138	134
Ca (mg/L)	30	31	31	22	24	26	51	52	47	45	40	40
Cl (mg/L)	13.7	13.5	13.7	19.7	19.1	18.2	29.1	27.2	25.8	20.7	20.7	20.3
CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
HCO3 (mg/L)	124	128	132	108	111	117	211	196	188	163	168	163
K (mg/L)	1.4	1.4	1.5	1.5	1.5	1.5	1.9	1.6	1.6	1.7	1.6	1.6
Mg (mg/L)	7.2	7.4	7.3	7.3	7.7	7.5	16.6	13.7	10.1	9.2	8.9	9.8
Na (mg/L)	7.5	7.4	7.5	10.5	10.1	9.7	15.3	14.9	13.9	11.0	10.8	10.5
NH3-N (mg N/L)	0.08	0.08	0.08	0.08	0.08	0.08	0.06	0.06	0.07	0.07	0.07	0.07
NO2+NO3 (mg N/L)	0.37	0.38	0.39	0.44	0.46	0.47	0.53	0.51	0.47	0.47	0.44	0.42
NO2-N (mgN/L)	0.04	0.05	0.05	0.05	0.05	0.06	0.09	0.08	0.07	0.08	0.07	0.07
NO3-N (mgN/L)	0.32	0.33	0.35	0.39	0.40	0.42	0.45	0.43	0.39	0.40	0.37	0.35
o-PO4-P (mg P/L)	0.140	0.147	0.150	0.133	0.140	0.145	0.194	0.181	0.164	0.185	0.155	0.123
SiO2 (mg/L)	26.8	27.3	27.6	23.6	24.1	24.8	44.0	42.0	36.5	30.6	27.0	23.8
SO4 (mg/L)	7.4	7.5	7.7	5.8	6.3	6.3	10.5	9.7	9.2	8.4	7.4	7.1
BIOLOGICAL/BACTERIOLOGICAL												
BOD3-27 (mg/L)	1.0	1.2	1.2	0.8	1.0	1.0	1.4	1.2	1.2	0.8	0.8	1.0
COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	5.4	5.2	BDL	BDL	BDL	BDL
DO (mg/L)	7.7	7.9	8.0	7.6	7.4	7.3	6.8	7.0	7.2	7.5	7.4	7.6
DO_SAT% (%)	98	97	96	93	89	88	80	78	79	84	82	85
CHEMICAL INDICES												
HAR_Ca (mgCaCO3/L)	76	76	79	55	60	65	127	131	117	112	101	101
HAR_Total (mgCaCO3/L)	106	107	109	86	92	96	196	188	159	150	138	142
Na% (%)	13	13	13	21	19	18	14	15	16	14	14	14
SAR (-)	0.3	0.3	0.3	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm) ,

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Mandleshwar (CW1NAM000189)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-III, Indore

River Water Analysis

S.No	Parameters	01/02/2024	12/02/2024	21/02/2024	01/03/2024	11/03/2024	21/03/2024	01/04/2024	09/04/2024	22/04/2024	01/05/2024	09/05/2024	21/05/2024
	PHYSICAL												
1	Q (cumec)	699.6	423.12	988.81	289.04	126.31	64.24	260.33	422.74	761.8	1186.46	283.99	838.78
2	Colour_Cod (-)	Clear	Clear	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Brown	Clear	Clear
3	EC_GEN (µmho/cm)	273	279	284	280	283	288	225	230	235	251	260	262
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.2	8.2	8.0	8.0	8.1	8.0	8.0	8.0	8.0	7.8	7.8	7.9
6	TDS (mg/L)	179	186	190	185	187	192	151	155	158	156	161	168
7	Temp (deg C)	21.0	20.0	20.0	21.0	22.0	22.0	26.0	26.0	26.0	27.0	24.0	28.0
8	Turb (NTU)	1.8	3.4	3.6	3.5	3.6	3.4	1.3	1.1	0.9	2.9	2.5	2.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	142	142	146	148	148	150	125	127	129	135	137	138
3	Ca (mg/L)	43	43	44	43	43	44	35	36	36	37	37	37
4	Cl (mg/L)	19.9	21.6	22.0	21.8	22.6	23.2	25.8	26.2	26.8	27.8	28.3	28.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.26	0.21	0.23	0.17	0.19	0.21
7	HCO3 (mg/L)	173	173	178	180	181	183	153	155	157	165	167	168
8	K (mg/L)	1.5	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.7	1.6	1.7	1.7
9	Mg (mg/L)	9.6	9.8	9.7	9.6	9.8	9.8	8.6	8.8	9.0	10.6	11.0	11.4
10	Na (mg/L)	12.0	13.4	13.5	13.4	13.5	13.5	14.9	14.9	15.0	14.9	15.1	14.9
11	NH3-N (mg N/L)	0.08	0.08	0.09	0.09	0.09	0.09	0.10	0.10	0.09	0.08	0.09	0.08
12	NO2+NO3 (mg N/L)	0.71	0.73	0.74	0.71	0.75	0.77	0.32	0.33	0.34	0.40	0.42	0.42
13	NO2-N (mgN/L)	0.07	0.07	0.07	0.07	0.07	0.08	0.03	0.03	0.04	0.05	0.06	0.06
14	NO3-N (mgN/L)	0.64	0.66	0.67	0.64	0.68	0.69	0.29	0.30	0.30	0.35	0.36	0.37
15	o-PO4-P (mg P/L)	0.149	0.157	0.161	0.161	0.165	0.166	0.107	0.114	0.119	0.125	0.130	0.134
16	SiO2 (mg/L)	33.3	34.4	34.5	33.0	33.8	34.3	32.1	32.3	32.5	29.4	29.6	29.7
17	SO4 (mg/L)	6.9	7.6	8.0	7.4	7.6	7.9	7.5	7.5	7.6	7.7	8.4	8.9
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	0.8	1.0	1.0	1.0	0.8	0.8	0.8	0.8	0.6	0.6	0.6
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	7.9	7.7	7.6	7.2	7.3	7.5	7.0	7.2	7.1	7.4	7.6	7.3
4	DO_SAT% (%)	89	85	84	81	84	86	86	88	87	92	90	93
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	107	108	109	107	108	110	89	89	89	92	92	91
2	HAR_Total (mgCaCO3/L)	147	149	150	147	149	150	124	126	127	136	138	139
3	Na% (%)	15	16	16	16	16	16	20	20	20	19	19	19
5	SAR (-)	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period: 2023-24

Station Name: Narmada at Mandleshwar (CW1NAM000189)

Local River: Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-III, Indore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	52000	40	1085.32
2	EC_GEN (µmho/cm)	36	448	173	265
3	pH_GEN (pH units)	36	8.2	7.6	7.9
4	TDS (mg/L)	36	290	118	175
5	Temp (deg C)	36	29.0	20.0	24.7
6	Turb (NTU)	36	54.6	0.9	9.4
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	173	89	129
3	Ca (mg/L)	36	52	22	37
4	Cl (mg/L)	36	29.1	13.5	21.3
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.26	0.17	0.21
7	HCO3 (mg/L)	36	211	108	157
8	K (mg/L)	36	4.4	1.4	1.7
9	Mg (mg/L)	36	16.6	2.5	8.7
10	Na (mg/L)	36	15.3	7.4	12
11	NH3-N (mg N/L)	36	0.10	0.06	0.08
12	NO2+NO3 (mg N/L)	36	1.03	0.16	0.53
13	NO2-N (mgN/L)	36	0.09	0.01	0.06
14	NO3-N (mgN/L)	36	0.96	0.15	0.47
15	o-PO4-P (mg P/L)	36	0.194	0.105	0.146
16	SiO2 (mg/L)	36	44.0	20.7	29
17	SO4 (mg/L)	36	10.5	5.0	7.9
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.4	0.6	1
2	COD (mg/L)	2	5.4	5.2	5.3
3	DO (mg/L)	36	8.0	6.6	7.3
4	DO_SAT% (%)	36	99	78	88
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	131	55	92
2	HAR_Total (mgCaCO3/L)	36	196	86	128
3	Na% (%)	36	21	13	17
4	RSC (-)	36	0.3	0.0	0.1
5	SAR (-)	36	0.6	0.3	0.5

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period: 2018-2023

Station Name : Narmada at Mandleshwar (CW1NAM000189)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-III, Indore

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-20	2020-21	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	1915	7469	688.5	2664.9	1934.45	384.1	501.3	414.44	456.26	374.46	113.1	620.5	486.98	190.35	608.11
2	EC_GEN (µmho/cm)	284	281	273	255	243	294	268	293	295	300	282	308	324	308	257
3	pH_GEN (pH units)	7.4	7.6	7.63	8.0	7.9	7.6	7.7	7.63	8.0	8.0	7.7	7.5	7.73	8.1	7.9
4	TDS (mg/L)	176	177	174	164	163	191	187	187	202	197	191	171	192	206	168
5	Temp (deg C)	26.2	27.5	26.4	26.6	27.0	22.8	23.0	23.5	21.2	22.0	24.5	25.8	24.4	25.4	24.7
6	Turb (NTU)	58.8	38.2	3.60	42.2	18.2	17.0	6.5	4.29	5.3	3.5	0.2	5.8	8.86	4.3	2.4
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	124	124	126	128	120.0	115	147	152	130	133	141	132	134	135	137
3	Ca (mg/L)	29	23	31.29	32	33.0	33	33	36.64	34	40	32	27	28.52	35	39
4	Cl (mg/L)	9.2	16.2	17.73	21.1	18.2	7.5	14.6	17.63	25.4	22.0	7.9	15.6	18.94	29.2	25.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.09	0.23	NA	NA	NA	0.11	NA	NA	NA	NA	NA	NA	NA	NA	0.21
7	HCO3 (mg/L)	151	152	154	156	146.0	141	179	185	159	162	173	161	163	165	168
8	K (mg/L)	3.6	3.8	NA	2.2	1.8	1.7	NA	NA	1.9	1.6	3.1	NA	2.14	2.0	1.7
9	Mg (mg/L)	9.8	10.9	15.97	8.9	7.0	9.8	10.5	11.31	10.4	10.0	9.9	6.4	13.46	8.5	9.8
10	Na (mg/L)	10.1	16.5	NA	12.5	10.4	9.8	NA	NA	15.0	12.1	37.9	NA	17.57	17.4	14.4
11	NH3-N (mg N/L)	0.28	0.00	NA	0.05	0.1	0.08	NA	NA	0.08	0.07	0.10	NA	0.04	0.12	0.09
12	NO2+NO3 (mg N/L)	0.91	0.45	0.54	0.53	0.6	0.28	0.50	0.58	0.73	0.53	0.30	0.48	0.39	0.73	0.49
13	NO2-N (mgN/L)	0.18	0.08	0.02	0.04	0.1	0.03	0.14	0.02	0.04	0.07	0.01	0.02	0.02	0.07	0.05
14	NO3-N (mgN/L)	0.73	0.38	0.52	0.49	0.5	0.26	0.35	0.57	0.69	0.46	0.29	0.47	0.37	0.66	0.44
15	o-PO4-P (mg P/L)	0.269	0.254	0.14	0.148	0.1	0.041	0.062	0.08	0.117	0.157	0.058	0.089	0.83	0.104	0.136
16	SiO2 (mg/L)	30.9	16.1	35.69	24.4	25.3	19.5	17.6	23.86	28.6	31.5	18.0	31.4	30.83	25.7	31.8
17	SO4 (mg/L)	13.5	14.1	11.40	9.0	8.1	24.9	12.3	10.73	8.5	7.8	6.5	7.3	8.85	8.9	7.8
	BIOLOGICAL															
1	BOD3-27 (mg/L)	1.1	1.9	1.21	1.8	1.1	2.2	1.2	0.94	0.7	1.0	1.5	1.1	1.84	1.3	0.8
2	COD (mg/L)	22.4	35.0	BDL	4.5	BDL	19.0	BDL	BDL	BDL	5.3	25.5	BDL	BDL	BDL	BDL
3	DO (mg/L)	4.8	6.7	6.71	6.3	7.3	6.9	7.4	7.35	7.7	7.4	6.9	5.3	6.25	6.8	7.3
4	DO_SAT% (%)	60	84	81.19	79	92	80	86	88.94	87	85	83	65	75.71	83	87
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	72	58	78	81	83	83	82	44.08	84	99	79	68	39	89	96
2	HAR_Total (mgCaCO3/L)	113	104	144	118	112	124	125	91	127	141	120	95	65	124	137
3	Na% (%)	15	25	NA	18	16	15	NA	NA	20	16	37	NA	NA	23	19
4	RSC (-)	0.2	0.4	0.35	0.2	0.2	0.1	0.4	1.22	0.1	0.0	0.4	0.8	1.33	0.2	0.0
5	SAR (-)	0.4	0.7	NA	0.5	0.4	0.4	NA	NA	0.6	0.4	1.5	NA	NA	0.7	0.5

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022)

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.5 Kundi at Kogaon

HISTORY SHEET

		Water Year	: 2023-24
Site	: Kundi at Kogaon	Code	: CW1NAM000442
State	: Madhya Pradesh	District	: Khargon
Basin	: Narmada	Independent River	: Narmada
Tributary	: Kundi	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Kundi
Division	: Narmada Div. Cwc Bhopal	Sub-Division	: MNSD III CWC INDORE
Drainage Area	: 3919 Sq. Km.	Bank	: Right
Latitude	: 22°06'06"	Longitude	: 75°41'02"
		Opening Date	Closing Date
Gauge	: 03/02/1978		
Discharge	: 01/07/1978		
Sediment	:		
Water Quality	: 15/09/1986		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Kundi at Kogaon CW1NAM000442)

Local River : Kundi

Division : Narmada Division, Bhopal

Sub-Division : MNSD-III, Indore

River Water Analysis

S.No	Parameters	01/06/2023	12/06/2023	21/06/2023	03/07/2023	11/07/2023	21/07/2023	01/08/2023	09/08/2023	21/08/2023	01/09/2023	11/09/2023	21/09/2023
	PHYSICAL												
1	Q (cumec)		18.94	10.59	17.26	17.2	59.32	168.19	23.95	35.18	8.46	231.55	247.92
2	Colour_Cod (-)		Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (µmho/cm)		259	252	309	303	295	483	511	517	355	341	349
4	Odour_Code (-)		odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)		8.1	7.8	8.0	8.0	8.0	8.0	8.2	8.2	8.1	8.0	8.0
6	TDS (mg/L)		179	173	204	197	192	307	330	337	240	220	229
7	Temp (deg C)		29.0	29.0	29.0	29.0	29.0	29.0	28.0	28.0	30.0	28.0	27.0
8	Turb (NTU)		5.7	4.6	55.4	83.6	102.0	152.0	15.6	14.8	7.6	5.4	4.7
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)		134	143	134	148	150	159	161	163	177	184	187
3	Ca (mg/L)		30	30	29	31	33	47	46	46	46	49	49
4	Cl (mg/L)		25.1	25.1	29.9	29.1	26.0	36.3	46.8	44.8	37.5	36.9	23.1
5	CO3 (mg/L)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)		*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)		163	174	163	180	183	194	196	199	216	225	228
8	K (mg/L)		1.7	1.7	1.3	1.3	1.1	1.8	1.8	1.9	3.1	2.9	1.6
9	Mg (mg/L)		11.4	13.6	13.9	13.9	13.1	17.8	17.7	17.6	15.5	14.4	14.5
10	Na (mg/L)		16.7	18.8	19.0	15.8	14.6	20.3	24.3	23.1	28.1	25.3	17.9
11	NH3-N (mg N/L)		0.07	0.08	0.07	0.10	0.09	0.11	0.10	0.10	0.10	0.11	0.10
12	NO2+NO3 (mg N/L)		0.43	0.38	0.35	0.36	0.38	1.30	1.32	1.27	1.99	2.01	2.05
13	NO2-N (mgN/L)		0.01	0.01	0.04	0.04	0.05	0.11	0.11	0.10	0.12	0.12	0.13
14	NO3-N (mgN/L)		0.42	0.37	0.31	0.32	0.34	1.19	1.21	1.17	1.87	1.89	1.91
15	o-PO4-P (mg P/L)		0.155	0.139	0.384	0.396	0.410	0.258	0.266	0.247	0.231	0.236	0.246
16	SiO2 (mg/L)		20.3	21.0	21.3	21.8	22.6	52.7	53.0	52.0	31.2	31.8	32.0
17	SO4 (mg/L)		10.7	7.1	14.6	12.4	11.8	23.6	22.5	23.1	9.7	11.8	12.7
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)		1.1	1.0	1.0	1.0	0.8	1.0	1.0	1.0	1.4	1.6	1.6
2	COD (mg/L)		BDL	BDL	BDL	BDL	BDL	5.2	5.3	5.4	BDL	BDL	BDL
3	DO (mg/L)		6.7	6.8	7.0	6.7	7.5	6.8	6.8	6.7	6.3	6.5	6.5
4	DO_SAT% (%)		87	88	90	87	97	88	86	86	84	83	82
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)		74	76	73	77	83	117	115	116	115	121	123
2	HAR_Total (mgCaCO3/L)		122	133	131	135	137	191	189	190	179	181	184
3	Na% (%)		23	23	24	20	19	19	22	21	25	23	17
4	SAR (-)		0.7	0.7	0.7	0.6	0.5	0.6	0.8	0.7	0.9	0.8	0.6

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Kundi at Kogaon CW1NAM000442)

Local River : Kundi

Division : Narmada Division, Bhopal

Sub-Division : MNSD-III, Indore

River Water Analysis

S.No	Parameters	03/10/2023	11/10/2023	20/10/2023	01/11/2023	09/11/2023	21/11/2023	01/12/2023	11/12/2023	21/12/2023	01/01/2024	11/01/2024	24/01/2024
	PHYSICAL												
1	Q (cumec)	169.28	117.11	78.38	50.77	41.4	5.05	70.77	8.04	4.89	6.2	8.09	8.16
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	508	498	500	486	490	495	372	381	392	502	470	461
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.0	8.0	8.0	7.9	8.0	8.1	7.9	7.9	7.5	8.0	7.8	8.2
6	TDS (mg/L)	326	318	321	307	312	319	244	254	263	326	307	300
7	Temp (deg C)	27.0	27.0	28.5	26.0	25.0	24.0	25.0	25.0	20.0	23.0	22.5	19.0
8	Turb (NTU)	4.5	4.2	4.1	6.4	6.1	5.6	36.1	35.9	25.8	11.5	11.5	13.8
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	188	191	187	187	189	191	161	157	166	191	180	180
3	Ca (mg/L)	52	52	55	51	53	54	62	60	62	49	48	50
4	Cl (mg/L)	21.8	22.0	22.6	58.8	54.7	51.5	39.6	40.4	42.7	37.2	34.8	32.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	229	233	228	228	231	233	197	191	202	233	219	219
8	K (mg/L)	1.5	1.5	1.7	1.8	1.8	1.9	2.0	1.9	2.0	2.2	1.9	1.9
9	Mg (mg/L)	18.3	17.6	15.1	15.3	15.3	15.4	8.1	10.2	16.7	17.1	13.9	14.3
10	Na (mg/L)	16.9	16.6	17.0	30.8	29.9	30.0	22.9	22.9	23.0	19.89	18.41	17.1
11	NH3-N (mg N/L)	0.09	0.09	0.09	0.09	0.09	0.09	0.06	0.06	0.06	0.07	0.07	0.08
12	NO2+NO3 (mg N/L)	2.00	1.97	1.96	1.12	1.15	1.23	0.48	0.47	0.49	1.18	1.16	1.14
13	NO2-N (mgN/L)	0.14	0.14	0.14	0.16	0.17	0.18	0.08	0.07	0.08	0.11	0.11	0.11
14	NO3-N (mgN/L)	1.86	1.84	1.82	0.96	0.98	1.04	0.39	0.40	0.41	1.07	1.05	1.03
15	o-PO4-P (mg P/L)	0.277	0.263	0.265	0.226	0.240	0.256	0.179	0.179	0.185	0.286	0.270	0.270
16	SiO2 (mg/L)	55.1	52.8	51.7	52.2	54.7	56.7	37.5	38.3	39.8	51.0	47.4	46.0
17	SO4 (mg/L)	14.4	14.8	13.9	14.0	13.4	14.9	15.6	17.0	21.1	16.2	15.7	16.0
	BIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	1.0	1.0	1.0	1.2	1.2	1.2	1.2	1.2	1.0	1.0	1.2
2	COD (mg/L)	5.1	5.1	5.2	5.9	6.0	6.0	BDL	BDL	BDL	5.4	5.4	5.4
3	DO (mg/L)	7.3	7.5	7.6	6.8	7.0	6.9	7.2	7.4	7.6	6.9	6.8	7.0
4	DO_SAT% (%)	91	94	97	83	84	82	88	89	83	81	78	76
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	130	131	138	129	132	135	155	151	155	122	120	126
2	HAR_Total (mgCaCO3/L)	206	204	201	192	195	199	189	193	224	193	178	186
3	Na% (%)	15	15	15	26	25	25	21	20	18			17
4	SAR (-)	0.5	0.5	0.5	1.0	0.9	0.9	0.7	0.7	0.7			0.5

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Kundi at Kogaon CW1NAM000442)

Local River : Kundi

Division : Narmada Division, Bhopal

Sub-Division : MNSD-III, Indore

River Water Analysis

S.No	Parameters	01/02/2024	12/02/2024	21/02/2024	01/03/2024	11/03/2024	21/03/2024	01/04/2024	09/04/2024	22/04/2024	01/05/2024	09/05/2024	21/05/2024
	PHYSICAL												
1	Q (cumec)	9.01	6.7	8.21	9.15	8.72	9.76	9.02	52.19	7.05	6.68		
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear		
3	EC_GEN (µmho/cm)	511	458	463	458	462	468	282	285	288	295		
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		
5	pH_GEN (pH units)	8.1	8.1	8.0	7.9	7.8	7.9	8.0	8.0	8.0	7.7		
6	TDS (mg/L)	332	302	306	310	315	321	187	190	192	196		
7	Temp (deg C)	21.0	21.0	22.0	24.0	23.0	22.0	27.0	26.0	28.0	31.0		
8	Turb (NTU)	2.2	2.6	2.8	2.9	3.0	3.0	1.2	1.1	1.1	2.4		
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
2	ALK-TOT (mgCaCO3/L)	196	196	200	202	203	206	148	151	152	157		
3	Ca (mg/L)	56	57	58	57	58	58	45	45	45	43		
4	Cl (mg/L)	44.1	47.3	48.0	48.6	49.2	49.8	32.8	32.1	32.5	34.1		
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
6	F (mg/L)	*	*	*	*	*	*	0.48	0.39	0.31	0.35		
7	HCO3 (mg/L)	239	239	244	247	248	251	181	184	185	192		
8	K (mg/L)	1.5	1.7	1.8	1.7	1.8	1.8	1.6	1.7	1.7	1.8		
9	Mg (mg/L)	14.4	14.6	14.7	14.3	14.3	14.3	8.0	8.2	8.6	11.2		
10	Na (mg/L)	31.5	27.5	27.7	27.6	27.7	27.7	19.6	19.6	19.7	21.0		
11	NH3-N (mg N/L)	0.09	0.10	0.10	0.10	0.11	0.10	0.09	0.09	0.09	0.09		
12	NO2+NO3 (mg N/L)	1.61	1.63	1.64	1.62	1.66	1.68	0.44	0.45	0.46	0.45		
13	NO2-N (mgN/L)	0.15	0.15	0.15	0.15	0.15	0.16	0.07	0.07	0.07	0.07		
14	NO3-N (mgN/L)	1.46	1.48	1.49	1.47	1.51	1.52	0.37	0.38	0.38	0.38		
15	o-PO4-P (mg P/L)	0.338	0.353	0.356	0.340	0.343	0.346	0.175	0.185	0.192	0.140		
16	SiO2 (mg/L)	63.0	63.8	63.8	63.0	64.3	65.1	37.5	37.6	37.7	36.2		
17	SO4 (mg/L)	20.0	19.7	20.0	21.2	22.3	22.7	9.8	9.8	9.8	9.2		
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	0.8	1.2	1.2	1.4	1.2	1.2	1.2	1.0		
2	COD (mg/L)	7.0	7.1	7.0	7.5	7.8	10.0	BDL	BDL	BDL	BDL		
3	DO (mg/L)	7.5	7.7	7.8	6.6	6.7	6.9	6.4	6.6	6.5	7.0		
4	DO_SAT% (%)	84	87	90	78	78	79	80	81	83	94		
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	141	143	145	143	144	146	112	113	113	106		
2	HAR_Total (mgCaCO3/L)	201	204	206	202	204	205	146	147	148	153		
3	Na% (%)	25	23	23	23	23	23	22	22	22	23		
5	SAR (-)	1.0	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7		

River Dry

River Dry

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Kundi at Kogaon (CW1NAM000442)

Local River : Kundi

Division : Narmada Division, Bhopal

Sub-Division : MNSD-III, Indore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	2575	0	59.83
2	EC_GEN (μmho/cm)	33	517	252	409
3	pH_GEN (pH units)	33	8.2	7.5	8
4	TDS (mg/L)	33	337	173	268
5	Temp (deg C)	33	31.0	19.0	25.8
6	Turb (NTU)	33	152.0	1.1	19.4
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	33	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	33	206	134	173
3	Ca (mg/L)	33	62	29	49
4	Cl (mg/L)	33	58.8	21.8	37.5
5	CO3 (mg/L)	33	0.0	0.0	0
6	F (mg/L)	4	0.48	0.31	0.38
7	HCO3 (mg/L)	33	251	163	211
8	K (mg/L)	33	3.1	1.1	1.8
9	Mg (mg/L)	33	18.3	8.0	14
10	Na (mg/L)	31	31.5	14.6	22.6
11	NH3-N (mg N/L)	33	0.11	0.06	0.09
12	NO2+NO3 (mg N/L)	33	2.05	0.35	1.15
13	NO2-N (mgN/L)	33	0.18	0.01	0.11
14	NO3-N (mgN/L)	33	1.91	0.31	1.04
15	o-PO4-P (mg P/L)	33	0.410	0.139	0.262
16	SiO2 (mg/L)	33	65.1	20.3	44.7
17	SO4 (mg/L)	33	23.6	7.1	15.5
	BIOLOGICAL				
1	BOD3-27 (mg/L)	33	1.6	0.8	1.1
2	COD (mg/L)	18	10.0	5.1	6.2
3	DO (mg/L)	33	7.8	6.3	7
4	DO_SAT% (%)	33	97	76	85
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	33	155	73	122
2	HAR_Total (mgCaCO3/L)	33	224	122	180
3	Na% (%)	31	26	15	21
4	RSC (-)	33	0.3	0.0	0.1
5	SAR (-)	31	1.0	0.5	0.7

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2019-24

Station Name : Kundi at Kogaon (CW1NAM000442)
Local River : Kundi

Division : Narmada Division, Bhopal
Sub-Division : MNSD-III, Indore

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	80.97	34.81	32.85	93.47	123.48	17.71	15.75	8.8	24.76	17.57	24.97	8.8	3.5	7.41	9.56
2	EC_GEN (µmho/cm)	377	402	333	387	391	418	368	351	368	457	272	422	374	353	363
3	pH_GEN (pH units)	7.7	7.9	7.68	8.1	8.0	7.9	7.8	7.63	8.0	7.9	7.8	7.6	7.87	8.2	7.9
4	TDS (mg/L)	237	248	208	243	255	260	228	225	256	298	184	234	230	241	244
5	Temp (deg C)	29.1	29.0	27.37	25.4	28.4	23.3	22.0	18.92	19.5	22.8	27.0	25.2	24.11	26.4	25.9
6	Turb (NTU)	99.5	10.2	16.33	65.4	33.2	20.5	5.8	2.66	7.4	13.4	0.3	6.7	2.64	7.1	2.1
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	150	174	212	147	165	152	156	158	160	183	136	186	153	170	174
3	Ca (mg/L)	33	34	31.38	40	43	42	33	38.12	49	55	29	32	26.59	36	50
4	Cl (mg/L)	12.8	21.6	22.22	34.9	30.5	18.3	23.5	22.11	34.8	44.3	6.4	32.4	23.56	35.4	39.9
5	CO3 (mg/L)	0.0	0.0	0.45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.08	0.42	NA	NA	NA	0.11	NA	NA	NA	NA	NA	NA	NA	NA	0.38
7	HCO3 (mg/L)	183	213	259	180	201	186	191	193	196	223	166	227	187	207	213
8	K (mg/L)	2.9	2.9	NA	16.5	1.8	1.5	NA	NA	1.8	1.9	2.1	NA	2.32	2.2	1.7
9	Mg (mg/L)	16.9	19.2	13.18	15.1	15.3	17.6	17.4	14.50	17.5	14.2	11.1	12.1	13.53	18.0	11.3
10	Na (mg/L)	13.7	21.8	NA	20.8	19.6	16.1	NA	NA	21.9	26.3	15.1	NA	26.57	24.6	23.3
11	NH3-N (mg N/L)	0.17	0.00	NA	0.04	0.09	0.14	NA	NA	0.06	0.08	0.13	NA	0.07	0.13	0.10
12	NO2+NO3 (mg N/L)	0.94	1.87	0.82	0.88	1.27	0.16	1.10	0.84	3.36	1.11	0.79	1.43	1.36	0.83	0.97
13	NO2-N (mgN/L)	0.32	0.04	0.06	0.10	0.09	0.02	0.15	0.02	0.13	0.13	0.52	0.01	0.02	0.18	0.11
14	NO3-N (mgN/L)	0.62	1.83	0.76	0.79	1.18	0.14	0.96	0.82	3.23	0.98	0.26	1.42	1.34	0.65	0.86
15	o-PO4-P (mg P/L)	0.300	0.186	0.10	0.200	0.270	0.049	0.030	0.06	0.217	0.262	0.062	0.314	0.06	0.188	0.246
16	SiO2 (mg/L)	37.8	32.9	35.75	34.3	37.1	26.2	21.4	31.67	40.5	51.2	17.9	33.4	36.01	51.3	48.7
17	SO4 (mg/L)	19.2	24.2	10.38	11.9	14.5	36.5	17.4	11.53	15.3	17.0	8.5	10.4	9.98	12.8	15.0
	BIOLOGICAL															
1	BOD3-27 (mg/L)	1.0	1.7	1.36	1.7	1.1	0.8	1.1	0.98	1.0	1.1	1.6	1.3	1.89	1.6	1.2
2	COD (mg/L)	25.4	33.0	5.20	5.0	5.2	19.0	BDL	4.50	5.0	6.1	21.0	BDL	4.85	5.0	8.4
3	DO (mg/L)	5.5	5.6	5.82	6.6	6.9	6.4	7.5	7.40	7.4	7.2	7.3	6.9	5.58	7.0	6.7
4	DO_SAT% (%)	72	73	70.48	81	89	75	86	89.54	81	84	92	83	67.58	87	82
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	83	86	78.45	100	106	106	81	95.30	122	138	73	81	66.48	89	125
2	HAR_Total (mgCaCO3/L)	153	166	133	163	170	179	154	155	195	197	120	131	122	164	172
3	Na% (%)	16	24	NA	22	20	16	NA	NA	19	22	21	NA	NA	24	23
4	RSC (-)	0.1	0.2	1.60	0.1	0.1	0.0	0.2	0.07	0.1	0.0	0.3	1.1	0.63	0.2	0.1
5	SAR (-)	0.5	0.8	NA	0.7	0.7	0.5	NA	NA	0.7	0.8	0.6	NA	NA	0.8	0.8

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA-Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.6 Narmada at Handia

HISTORY SHEET

		Water Year	: 2023-24
Site	: Narmada at Handia	Code	: CW1NAM000392
State	: Madhya Pradesh	District	: Harda
Basin	: Narmada	Independent River	: Narmada
Tributary	: -	Sub Tributary	: -
Sub-Sub Tributary	: -	Local River	: Narmada
Division	: Narmada Division, Bhopal	Sub-Division	: MNSD II, Bhopal
Drainage Area	: 54027 Sq. Km.	Bank	: Left
Latitude	: 22°29'30"	Longitude	: 76°59'38"
	Opening Date	Closing Date	
Gauge	: 09/02/1977		
Discharge	: 26/04/1977		
Sediment	: 11/12/1977		
Water Quality	: 01/08/1979		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Handia (CW1NAM000392)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	150.00	167.00	146.00	1180.00	896.00	2780.00	1050.00	4250.00	6120.00	783.00	1670.00	2130.00
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Brown	Light Brown	Brown	Brown
3	EC_GEN (µmho/cm)	228	209	213	234	229	221	272	214	219	219	253	261
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.1	8.2	7.8	7.7	7.8	7.4	7.8	7.7	7.8	7.9	7.7	7.9
6	TDS (mg/L)	154	144	143	156	150	143	177	139	146	149	164	169
7	Temp (deg C)	31.0	31.0	29.0	26.0	27.0	29.0	29.0	27.0	27.0	28.0	27.0	28.0
8	Turb (NTU)	27.3	11.9	17.7	87.4	280.0	304.0	231.0	314.0	214.0	40.8	33.8	21.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	124	113	110	115	116	121	122	116	123	130	131	132
3	Ca (mg/L)	31	28	27	28	29	30	36	35	35	36	38	38
4	Cl (mg/L)	17.6	16.3	18.4	16.3	16.3	30.1	22.0	16.3	16.7	19.9	19.5	20.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	151	138	134	140	141	148	149	141	150	159	160	161
8	K (mg/L)	1.6	1.4	1.3	1.2	1.2	1.2	1.6	1.7	1.7	1.6	1.5	1.5
9	Mg (mg/L)	8.1	8.4	8.0	7.4	7.7	7.5	5.2	5.1	5.2	5.4	5.3	5.5
10	Na (mg/L)	9.2	8.8	9.9	8.8	8.7	8.5	12.5	8.6	9.1	11.4	10.5	10.9
11	NH3-N (mg N/L)	0.10	0.10	0.09	0.08	0.08	0.08	0.07	0.08	0.08	0.10	0.09	0.10
12	NO2+NO3 (mg N/L)	0.24	0.20	0.15	0.34	0.35	0.37	0.88	0.91	0.86	0.79	0.75	0.74
13	NO2-N (mgN/L)	0.02	0.01	0.01	0.04	0.04	0.05	0.06	0.06	0.05	0.08	0.08	0.08
14	NO3-N (mgN/L)	0.22	0.19	0.15	0.30	0.31	0.33	0.82	0.85	0.80	0.71	0.67	0.66
15	o-PO4-P (mg P/L)	0.139	0.152	0.123	0.139	0.152	0.165	0.165	0.173	0.154	0.140	0.145	0.155
16	SiO2 (mg/L)	19.8	18.4	17.9	18.2	18.6	19.7	36.4	38.6	35.9	22.8	23.0	23.2
17	SO4 (mg/L)	6.5	7.2	3.8	7.3	7.1	7.5	10.6	9.9	9.8	8.5	8.2	8.3
	BIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	0.8	0.6	1.2	1.2	1.0	0.6	1.0	1.0	1.2	1.4	1.4
2	DO (mg/L)	6.2	6.5	6.6	6.8	6.5	7.1	6.8	6.8	6.7	6.7	6.9	6.9
3	DO_SAT% (%)	83	87	86	83	82	92	88	85	84	86	87	88
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	78	71	67	69	72	75	89	87	89	91	94	96
2	HAR_Total (mgCaCO3/L)	112	106	100	100	104	106	111	108	110	113	116	118
3	Na% (%)	15	15	17	16	15	15	19	15	15	18	16	17
4	RSC (-)	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.4	0.3	0.3
5	SAR (-)	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Narmada at Handia (CW1NAM000392)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	890.00	599.00	440.00	327.00	297.00	189.00	259.00	202.00	223.00	205.00	184.00	155.00
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	291	296	300	291	298	309	311	317	328	353	327	314
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.0	7.9	8.0	8.0	8.1	8.2	8.0	7.9	7.7	8.0	7.7	8.1
6	TDS (mg/L)	186	191	196	180	187	201	202	209	218	229	213	205
7	Temp (deg C)	28.0	27.0	27.0	25.0	25.0	23.0	21.0	23.0	19.0	19.0	20.0	21.0
8	Turb (NTU)	13.3	12.7	12.0	8.2	8.1	8.0	52.6	48.7	35.9	18.9	17.9	21.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	118	121	125	108	112	120	150	149	154	134	126	149
3	Ca (mg/L)	38	38	39	34	37	38	51	51	47	45	45	46
4	Cl (mg/L)	15.6	15.4	15.6	19.1	20.1	20.5	20.9	20.3	19.1	20.3	20.1	20.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	144	148	152	132	137	146	183	182	188	163	154	182
8	K (mg/L)	1.4	1.4	1.5	1.2	1.6	1.6	1.7	1.7	1.7		1.7	1.6
9	Mg (mg/L)	6.5	6.7	6.4	7.4	6.4	7.6	9.1	9.2	12.4	10.1	9.5	9.6
10	Na (mg/L)	8.5	8.4	8.5	10.1	10.6	10.8	10.9	10.6	11.0	10.7	10.6	10.4
11	NH3-N (mg N/L)	0.08	0.09	0.09	0.09	0.09	0.10	0.06	0.07	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.42	0.43	0.44	0.53	0.55	0.56	0.41	0.42	0.43	0.54	0.52	0.50
13	NO2-N (mgN/L)	0.05	0.05	0.06	0.06	0.07	0.07	0.06	0.06	0.06	0.09	0.08	0.08
14	NO3-N (mgN/L)	0.36	0.38	0.39	0.46	0.48	0.49	0.35	0.36	0.37	0.45	0.44	0.43
15	o-PO4-P (mg P/L)	0.157	0.165	0.167	0.156	0.161	0.166	0.157	0.161	0.174	0.220	0.236	0.236
16	SiO2 (mg/L)	28.4	28.8	29.7	25.1	25.4	26.0	30.0	32.4	32.7	35.3	32.6	31.8
17	SO4 (mg/L)	8.0	8.1	8.2	7.7	8.3	8.4	7.4	7.9	7.3	6.4	5.6	5.4
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.0	1.0	0.8	0.8	1.0	0.8	0.8	1.0	1.0	1.2
2	DO (mg/L)	7.5	7.7	7.8	7.2	7.4	7.3	8.0	7.8	7.8	7.7	7.6	7.8
3	DO_SAT% (%)	96	96	97	87	89	85	90	90	84	83	84	87
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	94	95	98	85	91	94	127	128	117	113	112	115
2	HAR_Total (mgCaCO3/L)	121	123	125	116	118	126	165	167	169	155	151	155
3	Na% (%)	13	13	13	16	16	15	12	12	12		13	13
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Handia (CW1NAM000392)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	224.75	228.44	223.60	226.42	224.33	224.65	219.01	219.90	198.85	188.65	140.35	137.48
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	230	286	290	286	290	295	246	250	248	212	226	220
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.1	8.2	8.0	8.0	8.0	8.0	8.1	8.0	8.0	8.0	8.0	8.1
6	TDS (mg/L)	215	189	192	187	192	198	165	169	169	135	147	142
7	Temp (deg C)	20.0	19.0	25.0	22.0	20.0	21.0	22.0	22.0	20.0	22.0	24.0	29.0
8	Turb (NTU)	7.3	5.5	4.9	4.8	4.9	4.9	1.0	1.0	0.9	12.9	11.9	14.7
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	123	146	150	152	154	157	136	138	137	121	123	122
3	Ca (mg/L)	37	45	45	44	45	46	37	38	38	36	36	37
4	Cl (mg/L)	23.0	22.2	23.0	24.1	24.7	25.3	29.5	30.1	30.5	26.8	26.2	26.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.27	0.25	0.21	0.14	0.15	0.14
7	HCO3 (mg/L)	150	178	183	186	188	191	166	168	167	148	150	149
8	K (mg/L)	1.5	1.5	1.5	1.5	1.5	1.6	1.7	1.8	1.7	1.4	1.4	1.5
9	Mg (mg/L)	9.5	9.6	9.7	9.4	9.4	9.3	9.0	9.1	9.3	7.0	7.5	7.1
10	Na (mg/L)	16.1	14.8	15.0	14.9	15.0	15.0	16.2	16.2	16.3	14.5	14.0	14.0
11	NH3-N (mg N/L)	0.10	0.10	0.10	0.09	0.10	0.10	0.10	0.10	0.10	0.08	0.09	0.08
12	NO2+NO3 (mg N/L)	0.74	0.76	0.77	0.75	0.78	0.80	0.39	0.40	0.41	0.26	0.25	0.25
13	NO2-N (mgN/L)	0.06	0.07	0.07	0.07	0.07	0.08	0.05	0.06	0.06	0.04	0.04	0.04
14	NO3-N (mgN/L)	0.68	0.69	0.70	0.68	0.71	0.72	0.34	0.34	0.35	0.22	0.21	0.21
15	o-PO4-P (mg P/L)	0.141	0.147	0.151	0.143	0.146	0.151	0.152	0.157	0.162	0.102	0.109	0.105
16	SiO2 (mg/L)	32.0	32.9	33.1	32.0	32.8	33.6	34.3	34.4	34.6	25.0	25.4	25.1
17	SO4 (mg/L)	7.6	8.1	8.3	8.0	8.3	8.4	9.0	9.1	9.4	5.0	5.3	5.1
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.0	1.0	1.0	1.0	0.8	1.0	1.0	1.0	0.8	0.8	0.8
2	DO (mg/L)	7.3	7.5	7.8	6.8	6.9	7.1	6.8	7.0	6.9	7.2	7.4	7.1
3	DO_SAT% (%)	81	81	95	78	76	80	77	80	76	82	87	92
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	92	111	112	110	112	114	94	94	94	90	90	91
2	HAR_Total (mgCaCO3/L)	132	152	153	150	152	153	131	132	133	119	122	121
3	Na% (%)	21	17	17	18	18	18	21	21	21	21	20	20
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
5	SAR (-)	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at Handia (CW1NAM000392)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	12800	113	836.83
2	EC_GEN ($\mu\text{mho/cm}$)	36	353	209	266
3	pH_GEN (pH units)	36	8.2	7.4	7.9
4	TDS (mg/L)	36	229	135	176
5	Temp (deg C)	36	31.0	19.0	24.5
6	Turb (NTU)	36	314.0	0.9	53.2
	CHEMICAL				
1	Alk-Phen (mgCaCO ₃ /L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO ₃ /L)	36	157	108	130
3	Ca (mg/L)	36	51	27	38
4	Cl (mg/L)	36	30.5	15.4	21.4
5	CO ₃ (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.27	0.14	0.19
7	HCO ₃ (mg/L)	36	191	132	159
8	K (mg/L)	35	1.8	1.2	1.5
9	Mg (mg/L)	36	12.4	5.1	7.9
10	Na (mg/L)	36	16.3	8.4	11.7
11	NH ₃ -N (mg N/L)	36	0.10	0.06	0.09
12	NO ₂ +NO ₃ (mg N/L)	36	0.91	0.15	0.52
13	NO ₂ -N (mgN/L)	36	0.09	0.01	0.06
14	NO ₃ -N (mgN/L)	36	0.85	0.15	0.47
15	o-PO ₄ -P (mg P/L)	36	0.236	0.102	0.156
16	SiO ₂ (mg/L)	36	38.6	17.9	28.5
17	SO ₄ (mg/L)	36	10.6	3.8	7.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	36	1.4	0.6	1
2	DO (mg/L)	36	8.0	6.2	7.2
3	DO SAT% (%)	36	97	76	86
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	36	128	67	96
2	HAR_Total (mgCaCO ₃ /L)	36	169	100	129
3	Na% (%)	35	21	12	16
4	RSC (-)	36	0.4	0.0	0.1
5	SAR (-)	36	0.6	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period: 2019-2024

Station Name : Narmada at Handia (CW1NAM000392)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	2433	5530.2	707.4	2562.71	1710.46	376.43	359.75	163.08	209.21	218.99	158	128.67	120.96	177.99	196.55
2	EC_GEN (µmho/cm)	258	271	267	256	244	344	326	341	375	305	419	302	315	290	253
3	pH_GEN (pH units)	7.7	7.6	7.49	8.0	7.8	7.8	7.9	7.58	8.0	8.0	7.7	7.3	7.83	8.1	8.0
4	TDS (mg/L)	158	167	167	159	160	224	203	216	259	203	293	176	189	191	167
5	Temp (deg C)	23.7	28.4	26.5	27.4	28.1	21.0	22.0	20.67	20.7	21.7	24.8	25.7	27.56	26.2	22.4
6	Turb (NTU)	145.8	71.6	39.67	139.6	108.1	17.9	9.3	10.08	11.2	19.8	0.4	7.7	18.23	11.2	6.3
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	107	130	124	119	121	145	154	162	152	135	157	130	116	135	138
3	Ca (mg/L)	24	25	30.73	37	34	38	37	40.66	41	43	39	25	32.03	32	40
4	Cl (mg/L)	7.8	16.4	17.89	21.5	18.4	10.5	15.1	17.64	31.9	20.7	9.9	18.8	15.67	21.6	27.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.07	0.51	NA	NA	NA	0.11	NA	NA	NA	NA	NA	NA	NA	NA	0.19
7	HCO3 (mg/L)	131	158	151	145	148	177	188	198	186	165	192	158	142	165	168
8	K (mg/L)	2.8	2.8	NA	1.9	1.5	1.4	NA	NA	1.9	1.6	2.1	NA	1.55	1.6	1.6
9	Mg (mg/L)	9.6	9.2	9.09	5.1	6.5	13.1	10.6	12.95	13.4	9.2	16.5	8.2	12.54	11.8	8.6
10	Na (mg/L)	9.8	14.3	NA	12.1	9.5	13.0	NA	NA	17.7	11.8	34.5	NA	11.34	13.0	15.1
11	NH3-N (mg N/L)	0.07	NA	NA	0.05	0.09	0.10	NA	NA	0.07	0.08	0.13	NA	0.05	0.12	0.09
12	NO2+NO3 (mg N/L)	0.92	1.01	0.86	0.86	0.52	0.12	1.09	0.94	0.78	0.56	0.54	0.49	0.23	0.37	0.47
13	NO2-N (mgN/L)	0.31	0.04	0.04	0.05	0.05	0.03	0.20	0.12	0.06	0.07	0.06	0.02	0.07	0.09	0.06
14	NO3-N (mgN/L)	0.61	0.97	0.82	0.81	0.47	0.09	0.89	0.82	0.72	0.49	0.47	0.47	0.16	0.28	0.42
15	o-PO4-P (mg P/L)	0.237	0.257	0.08	0.161	0.153	0.050	0.055	0.08	0.107	0.175	0.039	0.084	0.06	0.123	0.136
16	SiO2 (mg/L)	34.9	18.4	22.06	29.4	25.3	20.6	19.1	19.56	28.0	30.8	22.3	26.9	25.59	21.2	30.8
17	SO4 (mg/L)	13.6	11.7	8.17	6.9	7.9	23.4	13.8	7.95	8.9	7.4	11.3	7.0	5.83	7.6	7.5
	BIOLOGICAL															
1	BOD3-27 (mg/L)	0.8	0.8	1.03	1.7	1.0	1.2	1.9	0.99	0.9	1.0	1.0	1.2	1.63	1.4	0.9
2	COD (mg/L)	23.0	33.5	BDL	BDL	BDL	22.0	BDL	BDL	5.6	BDL	25.5	30.1	6.70	12.7	BDL
3	DO (mg/L)	5.8	5.8	6.23	6.5	6.9	6.8	8.1	7.61	7.3	7.6	6.4	5.8	6.53	7.3	7.0
4	DO SAT% (%)	68	75	75.42	82	88	76	93	92.16	81	86	77	71	79.04	90	81
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	60	62	76.83	91	84	95	93	101.65	102	108	98	63	80.08	81	99
2	HAR_Total (mgCaCO3/L)	100	101	114	112	112	150	137	155	158	146	167	97	132	130	135
3	Na% (%)	17	25	NA	19	15	16	NA	NA	20	15	29	NA	NA	18	20
4	RSC (-)	0.2	0.6	0.19	0.1	0.2	0.2	0.4	0.15	0.1	0.0	0.4	0.7	0.30	0.2	0.1
5	SAR (-)	0.4	0.7	NA	0.5	0.4	0.5	NA	NA	0.6	0.4	1.1	NA	NA	0.5	0.6

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA-Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.7 Ganjal at Chhidgaon

History sheet

		Water Year	: 2023-24
Site	: Ganjal at Chhidgaon	Code	: CW1NAM000379
	Madhya		
State	: Pradesh	District	: Hardha
		Independent River	: Narmada
Basin	: Narmada		
		Sub Tributary	: -
Tributary	: Ganjal		
Sub-Sub Tributary	: -	Local River	: Ganjal
Division	: Narmada Division, Bhopal	Sub-Division	: MNSD II, Bhopal
Drainage Area	: 1729 Sq. Km.	Bank	: Left
Latitude	: 22°24'21"	Longitude	: 77°18'28"
	Opening Date	Closing Date	
Gauge	: 22/12/1976		
Discharge	: 22/12/1976		
Sediment	: -----		
Water Quality	: 16/09/1986		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Ganjal at Chhidgaon (CW1NAM000379)

Local River : Ganjal

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	0.00	0.00	0.00	0.48	22.04	507.68	84.72	93.94	123.69	49.44	114.94	215.50
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (μmho/cm)	442	469	519	254	250	247	313	308	314	282	257	267
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.7	8.2	7.8	7.5	7.5	7.4	7.9	7.9	7.8	8.0	7.8	7.9
6	TDS (mg/L)	295	317	348	171	164	157	201	199	206	191	167	174
7	Temp (deg C)	30.0	31.0	29.0	26.0	26.0	28.0	28.0	26.0	19.0	28.0	27.0	26.0
8	Turb (NTU)	13.1	3.8	1.9	98.7	651.0	689.0	29.5	217.0	95.3	7.8	7.1	7.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	131	148	235	189	181	189	133	133	137	137	141	143
3	Ca (mg/L)	36	39	36	37	39	40	37	36	37	36	37	38
4	Cl (mg/L)	61.1	62.0	74.1	35.2	33.3	27.6	18.1	21.8	19.4	22.9	20.5	19.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	160	180	287	230	221	230	162	162	167	167	172	174
8	K (mg/L)	1.2	1.3	1.4	1.7	1.6	1.5	1.0	1.0	1.0	1.3	1.2	0.9
9	Mg (mg/L)	18.1	18.1	24.6	21.7	23.4	20.6	9.9	10.0	9.8	9.8	9.8	9.9
10	Na (mg/L)	45.8	48.3	54.5	18.3	18.0	15.5	11.8	12.2	12.4	17.5	14.3	10.2
11	NH3-N (mg N/L)	0.11	0.12	0.18	0.07	0.08	0.07	0.08	0.08	0.09	0.10	0.09	0.09
12	NO2+NO3 (mg N/L)	1.08	0.99	0.94	1.11	0.42	0.45	0.99	1.01	0.96	0.95	0.92	0.94
13	NO2-N (mgN/L)	0.06	0.05	0.04	0.09	0.09	0.10	0.07	0.08	0.06	0.09	0.10	0.10
14	NO3-N (mgN/L)	1.02	0.94	0.90	1.03	0.33	0.35	0.92	0.93	0.89	0.86	0.83	0.84
15	o-PO4-P (mg P/L)	0.338	0.400	0.369	0.335	0.347	0.361	0.173	0.181	0.165	0.163	0.168	0.179
16	SiO2 (mg/L)	46.9	49.5	50.1	50.6	50.9	51.6	36.0	36.3	35.5	33.1	33.2	33.4
17	SO4 (mg/L)	19.7	20.3	23.5	17.7	17.5	16.4	9.8	9.8	9.6	9.1	8.9	8.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.9	0.6	0.6	1.2	1.0	1.2	0.6	0.8	0.8	1.4	1.6	1.4
2	COD (mg/L)	5.1	5.2	5.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	6.8	7.1	7.2	6.4	6.1	6.7	7.6	7.2	7.1	6.5	6.7	6.7
4	DO_SAT% (%)	90	96	94	79	76	85	97	88	76	83	84	83
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	90	97	91	94	96	100	94	91	93	90	93	94
2	HAR_Total (mgCaCO3/L)	166	173	193	184	194	186	135	133	134	131	134	136
3	Na% (%)	37	38	38	18	17	15	16	17	17	22	19	14
4	RSC (-)	0.0	0.0	0.9	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.1
5	SAR (-)	1.6	1.6	1.7	0.6	0.6	0.5	0.4	0.5	0.5	0.7	0.5	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Ganjal at Chhidgaon (CW1NAM000379)

Local River : Ganjal

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	53.30	15.26	17.98	13.10	10.43	7.80	13.69	12.29	8.73	4.88	6.13	5.49
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	291	294	298	437	448	458	406	410	419	509	475	469
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.7	7.7	7.8	8.1	8.0	8.2	7.8	7.8	7.6	7.9	7.6	8.0
6	TDS (mg/L)	186	189	193	274	287	295	262	268	278	331	310	304
7	Temp (deg C)	26.0	25.0	26.0	26.0	24.0	22.0	19.0	23.0	19.0	20.0	20.0	21.0
8	Turb (NTU)	34.7	33.4	33.1	2.5	2.0	1.6	90.8	84.5	46.0	10.0	9.6	10.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	117	120	123	163	168	175	154	153	157	195	180	176
3	Ca (mg/L)	37	37	39	45	47	49	51	51	43	47	49	51
4	Cl (mg/L)	19.3	19.3	19.5	37.9	39.2	43.3	35.8	35.4	37.9	39.0	35.7	32.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	143	146	150	199	205	214	188	187	192	238	219	215
8	K (mg/L)	0.8	0.8	0.9	1.2	1.2	1.3	1.4	1.5	1.5	2.3	2.2	2.2
9	Mg (mg/L)	6.6	6.8	6.6	13.5	14.1	13.7	10.4	11.0	17.3	17.2	13.3	13.7
10	Na (mg/L)	10.2	10.1	10.2	22.9	25.1	29.1	20.1	22.0	22.5	20.6	19.0	17.1
11	NH3-N (mg N/L)	0.08	0.09	0.09	0.10	0.11	0.11	0.06	0.07	0.07	0.07	0.08	0.08
12	NO2+NO3 (mg N/L)	0.41	0.42	0.44	1.05	1.07	1.09	0.51	0.52	0.53	1.19	1.33	1.16
13	NO2-N (mgN/L)	0.05	0.05	0.06	0.14	0.16	0.16	0.08	0.08	0.08	0.12	0.27	0.11
14	NO3-N (mgN/L)	0.36	0.37	0.38	0.90	0.91	0.93	0.43	0.44	0.45	1.07	1.06	1.05
15	o-PO4-P (mg P/L)	0.155	0.162	0.165	0.214	0.224	0.233	0.183	0.185	0.196	0.296		0.259
16	SiO2 (mg/L)	28.3	28.6	29.3	45.4	46.8	48.6	40.2	41.0	41.4	51.4	47.2	46.5
17	SO4 (mg/L)	7.7	7.8	7.9	13.3	13.1	13.5	11.5	13.3	14.3	15.2	14.7	13.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.2	1.0	1.2	1.2	1.0	1.0	1.0	1.0	1.0	1.2
2	COD (mg/L)	BDL	BDL	BDL	5.2	5.4	5.5	5.1	5.1	5.1	5.5	5.5	5.5
3	DO (mg/L)	6.9	7.1	7.1	6.8	7.0	6.9	8.0	7.6	7.8	7.9	7.8	8.0
4	DO_SAT% (%)	85	86	88	83	83	79	87	88	84	87	86	90
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	93	94	97	114	118	123	128	129	107	117	121	128
2	HAR_Total (mgCaCO3/L)	120	122	124	170	176	180	172	174	179	189	177	185
3	Na% (%)	15	15	15	23	24	26	20	21	21	19	19	17
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
5	SAR (-)	0.4	0.4	0.4	0.8	0.8	0.9	0.7	0.7	0.7	0.7	0.6	0.5

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Ganjal at Chhidgaon (CW1NAM000379)

Local River : Ganjal

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	5.12	1.72	0.93	0.32	0.41	0.49	0.00	0.00	0.00	0.00	0.00	0.00
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	529	520	526	530	532	530	448	452	457	530	535	539
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.8	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.9	8.0	8.0	8.0
6	TDS (mg/L)	343	339	342	345	348	345	298	300	304	336	341	346
7	Temp (deg C)	19.0	20.0	26.0	21.0	19.0	24.5	27.0	27.0	28.5	29.5	30.0	31.5
8	Turb (NTU)	3.5	3.7	3.6	3.6	3.6	4.0	0.4	0.3	0.3	2.4	3.0	2.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	200	200	203	205	207	209	211	214	216	223	225	225
3	Ca (mg/L)	57	57	58	57	58	58	53	53	53	53	53	54
4	Cl (mg/L)	50.2	54.9	55.5	54.9	55.5	56.3	70.1	70.9	71.5	71.8	72.9	76.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.67	0.61	0.47	0.42	0.40	0.42
7	HCO3 (mg/L)	244	244	248	250	252	255	258	261	263	272	274	275
8	K (mg/L)	1.1	1.1	1.1	1.1	1.1	1.1	1.5	1.5	1.4	1.7	1.6	1.6
9	Mg (mg/L)	15.9	14.8	14.0	13.8	13.9	14.1	17.5	17.7	17.9	23.4	23.5	23.5
10	Na (mg/L)	36.5	38.9	39.1	39.0	39.1	39.1	42.3	42.4	42.5	45.7	45.1	46.9
11	NH3-N (mg N/L)	0.10	0.10	0.11	0.10	0.10	0.10	0.11	0.14	0.13	0.16	0.15	0.02
12	NO2+NO3 (mg N/L)	1.66	1.67	1.68	1.69	1.70	1.71	1.77	1.78	1.80	1.89	1.91	1.92
13	NO2-N (mgN/L)	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.17	0.18	0.18	0.19	0.19
14	NO3-N (mgN/L)	1.51	1.52	1.53	1.54	1.54	1.55	1.61	1.62	1.63	1.71	1.72	1.73
15	o-PO4-P (mg P/L)	0.378	0.384	0.383	0.378	0.381	0.384	0.364	0.370	0.380	0.385	0.395	0.400
16	SiO2 (mg/L)	62.8	64.4	64.6	63.0	63.7	64.6	56.8	56.9	57.5	59.2	59.6	59.8
17	SO4 (mg/L)	21.7	20.9	22.2	23.2	23.8	24.2	15.5	15.7	16.1	20.8	20.8	21.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.4	1.2	0.8	0.8	0.6	1.4	1.2	1.2	1.2	1.0	1.2
2	COD (mg/L)	7.0	7.2	7.1	6.2	7.3	BDL	8.2	8.5	8.4	9.1	8.7	9.3
3	DO (mg/L)	7.1	7.3	7.6	7.6	7.7	6.9	6.0	6.2	6.1	7.0	7.2	6.9
4	DO_SAT% (%)	77	81	94	85	83	82	75	77	78	91	95	92
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	142	143	145	143	144	145	131	132	132	132	133	134
2	HAR_Total (mgCaCO3/L)	208	205	204	200	202	203	204	206	207	230	231	232
3	Na% (%)	28	29	29	30	30	29	31	31	31	30	30	30
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.0
5	SAR (-)	1.1	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period: 2023-24

Station Name : Ganjal at Chhidgaon (CW1NAM000379)

Local River : Ganjal

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	2450	0	45.95
2	EC_GEN (µmho/cm)	36	721	119	432
3	pH_GEN (pH units)	36	8.2	7.3	7.9
4	TDS (mg/L)	36	507	67	281
5	Temp (deg C)	36	30.0	17.0	24.4
6	Turb (NTU)	36	908.0	0.7	54
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	294	91	174
3	Ca (mg/L)	36	63	34	47
4	Cl (mg/L)	36	70.8	9.1	42.4
5	CO3 (mg/L)	36	0.0	0.0	0
6	HCO3 (mg/L)	36	359	111	212
7	K (mg/L)	36	5.4	0.7	1.5
8	Mg (mg/L)	36	25.3	3.4	12.8
9	Na (mg/L)	36	55.2	5.1	27.1
10	NH3-N (mg N/L)	36	0.24	0.02	0.08
11	NO2+NO3 (mg N/L)	36	2.12	0.17	1.37
12	NO2-N (mgN/L)	36	0.22	0.00	0.13
13	NO3-N (mgN/L)	36	2.02	0.16	1.25
14	o-PO4-P (mg P/L)	36	0.465	0.032	0.223
15	SiO2 (mg/L)	36	58.4	33.4	44.2
16	SO4 (mg/L)	36	27.5	4.7	16.7
	BIOLOGICAL				
1	BOD3-27 (mg/L)	36	2.6	0.6	1.6
2	COD (mg/L)	36	6.8	4.6	5.8
3	DO (mg/L)	36	8.2	4.2	6.7
4	DO_SAT% (%)	36	93	52	80
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	158	85	117
2	HAR_Total (mgCaCO3/L)	36	240	103	170
3	Na% (%)	36	48	10	24
4	RSC (-)	36	1.1	0.0	0.2
5	SAR (-)	36	2.1	0.2	0.9

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2019-2024

Station Name : Ganjal at Chhidgaon (CW1NAM000379)

Local River : Ganjal

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	296.2	92.34	44.96	181.9	104.52	1.75	2.05	2.86	3.23	6.73	0	0	0	0	0.11
2	EC_GEN (µmho/cm)	371	316	324	322	320	466	506	474	520	467	420	632	596	499	506
3	pH_GEN (pH units)	7.5	7.7	7.57	7.9	7.8	7.7	7.6	7.53	7.9	7.9	7.6	7.5	7.59	7.9	8.0
4	TDS (mg/L)	230	206	224	190	211	308	294	307	352	303	277	370	358	338	329
5	Temp (deg C)	27.1	27.7	26.93	26.6	26.7	18.8	20.4	20.17	20.3	21.6	24.0	23.5	26.17	26.1	26.4
6	Turb (NTU)	112.8	7.0	40.67	123.5	128.2	18.2	6.0	4.25	4.6	22.4	0.9	5.5	3.78	4.2	2.2
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	173	147	148	116	150	190	244	230	210	177	182	277	257	222	215
3	Ca (mg/L)	34	30	32.98	39	38	48	47	46.94	54	51	37	37	44.73	50	55
4	Cl (mg/L)	10.8	14.5	20.42	30.7	31.6	10.3	19.6	24.64	45.9	41.4	11.9	21.4	23.17	57.3	66.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.09	0.36	NA	NA	NA	0.12	NA	NA	NA	NA	NA	NA	NA	NA	0.50
7	HCO3 (mg/L)	211	180	181	142	183	232	298	281	257	216	222	338	314	271	262
8	K (mg/L)	3.1	2.8	NA	1.5	1.2	1.0	NA	NA	1.3	1.5	1.9	NA	1.68	1.8	1.4
9	Mg (mg/L)	14.3	12.9	12.01	6.6	13.7	18.8	18.6	23.13	15.6	14.1	13.7	16.1	21.80	19.6	18.3
10	Na (mg/L)	19.1	17.2	NA	19.6	20.6	22.4	NA	NA	27.3	26.1	31.8	NA	47.88	39.3	42.4
11	NH3-N (mg N/L)	0.09	0.00	NA	0.05	0.09	0.15	NA	NA	0.07	0.09	0.15	NA	0.06	0.14	0.11
12	NO2+NO3 (mg N/L)	1.00	1.14	1.71	1.05	0.80	0.31	1.78	1.51	1.64	1.12	0.46	2.03	1.26	1.56	1.80
13	NO2-N (mgN/L)	0.29	0.02	0.17	0.13	0.07	0.03	0.13	0.25	0.09	0.14	0.06	0.02	0.23	0.16	0.17
14	NO3-N (mgN/L)	0.71	1.11	1.57	0.92	0.73	0.28	1.65	1.26	1.55	0.98	0.41	2.01	1.03	1.40	1.63
15	o-PO4-P (mg P/L)	0.215	0.530	0.20	0.273	0.244	0.063	0.164	0.17	0.207	0.267	0.037	0.644	0.14	0.162	0.382
16	SiO2 (mg/L)	44.6	28.9	22.75	48.4	39.5	26.6	24.9	42.71	39.7	50.0	21.7	45.8	42.01	43.3	60.1
17	SO4 (mg/L)	17.4	14.2	9.75	14.5	13.0	28.8	16.6	15.88	14.1	15.6	5.4	19.1	21.02	23.7	20.1
	BIOLOGICAL															
1	BOD3-27 (mg/L)	1.0	0.9	1.18	1.8	1.0	0.7	1.4	1.29	1.3	1.1	1.6	1.4	2.32	1.8	1.0
2	COD (mg/L)	23.4	36.5	BDL	5.9	5.2	15.8	BDL	6.02	5.8	5.8	17.0	BDL	6.58	5.8	8.2
3	DO (mg/L)	4.9	5.9	6.30	6.0	6.9	7.1	8.3	7.58	7.5	7.5	7.9	7.7	5.41	6.8	6.8
4	DO SAT% (%)	61	75	76.21	75	86	76	92	91.75	83	85	93	90	65.48	84	84
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	85	76	82.45	96	94	120	119	117.35	136	126	91	91	11.83	125	136
2	HAR_Total (mgCaCO3/L)	144	130	132	124	151	198	196	212	201	185	148	158	201	206	213
3	Na% (%)	19	24	NA	22	21	19	NA	NA	23	23	27	NA	NA	29	30
4	RSC (-)	0.6	0.5	0.33	0.1	0.1	0.3	1.0	0.36	0.3	0.0	0.7	2.4	1.12	0.4	0.1
5	SAR (-)	0.7	0.7	NA	0.8	0.7	0.7	NA	NA	0.8	0.8	1.0	NA	NA	1.2	1.3

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.8 Narmada at Narmadapuram

History sheet

		Water Year	: 2023-24
Site	: Narmada at Narmadapuram	Code	: CW1NAM000278
State	: Madhya Pradesh	District	: Narmadapuram
Basin	: Narmada	Independent River	: Narmada
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Narmada
Division	: Narmada division Bhopal	Sub-Division	: MNSD-1 CWC Narmadapuram
Drainage Area	: 44548 Sq. Km.	Bank	: Left
Latitude	: 22°45'22"	Longitude	: 77°43'58"
	Opening Date	Closing Date	
Gauge	: 21/05/1972		
Discharge	: 16/09/1972		
Sediment	: 29/12/1972		
Water Quality	: 15/07/1979		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name: Narmada at Narmadapuram (CW1NAM000278)

Local River : Narmada

Division : Narmada Division, Bhopal
Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	115.00	125.00	112.00	837.00	830.00	1640.00	596.00	3545.60	5947.00	626.00	1770.00	1450.00
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	brown	Light Brown	brown	brown
3	EC_GEN (µmho/cm)	190	190	208	198	193	187	277	205	210	138	250	259
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.7	8.2	7.9	7.8	7.8	7.6	7.6	7.5	7.5	7.7	7.7	7.7
6	TDS (mg/L)	127	131	140	131	126	121	180	134	139	95	163	174
7	Temp (deg C)	27.0	28.0	27.0	26.0	25.0	26.0	25.0	24.0	23.0	27.0	26.0	26.0
8	Turb (NTU)	59.1	11.9	10.5	345.0	967.0	847.0	144.0	153.0	134.0	37.4	27.9	18.9
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	98	102	104	111	113	116	119	121	123	126	127	130
3	Ca (mg/L)	26	26	29	29	30	32	33	33	33	34	35	36
4	Cl (mg/L)	13.7	13.4	15.5	17.4	17.8	17.5	22.5	16.3	16.9	13.8	14.0	14.8
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	120	124	127	136	138	141	145	148	150	154	155	159
8	K (mg/L)	1.3	1.2	1.2	1.1	1.1	1.0	1.9	2.0	2.0	2.0	1.9	1.6
9	Mg (mg/L)	8.6	8.2	7.6	7.7	7.6	7.3	9.1	9.1	9.0	8.9	9.1	9.1
10	Na (mg/L)	7.1	7.1	8.1	9.5	9.4	9.1	14.5	8.7	9.0	7.3	7.5	7.8
11	NH3-N (mg N/L)	0.06	0.06	0.08	0.09	0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.22	0.16	0.12	0.35	0.36	0.39	0.74	0.77	0.71	0.62	0.63	0.65
13	NO2-N (mgN/L)	0.02	0.01	0.01	0.04	0.04	0.05	0.06	0.06	0.05	0.05	0.06	0.06
14	NO3-N (mgN/L)	0.20	0.14	0.11	0.31	0.32	0.34	0.68	0.70	0.66	0.57	0.58	0.59
15	o-PO4-P (mg P/L)	0.111	0.124	0.096	0.115	0.127	0.140	0.159	0.167	0.149	0.142	0.147	0.155
16	SiO2 (mg/L)	23.0	20.1	19.6	20.2	20.5	21.4	34.2	34.5	33.6	20.3	20.6	20.8
17	SO4 (mg/L)	5.2	5.8	2.8	5.9	5.7	5.0	11.4	9.5	9.1	7.6	7.5	7.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	0.8	1.0	1.0	0.8	1.3	1.2	1.0	1.0	0.8	1.0	0.8
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	6.6	6.9	7.0	6.0	5.8	6.3	6.2	7.0	6.9	7.7	7.9	7.9
4	DO_SAT% (%)	82	88	88	74	70	78	75	83	80	97	98	97
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	66	66	72	72	75	79	83	81	83	85	87	90
2	HAR_Total (mgCaCO3/L)	102	100	104	105	107	110	121	119	120	122	125	127
3	Na% (%)	13	13	14	16	16	15	20	13	14	11	11	12
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
5	SAR (-)	0.3	0.3	0.3	0.4	0.4	0.4	0.6	0.3	0.4	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Narmadapuram (CW1NAM000278)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	749.00	434.00	300.00	256.00	230.00	146.00	191.00	161.00	170.00	144.00	137.00	119.10
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	261	264	269	321	327	333	655	555	488	337	323	317
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.5	7.6	7.6	8.0	8.1	8.2	7.9	7.8	7.5	7.9	7.6	8.1
6	TDS (mg/L)	168	171	175	204	210	215	425	325	289	219	211	207
7	Temp (deg C)	26.0	26.0	26.0	26.0	25.0	25.0	24.0	21.0	18.0	20.0	16.0	18.0
8	Turb (NTU)	41.0	42.0	41.3	3.0	3.0	2.6	6.4	6.3	5.9	6.8	6.8	7.8
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	105	108	111	121	125	130	230	207	188	126	134	145
3	Ca (mg/L)	35	35	37	37	40	41	52	53	43	43	43	46
4	Cl (mg/L)	14.3	13.9	14.1	16.5	21.3	20.7	34.3	34.8	28.3	20.9	20.1	19.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	128	132	135	148	153	158	281	252	229	154	163	177
8	K (mg/L)	1.5	1.5	1.6	1.6	1.7	1.7	2.3	2.2	1.8	1.9	1.8	1.8
9	Mg (mg/L)	5.3	5.5	5.2	8.6	8.7	8.7	18.3	17.5	13.7	10.6	10.1	10.7
10	Na (mg/L)	7.7	7.6	7.8	8.8	11.9	11.0	19.0	18.5	15.2	11.0	10.6	10.5
11	NH3-N (mg N/L)	0.08	0.08	0.08	0.09	0.09	0.09	0.06	0.07	0.07	0.07	0.07	0.08
12	NO2+NO3 (mg N/L)	0.39	0.40	0.42	0.52	0.53	0.54	0.75	0.68	0.65	0.52	0.51	0.50
13	NO2-N (mgN/L)	0.05	0.05	0.05	0.06	0.07	0.07	0.12	0.11	0.09	0.08	0.08	0.08
14	NO3-N (mgN/L)	0.34	0.35	0.36	0.46	0.47	0.47	0.63	0.58	0.56	0.44	0.43	0.42
15	o-PO4-P (mg P/L)	0.145	0.152	0.155	0.154	0.159	0.163	0.211	0.194	0.161	0.213	0.240	0.245
16	SiO2 (mg/L)	27.0	27.5	28.4	28.9	29.6	30.1	65.7	54.2	48.6	33.2	32.3	31.6
17	SO4 (mg/L)	7.2	7.4	7.5	7.9	8.3	8.5	10.6	9.9	9.5	7.1	6.5	6.3
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.4	1.4	0.8	1.0	1.0	1.2	1.2	1.2	1.2	1.2	1.4
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	6.8	5.4	5.4	BDL	BDL	BDL
3	DO (mg/L)	6.5	6.7	6.8	7.2	7.4	7.3	7.4	7.4	7.4	7.5	7.4	7.6
4	DO_SAT% (%)	80	83	83	88	89	88	88	83	78	82	75	80
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	87	88	91	92	99	104	131	132	106	107	109	114
2	HAR_Total (mgCaCO3/L)	109	111	113	128	135	140	207	205	163	151	150	159
3	Na% (%)	13	13	13	13	16	14	16	16	17	14	13	12
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.5	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.4	0.4	0.6	0.6	0.5	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Narmadapuram (CW1NAM000278)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	122.10	117.20	122.10	114.90	96.50	90.70	90.10	118.30	117.60	153.10	143.90	165.50
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	305	280	284	278	218	283	234	240	243	215	208	205
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.0	8.1	8.1	8.0	8.1	8.1	8.0	7.8	7.5	7.7	7.7	7.9
6	TDS (mg/L)	199	183	186	183	186	188	159	166	169	141	134	132
7	Temp (deg C)	18.0	19.0	20.0	22.0	22.0	23.0	28.0	28.0	28.0	26.0	30.0	29.0
8	Turb (NTU)	3.6	2.6	3.0	3.1	3.5	3.9	1.5	1.5	1.4	23.5	19.0	21.2
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	150	146	150	151	152	154	130	131	133	122	120	118
3	Ca (mg/L)	46	46	47	46	46	47	38	39	39	36	36	37
4	Cl (mg/L)	21.6	22.4	23.0	23.2	23.7	24.5	24.5	24.9	23.5	19.5	19.9	20.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.25	0.21	0.18	0.15	0.13	0.14
7	HCO3 (mg/L)	183	178	183	184	186	188	159	160	162	149	146	144
8	K (mg/L)	1.4	1.4	1.5	1.4	1.5	1.5	1.7	1.7	1.6	1.2	1.3	1.3
9	Mg (mg/L)	10.0	8.1	8.2	8.1	8.4	8.4	7.4	7.6	7.8	7.4	6.6	6.1
10	Na (mg/L)	13.5	13.0	13.3	13.2	13.3	13.3	12.9	12.9	12.6	10.4	10.5	11.0
11	NH3-N (mg N/L)	0.10	0.10	0.10	0.09	0.09	0.09	0.07	0.08	0.08	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.60	0.61	0.62	0.60	0.64	0.65	0.34	0.35	0.37	0.26	0.25	0.24
13	NO2-N (mgN/L)	0.05	0.05	0.06	0.05	0.06	0.06	0.04	0.04	0.05	0.03	0.03	0.02
14	NO3-N (mgN/L)	0.55	0.56	0.57	0.54	0.58	0.59	0.30	0.31	0.32	0.23	0.22	0.22
15	o-PO4-P (mg P/L)	0.164	0.172	0.175	0.178	0.181	0.184	0.112	0.117	0.122	0.104	0.094	0.090
16	SiO2 (mg/L)	33.0	34.2	34.4	33.1	33.7	34.5	32.9	33.0	33.2	25.1	24.5	24.3
17	SO4 (mg/L)	8.0	9.1	9.4	8.0	8.2	8.4	7.7	7.8	7.7	5.0	4.5	4.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.0	1.0	1.0	1.0	1.0	0.8	0.8	0.8	0.6	0.8
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	7.3	7.5	7.8	7.2	7.3	7.3	7.0	7.2	7.1	7.4	7.6	7.3
4	DO_SAT% (%)	77	81	86	82	84	85	89	91	91	91	100	94
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	116	116	117	115	115	117	96	96	97	89	90	92
2	HAR_Total (mgCaCO3/L)	157	149	151	148	150	152	126	128	129	120	118	117
3	Na% (%)	16	16	16	16	16	16	18	18	17	16	16	17
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
5	SAR (-)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at Narmadapuram (CW1NAM000278)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division:MNSD-1, Narmadapuram

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	14706	89.1	676.56
2	EC_GEN (µmho/cm)	36	655	138	276
3	pH_GEN (pH units)	36	8.2	7.5	7.8
4	TDS (mg/L)	36	425	95	181
5	Temp (deg C)	36	30.0	16.0	24.3
6	Turb (NTU)	36	967.0	1.4	83.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	230	98	133
3	Ca (mg/L)	36	53	26	38
4	Cl (mg/L)	36	34.8	13.4	20.1
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.25	0.13	0.18
7	HCO3 (mg/L)	36	281	120	162
8	K (mg/L)	36	2.3	1.0	1.6
9	Mg (mg/L)	36	18.3	5.2	8.8
10	Na (mg/L)	36	19.0	7.1	11
11	NH3-N (mg N/L)	36	0.10	0.06	0.08
12	NO2+NO3 (mg N/L)	36	0.77	0.12	0.49
13	NO2-N (mgN/L)	36	0.12	0.01	0.05
14	NO3-N (mgN/L)	36	0.70	0.11	0.44
15	o-PO4-P (mg P/L)	36	0.245	0.090	0.153
16	SiO2 (mg/L)	36	65.7	19.6	30.6
17	SO4 (mg/L)	36	11.4	2.8	7.4
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.4	0.6	1
2	COD (mg/L)	3	6.8	5.4	5.9
3	DO (mg/L)	36	7.9	5.8	7.1
4	DO_SAT% (%)	36	100	70	85
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	132	66	96
2	HAR_Total (mgCaCO3/L)	36	207	100	133
3	Na% (%)	36	20	11	15
4	RSC (-)	36	0.5	0.0	0.1
5	SAR (-)	36	0.6	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period: 2019-24

Station Name: Narmada at Narmadapuram (CW1NAM000278)

Local River : Narmada

Division: Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	1670	325.96	515.05	1995.02	1412.12	364.25	174.25	150.01	159.25	161.45	400.13	131	131.48	105.59	130.75
2	EC_GEN (µmho/cm)	204	237	234	212	220	296	302	297	356	377	219	335	296	273	236
3	pH_GEN (pH units)	7.5	7.5	7.49	7.9	7.7	7.8	7.7	7.75	7.9	7.9	7.6	7.4	7.78	8.1	7.9
4	TDS (mg/L)	126	150	149	131	145	201	223	191	243	239	149	190	175	185	162
5	Temp (deg C)	26.4	26.6	26.75	26.8	25.9	21.8	21.5	19.33	18.6	20.8	25.8	24.5	25.72	25.4	26.2
6	Turb (NTU)	130.8	81.8	35.29	113.2	192.0	17.6	7.3	18.87	12.9	4.8	0.5	7.8	19.97	9.2	8.7
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	90	112	107	100	114	149	153	159	159	154	124	123	124	146	135
3	Ca (mg/L)	22	25	29.24	32	32	34	35	36.83	45	45	28	27	29.26	35	40
4	Cl (mg/L)	7.0	10.9	18.05	16.2	15.7	9.0	15.6	16.82	29.1	23.6	8.2	14.6	16.92	23.6	22.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.08	0.34	NA	NA	NA	0.10	NA	NA	NA	NA	NA	NA	NA	NA	0.18
7	HCO3 (mg/L)	110	137	131	122	139	182	187	194	194	188	151	150	152	179	164
8	K (mg/L)	2.6	2.5	NA	2.4	1.5	1.3	NA	NA	1.90	1.8	1.6	NA	1.43	1.9	1.5
9	Mg (mg/L)	7.6	12.1	10.03	6.3	7.8	12.3	9.4	12.49	10.0	11.1	9.7	6.8	11.76	9.7	7.5
10	Na (mg/L)	7.2	11.4	NA	9.1	8.5	9.4	NA	NA	16.1	13.0	8.9	NA	8.38	13.7	12.2
11	NH3-N (mg N/L)	0.07	0.00	NA	0.05	0.07	0.09	NA	NA	0.07	0.08	0.08	NA	0.05	0.10	0.08
12	NO2+NO3 (mg N/L)	0.84	0.62	0.49	0.99	0.46	0.15	0.44	0.54	0.52	0.59	0.10	0.52	0.40	0.43	0.41
13	NO2-N (mgN/L)	0.30	0.07	0.05	0.04	0.04	0.02	0.05	0.07	0.04	0.08	0.02	0.04	0.14	0.07	0.04
14	NO3-N (mgN/L)	0.53	0.54	0.44	0.95	0.42	0.13	0.39	0.47	0.49	0.51	0.08	0.48	0.26	0.36	0.37
15	o-PO4-P (mg P/L)	0.249	1.368	0.07	0.207	0.139	0.049	0.036	0.09	0.134	0.188	0.042	0.185	0.08	0.089	0.131
16	SiO2 (mg/L)	33.2	17.2	27.09	22.6	24.8	18.5	17.1	19.65	26.9	38.0	18.5	31.4	29.05	24.5	30.5
17	SO4 (mg/L)	11.0	16.5	6.97	8.3	7.0	20.2	8.1	6.45	6.8	8.4	5.3	5.3	4.51	6.6	6.8
	BIOLOGICAL															
1	BOD3-27 (mg/L)	0.9	1.2	1.04	1.8	1.0	0.8	1.3	1.04	1.0	1.1	1.1	1.1	1.99	1.0	0.9
2	COD (mg/L)	24.8	29.0	BDL	BDL	BDL	12.8	BDL	BDL	BDL	5.9	17.0	BDL	6.70	BDL	BDL
3	DO (mg/L)	5.3	5.7	6.36	6.5	6.8	6.7	8.1	7.25	7.4	7.4	6.8	5.6	5.78	7.5	7.2
4	DO_SAT% (%)	66	72	76.60	80	84	76	91	87.74	79	83	84	68	69.96	91	90
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	55	62	73.10	81	80	85	87	92.08	112	112	71	68	73.15	89	101
2	HAR_Total (mgCaCO3/L)	87	112	114	107	113	137	126	143	154	158	111	97	121	129	132
3	Na% (%)	15	19	NA	15	14	13	NA	NA	18	15	14	NA	NA	19	17
4	RSC (-)	0.1	0.4	0.14	0.0	0.1	0.6	0.6	0.31	0.2	0.1	0.3	0.5	0.06	0.4	0.1
5	SAR (-)	0.3	0.5	NA	0.4	0.4	0.4	NA	NA	0.6	0.4	0.4	NA	NA	0.5	0.5

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA-Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.9 Narmada at Sandia

History sheet

		Water Year	: 2023-24
Site	: Narmada at Sandia	Code	: CW1NAU000450
State	: Madhya Pradesh	District	Narmadapuram
Basin	: Narmada	Independent River	: Narmada
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Narmada
Division	: Narmada Division, Bhopal	Sub-Division	: MNSD 1, Narmadapuram
Drainage Area	: 33953.5 Sq. Km.	Bank	: Left
Latitude	: 22°54'57"	Longitude	: 78°20'51"
	Opening Date	Closing Date	
Gauge	: 01/03/1978		
Discharge	: 18/04/1978		
Sediment	: 09/08/1978		
Water Quality	: 15/09/1979		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Sandia (CW1NAU000450)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	112.40	104.70	108.90	507.40	1230.30	1180.00	380.10	2120.00	4547.00	365.50	1056.00	824.30
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Brown	Light Brown	Brown	Brown	Light Brown	Brown	Light Brown
3	EC_GEN (µmho/cm)	187	195	199	201	198	192	295	235	241	251	294	305
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.6	8.1	7.8	7.8	7.8	7.5	7.8	7.6	7.7	7.9	7.7	7.8
6	TDS (mg/L)	127	134	133	134	129	124	192	153	161	170	189	197
7	Temp (deg C)	34.0	31.0	28.0	28.5	26.0	23.5	25.0	25.0	25.0	25.0	26.0	26.0
8	Turb (NTU)	33.7	14.4	10.5	316.0	789.0	810.0	84.1	226.0	175.0	57.9	34.7	15.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	107	105	100	106	107	110	131	133	134	89	91	93
3	Ca (mg/L)	26	27	25	25	27	28	39	38	38	22	23	24
4	Cl (mg/L)	13.3	12.6	14.2	15.3	15.5	16.3	19.8	13.6	13.8	20.3	20.3	20.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	130	128	122	129	130	134	160	162	164	108	111	114
8	K (mg/L)	1.3	1.1	1.2	0.9	0.9	0.9	1.8	1.7	1.8	1.7	1.8	3.3
9	Mg (mg/L)	8.6	8.3	8.6	8.7	8.3	8.0	10.3	10.3	10.2	9.4	9.3	9.4
10	Na (mg/L)	7.0	7.0	7.8	8.5	8.4	8.8	12.5	7.2	7.5	13.1	13.4	14.6
11	NH3-N (mg N/L)	0.05	0.06	0.08	0.09	0.09	0.07	0.08	0.08	0.08	0.07	0.07	0.06
12	NO2+NO3 (mg N/L)	0.23	0.19	0.15	0.34	0.35	0.38	0.82	0.84	0.79	0.52	0.54	0.56
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.04	0.04	0.05	0.06	0.07	0.06	0.05	0.05	0.05
14	NO3-N (mgN/L)	0.21	0.17	0.14	0.30	0.31	0.33	0.75	0.77	0.74	0.47	0.49	0.51
15	o-PO4-P (mg P/L)	0.117	0.130	0.102	0.103	0.112	0.125	0.170	0.178	0.159	0.145	0.150	0.158
16	SiO2 (mg/L)	21.3	18.3	17.7	18.1	18.3	19.3	34.4	34.7	33.8	14.4	14.7	14.9
17	SO4 (mg/L)	3.8	4.5	2.6	4.5	4.3	3.7	11.5	9.7	9.3	7.4	7.2	7.1
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	0.6	0.6	1.2	1.0	0.8	0.6	0.8	0.8	1.2	1.4	1.0
2	DO (mg/L)	6.6	6.9	7.0	7.0	6.7	7.3	7.2	7.4	7.3	7.1	7.3	7.3
3	DO_SAT% (%)	93	93	89	89	83	85	87	89	88	86	90	90
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	65	68	64	63	67	71	96	94	96	56	59	61
2	HAR_Total (mgCaCO3/L)	101	103	99	99	102	104	139	137	138	95	97	100
3	Na% (%)	13	13	14	16	15	15	16	10	10	23	23	23
4	RSC (-)	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.3	0.3	0.6	0.6	0.6

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Sandia (CW1NAU000450)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	493.70	295.80	286.40	216.00	227.50	120.20	176.20	136.80	142.20	105.80	114.60	117.50
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	376	380	284	330	338	345	273	284	289	312	292	281
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.0	8.0	7.9	8.0	8.1	8.1	7.9	7.8	7.8	8.2	8.0	8.2
6	TDS (mg/L)	245	248	252	212	217	223	182	194	199	205	193	184
7	Temp (deg C)	24.0	27.0	26.5	24.0	22.0	22.0	22.0	20.5	22.0	19.5	20.0	20.0
8	Turb (NTU)	47.1	46.3	45.0	3.1	2.8	2.0	17.3	17.0	16.0	7.2	7.0	7.7
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	149	152	148	134	137	141	119	126	123	119	126	142
3	Ca (mg/L)	36	37	38	38	39	41	45	46	45	42	42	45
4	Cl (mg/L)	15.2	14.3	15.0	21.3	20.7	19.9	19.1	19.7	20.1	20.3	20.0	19.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	182	185	181	163	167	172	145	154	150	145	154	173
8	K (mg/L)	1.9	1.9	1.6	1.6	1.5	1.7	1.8	1.8	1.9	1.9	1.8	1.7
9	Mg (mg/L)	15.1	15.3	14.9	8.9	8.9	8.9	12.3	12.3	13.5	10.5	10.2	9.9
10	Na (mg/L)	8.0	8.0	8.1	11.9	10.8	10.4	10.7	10.3	11.1	10.7	10.5	10.4
11	NH3-N (mg N/L)	0.07	0.07	0.07	0.09	0.10	0.10	0.07	0.07	0.08	0.08	0.08	0.08
12	NO2+NO3 (mg N/L)	0.53	0.52	0.53	0.55	0.56	0.58	0.44	0.44	0.45	0.48	0.47	0.46
13	NO2-N (mgN/L)	0.06	0.06	0.06	0.07	0.07	0.07	0.05	0.05	0.06	0.08	0.08	0.07
14	NO3-N (mgN/L)	0.47	0.46	0.47	0.48	0.49	0.50	0.38	0.39	0.39	0.40	0.40	0.38
15	o-PO4-P (mg P/L)	0.172	0.179	0.182	0.170	0.175	0.180	0.123	0.129	0.140	0.206	0.211	0.185
16	SiO2 (mg/L)	36.6	37.0	37.9	29.1	30.1	30.4	27.7	28.1	28.6	31.0	29.4	28.7
17	SO4 (mg/L)	9.8	9.9	9.9	8.4	8.8	9.3	7.3	7.5	7.9	6.5	5.9	5.7
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	0.8	0.8	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1.0	1.0
2	DO (mg/L)	7.9	7.9	8.0	7.0	7.2	7.1	8.0	7.8	7.4	8.1	8.0	8.0
3	DO_SAT% (%)	94	99	98	83	82	81	92	85	84	87	88	88
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	90	91	95	95	97	103	112	114	112	105	106	112
2	HAR_Total (mgCaCO3/L)	153	155	157	132	134	140	163	165	168	149	148	153
3	Na% (%)	10	10	10	16	15	14	12	12	12	13	13	13
4	RSC (-)	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Sandia (CW1NAU000450)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	121.40	107.00	126.80	106.90	98.60	87.01	118.10	110.20	117.20	183.30	138.40	187.40
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	269	269	271	265	268	271	204	210	215	221	215	211
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.2	8.1	8.0	8.0	8.0	8.1	7.9	7.8	7.5	7.6	7.7	7.9
6	TDS (mg/L)	176	182	188	185	188	191	138	142	147	145	139	136
7	Temp (deg C)	20.5	20.0	20.5	21.0	20.0	22.5	25.0	24.0	26.0	28.5	28.5	29.0
8	Turb (NTU)	6.0	8.3	7.5	7.4	7.6	7.1	2.1	2.3	2.2	24.7	21.0	21.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	139	139	142	144	146	148	116	117	121	123	122	120
3	Ca (mg/L)	43	43	44	43	43	44	36	36	36	38	38	39
4	Cl (mg/L)	17.4	19.5	20.1	19.9	20.1	20.3	18.7	18.9	19.0	15.7	15.9	16.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.23	0.19	0.16	0.14	0.12	0.13
7	HCO3 (mg/L)	169	169	173	176	178	180	141	143	148	150	149	147
8	K (mg/L)	1.3	1.4	1.4	1.4	1.4	1.5	1.6	1.6	1.6	1.2	1.3	1.4
9	Mg (mg/L)	8.9	9.1	9.1	9.0	9.3	8.8	6.7	6.9	7.1	6.9	6.2	5.4
10	Na (mg/L)	9.5	10.4	10.6	10.6	10.6	10.7	9.8	9.8	9.9	8.5	8.4	8.5
11	NH3-N (mg N/L)	0.09	0.09	0.10	0.09	0.09	0.09	0.07	0.07	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.64	0.65	0.65	0.62	0.66	0.67	0.29	0.30	0.31	0.26	0.26	0.25
13	NO2-N (mgN/L)	0.06	0.06	0.06	0.06	0.06	0.07	0.05	0.05	0.06	0.03	0.03	0.03
14	NO3-N (mgN/L)	0.58	0.59	0.58	0.56	0.60	0.61	0.24	0.25	0.25	0.23	0.23	0.22
15	o-PO4-P (mg P/L)	0.175	0.180	0.184	0.161	0.165	0.168	0.092	0.097	0.104	0.107	0.100	0.097
16	SiO2 (mg/L)	32.1	33.1	33.2	32.0	32.6	33.7	28.7	28.8	28.9	25.4	25.0	24.8
17	SO4 (mg/L)	3.5	4.2	4.6	4.0	4.4	4.6	5.5	5.5	5.6	5.4	5.1	4.7
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.2	0.8	0.6	0.6	0.8	0.8	0.6	0.6	1.0	0.8	1.0
2	DO (mg/L)	7.7	7.9	7.8	7.6	7.7	7.5	7.2	7.4	7.3	7.2	7.2	7.1
3	DO_SAT% (%)	85	87	86	85	85	86	87	87	90	92	92	92
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	108	108	109	107	108	109	89	90	90	94	95	97
2	HAR_Total (mgCaCO3/L)	145	146	147	144	146	146	117	119	120	123	121	120
3	Na% (%)	12	13	13	14	14	14	15	15	15	13	13	13
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name: Narmada at Sandia (CW1NAU000450)
Local River: Narmada

Division : Narmada Division, Bhopal
Sub-Division:MNSD-1, Narmadapuram

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	10816	77.87	496.15
2	EC_GEN (µmho/cm)	36	380	187	263
3	pH_GEN (pH units)	36	8.2	7.5	7.9
4	TDS (mg/L)	36	252	124	177
5	Temp (deg C)	36	34.0	19.5	24.4
6	Turb (NTU)	36	810.0	2.0	80.6
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	152	89	125
3	Ca (mg/L)	36	46	22	37
4	Cl (mg/L)	36	21.3	12.6	17.8
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.23	0.12	0.16
7	HCO3 (mg/L)	36	185	108	152
8	K (mg/L)	36	3.3	0.9	1.6
9	Mg (mg/L)	36	15.3	5.4	9.5
10	Na (mg/L)	36	14.6	7.0	9.8
11	NH3-N (mg N/L)	36	0.10	0.05	0.08
12	NO2+NO3 (mg N/L)	36	0.84	0.15	0.48
13	NO2-N (mgN/L)	36	0.08	0.01	0.05
14	NO3-N (mgN/L)	36	0.77	0.14	0.43
15	o-PO4-P (mg P/L)	36	0.211	0.092	0.148
16	SiO2 (mg/L)	36	37.9	14.4	27.6
17	SO4 (mg/L)	36	11.5	2.6	6.4
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.4	0.6	0.9
2	DO (mg/L)	36	8.1	6.6	7.4
3	DO_SAT% (%)	36	99	81	88
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	114	56	92
2	HAR_Total (mgCaCO3/L)	36	168	95	131
3	Na% (%)	36	23	10	14
4	RSC (-)	36	0.1	0.0	0
5	SAR (-)	36	0.6	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period: 2019-2024

Station Name : Narmada at Sandia (CW1NAU000450)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-1, Narmadapuram

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	866.8	1431.5	369.35	1211.97	994.25	59.05	139.68	120.37	139.86	147.12	299.7	102.25	106.78	97.37	126.85
2	EC_GEN (μmho/cm)	214	307	223	257	256	388	292	294	238	296	297	288	250	262	231
3	pH_GEN (pH units)	7.5	7.5	7.43	7.9	7.8	7.9	7.8	7.67	7.9	8.0	7.6	7.4	7.88	8.0	7.8
4	TDS (mg/L)	134	193	141	160	173	264	187	192	232	196	207	161	145	178	157
5	Temp (deg C)	28.9	29.3	27.47	26.6	26.7	23.6	25.0	23.13	21.7	21.1	22.8	27.5	26.17	24.4	24.9
6	Turb (NTU)	122.8	79.0	46.73	238.1	180.3	24.5	7.3	6.09	16.1	8.5	0.4	52.0	10.30	7.1	10.6
	CHEMICAL															
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	98	140	152	119	117	185	143	144	154	132	156	116	104	148	129
3	Ca (mg/L)	24	28	47.07	44	30	49	37	36.82	44	43	39	26	29.47	37	39
4	Cl (mg/L)	5.4	12.8	14.42	19.2	16.0	9.0	14.6	15.43	23.3	19.8	10.9	13.6	16.13	17.9	18.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.07	0.20	NA	NA	NA	0.11	NA	NA	NA	NA	NA	NA	NA	NA	0.16
7	HCO3 (mg/L)	119	170	186	145	143	226	174	176	188	161	191	142	127	180	157
8	K (mg/L)	2.8	2.4	NA	2.5	1.6	1.3	NA	NA	1.7	1.7	1.9	NA	1.33	1.8	1.4
9	Mg (mg/L)	14.1	11.5	9.87	7.0	10.3	14.8	10.4	12.18	11.6	10.2	11.5	8.6	9.34	11.6	7.4
10	Na (mg/L)	5.9	22.9	NA	10.7	9.3	9.2	NA	NA	12.7	10.6	15.8	NA	7.27	10.4	9.6
11	NH3-N (mg N/L)	0.08	0.00	NA	0.05	0.07	0.11	NA	NA	0.05	0.08	0.15	NA	0.05	0.09	0.08
12	NO2+NO3 (mg N/L)	0.75	0.70	0.75	0.76	0.49	0.19	0.43	0.41	0.57	0.53	0.11	0.34	0.26	0.41	0.40
13	NO2-N (mgN/L)	0.35	0.03	0.03	0.05	0.05	0.02	0.08	0.15	0.04	0.07	0.02	0.02	0.10	0.08	0.05
14	NO3-N (mgN/L)	0.40	0.67	0.72	0.71	0.44	0.17	0.35	0.26	0.53	0.46	0.09	0.32	0.16	0.33	0.35
15	o-PO4-P (mg P/L)	0.244	0.389	0.10	0.205	0.145	0.070	0.105	0.05	0.136	0.172	0.046	0.076	0.05	0.093	0.121
16	SiO2 (mg/L)	35.4	16.9	30.72	25.1	24.8	21.5	21.0	23.37	26.7	30.1	19.5	30.9	28.11	23.4	28.9
17	SO4 (mg/L)	9.2	13.0	6.12	6.5	7.0	19.9	5.5	5.05	7.3	6.6	5.8	4.5	3.31	6.4	5.0
	BIOLOGICAL															
1	BOD3-27 (mg/L)	0.6	1.6	0.90	1.6	0.9	0.8	1.1	0.94	0.9	1.0	1.1	1.0	1.88	1.1	0.7
2	COD (mg/L)	22.0	32.5	BDL	BDL	BDL	15.8	BDL	5	BDL	BDL	13.5	BDL	BDL	BDL	BDL
3	DO (mg/L)	5.5	6.3	6.38	6.6	7.2	6.1	7.9	7.56	7.6	7.7	5.7	4.7	6.85	7.4	7.3
4	DO_SAT% (%)	71	82	77.26	82	90	72	95	91.56	86	86	66	60	82.92	88	88
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	61	70	118	109	76	122	93	92.05	111	107	97	66	73.68	93	98
2	HAR_Total (mgCaCO3/L)	120	118	158	138	119	184	136	142	159	149	145	102	112	141	128
3	Na% (%)	10	26	NA	14	15	10	NA	NA	15	13	19	NA	NA	14	14
4	RSC (-)	0.1	0.5	0.11	0.0	0.0	0.3	0.1	0.05	0.1	0.0	0.0	0.3	0.16	0.2	0.0
5	SAR (-)	0.2	0.8	NA	0.4	0.4	0.3	NA	NA	0.4	0.4	0.3	0.6	NA	0.4	0.4

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.10 Shakkar at Gadarwara**History sheet**

		Water Year	: 2023-24
Site	: Shakkar at Gadarwara	Code	: CW1NAU000391
State	: Madhya Pradesh	District	: Narsinghpur
Basin	: Narmada	Independent River	: Narmada
Tributary	: Shakkar	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Shakkar
Division	: NARMADA DIVISION BHOPAL	Sub-Division	: MNSD-1 NARMADAPURAM
Drainage Area	: 2270 Sq. Km.	Bank	: Left
Latitude	: 22°55'26"	Longitude	: 78°47'30"
		Opening Date	Closing Date
Gauge	: 01/02/1977		
Discharge	: 01/02/1977		
Sediment	: 15/06/1978		
Water Quality	: 16/06/1979		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Shakkar at Gadarwara (CW1NAU000391)

Local River : Shakkar

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	0.00	0.00	0.00	165.62	322.66	558.87	392.95	498.45	609.43	375.17	582.68	467.17
2	Colour_Cod (-)	River Dry			Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (µmho/cm)				171	164	160	299	272	279	263	117	128
4	Odour_Code (-)				odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)				7.8	7.7	7.6	7.7	7.6	7.6	7.8	7.5	7.6
6	TDS (mg/L)				117	108	105	193	177	186	177	79	86
7	Temp (deg C)				21.0	22.0	22.0	21.0	22.0	21.0	22.0	22.0	21.0
8	Turb (NTU)				310.0	809.0	956.0	96.3	51.3	47.8	11.2	9.1	4.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)				119	121	126	130	132	134	93	96	98
3	Ca (mg/L)				30	31	33	39	38	39	25	26	27
4	Cl (mg/L)				16.1	15.9	17.1	17.5	14.2	14.8	18.7	18.1	14.4
5	CO3 (mg/L)				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)				*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)				145	148	154	158	161	164	114	117	119
8	K (mg/L)				0.9	0.9	1.0	0.8	0.8	0.9	0.8	0.8	0.8
9	Mg (mg/L)				17.7	17.6	17.1	9.6	9.5	9.5	10.3	9.9	5.9
10	Na (mg/L)				8.9	8.7	9.1	11.0	7.5	7.9	9.7	9.3	7.7
11	NH3-N (mg N/L)				0.08	0.09	0.07	0.07	0.08	0.08	0.07	0.07	0.08
12	NO2+NO3 (mg N/L)				1.47	1.48	1.53	0.73	0.75	0.70	0.72	0.73	0.72
13	NO2-N (mgN/L)				0.07	0.08	0.08	0.05	0.06	0.05	0.05	0.06	0.06
14	NO3-N (mgN/L)				1.39	1.40	1.45	0.68	0.69	0.65	0.66	0.67	0.66
15	o-PO4-P (mg P/L)				0.307	0.319	0.334	0.165	0.173	0.154	0.140	0.142	0.150
16	SiO2 (mg/L)				43.7	44.1	45.2	35.6	36.0	35.0	18.5	18.7	18.9
17	SO4 (mg/L)				9.9	9.5	9.1	11.3	11.6	11.4	7.5	7.3	7.4
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)				1.4	1.0	1.3	0.6	0.8	0.8	1.0	1.2	1.2
2	COD (mg/L)												
3	DO (mg/L)				6.0	5.8	6.3	6.8	7.0	6.9	7.3	7.5	7.5
4	DO_SAT% (%)				67	66	72	76	80	77	84	86	84
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)				74	78	82	98	96	98	62	65	68
2	HAR_Total (mgCaCO3/L)				148	151	153	138	136	137	105	107	93
3	Na% (%)				12	11	11	15	11	11	17	16	15
4	RSC (-)				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
5	SAR (-)				0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Shakkar at Gadarwara (CW1NAU000391)

Local River : Shakkar

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	176.84	110.27	85.30	61.00	47.00	25.00	25.64	14.46	9.33	8.83	7.60	7.02
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	322	327	331	465	480	503	488	498	503	522	512	506
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.0	8.0	7.9	8.0	8.0	8.1	7.8	7.7	7.6	7.9	8.0	7.9
6	TDS (mg/L)	206	208	212	284	308	325	316	328	334	338	332	329
7	Temp (deg C)	22.0	24.0	23.0	23.0	22.0	21.0	21.0	22.0	21.0	20.0	19.0	19.0
8	Turb (NTU)	18.7	16.8	15.4	4.6	4.6	4.2	6.4	6.3	6.1	4.0	3.7	4.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	130	131	135	166	171	176	216	214	211	199	195	191
3	Ca (mg/L)	34	34	35	51	53	54	54	54	53	52	53	55
4	Cl (mg/L)	13.7	13.7	13.9	21.8	22.0	22.2	23.4	23.9	24.9	34.4		31.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	158	160	165	203	209	215	263	261	258	243	238	233
8	K (mg/L)	0.8	0.8	0.8	1.1	1.1	1.3	1.9	1.8	1.4	2.0	2.0	1.9
9	Mg (mg/L)	11.9	12.1	12.0	13.4	13.6	13.3	15.8	16.2	16.3	16.2	14.9	16.2
10	Na (mg/L)	7.5	7.5	7.6	14.8	16.0	16.7	16.9	16.6	17.0	18.4	17.6	16.6
11	NH3-N (mg N/L)	0.09	0.08	0.08	0.10	0.10	0.11	0.08	0.09	0.08	0.08	0.08	0.08
12	NO2+NO3 (mg N/L)	0.41	0.42	0.43	1.09	1.11	1.15	0.60	0.60	0.62		1.21	1.19
13	NO2-N (mgN/L)	0.05	0.06	0.06	0.14	0.15	0.16	0.09	0.10	0.10	0.12	0.12	0.12
14	NO3-N (mgN/L)	0.35	0.36	0.38	0.95	0.96	0.99	0.50	0.51	0.52		1.09	1.08
15	o-PO4-P (mg P/L)	0.152	0.160	0.162	0.210	0.219	0.228	0.200	0.205	0.213	1.097	0.277	0.266
16	SiO2 (mg/L)	30.4	30.8	31.6	50.4	51.5	52.1	48.5	50.1	50.4	53.0	51.3	50.0
17	SO4 (mg/L)	9.2	9.3	9.5	11.2	13.1	14.4	10.6	9.9	9.9	12.1	33.3	10.3
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.0	1.2	1.0	1.0	1.0	1.0	0.8	1.0	1.0	1.2
2	COD (mg/L)	BDL	BDL	BDL	5.5	5.7	BDL	5.6	5.0	BDL	5.7	5.2	5.6
3	DO (mg/L)	7.1	7.3	7.4	7.2	7.4	7.3	8.0	8.0	7.8	7.5	7.4	7.6
4	DO_SAT% (%)	81	87	86	83	84	82	90	91	87	82	80	82
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	85	86	89	127	132	136	135	136	133	130	132	137
2	HAR_Total (mgCaCO3/L)	135	136	138	183	188	191	200	204	201	198	194	204
3	Na% (%)	11	11	11	15	16	16	15	15	15	17	16	15
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.1	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Shakkar at Gadarwara (CW1NAU000391)

Local River : Shakkar

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	6.54	5.77	4.71	3.71	2.34	1.48	0.97	0.58	0.00	0.00	0.00	0.00
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	River Dry			
3	EC_GEN (µmho/cm)	530	518	523	527	532	535	382	388				
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free				
5	pH_GEN (pH units)	7.8	8.1	8.0	8.0	8.0	8.0	7.9	7.7				
6	TDS (mg/L)	346	336	340	342	345	347	256	258				
7	Temp (deg C)	21.0	20.0	21.0	20.0	20.0	21.0	22.0	20.0				
8	Turb (NTU)	2.3	2.6	2.5	2.4	2.9	3.3	0.6	0.4				
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
2	ALK-TOT (mgCaCO3/L)	203	196	200	202	204	206	170	171				
3	Ca (mg/L)	57	57	57	56	57	57	58	58				
4	Cl (mg/L)	26.6	27.2	27.8	27.2	27.8	28.1	36.9	37.5				
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
6	F (mg/L)	*	*	*	*	*	*	0.28	0.25				
7	HCO3 (mg/L)	248	239	244	247	249	251	207	209				
8	K (mg/L)	1.0	1.1	1.2	1.1	1.2	1.2	1.4	1.5				
9	Mg (mg/L)	16.2	14.9	15.1	14.8	15.0	14.9	6.5	6.8				
10	Na (mg/L)	18.5	19.7	19.9	19.8	19.9	20.0	21.2	21.2				
11	NH3-N (mg N/L)	0.09	0.10	0.10	0.09	0.09	0.09	0.07	0.07				
12	NO2+NO3 (mg N/L)	1.37	1.35	1.34	1.32	1.35	1.37	0.77	0.78				
13	NO2-N (mgN/L)	0.12	0.12	0.12	0.12	0.12	0.13	0.12	0.13				
14	NO3-N (mgN/L)	1.24	1.23	1.22	1.20	1.23	1.24	0.64	0.65				
15	o-PO4-P (mg P/L)	0.365	0.360	0.356	0.341	0.345	0.348	0.225	0.228				
16	SiO2 (mg/L)	59.3	57.2	57.4	54.9	55.6	55.8	44.9	45.1				
17	SO4 (mg/L)	5.7	6.2	6.5	6.2	6.5	6.8	10.9	11.0				
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	1.0	1.0	0.8	0.8	0.8	1.2	1.2				
2	COD (mg/L)	5.5	5.8	5.8	5.6	5.5	5.6	5.4	5.7				
3	DO (mg/L)	7.9	7.7	7.4	7.4	7.5	7.7	6.6	6.8				
4	DO_SAT% (%)	89	85	83	81	83	87	75	74				
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	142	142	143	141	141	143	145	146				
2	HAR_Total (mgCaCO3/L)	209	204	206	202	204	205	172	174				
3	Na% (%)	16	17	17	18	17	17	21	21				
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
5	SAR (-)	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7				

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Shakkar at Gadarwara (CW1NAU000391)

Division : Narmada Division, Bhopal

Local River : Shakkar

Sub-Division:MNSD-1, Narmadapuram

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	1650.76	0	133.82
2	EC_GEN (µmho/cm)	29	535	117	388
3	pH_GEN (pH units)	29	8.1	7.5	7.8
4	TDS (mg/L)	29	347	79	252
5	Temp (deg C)	29	24.0	19.0	21.2
6	Turb (NTU)	29	956.0	0.4	83
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	29	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	29	216	93	163
3	Ca (mg/L)	29	58	25	46
4	Cl (mg/L)	28	37.5	13.7	22.5
5	CO3 (mg/L)	29	0.0	0.0	0
6	F (mg/L)	2	0.28	0.25	0.27
7	HCO3 (mg/L)	29	263	114	199
8	K (mg/L)	29	2.0	0.8	1.2
9	Mg (mg/L)	29	17.7	5.9	13.2
10	Na (mg/L)	29	21.2	7.5	14.2
11	NH3-N (mg N/L)	29	0.11	0.07	0.08
12	NO2+NO3 (mg N/L)	28	1.53	0.41	0.97
13	NO2-N (mgN/L)	29	0.16	0.05	0.1
14	NO3-N (mgN/L)	28	1.45	0.35	0.88
15	o-PO4-P (mg P/L)	29	1.097	0.140	0.27
16	SiO2 (mg/L)	29	59.3	18.5	44
17	SO4 (mg/L)	29	33.3	5.7	10.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	29	1.4	0.6	1
2	COD (mg/L)	15	5.8	5.0	5.5
3	DO (mg/L)	29	8.0	5.8	7.2
4	DO_SAT% (%)	29	91	66	82
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	29	146	62	114
2	HAR_Total (mgCaCO3/L)	29	209	93	170
3	Na% (%)	29	21	11	15
4	RSC (-)	29	0.3	0.0	0
5	SAR (-)	29	0.7	0.3	0.5

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2019-24

Station Name : Shakkar at Gadarwara (CW1NAU000391)

Local River : Shakkar

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

S.No	Parameters	Flood Jun - Oct					Winter Nov - Feb					Summer Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2018	2019	2020	2021	2024
	PHYSICAL															
1	Q (cumec)	154.7	123.37	76.42	236.18	307.35	3.29	4.24	7.24	4.3	15.52	0.49	0.63	0.17	0.63	0.81
2	EC_GEN (µmho/cm)	207	276	259	267	236	464	493	506	531	504	328	467	632	447	473
4	pH_GEN (pH units)	7.6	7.6	7.40	8.0	7.7	7.7	7.5	7.46	7.9	7.9	7.6	7.5	7.53	7.9	7.9
5	TDS (mg/L)	134	171	164	167	155	311	288	322	353	326	211	262	366	322	310
6	Temp (deg C)	23.0	25.3	27.35	22.8	21.9	22.8	17.3	21.08	18.8	20.8	24.0	21.7	21.75	22.1	20.6
7	Turb (NTU)	143.3	21.4	48.23	145.3	195.5	24.5	6.8	3.44	6.3	4.3	0.2	5.7	9.08	4.4	1.9
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	91	134	134	127	120	180	245	215	183	195	138	221	167	222	191
3	Ca (mg/L)	26	30	30.67	37	33	48	55	47.45	55	54	31	35	50.64	45	57
4	Cl (mg/L)	9.0	11.8	17.19	14.5	15.7	16.3	22.1	23.27	28.1	26.0	7.9	33.1	34.68	40.4	31.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.08	0.33	NA	NA	NA	0.11	NA	NA	NA	NA	NA	NA	NA	NA	0.27
7	HCO3 (mg/L)	112	164	164	155	147	220	299	262	224	238	168	269	326	271	233
8	K (mg/L)	3.1	2.3	NA	1.6	0.8	1.2	NA	NA	1.2	1.5	3.7	NA	RD	1.7	1.3
9	Mg (mg/L)	7.8	15.3	10.62	9.1	11.9	20.3	21.1	21.88	13.0	15.2	15.9	16.8	29.13	21.3	11.6
10	Na (mg/L)	4.6	10.3	NA	7.9	8.5	12.0	NA	NA	16.9	17.4	20.9	NA	RD	21.2	20.4
11	NH3-N (mg N/L)	0.09	0.00	NA	0.05	0.08	0.15	NA	NA	0.04	0.09	0.14	NA	RD	0.09	0.08
12	NO2+NO3 (mg N/L)	0.86	1.06	1.33	1.08	0.84	0.24	1.93	2.31	1.56	1.06	0.43	0.94	0.90	0.78	1.12
13	NO2-N (mgN/L)	0.05	0.04	0.11	0.15	0.06	0.03	0.63	1.01	0.09	0.12	0.04	0.02	0.41	0.16	0.12
14	NO3-N (mgN/L)	0.81	1.02	1.22	0.93	0.78	0.21	1.29	1.30	1.47	0.94	0.40	0.92	0.50	0.62	0.99
15	o-PO4-P (mg P/L)	0.284	0.325	0.10	0.325	0.197	0.077	0.226	0.14	0.214	0.333	0.096	0.411	0.09	0.172	0.297
16	P-Tot (mgP/L)															
17	SiO2 (mg/L)	27.8	22.7	20.94	36.6	32.4	26.4	25.9	26.56	37.4	52.6	17.4	41.4	28.23	44.6	51.3
18	SO4 (mg/L)	14.1	11.1	7.77	7.3	9.4	24.2	12.6	10.92	11.0	11.9	4.9	8.9	23.43	8.1	8.3
	BIOLOGICAL															
1	BOD3-27 (mg/L)	1.1	1.0	0.97	1.5	1.0	1.6	2.1	1.27	0.8	1.0	1.6	1.2	2.07	1.8	1.0
2	COD (mg/L)	28.0	37.0	BDL	BDL	BDL	15.5	BDL	6.24	5.9	5.5	16.5	BDL	7.50	5.3	5.6
3	DO (mg/L)	4.2	5.9	6.17	6.5	6.9	7.0	6.7	7.66	7.6	7.6	7.5	6.4	5.90	6.6	7.2
4	DO_SAT% (%)	50	71	74.73	75	79	82	70	92.75	82	85	89	72	71.37	76	80
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	66	76	76.68	92	82	119	137	119	137	135	78	89	127	112	143
2	HAR_Total (mgCaCO3/L)	98	140	120	130	131	203	225	209	191	199	144	159	246	201	191
3	Na% (%)	9	15	NA	11	13	11	NA	NA	17	16	25	NA	NA	19	19
4	RSC (-)	0.0	0.3	0.28	0.0	0.0	0.1	0.4	0.13	0.2	0.1	0.2	1.3	0.42	0.5	0.0
5	SAR (-)	0.2	0.4	NA	0.3	0.3	0.4	NA	NA	0.6	0.5	0.8	NA	NA	0.7	0.6

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.11 Narmada at Barmanghat

History Sheet

		Water Year	: 2023-24
Site	: Narmada at Barmanghat	Code	: CW1NAU000188
	Madhya Pradesh		
State	: Pradesh	District	Narmadapuram
		Independent River	: Narmada
Basin	: Narmada	Sub Tributary	:
Tributary	:	Local River	: Narmada
Sub-Sub Tributary	:	Sub-Division	: MNSD-1 CWC Narmadapuram
Division	: Narmada division Bhopal	Bank	: Right
Drainage Area	: 26453 Sq. Km.	Longitude	: 79°00'56"
Latitude	: 23°01'51"	Closing Date	
	Opening Date		
Gauge	: 09/12/1970		
Discharge	: 20/11/1971		
Sediment	: 27/08/1972		
Water Quality	: 01/06/1979		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Barmanghat (CW1NAU000188)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	135.00	99.10	105.00	514.70	1076.30	900.50	328.60	1868.50	2824.20	386.70	592.70	681.50
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Brown	Light Brown	Brown	Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (µmho/cm)	197	185	194	168	160	154	257	175	182	205	261	269
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.6	8.2	7.8	7.7	7.7	7.5	7.6	7.4	7.5	7.7	7.5	7.7
6	TDS (mg/L)	131	132	136	113	106	102	168	119	127	141	170	179
7	Temp (deg C)	28.0	29.0	29.0	28.0	27.0	28.0	27.0	29.0	30.0	29.0	26.0	26.0
8	Turb (NTU)	11.1	7.2	6.7	278.0	871.0	859.0	88.3	309.0	196.0	43.8	25.8	15.5
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	111	102	101	110	110	113	125	127	130	123	129	91
3	Ca (mg/L)	29	27	27	29	40	30	29	29	29	33	34	35
4	Cl (mg/L)	13.3	13.2	13.2	18.2	17.6	18.1	20.8	15.5	15.7	16.9	15.4	14.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	135	124	123	134	134	138	152	155	158	150	157	111
8	K (mg/L)	1.2	1.1	1.1	1.0	1.0	1.1	1.6	1.7	1.8	1.5	1.4	1.4
9	Mg (mg/L)	9.2	9.3	7.2	8.5	9.1	9.3	11.6	11.6	11.4	8.8	8.6	8.6
10	Na (mg/L)	7.2	7.0	7.9	9.7	9.5	9.8	13.4	8.1	8.7	8.6	8.1	7.5
11	NH3-N (mg N/L)	0.05	0.06	0.08	0.08	0.08	0.06	0.07	0.07	0.07	0.08	0.07	0.07
12	NO2+NO3 (mg N/L)	0.25	0.25	0.20	0.33	0.34	0.36	0.77	0.80	0.75	0.57	0.59	0.60
13	NO2-N (mgN/L)	0.02	0.01	0.01	0.04	0.04	0.04	0.06	0.06	0.05	0.05	0.05	0.06
14	NO3-N (mgN/L)	0.23	0.23	0.19	0.29	0.30	0.32	0.71	0.73	0.70	0.52	0.54	0.55
15	o-PO4-P (mg P/L)	0.136	0.149	0.120	0.133	0.142	0.156	0.167	0.175	0.157	0.142	0.145	0.153
16	SiO2 (mg/L)	26.5	23.4	22.3	22.6	22.9	23.8	35.4	35.7	34.9	21.7	22.1	22.3
17	SO4 (mg/L)	1.2	1.9	2.7	2.4	1.8	1.4	9.9	9.8	9.5	8.0	7.7	7.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	0.6	0.6	1.2	1.2	1.2	1.4	0.6	0.6	0.8	1.0	0.8
2	DO (mg/L)	7.0	7.3	7.4	6.4	6.1	6.7	5.8	7.4	7.3	7.5	7.7	7.7
3	DO_SAT% (%)	89	95	96	81	77	85	73	96	96	98	95	95
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	73	67	66	72	99	76	74	72	73	82	85	87
2	HAR_Total (mgCaCO3/L)	112	106	96	107	137	114	122	120	121	119	121	123
3	Na% (%)	12	12	15	16	13	16	19	13	13	13	13	12
4	RSC (-)	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.1	0.2	0.0
5	SAR (-)	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.3	0.3	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Barmanghat (CW1NAU000188)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	03-10-2022	11-10-2022	21-10-2022	01-11-2022	14-11-2022	21-11-2022	01-12-2022	12-12-2022	21-12-2022	03-01-2023	12-01-2023	24-01-2023
	PHYSICAL												
1	Q (cumec)	698.00	251.00	226.20	211.00	177.00	173.00	119.00	96.90	122.00	108.00	127.00	120.00
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (μmho/cm)	195	198	216	222	218	257	326	424	425	291	288	276
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.2	8.2	7.9	7.5	8.2	7.7	7.8	8.1	8.1	8.0	8.0	8.0
6	TDS (mg/L)	136	138	155	158	155	188	237	341	241	198	194	186
7	Temp (deg C)	28.0	28.0	27.0	25.0	23.0	22.0	22.0	22.0	20.0	19.0	18.0	18.0
8	Turb (NTU)	43.7	41.1	38.1	11.2	5.5	11.8	3.8	4.7	4.7	0.3	8.0	8.5
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	128	129	132	126	128	185	159	179	179	159	157	156
3	Ca (mg/L)	32	32	32	31	31	32	42	43	44	50	51	49
4	Cl (mg/L)	15.8	15.6	15.4	20.7	20.9	21.3	21.2	21.3	21.2	18.6	18.9	17.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	HCO3 (mg/L)	156	157	161	154	156	226	194	218	218	194	192	190
7	K (mg/L)	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.7
8	Mg (mg/L)	11.2	11.3	11.4	10.7	10.5	11.0	12.5	17.0	17.1	6.4	6.6	6.4
9	Na (mg/L)	8.3	8.4	8.1	10.8	11.0	11.1	11.1	11.1	11.2	10.8	11.0	10.9
10	NH3-N (mg N/L)	0.08	0.04	0.04	0.09	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04
11	NO2+NO3 (mg N/L)	1.14	1.16	1.19	0.56	0.58	0.59	0.58	0.60	0.61	0.15	0.30	0.28
12	NO2-N (mgN/L)	0.04	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03
13	NO3-N (mgN/L)	1.10	1.12	1.15	0.52	0.54	0.55	0.54	0.56	0.57	0.12	0.28	0.25
14	o-PO4-P (mg P/L)	0.182	0.192	0.207	0.166	0.169	0.161	0.151	0.155	0.147	0.030	0.130	0.116
15	SiO2 (mg/L)	18.6	19.0	21.0	29.5	29.2	29.4	29.1	28.7	28.1	22.0	22.1	21.7
16	SO4 (mg/L)	7.6	7.7	7.9	7.2	7.4	7.2	7.4	7.3	7.5	8.5	8.4	8.7
	BIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	0.8	0.8	1.0	0.8	1.0	0.8	1.0	1.0	0.8	0.8
2	DO (mg/L)	7.0	7.1	7.5	7.4	7.6	7.1	7.3	7.5	7.5	7.7	7.3	7.3
3	DO_SAT% (%)	89	91	94	89	88	82	84	86	82	83	77	77
4	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	79	80	81	77	79	81	105	108	111	125	127	123
2	HAR_Total (mgCaCO3/L)	126	127	128	121	123	127	157	179	182	151	155	149
3	Na% (%)	12	12	12	16	16	16	13	12	12	13	13	14
4	RSC (-)	0.1	0.1	0.1	0.1	0.1	1.2	0.1	0.0	0.0	0.2	0.1	0.1
5	SAR (-)	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Barmanghat (CW1NAU000188)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	120.00	98.60	114.00	78.30	91.90	83.80	152.00	126.00	113.00	178.00	108.00	180.00
2	Colour_ Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	245	252	258	254	258	261	235	238	235	210	203	198
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.8	8.1	8.0	8.0	8.0	8.0	7.5	7.7	7.7	7.7	7.8	7.6
6	TDS (mg/L)	160	168	172	168	173	175	162	165	163	138	135	130
7	Temp (deg C)	19.0	20.0	22.0	20.0	23.0	22.0	27.0	26.0	28.0	28.0	27.0	28.0
8	Turb (NTU)	3.9	3.3	3.6	3.5	3.8	4.2	1.4	1.2	1.2	6.9	6.0	7.2
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	130	134	139	140	141	143	131	132	131	120	118	116
3	Ca (mg/L)	38	39	40	39	40	40	38	38	38	38	39	37
4	Cl (mg/L)	14.4	17.2	17.2	16.8	17.2	16.8	14.6	15.0	15.4	15.3	15.5	15.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	159	164	169	171	172	174	160	161	160	146	144	142
8	K (mg/L)	1.3	1.4	1.5	1.4	1.5	1.5	1.4	1.5	1.4	1.1	1.1	1.2
9	Mg (mg/L)	9.5	9.4	9.4	9.2	9.1	9.1	7.6	7.7	7.9	6.3	5.4	5.7
10	Na (mg/L)	7.6	8.9	9.0	8.9	9.0	9.0	7.9	7.9	8.0	8.1	8.2	8.4
11	NH3-N (mg N/L)	0.09	0.09	0.09	0.08	0.09	0.09	0.07	0.07	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.62	0.62	0.64	0.62	0.65	0.66	0.35	0.36	0.37	0.26	0.26	0.25
13	NO2-N (mgN/L)	0.05	0.06	0.06	0.06	0.06	0.06	0.04	0.04	0.05	0.04	0.04	0.04
14	NO3-N (mgN/L)	0.56	0.57	0.58	0.56	0.59	0.60	0.31	0.31	0.32	0.22	0.22	0.21
15	o-PO4-P (mg P/L)	0.169	0.180	0.184	0.176	0.179	0.183	0.115	0.120	0.125	0.102	0.097	0.094
16	SiO2 (mg/L)	31.5	32.6	32.7	31.5	32.2	33.0	33.0	33.1	33.3	24.9	24.5	24.1
17	SO4 (mg/L)	3.5	4.3	4.6	4.4	4.8	5.0	7.6	7.6	7.7	4.6	3.9	3.7
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	0.8	0.6	0.4	0.8	1.2	0.8	0.8	0.8	0.6	0.8
2	DO (mg/L)	7.7	7.9	7.8	7.4	7.3	7.5	6.8	7.0	6.9	7.2	7.4	7.1
3	DO_SAT% (%)	83	87	90	81	85	86	85	86	88	91	92	90
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	95	98	100	98	99	100	95	96	96	95	96	93
2	HAR_Total (mgCaCO3/L)	134	138	139	136	137	138	127	128	129	121	119	117
3	Na% (%)	11	12	12	12	12	12	12	12	12	13	13	13
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name:Narmada at Barmanghat (CW1NAU000188)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division:MNSD-1, Narmadapuram

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	11270	64.1	425.27
2	EC_GEN (µmho/cm)	36	308	154	232
3	pH_GEN (pH units)	36	8.2	7.4	7.8
4	TDS (mg/L)	36	198	102	155
5	Temp (deg C)	36	30.0	19.0	25.2
6	Turb (NTU)	36	871.0	1.2	82.5
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	143	88	120
3	Ca (mg/L)	36	44	23	35
4	Cl (mg/L)	36	21.1	13.2	16.6
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.17	0.12	0.15
7	HCO3 (mg/L)	36	174	107	147
8	K (mg/L)	36	2.0	1.0	1.4
9	Mg (mg/L)	36	11.6	5.4	8.6
10	Na (mg/L)	36	13.4	7.0	8.9
11	NH3-N (mg N/L)	36	0.10	0.05	0.08
12	NO2+NO3 (mg N/L)	36	0.80	0.20	0.46
13	NO2-N (mgN/L)	36	0.07	0.01	0.05
14	NO3-N (mgN/L)	36	0.73	0.19	0.41
15	o-PO4-P (mg P/L)	36	0.184	0.094	0.142
16	SiO2 (mg/L)	36	35.7	21.7	27.2
17	SO4 (mg/L)	36	9.9	1.2	5.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.4	0.4	0.9
2	DO (mg/L)	36	7.9	5.8	7.2
3	DO_SAT% (%)	36	98	73	88
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	111	56	87
2	HAR_Total (mgCaCO3/L)	36	144	91	123
3	Na% (%)	36	19	11	14
4	RSC (-)	36	0.2	0.0	0
5	SAR (-)	36	0.5	0.3	0.4
	PESTICIDES				

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2019-2024

Station Name : Narmada at Barmanghat (CW1NAU000188)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-1, Narmadapuram

River Water

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2022-23	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	677.5	664.44	271.38	839.42	838.48	151.3	101.06	109.29	122.41	132.85	57.50	91.65	100.75	88.58	122.69
2	EC_GEN (µmho/cm)	198	244	228	209	204	276	265	257	293	266	346	249	244	232	232
3	pH_GEN (pH units)	7.5	7.5	7.39	7.8	7.7	7.7	7.6	7.5	7.8	7.9	7.6	7.3	7.78	8.0	7.8
4	TDS (mg/L)	123	155	135	128	137	180	210	167	200	175	252	145	147	155	157
5	Temp (deg C)	27.6	28.1	27.4	28.1	27.8	23.0	23.5	21.0	20.4	21.8	25.5	25.5	25.89	25.3	25.4
6	Turb (NTU)	161.3	84.0	16.4	252.2	191.7	20.4	7.8	5.2	6.9	5.0	0.3	6.8	6.26	7.6	3.9
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	86	118	103	118	110	118	126	229	157	127	205	102	104	136	130
3	Ca (mg/L)	23	27	26.78	32	29	32	32	30.89	42	39	38	25	29.14	34	39
4	Cl (mg/L)	6.0	14.2	15.77	14.0	15.5	8.0	16.5	13.90	19.7	18.6	7.9	18.0	15.6	15.0	15.8
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.09	0.16	NA	NA	NA	0.10	NA	NA	NA	NA	NA	NA	NA	NA	0.15
7	HCO3 (mg/L)	105	144	126	144	134	144	153	158	191	154	250	124	127	165	159
8	K (mg/L)	2.6	2.4	NA	2.2	1.3	1.1	NA	NA	1.7	1.7	1.7	NA	1.26	1.5	1.3
9	Mg (mg/L)	7.1	10.8	8.85	6.3	9.2	14.2	9.2	11.54	9.7	8.6	17.9	7.9	7.41	12.0	7.5
10	Na (mg/L)	6.1	9.7	NA	7.9	8.5	7.0	NA	NA	11.0	9.8	15.5	NA	6.48	8.2	8.4
11	NH3-N (mg N/L)	0.07	NA	NA	0.05	0.07	0.08	NA	NA	0.05	0.08	0.16	NA	0.04	0.10	0.08
12	NO2+NO3 (mg N/L)	0.80	0.69	0.51	0.75	0.46	0.25	0.36	0.38	0.43	0.49	0.47	0.38	0.19	0.48	0.42
13	NO2-N (mgN/L)	0.04	0.02	0.04	0.05	0.04	0.02	0.06	0.03	0.03	0.06	0.04	0.02	0.04	0.07	0.05
14	NO3-N (mgN/L)	0.75	0.67	0.48	0.70	0.42	0.23	0.29	0.36	0.39	0.44	0.43	0.36	0.15	0.41	0.37
15	o-PO4-P (mg P/L)	0.182	0.262	0.06	0.148	0.145	0.055	0.027	0.05	0.130	0.147	0.040	0.048	0.05	0.102	0.132
16	SiO2 (mg/L)	26.7	20.0	30.27	23.2	25.5	19.1	20.5	18.4	25.5	27.3	22.3	24.1	24.95	29.3	30.0
17	SO4 (mg/L)	11.1	17.0	3.41	8.7	5.7	18.1	5.6	4.87	7.4	6.2	7.5	5.3	3.92	6.2	5.5
	BIOLOGICAL															
1	BOD3-27 (mg/L)	0.8	1.7	1.10	1.7	0.9	1.2	1.4	0.98	0.8	1.0	1.0	0.9	1.92	0.8	0.8
2	COD (mg/L)	24.6	34.0	BDL	BDL	BDL	50.5	BDL	BDL	BDL	BDL	20.5	BDL	BDL	BDL	BDL
3	DO (mg/L)	5.6	6.6	6.38	6.3	7.1	6.6	7.8	7.70	7.5	7.5	6.7	5.9	6.05	6.9	7.2
4	DO_SAT% (%)	71	84	77.24	77	91	77	91	93.2	84	85	81	71	73.20	83	87
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	57	67	67	87	73	79	80	77	105	97	95	63	73	85	96
2	HAR_Total (mgCaCO3/L)	86	112	103	113	112	138	119	125	145	133	169	96	103	134	128
3	Na% (%)	13	17	NA	105	14	10	NA	NA	144	14	17	NA	NA	134	12
4	RSC (-)	0.0	0.3	0.0	14	0.1	0.0	0.2	0.10	14	0.0	0.7	0.2	0.02	12	0.1
5	SAR (-)	0.3	0.4	NA	0.3	0.4	0.3	NA	NA	0.3	0.4	0.5	NA	NA	0.1	0.3

3.12 Sher at Belkheri

History sheet

		Water Year	: 2023-24
Site	: Sher at Belkheri	Code	: CW1NAU000395
State	: Madhya Pradesh	District	Narsinghpur
Basin	: Narmada	Independent River	: Narmada
Tributary	: Sher	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Sher
Division	: NARMADA DIVISION BHOPAL	Sub-Division	: MNSD-1 NARMADAPURAM
Drainage Area	: 1508 Sq. Km.	Bank	: Right
Latitude	: 22°55'40"	Longitude	: 79°20'23"
	Opening Date	Closing Date	
Gauge	: 16/03/1977		
Discharge	: 16/03/1977		
Sediment	: ----		
Water Quality	: 01/09/1986		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Sher at Belkheri (CW1NAU000395)

Local River : Sher

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	2.36	1.95	1.7	206.10	199.60	198.40	43.98	177.00	179.60	30.66	48.98	102.50
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (μmho/cm)	367	396	453	234	226	218	352	353	358	281	304	312
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.3	7.9	7.6	7.7	7.5	7.4	7.6	7.5	7.5	7.9	7.6	7.8
6	TDS (mg/L)	243	271	303	156	148	145	229	229	236	193	196	205
7	Temp (deg C)	20.0	24.0	20.0	25.0	22.0	20.0	20.0	20.0	21.0	21.0	22.0	21.0
8	Turb (NTU)	7.4	2.3	2.7	156.0	300.0	318.0	32.9	25.1	23.5	4.0	3.5	3.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	184	219	220	211	172	199	153	155	161	170	174	177
3	Ca (mg/L)	43	46	50	46	52	44	41	40	41	39	40	41
4	Cl (mg/L)	22.1	24.1	23.5	12.3	12.8	13.1	21.4	21.4	21.8	19.3	19.3	21.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	225	267	268	257	210	243	187	189	196	207	212	216
8	K (mg/L)	1.1	1.2	1.1	1.0	1.0	1.1	0.8	0.8	0.8	0.7	0.7	0.9
9	Mg (mg/L)	23.9	23.4	23.5	17.7	16.4	17.9	17.5	17.6	17.4	16.0	15.9	16.1
10	Na (mg/L)	13.7	14.9	18.2	6.9	7.0	7.1	13.0	11.2	11.8	10.7	10.8	11.9
11	NH3-N (mg N/L)	0.12	0.13	0.17	0.08	0.09	0.08	0.09	0.09	0.08	0.08	0.08	0.09
12	NO2+NO3 (mg N/L)	0.68	0.80	0.79	0.34	0.35	0.37	0.95	0.98	0.93	0.77	0.82	0.86
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.04	0.04	0.05	0.07	0.08	0.07	0.08	0.08	0.09
14	NO3-N (mgN/L)	0.67	0.80	0.79	0.30	0.31	0.33	0.87	0.90	0.86	0.69	0.74	0.76
15	o-PO4-P (mg P/L)	0.232	0.245	0.216	0.136	0.145	0.159	0.175	0.183	0.165	0.171	0.176	0.194
16	SiO2 (mg/L)	36.2	32.2	31.1	31.6	31.9	32.8	39.7	39.9	39.0	31.9	32.1	32.4
17	SO4 (mg/L)	4.5	5.3	3.2	5.5	5.1	4.7	9.0	8.8	8.6	9.0	9.2	12.1
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	0.8	0.8	0.8	1.2	0.8	1.0	0.8	0.8	1.0	1.2	1.0
2	COD (mg/L)	BDL	BDL	5.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	5.7	6.1	6.2	6.8	6.5	7.1	7.6	7.2	7.1	7.3	7.5	7.5
4	DO_SAT% (%)	63	72	68	82	75	78	84	79	80	82	86	84
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	109	115	125	116	129	109	103	101	102	97	100	102
2	HAR_Total (mgCaCO3/L)	208	212	223	190	197	184	176	174	175	163	166	169
3	Na% (%)	13	13	15	7	7	8	14	12	13	12	12	13
4	RSC (-)	0.0	0.2	0.0	0.4	0.0	0.3	0.0	0.0	0.0	0.1	0.2	0.2
5	SAR (-)	0.4	0.4	0.5	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Sher at Belkheri (CW1NAU000395)

Division : Narmada Division, Bhopal

Local River : Sher

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	30.06	16.05	13.09	11.16	9.29	7.52	7.31	7.08	6.25	5.08	3.87	2.09
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	373	378	381	471	489	526	508	514	529	531	535	540
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.0	8.0	8.0	7.8	7.8	7.9	7.7	7.8	7.6	7.9	8.0	8.0
6	TDS (mg/L)	238	241	248	298	312	339	327	339	349	348	352	351
7	Temp (deg C)	20.0	22.0	25.0	21.0	22.0	20.0	21.0	21.0	20.0	19.0	19.0	20.0
8	Turb (NTU)	12.3	11.9	11.2	3.8	3.7	3.5	6.7	6.5	6.5	4.3	4.1	4.8
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	152	153	154	175	179	184	200	202	203	202	207	207
3	Ca (mg/L)	41	41	42	50	53	56	49	51	56	51	53	59
4	Cl (mg/L)	19.7	19.5	19.9	24.1	22.2	22.4	34.5	33.5	34.5		46.4	43.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	185	187	188	213	218	224	244	247	248	247	252	252
8	K (mg/L)	0.8	0.8	0.9	0.9	0.9	1.0	2.0	2.0	2.4	3.1	3.2	3.1
9	Mg (mg/L)	13.1	13.3	13.2	15.0	14.4	13.2	20.0	19.3	22.7	19.7	16.9	16.5
10	Na (mg/L)	11.8	11.7	12.0	18.5	16.4	17.4	18.2	18.0	23.0	23.9	24.5	23.0
11	NH3-N (mg N/L)	0.08	0.08	0.09	0.10	0.10	0.10	0.11	0.12	0.10	0.10	0.10	0.10
12	NO2+NO3 (mg N/L)	0.56	0.57	0.58	1.15	1.25	1.34	0.77	1.08	1.09	1.24	1.25	1.25
13	NO2-N (mgN/L)	0.06	0.06	0.06	0.16	0.18	0.19	0.10	0.10	0.10	0.12	0.12	0.13
14	NO3-N (mgN/L)	0.50	0.51	0.52	0.99	1.08	1.16	0.68	0.99	0.99	1.11	1.12	1.13
15	o-PO4-P (mg P/L)	0.167	0.170	0.177	0.233	0.277	0.286	0.261	0.267	0.270	0.298	0.309	0.314
16	SiO2 (mg/L)	36.2	36.7	37.6	53.6	57.2	59.4	50.7	52.4	52.5	58.1	55.2	54.6
17	SO4 (mg/L)	10.8	11.0	11.4	13.4	14.4	15.4	12.6	11.3	9.0	14.9	15.2	16.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.2	1.0	1.2	1.2	1.1	1.0	0.8	1.0	1.0	1.0
2	COD (mg/L)	BDL	BDL	BDL	5.7	5.9	6.3	6.0	5.3	5.8	5.8	5.8	5.8
3	DO (mg/L)	7.7	7.9	8.0	7.0	7.2	7.1	7.6	7.6	7.4	7.7	7.6	7.8
4	DO_SAT% (%)	84	90	96	78	82	78	86	85	81	83	82	86
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	102	103	105	125	131	140	121	127	139	128	132	149
2	HAR_Total (mgCaCO3/L)	156	158	160	187	191	195	205	208	234	210	203	217
3	Na% (%)	14	14	14	18	16	16	16	16	18	20	21	19
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
5	SAR (-)	0.4	0.4	0.4	0.6	0.5	0.5	0.6	0.5	0.7	0.7	0.8	0.7

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Sher at Belkheri (CW1NAU000395)

Local River : Sher

Division : Narmada Division, Bhopal

Sub-Division : MNSD-1, Narmadapuram

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	1.49	1.08	0.98	0.95	0.88	0.83	0.81	0.71	0.72	0.65	0.61	0.53
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (μmho/cm)	587	580	585	581	585	581	370	378	382	445	502	529
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.6	8.0	8.0	7.8	7.9	7.9	7.9	7.7	7.7	8.0	7.9	7.9
6	TDS (mg/L)	383	375	370	372	376	372	252	256	259	285	310	340
7	Temp (deg C)	17.0	19.0	20.0	19.0	19.0	23.0	26.0	26.0	28.0	29.0	29.0	30.0
8	Turb (NTU)	2.8	3.8	4.0	4.3	6.3	6.0	0.7	0.3	0.5	2.7	3.0	2.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	223	219	223	225	225	227	162	164	165	207	218	218
3	Ca (mg/L)	60	61	62	61	61	62	48	48	49	49	51	52
4	Cl (mg/L)	25.3	30.2	31.0	31.6	32.5	33.1	35.4	36.1	35.6	38.7	39.2	41.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.56	0.49	0.35	0.21	0.29	0.32
7	HCO3 (mg/L)	272	267	272	274	275	277	198	200	201	253	266	266
8	K (mg/L)	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.3	1.3	1.4
9	Mg (mg/L)	18.4	17.5	17.6	17.2	17.3	16.6	11.9	12.2	12.4	21.3	22.9	23.7
10	Na (mg/L)	18.4	21.2	22.0	22.0	22.1	22.1	20.1	20.1	19.9	22.6	23.4	24.0
11	NH3-N (mg N/L)	0.10	0.10	0.10	0.09	0.10	0.10	0.11	0.10	0.10	0.12	0.11	0.13
12	NO2+NO3 (mg N/L)	1.49	1.50	1.51	1.40	1.51	1.53	0.73	0.74	0.76	1.86	1.88	1.91
13	NO2-N (mgN/L)	0.14	0.13	0.14	0.13	0.13	0.14	0.11	0.12	0.12	0.18	0.18	0.19
14	NO3-N (mgN/L)	1.36	1.37	1.38	1.26	1.38	1.39	0.62	0.63	0.64	1.68	1.70	1.72
15	o-PO4-P (mg P/L)	0.378	0.365	0.368	0.361	0.364	0.369	0.206	0.211	0.218	0.347	0.366	0.389
16	SiO2 (mg/L)	64.2	63.2	63.3	62.6	63.3	63.9	43.7	43.8	44.0	56.1	56.8	57.0
17	SO4 (mg/L)	4.9	5.3	5.6	6.4	6.5	6.7	9.3	9.3	9.5	15.8	17.6	16.3
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	0.8	1.0	0.8	0.6	1.0	1.0	1.0	1.0	0.6	0.6	0.6
2	COD (mg/L)	5.5	5.5	5.9	5.5	5.6	5.7	5.1	5.3	5.4	5.2	5.3	5.2
3	DO (mg/L)	7.9	7.7	7.6	7.2	7.1	7.3	6.8	7.0	6.9	7.6	7.8	7.5
4	DO_SAT% (%)	82	83	84	78	77	85	83	86	88	98	101	99
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	151	153	154	152	153	155	121	121	122	124	129	130
2	HAR_Total (mgCaCO3/L)	228	226	228	223	225	224	170	172	173	212	224	229
3	Na% (%)	15	17	17	18	18	18	20	20	20	19	19	19
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Sher at Belkheri (CW1NAU000395)

Local River : Sher

Division : Narmada Division, Bhopal

Sub-Division:MNSD-1Narmadapuram

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	3250	0.45	49.82
2	EC_GEN (µmho/cm)	36	587	218	437
3	pH_GEN (pH units)	36	8.0	7.3	7.8
4	TDS (mg/L)	36	383	145	285
5	Temp (deg C)	36	30.0	17.0	22
6	Turb (NTU)	36	318.0	0.3	27.6
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	227	152	191
3	Ca (mg/L)	36	62	39	50
4	Cl (mg/L)	35	46.4	12.3	27.5
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.56	0.21	0.37
7	HCO3 (mg/L)	36	277	185	233
8	K (mg/L)	36	3.2	0.7	1.3
9	Mg (mg/L)	36	23.9	11.9	17.5
10	Na (mg/L)	36	24.5	6.9	17
11	NH3-N (mg N/L)	36	0.17	0.08	0.1
12	NO2+NO3 (mg N/L)	36	1.91	0.34	1.04
13	NO2-N (mgN/L)	36	0.19	0.01	0.1
14	NO3-N (mgN/L)	36	1.72	0.30	0.94
15	o-PO4-P (mg P/L)	36	0.389	0.136	0.255
16	SiO2 (mg/L)	36	64.2	31.1	47.1
17	SO4 (mg/L)	36	17.6	3.2	9.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.2	0.6	0.9
2	COD (mg/L)	22	6.3	5.1	5.6
3	DO (mg/L)	36	8.0	5.7	7.3
4	DO_SAT% (%)	36	101	63	83
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	155	97	124
2	HAR_Total (mgCaCO3/L)	36	234	156	197
3	Na% (%)	36	21	7	16
4	RSC (-)	36	0.4	0.0	0
5	SAR (-)	36	0.8	0.2	0.5

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2019-2024

Station Name : Sher at Belkheri (CW1NAU000395)

Division : Narmada Division, Bhopal

Local River : Sher

Sub-Division : MNSD-1, Narmadapuram

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2022-23	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	60.62	41.93	9.54	94.02	114.91	4.81	4.42	1.1	3.29	4.87	0	0.7	0.52	2.02	0.71
2	EC_GEN (µmho/cm)	369	320	318	305	332	497	494	489	534	533	399	492	533	496	484
3	pH_GEN (pH units)	7.5	7.5	7.39	7.8	7.7	7.7	7.5	7.35	7.8	7.8	7.2	7.2	7.67	7.8	7.8
4	TDS (mg/L)	232	200	193	188	219	350	276	313	362	345	285	290	309	332	314
5	Temp (deg C)	27.4	28.4	28.13	26.5	21.5	21.8	20.1	23.75	19.9	19.9	23.0	21.5	27.89	20.0	25.4
6	Turb (NTU)	116.0	11.2	26.53	70.8	60.9	126.6	8.3	3.43	3.7	4.5	0.0	6.0	4.50	2.3	2.9
	CHEMICAL															
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	190	139	148	126	177	227	263	220	169	202	196	240	250	243	201
3	Ca (mg/L)	38	36	34.61	37	43	48	50	47.60	46	55	46	36	47.83	55	54
4	Cl (mg/L)	9.4	19.8	18.74	16.0	19.5	9.0	12.0	20.50	28.0	31.6	15.7	19.5	20.23	29.3	35.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.09	0.29	NA	NA	NA	0.12	NA	NA	NA	NA	NA	NA	NA	NA	0.37
7	HCO3 (mg/L)	231	169	181	153	216	277	321	268	206	246	239	293	305	297	246
8	K (mg/L)	2.4	2.1	NA	1.3	0.9	0.7	NA	NA	1.0	1.8	10.2	NA	1.08	1.2	1.1
9	Mg (mg/L)	17.6	16.0	12.69	9.0	17.5	27.0	24.9	24.35	18.0	17.6	13.4	18.3	27.82	21.5	17.3
10	Na (mg/L)	10.9	18.0	NA	9.6	11.5	12.8	NA	NA	16.8	20.4	25.6	NA	22.02	19.1	21.8
11	NH3-N (mg N/L)	0.08	0.00	NA	NA	0.10	0.13	NA	NA	0.04	0.10	0.30	NA	0.05	0.11	0.11
12	NO2+NO3 (mg N/L)	1.00	1.00	0.91	0.96	0.69	0.31	0.68	0.78	1.28	1.24	1.64	0.63	0.46	0.88	1.37
13	NO2-N (mgN/L)	0.40	0.17	0.07	0.18	0.05	0.03	0.06	0.06	0.09	0.13	0.18	0.02	0.03	0.14	0.14
14	NO3-N (mgN/L)	0.60	0.83	0.84	0.78	0.64	0.28	0.62	0.73	1.19	1.11	1.45	0.61	0.43	0.75	1.22
15	o-PO4-P (mg P/L)	0.171	0.226	0.16	0.282	0.181	0.094	0.162	0.18	0.181	0.302	1.007	0.520	0.18	0.166	0.315
16	SiO2 (mg/L)	41.2	24.5	34.02	42.8	34.8	27.0	36.1	39.41	37.4	57.0	18.3	36.4	37.05	39.6	54.6
17	SO4 (mg/L)	10.4	19.5	6.18	10.6	7.9	21.9	7.7	4.68	11.4	11.5	8.6	4.6	4.20	7.0	10.8
	BIOLOGICAL															
1	BOD3-27 (mg/L)	0.7	1.4	1.06	1.4	1.0	0.9	1.8	1.19	0.8	1.0	3.8	1.1	1.81	1.2	0.8
2	COD (mg/L)	20.6	30.0	BDL	5.2	5.2	17.8	BDL	5.80	6.0	5.8	28.0	BDL	6.08	5.7	5.4
3	DO (mg/L)	4.9	5.0	5.85	6.3	7.1	6.6	8.5	7.18	7.5	7.5	4.4	7.6	5.18	7.3	7.2
4	DO_SAT% (%)	61	65	71	78	80	75	94	87	82	82	51	86	63	80	88
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	94	90	86	92	108	120	125	119	114	138	116	91	119	136	134
2	HAR_Total (mgCaCO3/L)	168	156	139	130	181	233	228	219	189	211	171	167	234	226	206
3	Na% (%)	12	18	NA	14	12	11	NA	NA	17	17	23	NA	NA	16	19
4	RSC (-)	0.5	0.1	0.20	0.2	0.1	0.5	0.7	0.01	0.2	0.0	0.5	1.5	0.32	0.4	0.0
5	SAR (-)	0.4	0.6	NA	0.4	0.4	0.4	NA	NA	0.6	0.6	0.9	NA	NA	0.6	0.7

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.13 Hiran at Patan

History sheet

		Water Year	: 2023-24
Site	: Hiran at Patan	Code	: CW1NAU000530
State	: Madhya Pradesh	District	Jabalpur
Basin	: Narmada	Independent River	: Narmada
Tributary	: Hiran	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Hiran
Division	: Narmada Division Bhopal	Sub-Division	: UNSD Jabalpur
Drainage Area	: 3950 Sq. Km.	Bank	: Left
Latitude	: 23°18'42"	Longitude	: 79°39'46"
Opening Date		Closing Date	
Gauge	: 30/08/1979		
Discharge	: 30/08/1979		
Sediment	: --		
Water Quality	: 01/09/1986		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Hiran at Patan (CW1NAU000530)

Local River : Hiran

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	0.81	1.76	4.65	50.73	135.20	79.50	30.34	294.50	381.10	52.29	156.40	109.60
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (µmho/cm)	551	518	589	209	206	201	342	205	211	338	289	294
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.1	7.9	7.7	7.3	7.2	7.3	7.2	7.0	6.9	7.6	7.2	7.4
6	TDS (mg/L)	367	353	388	141	135	132	221	133	139	230	184	196
7	Temp (deg C)	28.0	29.5	30.0	27.0	28.0	30.0	29.5	26.0	29.0	29.0	29.0	28.5
8	Turb (NTU)	64.2	14.9	30.7	278.0	622.0	638.0	23.0	215.0	187.0	7.8	5.6	4.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	207	192	214	225	187	216	131	134	137	103	106	108
3	Ca (mg/L)	63	55	54	51	56	53	35	34	35	24	25	26
4	Cl (mg/L)	61.5	63.2	66.8	47.7	44.2	40.7	30.5	15.0	15.4	20.9	20.7	20.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	253	234	261	275	228	263	160	164	167	126	129	132
8	K (mg/L)	13.2	14.8	13.4	1.8	11.1	10.9	3.9	2.2	2.2	10.3	8.8	5.1
9	Mg (mg/L)	10.8	11.2	14.4	16.4	14.5	16.7	11.0	10.9	10.9	9.4	9.3	9.2
10	Na (mg/L)	43.5	41.6	48.3	25.9	23.5	21.5	19.7	7.7	8.3	16.2	15.2	14.2
11	NH3-N (mg N/L)	0.14	0.17	0.21	0.10	0.09	0.10	0.10	0.09	0.09	0.09	0.09	0.09
12	NO2+NO3 (mg N/L)	1.12	1.21	1.21	1.82	1.83	1.89	1.08	1.10	1.05	0.55	0.59	0.65
13	NO2-N (mgN/L)	0.09	0.09	0.09	0.08	0.08	0.09	0.08	0.08	0.07	0.07	0.07	0.08
14	NO3-N (mgN/L)	1.03	1.12	1.13	1.74	1.75	1.80	1.00	1.02	0.98	0.48	0.51	0.57
15	o-PO4-P (mg P/L)	0.329	0.341	0.311	0.371	0.384	0.398	0.197	0.205	0.186	0.155	0.160	0.179
16	SiO2 (mg/L)	49.9	48.2	47.5	48.1	48.1	50.6	45.0	45.3	44.4	17.3	17.9	18.5
17	SO4 (mg/L)	13.3	14.5	12.4	3.8	13.0	12.9	11.2	11.5	11.0	9.1	9.8	9.4
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	2.5	2.5	2.5	4.8	2.3	1.9	1.6	1.6	1.6	2.0	2.2	2.0
2	COD (mg/L)	5.7	5.5	5.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	3.6	4.0	3.7	4.8	4.2	5.4	5.0	5.0	4.9	5.7	5.9	5.9
4	DO_SAT% (%)	46	52	49	61	54	71	65	61	64	75	77	76
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	159	137	135	128	139	133	88	86	87	60	63	66
2	HAR_Total (mgCaCO3/L)	204	184	195	196	200	202	133	131	132	99	101	104
3	Na% (%)	30	31	33	22	19	18	24	11	12	24	23	22
4	RSC (-)	0.1	0.2	0.4	0.6	0.0	0.3	0.0	0.1	0.1	0.1	0.1	0.1
5	SAR (-)	1.3	1.3	1.5	0.8	0.7	0.7	0.7	0.3	0.3	0.7	0.7	0.6

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Hiran at Patan (CW1NAU000530)

Local River : Hiran

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	82.84	48.53	51.33	33.89	25.14	19.70	19.24	22.53	18.04	14.23	18.63	14.61
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (μmho/cm)	302	306	315	411	435	466	773	725	697	431	400	367
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.5	7.5	7.7	7.6	7.7	7.6	7.1	7.1	7.4	7.5	7.5	7.7
6	TDS (mg/L)	192	195	205	268	287	300	505	478	441	281	252	239
7	Temp (deg C)	27.0	26.5	27.5	23.0	21.0	21.0	18.5	18.0	15.5	17.5	17.5	15.5
8	Turb (NTU)	54.3	52.4	48.9	3.7	3.6	2.3	1.8	16.0	3.1	9.6	9.1	11.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	120	122	125	158	164	170	230	222	216	172	153	145
3	Ca (mg/L)	30	31	32	48	50	53	68	68	53	49	45	46
4	Cl (mg/L)	20.1	19.9	19.7	22.2	24.5	25.7	42.7	43.6	42.1	33.1	32.3	31.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	146	149	152	193	200	208	281	271	263	210	187	177
8	K (mg/L)	5.0	5.0	5.1	3.2	4.2	3.5	4.0	4.0	3.9	2.9	2.8	2.7
9	Mg (mg/L)	11.8	12.0	11.9	11.8	11.5	10.8	16.4	16.8	14.4	15.0	11.3	11.2
10	Na (mg/L)	14.1	14.0	14.2	16.3	18.8	19.3	24.8	23.8	22.9	17.5	17.0	16.4
11	NH3-N (mg N/L)	0.08	0.08	0.09	0.09	0.10	0.10	0.06	0.06	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.42	0.43	0.45	1.07	1.20	1.27	1.18	1.15	1.13	1.12	1.09	1.05
13	NO2-N (mgN/L)	0.05	0.05	0.06	0.15	0.17	0.17	0.15	0.14	0.13	0.10	0.10	0.09
14	NO3-N (mgN/L)	0.37	0.38	0.39	0.92	1.04	1.10	1.03	1.01	1.00	1.02	0.99	0.95
15	o-PO4-P (mg P/L)	0.150	0.157	0.160	0.203	0.226	0.235	0.322	0.309	0.291	0.257	0.252	0.259
16	SiO2 (mg/L)	29.7	30.6	30.7	45.8	48.7	51.5	76.6	72.5	69.8	50.4	43.3	41.0
17	SO4 (mg/L)	8.9	9.0	9.2	11.5	12.7	13.2	14.5	11.8	9.7	12.9	11.8	9.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.5	1.8	1.8	1.4	1.6	1.6	2.0	2.2	2.0	2.2	2.1	2.2
2	COD (mg/L)	BDL	BDL	BDL	5.0	5.3	5.6	8.1	8.1	7.4	5.1	5.0	BDL
3	DO (mg/L)	5.7	5.9	6.0	5.6	5.8	5.7	5.6	5.8	5.6	6.9	6.8	7.0
4	DO_SAT% (%)	72	73	75	65	65	64	60	61	55	72	71	70
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	76	76	79	119	125	133	169	170	131	122	112	114
2	HAR_Total (mgCaCO3/L)	125	126	128	168	173	178	237	240	191	184	159	161
3	Na% (%)	19	19	19	17	19	19	18	18	20	17	19	18
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
5	SAR (-)	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.6

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Hiran at Patan (CW1NAU000530)

Local River : Hiran

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	9.43	10.39	9.04	8.23	8.34	8.28	8.11	6.84	1.87	1.21	3.44	0.73
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	414	425	430	431	436	442	425	432	438	438	442	441
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.3	7.6	7.7	7.5	7.6	7.6	8.0	7.8	7.9	8.1	8.0	8.0
6	TDS (mg/L)	270	276	279	281	284	289	287	291	295	278	282	282
7	Temp (deg C)	16.5	17.5	20.0	19.5	20.5	22.5	25.5	24.5	27.0	29.5	28.5	29.5
8	Turb (NTU)	5.3	17.4	18.9	17.4	19.0	17.9	1.2	1.1	1.0	11.9	12.5	12.8
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	184	189	192	208	211	213	203	205	206	205	207	206
3	Ca (mg/L)	52	53	53	52	53	53	51	52	52	52	51	51
4	Cl (mg/L)	23.5	27.9	28.7	29.5	30.4	31.0	56.4	57.3	57.9	57.8	58.4	59.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.81	0.60	0.31	0.35	0.31	0.36
7	HCO3 (mg/L)	225	230	234	254	257	260	248	250	251	250	252	251
8	K (mg/L)	5.1	6.5	6.6	6.5	6.6	6.6	9.7	9.7	9.6	9.4	9.6	9.8
9	Mg (mg/L)	15.0	15.3	15.4	16.7	16.9	16.9	17.0	17.1	17.3	17.3	17.9	18.1
10	Na (mg/L)	17.7	20.4	21.1	21.0	21.1	21.1	30.7	30.7	30.8	33.5	32.9	34.0
11	NH3-N (mg N/L)	0.10	0.11	0.10	0.10	0.10	0.10	0.16	0.18	0.18	0.15	0.17	0.18
12	NO2+NO3 (mg N/L)	1.57	1.66	1.67	1.65	1.67	1.69	1.73	1.75	1.77	1.77	1.66	1.66
13	NO2-N (mgN/L)	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.16	0.17	0.17	0.05	0.05
14	NO3-N (mgN/L)	1.42	1.51	1.52	1.50	1.53	1.54	1.59	1.59	1.61	1.60	1.61	1.61
15	o-PO4-P (mg P/L)	0.355	0.368	0.371	0.359	0.363	0.366	0.312	0.317	0.326	0.329	0.334	0.332
16	SiO2 (mg/L)	59.7	61.5	61.9	58.4	59.0	60.3	54.7	54.9	55.3	55.4	55.7	55.6
17	SO4 (mg/L)	9.2	10.7	10.9	12.7	12.6	12.9	13.6	13.8	13.9	15.3	15.5	15.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	2.3	2.1	2.2	2.4	2.4	2.2	2.8	3.0	3.0	2.6	2.4	2.6
2	COD (mg/L)	15.0	13.0	13.0	15.0	13.0	14.0	13.0	15.0	14.0	12.0	13.0	14.0
3	DO (mg/L)	5.8	6.0	6.0	5.8	5.9	6.1	5.4	5.6	5.5	5.6	5.8	5.5
4	DO_SAT% (%)	59	62	66	63	65	70	65	66	69	72	74	71
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	130	131	133	130	131	133	129	129	130	130	129	127
2	HAR_Total (mgCaCO3/L)	193	195	197	200	202	203	199	200	202	202	203	203
3	Na% (%)	16	18	18	18	18	18	24	24	24	25	25	26
4	RSC (-)	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
5	SAR (-)	0.6	0.6	0.7	0.6	0.6	0.6	0.9	0.9	0.9	1.0	1.0	1.0

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Hiran at Patan (CW1NAU000530)

Local River : Hiran

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	1630	0.33	55.63
2	EC_GEN (µmho/cm)	36	773	201	410
3	pH_GEN (pH units)	36	8.1	6.9	7.5
4	TDS (mg/L)	36	505	132	268
5	Temp (deg C)	36	30.0	15.5	24.3
6	Turb (NTU)	36	638.0	1.0	67.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	230	103	177
3	Ca (mg/L)	36	68	24	47
4	Cl (mg/L)	36	66.8	15.0	36.7
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.81	0.31	0.46
7	HCO3 (mg/L)	36	281	126	216
8	K (mg/L)	36	14.8	1.8	6.7
9	Mg (mg/L)	36	18.1	9.2	13.9
10	Na (mg/L)	36	48.3	7.7	22.8
11	NH3-N (mg N/L)	36	0.21	0.06	0.11
12	NO2+NO3 (mg N/L)	36	1.89	0.42	1.27
13	NO2-N (mgN/L)	36	0.17	0.05	0.11
14	NO3-N (mgN/L)	36	1.80	0.37	1.16
15	o-PO4-P (mg P/L)	36	0.398	0.150	0.282
16	SiO2 (mg/L)	36	76.6	17.3	49
17	SO4 (mg/L)	36	15.8	3.8	11.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	4.8	1.4	2.2
2	COD (mg/L)	23	15.0	5.0	10
3	DO (mg/L)	36	7.0	3.6	5.5
4	DO_SAT% (%)	36	77	46	65
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	170	60	118
2	HAR_Total (mgCaCO3/L)	36	240	99	176
3	Na% (%)	36	33	11	21
4	RSC (-)	36	0.6	0.0	0.1
5	SAR (-)	36	1.5	0.3	0.7

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2019-2024

Station Name : Hiran at Patan (CW1NAU000530)

Local River : Hiran

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	67.26	126.72	47.81	87.72	116.64	15.4	12.06	13.38	9.09	17.25	1.21	0	1.52	3.58	4.64
3	EC_GEN (µmho/cm)	351	280	392	328	325	519	467	526	487	498	389	576	668	544	436
5	pH_GEN (pH units)	7.7	7.2	7.20	7.6	7.4	7.5	7.3	7.8	7.20	7.5	7.5	7.6	7.57	7.6	7.8
6	TDS (mg/L)	215	176	241	199	214	336	293	351	312	323	251	335	397	356	285
7	Temp (deg C)	28.5	28.4	27.90	27.3	28.3	20.1	19.3	18.2	18.13	18.5	25.0	22.8	24.44	24.3	25.2
8	Turb (NTU)	179.3	64.6	14.33	198.4	149.7	28.8	10.0	14.6	7.65	8.5	1.2	13.5	49.21	9.3	10.5
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	131	119	157	152	155	211	207	199	195	183	172	213	246	205	207
3	Ca (mg/L)	40	27	39.55	48	40	62	54	55	46.34	53	41	47	52.63	54	52
4	Cl (mg/L)	23.4	15.2	32.65	28.4	33.8	22.3	29.7	35.1	25.53	31.5	10.9	45.8	52.98	57.6	48.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.12	0.58	NA	NA	NA	0.13	NA	NA	NA	NA	NA	NA	NA	NA	0.46
7	HCO3 (mg/L)	160	145	192	185	189	258	252	242	238	223	210	260	300	250	253
8	K (mg/L)	6.3	4.6	NA	6.5	7.5	4.7	NA	4.0	NA	4.1	7.1	NA	10.64	13.9	8.6
9	Mg (mg/L)	11.6	9.3	11.75	7.4	12.0	17.4	13.0	13.9	14.70	13.7	12.5	10.0	24.01	15.3	17.2
10	Na (mg/L)	21.9	15.8	NA	16.5	21.8	17.6	NA	21.1	NA	19.7	25.2	NA	45.07	38.9	28.4
11	NH3-N (mg N/L)	0.09	0.00	NA	0.07	0.11	0.12	NA	0.06	NA	0.08	0.17	NA	0.14	0.12	0.15
12	NO2+NO3 (mg N/L)	1.28	1.22	4.17	3.04	1.03	0.31	2.70	1.57	1.66	1.26	0.52	2.97	0.81	1.32	1.71
13	NO2-N (mgN/L)	0.57	0.02	0.08	0.14	0.08	0.03	0.35	0.12	0.12	0.14	0.05	0.02	0.02	0.15	0.13
14	NO3-N (mgN/L)	0.71	1.20	4.43	2.90	0.95	0.28	2.34	1.45	1.58	1.13	0.47	2.95	0.79	1.17	1.57
15	o-PO4-P (mg P/L)	0.261	0.502	0.30	0.419	0.246	0.092	0.438	0.200	0.17	0.287	0.071	0.586	0.15	0.183	0.338
16	SiO2 (mg/L)	23.4	13.6	35.82	38.0	38.1	22.6	20.2	39.3	30.73	56.9	17.7	46.1	33.69	46.8	56.6
17	SO4 (mg/L)	13.5	20.5	10.19	13.2	10.6	25.1	14.6	11.2	13.36	11.5	5.5	11.0	11.80	17.2	14.0
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	1.6	0.7	1.11	1.8	2.2	2.1	2.9	1.8	1.44	2.0	2.7	1.2	1.65	2.1	2.6
2	COD (mg/L)	29.8	23.5	6.20	5.5	5.7	24.5	BDL	5.9	5.82	8.2	9.5	6.0	7.08	6.0	13.7
3	DO (mg/L)	4.0	4.5	5.63	6.8	5.1	4.8	5.5	6.4	6.77	6.0	6.7	4.5	4.56	4.5	5.7
4	DO SAT% (%)	51	57	68	86	65	52	60	68	82	64	81	52	55	53	69
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	101	67	99	121	101	154	136	137	116	132	103	118	131	134	130
2	HAR_Total (mgCaCO3/L)	149	106	147	151	151	227	190	195	146	190	156	159	230	198	202
3	Na% (%)	22	28	NA	17	22	14	NA	19	NA	18	24	NA	NA	28	22
4	RSC (-)	0.3	0.3	0.21	0.1	0.1	0.1	0.4	0.3	0.38	0.0	0.3	1.1	0.32	0.2	0.1
5	SAR (-)	0.8	0.8	NA	0.6	0.8	0.5	NA	0.7	NA	0.6	0.8	NA	NA	1.2	0.9

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.14 Banjar at Bamni**History sheet**

		Water Year	: 2023-24
Site	: Banjar at Bamni	Code	: CW1NAU000781
State	: Madhya Pradesh	District	: Mandla
Basin	: Narmada	Independent River	: Narmada
Tributary	: Banjar	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Banjar
Division	: Narmada Div. Bhopal	Sub-Division	: UNSD Jabalpur
Drainage Area	: 1864 Sq. Km.	Bank	: Left
Latitude	: 22°29'03"	Longitude	: 80°22'41"
	Opening Date	Closing Date	
Gauge	: 20/06/1999		
Discharge	: 30/11/1999		
Sediment	: 01/07/2002		
Water Quality	: 01/07/2002		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Banjar at Bamni (CW1NAU000781)

Local River : Banjar

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)				22.59	50.8	58.94	31.19	68.05	97.85	22.29	64.27	121.7
2	Colour_Cod (-)				Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (µmho/cm)				147	152	147	181	149	153	126	168	175
4	Odour_Code (-)				odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)				7.3	7.3	7.3	6.8	7.2	7.3	7.6	7.3	7.4
6	TDS (mg/L)				105	100	98	118	97	105	86	110	118
7	Temp (deg C)				25.0	22.0	22.0	23.5	23.5	24.0	23.5	23.5	24.0
8	Turb (NTU)				86.3	223.0	247.0	179.0	182.0	142.0	30.9	18.7	14.8
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)				135	137	139	94	94	93	94	95	101
3	Ca (mg/L)				29	30	30	21	23	21	23	24	25
4	Cl (mg/L)				13.4	13.4	13.7	22.0	15.5	15.9	15.4	14.6	12.8
5	CO3 (mg/L)				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)				*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)				165	167	170	115	115	113	115	116	123
8	K (mg/L)				1.8	1.6	1.7	2.2	2.0	2.1	1.4	1.3	1.5
9	Mg (mg/L)				11.0	11.4	11.1	8.3	8.1	8.2	6.9	7.5	7.4
10	Na (mg/L)				7.2	7.1	7.4	13.6	8.1	8.6	7.9	7.8	6.6
11	NH3-N (mg N/L)				0.07	0.08	0.06	0.05	0.05	0.05	0.07	0.07	0.06
12	NO2+NO3 (mg N/L)				0.28	0.28	0.31	1.00	1.02	0.98	0.51	0.52	0.55
13	NO2-N (mgN/L)				0.03	0.04	0.04	0.07	0.07	0.06	0.06	0.06	0.06
14	NO3-N (mgN/L)				0.24	0.25	0.27	0.93	0.95	0.92	0.45	0.46	0.49
15	o-PO4-P (mg P/L)				0.130	0.142	0.156	0.189	0.197	0.178	0.127	0.132	0.140
16	SiO2 (mg/L)				22.9	23.2	24.1	36.1	36.3	35.5	17.7	18.0	18.3
17	SO4 (mg/L)				7.5	7.3	6.6	14.1	12.1	9.4	5.1	4.8	4.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)				0.8	1.0	1.0	0.8	1.0	1.0	1.0	1.2	1.0
2	COD (mg/L)				BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)				7.0	6.5	7.3	6.4	6.6	6.5	6.9	7.1	7.1
4	DO_SAT% (%)				84	75	83	75	77	77	81	83	84
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)				72	74	76	52	57	51	56	59	62
2	HAR_Total (mgCaCO3/L)				118	122	122	86	90	86	85	90	92
3	Na% (%)				12	11	11	25	16	18	17	16	13
4	RSC (-)				0.4	0.3	0.4	0.2	0.1	0.2	0.2	0.1	0.2
5	SAR (-)				0.3	0.3	0.3	0.6	0.4	0.4	0.4	0.4	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Banjar at Bamni (CW1NAU000781)

Local River : Banjar

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	473.3	31.24	20.43	17.84	16.47	12.08	15.99	14.24	12.07	8.78	2.69	2.11
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	143	146	152	230	235	248	403	375	326	284	254	233
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.2	7.3	7.4	7.5	7.6	7.5	7.5	7.6	7.5	7.8	8.0	8.1
6	TDS (mg/L)	95	98	104	146	151	160	269	224	210	186	170	152
7	Temp (deg C)	24.0	22.0	19.0	20.0	19.0	19.5	20.0	18.0	16.0	13.0	13.5	12.0
8	Turb (NTU)	67.7	64.8	62.8	5.0	4.9	4.4	15.6	16.0	15.0	8.0	9.5	8.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	73	75	77	91	94	99	161	140	139	145	134	126
3	Ca (mg/L)	21	22	23	24	26	27	43	37	38	41	39	39
4	Cl (mg/L)	12.2	12.2	12.2	13.8	14.4	15.5	15.5	15.3	15.5	17.5	17.3	17.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	89	91	94	111	115	121	197	171	169	177	163	154
8	K (mg/L)	1.4	1.4	1.5	1.6	1.6	1.7	1.8	1.7	1.8	1.7	1.6	1.3
9	Mg (mg/L)	5.2	5.4	5.3	8.0	8.4	9.2	8.0	7.2	5.9	10.1	8.8	8.4
10	Na (mg/L)	6.8	6.9	6.9	7.6	7.7	8.1	8.2	8.1	8.2	9.4	9.4	9.5
11	NH3-N (mg N/L)	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.38	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.22	0.23	0.25	0.41	0.44	0.47	0.46	0.45	0.43	0.45	0.42	0.39
13	NO2-N (mgN/L)	0.03	0.03	0.04	0.05	0.05	0.06	0.08	0.07	0.06	0.07	0.07	0.06
14	NO3-N (mgN/L)	0.19	0.20	0.21	0.37	0.39	0.41	0.38	0.38	0.37	0.38	0.35	0.33
15	o-PO4-P (mg P/L)	0.093	0.098	0.101	0.124	0.129	0.133	0.144	0.136	0.125	0.192	0.123	0.102
16	SiO2 (mg/L)	17.6	18.0	18.8	24.5	25.0	25.4	40.3	37.5	32.9	28.2	25.3	23.1
17	SO4 (mg/L)	3.8	3.9	4.0	6.0	6.3	6.6	8.0	7.7	7.0	5.9	5.0	4.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.2	1.2	1.0	1.0	0.8	0.8	0.8	1.0	1.0	1.0
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	6.9	7.1	7.2	6.8	7.0	6.9	7.8	8.0	7.8	7.7	7.6	7.8
4	DO_SAT% (%)	82	81	77	74	75	74	86	84	79	73	72	72
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	54	54	57	61	64	68	106	94	95	102	98	98
2	HAR_Total (mgCaCO3/L)	75	77	79	94	99	106	140	124	120	144	135	133
3	Na% (%)	16	16	16	15	14	14	11	12	13	12	13	13
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.4	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Banjar at Bamni (CW1NAU000781)

Local River : Banjar

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	1.93	1.71	1.77	1.83	1.37	0.82	1.88	0.67	0.32	0.22		
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	245	297	300	395	398	396	207	211	215	241	247	250
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.5	7.9	7.9	7.8	7.8	7.8	7.9	7.6	7.7	7.6	7.6	7.8
6	TDS (mg/L)	160	193	195	192	195	193	141	145	149	145	152	160
7	Temp (deg C)	12.5	13.5	18.0	15.5	19.0	16.0	20.5	19.5	20.0	23.5	23.0	23.0
8	Turb (NTU)	10.2	5.8	6.0	5.9	5.7	5.7	2.1	1.9	1.6	2.4	2.2	2.2
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	130	150	154	157	160	155	119	120	121	130	132	134
3	Ca (mg/L)	38	47	47	46	47	47	33	34	34	36	36	38
4	Cl (mg/L)	22.0	22.0	22.4	22.0	22.6	23.2	24.1	24.7	25.3	25.3	24.3	24.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.45	0.20	0.29	0.22	0.20	0.22
7	HCO3 (mg/L)	159	183	188	192	195	189	145	147	148	159	161	163
8	K (mg/L)	1.9	2.3	2.3	2.1	2.2	2.2	2.6	2.6	2.5	2.2	2.1	2.2
9	Mg (mg/L)	9.6	8.9	9.0	9.0	9.2	8.9	8.4	8.7	8.9	10.2	10.4	9.9
10	Na (mg/L)	12.0	14.8	14.9	14.9	14.9	9.0	13.1	13.2	14.0	13.4	12.9	12.9
11	NH3-N (mg N/L)	0.09	0.09	0.10	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.09
12	NO2+NO3 (mg N/L)	0.48	0.49	0.50	0.50	0.51	0.52	0.29	0.30	0.31	0.28	0.29	0.30
13	NO2-N (mgN/L)	0.04	0.04	0.04	0.04	0.04	0.05	0.04	0.04	0.04	0.05	0.05	0.05
14	NO3-N (mgN/L)	0.44	0.45	0.46	0.46	0.47	0.47	0.25	0.26	0.26	0.23	0.24	0.25
15	o-PO4-P (mg P/L)	0.093	0.106	0.109	0.108	0.112	0.115	0.097	0.104	0.110	0.114	0.117	0.122
16	SiO2 (mg/L)	27.3	28.5	28.8	29.0	29.9	30.6	29.1	29.2	29.4	29.0	29.1	29.2
17	SO4 (mg/L)	6.5	6.9	7.3	7.0	7.2	7.4	5.9	6.0	6.1	6.9	7.1	7.3
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.0	1.0	1.0	1.2	1.0	0.8	0.8	0.8	0.6	0.8
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	8.0	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	7.5	7.7	7.8	6.8	6.9	7.1	6.8	7.0	6.9	7.2	7.4	7.1
4	DO_SAT% (%)	70	73	83	68	75	72	75	75	76	84	86	82
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	96	117	118	115	117	118	84	84	84	89	91	94
2	HAR_Total (mgCaCO3/L)	136	153	155	153	155	155	119	120	121	132	134	135
3	Na% (%)	16	17	17	17	17	11	19	19	20	18	17	17
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.5	0.5	0.3	0.5	0.5	0.6	0.5	0.5	0.5

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period: 2023-24

Station Name : Banjar at Bamni (CW1NAU000781)

Division : Narmada Division, Bhopal

Local River : Banjar

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	809	0	32.08
2	EC_GEN (µmho/cm)	33	403	126	237
3	pH_GEN (pH units)	33	8.1	6.8	7.5
4	TDS (mg/L)	33	269	86	149
5	Temp (deg C)	33	25.0	12.0	19.7
6	Turb (NTU)	33	247.0	1.6	44.2
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	33	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	33	161	73	121
3	Ca (mg/L)	33	47	21	33
4	Cl (mg/L)	33	25.3	12.2	18.1
5	CO3 (mg/L)	33	0.0	0.0	0
6	F (mg/L)	6	0.45	0.20	0.26
7	HCO3 (mg/L)	33	197	89	148
8	K (mg/L)	33	2.6	1.3	1.9
9	Mg (mg/L)	33	11.4	5.2	8.5
10	Na (mg/L)	33	14.9	6.6	10
11	NH3-N (mg N/L)	33	0.38	0.05	0.09
12	NO2+NO3 (mg N/L)	33	1.02	0.22	0.45
13	NO2-N (mgN/L)	33	0.08	0.03	0.05
14	NO3-N (mgN/L)	33	0.95	0.19	0.4
15	o-PO4-P (mg P/L)	33	0.197	0.093	0.127
16	SiO2 (mg/L)	33	40.3	17.6	27.2
17	SO4 (mg/L)	33	14.1	3.8	6.7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	33	1.2	0.6	1
2	COD (mg/L)	2	8.0	5.0	6.5
3	DO (mg/L)	33	8.0	6.4	7.2
4	DO_SAT% (%)	33	86	68	78
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	33	118	51	82
2	HAR_Total (mgCaCO3/L)	33	155	75	118
3	Na% (%)	33	25	11	15
4	RSC (-)	33	0.4	0.0	0.1
5	SAR (-)	33	0.6	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2019-2024

Station Name: Banjar at Bamni (CW1NAU000781)

Division : Narmada Division, Bhopal

Local River : Banjar

Sub-Division : UNSD, Jabalpur

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	88.57	81.72	47.07	88.46	69.92		6.32	3.66	9.52	8	4.25	0.45	0.23	3.46	0.82
2	EC_GEN (µmho/cm)	158	186	204	175	153		279	229	273	286	246	263	327	347	284
3	pH_GEN (pH units)	7.6	7.4	7.2	7.5	7.3		7.4	7.3	7.9	7.7	7.4	7.1	7.4	7.8	7.7
4	TDS (mg/L)	101	115	127	111	103		176	148	183	185	185	154	190	221	164
5	Temp (deg C)	24.8	26.9	26.2	22.8	23.0		18.5	18.1	14.8	16.3	28.5	20.3	18.8	20.8	20.0
6	Turb (NTU)	127.0	3.8	71.9	222.0	109.9		7.3	5.5	11.4	9.1	0.0	6.5	11.0	5.3	3.3
	CHEMICAL															
1	ALK-TOT (mgCaCO3/L)	72	88	105	103	101		139	113	128	130	150	117	160	116	137
2	Ca (mg/L)	19	18	23	30	24		33	28	30	37	32	19	32	29	39
3	Cl (mg/L)	4.7	13.2	14.2	14.6	14.4		14.0	13.8	19.7	17.4	5.9	23.4	15.0	17.8	24.0
4	F (mg/L)	0.11	0.77	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	0.26
5	HCO3 (mg/L)	88	107	128	126	123		170	138	156	159	183	143	195	142	167
6	K (mg/L)	3.0	3.4	NA	2.9	1.7		NA	NA	1.8	1.8	2.1	NA	NA	2.4	2.3
7	Mg (mg/L)	5.4	8.7	7.0	9.3	8.0		7.2	8.7	7.6	8.4	10.1	9.4	15.1	8.8	9.3
8	Na (mg/L)	4.7	8.9	NA	7.9	7.9		NA	NA	11.1	9.8	11.3	NA	NA	11.2	13.1
9	NH3-N (mg N/L)	0.04	0.00	NA	0.06	0.06		NA	NA	0.05	0.10	0.07	NA	NA	0.09	0.09
10	NO2+NO3 (mg N/L)	0.97	0.60	0.28	1.26	0.51		0.59	0.19	0.30	0.45	0.06	0.31	0.24	0.31	0.37
11	NO2-N (mgN/L)	0.09	0.03	0.03	0.07	0.05		0.39	0.03	0.02	0.06	0.01	0.02	0.01	0.07	0.04
12	NO3-N (mgN/L)	0.88	0.56	0.25	1.19	0.46		0.19	0.17	0.27	0.39	0.05	0.29	0.22	0.25	0.32
13	o-PO4-P (mg P/L)	0.249	0.279	0.053	0.169	0.140		0.045	0.102	0.096	0.126	0.026	0.058	0.128	0.099	0.111
14	SiO2 (mg/L)	18.4	16.5	25.2	23.6	23.9		18.4	20.4	25.8	28.9	18.7	12.4	29.2	25.2	29.4
15	SO4 (mg/L)	10.7	14.3	6.2	10.5	6.9		10.9	7.5	3.2	6.5	5.8	7.9	5.0	6.2	6.8
	BIOLOGICAL/BACTERIOLOGICAL															
1	BOD3-27 (mg/L)	0.7	1.2	1.0	1.6	1.0		1.3	1.4	1.0	1.0	1.0	0.4	1.5	1.2	0.9
2	COD (mg/L)	25.7	31.0	BDL	BDL	BDL		BDL	BDL	BDL	5.0	19.0	87.0	4.9	6.3	8.0
3	DO (mg/L)	5.5	5.5	6.0	6.7	6.9		7.5	7.6	7.7	7.5	6.2	7.4	5.8	6.8	7.0
4	DO_SAT% (%)	66	69	74	77	80		79	80	76	76	79	81	63	76	77
	TRACE & TOXIC															
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	48	45	57	74	60		81	70	74	93	79	47	80	73	97
2	HAR_Total (mgCaCO3/L)	70	81	86	113	94		111	106	106	128	121	87	143	110	136
3	Na% (%)	12	19	NA	13	16		NA	NA	19	14	17	NA	NA	18	17
4	RSC (-)	0.0	0.2	0.4	0.0	0.2		0.6	0.2	0.5	0.1	0.6	0.6	0.4	0.1	0.0
5	SAR (-)	0.2	0.5	NA	0.3	0.4		NA	NA	0.5	0.4	0.4	NA	NA	0.5	0.5
	PESTICIDES															

3.15 Burhner at Mohgaon

History Sheet

		Water Year	: 2023-24
Site	: Burhner at Mohgaon	Code	: CW1NAU000390
State	: Madhya Pradesh	District	: Mandla
Basin	: Narmada	Independent River	: Narmada
Tributary	: Burhner	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Burhner
Division	: Narmada Div. Bhopal	Sub-Division	: UNSD Jabalpur
Drainage Area	: 4090 Sq. Km.	Bank	: Right
Latitude	: 22°45'57"	Longitude	: 80°37'24"
	Opening Date	Closing Date	
Gauge	: 13/01/1977		
Discharge	: 13/01/1977		
Sediment	: 27/08/1992		
Water Quality	: 16/09/1986		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Burhner at Mohgaon (CW1NAU000390)

Local River : Burhner

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	5.46	5.17	4.18	60.14	134.00	95.02	125.30	162.20	160.30	55.23	139.30	171.90
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (µmho/cm)	198	245	260	155	159	154	132	165	171	263	156	165
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.8	8.2	7.8	7.4	7.4	7.4	6.9	7.1	7.2	7.6	7.3	7.4
6	TDS (mg/L)	140	169	175	111	104	102	87	108	117	182	114	121
7	Temp (deg C)	28.0	29.0	29.5	26.5	25.0	26.5	24.5	26.5	26.5	26.0	25.0	26.0
8	Turb (NTU)	8.2	2.0	6.0	124.0	314.0	345.0	519.0	125.0	104.0	5.1	4.2	2.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	96	125	129	132	133	135	82	86	89	84	85	88
3	Ca (mg/L)	24	30	29	28	29	30	18	19	20	16	17	18
4	Cl (mg/L)	21.1	22.2	23.4	14.2	13.8	15.2	19.0	14.6	14.6	12.6	13.2	11.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	117	153	157	161	162	165	100	105	109	103	104	107
8	K (mg/L)	2.1	2.4	2.6	1.2	1.1	1.2	1.5	1.2	1.2	1.0	1.0	1.0
9	Mg (mg/L)	9.3	8.6	11.2	11.2	11.1	11.0	8.2	8.3	8.1	8.5	8.3	8.3
10	Na (mg/L)	12.9	13.2	15.4	7.9	7.5	8.1	10.8	7.7	7.9	6.7	6.9	6.1
11	NH3-N (mg N/L)	0.06	0.07	0.07	0.07	0.08	0.07	0.09	0.09	0.10	0.07	0.07	0.08
12	NO2+NO3 (mg N/L)	0.26	0.40	0.45	0.29	0.30	0.32	1.03	1.05	1.01	0.21	0.25	0.35
13	NO2-N (mgN/L)	0.02	0.01	0.01	0.03	0.03	0.04	0.07	0.08	0.07	0.02	0.03	0.03
14	NO3-N (mgN/L)	0.25	0.39	0.45	0.26	0.26	0.28	0.96	0.98	0.94	0.19	0.22	0.32
15	o-PO4-P (mg P/L)	0.130	0.142	0.114	0.121	0.113	0.146	0.178	0.186	0.170	0.132	0.134	0.145
16	SiO2 (mg/L)	24.6	21.6	22.4	22.2	22.5	23.3	33.1	33.4	32.6	24.1	24.3	24.9
17	SO4 (mg/L)	6.9	7.6	4.6	7.8	7.6	6.9	10.7	9.8	9.6	6.0	5.6	6.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.9	0.6	0.8	1.0	0.8	0.8	1.0	0.8	0.8	0.8	1.0	1.4
2	COD (mg/L)												
3	DO (mg/L)	6.6	6.9	7.0	6.8	6.5	7.1	6.8	6.8	6.7	6.7	6.9	6.9
4	DO SAT% (%)	84	90	91	83	79	87	81	84	83	83	84	85
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	61	75	72	69	73	75	44	47	50	40	43	45
2	HAR_Total (mgCaCO3/L)	100	111	118	116	119	121	78	82	84	75	77	80
3	Na% (%)	22	20	22	13	12	13	23	17	17	16	16	14
4	RSC (-)	0.0	0.3	0.2	0.3	0.3	0.3	0.1	0.1	0.1	0.2	0.2	0.2
5	SAR (-)	0.6	0.5	0.6	0.3	0.3	0.3	0.5	0.4	0.4	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Burhner at Mohgaon (CW1NAU000390)

Local River : Burhner

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	131.80	59.02	47.62	28.69	27.34	26.15	24.73	25.65	24.43	18.56	15.36	12.68
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	187	190	194	208	211	220	212	218	223	252	241	235
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.0	7.7	7.7	7.5	7.6	7.6	7.5	7.6	7.7	8.0	7.8	7.2
6	TDS (mg/L)	121	125	130	127	133	142	144	152	161	165	159	153
7	Temp (deg C)	25.0	26.0	25.5	25.0	24.0	23.5	22.5	22.0	20.5	20.5	18.5	17.5
8	Turb (NTU)	66.1	65.1	65.1	4.1	4.0	3.8	17.9	16.8	15.7	10.6	11.3	11.9
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	77	79	81	87	89	93	111	122	116	130	126	126
3	Ca (mg/L)	18	19	21	22	24	25	30	31	31	35	36	38
4	Cl (mg/L)	11.4	12.0	11.7	12.6	13.4	13.8	13.4	14.0	14.4	15.0	14.8	15.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	94	96	99	106	109	113	136	149	141	159	154	154
8	K (mg/L)	1.0	1.0	1.1	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.0
9	Mg (mg/L)	7.5	7.4	7.0	7.4	6.9	6.8	5.7	6.4	5.7	9.8	9.0	9.0
10	Na (mg/L)	6.2	6.5	6.5	6.9	7.3	7.5	7.6	7.4	7.7	8.1	8.0	8.2
11	NH3-N (mg N/L)	0.08	0.07	0.07	0.07	0.07	0.71	0.07	0.07	0.08	0.08	0.08	0.08
12	NO2+NO3 (mg N/L)	0.26	0.27	0.28	0.38	0.40	0.42	0.33	0.34	0.35	0.42	0.41	0.40
13	NO2-N (mgN/L)	0.04	0.04	0.04	0.04	0.05	0.05	0.04	0.04	0.04	0.07	0.07	0.06
14	NO3-N (mgN/L)	0.22	0.23	0.24	0.34	0.36	0.37	0.29	0.30	0.30	0.35	0.34	0.33
15	o-PO4-P (mg P/L)	0.103	0.108	0.111	0.117	0.122	0.126	0.101	0.107	0.112	0.119	0.093	0.105
16	SiO2 (mg/L)	20.8	21.2	21.7	22.6	23.0	23.6	21.4	21.6	22.3	25.3	24.4	23.4
17	SO4 (mg/L)	4.8	5.0	5.2	5.1	5.7	6.1	4.4	4.9	5.5	5.0	4.7	4.5
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.0	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.2	1.2	1.0
2	COD (mg/L)												
3	DO (mg/L)	6.3	6.5	6.6	7.2	7.2	7.1	7.6	7.6	7.6	7.9	7.8	7.6
4	DO_SAT% (%)	76	80	80	87	85	83	87	86	83	87	82	79
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	46	48	51	54	59	64	75	78	78	88	90	96
2	HAR_Total (mgCaCO3/L)	77	79	80	85	88	92	99	105	102	129	128	133
3	Na% (%)	15	15	15	15	15	15	14	13	14	12	12	12
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.3	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Burhner at Mohgaon (CW1NAU000390)

Local River : Burhner

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	12.41	11.47	10.69	10.41	9.93	9.52	9.24	13.76	10.06	9.14	8.81	9.37
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (μmho/cm)	253	253	255	250	254	256	204	208	214	248	253	255
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.4	7.9	7.9	7.9	7.9	7.9	8.0	7.7	7.6	7.7	7.8	7.8
6	TDS (mg/L)	165	164	168	166	170	172	141	143	148	150	155	164
7	Temp (deg C)	17.0	17.0	17.0	17.5	19.0	20.5	21.5	20.5	23.5	25.0	20.5	25.0
8	Turb (NTU)	2.1	9.4	8.6	8.5	8.4	8.2	2.9	2.8	2.7	3.7	3.5	3.3
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	134	134	139	139	141	142	115	116	120	132	134	135
3	Ca (mg/L)	40	40	40	40	40	41	35	35	36	39	39	40
4	Cl (mg/L)	15.1	16.8	17.2	16.8	17.0	17.2	18.3	18.7	19.0	23.2	23.4	23.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.20	0.18	0.17	0.19	0.18	0.20
7	HCO3 (mg/L)	164	164	169	170	172	173	140	142	147	161	163	165
8	K (mg/L)	0.9	1.1	1.1	1.1	1.1	1.2	1.7	1.7	1.7	1.7	1.6	1.7
9	Mg (mg/L)	9.4	9.5	9.7	9.3	9.5	9.3	7.0	7.2	7.3	9.1	9.0	8.7
10	Na (mg/L)	8.2	8.9	8.9	8.9	8.9	9.0	9.8	9.8	9.9	12.2	12.3	12.4
11	NH3-N (mg N/L)	0.07	0.08	0.08	0.07	0.07	0.08	0.08	0.09	0.09	0.08	0.09	0.08
12	NO2+NO3 (mg N/L)	0.26	0.28	0.29	0.28	0.30	0.30	0.27	0.28	0.29	0.29	0.30	0.31
13	NO2-N (mgN/L)	0.03	0.03	0.03	0.03	0.04	0.04	0.03	0.04	0.04	0.05	0.05	0.05
14	NO3-N (mgN/L)	0.23	0.25	0.25	0.25	0.26	0.27	0.24	0.25	0.25	0.24	0.25	0.26
15	o-PO4-P (mg P/L)	0.068	0.079	0.083	0.077	0.080	0.084	0.094	0.100	0.107	0.122	0.127	0.132
16	SiO2 (mg/L)	23.9	25.0	25.2	25.6	26.0	26.7	28.9	29.0	29.2	29.2	29.4	29.5
17	SO4 (mg/L)	4.4	4.7	5.2	5.0	5.2	5.7	5.5	5.6	5.6	7.6	7.8	7.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.7	1.9	1.6	0.8	0.8	1.0	0.8	0.8	0.8	1.0	1.0	1.0
2	COD (mg/L)	10.0	12.0	8.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	6.0	6.2	6.4	7.0	7.1	7.3	7.0	7.2	7.1	7.0	7.2	6.9
4	DO_SAT% (%)	62	64	67	73	77	81	78	79	83	84	79	83
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	99	99	100	99	100	103	88	89	89	97	98	100
2	HAR_Total (mgCaCO3/L)	139	139	141	138	140	141	117	118	119	134	136	136
3	Na% (%)	11	12	12	12	12	12	15	15	15	16	16	16
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Burhner at Mohgaon (CW1NAU000390)

Local River : Burhner

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	2450	4.78	69.55
2	EC_GEN (μmho/cm)	36	263	132	214
3	pH_GEN (pH units)	36	8.2	6.9	7.6
4	TDS (mg/L)	36	182	87	143
5	Temp (deg C)	36	29.5	17.0	23.2
6	Turb (NTU)	36	519.0	2.0	53.2
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	142	77	113
3	Ca (mg/L)	36	41	16	30
4	Cl (mg/L)	36	23.7	11.4	16.2
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.20	0.17	0.19
7	HCO3 (mg/L)	36	173	94	138
8	K (mg/L)	36	2.6	0.9	1.3
9	Mg (mg/L)	36	11.2	5.7	8.5
10	Na (mg/L)	36	15.4	6.1	8.8
11	NH3-N (mg N/L)	36	0.71	0.06	0.09
12	NO2+NO3 (mg N/L)	36	1.05	0.21	0.38
13	NO2-N (mgN/L)	36	0.08	0.01	0.04
14	NO3-N (mgN/L)	36	0.98	0.19	0.34
15	o-PO4-P (mg P/L)	36	0.186	0.068	0.116
16	SiO2 (mg/L)	36	33.4	20.8	25.2
17	SO4 (mg/L)	36	10.7	4.4	6.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.9	0.6	1
2	COD (mg/L)	3	12.0	8.0	10
3	DO (mg/L)	36	7.9	6.0	7
4	DO_SAT% (%)	36	91	62	81
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	103	40	75
2	HAR_Total (mgCaCO3/L)	36	141	75	110
3	Na% (%)	36	23	11	15
4	RSC (-)	36	0.4	0.0	0.1
5	SAR (-)	36	0.6	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2019-2024

Station Name : Burhner at Mohgaon (CW1NAU000390)

Division : Narmada Division, Bhopal

Local River : Burhner

Sub-Division : UNSD, Jabalpur

S.No	Parameters	Flood (Jun – Oct)					Winter (Nov – Feb)					Summer (Mar – May)				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	137.40	106.67	117.95	203.13	144.98	22.93	20.98	12.13	21.9	19.09	6.78	3.11	0.94	7.19	10.46
3	EC_GEN (µmho/cm)	205	206	176	191	186	223	232	235	256	232	227	264	300	233	238
5	pH_GEN (pH units)	7.4	7.4	7.34	7.6	7.5	7.7	7.7	7.49	7.9	7.6	7.4	7.4	7.76	7.8	7.8
6	TDS (mg/L)	130	130	112	116	127	151	154	151	173	153	158	153	180	159	157
7	Temp (deg C)	26.9	27.9	27.77	26.3	26.4	22.4	19.8	19.42	20.2	20.4	27.3	24.5	25.33	21.6	21.4
8	Turb (NTU)	91.5	24.0	118.67	227.3	117.0	20.4	5.8	13.64	6.5	9.7	5.0	6.0	7.22	7.8	4.9
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	93	100	104	97	100	104	116	115	120	117	134	123	138	119	131
3	Ca (mg/L)	20	22	24.33	27	22	29	29	31.89	34	33	28	23	28.03	33	38
4	Cl (mg/L)	6.6	10.5	14.50	13.9	15.4	5.5	12.1	12.74	14.5	14.7	8.4	12.7	17.75	16.4	19.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.07	0.44	NA	NA	NA	3.05	NA	NA	NA	NA	NA	NA	NA	NA	0.19
7	HCO3 (mg/L)	113	122	127	118	122	127	142	140	146	143	163	150	169	146	159
8	K (mg/L)	2.8	2.5	NA	2.0	1.4	0.9	NA	NA	0.8	1.0	2.3	NA	2.30	2.0	1.5
9	Mg (mg/L)	8.2	27.9	7.09	6.1	8.9	9.0	5.4	8.50	6.4	7.9	10.9	5.9	13.89	8.0	8.5
10	Na (mg/L)	7.5	9.3	NA	8.9	8.7	5.5	NA	NA	7.9	7.9	9.8	NA	16.07	9.4	10.3
11	NH3-N (mg N/L)	0.06	0.00	NA	0.05	0.08	0.07	NA	NA	0.04	0.13	0.09	NA	0.05	0.18	0.08
12	NO2+NO3 (mg N/L)	0.63	0.48	1.35	0.78	0.45	0.20	0.09	0.15	0.43	0.36	0.21	0.12	0.10	0.32	0.29
13	NO2-N (mgN/L)	0.05	0.02	0.04	0.04	0.04	0.02	0.02	0.02	0.03	0.05	0.03	0.02	0.04	0.06	0.04
14	NO3-N (mgN/L)	0.58	0.46	1.31	0.74	0.41	0.17	0.07	0.13	0.41	0.31	0.18	0.11	0.06	0.26	0.25
15	o-PO4-P (mg P/L)	0.073	0.407	0.12	0.153	0.136	0.042	0.038	0.05	0.098	0.103	0.042	0.057	0.05	0.080	0.103
16	SiO2 (mg/L)	24.8	19.6	29.40	31.3	24.8	22.9	21.7	28.85	25.9	23.5	20.4	30.5	33.23	24.5	28.1
17	SO4 (mg/L)	10.7	13.5	6.46	7.2	6.9	14.6	6.8	3.05	3.5	5.0	5.9	3.8	4.77	8.0	6.2
	BIOLOGICAL															
1	BOD3-27 (mg/L)	1.0	1.0	1.05	1.9	0.9	0.7	0.7	1.11	0.9	1.2	1.0	1.5	1.74	0.9	0.9
2	COD (mg/L)	27.2	29.5	BDL	BDL	BDL	16.5	BDL	BDL	BDL	10.0	13.0	BDL	BDL	BDL	BDL
3	DO (mg/L)	5.1	5.9	6.46	6.1	6.7	6.4	7.2	7.59	7.6	7.2	5.8	5.8	5.83	7.0	7.1
4	DO SAT% (%)	63	75	83	75	83	74	79	82	83	79	73	70	71	79	80
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	50	54	61	66	56	72	73	80	85	82	69	58	70	83	96
2	HAR_Total (mgCaCO3/L)	84	171	90	92	93	109	96	115	112	115	114	82	127	116	131
3	Na% (%)	14	16	NA	16	17	10	NA	NA	13	13	15	NA	NA	15	15
4	RSC (-)	0.2	0.1	0.28	0.2	0.2	0.2	0.4	0.0	0.2	0.1	0.4	0.8	0.23	0.1	0.0
5	SAR (-)	0.3	0.4	NA	0.4	0.4	0.2	NA	NA	0.3	0.3	0.4	NA	NA	0.4	0.4

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.16 Narmada at Manot**History Sheet**

		Water Year	: 2023-24
Site	: Narmada at Manot	Code	: CW1NAU000378
State	Madhya Pradesh	District	Mandla
Basin	: Narmada	Independent River	: Narmada
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Narmada
Division	Narmada Division : Bhopal	Sub-Division	: UNSD Jabalpur
Drainage Area	: 4467 Sq. Km.	Bank	: Right
Latitude	: 22°44'09"	Longitude	: 80°30'47"
	Opening Date	Closing Date	
Gauge	: 16/12/1976		
Discharge	: 16/12/1976		
Sediment	: 09/11/1979		
Water Quality	: 01/01/1980		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Narmada at Manot (CW1NAU000378)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	7.39	4.80	2.26	113.90	249.70	144.50	148.60	271.80	219.90	64.42	172.60	179.60
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (µmho/cm)	179	209	255	161	154	151	141	181	186	213	185	192
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.7	8.2	7.7	7.5	7.5	7.6	7.3	7.1	7.2	8.0	7.4	7.5
6	TDS (mg/L)	125	144	172	108	102	100	94	119	125	124	122	129
7	Temp (deg C)	25.0	26.0	26.0	25.0	25.0	24.0	24.0	24.0	26.0	25.0	25.0	24.0
8	Turb (NTU)	7.8	2.6	4.3	158.0	598.0	612.0	953.0	957.0	456.0	13.9	9.5	8.5
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	103	112	136	136	139	142	75	82	89	89	90	91
3	Ca (mg/L)	27	31	33	34	35	36	22	22	24	22	23	23
4	Cl (mg/L)	14.1	14.0	19.5	15.7	14.9	16.2	21.0	14.6	15.4	12.8	13.2	14.8
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	126	137	166	166	169	173	92	100	108	109	110	111
8	K (mg/L)	1.1	1.1	1.3	1.9	1.9	1.9	1.2	0.9	1.0	0.8	0.8	0.9
9	Mg (mg/L)	8.3	8.0	12.4	12.8	13.2	13.3	4.8	6.7	6.6	6.7	6.9	7.0
10	Na (mg/L)	7.3	7.7	10.9	8.5	8.1	8.9	12.8	7.7	8.0	6.7	6.8	7.8
11	NH3-N (mg N/L)	0.05	0.05	0.06	0.07	0.08	0.06	0.11	0.10	0.09	0.07	0.06	0.07
12	NO2+NO3 (mg N/L)	0.22	0.22	0.17	0.31	0.32	0.35	0.84	0.88	0.83	0.33	0.35	0.37
13	NO2-N (mgN/L)	0.02	0.02	0.02	0.04	0.04	0.04	0.06	0.06	0.05	0.04	0.04	0.04
14	NO3-N (mgN/L)	0.20	0.20	0.16	0.28	0.28	0.30	0.79	0.82	0.78	0.30	0.31	0.33
15	o-PO4-P (mg P/L)	0.099	0.108	0.083	0.103	0.112	0.125	0.175	0.183	0.165	0.140	0.145	0.153
16	SiO2 (mg/L)	23.4	20.3	19.6	21.5	21.9	22.7	33.6	33.9	33.1	24.5	24.9	25.1
17	SO4 (mg/L)	6.3	7.0	4.0	7.3	6.9	6.3	15.7	15.2	13.5	8.6	8.4	8.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	0.8	0.6	1.0	1.2	1.0	1.2	1.0	1.0	1.4	1.6	1.2
2	DO (mg/L)	5.1	5.4	5.6	6.6	6.3	6.9	6.2	6.4	6.3	6.9	7.1	7.1
3	DO_SAT% (%)	62	67	69	79	77	82	74	76	78	84	86	84
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	68	77	83	84	87	89	55	55	59	54	57	58
2	HAR_Total (mgCaCO3/L)	103	110	134	137	142	144	75	83	87	82	85	88
3	Na% (%)	13	13	15	12	11	12	27	17	17	15	15	16
4	RSC (-)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
5	SAR (-)	0.3	0.3	0.4	0.3	0.3	0.3	0.6	0.4	0.4	0.3	0.3	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Manot (CW1NAU000378)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	115.30	53.14	42.14	24.51	21.81	17.74	14.56	23.10	13.98	10.40	8.31	7.18
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (μmho/cm)	217	223	228	236	243	255	247	254	258	274	263	259
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.8	7.7	7.7	7.6	7.6	7.6	7.5	7.6	7.5	8.0	7.6	8.1
6	TDS (mg/L)	140	144	151	147	152	165	161	164	169	179	172	169
7	Temp (deg C)	25.0	26.0	25.0	25.0	23.0	23.0	22.0	20.0	20.0	20.0	20.0	20.0
8	Turb (NTU)	58.8	55.6	54.0	4.7	4.8	4.5	2.0	2.0	2.4	3.0	4.0	3.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	87	89	91	95	98	102	130	138	137	142	138	134
3	Ca (mg/L)	22	22	24	25	27	28	37	37	35	39	39	41
4	Cl (mg/L)	13.7	13.5	13.7	14.4	15.3	15.3	14.2	14.6	15.3	16.3	16.7	16.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	106	108	111	116	119	124	159	168	167	173	168	163
8	K (mg/L)	0.8	0.8	0.9	0.7	0.8	0.7	0.8	0.9	0.9	0.9	0.9	0.8
9	Mg (mg/L)	8.1	8.3	8.0	8.2	8.0	8.0	5.8	5.9	7.4	10.0	9.1	9.5
10	Na (mg/L)	7.5	7.4	7.6	7.7	8.2	8.1	8.2	8.0	8.2	9.0	8.9	8.8
11	NH3-N (mg N/L)	0.07	0.07	0.08	0.07	0.08	0.07	0.10	0.10	0.10	0.10	0.10	0.10
12	NO2+NO3 (mg N/L)	0.36	0.37	0.38	0.43	0.46	0.47	0.37	0.38	0.38	0.45	0.43	0.43
13	NO2-N (mgN/L)	0.04	0.04	0.05	0.05	0.06	0.06	0.05	0.05	0.05	0.07	0.07	0.07
14	NO3-N (mgN/L)	0.31	0.33	0.34	0.38	0.40	0.41	0.32	0.33	0.33	0.37	0.36	0.36
15	o-PO4-P (mg P/L)	0.128	0.133	0.135	0.140	0.145	0.149	0.114	0.118	0.123	0.169	0.144	0.135
16	SiO2 (mg/L)	22.6	23.1	23.7	25.0	25.6	26.5	25.0	25.3	25.6	27.6	26.9	25.4
17	SO4 (mg/L)	6.9	7.0	7.2	6.3	6.8	7.3	4.0	4.6	5.2	5.4	5.2	4.9
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	1.0	1.0	1.2	1.0	1.0	1.0	0.8	0.8	0.8	0.8	0.8
2	DO (mg/L)	7.1	7.3	7.4	7.2	7.4	7.3	8.0	7.6	7.4	8.1	8.0	7.8
3	DO_SAT% (%)	86	90	89	87	86	85	92	83	81	89	88	86
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	55	56	59	63	67	70	92	93	88	96	98	103
2	HAR_Total (mgCaCO3/L)	89	91	93	97	100	104	116	118	119	138	136	143
3	Na% (%)	15	15	15	15	15	14	13	13	13	12	12	12
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.1	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Narmada at Manot (CW1NAU000378)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	6.67	5.66	6.33	5.26	4.39	3.77	4.33	3.45	3.07	2.39	1.75	2.65
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	278	286	289	283	286	285	239	242	246	270	274	282
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.7	7.8	7.8	7.8	7.9	7.8	8.0	7.8	7.8	8.0	7.9	8.0
6	TDS (mg/L)	182	187	190	186	187	186	165	167	169	171	175	182
7	Temp (deg C)	20.0	20.0	20.0	20.0	19.0	20.0	21.0	21.0	23.0	24.0	23.0	22.0
8	Turb (NTU)	2.5	3.0	3.2	3.0	3.2	3.3	0.8	0.7	0.6	2.9	2.4	2.8
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	142	146	150	152	153	153	132	133	134	143	143	145
3	Ca (mg/L)	42	44	45	44	44	44	36	36	36	39	39	40
4	Cl (mg/L)	13.4	18.2	18.2	17.8	18.2	18.0	22.7	23.5	22.7	22.6	22.8	23.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.18	0.17	0.16	0.15	0.16	0.18
7	HCO3 (mg/L)	173	178	183	185	187	187	161	162	164	174	175	177
8	K (mg/L)	0.6	0.7	0.7	0.7	0.7	0.8	1.1	1.1	1.1	1.2	1.2	1.3
9	Mg (mg/L)	9.8	9.8	9.9	6.2	6.5	6.5	9.4	9.7	9.9	10.7	10.7	10.8
10	Na (mg/L)	8.6	9.3	9.5	9.4	9.5	9.5	12.2	12.3	12.1	11.9	12.0	12.0
11	NH3-N (mg N/L)	0.08	0.09	0.09	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.08	0.08
12	NO2+NO3 (mg N/L)	0.33	0.34	0.36	0.34	0.37	0.37	0.37	0.38	0.39	0.43	0.44	0.46
13	NO2-N (mgN/L)	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.07
14	NO3-N (mgN/L)	0.29	0.30	0.31	0.30	0.32	0.33	0.32	0.33	0.33	0.37	0.38	0.39
15	o-PO4-P (mg P/L)	0.086	0.096	0.099	0.105	0.108	0.112	0.117	0.122	0.129	0.135	0.139	0.147
16	SiO2 (mg/L)	26.4	27.5	27.8	28.3	28.8	29.2	34.3	34.4	34.5	34.7	34.9	35.1
17	SO4 (mg/L)	5.3	5.4	5.8	5.5	6.0	6.0	8.1	8.2	8.2	8.5	8.9	9.3
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	1.0	0.8	1.0	1.0	0.8	1.2	1.0	1.0	1.0	0.8	1.0
2	DO (mg/L)	7.9	7.7	7.8	6.6	6.7	6.9	6.4	6.6	6.5	7.2	7.4	7.1
3	DO_SAT% (%)	87	85	86	73	73	76	71	74	76	85	86	81
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	106	111	111	110	110	111	90	90	91	96	97	99
2	HAR_Total (mgCaCO3/L)	147	152	153	135	137	138	129	131	132	141	142	144
3	Na% (%)	11	12	12	13	13	13	17	17	16	15	15	15
4	RSC (-)	0.0	0.0	0.0	0.3	0.3	0.3	0.1	0.0	0.1	0.1	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at Manot (CW1NAU000378)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	4750	1.5	92.62
2	EC_GEN (µmho/cm)	36	289	141	234
3	pH_GEN (pH units)	36	8.2	7.1	7.7
4	TDS (mg/L)	36	190	94	153
5	Temp (deg C)	36	26.0	19.0	22.8
6	Turb (NTU)	36	957.0	0.6	111.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	153	75	122
3	Ca (mg/L)	36	45	22	33
4	Cl (mg/L)	36	23.5	12.8	16.8
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.18	0.15	0.17
7	HCO3 (mg/L)	36	187	92	149
8	K (mg/L)	36	1.9	0.6	1
9	Mg (mg/L)	36	13.3	4.8	8.7
10	Na (mg/L)	36	12.8	6.7	9.1
11	NH3-N (mg N/L)	36	0.11	0.05	0.08
12	NO2+NO3 (mg N/L)	36	0.88	0.17	0.41
13	NO2-N (mgN/L)	36	0.07	0.02	0.05
14	NO3-N (mgN/L)	36	0.82	0.16	0.36
15	o-PO4-P (mg P/L)	36	0.183	0.083	0.128
16	SiO2 (mg/L)	36	35.1	19.6	27.3
17	SO4 (mg/L)	36	15.7	4.0	7.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.6	0.6	1
2	DO (mg/L)	36	8.1	5.1	7
3	DO_SAT% (%)	36	92	62	81
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	111	54	83
2	HAR_Total (mgCaCO3/L)	36	153	75	119
3	Na% (%)	36	27	11	14
4	RSC (-)	36	0.4	0.0	0.1
5	SAR (-)	36	0.6	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2019-2024

Station Name : Narmada at Manot (CW1NAU000378)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	234.1	143.08	159.05	232.94	209.69	7.040	19.19	15.17	15.87	12.35	0.000	4.48	3.96	7.1	3.52
2	EC_GEN (µmho/cm)	213	222	180	208	192	258	255	257	284	262	253	280	308	266	267
3	pH_GEN (pH units)	7.3	7.2	7.33	7.5	7.6	7.7	7.7	7.51	7.8	7.7	7.5	7.6	7.81	7.8	7.9
4	TDS (mg/L)	130	142	118	130	127	173	164	166	192	170	175	161	183	177	176
5	Temp (deg C)	27.6	26.4	25.70	28.0	25.0	22.6	20.4	19.88	24.4	21.1	23.0	21.5	23.78	20.8	21.4
6	Turb (NTU)	105.5	19.4	74.27	257.3	263.3	18.2	7.5	3.45	4.4	3.3	0.3	7.0	3.75	5.2	2.2
	CHEMICAL															
1	Alk-PHen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	100	100	100	105	103	122	132	138	132	129	139	130	134	124	143
3	Ca (mg/L)	21	25	23.96	31	27	31	30	36.53	35	37	29	26	30.64	30	40
4	Cl (mg/L)	7.2	11.1	14.53	13.2	15.1	4.8	12.6	12.58	15.9	15.7	8.4	13.7	16.16	18.1	21.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.07	0.20	NA	NA	NA	0.10	NA	NA	NA	NA	NA	NA	NA	NA	0.17
7	HCO3 (mg/L)	122	122	122	129	126	149	161	168	161	158	170	159	164	151	175
8	K (mg/L)	2.2	1.9	NA	1.7	1.2	0.5	NA	NA	0.7	0.8	1.1	NA	1.45	1.2	1.0
9	Mg (mg/L)	10.9	9.8	9.10	5.4	8.7	10.5	11.0	12.11	8.9	8.4	13.6	10.0	13.24	10.5	8.9
10	Na (mg/L)	8.8	8.9	NA	8.3	8.2	6.4	NA	NA	8.7	8.5	12.4	NA	14.33	11.1	11.2
11	NH3-N (mg N/L)	0.11	0.00	NA	0.06	0.07	0.04	NA	NA	0.05	0.09	0.09	NA	.05	0.08	0.08
12	NO2+NO3 (mg N/L)	0.97	0.56	0.97	0.74	0.42	0.21	0.12	0.31	0.22	0.40	0.18	0.17	0.26	0.30	0.39
13	NO2-N (mgN/L)	0.37	0.03	0.03	0.05	0.04	0.02	0.03	0.02	0.04	0.05	0.03	0.02	0.05	0.06	0.05
14	NO3-N (mgN/L)	0.60	0.53	0.94	0.70	0.38	0.19	0.09	0.30	0.18	0.35	0.16	0.15	0.21	0.24	0.34
15	o-PO4-P (mg P/L)	0.186	0.433	0.12	0.172	0.132	0.062	0.025	0.06	0.108	0.127	0.017	0.066	0.08	0.100	0.124
16	SiO2 (mg/L)	34.4	22.6	27.26	32.8	24.9	22.8	22.5	31.06	25.9	26.2	19.8	29.2	32.07	24.0	32.7
17	SO4 (mg/L)	8.3	14.5	6.34	9.6	8.6	14.2	5.5	4.89	3.2	5.5	6.7	4.8	4.99	5.7	7.6
	BIOLOGICAL															
1	BOD3-27 (mg/L)	1.1	0.8	0.91	1.6	1.0	0.8	0.9	0.99	0.8	0.9	1.6	1.7	1.62	1.6	1.0
2	COD (mg/L)	27.2	40.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	32.0	BDL	BDL	BDL	BDL
3	DO (mg/L)	4.7	6.1	6.07	6.4	6.5	6.6	7.9	7.55	7.4	7.7	7.6	5.4	6.20	7.0	6.8
4	DO SAT% (%)	58	75	74	81	79	76	87	92	88	86	89	61	76	79	77
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	53	62	60	78	66	78	76	91	87	92	74	65	77	76	99
2	HAR_Total (mgCaCO3/L)	99	102	97	100	103	122	122	141	124	127	130	107	131	120	137
3	Na% (%)	14	16	NA	14	15	10	NA	NA	13	13	17	NA	NA	17	15
4	RSC (-)	0.1	0.0	0.06	0.2	0.0	0.1	0.2	0.07	0.2	0.1	0.2	0.5	0.07	0.1	0.1
5	SAR (-)	0.4	0.4	NA	0.4	0.4	0.3	NA	NA	0.3	0.3	0.5	NA	NA	0.4	0.4

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started from May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.17 Narmada at Dindori**History Sheet**

		Water Year	: 2023-24
Site	: Narmada at Dindori	Code	: CW1NAU000672
State	: Madhya Pradesh	District	: Dindori
Basin	: Narmada	Independent River	: Narmada
Tributary	:	Sub Tributary	:
Sub-Sub Tributary	:	Local River	: Narmada
Division	: Narmada Division Bhopal	Sub-Division	: UNSD Jabalpur
Drainage Area	: 2292 Sq. Km.	Bank	: Left
Latitude	: 22°56'52"	Longitude	: 81°04'34"
	Opening Date	Closing Date	
Gauge	: 26/06/1988		
Discharge	: 01/08/1988		
Sediment	: --		
Water Quality	: 15/03/1990		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Dindori (CW1NAU000672)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	4.50	3.94	3.69	6.17	107.80	36.69	104.20	98.24	109.80	40.11	70.90	159.80
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown
3	EC_GEN (µmho/cm)	248	230	277	212	202	198	207	243	247	211	265	271
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.5	8.0	7.4	7.5	7.6	7.4	7.6	7.0	7.1	7.2	7.3	7.5
6	TDS (mg/L)	171	163	187	137	131	128	135	160	168	143	173	179
7	Temp (deg C)	26.0	26.5	28.0	26.0	26.5	28.0	26.0	25.0	27.0	26.0	26.0	26.0
8	Turb (NTU)	7.9	8.6	18.4	214.0	511.0	556.0	431.0	103.0	97.0	20.7	15.4	11.3
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	134	121	145	139	147	149	101	106	108	110	112	114
3	Ca (mg/L)	34	32	30	32	33	34	25	24	25	26	27	29
4	Cl (mg/L)	16.8	17.9	19.9	19.5	19.0	20.0	21.8	14.4	15.2	14.6	14.0	16.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	164	148	177	170	179	182	123	129	132	134	137	139
8	K (mg/L)	1.4	1.5	1.8	1.6	1.5	1.5	1.7	1.4	1.4	0.8	0.8	0.9
9	Mg (mg/L)	11.2	9.1	12.9	11.8	12.2	12.5	9.9	9.9	9.8	9.9	9.9	9.7
10	Na (mg/L)	10.3	11.7	14.9	11.1	11.1	10.5	13.9	7.7	8.1	7.6	7.4	8.3
11	NH3-N (mg N/L)	0.05	0.06	0.08	0.08	0.08	0.08	0.10	0.10	0.10	0.07	0.07	0.06
12	NO2+NO3 (mg N/L)	0.21	0.15	0.12	0.30	0.31	0.33	0.97	0.99	0.96	0.42	0.44	0.46
13	NO2-N (mgN/L)	0.02	0.01	0.01	0.03	0.04	0.04	0.07	0.07	0.06	0.05	0.05	0.05
14	NO3-N (mgN/L)	0.20	0.13	0.11	0.26	0.27	0.29	0.91	0.92	0.90	0.37	0.39	0.41
15	o-PO4-P (mg P/L)	0.011	0.121	0.096	0.106	0.110	0.128	0.018	0.191	0.173	0.145	0.147	0.155
16	SiO2 (mg/L)	27.5	24.7	23.9	24.3	24.5	25.4	34.9	35.0	34.5	27.0	27.2	27.4
17	SO4 (mg/L)	5.5	6.3	3.6	6.5	8.1	5.6	11.0	10.0	9.8	8.2	8.0	8.1
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.5	1.5	1.2	1.2	1.0	1.2	1.4	1.2	1.2	1.2	1.4	1.0
2	COD (mg/L)												
3	DO (mg/L)	4.5	4.6	4.7	6.0	5.8	6.3	5.8	6.0	5.9	7.1	7.3	7.3
4	DO_SAT% (%)	55	57	61	74	71	80	71	72	74	88	90	90
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	84	80	75	80	82	84	62	59	62	65	69	71
2	HAR_Total (mgCaCO3/L)	131	118	129	129	133	136	103	101	103	107	110	112
3	Na% (%)	14	18	20	16	15	14	22	14	15	13	13	14
4	RSC (-)	0.1	0.1	0.3	0.2	0.3	0.3	0.0	0.1	0.1	0.1	0.1	0.1
5	SAR (-)	0.4	0.5	0.6	0.4	0.4	0.4	0.6	0.3	0.3	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Dindori (CW1NAU000672)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	02-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	83.61	42.49	34.45	16.14	10.96	9.40	9.88	10.19	9.03	8.35	8.31	7.16
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	244	246	251	265	271	282	286	289	287	287	291	298
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.1	7.2	7.3	7.6	7.5	7.7	7.5	7.5	7.7	7.5	7.7	8.2
6	TDS (mg/L)	159	162	168	164	170	181	187	190	188	187	190	194
7	Temp (deg C)	26.0	24.5	25.0	20.0	20.0	20.0	18.0	17.5	15.0	19.0	17.0	15.5
8	Turb (NTU)	49.0	45.0	41.7	6.6	3.5	2.6	5.7	5.6	5.0	8.1	8.0	9.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	98	100	103	105	107	111	142	149	146	145	149	153
3	Ca (mg/L)	28	28	29	29	30	31	42	43	41	41	44	47
4	Cl (mg/L)	15.0	14.3	14.9	15.3	17.8	17.4	16.1	16.5	17.2	19.0	19.6	19.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	120	122	126	128	131	136	173	182	178	177	182	187
8	K (mg/L)	0.9	0.9	1.0	0.8	1.0	1.0	1.0	1.0	1.2	1.2	1.1	1.1
9	Mg (mg/L)	9.2	9.3	9.2	9.0	9.0	8.9	9.4	9.7	10.3	10.3	9.4	10.1
10	Na (mg/L)	8.1	8.0	8.2	8.2	9.6	9.9	10.0	10.0	10.1	10.0	10.1	10.1
11	NH3-N (mg N/L)	0.07	0.07	0.07	0.08	0.08	0.07	0.11	0.10	0.10	0.10	0.10	0.10
12	NO2+NO3 (mg N/L)	0.37	0.39	0.40	0.81	0.48	0.49	0.40	0.41	0.39	0.46	0.47	0.47
13	NO2-N (mgN/L)	0.05	0.05	0.05	0.40	0.06	0.06	0.05	0.06	0.05	0.07	0.08	0.08
14	NO3-N (mgN/L)	0.33	0.34	0.35	0.40	0.42	0.43	0.34	0.35	0.34	0.39	0.39	0.40
15	o-PO4-P (mg P/L)	0.142	0.147	0.150	0.152	0.159	0.161	0.127	0.131	0.127	0.194	0.208	0.217
16	SiO2 (mg/L)	26.8	27.1	28.1	27.3	27.6	28.6	28.1	28.3	28.0	28.4	29.2	29.8
17	SO4 (mg/L)	8.1	8.6	8.8	6.9	7.7	8.1	5.6	5.8	6.6	5.9	6.5	6.7
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.2	1.0	1.2	1.2	1.2	1.2	1.0	1.0	1.0	1.2
2	COD (mg/L)												
3	DO (mg/L)	6.5	6.7	6.8	6.8	6.8	6.7	7.0	7.2	7.0	7.5	7.4	7.6
4	DO_SAT% (%)	80	80	82	74	74	74	74	74	69	81	77	76
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	69	70	72	71	74	78	106	107	104	103	110	118
2	HAR_Total (mgCaCO3/L)	107	109	111	109	112	115	145	147	146	146	149	160
3	Na% (%)	14	14	14	14	16	16	13	13	13	13	13	12
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Dindori (CW1NAU000672)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	6.92	6.26	6.30	6.06	6.18	8.45	5.09	5.18	3.54	3.62	3.06	2.58
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	329	325	330	325	328	331	235	238	241	262	268	274
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.3	7.5	7.5	7.7	7.8	7.7	8.1	8.0	7.8	8.0	8.0	8.0
6	TDS (mg/L)	216	213	215	211	214	216	162	163	165	165	170	175
7	Temp (deg C)	16.5	17.0	19.5	18.5	20.5	20.0	24.0	20.0	25.0	25.0	24.5	26.0
8	Turb (NTU)	3.1	5.6	5.0	4.9	4.9	4.5	1.5	1.5	1.5	6.3	6.0	6.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	161	157	154	161	164	165	130	131	133	139	140	142
3	Ca (mg/L)	47	49	49	48	48	49	36	37	37	39	40	40
4	Cl (mg/L)	20.1	21.8	22.2	21.8	22.4	22.8	22.3	22.5	22.9	21.8	22.0	22.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.28	0.22	0.16	0.14	0.16	0.17
7	HCO3 (mg/L)	197	192	188	197	200	201	159	160	162	169	171	173
8	K (mg/L)	1.2	1.4	1.5	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.5	1.6
9	Mg (mg/L)	10.7	10.8	10.3	10.1	10.5	10.4	8.7	8.8	8.9	9.5	9.6	10.0
10	Na (mg/L)	12.7	14.1	14.2	14.2	14.2	14.3	12.0	11.8	11.9	11.5	11.5	11.6
11	NH3-N (mg N/L)	0.10	0.10	0.10	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.10
12	NO2+NO3 (mg N/L)	0.79	0.81	0.82	0.79	0.82	0.84	0.35	0.36	0.37	0.41	0.43	0.44
13	NO2-N (mgN/L)	0.08	0.08	0.08	0.08	0.08	0.08	0.04	0.05	0.05	0.05	0.06	0.06
14	NO3-N (mgN/L)	0.71	0.73	0.74	0.71	0.75	0.76	0.31	0.32	0.32	0.36	0.37	0.38
15	o-PO4-P (mg P/L)	0.202	0.212	0.214	0.211	0.216	0.219	0.114	0.119	0.125	0.130	0.135	0.140
16	SiO2 (mg/L)	44.3	45.2	45.4	42.6	43.1	43.6	33.0	33.2	33.3	33.6	33.9	34.0
17	SO4 (mg/L)	6.9	7.1	7.3	6.9	7.1	7.3	7.8	7.8	7.9	8.2	8.5	8.7
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.9	1.7	1.8	2.0	2.0	2.2	1.6	1.4	1.4	1.6	1.4	1.6
2	COD (mg/L)	12.0	10.0	11.0	12.0	11.0	13.0	6.5	6.6	6.7	5.8		5.3
3	DO (mg/L)	6.2	6.4	6.6	5.6	5.7	5.9	5.4	5.6	5.5	6.6	6.8	6.5
4	DO_SAT% (%)	63	66	72	59	63	65	64	61	67	80	80	80
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	118	122	122	120	120	122	91	92	92	98	99	100
2	HAR_Total (mgCaCO3/L)	162	167	165	162	164	165	127	128	129	138	139	142
3	Na% (%)	15	15	16	16	16	16	17	17	17	15	15	15
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at Dindori (CW1NAU000672)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	1701.4	2.38	47.94
2	EC_GEN ($\mu\text{mho/cm}$)	36	331	198	267
3	pH_GEN (pH units)	36	8.2	7.0	7.6
4	TDS (mg/L)	36	216	128	175
5	Temp (deg C)	36	28.0	15.0	22.5
6	Turb (NTU)	36	556.0	1.5	62.1
	CHEMICAL				
1	Alk-Phen (mgCaCO ₃ /L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO ₃ /L)	36	165	98	133
3	Ca (mg/L)	36	49	24	36
4	Cl (mg/L)	36	22.9	14.0	18.8
5	CO ₃ (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.28	0.14	0.19
7	HCO ₃ (mg/L)	36	201	120	162
8	K (mg/L)	36	1.8	0.8	1.3
9	Mg (mg/L)	36	12.9	8.7	10
10	Na (mg/L)	36	14.9	7.4	10.8
11	NH ₃ -N (mg N/L)	36	0.11	0.05	0.09
12	NO ₂ +NO ₃ (mg N/L)	36	0.99	0.12	0.51
13	NO ₂ -N (mgN/L)	36	0.40	0.01	0.06
14	NO ₃ -N (mgN/L)	36	0.92	0.11	0.45
15	o-PO ₄ -P (mg P/L)	36	0.219	0.011	0.149
16	SiO ₂ (mg/L)	36	45.4	23.9	31.6
17	SO ₄ (mg/L)	36	11.0	3.6	7.4
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	36	2.2	1.0	1.3
2	COD (mg/L)	11	13.0	5.3	9.1
3	DO (mg/L)	36	7.6	4.5	6.3
4	DO_SAT% (%)	36	90	55	73
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	36	122	59	90
2	HAR_Total (mgCaCO ₃ /L)	36	167	101	132
3	Na% (%)	36	22	12	15
4	RSC (-)	36	0.3	0.0	0.1
5	SAR (-)	36	0.6	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2019-2024

Station Name : Narmada at Dindori (CW1NAU000672)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	61.15	91.86	79.23	116.56	105.12	14.78	20.42	12.83	13.39	8.75	5.79	7.05	5.27	4.63	4.38
2	EC_GEN (µmho/cm)	233	263	216	220	237	274	272	269	302	295	314	288	320	298	278
3	pH_GEN (pH units)	7.3	7.4	7.30	7.1	7.4	7.6	7.4	7.54	7.6	7.6	7.2	7.5	7.65	7.4	7.9
4	TDS (mg/L)	154	169	145	133	158	186	173	177	202	191	215	172	173	196	182
5	Temp (deg C)	28.5	25.7	25.27	26.5	26.2	21.0	14.5	18.00	17.6	17.9	18.3	12.3	24.00	21.8	22.6
6	Turb (NTU)	95.8	53.4	73.40	247.0	142.0	16.4	6.5	6.12	6.8	5.6	0.8	7.5	8.43	14.0	4.2
	CHEMICAL															
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	107	120	143	125	119	124	136	146	147	140	155	140	148	153	145
3	Ca (mg/L)	29	27	30.01	34	29	33	33	37.60	38	41	35	29	30.48	36	41
4	Cl (mg/L)	8.2	15.5	18.20	13.9	16.9	5.8	16.7	13.41	16.8	18.5	6.4	17.6	16.08	21.9	22.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	0.09	0.41	NA	NA	NA	0.11	NA	NA	NA	NA	NA	NA	NA	NA	0.19
7	HCO3 (mg/L)	131	147	175	152	145	152	166	178	180	171	189	171	181	187	177
8	K (mg/L)	2.2	2.1	NA	1.8	1.3	0.8	NA	NA	0.7	1.1	2.5	NA	1.51	1.3	1.4
9	Mg (mg/L)	9.9	11.0	10.09	5.9	10.4	13.6	8.4	11.08	10.0	9.8	17.7	10.7	13.59	12.3	9.6
10	Na (mg/L)	7.8	10.5	NA	8.5	9.8	7.4	NA	NA	9.3	10.8	15.3	NA	14.22	13.3	12.6
11	NH3-N (mg N/L)	0.06	0.00	NA	0.07	0.08	0.06	NA	NA	0.08	0.09	0.13	NA	0.06	0.11	0.10
12	NO2+NO3 (mg N/L)	1.11	0.85	1.59	0.95	0.45	0.24	0.23	0.18	0.34	0.57	0.84	0.15	0.10	0.32	0.54
13	NO2-N (mgN/L)	0.37	0.15	0.05	0.03	0.04	0.02	0.15	0.02	0.03	0.10	0.59	0.02	0.03	0.06	0.06
14	NO3-N (mgN/L)	0.74	0.70	1.54	0.93	0.41	0.22	0.08	0.16	0.31	0.47	0.25	0.13	0.07	0.26	0.48
15	o-PO4-P (mg P/L)	0.199	0.192	0.16	0.204	0.123	0.055	0.037	0.07	0.127	0.175	0.064	0.073	0.08	0.111	0.157
16	SiO2 (mg/L)	30.2	33.6	37.58	36.4	27.9	23.6	21.3	27.44	28.5	32.5	19.2	33.0	29.22	29.6	36.7
17	SO4 (mg/L)	11.2	19.9	9.53	9.1	7.7	13.6	17.2	5.66	4.1	6.7	7.6	4.1	5.39	5.1	7.8
	BIOLOGICAL															
1	BOD3-27 (mg/L)	1.1	1.3	1.30	1.8	1.2	1.2	1.3	1.01	0.9	1.3	1.6	1.7	1.71	1.3	1.7
2	COD (mg/L)	27.6	36.5	BDL	BDL	BDL	23.5	BDL	BDL	BDL	11.0	8.0	BDL	BDL	BDL	8.4
3	DO (mg/L)	4.5	4.9	5.92	6.0	6.1	5.9	6.9	7.36	7.1	6.9	3.3	6.5	5.76	6.7	5.9
4	DO_SAT% (%)	57	60	80.55	75	75	66	68	85.94	74	73	34	60	69.72	77	69
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	72	68	75	85	72	84	83	94	95	103	86	73	76	90	104
2	HAR_Total (mgCaCO3/L)	113	114	116	110	116	140	118	140	137	144	160	117	132	142	144
3	Na% (%)	12	17	NA	14	15	10	NA	NA	13	14	17	NA	NA	17	16
4	RSC (-)	0.1	0.2	0.54	0.3	0.1	0.1	0.4	0.13	0.2	0.0	0.1	0.5	0.33	0.2	0.0
5	SAR (-)	0.3	0.3	NA	0.3	0.4	0.4	0.3	NA	0.3	0.4	0.5	0.5	NA	0.5	0.5

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.18 Narmada at Mandla**History Sheet**

		Water Year	: 2023-24
Site	: Narmada at Mandla	Code	: CW1NAU000327
State	: Madhya Pradesh	District	: Mandla
Basin	: Narmada	Independent River	: Narmada
Tributary	: -	Sub Tributary	: -
Sub-Sub Tributary	: -	Local River	: Narmada
Division	: ND, CWC, BHOPAL	Sub-Division	: UNSD, CWC, JABALPUR
Drainage Area	: 13000 Sq. Km.	Bank	: Left
Latitude	: 22°35'57"	Longitude	: 80°21'50"
	Opening Date	Closing Date	
Gauge	: 19/05/1975		
Discharge	: 01/10/2020		
Sediment	: --		
Water Quality	: 03/09/2019		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Mandla (CW1NAU000327)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	16.30	6.23	4.35	248.60	452.00	370.50	298.00	539.80	491.70	182.80	379.60	431.60
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (µmho/cm)	224	218	228	137	130	137	139	161	169	238	149	157
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.2	8.0	7.9	7.8	7.7	7.5	7.4	7.7	7.7	7.7	7.7	7.7
6	TDS (mg/L)	148	152	158	90	86	85	92	105	111	161	98	104
7	Temp (deg C)	24.0	29.0	30.0	25.0	26.0	27.0	28.0	27.0	26.0	28.0	27.0	27.0
8	Turb (NTU)	21.2	3.5	3.5	221.0	656.0	589.0	820.0	160.0	112.0	32.4	27.5	18.7
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	126	121	125	131	133	136	84	86	89	95	98	100
3	Ca (mg/L)	32	30	31	31	32	33	20	19	22	21	21	22
4	Cl (mg/L)	17.4	15.9	18.2	13.2	13.4	14.1	19.2	18.7	19.0	13.2	12.8	13.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	154	148	153	160	162	166	103	105	109	116	119	122
8	K (mg/L)	1.6	1.4	1.5	1.4	1.5	1.6	1.4	1.3	1.4	1.0	1.0	1.1
9	Mg (mg/L)	10.1	10.0	10.0	10.3	10.3	10.2	8.2	8.4	8.1	7.9	8.2	8.3
10	Na (mg/L)	9.1	8.4	9.5	7.1	7.3	7.8	11.1	9.8	10.1	6.9	6.9	7.0
11	NH3-N (mg N/L)	0.05	0.06	0.09	0.06	0.08	0.05	0.10	0.09	0.09	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.20	0.17	0.16	0.31	0.32	0.35	1.03	1.05	1.00	0.46	0.47	0.48
13	NO2-N (mgN/L)	0.02	0.01	0.01	0.04	0.04	0.05	0.07	0.07	0.06	0.04	0.05	0.05
14	NO3-N (mgN/L)	0.19	0.15	0.15	0.27	0.28	0.30	0.96	0.98	0.94	0.41	0.42	0.43
15	o-PO4-P (mg P/L)	0.133	0.145	0.117	0.142	0.152	0.165	0.162	0.170	0.151	0.137	0.142	0.150
16	SiO2 (mg/L)	19.5	17.9	23.6	24.0	24.6	25.6	36.1	36.3	35.6	19.6	19.8	20.0
17	SO4 (mg/L)	6.2	6.9	4.5	6.0	6.7	6.3	14.8	14.3	14.5	5.9	5.8	5.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.9	0.6	0.8	1.2	1.2	1.2	1.0	1.0	1.0	0.8	0.6	1.0
2	DO (mg/L)	6.6	6.9	7.0	6.2	6.0	6.3	6.2	7.2	7.1	7.1	6.9	6.9
3	DO_SAT% (%)	78	90	93	75	73	79	79	90	87	91	87	87
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	80	76	78	78	80	83	49	48	56	52	54	56
2	HAR_Total (mgCaCO3/L)	122	117	119	121	123	125	83	83	90	85	88	91
3	Na% (%)	14	13	15	11	11	12	22	20	20	15	15	14
4	RSC (-)	0.1	0.1	0.1	0.2	0.2	0.2	0.0	0.1	0.0	0.2	0.2	0.2
5	SAR (-)	0.4	0.3	0.4	0.3	0.3	0.3	0.5	0.5	0.5	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Mandla (CW1NAU000327)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	306.20	175.20	132.00	109.00	86.60	69.58	64.59	96.23	69.32	63.82	54.39	48.20
2	Colour_Cod (-)	Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (μmho/cm)	192	197	201	234	240	244	242	249	258	280	275	268
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.8	7.9	7.9	8.0	8.2	8.2	7.7	7.7	7.5	7.9	7.6	8.0
6	TDS (mg/L)	124	127	131	150	154	159	159	165	172	180	182	176
7	Temp (deg C)	27.0	26.0	26.0	24.0	23.0	23.0	21.0	22.0	18.0	18.0	17.0	18.0
8	Turb (NTU)	36.5	35.9	34.6	3.1	2.5	1.8	4.9	4.9	5.2		5.2	4.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	80	82	85	90	95	100	142	145	134	138	142	138
3	Ca (mg/L)	22	22	24	25	27	29	37	36	37	38	40	43
4	Cl (mg/L)	13.1	12.5	12.7	15.5	16.1	16.1	16.8	15.7	16.3	17.9	17.7	18.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	97	100	104	110	116	122	173	177	164	168	173	168
8	K (mg/L)	1.1	1.1	1.0	0.9	1.0	1.0	1.1	1.1	1.2	1.5	1.3	1.3
9	Mg (mg/L)	6.0	6.2	6.3	6.5	6.7	6.6	7.5	8.8	5.8	9.6	9.4	9.3
10	Na (mg/L)	7.0	7.1	7.1	8.4	8.6	8.6	9.0	8.9	9.0	9.6	9.4	9.7
11	NH3-N (mg N/L)	0.07	0.07	0.07	0.08	0.08	0.08	0.06	0.07	0.07	0.08	0.08	0.07
12	NO2+NO3 (mg N/L)	0.26	0.28	0.29	0.42	0.44	0.45	0.37	0.38	0.39	0.46	0.45	0.44
13	NO2-N (mgN/L)	0.04	0.04	0.04	0.05	0.06	0.06	0.05	0.05	0.05	0.07	0.07	0.07
14	NO3-N (mgN/L)	0.23	0.24	0.25	0.37	0.38	0.39	0.33	0.33	0.34	0.38	0.37	0.37
15	o-PO4-P (mg P/L)	0.106	0.113	0.115	0.117	0.124	0.129	0.112	0.116	0.118	0.183	0.171	0.155
16	SiO2 (mg/L)	20.3	20.6	21.5	24.0	24.0	24.6	24.6	25.0	25.5	28.2	27.5	26.3
17	SO4 (mg/L)	5.7	5.8	6.1	5.3	5.4	6.1	5.2	5.8	6.0	6.1	5.8	5.5
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	1.0	1.0	0.8	0.8	0.8	0.8	1.0	1.0	1.2	1.2	1.2
2	DO (mg/L)	7.1	7.3	7.4	7.4	7.4	7.3	7.4	7.4	7.4	7.9	7.8	7.8
3	DO_SAT% (%)	89	90	91	87	86	85	83	84	78	83	81	82
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	55	56	59	64	67	71	93	90	92	94	101	108
2	HAR_Total (mgCaCO3/L)	80	82	86	91	95	99	124	126	116	134	140	147
3	Na% (%)	16	16	15	17	16	16	14	13	14	13	13	12
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.1	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Mandla (CW1NAU000327)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	43.63	39.41	39.30	32.01	28.06	15.32	15.78	25.37	14.51	12.01	10.11	15.65
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	283	271	275	271	276	282	230	234	238	237	241	248
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.0	8.1	8.0	8.0	8.0	8.0	8.1	8.0	7.8	8.0	7.9	8.0
6	TDS (mg/L)	186	179	184	180	185	189	156	158	161	148	152	159
7	Temp (deg C)	19.0	16.0	19.0	20.0	21.0	20.0	22.0	25.0	22.0	26.0	25.0	25.0
8	Turb (NTU)	4.0	3.8	3.9	3.8	3.9	3.5	2.4	2.3	2.2	2.0	2.1	1.7
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	146	142	146	147	148	151	130	130	132	131	132	134
3	Ca (mg/L)	45	46	46	46	46	46	35	35	36	35	36	37
4	Cl (mg/L)	15.7	19.1	19.3	19.5	19.1	19.7	19.8	20.6	20.4	21.8	22.0	20.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.22	0.19	0.18	0.15	0.16	0.17
7	HCO3 (mg/L)	178	173	178	179	181	184	158	159	161	160	161	163
8	K (mg/L)	0.9	1.0	1.0	1.0	1.1	1.1	1.4	1.4	1.5	1.4	1.4	1.6
9	Mg (mg/L)	9.0	7.5	7.5	7.5	7.7	7.6	8.9	9.1	9.3	9.2	9.2	9.4
10	Na (mg/L)	9.2	10.1	10.2	10.2	10.2	10.3	11.2	11.3	11.3	11.6	11.5	10.6
11	NH3-N (mg N/L)	0.08	0.08	0.09	0.09	0.09	0.09	0.06	0.07	0.07	0.08	0.08	0.08
12	NO2+NO3 (mg N/L)	0.35	0.37	0.38	0.36	0.40	0.40	0.33	0.34	0.35	0.27	0.28	0.30
13	NO2-N (mgN/L)	0.03	0.03	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05
14	NO3-N (mgN/L)	0.32	0.33	0.35	0.33	0.36	0.37	0.30	0.30	0.31	0.23	0.24	0.25
15	o-PO4-P (mg P/L)	0.147	0.152	0.156	0.148	0.151	0.155	0.110	0.115	0.122	0.114	0.119	0.125
16	SiO2 (mg/L)	26.7	27.5	27.6	26.1	27.2	27.6	32.7	32.8	33.0	26.4	26.6	26.8
17	SO4 (mg/L)	4.7	5.6	5.8	5.4	5.7	5.9	7.5	7.8	7.8	6.6	7.0	7.4
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.4	1.4	0.8	0.8	1.0	1.4	1.6	1.6	0.6	0.6	0.6
2	DO (mg/L)	6.4	6.6	6.8	7.2	7.3	7.5	5.2	5.4	5.3	7.6	7.8	7.5
3	DO_SAT% (%)	69	66	74	79	82	83	59	65	61	93	94	90
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	113	115	116	114	115	115	88	89	89	89	90	91
2	HAR_Total (mgCaCO3/L)	151	146	147	145	147	147	125	126	127	127	128	131
3	Na% (%)	12	13	13	13	13	13	16	16	16	16	16	15
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
5	SAR (-)	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at Mandla (CW1NAU000327)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	9224	4.16	210.51
2	EC_GEN (µmho/cm)	36	283	130	224
3	pH_GEN (pH units)	36	8.2	7.4	7.9
4	TDS (mg/L)	36	189	85	147
5	Temp (deg C)	36	30.0	16.0	23.5
6	Turb (NTU)	35	820.0	1.7	81.1
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	151	80	121
3	Ca (mg/L)	36	46	19	33
4	Cl (mg/L)	36	22.0	12.5	17.1
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.22	0.15	0.18
7	HCO3 (mg/L)	36	184	97	148
8	K (mg/L)	36	1.6	0.9	1.2
9	Mg (mg/L)	36	10.3	5.8	8.3
10	Na (mg/L)	36	11.6	6.9	9.2
11	NH3-N (mg N/L)	36	0.10	0.05	0.08
12	NO2+NO3 (mg N/L)	36	1.05	0.16	0.41
13	NO2-N (mgN/L)	36	0.07	0.01	0.05
14	NO3-N (mgN/L)	36	0.98	0.15	0.36
15	o-PO4-P (mg P/L)	36	0.183	0.106	0.137
16	SiO2 (mg/L)	36	36.3	17.9	26
17	SO4 (mg/L)	36	14.8	4.5	6.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.6	0.6	1
2	DO (mg/L)	36	7.9	5.2	6.9
3	DO_SAT% (%)	36	94	59	82
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	116	48	82
2	HAR_Total (mgCaCO3/L)	36	151	80	117
3	Na% (%)	36	22	11	15
4	RSC (-)	36	0.4	0.0	0.1
5	SAR (-)	36	0.5	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2019-2022

Station Name : Narmada at Mandla (CW1NAU000327)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

S.No	Parameters	Monsoon					Winter					Summer				
		June - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-2020	2020-2021	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	*Discharge was started on 01.10.2020	225.6	307.45	560.01	443.78	*	58.78	43.12	55.46	61.23	*	12.2	8.25	24.1	18.89
2	EC_GEN (µmho/cm)	171	228	188	191	178	250	260	252	286	260	294	284	324	245	251
4	pH_GEN (pH units)	7.4	7.6	7.29	7.9	7.8	7.7	7.7	7.52	8.0	7.9	7.5	7.3	7.78	8.0	8.0
5	TDS (mg/L)	109	146	118	117	118	162	174	148	193	171	202	347	191	169	165
6	Temp (deg C)	29.5	28.1	26.6	23.5	26.9	19.6	20.1	18.58	16.5	19.8	21.5	24.0	25.56	21.1	22.9
7	Turb (NTU)	124.5	3.8	61.60	191.6	184.8	16.8	6.0	4.24	9.4	4.0	0.8	6.0	4.94	7.4	2.6
	CHEMICAL															
1	ALK-TOT (mgCaCO3/L)	77	101	106	101	105	111	139	135	121	130	164	140	143	136	137
2	Ca (mg/L)	21	21	24.41	27	26	29	33	34.06	36	37	56	28	31.36	34	39
3	Cl (mg/L)	2.5	15.2	14.09	14.4	15.1	4.3	12.1	12.96	17.3	17.0	8.9	14.6	16.12	18.9	20.3
4	F (mg/L)	0.11	NA	NA	NA	NA	0.10	NA	NA	NA	NA	NA	NA	NA	NA	0.18
5	HCO3 (mg/L)	94	123	129	123	128	136	170	165	148	158	201	171	175	166	167
6	K (mg/L)	1.7	2.4	NA	1.7	1.3	0.9	NA	NA	1.1	1.1	2.3	NA	1.62	1.6	1.3
7	Mg (mg/L)	6.0	9.7	8.77	7.3	8.6	13.7	9.8	10.23	10.3	7.9	11.4	9.1	13.46	10.1	8.6
8	Na (mg/L)	3.8	9.1	NA	8.2	8.1	6.4	NA	NA	9.7	9.2	11.4	NA	14.24	10.5	10.9
9	NH3-N (mg N/L)	0.07	0.00	NA	0.05	0.07	0.08	NA	NA	0.39	0.08	0.11	NA	0.03	0.10	0.08
10	NO2+NO3 (mg N/L)	0.58	0.73	0.68	0.85	0.45	0.11	0.30	0.18	0.22	0.41	0.19	0.43	0.18	0.22	0.34
11	NO2-N (mgN/L)	0.06	0.03	0.04	0.10	0.04	0.02	0.20	0.01	0.04	0.05	0.07	0.02	0.02	0.06	0.04
12	NO3-N (mgN/L)	0.53	0.70	0.64	0.75	0.41	0.09	0.09	0.17	0.19	0.36	0.11	0.41	0.17	0.17	0.30
13	o-PO4-P (mg P/L)	0.134	0.165	0.06	0.152	0.140	0.056	0.038	0.06	0.127	0.140	0.070	0.074	0.06	0.090	0.129
14	SiO2 (mg/L)	33.1	18.9	28.11	30.9	24.3	22.8	20.5	29.71	28.7	26.0	20.9	36.5	32.10	20.9	28.8
15	SO4 (mg/L)	9.8	12.8	6.68	6.7	7.7	21.3	7.0	6.49	7.9	5.6	5.4	4.2	5.22	6.8	6.8
	BIOLOGICAL															
1	BOD3-27 (mg/L)	0.7	0.9	0.96	1.6	0.9	0.8	1.1	1.06	0.8	1.1	1.6	0.9	1.83	1.10	1.0
2	COD (mg/L)	14.5	43.0	BDL	BDL	BDL	19.3	BDL	BDL	BDL	BDL	20.5	BDL	BDL	BDL	BDL
3	DO (mg/L)	6.0	6.1	5.83	6.1	6.8	6.4	7.6	7.50	7.6	7.3	5.8	6.1	5.87	6.8	6.7
4	DO_SAT% (%)	79	78	70.61	71	85	70	83	90.76	78	80	65	72	71.05	76	78
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	52	51	61	67	64	72	83	85	91	94	141	70	78	85	98
2	HAR_Total (mgCaCO3/L)	77	92	97	98	100	129	124	127	134	126	188	108	134	127	134
3	Na% (%)	10	18	NA	14	15	10	NA	NA	14	14	12	NA	NA	15	15
4	RSC (-)	0.0	0.2	0.17	0.1	0.1	0.0	0.3	0.16	0.0	0.1	0.3	0.7	0.20	0.2	0.1
5	SAR (-)	0.2	0.4	NA	0.3	0.4	0.2	NA	NA	0.4	0.4	0.4	NA	NA	0.4	0.4

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.19 Gaur at Bhalwara**History Sheet**

		Water Year	:	2023-24
Site	:	Gaur at Bhalwara	Code	: CW1NAU001445
State	:	Madhya Pradesh	District	Jabalpur
Basin	:	Narmada	Independent River	: Narmada
Tributary	:	-	Sub Tributary	: -
Sub-Sub Tributary	:	-	Local River	: Gaur
Division	:	ND, CWC, BHOPAL	Sub-Division	: UNSD, CWC, JABALPUR
Drainage Area	:	706 Sq. Km.	Bank	: Left
Latitude	:	23°06'32"	Longitude	: 79°58'18"
		Opening Date	Closing Date	
Gauge	:	15/01/2019		
Discharge	:	01/06/2019		
Sediment	:	--		
Water Quality	:	03/06/2019		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Gaur at Bhalwara (CW1NAU001445)

Local River : Gaur

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	3.75	3.51	3.74	28.71	45.62	25.92	18.34	31.28	34.08	13.98	32.06	30.85
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (µmho/cm)	227	235	252	142	139	141	253	227	235	187	188	198
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	8.1	8.1	7.9	7.7	7.6	7.6	7.8	7.8	7.9	7.8	7.7	7.7
6	TDS (mg/L)	151	161	176	98	93	89	190	148	154	126	122	131
7	Temp (deg C)	25.0	29.0	29.0	27.0	28.0	27.0	27.0	20.0	27.0	27.0	26.0	27.0
8	Turb (NTU)	3.5	2.3	3.5	189.0	452.0	389.0	20.7	493.0	38.7	6.8	5.4	4.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	118	124	124	127	127	132	139	141	143	114	115	116
3	Ca (mg/L)	38	38	31	30	31	32	33	35	36	23	25	25
4	Cl (mg/L)	18.0	14.8	13.2	13.6	14.2	15.4	16.1	16.1	16.3	17.3	14.2	12.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	144	151	151	155	155	161	169	172	175	139	140	142
8	K (mg/L)	1.7	1.6	1.6	1.4	1.3	1.5	1.6	0.9	0.9	1.0	0.8	0.9
9	Mg (mg/L)	6.6	6.5	11.0	11.6	11.3	11.4	10.8	10.8	10.7	9.4	9.3	9.4
10	Na (mg/L)	9.5	8.3	7.2	7.5	7.8	8.1	8.8	8.5	8.7	8.9	7.5	6.6
11	NH3-N (mg N/L)	0.06	0.06	0.07	0.06	0.08	0.07	0.04	0.05	0.05	0.06	0.06	0.07
12	NO2+NO3 (mg N/L)	0.27	0.29	0.16	0.33	0.34	0.37	0.71	0.73	0.70	0.28	0.32	0.36
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.06	0.05	0.03	0.03	0.04
14	NO3-N (mgN/L)	0.26	0.28	0.15	0.28	0.29	0.31	0.66	0.68	0.65	0.25	0.28	0.33
15	o-PO4-P (mg P/L)	0.124	0.136	0.117	0.152	0.161	0.174	0.146	0.154	0.146	0.116	0.121	0.129
16	SiO2 (mg/L)	26.8	23.5	23.9	24.1	24.6	25.5	33.2	33.5	32.6	22.1	22.3	22.5
17	SO4 (mg/L)	4.8	5.4	3.6	5.6	5.3	4.6	9.6	9.4	9.0	6.7	6.4	6.5
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.4	0.8	1.0	1.5	1.5	1.0	1.0	1.2	1.2	1.2	1.0	1.0
2	COD (mg/L)												
3	DO (mg/L)	7.4	7.7	7.8	6.0	5.6	6.5	6.4	6.8	6.1	7.3	7.1	7.1
4	DO_SAT% (%)	90	101	102	75	71	81	80	74	77	92	88	89
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	95	96	77	75	78	81	83	88	90	58	61	64
2	HAR_Total (mgCaCO3/L)	123	123	123	123	125	129	128	133	135	97	100	103
3	Na% (%)	14	13	11	12	12	12	13	12	12	17	14	12
4	RSC (-)	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.2	0.2	0.3	0.3	0.3
5	SAR (-)	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Gaur at Bhalwara (CW1NAU001445)

Local River : Gaur

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	15.85	5.79	4.16	12.28	3.98	3.11	2.92	2.07	1.87	1.71	0.85	0.89
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
3	EC_GEN (µmho/cm)	292	294	302	295	302	310	326	322	334	427	412	408
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)	7.7	7.8	7.9	8.0	7.9	7.9	7.4	7.5	7.4	7.8	7.9	7.8
6	TDS (mg/L)	188	191	195	192	197	200	210	208	218	278	270	266
7	Temp (deg C)	28.0	27.0	26.0	26.0	26.0	21.0	18.0	15.0	14.0	14.0	16.0	13.0
8	Turb (NTU)	12.6	12.1	11.7	3.8	3.7	3.3	6.8	6.7	6.0	7.5	7.6	7.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	120	123	126	116	120	126	146	153	150	165	168	161
3	Ca (mg/L)	33	33	34	32	34	35	47	45	47	45	42	43
4	Cl (mg/L)	12.3	12.9	12.9	21.8	20.5	16.5	14.9	15.7	17.0	33.3	33.4	30.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	146	150	154	142	147	154	178	187	183	201	205	196
8	K (mg/L)	0.8	0.8	0.9	1.2	1.4	2.2	2.2	2.1	2.0	2.5	2.5	2.4
9	Mg (mg/L)	9.5	9.3	9.2	8.3	8.0	8.3	10.1	12.0	12.8	13.3	11.9	12.6
10	Na (mg/L)	7.0	7.1	7.2	11.9	10.7	9.0	9.0	9.0	11.0	17.9	17.6	16.2
11	NH3-N (mg N/L)	0.07	0.08	0.08	0.08	0.08	0.08	0.06	0.07	0.07	0.07	0.08	0.08
12	NO2+NO3 (mg N/L)	0.41	0.42	0.43	0.52	0.55	0.56	0.43	0.44	0.42	0.53	0.52	0.51
13	NO2-N (mgN/L)	0.05	0.05	0.06	0.07	0.07	0.07	0.06	0.06	0.06	0.10	0.10	0.10
14	NO3-N (mgN/L)	0.36	0.37	0.38	0.46	0.48	0.49	0.37	0.37	0.35	0.43	0.42	0.41
15	o-PO4-P (mg P/L)	0.150	0.157	0.160	0.161	0.166	0.170	0.146	0.149	0.142	0.259	0.243	0.263
16	SiO2 (mg/L)	28.4	28.8	29.3	25.8	26.4	27.3	32.3	32.7	33.2	42.0	41.5	40.0
17	SO4 (mg/L)	7.9	8.0	8.1	7.5	8.1	8.3	8.1	8.5	9.1	9.7	9.0	9.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.4	1.4	1.2	1.2	1.2	2.0	2.0	1.6	2.0	2.0	2.0
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5.0	5.1	5.1
3	DO (mg/L)	7.1	7.3	7.4	6.8	7.0	6.9	5.8	6.0	6.4	7.9	7.8	8.0
4	DO_SAT% (%)	91	91	91	83	86	77	62	59	62	77	79	76
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	82	83	86	80	84	88	119	113	117	113	106	109
2	HAR_Total (mgCaCO3/L)	122	122	124	115	118	123	161	163	170	168	155	161
3	Na% (%)	11	11	11	18	16	14	11	11	12	19	20	18
4	RSC (-)	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.0
5	SAR (-)	0.3	0.3	0.3	0.5	0.4	0.4	0.3	0.3	0.4	0.6	0.6	0.6

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Gaur at Bhalwara (CW1NAU001445)

Local River : Gaur

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	0.73	0.63	1.98	0.71	0.52	0.40	River Dry	6.72	5.52	River Dry	River Dry	2.74
2	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear		Clear	Clear			Clear
3	EC_GEN (µmho/cm)	460	438	442	449	453	458		288	290			227
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free		odour free	odour free			odour free
5	pH_GEN (pH units)	7.7	7.5	7.8	7.9	7.9	8.0		7.8	8.0			7.5
6	TDS (mg/L)	299	288	292	296	298	304		194	197			145
7	Temp (deg C)	18.0	19.0	21.0	19.0	20.0	24.0		25.0	24.0			25.0
8	Turb (NTU)	3.4	3.4	3.8	14.9	15.5	16.8		0.3	0.4			4.2
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0
2	ALK-TOT (mgCaCO3/L)	177	184	189	190	193	195		148	149			126
3	Ca (mg/L)	51	51	52	51	51	17		43	44			36
4	Cl (mg/L)	22.2	21.8	22.4	21.6	22.4	23.0		20.2	20.8			20.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0
6	F (mg/L)	*	*	*	*	*	*		0.27	0.16			0.14
7	HCO3 (mg/L)	216	225	230	232	235	238		181	182			154
8	K (mg/L)	4.1	5.3	5.3	5.3	5.3	5.4		1.9	1.8			1.6
9	Mg (mg/L)	13.4	13.5	13.4	13.5	13.7	13.7		9.9	10.1			8.9
10	Na (mg/L)	12.1	13.1	13.3	13.2	13.3	13.7		11.1	11.3			10.6
11	NH3-N (mg N/L)	0.09	0.09	0.09	0.09	0.09	0.09		0.09	0.09			0.08
12	NO2+NO3 (mg N/L)	1.06	1.08	1.09	1.27	1.10	1.12		0.47	0.47			0.26
13	NO2-N (mgN/L)	0.08	0.08	0.09	0.09	0.09	0.10		0.07	0.08			0.05
14	NO3-N (mgN/L)	0.98	0.99	1.00	1.18	1.01	1.02		0.39	0.39			0.21
15	o-PO4-P (mg P/L)	0.295	0.305	0.308	0.292	0.295	0.298		0.190	0.195			0.112
16	SiO2 (mg/L)	53.7	55.2	56.2	56.9	57.7	58.2		38.5	38.6			25.5
17	SO4 (mg/L)	9.8	10.5	10.7	12.1	12.2	12.6		9.9	9.9			6.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	2.1	2.3	2.0	0.8	0.8	1.0		1.2	1.2			1.0
2	COD (mg/L)	13.0	12.0	10.0	BDL	BDL	BDL		BDL	BDL			BDL
3	DO (mg/L)	5.8	6.0	6.0	7.4	7.5	7.3		6.6	6.5			7.1
4	DO_SAT% (%)	61	64	68	80	83	87		80	77			85
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	127	129	131	127	129	42		108	109			91
2	HAR_Total (mgCaCO3/L)	182	185	187	184	186	99		150	151			128
3	Na% (%)	12	13	13	13	13	22		14	14			15
4	RSC (-)	0.0	0.0	0.1	0.2	0.2	1.9		0.0	0.0			0.0
5	SAR (-)	0.4	0.4	0.4	0.4	0.4	0.6		0.4	0.4			0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Gaur at Bhalwara (CW1NAU001445)

Local River : Gaur

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)	366	950.3	0	18.92
2	EC_GEN (µmho/cm)	33	460	139	302
3	pH_GEN (pH units)	33	8.1	7.4	7.8
4	TDS (mg/L)	33	304	89	199
5	Temp (deg C)	33	29.0	13.0	23
6	Turb (NTU)	33	493.0	0.3	53.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	33	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	33	195	114	144
3	Ca (mg/L)	33	52	17	38
4	Cl (mg/L)	33	33.4	12.3	18.7
5	CO3 (mg/L)	33	0.0	0.0	0
6	F (mg/L)	3	0.27	0.14	0.19
7	HCO3 (mg/L)	33	238	139	175
8	K (mg/L)	33	5.4	0.8	2.2
9	Mg (mg/L)	33	13.7	6.5	10.7
10	Na (mg/L)	33	17.9	6.6	10.4
11	NH3-N (mg N/L)	33	0.09	0.04	0.07
12	NO2+NO3 (mg N/L)	33	1.27	0.16	0.56
13	NO2-N (mgN/L)	33	0.10	0.01	0.06
14	NO3-N (mgN/L)	33	1.18	0.15	0.5
15	o-PO4-P (mg P/L)	33	0.308	0.112	0.186
16	SiO2 (mg/L)	33	58.2	22.1	34.6
17	SO4 (mg/L)	33	12.6	3.6	8.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	33	2.3	0.8	1.4
2	COD (mg/L)	6	13.0	5.0	8.4
3	DO (mg/L)	33	8.0	5.6	6.9
4	DO_SAT% (%)	33	102	59	80
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	33	131	42	95
2	HAR_Total (mgCaCO3/L)	33	187	97	139
3	Na% (%)	33	22	11	14
4	RSC (-)	33	1.9	0.0	0.1
5	SAR (-)	33	0.6	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period: 2019-2024

Station Name: Gaur at Bhalwara (CW1NAU001445)

Local River: Gaur

Division: Narmada Division, Bhopal

Sub-Division: UNSD, Jabalpur

S.No	Parameters	Flood					Winter					Summer				
		Jun - Oct					Nov - Feb					Mar - May				
		2019	2020	2021	2022	2023	2019-20	2020-21	2021-22	2022-23	2023-24	2020	2021	2022	2023	2024
	PHYSICAL															
1	Q (cumec)	23.38	22.36	9.12	19.11	42.56	4.12	1.20	1.86	1.41	2.13	1.67	0	0.15	1.88	1.68
2	EC_GEN (µmho/cm)	293	313	230	228	221	320	321	333	507	373	645	932	323	367	361
3	pH_GEN (pH units)	7.4	7.6	7.39	7.8	7.8	7.4	7.6	7.49	7.9	7.7	7.6	7.0	7.48	7.9	7.8
4	TDS (mg/L)	182	204	137	143	148	203	203	213	333	243	431	638	201	252	239
5	Temp (deg C)	27.2	27.3	27.10	25.8	26.7	20.3	21.5	19.33	18.8	18.4	24.8	24.0	18.00	26.4	22.8
6	Turb (NTU)	100.8	9.0	20.33	80.8	109.6	24.9	12.5	20.65	21.6	5.3	0.2	32.5	78.85	15.7	8.7
	CHEMICAL															
1	ALK-TOT (mgCaCO3/L)	130	156	125	113	126	136	119	166	181	155	256	445	145	189	167
2	Ca (mg/L)	28	31	27.39	32	32	38	38	40.88	53	44	57	80	42.39	43	40
3	Cl (mg/L)	14.6	13.1	28.19	13.5	14.7	7.3	15.7	26.81	21.3	22.5	27.2	94.4	20.13	22.1	21.4
4	F (mg/L)	0.11	0.23	NA	NA	NA	0.11	NA	NA	NA	NA	NA	NA	NA	NA	0.19
5	HCO3 (mg/L)	159	190	153	137	154	167	145	203	221	189	313	543	177	231	204
6	K (mg/L)	3.3	2.2	NA	2.4	1.2	1.1	NA	NA	2.30	2.8	3.3	NA	NA	6.7	3.5
7	Mg (mg/L)	12.3	16.4	8.22	10.5	9.8	12.3	7.0	14.74	14.5	11.4	27.1	13.8	13.83	16.3	11.6
8	Na (mg/L)	11.0	14.6	NA	7.6	7.9	8.1	NA	NA	12.4	12.6	19.9	NA	NA	12.0	12.2
9	NH3-N (mg N/L)	0.16	NA	NA	0.05	0.06	0.10	NA	NA	0.07	0.08	0.15	NA	NA	0.15	0.09
10	NO2+NO3 (mg N/L)	1.15	0.49	0.71	1.13	0.41	0.13	0.41	0.67	0.45	0.64	0.92	6.46	0.93	0.82	0.78
11	NO2-N (mgN/L)	0.38	0.02	0.08	0.10	0.04	0.03	0.12	0.01	0.06	0.08	0.08	2.51	0.01	0.09	0.08
12	NO3-N (mgN/L)	0.77	0.47	0.64	1.02	0.37	0.10	0.30	0.66	0.39	0.56	0.84	3.95	0.92	0.73	0.70
13	o-PO4-P (mg P/L)	0.256	0.185	0.08	0.248	0.143	0.041	0.045	0.12	0.150	0.217	0.088	1.142	0.11	0.123	0.230
14	SiO2 (mg/L)	32.9	26.4	24.38	33.2	26.7	19.8	16.7	30.54	29.8	38.8	25.7	77.1	32.86	50.8	45.9
15	SO4 (mg/L)	18.1	11.8	6.93	16.1	6.7	20.0	7.2	14.77	9.9	9.0	14.4	13.8	17.41	12.2	10.5
	BIOLOGICAL															
1	BOD3-27 (mg/L)	1.8	0.8	1.8	1.7	1.2	1.1	1.2	1.4	1.5	1.8	2.6	1.8	1.2	1.4	1.0
2	COD (mg/L)	27.8	37.0	BDL	BDL	BDL	23.0	BDL	BDL	6.2	8.4	17.0	49.0	BDL	6.0	BDL
3	DO (mg/L)	4.3	5.8	6.01	6.2	6.9	6.2	8.1	7.66	6.7	6.7	7.2	4.3	7.36	6.6	7.1
4	DO_SAT% (%)	54	73	72.71	76	86	68	92	92.75	72	71	87	50	89.10	82	82
	CHEMICAL INDICES															
1	HAR_Ca (mgCaCO3/L)	70	79	68	79	80	95	94	102	133	110	142	199	106	107	101
2	HAR_Total (mgCaCO3/L)	121	147	102	123	121	146	123	163	194	157	255	256	163	175	149
3	Na% (%)	16	16	NA	12	12	11	NA	NA	12	15	14	NA	NA	12	15
4	RSC (-)	0.3	0.2	0.46	0.0	0.1	0.1	0.3	0.07	0.1	0.0	0.3	3.8	0.35	0.3	0.4
5	SAR (-)	0.4	0.5	NA	0.3	0.3	0.3	NA	NA	0.4	0.4	0.5	NA	NA	0.4	0.4

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.20 Narmada at Gorakhpur

History Sheet

		Water Year	: 2023-24
Site	: Gorakhpur	Code	: WQSS-202001
State	: Madhya Pradesh	District	: DINDORI
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Upper Narmada Sub-Division, Jabalpur
Drainage Area	: *	Bank	: Left
Latitude	: 22°46'12.0"	Longitude	: 81°27'17.0"
Current Zero of Gauge (m)	: 732.000 M		
CATEGORY	Opening Date	Closing Date	
Gauge	: 15.01.2019		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of GQ Station only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Gorakhpur (WQSS-202001)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Brown
2	EC_GEN (µmho/cm)	257	278	271	208	203	198	208	223	229	212	265	274
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.2	8.1	8.0	7.6	7.6	7.5	7.4	7.8	8.0	7.7	7.8	7.9
5	TDS (mg/L)	171	191	184	138	132	126	135	145	151	144	171	179
6	Temp (deg C)	25.0	26.0	27.0	26.0	25.5	27.0	25.0	25.0	26.0	25.0	26.0	26.0
7	Turb (NTU)	29.1	9.7	11.2	225.0	598.0	547.0	432.0	989.0	85.6	9.9	8.4	6.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	155	144	146	149	151	152	102	104	107	110	114	116
3	Ca (mg/L)	32	34	32	32	33	35	24	23	24	24	25	26
4	Cl (mg/L)	17.6	19.4	19.7	19.1	20.9	20.0	21.4	15.2	15.5	14.6	14.6	13.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	189	176	178	182	184	186	124	127	130	134	139	141
8	K (mg/L)	1.2	1.3	1.2	1.6	1.5	1.5	1.6	1.0	1.1	0.9	0.9	1.2
9	Mg (mg/L)	13.2	13.0	13.4	13.6	13.8	12.9	9.3	9.4	9.3	9.2	9.3	9.4
10	Na (mg/L)	11.5	12.2	13.1	11.0	10.9	10.6	12.3	8.1	8.6	7.9	7.5	7.2
11	NH3-N (mg N/L)	0.05	0.06	0.08	0.07	0.08	0.08	0.09	0.09	0.09	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.22	0.20	0.17	0.29	0.30	0.71	0.93	0.97	0.90	0.43	0.45	0.49
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.04	0.04	0.43	0.06	0.06	0.05	0.04	0.04	0.05
14	NO3-N (mgN/L)	0.21	0.19	0.16	0.26	0.26	0.28	0.88	0.90	0.85	0.39	0.41	0.45
15	o-PO4-P (mg P/L)	0.139	0.152	0.123	0.109	0.118	0.131	0.175	0.183	0.165	0.150	0.153	0.160
16	SiO2 (mg/L)	28.1	25.1	24.6	24.4	24.8	25.7	35.0	35.2	34.5	27.5	27.7	27.9
17	SO4 (mg/L)	6.1	6.8	2.6	6.7	6.7	6.0	10.7	9.9	9.7	7.9	7.8	7.7
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.3	1.1	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.4	1.6	1.0
2	COD (mg/L)												
3	DO (mg/L)	6.8	7.1	7.2	6.6	6.3	6.9	6.0	6.2	6.1	7.3	7.5	7.5
4	DO_SAT% (%)	82	88	90	81	77	86	73	75	75	89	93	92
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	79	84	80	79	82	87	59	57	59	61	63	66
2	HAR_Total (mgCaCO3/L)	134	138	136	136	140	141	98	96	98	99	102	105
3	Na% (%)	16	16	17	15	14	14	21	15	16	15	14	13
4	RSC (-)	0.4	0.1	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2
5	SAR (-)	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Gorakhpur (WQSS-202001)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	256	259	263	291	298	305	302	312	322	285	291	319
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.9	7.9	7.5	7.7	8.1	8.2	8.0	7.9	7.8	7.9	7.6	7.6
5	TDS (mg/L)	163	166	168	185	192	197	197	205	214	185	192	207
6	Temp (deg C)	26.0	25.0	26.0	20.0	20.0	20.0	18.0	17.0	16.0	18.0	17.0	16.0
7	Turb (NTU)	29.7	28.7	28.0	7.0	6.9	6.3	8.3	8.1	8.0	5.1	5.0	5.3
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	103	106	109	114	118	124	146	149	150	142	145	153
3	Ca (mg/L)	27	27	28	30	32	33	42	41	43	39	44	45
4	Cl (mg/L)	14.9	14.5	14.9	15.7	15.7	15.7	16.8	16.5	16.7	16.7		16.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	126	129	133	139	144	151	178	182	183	173	177	187
8	K (mg/L)	1.2	1.2	1.3	0.7	0.7	0.7	0.8	0.9	0.9	1.0	0.9	0.9
9	Mg (mg/L)	9.4	9.6	9.5	9.4	9.4	9.3	10.0	10.7	10.0	9.7	8.9	10.2
10	Na (mg/L)	8.0	7.9	8.1	8.3	8.4	8.5	8.7	8.5	8.9	9.0	8.8	8.9
11	NH3-N (mg N/L)	0.07	0.07	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.08
12	NO2+NO3 (mg N/L)	0.38	0.39	0.41	0.49	0.51	0.51	0.40	0.41	0.42	0.46	0.47	0.49
13	NO2-N (mgN/L)	0.04	0.05	0.05	0.06	0.07	0.07	0.06	0.06	0.06	0.08	0.08	0.08
14	NO3-N (mgN/L)	0.33	0.35	0.36	0.43	0.44	0.44	0.34	0.35	0.35	0.39	0.39	0.41
15	o-PO4-P (mg P/L)	0.147	0.155	0.157	0.159	0.163	0.168	0.149	0.153	0.146	0.194	0.208	0.250
16	SiO2 (mg/L)	27.1	27.6	28.4	28.8	29.5	29.6	29.9	30.3	32.3	28.4	30.1	31.2
17	SO4 (mg/L)	7.9	8.0	8.2	6.9	7.9	7.9	4.7	5.2	5.7	6.0	16.3	6.9
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.2	1.2	1.4	1.4	1.0	0.8	0.8	1.18	1.2	1.4
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	6.9	7.1	7.2	6.6	6.8	6.7	7.8	7.6	7.6	7.5	7.4	7.6
4	DO_SAT% (%)	85	86	88	72	74	74	83	78	77	79	77	77
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	67	68	71	76	79	82	106	103	108	98	109	112
2	HAR_Total (mgCaCO3/L)	107	108	110	115	118	121	147	148	149	139	146	155
3	Na% (%)	14	14	14	13	13	13	11	11	11	12	12	11
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Narmada at Gorakhpur (WQSS-202001)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	344	325	328	324	328	216	239	244	241	260	265	274
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	8.1	7.6	7.7	7.7	7.8	8.0	7.9	7.8	7.9	8.0	8.0
5	TDS (mg/L)	224	212	216	210	214	216	160	167	166	163	166	175
6	Temp (deg C)	17.0	17.0	19.5	18.0	20.0	20.0	25.0	21.0	25.0	26.0	25.0	25.0
7	Turb (NTU)	2.1	14.0	12.9	7.6	7.7	7.6	2.1	2.0	1.9	6.0	5.5	5.7
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	166	161	154	161	163	165	133	134	134	137	139	141
3	Ca (mg/L)	48	49	49	48	48	49	38	38	39	39	39	40
4	Cl (mg/L)	16.7	22.0	22.6	22.4	23.2	23.7	19.4	20.0	20.6	21.4	21.6	21.8
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.29	0.18	0.16	0.15	0.15	0.16
7	HCO3 (mg/L)	202	197	188	196	199	201	162	164	163	167	169	172
8	K (mg/L)	0.5	1.4	1.4	1.4	1.4	1.5	1.3	1.3	1.4	1.5	1.5	1.6
9	Mg (mg/L)	10.6	10.7	10.0	9.9	10.1	10.0	8.1	8.1	8.3	9.6	9.7	10.1
10	Na (mg/L)	8.7	14.7	14.8	14.8	14.8	14.9	11.0	11.1	11.2	11.4	11.5	11.6
11	NH3-N (mg N/L)	0.09	0.09	0.10	0.09	0.09	0.10	0.10	0.09	0.10	0.09	0.09	0.10
12	NO2+NO3 (mg N/L)	0.77	0.78	0.79	0.77	0.80	0.81	0.37	0.38	0.39	0.41	0.42	0.44
13	NO2-N (mgN/L)	0.07	0.07	0.07	0.07	0.07	0.08	0.05	0.06	0.06	0.05	0.06	0.06
14	NO3-N (mgN/L)	0.70	0.71	0.72	0.70	0.73	0.74	0.32	0.32	0.33	0.36	0.36	0.38
15	o-PO4-P (mg P/L)	0.204	0.212	0.215	0.201	0.204	0.208	0.117	0.124	0.130	0.129	0.135	0.140
16	SiO2 (mg/L)	44.3	45.0	45.3	43.3	44.3	43.8	33.3	33.4	33.6	33.5	33.8	34.0
17	SO4 (mg/L)	5.4	5.9	6.2	6.0	6.1	6.2	8.0	8.1	8.0	7.9	8.4	8.5
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.7	1.2	1.2	1.8	1.8	2.0	1.6	1.2	1.2	1.6	1.4	1.6
2	COD (mg/L)	10.0	BDL	BDL	11.0	10.0	11.0	6.6	6.7	6.8	5.7	BDL	5.4
3	DO (mg/L)	6.6	6.8	6.6	5.8	5.9	6.1	5.2	5.6	5.5	6.6	6.8	6.5
4	DO_SAT% (%)	68	70	72	61	65	68	63	62	67	81	82	78
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	120	122	122	120	121	122	95	96	96	96	98	100
2	HAR_Total (mgCaCO3/L)	164	166	163	161	163	164	129	130	131	136	138	142
3	Na% (%)	10	16	16	17	16	16	16	16	16	15	15	15
4	RSC (-)	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.3	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at Gorakhpur (WQSS-202001)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (μmho/cm)	36	344	198	270
2	pH_GEN (pH units)	36	8.2	7.4	7.8
3	TDS (mg/L)	36	224	126	179
4	Temp (deg C)	36	27.0	16.0	22.4
5	Turb (NTU)	36	989.0	1.9	88.1
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	166	102	136
3	Ca (mg/L)	36	49	23	36
4	Cl (mg/L)	35	23.7	13.4	18.3
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.29	0.15	0.18
7	HCO3 (mg/L)	36	202	124	166
8	K (mg/L)	36	1.6	0.5	1.2
9	Mg (mg/L)	36	13.8	8.1	10.2
10	Na (mg/L)	36	14.9	7.2	10.4
11	NH3-N (mg N/L)	36	0.10	0.05	0.08
12	NO2+NO3 (mg N/L)	36	0.97	0.17	0.51
13	NO2-N (mgN/L)	36	0.43	0.01	0.06
14	NO3-N (mgN/L)	36	0.90	0.16	0.45
15	o-PO4-P (mg P/L)	36	0.250	0.109	0.162
16	SiO2 (mg/L)	36	45.3	24.4	32.3
17	SO4 (mg/L)	36	16.3	2.6	7.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	35	2.0	0.8	1.3
2	COD (mg/L)	9	11.0	5.4	8.1
3	DO (mg/L)	36	7.8	5.2	6.7
4	DO_SAT% (%)	36	93	61	77
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	122	57	90
2	HAR_Total (mgCaCO3/L)	36	166	96	133
3	Na% (%)	36	21	10	14
4	RSC (-)	36	0.4	0.0	0.1
5	SAR (-)	36	0.5	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2020-2022

Station Name : Narmada at Gorakhpur (WQSS-202001)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

S.No	Parameters	Flood				Winter				Summer			
		Jun - Oct				Nov - Feb				Mar - May			
		2020	2021	2022	2023	2020-2021	2021-2022	2022-2023	2023-24	2021	2022	2023	2024
	PHYSICAL												
1	EC_GEN (µmho/cm)	193	234	223	240	275	282	300	310	294.5	318	290	266
2	pH_GEN (pH units)	7.39	7.5	7.9	7.8	7.72	7.5	8.0	7.9	7.35	7.9	8.0	7.9
3	TDS (mg/L)	121.5	147	139	158	175	181	205	202	175	188	200	182
4	Temp (deg C)	25.1	24.6	25.9	25.8	24.6	17.8	17.3	18.0	23	23.9	21.6	22.8
5	Turb (NTU)	237.67	80.8	287.5	202.5	6.5	5.1	8.3	7.4	6.0	8.7	9.3	5.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	93	119	117	124	146	152	134	144	152	155	156	145
3	Ca (mg/L)	24.73	26	34	28	34.67	39	38	41	27.33	32	35	42
4	Cl (mg/L)	9.87	15.3	14.2	17.0	11.06	14.4	17.2	17.4	13.65	14.3	21.9	21.6
5	CO3 (mg/L)	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18
7	HCO3 (mg/L)	114	144	142	152	178.75	186	163	175	185	189	190	177
8	K (mg/L)	2.22	NA	1.4	1.2	NA	NA	0.8	0.9	NA	1.5	1.2	1.4
9	Mg (mg/L)	8.62	8.1	7.2	11.0	12.64	12.0	10.8	9.9	10.76	12.4	11.8	9.3
10	Na (mg/L)	4.46	NA	8.2	9.7	NA	NA	9.6	9.7	NA	13.9	13.5	12.5
11	NH3-N (mg N/L)	NA	NA	0.08	0.07	NA	NA	0.04	0.08	NA	0.05	0.10	0.09
12	NO2+NO3 (mg N/L)	0.93	0.52	0.97	0.48	0.59	0.18	0.31	0.54	0.08	0.23	0.66	0.53
13	NO2-N (mgN/L)	0.04	0.04	0.05	0.06	0.39	0.02	0.03	0.07	0	0.05	0.06	0.06
14	NO3-N (mgN/L)	1.35	0.48	0.93	0.42	0.19	0.16	0.28	0.47	0.08	0.18	0.60	0.47
15	o-PO4-P (mg P/L)	0.5	0.094	0.189	0.148	0.05	0.095	0.131	0.185	0.09	0.074	0.111	0.154
16	SiO2 (mg/L)	19.51	32.1	38.5	28.2	23.2	37.0	28.7	33.7	25.85	38.4	29.1	37.0
17	SO4 (mg/L)	12.48	5.1	8.3	7.5	7.14	3.9	5.2	7.1	4.83	4.3	6.7	7.5
	BIOLOGICAL												
1	BOD3-27 (mg/L)	0.9	1.1	1.6	1.1	1.12	1.1	1.1	1.2	1.02	1.6	1.4	1.6
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	10.0	BDL	BDL	BDL	7.9
3	DO (mg/L)	5.32	5.9	6.0	6.8	7.56	7.6	7.2	7.1	6.49	6.0	6.6	6.0
4	DO_SAT% (%)	65	71	74	84	93	80	75	75	79	71	75	70
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	61.83	65	84	71	86.68	97	95	103	68.33	80	88	105
2	HAR_Total (mgCaCO3/L)	97	99	114	117	139	147	140	144	113	131	138	144
3	Na% (%)	NA	NA	13	15	NA	NA	13	13	NA	18	18	16
4	RSC (-)	0.07	0.4	0.1	0.2	0.15	0.2	0.1	0.0	0.78	0.5	0.4	0.0
5	SAR (-)	NA	NA	0.3	0.4	NA	NA	0.4	0.3	NA	0.5	0.5	0.5

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.21 Narmada at U/S Dindori

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: U/S Dindori	Code	: WQSS-202002
State	: Madhya Pradesh	District	: DINDORI
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Upper Narmada Sub-Division, Jabalpur
Drainage Area	: *	Bank	: Left
Latitude	: 22°56'43.0"	Longitude	: 81°50'46.0"
Current Zero of Gauge (m)	: *		
CATEGORY	Opening Date	Closing Date	
Gauge	: *		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at U/S Dindori (WQSS-202002)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
2	EC_GEN (µmho/cm)	259	235	368	204	201	196	209	224	231	397	266	279
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	8.2	7.8	7.9	7.9	7.7	7.5	7.9	8.0	7.9	7.9	7.8
5	TDS (mg/L)	173	163	247	137	132	125	136	145	153	267	173	182
6	Temp (deg C)	26.0	27.0	28.0	25.0	26.0	28.0	26.0	26.0	25.0	26.0	26.0	26.0
7	Turb (NTU)	21.6	15.6	11.3	178.0	571.0	541.0	420.0	962.0	80.1	18.7	15.1	12.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	131	121	152	154	154	156	94	97	100	104	107	110
3	Ca (mg/L)	33	28	43	43	35	36	27	26	27	26	27	28
4	Cl (mg/L)	18.4	19.0	22.4	18.0	20.5	21.1	20.4	15.5	15.5	16.0	14.0	12.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	160	148	186	188	188	190	115	118	122	127	130	134
8	K (mg/L)	1.4	1.6	1.9	1.7	1.6	1.7	1.7	1.1	1.1	0.9	1.0	0.9
9	Mg (mg/L)	13.1	13.0	13.3	7.4	11.3	11.5	7.2	7.1	7.2	9.5	9.5	9.4
10	Na (mg/L)	10.9	12.1	14.9	10.5	11.0	11.1	12.0	8.1	8.5	8.3	7.5	6.4
11	NH3-N (mg N/L)	0.05	0.06	0.08	0.08	0.08	0.07	0.09	0.08	0.09	0.07	0.07	0.06
12	NO2+NO3 (mg N/L)	0.28	0.22	0.27	0.30	0.31	0.33	0.96	0.98	0.93	0.54	0.54	0.55
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.03	0.04	0.04	0.06	0.06	0.05	0.05	0.05	0.05
14	NO3-N (mgN/L)	0.27	0.21	0.26	0.27	0.27	0.29	0.90	0.92	0.87	0.49	0.49	0.49
15	o-PO4-P (mg P/L)	0.149	0.161	0.132	0.115	0.127	0.140	0.167	0.175	0.157	0.142	0.145	0.155
16	SiO2 (mg/L)	28.7	25.7	25.1	24.7	24.9	25.8	35.2	35.4	34.7	26.2	26.4	26.6
17	SO4 (mg/L)	6.0	6.6	2.8	6.8	6.6	5.8	10.6	9.7	9.3	8.1	8.0	7.9
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.7	1.5	1.2	1.0	1.0	0.8	0.8	1.2	1.2	1.0	1.2	0.8
2	COD (mg/L)												
3	DO (mg/L)	4.9	5.2	5.4	6.8	6.3	7.1	5.8	6.4	6.3	7.5	7.7	7.7
4	DO_SAT% (%)	60	66	68	82	78	90	71	79	76	93	95	95
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	81	71	109	108	89	89	68	65	67	65	67	70
2	HAR_Total (mgCaCO3/L)	136	125	164	139	136	137	98	95	97	105	107	109
3	Na% (%)	15	17	16	14	15	15	21	16	16	15	13	11
4	RSC (-)	0.0	0.0	0.0	0.3	0.4	0.4	0.0	0.0	0.1	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at U/S Dindori (WQSS-202002)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (μmho/cm)	251	254	259	269	275	281	290	290	298	291	295	298
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.4	7.5	7.6	8.0	8.2	8.2	7.5	7.6	7.6	7.9	8.0	7.2
5	TDS (mg/L)	162	164	168	170	176	182	189	189	195	187	194	193
6	Temp (deg C)	25.0	24.0	25.0	19.0	20.0	20.0	19.0	18.0	15.0	19.0	18.0	15.5
7	Turb (NTU)	37.9	36.0	35.1	4.0	3.8	3.4	4.4	4.3	5.6	6.9	6.9	7.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	101	103	106	103	107	113	150	145	154	149	149	149
3	Ca (mg/L)	28	28	29	28	30	31	42	42	39	40	44	47
4	Cl (mg/L)	13.9	14.3	15.0	16.1	17.4	18.2	18.4	19.0	18.2	19.6	19.7	18.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	123	126	129	126	131	138	183	177	188	182	182	182
8	K (mg/L)	0.9	0.9	1.0	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.1	1.0
9	Mg (mg/L)	8.6	8.8	8.6	8.5	9.0	9.0	9.6	9.7	10.0	9.9	9.0	10.0
10	Na (mg/L)	8.0	7.9	8.2	8.6	9.3	9.7	9.8	9.8	9.9	10.2	10.2	10.0
11	NH3-N (mg N/L)	0.07	0.07	0.08	0.08	0.08	0.09	0.07	0.07	0.07	0.07	0.08	0.08
12	NO2+NO3 (mg N/L)	0.37	0.38	0.39	0.48	0.50	0.52	0.39	0.40	0.41	0.46	0.48	0.48
13	NO2-N (mgN/L)	0.05	0.05	0.05	0.06	0.06	0.07	0.06	0.06	0.06	0.07	0.08	0.08
14	NO3-N (mgN/L)	0.32	0.33	0.34	0.42	0.44	0.45	0.34	0.34	0.35	0.39	0.40	0.41
15	o-PO4-P (mg P/L)	0.142	0.150	0.152	0.149	0.156	0.161	0.136	0.136	0.142	0.208	0.217	0.220
16	SiO2 (mg/L)	26.9	27.4	28.3	27.4	28.0	29.5	29.8	30.2	29.8	28.8	29.8	29.5
17	SO4 (mg/L)	7.8	7.9	8.0	6.8	7.4	7.9	4.3	4.7	5.2	6.2	6.5	7.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	0.6	0.8	1.0	1.2	1.2	1.0	1.0	1.0	0.8	0.8	1.0
2	COD (mg/L)												
3	DO (mg/L)	7.9	7.7	8.0	6.8	6.8	6.7	7.6	7.6	7.4	7.3	7.2	7.4
4	DO_SAT% (%)	95	91	96	73	74	74	82	80	73	79	76	74
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	69	70	73	70	74	78	104	106	99	101	110	117
2	HAR_Total (mgCaCO3/L)	105	107	109	105	112	115	144	146	140	142	147	159
3	Na% (%)	14	14	14	15	15	15	13	13	13	13	13	12
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.2	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at U/S Dindori (WQSS-202002)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	331	325	329	325	330	330	242	245	245	261	264	274
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.1	8.1	7.6	7.6	7.7	7.8	8.1	7.9	7.7	8.0	8.0	8.0
5	TDS (mg/L)	216	213	215	211	216	216	167	168	168	164	165	175
6	Temp (deg C)	26.5	17.0	19.0	18.5	20.5	21.0	24.0	20.0	24.0	25.0	25.0	26.0
7	Turb (NTU)	2.8	14.7	14.0	5.9	5.9	5.8	1.0	0.8	0.8	4.2	4.3	4.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	157	157	157	160	162	165	135	137	137	138	139	141
3	Ca (mg/L)	49	49	48	48	48	48	38	39	39	38	39	40
4	Cl (mg/L)	19.7	21.8	22.4	21.8	22.6	23.4	21.8	22.0	22.3	21.6	21.8	22.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.27	0.20	0.16	0.14	0.16	0.16
7	HCO3 (mg/L)	192	192	192	195	198	201	165	167	167	168	170	172
8	K (mg/L)	1.2	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.6
9	Mg (mg/L)	9.9	10.4	10.3	9.8	9.9	10.1	8.3	8.5	8.7	9.8	9.5	9.9
10	Na (mg/L)	11.8	14.1	14.3	14.2	14.3	14.3	11.5	11.6	11.6	11.4	11.5	11.6
11	NH3-N (mg N/L)	0.09	0.10	0.10	0.09	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.09
12	NO2+NO3 (mg N/L)	0.72	0.74	0.75	0.73	0.76	0.77	0.39	0.39	0.40	0.41	0.42	0.44
13	NO2-N (mgN/L)	0.06	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06
14	NO3-N (mgN/L)	0.66	0.67	0.68	0.66	0.69	0.70	0.33	0.34	0.34	0.35	0.36	0.38
15	o-PO4-P (mg P/L)	0.195	0.205	0.209	0.194	0.198	0.201	0.147	0.152	0.157	0.132	0.134	0.142
16	SiO2 (mg/L)	43.9	45.0	45.2	43.5	43.3	43.6	33.9	34.0	34.2	33.6	33.9	34.0
17	SO4 (mg/L)	5.1	5.7	5.9	5.7	5.8	6.1	8.4	8.5	8.3	8.0	8.5	8.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.5	1.7	1.2	2.0	2.0	2.2	1.4	1.4	1.4	1.8	1.6	1.8
2	COD (mg/L)	9.0	10.0		12.0	11.0	13.0				5.9	5.5	5.5
3	DO (mg/L)	6.4	6.6	6.8	5.6	5.7	5.9	5.4	5.4	5.3	7.0	7.2	6.9
4	DO_SAT% (%)	79	68	74	59	63	67	64	59	63	84	87	85
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	122	122	121	119	121	121	96	96	97	96	98	101
2	HAR_Total (mgCaCO3/L)	163	165	164	160	162	163	131	132	133	137	138	142
3	Na% (%)	14	16	16	16	16	16	16	16	16	15	15	15
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at U/S Dindori (WQSS-202002)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	397	196	276
2	pH_GEN (pH units)	36	8.2	7.2	7.8
3	TDS (mg/L)	36	267	125	180
4	Temp (deg C)	36	28.0	15.0	22.8
5	Turb (NTU)	36	962.0	0.8	85.2
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	165	94	133
3	Ca (mg/L)	36	49	26	37
4	Cl (mg/L)	36	23.4	12.4	19
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.27	0.14	0.18
7	HCO3 (mg/L)	36	201	115	163
8	K (mg/L)	36	1.9	0.9	1.3
9	Mg (mg/L)	36	13.3	7.1	9.6
10	Na (mg/L)	36	14.9	6.4	10.7
11	NH3-N (mg N/L)	36	0.10	0.05	0.08
12	NO2+NO3 (mg N/L)	36	0.98	0.22	0.51
13	NO2-N (mgN/L)	36	0.08	0.01	0.05
14	NO3-N (mgN/L)	36	0.92	0.21	0.46
15	o-PO4-P (mg P/L)	36	0.220	0.115	0.161
16	SiO2 (mg/L)	36	45.2	24.7	32
17	SO4 (mg/L)	36	10.6	2.8	7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	2.2	0.6	1.2
2	COD (mg/L)	8	13.0	5.5	9
3	DO (mg/L)	36	8.0	4.9	6.6
4	DO_SAT% (%)	36	96	59	77
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	122	65	93
2	HAR_Total (mgCaCO3/L)	36	165	95	132
3	Na% (%)	36	21	11	15
4	RSC (-)	36	0.4	0.0	0.1
5	SAR (-)	36	0.5	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2020-2024

Station Name : Narmada at U/S Dindori (WQSS-202002)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Flood				Winter				Summer			
		Jun - Oct				Nov - Feb				Mar - May			
		2020	2021	2022	2023	2020-2021	2021-2022	2022-2023	2023-24	2021	2022	2023	2024
	PHYSICAL												
1	EC_GEN (µmho/cm)	232.35	224	225	256	268.25	281	304	298	301.5	319	298	280
2	pH_GEN (pH units)	7.6	7.5	8.0	7.8	7.87	7.5	8.0	7.8	7.31	7.8	7.9	7.8
3	TDS (mg/L)	143.2	141	140	168	170	181	208	193	179.5	189	204	183
4	Temp (deg C)	24.5	24.9	26.3	25.9	13.75	18.0	17.5	18.8	12	24.2	21.7	22.7
5	Turb (NTU)	68.6	62.1	262.8	197.1	6.25	4.5	11.5	6.5	6	6.2	12.8	3.6
	CHEMICAL												
1	ALK-TOT (mgCaCO3/L)	116	117	110	119	148	146	141	141	144	149	153	146
2	Ca (mg/L)	28.07	27	37	31	32.44	39	40	41	26	29	35	42
3	Cl (mg/L)	9.17	14.3	13.9	17.1	12.52	12.8	17.6	19.1	14.62	13.7	22.0	22.1
4	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18
5	HCO3 (mg/L)	142	143	134	146	181	178	171	172	176	181	186	178
6	K (mg/L)	1.61	NA	1.5	1.3	NA	NA	0.8	1.1	NA	1.5	1.4	1.4
7	Mg (mg/L)	10.28	8.2	5.6	9.7	11.79	11.4	11.0	9.6	4.6	15.0	12.2	9.4
8	Na (mg/L)	6.51	NA	8.4	9.7	NA	NA	9.7	10.6	NA	14.0	13.5	12.4
9	NH3-N (mg N/L)	NA	NA	0.04	0.07	NA	NA	0.05	0.08	NA	0.04	0.09	0.09
10	NO2+NO3 (mg N/L)	0.19	0.61	0.95	0.49	0.15	0.89	0.30	0.53	0.07	0.42	0.52	0.52
11	NO2-N (mgN/L)	0.02	0.03	0.04	0.04	0.04	0.75	0.03	0.06		0.14	0.06	0.06
12	NO3-N (mgN/L)	0.3	0.58	0.91	0.45	0.11	0.14	0.27	0.46	0.06	0.29	0.46	0.46
13	o-PO4-P (mg P/L)	0.15	0.091	0.188	0.147	0.05	0.094	0.130	0.178	0.09	0.076	0.110	0.162
14	SiO2 (mg/L)	26.17	31.9	40.9	28.1	23.04	27.0	28.7	33.1	36.91	33.2	29.8	37.1
15	SO4 (mg/L)	13.23	6.1	10.0	7.5	5.35	4.9	5.6	6.1	4.79	4.7	7.3	7.6
	BIOLOGICAL												
1	BOD3-27 (mg/L)	0.47	1.4	1.8	1.0	1.26	1.1	1.0	1.1	2.73	1.9	1.4	1.7
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	9.5	BDL	BDL	BDL	8.8
3	DO (mg/L)	5.25	5.6	6.5	6.7	7.71	7.3	7.2	7.0	4.44	5.7	6.5	6.0
4	DO_SAT% (%)	63.55	68	80	82	93.34	77	75	75	53.72	68	74	70
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	70	69	93	77	81	97	100	102	65	73	88	105
2	HAR_Total (mgCaCO3/L)	112	103	117	118	130	144	146	142	84	135	139	144
3	Na% (%)	NA	NA	13	15	NA	NA	13	14	NA	18	17	16
4	RSC (-)	0.08	0.3	0.0	0.1	0.38	0.1	0.0	0.1	1.21	0.3	0.3	0.1
5	SAR (-)	NA	NA	0.3	0.4	NA	NA	0.4	0.4	NA	0.5	0.5	0.5

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.22 Narmada at D/S Dindori (Jogi Tikariya)

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: D/S Dindori (Jogitikariya)	Code	: WQSS-202003
State	: Madhya Pradesh	District	DINDORI
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division(ND), Bhopal	Sub-Division	: Upper Narmada Sub-Division, Jabalpur
Drainage Area	: *	Bank	: Left
Latitude	: 22°58'6.0"	Longitude	: 81°20'47.0"
Current Zero of Gauge (m)	:		
CATEGORY	Opening Date	Closing Date	
Gauge	: *		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at D/S Dindori (Jogitikariya) (WQSS-202003)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_ Cod (-)	Light Brown	Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Light Brown
2	EC_GEN (µmho/cm)	256	236	371	210	205	189	209	222	228	212	266	278
3	Odour_ Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	8.2	8.0	7.9	7.9	7.5	7.6	8.0	7.9	7.9	7.9	7.9
5	TDS (mg/L)	171	163	185	139	134	128	136	145	152	149	173	184
6	Temp (deg C)	26.0	26.5	28.0	26.0	26.0	27.0	26.0	25.0	27.0	25.0	25.0	25.0
7	Turb (NTU)	37.9	8.9	12.3	167.0	490.0	536.0	436.0	853.0	74.5	21.3	16.8	11.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	134	124	144	146	148	150	120	114	117	106	110	111
3	Ca (mg/L)	31	30	31	30	36	37	26	24	25	27	28	29
4	Cl (mg/L)	17.2	19.0	21.8	19.5	18.8	20.5	16.5	17.1	16.3	15.8	15.6	12.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	163	151	176	178	180	183	146	139	143	129	134	135
8	K (mg/L)	1.4	1.6	1.8	1.6	1.5	1.4	1.6	0.9	0.9	0.9	0.9	1.0
9	Mg (mg/L)	13.3	11.7	14.6	15.3	12.3	11.8	7.6	10.6	10.4	9.4	9.5	9.3
10	Na (mg/L)	10.9	12.1	14.1	11.1	11.0	10.8	8.9	8.9	9.2	8.3	8.1	6.4
11	NH3-N (mg N/L)	0.05	0.06	0.07	0.07	0.09	0.07	0.09	0.09	0.08	0.06	0.07	0.07
12	NO2+NO3 (mg N/L)	0.30	0.31	0.26	0.30	0.32	0.34	0.97	0.99	0.95	0.50	0.47	0.54
13	NO2-N (mgN/L)	0.02	0.01	0.01	0.03	0.04	0.04	0.07	0.07	0.06	0.05	0.06	0.06
14	NO3-N (mgN/L)	0.28	0.30	0.25	0.27	0.28	0.30	0.90	0.93	0.89	0.45	0.42	0.49
15	o-PO4-P (mg P/L)	0.142	0.155	0.126	0.112	0.124	0.137	0.170	0.178	0.159	0.145	0.150	0.158
16	SiO2 (mg/L)	28.3	24.9	25.5	24.3	24.9	25.8	35.3	35.5	34.8	26.2	26.3	26.5
17	SO4 (mg/L)	6.3	6.9	5.3	7.3	6.9	6.2	10.5	9.9	10.0	8.2	8.0	8.1
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.5	1.3	1.7	1.4	1.3	1.0	1.4	1.0	1.0	1.0	1.2	1.2
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	4.5	4.8	5.2	6.4	6.1	6.7	5.6	6.0	5.9	7.3	7.5	7.5
4	DO_SAT% (%)	55	59	66	79	76	84	69	72	74	89	91	91
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	78	76	77	75	90	92	65	61	63	67	69	72
2	HAR_Total (mgCaCO3/L)	133	125	138	139	141	141	97	105	106	106	109	111
3	Na% (%)	15	17	18	15	14	14	17	16	16	14	14	11
4	RSC (-)	0.0	0.0	0.2	0.2	0.1	0.2	0.5	0.2	0.2	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at D/S Dindori (Jogitikariya) (WQSS-202003)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	246	249	254	271	278	282	289	292	295	336	296	298
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.9	7.9	7.9	7.8	8.1	8.1	7.8	7.8	8.0	7.7	7.7	8.2
5	TDS (mg/L)	158	160	165	172	179	182	188	189	193	218	196	193
6	Temp (deg C)	26.0	25.5	25.0	20.0	21.0	19.0	20.0	17.5	15.0	20.0	17.0	15.0
7	Turb (NTU)	56.0	55.2	52.1	11.0	10.8	10.3	5.8	5.6	6.7	6.3	6.3	6.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	99	102	105	107	111	114	154	153	150	142	145	145
3	Ca (mg/L)	28	27	28	26	29	30	40	42	38	40	44	47
4	Cl (mg/L)	14.1	14.1	14.7	16.5	17.8	17.8	16.5	17.0	18.0	19.2	18.6	19.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	121	125	128	131	135	139	188	187	183	173	177	177
8	K (mg/L)	0.9	0.9	1.0	0.8	1.0	1.0	1.0	1.1	1.1	1.2	1.1	1.1
9	Mg (mg/L)	8.0	9.2	9.2	9.4	9.5	9.6	9.9	9.2	11.5	10.9	9.2	10.0
10	Na (mg/L)	7.9	7.8	7.9	8.8	9.5	9.5	9.7	9.6	9.8	10.1	10.0	10.1
11	NH3-N (mg N/L)	0.07	0.07	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.08
12	NO2+NO3 (mg N/L)	0.37	0.39	0.41	0.46	0.48	0.49	0.39	0.40	0.40	0.52	0.48	0.48
13	NO2-N (mgN/L)	0.05	0.05	0.06	0.06	0.06	0.06	0.05	0.06	0.06	0.08	0.08	0.08
14	NO3-N (mgN/L)	0.33	0.34	0.35	0.41	0.42	0.42	0.34	0.34	0.34	0.44	0.41	0.40
15	o-PO4-P (mg P/L)	0.142	0.152	0.155	0.152	0.159	0.163	0.129	0.136	0.140	0.229	0.220	0.217
16	SiO2 (mg/L)	26.9	27.3	28.6	27.3	27.5	28.3	28.2	30.0	29.6	33.2	29.8	29.7
17	SO4 (mg/L)	7.8	8.0	8.1	6.9	7.4	7.9	4.4	4.7	5.1	6.6	6.6	7.1
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.2	1.0	1.2	1.2	1.2	1.0	1.0	0.8	1.0	1.0	1.2
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	7.5	7.5	7.6	6.8	7.0	6.9	7.8	7.8	7.6	7.1	7.0	7.2
4	DO_SAT% (%)	92	91	91	74	78	74	86	80	75	78	73	72
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	70	67	70	65	71	74	101	105	96	100	111	117
2	HAR_Total (mgCaCO3/L)	104	105	108	105	111	115	142	144	144	145	150	159
3	Na% (%)	14	14	14	15	16	15	13	13	13	13	13	12
4	RSC (-)	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at D/S Dindori (Jogitikariya) (WQSS-202003)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (μmho/cm)	330	327	330	326	326	328	239	242	244	260	265	277
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.1	8.0	7.6	7.6	7.7	7.7	8.0	8.0	7.8	8.0	7.9	8.0
5	TDS (mg/L)	215	213	216	212	212	214	161	164	167	163	166	177
6	Temp (deg C)	16.0	18.0	19.5	19.0	20.0	20.0	24.0	20.0	25.0	25.0	25.5	26.0
7	Turb (NTU)	6.4	4.3	5.0	5.0	5.3	5.4	0.8	0.7	0.7	8.3	8.1	8.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	161	157	154	159	160	163	132	134	134	138	139	142
3	Ca (mg/L)	49	49	49	48	49	49	37	38	38	38	39	40
4	Cl (mg/L)	19.1	21.6	22.0	22.0	22.4	22.8	20.6	21.0	21.4	21.6	21.4	22.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.28	0.21	0.16	0.14	0.16	0.14
7	HCO3 (mg/L)	197	192	188	194	195	199	161	163	164	168	170	173
8	K (mg/L)	1.2	1.4	1.5	1.4	1.5	1.5	1.4	1.4	1.4	1.4	1.5	1.6
9	Mg (mg/L)	9.3	10.5	10.4	10.0	10.0	10.2	8.5	8.7	9.0	9.7	9.6	10.3
10	Na (mg/L)	11.9	14.0	14.4	14.3	14.4	14.4	11.2	11.3	11.3	11.5	11.4	11.6
11	NH3-N (mg N/L)	0.10	0.10	0.10	0.09	0.10	0.10	0.10	0.09	0.10	0.09	0.09	0.09
12	NO2+NO3 (mg N/L)	0.74	0.75	0.77	0.75	0.78	0.79	0.36	0.38	0.39	0.41	0.43	0.46
13	NO2-N (mgN/L)	0.07	0.08	0.08	0.08	0.08	0.08	0.05	0.05	0.06	0.05	0.06	0.06
14	NO3-N (mgN/L)	0.67	0.68	0.69	0.68	0.70	0.70	0.31	0.32	0.33	0.36	0.37	0.39
15	o-PO4-P (mg P/L)	0.194	0.207	0.210	0.198	0.201	0.204	0.115	0.120	0.129	0.130	0.165	0.147
16	SiO2 (mg/L)	44.0	45.1	45.3	43.4	43.0	43.5	33.4	33.5	33.7	33.5	33.9	34.1
17	SO4 (mg/L)	5.4	6.2	6.4	6.1	6.3	6.5	8.0	8.1	8.1	7.9	8.4	8.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.5	1.5	1.6	2.0	2.0	2.0	1.6	1.0	1.0	1.8	1.4	1.8
2	COD (mg/L)	9.0	9.0	10.0	12.0	12.0	12.0	6.4	6.6	6.7	5.9	BDL	5.6
3	DO (mg/L)	6.4	6.6	6.8	5.6	5.7	5.7	5.4	5.6	5.5	7.0	7.0	6.9
4	DO_SAT% (%)	65	69	74	60	63	63	64	61	67	84	84	85
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	122	124	122	120	122	122	93	94	94	96	98	101
2	HAR_Total (mgCaCO3/L)	161	167	165	162	164	165	129	130	132	136	138	143
3	Na% (%)	14	15	16	16	16	16	16	16	16	15	15	15
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at D/S Dindori (Jogitikariya) (WQSS-202003)

Division: Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	371	189	271
2	pH_GEN (pH units)	36	8.2	7.5	7.9
3	TDS (mg/L)	36	218	128	176
4	Temp (deg C)	36	28.0	15.0	22.5
5	Turb (NTU)	36	853.0	0.7	82.1
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	163	99	134
3	Ca (mg/L)	36	49	24	36
4	Cl (mg/L)	36	22.8	12.4	18.7
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.28	0.14	0.18
7	HCO3 (mg/L)	36	199	121	163
8	K (mg/L)	36	1.8	0.8	1.2
9	Mg (mg/L)	36	15.3	7.6	10.2
10	Na (mg/L)	36	14.4	6.4	10.6
11	NH3-N (mg N/L)	36	0.10	0.05	0.08
12	NO2+NO3 (mg N/L)	36	0.99	0.26	0.51
13	NO2-N (mgN/L)	36	0.08	0.01	0.06
14	NO3-N (mgN/L)	36	0.93	0.25	0.46
15	o-PO4-P (mg P/L)	36	0.229	0.112	0.16
16	SiO2 (mg/L)	36	45.3	24.3	32
17	SO4 (mg/L)	36	10.5	4.4	7.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	2.0	0.8	1.3
2	COD (mg/L)	11	12.0	5.6	8.7
3	DO (mg/L)	36	7.8	4.5	6.5
4	DO_SAT% (%)	36	92	55	75
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	124	61	90
2	HAR_Total (mgCaCO3/L)	36	167	97	133
3	Na% (%)	36	18	11	15
4	RSC (-)	36	0.5	0.0	0.1
5	SAR (-)	36	0.5	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2020-2024

Station Name: Narmada at D/S Dindori (Jogitikariya) (WQSS-202003)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

S.No	Parameters	Flood				Winter				Summer			
		Jun - Oct				Nov - Feb				Mar - May			
		2020	2021	2022	2023	2020-2021	2021-2022	2022-2023	2023-24	2021	2022	2023	2024
	PHYSICAL												
1	EC_GEN (µmho/cm)	198.9	213.0	225.0	242	266.6	286.0	306.0	302	300.5	313.0	293.0	279
2	pH_GEN (pH units)	7.49	7.60	8.00	7.9	7.85	7.50	8.00	7.9	7.35	7.80	7.90	7.8
3	TDS (mg/L)	112.31	130.00	143.00	156	170.40	184.00	207.00	196	176.46	188.00	200.00	182
4	Temp (deg C)	25.00	24.80	26.30	25.9	15.82	18.00	17.90	18.2	12.23	24.20	21.80	22.7
5	Turb (NTU)	75.38	75.20	244.60	188.6	7.80	8.40	8.30	7.1	5.46	11.00	13.10	4.7
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.30	0.00	0.0	0.0	0.00	0.00	0.0	0.0	0.00	0.00	0.0
2	ALK-TOT (mgCaCO3/L)	108	109.00	109.00	122	143	141.00	146.00	141	145	147.00	153.00	145
3	Ca (mg/L)	24.15	28.00	32.00	29	33.02	38.00	42.00	40	26.71	30.00	36.00	42
4	Cl (mg/L)	16.00	15.10	15.70	16.9	10.89	13.50	17.60	18.6	14.52	15.90	21.40	21.7
5	CO3 (mg/L)	0.00	0.30	0.00	0.0	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.0
6	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18
7	HCO3 (mg/L)	132	133	134	149	174	172	179	172	177	179	187	176
8	K (mg/L)	1.61	NA	1.50	1.2	NA	NA	0.90	1.1	NA	1.60	1.40	1.4
9	Mg (mg/L)	9.77	6.70	9.10	10.8	15.74	11.40	10.60	10.0	5.21	16.20	12.90	9.6
10	Na (mg/L)	6.53	NA	8.60	9.6	NA	NA	9.70	10.6	NA	14.80	13.70	12.4
11	NH3-N (mg N/L)	NA	NA	0.04	0.07	NA	NA	0.05	0.08	NA	0.13	0.09	0.09
12	NO2+NO3 (mg N/L)	1.31	0.47	0.91	0.50	0.16	0.17	0.30	0.53	0.14	0.13	0.68	0.53
13	NO2-N (mgN/L)	0.05	0.03	0.05	0.04	0.03	0.03	0.03	0.07	0.01	0.08	0.05	0.06
14	NO3-N (mgN/L)	1.27	0.44	0.87	0.45	0.13	0.14	0.27	0.46	0.13	0.05	0.63	0.46
15	o-PO4-P (mg P/L)	0.50	0.07	0.15	0.147	0.04	0.12	0.13	0.180	0.09	0.05	0.11	0.157
16	SiO2 (mg/L)	31.54	32.70	35.70	28.1	22.62	34.00	28.60	33.2	40.47	37.30	29.00	36.9
17	SO4 (mg/L)	33.63	5.70	9.60	7.8	4.55	4.90	5.90	6.2	4.15	4.10	6.90	7.5
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	3.12	1.10	1.40	1.2	0.90	1.10	0.80	1.2	0.94	1.80	1.50	1.6
2	DO (mg/L)	4.33	6.10	5.90	6.4	7.42	7.40	7.40	7.1	6.28	5.30	6.70	6.0
3	DO_SAT% (%)	52.39	74.00	72.00	79	89.78	78.00	78.00	75	75.98	63.00	76.00	70
4	COD	BDL	BDL	BDL	BDL	BDL	BDL	BDL	9.3	BDL	BDL	BDL	8.4
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	60	69.00	79.00	73	82.55	95.00	106.00	101	66.78	76.00	89.00	104
2	HAR_Total (mgCaCO3/L)	100	97.00	117.00	118	147	143.00	150.00	142	88	143.00	143.00	144
3	Na% (%)	NA	NA	13.00	15	NA	NA	12.00	14	NA	19.00	17.00	16
4	RSC (-)	0.15	0.30	0.10	0.1	0.09	0.10	0.10	0.1	1.14	0.20	0.30	0.0
5	SAR (-)	NA	NA	0.30	0.4	NA	NA	0.30	0.4	NA	0.60	0.50	0.4

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.23 Narmada at Malpur

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: Malpur	Code	: WQSS-202004
State	: Madhya Pradesh	District	: DINDORI
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division(ND), Bhopal	Sub-Division	: Upper Narmada Sub-Division, Jabalpur
Drainage Area	: *	Bank	: Right
Latitude	: 23°30'23.0"	Longitude	: 80°50'16.0"
Current Zero of Gauge (m)	: 605.000 M		
CATEGORY	Opening Date	Closing Date	
Gauge	: 15.01.2019		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of GQ Station only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Malpur (WQSS-202004)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown
2	EC_GEN (µmho/cm)	258	233	451	209	203	188	210	222	229	214	265	275
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	8.2	7.9	7.9	7.9	7.8	7.3	8.0	7.9	7.8	7.9	7.9
5	TDS (mg/L)	171	164	296	138	133	130	136	144	151	145	172	186
6	Temp (deg C)	25.0	26.0	27.5	25.5	25.0	28.0	25.5	25.0	27.0	26.0	26.0	26.0
7	Turb (NTU)	23.3	12.0	7.6	181.0	500.0	512.0	420.0	971.0	84.9	19.0	17.8	15.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	138	124	163	149	151	152	106	107	109	108	111	112
3	Ca (mg/L)	31	30	56	31	32	33	26	26	26	25	26	27
4	Cl (mg/L)	17.4	20.8	34.6	19.9	20.5	21.5	22.0	15.5	15.5	14.6	14.2	12.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	168	151	199	182	184	186	129	130	133	132	136	137
8	K (mg/L)	1.4	1.6	1.6	1.6	1.6	1.6	1.6	1.1	1.1	0.9	1.0	1.0
9	Mg (mg/L)	13.7	13.2	13.6	15.2	15.1	14.8	8.4	8.4	8.3	9.3	9.4	9.2
10	Na (mg/L)	10.4	12.1	18.3	11.2	11.1	11.2	12.7	8.2	8.7	8.2	7.4	6.5
11	NH3-N (mg N/L)	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.06	0.06	0.07
12	NO2+NO3 (mg N/L)	0.29	0.28	0.26	0.30	0.32	0.34	0.99	0.99	0.95	0.47	0.50	0.51
13	NO2-N (mgN/L)	0.02	0.01	0.01	0.04	0.04	0.05	0.06	0.07	0.05	0.05	0.05	0.05
14	NO3-N (mgN/L)	0.27	0.27	0.25	0.26	0.28	0.30	0.92	0.92	0.90	0.43	0.45	0.46
15	o-PO4-P (mg P/L)	0.145	0.158	0.129	0.121	0.133	0.146	0.178	0.186	0.167	0.134	0.140	0.150
16	SiO2 (mg/L)	29.7	28.2	27.1	24.9	25.2	26.1	35.5	35.5	34.5	26.5	26.7	26.9
17	SO4 (mg/L)	6.6	7.8	4.3	7.3	7.1	5.6	10.9	10.1	9.8	8.1	7.7	8.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.3	1.5	1.4	1.2	1.0	1.2	1.2	1.2	1.2	1.0	1.2	1.2
2	COD (mg/L)	BDL	BDL	5.5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	4.7	5.2	5.2	6.6	6.3	6.9	6.2	6.2	6.1	7.1	7.3	7.3
4	DO_SAT% (%)	56	64	65	79	77	88	75	75	77	88	90	90
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	78	74	141	78	80	83	66	64	66	62	64	68
2	HAR_Total (mgCaCO3/L)	136	129	198	141	143	144	101	99	100	101	103	106
3	Na% (%)	14	17	17	15	14	14	21	15	16	15	13	12
4	RSC (-)	0.1	0.0	0.0	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1
5	SAR (-)	0.4	0.5	0.6	0.4	0.4	0.4	0.6	0.4	0.4	0.4	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Narmada at Malpur (WQSS-202004)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	245	247	252	272	280	282	288	286	288	338	295	298
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.8	7.9	7.9	8.0	8.0	8.1	7.9	7.8	8.0	7.6	7.7	7.2
5	TDS (mg/L)	158	161	164	174	180	182	187	185	189	220	195	193
6	Temp (deg C)	26.0	24.5	26.0	20.0	19.0	20.0	18.0	18.0	15.0	19.0	17.5	15.5
7	Turb (NTU)	37.2	38.0	37.4	8.6	8.2	8.0	5.5	5.4	5.1	9.0	7.7	9.2
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	100	103	103	107	109	115	142	145	146	134	149	149
3	Ca (mg/L)	27	27	28	29	29	30	43	43	41	40	44	47
4	Cl (mg/L)	13.7	13.5	13.8	16.5	17.6	18.2	18.0	18.6	18.4	18.6	19.2	19.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	122	126	126	131	133	140	173	177	178	163	182	182
8	K (mg/L)	0.9	0.9	1.0	0.9	1.0	1.0	1.0	1.0	1.1	1.2	1.1	1.0
9	Mg (mg/L)	8.9	9.1	8.8	8.7	8.8	9.1	9.8	10.0	10.8	11.9	9.5	10.1
10	Na (mg/L)	7.6	7.5	7.7	8.8	9.5	9.7	9.8	9.9	9.8	10.0	10.1	10.1
11	NH3-N (mg N/L)	0.07	0.07	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.08
12	NO2+NO3 (mg N/L)	0.37	0.38	0.40	0.47	0.49	0.50	0.39	0.40	0.40	0.53	0.48	0.48
13	NO2-N (mgN/L)	0.04	0.05	0.05	0.06	0.06	0.06	0.05	0.05	0.05	0.09	0.08	0.08
14	NO3-N (mgN/L)	0.33	0.34	0.35	0.41	0.43	0.44	0.34	0.35	0.35	0.44	0.40	0.41
15	o-PO4-P (mg P/L)	0.138	0.145	0.147	0.149	0.156	0.161	0.131	0.131	0.131	0.231	0.217	0.220
16	SiO2 (mg/L)	26.8	27.3	27.9	27.3	27.8	28.0	28.0	28.1	28.6	33.4	29.8	29.7
17	SO4 (mg/L)	7.4	7.5	7.6	7.0	7.5	7.1	4.8	5.0	5.6	6.5	6.5	7.1
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.2	1.0	1.0	1.0	0.8	1.0	1.2	1.0	1.0	1.2
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	7.1	7.3	7.4	7.0	7.0	6.9	7.8	7.6	7.4	6.9	6.8	7.0
4	DO_SAT% (%)	87	87	91	77	75	76	83	80	73	74	71	70
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	66	67	71	71	74	76	106	108	101	100	110	117
2	HAR_Total (mgCaCO3/L)	103	105	107	107	110	113	147	150	146	149	149	159
3	Na% (%)	14	13	13	15	16	16	13	12	13	13	13	12
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Malpur (WQSS-202004)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (μmho/cm)	331	327	330	324	328	332	238	244	247	265	265	275
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	8.1	7.5	7.7	7.8	7.9	8.0	8.0	7.9	7.9	7.9	8.0
5	TDS (mg/L)	216	213	216	210	214	218	160	165	168	166	166	176
6	Temp (deg C)	17.0	17.0	20.0	18.0	21.0	20.5	25.0	21.0	25.0	25.0	24.5	25.5
7	Turb (NTU)	2.4	4.0	4.5	4.5	4.7	4.5	1.4	1.3	1.2	3.5	3.4	3.7
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	157	154	157	162	165	166	132	133	134	139	140	143
3	Ca (mg/L)	47	50	49	48	48	48	37	37	37	39	40	40
4	Cl (mg/L)	19.5	21.4	22.2	21.4	22.2	22.8	22.0	22.2	21.8	21.4	21.6	22.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.25	0.22	0.16	0.15	0.15	0.15
7	HCO3 (mg/L)	192	188	192	198	201	203	161	162	163	169	171	175
8	K (mg/L)	1.2	1.4	1.4	1.4	1.4	1.5	1.4	1.4	1.4	1.4	1.6	1.6
9	Mg (mg/L)	10.9	10.4	10.2	10.1	10.3	10.4	8.8	9.0	9.2	9.9	9.7	10.1
10	Na (mg/L)	11.9	13.9	14.0	14.0	14.0	14.1	11.5	11.6	11.6	11.4	11.5	11.6
11	NH3-N (mg N/L)	0.09	0.09	0.10	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.09	0.10
12	NO2+NO3 (mg N/L)	0.73	0.73	0.75	0.73	0.77	0.79	0.36	0.37	0.38	0.42	0.43	0.45
13	NO2-N (mgN/L)	0.07	0.07	0.08	0.07	0.08	0.08	0.05	0.05	0.05	0.06	0.06	0.07
14	NO3-N (mgN/L)	0.66	0.66	0.67	0.65	0.69	0.71	0.31	0.32	0.32	0.37	0.37	0.39
15	o-PO4-P (mg P/L)	0.199	0.210	0.214	0.201	0.204	0.208	0.112	0.117	0.125	0.135	0.135	0.143
16	SiO2 (mg/L)	44.2	45.2	45.4	43.7	43.1	43.4	33.3	33.4	33.5	34.0	33.9	34.0
17	SO4 (mg/L)	4.4	4.9	5.3	5.1	5.3	5.4	8.0	8.0	8.1	8.4	9.1	8.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.9	1.7	1.8	1.8	1.6	1.8	1.4	1.6	1.6	1.4	1.4	1.4
2	COD (mg/L)	12.0	10.0	9.0	11.0	9.0	11.0	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	6.2	6.4	6.6	6.0	5.9	6.1	5.2	5.4	5.3	6.8	7.2	6.7
4	DO_SAT% (%)	64	66	73	63	67	68	63	60	64	82	85	81
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	117	124	122	120	121	121	92	92	92	97	99	100
2	HAR_Total (mgCaCO3/L)	162	168	165	162	164	164	128	129	131	138	140	142
3	Na% (%)	14	15	16	16	16	16	16	16	16	15	15	15
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at Malpur (WQSS-202004)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	451	188	275
2	pH_GEN (pH units)	36	8.2	7.2	7.9
3	TDS (mg/L)	36	296	130	180
4	Temp (deg C)	36	28.0	15.0	22.4
5	Turb (NTU)	36	971.0	1.2	80.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	166	100	134
3	Ca (mg/L)	36	56	25	37
4	Cl (mg/L)	36	34.6	12.2	19.3
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.25	0.15	0.18
7	HCO3 (mg/L)	36	203	122	163
8	K (mg/L)	36	1.6	0.9	1.2
9	Mg (mg/L)	36	15.2	8.3	10.4
10	Na (mg/L)	36	18.3	6.5	10.7
11	NH3-N (mg N/L)	36	0.10	0.06	0.08
12	NO2+NO3 (mg N/L)	36	0.99	0.26	0.51
13	NO2-N (mgN/L)	36	0.09	0.01	0.06
14	NO3-N (mgN/L)	36	0.92	0.25	0.45
15	o-PO4-P (mg P/L)	36	0.231	0.112	0.162
16	SiO2 (mg/L)	36	45.4	24.9	32.2
17	SO4 (mg/L)	36	10.9	4.3	7
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.9	0.8	1.3
2	COD (mg/L)	36	12.0	5.5	9.6
3	DO (mg/L)	36	7.8	4.7	6.5
4	DO_SAT% (%)	36	91	56	75
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	141	62	92
2	HAR_Total (mgCaCO3/L)	36	198	99	135
3	Na% (%)	36	21	12	15
4	RSC (-)	36	0.2	0.0	0.1
5	SAR (-)	36	0.6	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2020-2024

Station Name : Narmada at Malpur (WQSS-202004)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

S.No	Parameters	Flood				Winter				Summer			
		Jun - Oct				Nov - Feb				Mar - May			
		2020	2021	2022	2023	2020-2021	2021-2022	2022-2023	2023-24	2021	2022	2023	2024
	PHYSICAL												
1	EC_GEN (µmho/cm)	211.3	211	224	247	272.25	274	304	304	272.25	313	300	280
2	pH_GEN (pH units)	7.49	7.6	7.9	7.9	7.77	7.6	7.9	7.8	7.38	7.9	8.0	7.9
3	TDS (mg/L)	124.6	133	138	163	171	178	206	198	175.5	186	201	183
4	Temp (deg C)	24.5	25.0	26.6	25.9	14.12	18.2	17.7	18.1	12.5	24.3	21.7	22.8
5	Turb (NTU)	100.1	90.4	248.6	191.8	6.25	4.0	9.6	6.7	5.5	6.5	13.6	3.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	100	109	119	122	144	152	147	138	140	153	146	146
3	Ca (mg/L)	27.2	27	35	30	36.04	37	42	41	27.08	29	36	42
4	Cl (mg/L)	9.28	14.8	14.3	18.0	13.03	13.0	17.7	18.9	14.62	16.7	24.5	22.0
5	CO3 (mg/L)	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0
6	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.18
7	HCO3 (mg/L)	121.67	131	145	149	175.25	186	179	169	171	184	178	178
8	K (mg/L)	1.86	NA	1.5	1.3	NA	NA	0.9	1.1	NA	1.5	1.4	1.4
9	Mg (mg/L)	8.72	8.3	7.7	11.0	11.58	11.1	10.3	10.1	7.65	15.8	13.6	9.7
10	Na (mg/L)	5.81	NA	8.5	9.9	NA	NA	10.0	10.6	NA	14.0	14.2	12.4
11	NH3-N (mg N/L)	NA	NA	0.05	0.07	NA	NA	0.06	0.08	NA	0.06	0.09	0.10
12	NO2+NO3 (mg N/L)	0.44	0.48	0.95	0.49	0.44	0.17	0.35	0.53	0.13	0.07	0.47	0.52
13	NO2-N (mgN/L)	0.02	0.02	0.06	0.04	0.4	0.02	0.03	0.07	0.02	0.04	0.05	0.06
14	NO3-N (mgN/L)	0.42	0.46	0.89	0.45	0.04	0.14	0.32	0.46	0.12	0.03	0.42	0.46
15	o-PO4-P (mg P/L)	0.29	0.085	0.162	0.148	0.05	0.119	0.138	0.183	0.09	0.097	0.105	0.153
16	SiO2 (mg/L)	23.73	32.9	34.8	28.6	25.73	28.6	29.1	33.0	38.59	32.6	30.2	36.9
17	SO4 (mg/L)	15.11	5.5	10.2	7.7	5.35	6.1	6.1	6.0	4.5	5.0	7.0	7.4
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.87	1.0	1.8	1.2	2.01	1.1	0.8	1.2	1.45	1.9	1.2	1.5
2	COD	BDL	BDL	BDL	5.5	BDL	BDL	BDL	10.3	BDL	BDL	BDL	10.3
3	DO (mg/L)	5.59	6.2	5.8	6.5	6.54	7.4	7.4	7.0	6.84	5.7	6.8	6.1
4	DO SAT% (%)	67.64	75	72	79	79.13	79	78	73	82.76	68	77	70
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	68	69	88	75	90	94	105	102	68	74	89	104
2	HAR_Total (mgCaCO3/L)	144	103	120	121	138	140	148	144	99	140	146	144
3	Na% (%)	NA	NA	13	15	NA	NA	13	14	NA	17	17	16
4	RSC (-)	0.08	0.2	0.1	0.1	0.12	0.3	0.1	0.0	0.82	0.3	0.1	0.0
5	SAR (-)	NA	NA	0.3	0.4	NA	NA	0.4	0.4	NA	0.5	0.5	0.4

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.24 Narmada at Mandla (Rangrejghat)

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: U/S Mandla Rangrejghat	Code	: WQSS-202005
State	: Madhya Pradesh	District	: MANDLA
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Upper Narmada Sub-Division, Jabalpur
Drainage Area	: *	Bank	: Right
Latitude	: 22°35'37.0"	Longitude	: 80°22'26.0"
Current Zero of Gauge (m)	: *		
CATEGORY	Opening Date	Closing Date	
Gauge	: *		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name: Narmada at Mandla (Rangrejghat) (WQSS-202005)

Local River: Narmada

Division: Narmada Division, Bhopal

Sub-Division: UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Brown	Light Brown
2	EC_GEN (µmho/cm)	229	217	240	149	142	139	137	174	182	178	157	168
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	8.0	8.0	7.8	7.8	7.7	7.6	7.8	7.9	7.8	7.8	7.8
5	TDS (mg/L)	152	155	163	99	93	87	92	115	123	121	104	112
6	Temp (deg C)	24.0	29.0	30.0	26.0	26.0	27.0	25.0	27.0	26.0	28.0	27.0	27.0
7	Turb (NTU)	20.7	6.0	3.6	235.0	753.0	789.0	912.0	150.0	125.0	37.4	22.4	17.2
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	129	115	125	133	134	136	77	78	84	95	97	98
3	Ca (mg/L)	33	30	28	28	30	31	23	22	24	19	20	22
4	Cl (mg/L)	18.2	16.3	18.8	13.6	13.8	14.4	19.4	18.5	17.9	14.6	13.8	13.2
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	157	140	152	162	163	166	94	95	102	116	118	119
8	K (mg/L)	1.5	1.5	1.5	1.5	1.4	1.6	1.4	1.2	1.3	1.2	1.0	0.9
9	Mg (mg/L)	9.8	9.9	12.2	12.2	11.9	11.6	4.9	6.8	4.9	8.5	8.3	8.1
10	Na (mg/L)	9.6	8.8	10.1	7.2	7.4	7.8	10.5	9.7	10.1	7.6	7.1	6.8
11	NH3-N (mg N/L)	0.07	0.06	0.08	0.06	0.07	0.06	0.10	0.10	0.10	0.06	0.07	0.07
12	NO2+NO3 (mg N/L)	0.31	0.24	0.34	0.31	0.32	0.34	1.02	1.02	0.97	0.35	0.37	0.54
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.04	0.05	0.05	0.07	0.07	0.05	0.04	0.05	0.05
14	NO3-N (mgN/L)	0.30	0.23	0.34	0.26	0.27	0.29	0.95	0.95	0.92	0.31	0.32	0.49
15	o-PO4-P (mg P/L)	0.161	0.173	0.145	0.139	0.149	0.162	0.175	0.183	0.165	0.132	0.137	0.145
16	SiO2 (mg/L)	19.7	17.6	18.6	25.8	25.4	26.3	36.3	36.6	35.8	20.9	21.0	21.2
17	SO4 (mg/L)	9.4	10.0	2.5	8.2	7.3	6.9	13.7	13.5	13.7	5.6	5.5	5.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	2.1	1.9	1.7	1.2	1.2	1.0	0.6	1.0	1.0	1.2	1.4	1.4
2	DO (mg/L)	5.9	6.3	6.4	6.4	6.3	6.7	6.6	7.0	6.9	7.1	7.3	7.3
3	DO_SAT% (%)	71	82	85	79	78	84	80	87	85	91	92	91
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	84	76	71	71	74	76	56	56	61	48	51	54
2	HAR_Total (mgCaCO3/L)	125	117	121	122	124	125	77	84	81	84	85	88
3	Na% (%)	14	14	15	11	11	12	23	20	21	16	15	14
4	RSC (-)	0.1	0.0	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.2	0.2	0.2
5	SAR (-)	0.4	0.4	0.4	0.3	0.3	0.3	0.5	0.5	0.5	0.4	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name: Narmada at Mandla (Rangrejghat) (WQSS-202005)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	201	204	208	247	251	258	253	259	264	302	282	276
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.7	7.8	7.8	7.9	8.0	8.2	7.9	8.0	7.9	7.7	7.6	7.9
5	TDS (mg/L)	130	133	138	154	163	167	161	168	174	197	186	180
6	Temp (deg C)	27.0	24.0	26.0	24.0	23.0	23.0	21.0	19.0	18.0	18.0	17.0	18.0
7	Turb (NTU)	27.9	27.2	26.2	6.0	5.6	5.0	7.6	7.5	6.5	3.0	3.7	3.3
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	85	88	91	98	102	108	139	142	130	119	134	142
3	Ca (mg/L)	22	22	23	26	28	28	40	40	40	41	41	45
4	Cl (mg/L)	12.3	12.5	12.9	15.7	14.4	15.3	16.3	15.9	16.1	16.2	16.2	16.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	104	107	111	120	125	132	169	173	159	145	163	173
8	K (mg/L)	0.9	0.9	0.9	0.9	0.8	0.9	0.9	0.9	1.0	1.0	1.1	1.0
9	Mg (mg/L)	6.9	7.1	6.9	7.4	7.4	8.1	6.7	7.1	7.2	9.5	9.7	9.2
10	Na (mg/L)	7.0	7.1	7.2	8.4	7.8	8.3	8.4	8.4	8.6	8.6	8.6	9.0
11	NH3-N (mg N/L)	0.07	0.07	0.07	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.28	0.29	0.31	0.44	0.45	0.47	0.37	0.38	0.38	0.47	0.46	0.45
13	NO2-N (mgN/L)	0.04	0.04	0.05	0.05	0.06	0.06	0.05	0.05	0.05	0.08	0.07	0.07
14	NO3-N (mgN/L)	0.24	0.25	0.26	0.38	0.40	0.41	0.32	0.33	0.33	0.39	0.38	0.37
15	o-PO4-P (mg P/L)	0.120	0.128	0.130	0.138	0.145	0.152	0.116	0.118	0.125	0.192	0.188	0.174
16	SiO2 (mg/L)	23.1	23.5	24.1	25.1	25.4	25.9	25.6	25.8	26.2	30.7	28.8	27.9
17	SO4 (mg/L)	6.2	6.3	6.4	5.7	6.6	5.5	6.1	6.4	6.9	6.2	5.4	5.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.4	1.4	1.2	1.2	1.2	1.2	1.0	1.0	1.2	1.2	1.4
2	DO (mg/L)	7.3	7.5	7.6	7.2	7.2	7.0	7.8	7.8	7.8	7.7	7.6	7.8
3	DO_SAT% (%)	91	89	93	85	83	82	88	84	82	81	79	82
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	54	55	58	65	69	70	99	101	101	103	103	112
2	HAR_Total (mgCaCO3/L)	83	84	87	96	100	104	127	131	130	143	144	150
3	Na% (%)	15	15	15	16	14	15	13	12	12	12	11	11
4	RSC (-)	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name :Narmada at Mandla (Rangrejghat) (WQSS-202005)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	302	289	292	287	291	293	252	258	261	268	272	279
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.9	7.9	7.6	7.6	7.7	7.7	8.1	7.9	7.9	8.0	8.0	8.0
5	TDS (mg/L)	197	190	194	190	194	197	169	172	175	169	171	179
6	Temp (deg C)	19.0	16.0	19.0	20.0	21.0	20.0	22.0	25.0	23.0	26.0	25.0	25.0
7	Turb (NTU)	6.7	5.9	6.0	6.0	6.1	6.3	1.5	1.3	1.2	3.1	3.3	2.9
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	154	146	150	152	154	156	136	137	138	140	141	144
3	Ca (mg/L)	48	48	48	48	48	49	38	38	38	39	39	40
4	Cl (mg/L)	15.3	19.1	19.9	19.5	19.9	19.7	20.0	20.2	20.6	22.0	21.8	20.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.27	0.24	0.19	0.14	0.16	0.18
7	HCO3 (mg/L)	188	178	183	186	188	190	166	167	168	171	172	176
8	K (mg/L)	0.9	0.9	1.0	0.9	1.0	1.0	1.2	1.2	1.3	1.4	1.5	1.5
9	Mg (mg/L)	8.6	8.0	7.9	7.6	7.8	7.7	9.3	9.6	9.7	10.1	10.3	10.9
10	Na (mg/L)	9.8	10.1	10.3	10.2	10.3	10.4	11.1	11.1	11.2	11.7	11.5	10.7
11	NH3-N (mg N/L)	0.08	0.08	0.08	0.09	0.09	0.09	0.07	0.07	0.08	0.08	0.08	0.08
12	NO2+NO3 (mg N/L)	0.37	0.38	0.39	0.38	0.40	0.42	0.41	0.42	0.43	0.44	0.44	0.46
13	NO2-N (mgN/L)	0.03	0.03	0.04	0.03	0.04	0.04	0.06	0.07	0.07	0.06	0.07	0.07
14	NO3-N (mgN/L)	0.34	0.35	0.36	0.35	0.37	0.37	0.35	0.36	0.36	0.37	0.38	0.39
15	o-PO4-P (mg P/L)	0.154	0.164	0.167	0.161	0.165	0.166	0.155	0.162	0.168	0.142	0.145	0.152
16	SiO2 (mg/L)	28.9	29.7	29.8	28.8	29.8	30.6	35.3	35.5	35.0	34.6	34.7	34.4
17	SO4 (mg/L)	4.8	5.3	5.6	5.5	5.7	5.8	8.8	8.8	8.3	8.5	9.5	9.9
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.4	0.8	0.8	0.6	1.2	1.4	1.4	0.8	0.8	0.8
2	DO (mg/L)	6.8	7.0	7.2	7.4	7.5	7.7	5.4	5.6	5.5	7.4	7.6	7.3
3	DO_SAT% (%)	73	70	78	81	84	85	61	67	64	91	91	88
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	120	120	121	119	120	122	94	94	95	97	98	99
2	HAR_Total (mgCaCO3/L)	155	153	154	151	153	154	133	135	135	140	141	144
3	Na% (%)	12	12	13	13	13	13	15	15	15	15	15	14
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at Mandla (Rangrejghat) (WQSS-202005)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	302	137	235
2	pH_GEN (pH units)	36	8.2	7.6	7.8
3	TDS (mg/L)	36	197	87	155
4	Temp (deg C)	36	30.0	16.0	23.4
5	Turb (NTU)	36	912.0	1.2	90.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	156	77	123
3	Ca (mg/L)	36	49	19	34
4	Cl (mg/L)	36	22.0	12.3	17
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.27	0.14	0.2
7	HCO3 (mg/L)	36	190	94	150
8	K (mg/L)	36	1.6	0.8	1.1
9	Mg (mg/L)	36	12.2	4.9	8.6
10	Na (mg/L)	36	11.7	6.8	9.1
11	NH3-N (mg N/L)	36	0.10	0.06	0.08
12	NO2+NO3 (mg N/L)	36	1.02	0.24	0.44
13	NO2-N (mgN/L)	36	0.08	0.01	0.05
14	NO3-N (mgN/L)	36	0.95	0.23	0.39
15	o-PO4-P (mg P/L)	36	0.192	0.116	0.153
16	SiO2 (mg/L)	36	36.6	17.6	27.9
17	SO4 (mg/L)	36	13.7	2.5	7.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	2.1	0.6	1.2
2	DO (mg/L)	36	7.8	5.4	7
3	DO_SAT% (%)	36	93	61	82
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	122	48	85
2	HAR_Total (mgCaCO3/L)	36	155	77	121
3	Na% (%)	36	23	11	14
4	RSC (-)	36	0.2	0.0	0.1
5	SAR (-)	36	0.5	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2020-2022

Station Name : Narmada at Mandla (Rangrejghat) (WQSS-202005)
Local River : Narmada

Division : Narmada Division, Bhopal
Sub-Division : UNSD, Jabalpur

S.No	Parameters	Flood			Winter			Summer		
		Jun - Oct			Nov - Feb			Mar - May		
		2021	2022	2023	2021-2022	2022-2023	2023-2024	2022	2023	2024
	PHYSICAL									
1	EC_GEN (µmho/cm)	194	206	182	239	293	273	312	271	273
2	pH_GEN (pH units)	7.3	7.9	7.8	7.5	7.8	7.9	7.8	7.9	7.9
3	TDS (mg/L)	119	124	121	154	198	178	184	182	180
4	Temp (deg C)	26.5	24.3	26.6	18.8	16.3	19.6	25.7	21.0	23.0
5	Turb (NTU)	65.6	180.4	210.2	18.2	11.2	5.6	5.8	5.3	3.5
	CHEMICAL									
1	ALK-TOT (mgCaCO3/L)	96	112	104	137	143	130	149	140	144
2	Ca (mg/L)	24	30	25	30	39	39	29	35	42
3	Cl (mg/L)	14.4	14.0	15.3	14.7	16.4	16.4	15.9	19.9	20.5
4	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	0.20
5	HCO3 (mg/L)	118	137	127	168	174	159	182	171	176
6	K (mg/L)	NA	1.6	1.2	NA	0.9	0.9	1.6	1.6	1.2
7	Mg (mg/L)	8.6	8.2	8.7	11.2	9.5	8.1	15.1	10.1	9.2
8	Na (mg/L)	NA	8.3	8.3	NA	9.4	8.8	14.5	11.0	10.9
9	NH3-N (mg N/L)	NA	0.05	0.08	NA	0.06	0.07	0.05	0.10	0.08
10	NO2+NO3 (mg N/L)	0.75	0.82	0.47	0.33	0.20	0.42	0.69	0.35	0.42
11	NO2-N (mgN/L)	0.04	0.07	0.04	0.20	0.04	0.05	0.33	0.04	0.06
12	NO3-N (mgN/L)	0.71	0.75	0.42	0.14	0.17	0.36	0.36	0.30	0.37
13	o-PO4-P (mg P/L)	0.056	0.127	0.150	0.043	0.117	0.153	0.046	0.089	0.157
14	SiO2 (mg/L)	27.7	28.3	25.1	30.4	30.0	27.5	32.7	21.3	33.2
15	SO4 (mg/L)	5.8	9.0	8.1	6.1	6.6	5.8	6.5	6.8	7.8
	BIOLOGICAL/BACTERIOLOGICAL									
1	BOD3-27 (mg/L)	1.5	1.9	1.3	1.0	0.9	1.2	2.1	1.4	0.9
2	DO (mg/L)	5.8	6.0	6.8	7.6	7.4	7.4	5.4	7.0	6.8
3	DO_SAT% (%)	72	71	85	82	75	81	66	79	79
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO3/L)	61	75	63	76	98	99	73	89	104
2	HAR_Total (mgCaCO3/L)	97	109	99	123	138	132	136	131	143
3	Na% (%)	NA	13	16	NA	13	13	18	15	14
4	RSC (-)	0.1	0.2	0.1	0.3	0.2	0.1	0.4	0.2	0.0
5	SAR (-)	NA	0.3	0.4	NA	0.4	0.3	0.5	0.4	0.4

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.25 Narmada at Barginagar

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: Barginagar	Code	: WQSS-202006
State	: Madhya Pradesh	District	JABALPUR
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division(ND), Bhopal	Sub-Division	: Upper Narmada Sub-Division, Jabalpur
Drainage Area	: *	Bank	: NA (Reservoir)
Latitude	: 22°56'25.0"	Longitude	: 79°55'23.0"
Current Zero of Gauge (m)	: *		
CATEGORY	Opening Date	Closing Date	
Gauge	: 01/04/2001		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of GQ Station only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Barginagar (WQSS-202006)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Brown	Light Brown
2	EC_GEN (µmho/cm)	160	170	180	208	202	192	184	150	159	168	153	159
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.2	7.9	7.9	8.0	8.2	8.0	7.9	7.7	7.8	7.5	7.8	7.6
5	TDS (mg/L)	108	118	121	134	129	126	118	98	109	113	100	106
6	Temp (deg C)	26.0	30.0	28.0	27.0	26.0	28.0	27.0	27.0	28.0	27.0	27.0	27.0
7	Turb (NTU)	4.6	3.5	7.6	11.3	17.4	29.9	10.8	101.0	76.2	52.7	38.9	20.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	84	89	93	99	100	103	92	95	98	156	93	95
3	Ca (mg/L)	25	26	28	29	30	31	24	23	24	19	19	21
4	Cl (mg/L)	11.0	10.5	11.5	12.3	12.4	12.7	9.3	9.1	9.5	8.3	8.9	9.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	103	109	113	121	122	126	112	116	119	190	114	116
8	K (mg/L)	1.3	1.3	1.2	1.1	1.1	1.0	1.2	1.4	1.4	1.4	1.2	1.3
9	Mg (mg/L)	6.7	6.7	8.0	8.3	8.6	8.2	8.5	8.7	8.4	8.1	8.2	8.1
10	Na (mg/L)	5.9	5.9	6.0	6.9	6.8	6.9	4.9	4.9	5.0	4.3	4.7	5.1
11	NH3-N (mg N/L)	0.05	0.05	0.07	0.05	0.07	0.06	0.06	0.06	0.07	0.06	0.06	0.06
12	NO2+NO3 (mg N/L)	0.19	0.21	0.19	0.28	0.29	0.31	0.64	0.66	0.63	0.37	0.39	0.40
13	NO2-N (mgN/L)	0.02	0.01	0.01	0.03	0.03	0.04	0.05	0.05	0.06	0.04	0.04	0.05
14	NO3-N (mgN/L)	0.17	0.20	0.18	0.25	0.26	0.28	0.59	0.61	0.57	0.33	0.34	0.35
15	o-PO4-P (mg P/L)	0.099	0.111	0.083	0.100	0.109	0.122	0.130	0.138	0.120	0.108	0.113	0.124
16	SiO2 (mg/L)	19.0	17.0	16.0	19.2	19.9	20.8	28.7	29.0	28.3	20.2	20.5	20.7
17	SO4 (mg/L)	9.3	9.9	2.6	8.3	7.9	5.4	4.4	9.2	5.4	5.0	4.8	5.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.1	0.8	0.8	0.8	0.8	0.8	1.4	1.2	1.2	0.8	0.8	0.8
2	DO (mg/L)	7.0	7.3	7.2	7.5	7.3	7.6	5.8	6.6	6.5	7.7	7.7	7.7
3	DO_SAT% (%)	86	97	92	95	90	98	73	82	83	97	97	96
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	62	65	70	72	75	78	59	57	59	47	49	51
2	HAR_Total (mgCaCO3/L)	90	93	104	107	110	112	95	93	94	80	83	85
3	Na% (%)	12	12	11	12	12	12	10	10	10	10	11	12
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.5	0.2	0.2
5	SAR (-)	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Barginagar (WQSS-202006)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	151	153	158	150	154	150	161	168	176	173	175	170
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.9	7.9	7.9	8.0	8.0	8.0	7.8	7.8	7.8	7.8	7.5	7.8
5	TDS (mg/L)	98	102	107	102	107	104	104	109	117	113	117	112
6	Temp (deg C)	27.0	29.0	28.0	19.0	22.0	21.0	19.0	14.0	12.0	13.0	19.0	13.0
7	Turb (NTU)	9.6	9.4	8.9	3.8	3.7	3.2	3.8	3.7	3.3	6.4	6.8	6.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	75	79	80	61	62	66	89	92	96	103	107	103
3	Ca (mg/L)	18	18	19	16	18	19	28	29	25	26	28	31
4	Cl (mg/L)	10.0	10.2	11.0	8.6	8.0	8.4	9.2	8.8	9.2	9.5	9.7	9.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	92	96	98	74	76	81	108	112	117	126	131	126
8	K (mg/L)	1.2	1.2	1.3	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.1	1.1
9	Mg (mg/L)	6.4	6.6	6.6	5.9	5.4	5.6	5.7	5.7	7.0	8.8	8.3	8.3
10	Na (mg/L)	5.7	5.7	6.1	4.6	4.3	4.5	4.9	4.8	5.0	5.0	5.1	5.1
11	NH3-N (mg N/L)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.23	0.24	0.26	0.31	0.33	0.34	0.28	0.28	0.29	0.32	0.32	0.31
13	NO2-N (mgN/L)	0.03	0.04	0.04	0.04	0.05	0.05	0.04	0.04	0.03	0.05	0.05	0.05
14	NO3-N (mgN/L)	0.19	0.20	0.22	0.27	0.28	0.29	0.24	0.25	0.26	0.27	0.26	0.26
15	o-PO4-P (mg P/L)	0.111	0.118	0.120	0.103	0.108	0.115	0.099	0.103	0.105	0.112	0.114	0.109
16	SiO2 (mg/L)	18.0	18.5	19.6	19.8	20.5	21.1	19.3	19.5	19.9	19.8	19.5	19.2
17	SO4 (mg/L)	4.7	5.0	3.0	4.8	4.3	5.1	5.3	5.9	6.9	5.9	6.1	6.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	0.8	0.8	1.0	1.0	1.0	1.8	1.2	1.2	1.4	1.4	1.4
2	DO (mg/L)	7.3	7.3	7.3	7.0	7.2	7.1	6.8	7.2	7.4	7.7	7.6	7.6
3	DO_SAT% (%)	91	95	93	75	82	80	74	69	68	73	82	72
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	45	46	49	40	46	48	70	72	63	66	70	78
2	HAR_Total (mgCaCO3/L)	72	73	76	65	68	72	94	95	92	102	104	113
3	Na% (%)	15	14	15	13	12	12	10	10	10	10	10	9
4	RSC (-)	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
5	SAR (-)	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Barginagar (WQSS-202006)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	181	177	180	187	191	195	147	153	158	180	185	186
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.2	8.0	7.6	7.5	7.6	7.6	8.0	7.7	7.7	7.8	7.7	7.9
5	TDS (mg/L)	118	118	123	119	124	128	99	103	106	116	121	120
6	Temp (deg C)	19.0	20.0	22.0	21.0	26.0	25.0	28.0	20.0	27.0	31.0	30.0	31.0
7	Turb (NTU)	4.6	4.0	4.0	3.6	3.7	3.9	1.6	1.1	1.1	21.6	18.0	22.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	107	104	107	110	111	114	102	102	104	112	113	114
3	Ca (mg/L)	31	31	31	31	31	32	30	30	31	33	34	34
4	Cl (mg/L)	8.4	8.6	9.0	9.2	9.2	9.2	8.9	9.1	9.3	9.4	9.6	9.8
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.17	0.18	0.16	0.11	0.13	0.14
7	HCO3 (mg/L)	131	127	131	134	136	139	124	125	127	137	138	139
8	K (mg/L)	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.2
9	Mg (mg/L)	8.2	7.8	7.9	7.6	7.7	7.6	5.1	5.4	5.5	5.9	6.1	6.2
10	Na (mg/L)	4.5	4.7	4.9	4.8	4.9	4.9	4.9	4.9	5.0	5.1	5.1	5.2
11	NH3-N (mg N/L)	0.07	0.08	0.08	0.07	0.08	0.07	0.06	0.06	0.06	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.41	0.42	0.43	0.41	0.44	0.45	0.19	0.20	0.21	0.21	0.22	0.23
13	NO2-N (mgN/L)	0.04	0.04	0.04	0.04	0.04	0.05	0.02	0.02	0.03	0.03	0.03	0.03
14	NO3-N (mgN/L)	0.37	0.38	0.39	0.37	0.40	0.40	0.17	0.18	0.18	0.18	0.19	0.20
15	o-PO4-P (mg P/L)	0.139	0.146	0.149	0.141	0.145	0.148	0.074	0.079	0.087	0.090	0.092	0.094
16	SiO2 (mg/L)	21.5	23.4	23.6	22.4	23.3	34.5	22.4	22.5	22.7	20.3	20.4	20.4
17	SO4 (mg/L)	2.6	3.4	3.6	4.6	4.9	5.0	4.3	4.4	4.5	4.3	4.4	4.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	1.0	1.2	0.6	0.2	0.8	1.0	0.8	0.8	0.8	0.6	0.8
2	DO (mg/L)	7.9	7.7	7.4	7.6	7.3	7.5	7.0	7.2	7.1	7.2	7.4	7.1
3	DO_SAT% (%)	85	85	85	85	90	91	89	79	89	96	97	95
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	77	77	78	77	78	79	76	76	77	83	84	85
2	HAR_Total (mgCaCO3/L)	111	109	111	108	110	111	97	99	99	107	109	111
3	Na% (%)	8	8	9	9	9	9	10	10	10	9	9	9
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
5	SAR (-)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at Barginagar (WQSS-202006)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	208	147	171
2	pH_GEN (pH units)	36	8.2	7.5	7.8
3	TDS (mg/L)	36	134	98	113
4	Temp (deg C)	36	31.0	12.0	24
5	Turb (NTU)	36	101.0	1.1	14.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	156	61	98
3	Ca (mg/L)	36	34	16	26
4	Cl (mg/L)	36	12.7	8.0	9.6
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.18	0.11	0.15
7	HCO3 (mg/L)	36	190	74	119
8	K (mg/L)	36	1.4	1.0	1.2
9	Mg (mg/L)	36	8.8	5.1	7.2
10	Na (mg/L)	36	6.9	4.3	5.2
11	NH3-N (mg N/L)	36	0.08	0.05	0.07
12	NO2+NO3 (mg N/L)	36	0.66	0.19	0.33
13	NO2-N (mgN/L)	36	0.06	0.01	0.04
14	NO3-N (mgN/L)	36	0.61	0.17	0.29
15	o-PO4-P (mg P/L)	36	0.149	0.074	0.113
16	SiO2 (mg/L)	36	34.5	16.0	21.4
17	SO4 (mg/L)	36	9.9	2.6	5.3
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.8	0.2	0.9
2	DO (mg/L)	36	7.9	5.8	7.3
3	DO_SAT% (%)	36	98	68	86
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	85	40	66
2	HAR_Total (mgCaCO3/L)	36	113	65	96
3	Na% (%)	36	15	8	11
4	RSC (-)	36	1.5	0.0	0.1
5	SAR (-)	36	0.3	0.2	0.2

Water Quality Data Book 2023-24

WaterQuality Seasonal Average for the period : 2020-2024

Station Name : Narmada at Barginagar (WQSS-202006)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

S.No	Parameters	Flood				Winter				Summer			
		Jun - Oct				Nov - Feb				Mar - May			
		2020	2021	2022	2023	2020-2021	2021-2022	2022-2023	2023-2024	2021	2022	2023	2024
	PHYSICAL												
1	EC_GEN (µmho/cm)	172.67	174	183	170	180.04	212	184	168	191.5	202	183	176
2	pH_GEN (pH units)	7.68	7.7	8.0	7.9	7.61	7.4	7.6	7.8	7.57	7.9	8.2	7.7
3	TDS (mg/L)	115	124	109	112	106.56	137	126	112	112.5	120	120	115
4	Temp (deg C)	26.33	26.0	25.5	27.5	14.67	16.4	19.3	17.8	21	23.7	23.6	26.6
5	Turb (NTU)	33.67	17.1	18.5	26.8	6.52	3.9	6.8	4.5	6	2.8	2.3	8.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	73	98	107	95	85	109	110	92	87	94	101	109
3	Ca (mg/L)	20.6	23	26	24	23.05	29	28	26	22.17	22	27	32
4	Cl (mg/L)	9.09	15.7	10.0	10.4	10.54	11.7	9.3	8.9	13.66	13.2	10.2	9.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.15
7	HCO3 (mg/L)	89.67	120	130	116	104	133	134	112	106	115	123	133
8	K (mg/L)	1.84	NA	1.4	1.2	NA	NA	1.3	1.1	NA	1.2	1.3	1.2
9	Mg (mg/L)	7.03	8.1	6.6	7.7	5.63	9.5	4.5	7.0	5.97	7.1	6.5	6.4
10	Na (mg/L)	4.26	NA	5.6	5.7	NA	NA	5.3	4.8	NA	5.5	5.6	5.0
11	NH3-N (mg N/L)	NA	NA	0.06	0.06	NA	NA	0.06	0.07	NA	0.05	0.09	0.07
12	NO2+NO3 (mg N/L)	0.96	0.18	0.52	0.35	0.16	0.17	0.25	0.34	0.16	0.05	0.22	0.28
13	NO2-N (mgN/L)	0.02	0.04	0.03	0.04	0.03	0.04	0.02	0.04	0.01	0.02	0.04	0.03
14	NO3-N (mgN/L)	0.95	0.14	0.49	0.31	0.16	0.13	0.23	0.29	0.14	0.03	0.18	0.25
15	o-PO4-P (mg P/L)	0.34	0.049	0.123	0.114	0.15	0.054	0.075	0.117	0.04	0.062	0.062	0.106
16	SiO2 (mg/L)	17.91	21.8	24.1	21.0	18.5	21.2	24.5	20.6	31.75	30.6	19.0	23.2
17	SO4 (mg/L)	23.75	4.2	6.0	6.0	6.08	8.0	4.4	5.0	4.2	2.9	5.6	4.5
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.67	1.3	1.5	0.9	0.97	1.0	1.1	1.2	1.03	1.5	1.0	0.7
2	DO (mg/L)	5.85	6.4	6.3	7.2	7.41	7.3	7.1	7.4	7.35	6.1	7.3	7.2
3	DO_SAT% (%)	70.78	79	77	91	89.66	74	77	78	88.93	72	86	90
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	51	57	66	59	58	73	70	65	55	55	67	79
2	HAR_Total (mgCaCO3/L)	80	91	93	91	81	113	88	95	80	85	94	106
3	Na% (%)	NA	NA	11	12	NA	NA	11	10	NA	12	11	9
4	RSC (-)	0.14	0.2	0.3	0.2	0.19	0.2	0.4	0.0	0.14	0.2	0.2	0.1
5	SAR (-)	NA	NA	0.3	0.3	NA	NA	0.2	0.2	NA	0.3	0.3	0.2

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.26 Narmada at U/S Jabalpur

History Sheet

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: U/S Jabalpur	Code	: WQSS-202007
State	: Madhya Pradesh	District	: JABALPUR
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division(ND), Bhopal	Sub-Division	: Upper Narmada Sub-Division, Jabalpur
Drainage Area	: *	Bank	: Right
Latitude	: 23°50'54.0"	Longitude	: 79°56'40.0"
Current Zero of Gauge (m)	: *		
CATEGORY	Opening Date	Closing Date	
Gauge	: *		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at U/S Jabalpur (WQSS-202007)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown
2	EC_GEN (μmho/cm)	179	181	188	181	175	184	200	141	147	155	243	256
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.6	7.6	7.5	7.8	7.9	8.0	7.7	7.7	7.8	7.2	7.7	7.8
5	TDS (mg/L)	118	130	126	121	114	111	130	92	105	105	156	163
6	Temp (deg C)	24.0	29.0	29.0	25.0	25.0	27.0	26.0	26.0	25.0	25.0	27.0	26.0
7	Turb (NTU)	6.3	5.3	2.8	102.0	295.0	324.0	29.3	312.0	218.0	111.0	55.8	26.9
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	98	100	100	100	102	107	99	102	105	85	84	88
3	Ca (mg/L)	28	28	28	30	31	33	28	27	28	17	18	19
4	Cl (mg/L)	10.6	9.5	10.5	12.1	11.9	12.2	10.7	10.3	10.7	8.5	9.3	10.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	120	122	122	122	125	130	121	125	128	104	102	107
8	K (mg/L)	1.3	1.3	1.4	1.2	1.1	1.2	1.6	1.6	1.6	1.7	1.3	1.3
9	Mg (mg/L)	6.6	6.4	9.0	8.9	9.0	8.2	9.2	9.1	9.1	7.7	7.5	7.3
10	Na (mg/L)	5.5	5.1	5.4	6.6	6.5	6.6	5.4	5.9	6.0	4.6	4.8	5.4
11	NH3-N (mg N/L)	0.05	0.06	0.06	0.05	0.07	0.06	0.04	0.05	0.05	0.05	0.06	0.06
12	NO2+NO3 (mg N/L)	0.15	0.12	0.10	0.26	0.27	0.29	0.66	0.69	0.65	0.58	0.56	0.55
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.03	0.03	0.04	0.05	0.05	0.06	0.05	0.05	0.06
14	NO3-N (mgN/L)	0.14	0.11	0.09	0.23	0.24	0.26	0.61	0.64	0.59	0.53	0.50	0.49
15	o-PO4-P (mg P/L)	0.093	0.105	0.077	0.094	0.103	0.116	0.141	0.149	0.130	0.100	0.106	0.116
16	SiO2 (mg/L)	19.3	17.2	16.6	19.4	20.4	21.3	28.3	28.6	27.9	24.0	24.1	24.3
17	SO4 (mg/L)	6.9	7.6	1.7	7.7	5.5	5.6	5.1	9.7	5.8	4.8	4.7	4.9
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.9	0.6	0.8	1.2	1.0	1.3	1.0	1.0	1.0	1.2	1.4	1.4
2	DO (mg/L)	5.9	6.3	6.4	6.2	6.0	6.5	5.6	7.0	6.9	7.5	7.7	7.7
3	DO_SAT% (%)	71	82	83	75	72	81	69	86	84	91	97	95
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	69	69	69	74	77	82	69	67	69	42	45	48
2	HAR_Total (mgCaCO3/L)	96	96	107	111	114	117	107	105	107	74	76	78
3	Na% (%)	11	10	10	11	11	11	10	11	11	12	12	13
4	RSC (-)	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
5	SAR (-)	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at U/S Jabalpur (WQSS-202007)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	155	159	164	168	174	170	172	179	184	189	190	194
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.5	7.6	7.6	7.9	7.9	8.0	7.7	7.7	7.8	7.7	7.4	7.7
5	TDS (mg/L)	101	105	111	109	113	110	116	123	129	123	120	125
6	Temp (deg C)	27.0	27.0	26.0	18.0	21.0	22.0	20.0	15.0	13.0	14.0	17.0	14.0
7	Turb (NTU)	37.0	35.7	34.7	6.4	5.7	5.4	7.5	7.5	7.1	6.2	6.3	6.7
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	77	80	81	80	85	70	96	103	100	111	111	115
3	Ca (mg/L)	19	19	21	18	21	21	29	29	30	29	29	33
4	Cl (mg/L)	11.0	11.2	11.2	9.6	9.0	9.0	9.8	9.4	9.6	9.9	9.9	9.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	94	98	99	97	104	86	117	126	122	135	135	140
8	K (mg/L)	1.2	1.2	1.4	1.7	1.2	1.2	1.2	1.3	1.3	1.2	1.1	1.1
9	Mg (mg/L)	6.4	6.6	6.4	5.8	5.6	5.6	6.0	6.1	8.0	9.0	9.0	8.6
10	Na (mg/L)	6.0	6.1	6.4	5.3	4.9	4.8	5.0	5.0	5.1	5.2	5.3	5.2
11	NH3-N (mg N/L)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.23	0.25	0.26	0.29	0.30	0.31	0.29	0.30	0.31	0.35	0.35	0.35
13	NO2-N (mgN/L)	0.04	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.04	0.06	0.06	0.05
14	NO3-N (mgN/L)	0.20	0.21	0.22	0.24	0.25	0.26	0.26	0.26	0.28	0.29	0.30	0.30
15	o-PO4-P (mg P/L)	0.098	0.106	0.108	0.110	0.115	0.119	0.101	0.110	0.112	0.123	0.146	0.148
16	SiO2 (mg/L)	18.3	18.8	19.6	20.4	20.8	21.4	19.9	20.1	20.5	20.2	19.9	19.7
17	SO4 (mg/L)	5.1	5.2	5.4	5.1	4.8	5.9	5.5	6.4	6.7	5.5	5.4	5.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.4	1.6	1.6	1.0	1.2	1.2	1.2	1.0	1.0	1.2	1.2	1.2
2	DO (mg/L)	6.7	6.9	7.0	6.8	7.0	6.9	7.4	7.4	7.6	7.9	7.8	7.8
3	DO_SAT% (%)	84	87	86	72	78	79	82	73	72	77	81	76
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	48	48	51	45	51	53	72	73	74	72	72	83
2	HAR_Total (mgCaCO3/L)	74	76	78	70	75	76	97	99	108	109	110	119
3	Na% (%)	15	15	15	14	12	12	10	10	9	9	9	9
4	RSC (-)	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at U/S Jabalpur (WQSS-202007)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	193	207	213	216	223	226	159	162	168	182	187	189
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	7.8	7.6	7.6	7.6	7.7	8.0	7.7	8.0	7.7	7.7	7.7
5	TDS (mg/L)	125	135	138	132	138	142	107	110	114	118	123	122
6	Temp (deg C)	19.0	20.0	22.0	20.0	25.0	24.0	27.0	20.0	25.0	30.0	30.0	30.0
7	Turb (NTU)	11.2	12.0	11.0	6.9	6.7	6.6	1.5	1.4	1.3	4.3	4.6	4.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	111	116	119	121	124	125	105	107	108	113	115	116
3	Ca (mg/L)	32	32	33	32	33	33	31	31	31	33	34	34
4	Cl (mg/L)	9.0	10.1	10.5	10.9	11.3	11.1	9.3	9.5	9.7	9.6	9.8	10.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.19	0.17	0.16	0.12	0.13	0.13
7	HCO3 (mg/L)	136	141	145	148	151	152	128	130	132	138	140	141
8	K (mg/L)	1.4	2.0	2.1	2.0	2.1	2.1	1.2	1.3	1.3	1.2	1.3	1.3
9	Mg (mg/L)	8.4	9.1	9.1	8.7	8.8	8.8	5.7	6.0	6.1	6.0	6.2	6.3
10	Na (mg/L)	4.8	5.6	5.9	5.9	5.9	6.0	5.0	5.0	5.1	5.2	5.2	5.4
11	NH3-N (mg N/L)	0.08	0.08	0.08	0.08	0.07	0.08	0.06	0.06	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.52	0.54	0.56	0.54	0.58	0.59	0.20	0.20	0.21	0.22	0.23	0.23
13	NO2-N (mgN/L)	0.04	0.04	0.06	0.06	0.06	0.06	0.02	0.02	0.03	0.03	0.03	0.04
14	NO3-N (mgN/L)	0.48	0.49	0.50	0.48	0.51	0.52	0.17	0.18	0.18	0.19	0.19	0.20
15	o-PO4-P (mg P/L)	0.152	0.162	0.166	0.163	0.166	0.170	0.077	0.084	0.092	0.094	0.095	0.099
16	SiO2 (mg/L)	24.2	25.0	25.4	24.2	24.5	25.5	23.6	23.8	23.9	20.4	20.5	20.5
17	SO4 (mg/L)	5.3	5.9	6.2	5.2	5.4	6.1	4.4	4.5	4.6	4.3	4.7	4.9
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.2	1.0	0.8	0.8	1.0	1.0	1.0	1.0	0.6	0.6	0.6
2	DO (mg/L)	7.3	7.5	7.8	7.4	7.5	7.3	6.4	6.6	6.5	7.4	7.6	7.3
3	DO_SAT% (%)	79	83	90	81	91	87	80	72	79	97	100	96
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	80	80	82	81	82	83	77	77	78	84	85	86
2	HAR_Total (mgCaCO3/L)	115	118	119	117	119	120	100	102	103	108	111	112
3	Na% (%)	8	9	10	10	10	10	10	10	10	9	9	9
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
5	SAR (-)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name :Narmada at U/S Jabalpur (WQSS-202007)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	256	141	185
2	pH_GEN (pH units)	36	8.0	7.2	7.7
3	TDS (mg/L)	36	163	92	121
4	Temp (deg C)	36	30.0	13.0	23.3
5	Turb (NTU)	36	324.0	1.3	47.9
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	125	70	102
3	Ca (mg/L)	36	34	17	28
4	Cl (mg/L)	36	12.2	8.5	10.2
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.19	0.12	0.15
7	HCO3 (mg/L)	36	152	86	124
8	K (mg/L)	36	2.1	1.1	1.4
9	Mg (mg/L)	36	9.2	5.6	7.5
10	Na (mg/L)	36	6.6	4.6	5.5
11	NH3-N (mg N/L)	36	0.08	0.04	0.07
12	NO2+NO3 (mg N/L)	36	0.69	0.10	0.36
13	NO2-N (mgN/L)	36	0.06	0.01	0.04
14	NO3-N (mgN/L)	36	0.64	0.09	0.32
15	o-PO4-P (mg P/L)	36	0.170	0.077	0.118
16	SiO2 (mg/L)	36	28.6	16.6	22
17	SO4 (mg/L)	36	9.7	1.7	5.5
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.6	0.6	1.1
2	DO (mg/L)	36	7.9	5.6	7
3	DO_SAT% (%)	36	100	69	82
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	86	42	69
2	HAR_Total (mgCaCO3/L)	36	120	70	101
3	Na% (%)	36	15	8	11
4	RSC (-)	36	0.2	0.0	0.1
5	SAR (-)	36	0.3	0.2	0.2

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2021-2024

Station Name : Narmada at U/S Jabalpur (WQSS-202007)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

River Water

S.No	Parameters	Flood			Winter			Summer		
		Jun - Oct			Nov - Feb			Mar - May		
		2021	2022	2023	2021-2022	2022-2023	2023-2024	2022	2023	2024
	PHYSICAL									
1	EC_GEN (µmho/cm)	198	184	181	216	204	186	216	202	190
2	pH_GEN (pH units)	7.3	7.8	7.7	7.5	7.6	7.8	7.5	7.8	7.7
3	TDS (mg/L)	135	111	119	133	140	122	129	132	123
4	Temp (deg C)	27.5	25.6	26.3	18.6	17.4	17.9	24.2	23.3	25.7
5	Turb (NTU)	12.4	77.7	106.4	4.3	8.2	7.7	3.6	6.4	4.1
	CHEMICAL									
1	ALK-TOT (mgCaCO3/L)	102	108	94	108	112	101	96	102	115
2	Ca (mg/L)	27	33	25	26	31	28	26	28	33
3	Cl (mg/L)	18.2	10.7	10.6	12.3	10.4	9.6	15.2	10.8	10.1
4	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	0.15
5	HCO3 (mg/L)	124	132	115	132	136	124	117	125	140
6	K (mg/L)	NA	1.7	1.4	NA	1.4	1.4	1.2	1.5	1.5
7	Mg (mg/L)	8.0	6.2	7.8	7.5	6.1	7.5	10.2	7.2	6.9
8	Na (mg/L)	NA	6.0	5.8	NA	5.8	5.2	5.7	5.9	5.4
9	NH3-N (mg N/L)	NA	0.06	0.06	NA	0.05	0.07	0.12	0.09	0.07
10	NO2+NO3 (mg N/L)	0.36	0.46	0.38	0.43	0.26	0.37	0.50	0.44	0.33
11	NO2-N (mgN/L)	0.04	0.05	0.04	0.27	0.02	0.05	0.30	0.04	0.04
12	NO3-N (mgN/L)	0.32	0.41	0.34	0.17	0.24	0.33	0.20	0.40	0.29
13	o-PO4-P (mg P/L)	0.051	0.131	0.109	0.047	0.078	0.130	0.046	0.066	0.116
14	SiO2 (mg/L)	29.6	22.9	21.9	24.2	25.1	21.5	29.8	20.2	23.0
15	SO4 (mg/L)	5.4	6.4	5.7	7.0	4.1	5.7	3.0	7.2	4.9
	BIOLOGICAL/BACTERIOLOGICAL									
1	BOD3-27 (mg/L)	1.0	2.0	1.2	1.1	0.8	1.1	1.6	1.3	0.8
2	DO (mg/L)	5.6	5.8	6.7	7.7	7.7	7.4	6.6	6.8	7.1
3	DO_SAT% (%)	71	70	83	82	80	78	78	80	87
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO3/L)	68	82	62	66	76	70	66	70	81
2	HAR_Total (mgCaCO3/L)	101	108	94	97	102	101	108	100	110
3	Na% (%)	NA	11	12	NA	11	10	11	11	10
4	RSC (-)	0.1	0.1	0.1	0.3	0.2	0.1	0.2	0.1	0.1
5	SAR (-)	NA	0.3	0.3	NA	0.3	0.2	0.3	0.3	0.2

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.27 Narmada at D/S Jabalpur (Tilwaraghat)

History Sheet

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: D/S JABALPUR (Tilwaraghat)	Code	: WQSS-202008
State	: Madhya Pradesh	District	: JABALPUR
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Upper Narmada Sub-Division, Jabalpur
Drainage Area	: *	Bank	: Right
Latitude	: 23°60'31.0"	Longitude	: 79°52'25.0"
Current Zero of Gauge (m)	: *		
CATEGORY	Opening Date	Closing Date	
Gauge	: *		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at D/S Jabalpur (WQSS-202008)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Brown	Brown	Light Brown	Light Brown	Brown	Light Brown
2	EC_GEN (µmho/cm)	174	173	183	175	171	176	197	140	145	126	244	258
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.6	7.6	7.5	7.9	7.8	7.9	7.6	7.7	7.9	7.2	7.7	7.7
5	TDS (mg/L)	116	125	125	118	111	105	128	91	104	85	147	157
6	Temp (deg C)	24.0	29.5	29.0	25.0	25.0	28.0	26.0	25.0	24.0	24.0	27.0	27.0
7	Turb (NTU)	4.4	2.1	2.4	109.0	307.0	329.0	45.3	318.0	186.0	120.0	62.0	28.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	99	98	103	104	105	111	95	98	99	86	84	91
3	Ca (mg/L)	27	26	26	26	27	29	23	22	23	18	19	19
4	Cl (mg/L)	10.2	10.7	10.7	11.7	11.5	11.8	10.9	10.9	11.3	8.1	9.1	9.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	121	120	126	127	128	135	116	120	121	105	103	111
8	K (mg/L)	1.2	1.1	1.2	1.2	1.1	1.2	1.3	1.6	1.6	1.4	1.4	1.4
9	Mg (mg/L)	6.0	5.9	7.5	8.6	8.6	8.6	9.6	9.6	9.5	7.5	7.5	7.5
10	Na (mg/L)	5.7	5.5	5.8	6.5	6.5	6.7	5.9	5.8	6.0	4.5	4.7	5.0
11	NH3-N (mg N/L)	0.05	0.06	0.06	0.06	0.07	0.07	0.04	0.05	0.05	0.06	0.06	0.07
12	NO2+NO3 (mg N/L)	0.16	0.14	0.12	0.27	0.28	0.30	0.67	0.70	0.68	0.57	0.55	0.55
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.03	0.03	0.04	0.05	0.06	0.06	0.05	0.06	0.06
14	NO3-N (mgN/L)	0.14	0.13	0.11	0.24	0.24	0.26	0.62	0.65	0.61	0.52	0.50	0.49
15	o-PO4-P (mg P/L)	0.090	0.102	0.074	0.091	0.100	0.113	0.149	0.159	0.138	0.098	0.108	0.119
16	SiO2 (mg/L)	19.8	16.6	17.1	19.6	20.7	21.6	28.2	28.5	27.8	19.5	19.7	19.8
17	SO4 (mg/L)	4.0	4.8	1.1	4.8	4.8	5.5	7.1	6.9	6.6	4.8	4.6	4.7
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	0.6	0.6	1.0	1.2	1.3	1.2	0.8	0.8	0.8	1.0	1.0
2	DO (mg/L)	5.9	6.5	6.4	6.0	5.8	6.3	5.6	7.2	7.1	7.3	7.5	7.5
3	DO_SAT% (%)	71	84	83	72	70	80	69	87	84	87	94	94
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	68	66	64	65	68	71	57	55	57	44	47	48
2	HAR_Total (mgCaCO3/L)	93	91	95	101	104	107	97	95	96	75	78	80
3	Na% (%)	12	12	12	12	12	12	12	12	12	11	12	12
4	RSC (-)	0.1	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.2
5	SAR (-)	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at D/S Jabalpur (WQSS-202008)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	157	161	162	181	187	182	177	185	193	187	185	182
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.3	7.4	7.5	7.8	7.7	7.6	7.7	7.7	7.8	7.7	7.4	7.7
5	TDS (mg/L)	102	104	109	119	124	118	119	126	137	121	122	119
6	Temp (deg C)	28.0	26.0	27.0	18.0	20.0	21.0	19.0	16.0	12.0	14.0	17.0	13.0
7	Turb (NTU)	33.0	32.5	31.9	2.6	2.0	1.4	6.1	6.0	6.2	4.0	4.2	4.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	79	81	83	83	88	91	100	107	104	107	107	111
3	Ca (mg/L)	19	20	21	20	22	22	30	31	31	28	28	32
4	Cl (mg/L)	11.4	11.0	11.4	8.8	8.6	11.7	11.3	10.5	11.3	10.4	11.4	11.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	96	99	101	101	107	111	122	131	127	131	131	135
8	K (mg/L)	1.3	1.3	1.4	1.1	1.3	1.2	1.3	1.4	1.4	1.3	1.2	1.2
9	Mg (mg/L)	6.5	6.7	6.5	6.3	5.8	5.9	5.9	5.9	5.1	8.7	9.3	8.4
10	Na (mg/L)	6.1	6.1	6.3	4.8	4.8	6.4	6.5	6.4	6.6	6.0	6.2	6.2
11	NH3-N (mg N/L)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.07	0.07
12	NO2+NO3 (mg N/L)	0.24	0.25	0.27	0.31	0.33	0.34	0.31	0.32	0.33	0.34	0.33	0.32
13	NO2-N (mgN/L)	0.04	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.04	0.05	0.06	0.05
14	NO3-N (mgN/L)	0.20	0.21	0.22	0.27	0.28	0.29	0.27	0.28	0.29	0.28	0.28	0.27
15	o-PO4-P (mg P/L)	0.093	0.101	0.103	0.115	0.122	0.129	0.105	0.114	0.116	0.119	0.137	0.135
16	SiO2 (mg/L)	18.7	19.4	20.2	21.0	21.5	21.9	20.1	20.3	21.2	19.9	19.7	19.6
17	SO4 (mg/L)	5.2	5.3	5.3	5.9	5.3	6.3	5.1	5.6	6.1	5.4	5.3	5.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.2	1.0	1.2	1.2	1.2	1.2	1.4	1.2	1.2	1.0
2	DO (mg/L)	6.9	7.1	7.2	7.0	7.2	7.1	7.2	7.2	7.4	7.9	7.8	7.6
3	DO_SAT% (%)	88	87	90	74	79	80	78	73	68	77	81	72
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	48	49	52	50	55	54	75	78	79	70	69	80
2	HAR_Total (mgCaCO3/L)	76	77	79	76	80	79	100	102	100	106	108	115
3	Na% (%)	15	14	14	12	11	15	12	12	12	11	11	10
4	RSC (-)	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at D/S Jabalpur (WQSS-202008)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	186	188	192	198	205	208	160	165	169	193	195	198
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.1	7.8	7.8	7.6	7.6	7.8	7.9	7.8	7.9	7.6	7.6	7.8
5	TDS (mg/L)	121	122	125	120	126	130	107	113	118	121	128	127
6	Temp (deg C)	19.0	19.0	22.0	21.0	26.0	25.0	27.0	21.0	25.0	31.0	30.0	31.0
7	Turb (NTU)	3.2	5.5	5.8	5.8	5.9	5.8	3.5	3.4	3.0	6.0	5.1	4.7
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	107	107	111	113	115	120	107	108	109	116	118	120
3	Ca (mg/L)	31	31	31	31	32	32	31	32	32	35	35	36
4	Cl (mg/L)	8.8	9.6	10.0	10.0	10.5	10.3	9.1	9.3	9.5	9.8	10.0	10.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.18	0.18	0.16	0.12	0.13	0.14
7	HCO3 (mg/L)	131	131	136	138	140	146	130	132	133	142	144	146
8	K (mg/L)	1.1	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.4	1.3	1.4	1.3
9	Mg (mg/L)	8.5	8.7	7.7	8.0	8.1	8.1	5.8	6.0	6.3	6.2	6.6	6.8
10	Na (mg/L)	4.6	5.1	5.4	5.4	5.4	5.5	4.9	5.0	5.1	5.3	5.3	5.4
11	NH3-N (mg N/L)	0.08	0.08	0.08	0.07	0.07	0.07	0.06	0.06	0.07	0.07	0.08	0.07
12	NO2+NO3 (mg N/L)	0.56	0.56	0.56	0.55	0.58	0.59	0.20	0.21	0.22	0.23	0.24	0.25
13	NO2-N (mgN/L)	0.05	0.06	0.05	0.05	0.06	0.06	0.02	0.03	0.03	0.03	0.04	0.04
14	NO3-N (mgN/L)	0.51	0.50	0.51	0.50	0.52	0.53	0.18	0.19	0.19	0.20	0.21	0.21
15	o-PO4-P (mg P/L)	0.144	0.154	0.157	0.150	0.153	0.156	0.085	0.090	0.099	0.100	0.104	0.107
16	SiO2 (mg/L)	23.1	24.1	24.3	23.7	24.2	25.1	24.3	24.4	24.5	21.4	21.8	21.7
17	SO4 (mg/L)	3.8	4.5	4.8	5.0	5.3	5.4	4.6	4.6	4.6	4.9	5.3	5.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.0	1.2	0.6	0.2	0.8	1.2	1.2	1.2	0.8	0.8	0.8
2	DO (mg/L)	7.7	7.9	7.6	7.6	7.3	7.5	6.0	6.2	6.1	7.2	7.4	7.1
3	DO_SAT% (%)	83	85	87	85	90	91	75	69	74	96	97	95
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	77	77	78	78	79	80	78	79	79	87	89	90
2	HAR_Total (mgCaCO3/L)	113	113	111	111	113	113	102	104	106	113	116	118
3	Na% (%)	8	9	10	9	9	9	9	9	9	9	9	9
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
5	SAR (-)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at D/S Jabalpur (WQSS-202008)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	258	126	182
2	pH_GEN (pH units)	36	8.1	7.2	7.7
3	TDS (mg/L)	36	157	85	119
4	Temp (deg C)	36	31.0	12.0	23.4
5	Turb (NTU)	36	329.0	1.4	47.4
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	120	79	102
3	Ca (mg/L)	36	36	18	27
4	Cl (mg/L)	36	11.8	8.1	10.4
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.18	0.12	0.15
7	HCO3 (mg/L)	36	146	96	124
8	K (mg/L)	36	1.6	1.1	1.3
9	Mg (mg/L)	36	9.6	5.1	7.3
10	Na (mg/L)	36	6.7	4.5	5.6
11	NH3-N (mg N/L)	36	0.08	0.04	0.07
12	NO2+NO3 (mg N/L)	36	0.70	0.12	0.37
13	NO2-N (mgN/L)	36	0.06	0.01	0.04
14	NO3-N (mgN/L)	36	0.65	0.11	0.33
15	o-PO4-P (mg P/L)	36	0.159	0.074	0.117
16	SiO2 (mg/L)	36	28.5	16.6	21.8
17	SO4 (mg/L)	36	7.1	1.1	5.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.4	0.2	1
2	DO (mg/L)	36	7.9	5.6	7
3	DO_SAT% (%)	36	97	68	82
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	90	44	68
2	HAR_Total (mgCaCO3/L)	36	118	75	98
3	Na% (%)	36	15	8	11
4	RSC (-)	36	0.2	0.0	0.1
5	SAR (-)	36	0.3	0.2	0.2

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2021-2024

Station Name : Narmada at D/S Jabalpur (WQSS-202008)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : UNSD, Jabalpur

S.No	Parameters	Flood			Winter			Summer		
		Jun - Oct			Nov - Feb			Mar - May		
		2021	2022	2023	2021-2022	2022-2023	2023-2024	2022	2023	2024
	PHYSICAL									
1	EC_GEN ($\mu\text{mho/cm}$)	202	183	176	208	198	185	217	196	188
2	pH_GEN (pH units)	7.3	7.7	7.6	7.5	7.6	7.7	7.5	7.7	7.7
3	TDS (mg/L)	128	110	115	132	137	123	148	129	121
4	Temp (deg C)	27.3	25.5	26.3	19.9	17.9	17.5	24.5	23.3	26.3
5	Turb (NTU)	14.2	87.7	107.4	3.9	9.8	4.2	3.8	5.8	4.8
	CHEMICAL									
1	ALK-TOT (mgCaCO ₃ /L)	106	109	94	104	112	102	90	101	114
2	Ca (mg/L)	25	29	23	26	29	28	26	29	33
3	Cl (mg/L)	15.7	11.6	10.7	13.4	10.7	10.3	14.5	10.9	9.9
4	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	0.15
5	HCO ₃ (mg/L)	129	133	115	126	136	125	110	123	139
6	K (mg/L)	NA	1.7	1.3	NA	1.4	1.2	1.3	1.4	1.3
7	Mg (mg/L)	7.1	7.4	7.7	8.6	6.9	7.2	8.1	7.2	6.9
8	Na (mg/L)	NA	6.2	5.8	NA	6.0	5.7	6.0	5.9	5.3
9	NH ₃ -N (mg N/L)	NA	0.05	0.06	NA	0.05	0.07	0.04	0.09	0.07
10	NO ₂ +NO ₃ (mg N/L)	0.50	0.51	0.38	0.15	0.26	0.38	0.24	0.24	0.34
11	NO ₂ -N (mgN/L)	0.06	0.08	0.04	0.01	0.02	0.05	0.02	0.04	0.04
12	NO ₃ -N (mgN/L)	0.43	0.43	0.34	0.14	0.24	0.34	0.22	0.19	0.30
13	o-PO ₄ -P (mg P/L)	0.067	0.151	0.109	0.054	0.079	0.129	0.056	0.070	0.116
14	SiO ₂ (mg/L)	30.3	23.5	21.1	18.8	24.5	21.4	25.7	20.4	23.4
15	SO ₄ (mg/L)	5.2	5.7	5.0	8.6	4.2	5.3	6.6	6.6	5.1
	BIOLOGICAL/BACTERIOLOGICAL									
1	BOD ₃ -27 (mg/L)	1.0	1.9	1.0	1.0	0.8	1.1	1.6	1.3	0.8
2	DO (mg/L)	6.0	5.8	6.7	7.7	7.7	7.5	6.3	6.8	6.9
3	DO_SAT% (%)	76	71	83	85	81	78	75	80	86
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO ₃ /L)	63	73	57	66	72	70	64	72	82
2	HAR_Total (mgCaCO ₃ /L)	92	104	90	101	101	100	98	102	111
3	Na% (%)	NA	11	12	NA	11	11	12	11	9
4	RSC (-)	0.3	0.2	0.1	0.1	0.3	0.1	0.1	0.0	0.1
5	SAR (-)	NA	0.3	0.3	NA	0.3	0.3	0.3	0.3	0.2

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.28 Hiran at D/S Patan

History Sheet

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: D/S Patan	Code	: WQSS-202009
State	: Madhya Pradesh	District	: JABALPUR
Basin	: Narmada	Independent River	: Narmada
Tributary	: Hiran	Sub Tributary	: Hiran
Sub-Sub Tributary	: Hiran	Local River	: Hiran
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Upper Narmada Sub-Division, Jabalpur
Drainage Area	: *	Bank	: Left
Latitude	: 23°60'8.0"	Longitude	: 79°20'20.0"
Current Zero of Gauge (m)	: *		
CATEGORY	Opening Date	Closing Date	
Gauge	: *		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name: Hiran at D/S Patan (WQSS-202009)

Local River : Hiran

Division: Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Light Brown	Brown
2	EC_GEN (µmho/cm)	558	516	584	214	208	203	347	207	216	339	287	296
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.1	7.6	7.8	7.8	7.7	7.9	7.7	7.7	7.8	7.5	7.5	7.5
5	TDS (mg/L)	372	356	386	142	135	130	221	133	141	226	185	194
6	Temp (deg C)	28.0	29.5	30.0	27.0	28.0	30.0	29.0	26.0	29.0	29.0	29.0	28.5
7	Turb (NTU)	73.8	17.0	24.2	289.0	665.0	674.0	31.3	236.0	164.0	10.4	8.5	5.8
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	220	195	207	220	222	212	143	146	148	102	106	108
3	Ca (mg/L)	64	51	51	53	51	54	38	37	38	25	26	28
4	Cl (mg/L)	63.2	57.3	68.9	49.0	45.4	44.5	22.2	14.4	14.8	21.3	20.7	20.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	269	238	252	269	271	259	175	178	180	125	129	132
8	K (mg/L)	15.7	15.0	13.6	12.1	12.0	11.2	3.7	2.5	2.6	10.4	7.4	5.4
9	Mg (mg/L)	11.1	14.5	18.2	15.9	18.2	16.8	11.6	11.6	11.4	9.3	9.1	8.9
10	Na (mg/L)	45.8	41.7	47.8	27.5	25.1	23.8	14.8	7.7	8.1	16.5	14.3	13.9
11	NH3-N (mg N/L)	0.02	0.02	0.20	0.10	0.09	0.09	0.09	0.08	0.09	0.09	0.09	0.09
12	NO2+NO3 (mg N/L)	1.16	1.12	1.04	1.75	1.77	1.82	1.05	0.88	0.99	0.56	0.60	0.65
13	NO2-N (mgN/L)	0.10	0.08	0.08	0.08	0.08	0.09	0.08	0.80	0.04	0.06	0.07	0.07
14	NO3-N (mgN/L)	1.06	1.03	0.96	1.67	1.68	1.73	0.97	0.08	0.95	0.49	0.53	0.58
15	o-PO4-P (mg P/L)	0.338	0.350	0.320	0.387	0.399	0.413	0.199	0.207	0.189	0.158	0.166	0.176
16	SiO2 (mg/L)	50.7	48.6	51.2	48.7	19.0	50.8	45.3	45.5	44.7	16.9	17.3	17.6
17	SO4 (mg/L)	13.9	14.9	9.6	13.8	12.9	12.5	7.7	11.1	9.9	9.2	9.9	9.3
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	2.5	2.3	2.3	1.9	1.9	2.1	0.8	1.4	5.1	1.8	2.0	2.0
2	COD (mg/L)	5.8	5.4	5.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	3.4	3.8	3.9	4.6	4.0	5.2	6.6	5.2	5.1	5.9	6.1	6.1
4	DO_SAT% (%)	43	49	52	58	51	68	86	64	67	77	80	78
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	159	126	129	132	126	135	96	94	95	62	66	69
2	HAR_Total (mgCaCO3/L)	206	187	205	198	202	205	144	142	143	101	104	106
3	Na% (%)	31	31	32	22	20	19	18	10	11	24	22	21
4	RSC (-)	0.3	0.2	0.1	0.5	0.4	0.2	0.0	0.1	0.1	0.0	0.0	0.1
5	SAR (-)	1.4	1.3	1.5	0.9	0.8	0.7	0.5	0.3	0.3	0.7	0.6	0.6

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Hiran at D/S Patan (WQSS-202009)

Local River : Hiran

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	295	298	302	419	425	427	782	791	716	435	405	365
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.4	7.4	7.5	7.9	7.8	7.7	7.3	7.4	7.6	7.5	7.6	7.5
5	TDS (mg/L)	187	190	193	270	273	276	508	514	459	282	258	237
6	Temp (deg C)	26.0	26.5	27.0	23.0	21.0	21.0	18.0	18.0	15.5	17.5	17.5	15.5
7	Turb (NTU)	63.0	62.0	61.3	3.7	3.4	3.2	2.2	2.3	4.0	11.9	11.9	12.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	121	123	125	161	167	175	253	234	239	176	157	145
3	Ca (mg/L)	28	28	29	49	51	53	66	66	46	49	45	47
4	Cl (mg/L)	19.9	20.1	19.9	22.4	24.3	25.1	44.4	44.0	42.5	35.0	31.4	30.4
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	148	150	153	197	204	213	309	285	292	215	191	177
8	K (mg/L)	2.1	2.1	5.2	3.3	4.1	4.0	4.1	4.1	3.8	3.0	2.7	2.7
9	Mg (mg/L)	12.7	12.9	12.8	11.9	11.8	12.0	18.0	18.2	18.9	15.0	11.7	10.1
10	Na (mg/L)	14.0	13.9	14.1	17.1	18.4	17.2	25.9	25.7	22.0	19.0	16.9	16.2
11	NH3-N (mg N/L)	0.08	0.08	0.09	0.10	0.10	0.10	0.07	0.07	0.07	0.07	0.08	0.07
12	NO2+NO3 (mg N/L)	0.40	0.42	0.43	1.07	1.18	1.20	1.18	1.15	1.14	1.12	1.09	1.04
13	NO2-N (mgN/L)	0.05	0.05	0.06	0.14	0.16	0.17	0.15	0.15	0.14	0.10	0.10	0.09
14	NO3-N (mgN/L)	0.35	0.36	0.38	0.93	1.02	1.03	1.03	1.00	1.01	1.02	1.00	0.95
15	o-PO4-P (mg P/L)	0.142	0.150	0.152	0.198	0.221	0.226	0.326	0.330	0.302	0.254	0.250	0.266
16	SiO2 (mg/L)	28.4	29.0	29.7	44.5	48.0	48.8	76.7	77.0	71.8	43.4	40.5	40.8
17	SO4 (mg/L)	8.4	8.4	8.2	10.9	11.7	13.3	14.9	12.5	9.9	13.3	12.1	9.3
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.4	1.8	1.8	1.4	1.4	1.4	2.0	2.2	2.2	2.0	2.0	2.2
2	COD (mg/L)	BDL	BDL	BDL	5.1	5.2	5.2	8.4	8.5	7.8	5.1	5.0	BDL
3	DO (mg/L)	5.9	6.3	6.4	5.6	5.6	5.5	5.4	5.6	5.8	7.1	7.0	7.2
4	DO_SAT% (%)	73	78	80	65	62	62	57	59	57	74	73	72
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	69	70	73	122	127	131	165	166	115	123	113	118
2	HAR_Total (mgCaCO3/L)	122	124	126	171	176	181	240	242	193	186	162	160
3	Na% (%)	20	19	19	18	18	17	19	19	20	18	18	18
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.9	0.0	0.0	0.0
5	SAR (-)	0.6	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.6	0.6	0.6

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name: Hiran at D/S Patan (WQSS-202009)

Local River : Hiran

Division: Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	414	427	431	436	441	445	429	435	440	435	438	433
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.8	7.6	7.7	7.6	7.6	7.7	8.0	7.7	7.9	7.7	7.7	7.8
5	TDS (mg/L)	268	277	281	284	289	294	287	294	300	276	279	278
6	Temp (deg C)	16.5	17.5	20.0	19.5	20.5	22.5	25.5	24.5	27.0	29.5	28.5	29.5
7	Turb (NTU)	5.3	15.5	14.0	19.0	17.6	18.5	1.9	1.7	1.5	11.9	12.7	12.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	189	192	196	206	207	211	205	207	207	205	207	207
3	Ca (mg/L)	53	53	53	52	53	53	52	52	53	53	52	51
4	Cl (mg/L)	33.5	29.9	30.4	29.9	30.6	31.4	52.9	53.4	54.0	55.7	57.0	58.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)							0.78	0.48	0.37	0.34	0.31	0.34
7	HCO3 (mg/L)	230	234	239	251	252	257	250	252	253	250	253	252
8	K (mg/L)	5.1	6.6	6.6	6.6	6.6	6.6	9.3	9.4	9.5	9.5	9.6	9.7
9	Mg (mg/L)	15.4	15.4	15.3	15.3	15.8	16.8	17.3	17.4	17.6	16.7	17.3	17.1
10	Na (mg/L)	17.8	20.6	21.1	21.1	21.1	21.1	28.7	28.7	29.0	32.1	32.7	33.6
11	NH3-N (mg N/L)	0.10	0.10	0.11	0.10	0.10	0.10	0.17	0.19	0.19	0.14	0.16	0.14
12	NO2+NO3 (mg N/L)	1.54	1.65	1.66	1.65	1.68	1.69	1.75	1.77	1.80	1.77	1.78	1.76
13	NO2-N (mgN/L)	0.15	0.15	0.15	0.15	0.16	0.16	0.15	0.16	0.17	0.16	0.17	0.17
14	NO3-N (mgN/L)	1.40	1.50	1.51	1.49	1.52	1.53	1.60	1.61	1.63	1.61	1.61	1.60
15	o-PO4-P (mg P/L)	0.360	0.370	0.374	0.363	0.366	0.369	0.316	0.321	0.331	0.322	0.329	0.317
16	SiO2 (mg/L)	59.9	61.4	62.3	58.7	60.2	60.5	55.0	55.1	55.3	55.3	55.4	55.3
17	SO4 (mg/L)	9.6	10.6	11.0	12.5	12.7	12.8	13.7	13.8	14.0	15.4	15.5	16.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	2.1	2.3	2.2	2.2	2.2	2.4	3.0	2.8	2.8	2.6	2.6	2.6
2	COD (mg/L)	13.0	12.0	12.0	14.0	12.0	15.0	14.0	16.0	15.0	13.0	14.0	13.0
3	DO (mg/L)	6.0	5.8	6.0	5.6	5.7	5.9	5.2	5.4	5.3	5.8	6.0	5.7
4	DO_SAT% (%)	61	60	66	60	63	68	63	64	67	75	76	74
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	131	131	133	130	131	132	130	131	131	131	130	129
2	HAR_Total (mgCaCO3/L)	195	195	196	194	197	202	202	203	204	201	202	200
3	Na% (%)	16	18	18	19	18	18	23	23	23	25	25	26
4	RSC (-)	0.0	0.0	0.0	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period: 2023-24

Station Name: Hiran at D/S Patan (WQSS-202009)

Local River : Hiran

Division: Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	791	203	412
2	pH_GEN (pH units)	36	8.1	7.3	7.7
3	TDS (mg/L)	36	514	130	269
4	Temp (deg C)	36	30.0	15.5	24.2
5	Turb (NTU)	36	674.0	1.5	71.4
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	253	102	182
3	Ca (mg/L)	36	66	25	47
4	Cl (mg/L)	36	68.9	14.4	36.6
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.78	0.31	0.44
7	HCO3 (mg/L)	36	309	125	222
8	K (mg/L)	36	15.7	2.1	6.9
9	Mg (mg/L)	36	18.9	8.9	14.4
10	Na (mg/L)	36	47.8	7.7	22.6
11	NH3-N (mg N/L)	36	0.20	0.02	0.1
12	NO2+NO3 (mg N/L)	36	1.82	0.40	1.26
13	NO2-N (mgN/L)	36	0.80	0.04	0.14
14	NO3-N (mgN/L)	36	1.73	0.08	1.12
15	o-PO4-P (mg P/L)	36	0.413	0.142	0.285
16	SiO2 (mg/L)	36	77.0	16.9	48
17	SO4 (mg/L)	36	16.0	7.7	11.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	5.1	0.8	2.1
2	COD (mg/L)	23	16.0	5.0	10
3	DO (mg/L)	36	7.2	3.4	5.6
4	DO_SAT% (%)	36	86	43	66
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	166	62	118
2	HAR_Total (mgCaCO3/L)	36	242	101	178
3	Na% (%)	36	32	10	20
4	RSC (-)	36	0.9	0.0	0.1
5	SAR (-)	36	1.5	0.3	0.7

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2021-2024

Station Name : Hiran at D/S Patan (WQSS-202009)

Local River : Hiran

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water

S.No	Parameters	Food			Winter			Summer		
		Jun - Oct			Nov - Feb			Mar - May		
		2021	2022	2023	2021-2022	2022-2023	2023-2024	2022	2023	2024
	PHYSICAL									
1	EC_GEN (µmho/cm)	372	327	325	479	501	503	637	550	437
2	pH_GEN (pH units)	7.2	7.8	7.7	7.2	7.7	7.6	7.6	7.5	7.7
3	TDS (mg/L)	218	200	213	309	336	325	368	357	287
4	Temp (deg C)	27.9	27.4	28.2	18.2	18.5	18.4	24.7	24.2	25.2
5	Turb (NTU)	14.1	194.4	159.0	8.4	11.3	7.5	40.3	9.6	10.8
	CHEMICAL									
1	ALK-TOT (mgCaCO3/L)	142	148	160	207	203	190	249	208	207
2	Ca (mg/L)	38	45	40	51	61	53	57	54	52
3	Cl (mg/L)	27.6	28.6	33.5	28.8	36.0	32.8	51.7	61.2	47.0
4	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	0.44
5	HCO3 (mg/L)	173	181	195	253	247	232	304	253	252
6	K (mg/L)	NA	5.4	8.1	NA	4.2	4.2	10.6	14.3	8.5
7	Mg (mg/L)	11.9	12.0	13.0	18.5	14.6	14.5	21.0	16.5	16.8
8	Na (mg/L)	NA	16.1	21.9	NA	21.2	19.8	44.6	39.7	27.6
9	NH3-N (mg N/L)	NA	0.08	0.09	NA	0.06	0.09	0.49	0.14	0.14
10	NO2+NO3 (mg N/L)	3.34	2.87	0.98	2.52	1.65	1.25	0.85	0.99	1.74
11	NO2-N (mgN/L)	0.17	0.15	0.12	0.17	0.13	0.14	0.02	0.16	0.16
12	NO3-N (mgN/L)	3.17	2.72	0.86	2.35	1.52	1.12	0.83	0.83	1.58
13	o-PO4-P (mg P/L)	0.178	0.414	0.250	0.170	0.189	0.290	0.114	0.193	0.337
14	SiO2 (mg/L)	28.6	38.6	36.2	32.1	39.6	56.2	35.3	47.3	56.8
15	SO4 (mg/L)	8.7	11.6	10.6	13.5	12.3	11.6	11.3	17.3	14.0
	BIOLOGICAL/BACTERIOLOGICAL									
1	BOD3-27 (mg/L)	1.1	1.7	2.1	1.4	1.6	1.9	1.7	1.8	2.6
2	COD (mg/L)	5.2	5.7	5.7	5.7	5.9	7.9	7.1	6.1	14.0
3	DO (mg/L)	5.5	5.9	5.2	7.2	6.4	6.0	4.4	4.3	5.6
4	DO_SAT% (%)	70	74	67	76	68	64	53	51	68
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO3/L)	94	113	100	128	152	131	143	134	131
2	HAR_Total (mgCaCO3/L)	144	163	154	205	213	192	231	203	201
3	Na% (%)	NA	16	21	NA	17	18	26	28	22
4	RSC (-)	0.1	0.0	0.1	0.2	0.1	0.1	0.5	0.2	0.1
5	SAR (-)	NA	0.6	0.7	NA	0.6	0.6	1.2	1.2	0.8

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.29 Sher at D/S Belkheri (Point of Sher before Conf. Narmada)

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: D/S Belkheri	Code	: WQSS-202010
State	: Madhya Pradesh	District	: NARSIMHAPUR
Basin	: Narmada	Independent River	: Narmada
Tributary	: Sher	Sub Tributary	: -
Sub-Sub Tributary	: -	Local River	: Sher
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Middle Narmada Sub-Division-I, Hosangabad
Drainage Area	: *	Bank	: Left
Latitude	: 23°00'48.0"	Longitude	: 79°50'33.0"
Current Zero of Gauge (m)	: *		
CATEGORY	Opening Date	Closing Date	
Gauge	: *		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : D/S Point of Sher before conf. Narmada (WQSS-202010)

Local River : Sher

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Light Brown	Brown
2	EC_GEN (µmho/cm)	370	398	454	235	229	224	351	358	365	279	301	310
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.7	7.7	7.9	8.1	8.0	7.9	8.1	8.1	8.1	7.8	8.0	8.1
5	TDS (mg/L)	242	272	303	156	148	142	228	231	238	189	195	203
6	Temp (deg C)	28.0	24.0	20.0	25.0	23.0	21.0	20.0	21.0	22.0	29.0	23.0	21.0
7	Turb (NTU)	6.3	2.1	1.9	164.0	298.0	341.0	53.9	25.9	21.4	4.5	3.2	3.9
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	204	214	230	205	209	198	154	156	161	173	177	178
3	Ca (mg/L)	46	50	46	46	47	43	44	43	44	45	45	46
4	Cl (mg/L)	21.1	21.2	24.3	12.8	13.0	13.5	17.9	19.4	21.0	19.7	20.1	20.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	249	261	281	250	255	241	188	190	196	211	216	217
8	K (mg/L)	1.1	1.2	1.3	0.9	1.0	1.0	0.8	0.8	0.9	0.7	0.8	0.9
9	Mg (mg/L)	22.9	18.5	26.7	17.6	18.2	17.8	13.8	13.8	13.6	12.9	14.1	13.9
10	Na (mg/L)	14.7	15.1	18.3	6.9	7.1	7.2	10.7	10.9	11.1	11.5	11.2	12.1
11	NH3-N (mg N/L)	0.01	0.02	0.02	0.08	0.09	0.08	0.08	0.09	0.09	0.09	0.08	0.08
12	NO2+NO3 (mg N/L)	0.63	0.79	0.70	0.33	0.34	0.38	0.97	1.00	0.91	0.79	0.80	0.86
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.04	0.04	0.06	0.07	0.08	0.05	0.07	0.08	0.08
14	NO3-N (mgN/L)	0.62	0.78	0.69	0.29	0.30	0.32	0.90	0.93	0.87	0.72	0.72	0.78
15	o-PO4-P (mg P/L)	0.242	0.254	0.225	0.142	0.152	0.165	0.181	0.189	0.170	0.179	0.186	0.202
16	SiO2 (mg/L)	38.3	35.5	34.7	31.9	32.2	33.2	39.9	40.1	39.3	30.8	30.5	30.7
17	SO4 (mg/L)	9.3	10.0	5.6	5.9	5.5	4.9	9.0	9.0	8.7	9.4	9.1	12.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.9	1.7	1.2	1.2	1.0	1.0	1.0	0.8	0.8	1.0	1.2	1.2
2	COD (mg/L)	BDL	BDL	5.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	5.7	6.1	6.0	6.8	6.5	7.1	6.4	7.2	7.1	7.5	7.7	7.7
4	DO_SAT% (%)	73	72	66	82	76	79	70	80	81	98	90	86
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	115	125	114	115	117	107	110	108	109	111	113	116
2	HAR_Total (mgCaCO3/L)	210	202	225	188	193	181	168	165	166	165	172	174
3	Na% (%)	13	14	15	7	7	8	12	13	13	13	12	13
4	RSC (-)	0.0	0.3	0.1	0.4	0.3	0.3	0.0	0.0	0.0	0.2	0.1	0.1
5	SAR (-)	0.4	0.5	0.5	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : D/S Point of Sher before conf. Narmada (WQSS-202010)

Local River : Sher

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	359	362	367	478	492	526	498	504	512	536	534	537
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.9	8.0	8.0	8.0	8.0	8.1	7.8	7.7	7.5	7.9	7.9	7.8
5	TDS (mg/L)	230	233	238	307	317	341	330	336	340	348	351	348
6	Temp (deg C)	20.0	22.0	26.0	21.0	22.0	20.0	21.0	21.0	20.0	19.0	19.0	20.0
7	Turb (NTU)	12.7	12.4	11.6	5.7	5.6	5.2	7.0	6.8	6.2	2.9	3.3	3.8
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	143	145	148	179	182	187	219	211	216	207	202	207
3	Ca (mg/L)	43	44	45	51	55	56	50	50	55	52	53	59
4	Cl (mg/L)	19.5	19.7	19.5	24.7	22.0	23.7	33.5	34.5	35.2	45.6	45.0	43.1
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	174	177	181	218	222	228	267	257	263	252	247	252
8	K (mg/L)	0.9	0.9	0.9	0.9	0.9	0.9	2.0	2.0	2.3	3.2	3.2	3.2
9	Mg (mg/L)	9.3	9.5	9.2	15.0	14.1	13.8	21.0	21.1	23.2	19.7	16.8	16.6
10	Na (mg/L)	11.8	11.8	11.9	19.1	16.0	17.8	19.0	18.6	24.0	24.0	23.7	22.9
11	NH3-N (mg N/L)	0.08	0.09	0.09	0.10	0.10	0.12	0.12	0.12	0.11	0.10	0.10	0.10
12	NO2+NO3 (mg N/L)	0.52	0.53	0.55	1.13	1.24	1.26	1.06	1.07	1.08	1.25	1.24	1.26
13	NO2-N (mgN/L)	0.06	0.06	0.07	0.15	0.17	0.18	0.09	0.10	0.10	0.12	0.12	0.12
14	NO3-N (mgN/L)	0.46	0.47	0.48	0.98	1.07	1.08	0.97	0.98	0.98	1.12	1.12	1.13
15	o-PO4-P (mg P/L)	0.162	0.167	0.169	0.196	0.265	0.277	0.265	0.272	0.276	0.300	0.305	0.312
16	SiO2 (mg/L)	35.5	36.2	36.8	51.9	55.8	58.9	50.3	50.6	52.4	53.1	53.4	53.2
17	SO4 (mg/L)	9.7	9.8	9.9	13.3	14.5	14.7	12.8	11.2	9.3	14.9	15.5	16.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.2	1.0	1.2	1.2	1.2	1.0	0.8	1.0	1.0	1.2
2	COD (mg/L)	BDL	BDL	BDL	5.7	6.1	6.3	5.1	5.3	5.5	5.8	5.7	5.7
3	DO (mg/L)	7.3	7.5	7.6	7.0	7.2	7.1	7.8	7.8	7.4	7.5	7.4	7.6
4	DO_SAT% (%)	80	86	93	78	82	78	88	87	81	81	80	84
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	109	109	113	129	137	140	124	126	139	130	132	147
2	HAR_Total (mgCaCO3/L)	147	149	151	191	196	197	212	214	235	212	202	217
3	Na% (%)	15	15	15	18	15	16	16	16	18	20	20	18
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.6	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.7

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : D/S Point of Sher before conf. Narmada (WQSS-202010)

Local River : Sher

Division : Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (μmho/cm)	584	579	584	587	592	589	392	387	390	450	510	517
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	7.8	7.9	7.9	7.9	7.9	7.8	7.7	7.9	7.8	7.7	7.9
5	TDS (mg/L)	379	372	375	378	383	380	262	259	262	281	318	334
6	Temp (deg C)	17.0	19.0	20.0	19.0	19.0	23.0	26.0	26.0	28.0	29.0	29.0	30.0
7	Turb (NTU)	2.6	2.6	2.9	4.0	4.1	4.1	0.9	0.9	0.7	2.5	2.9	2.3
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	219	216	219	222	225	226	168	169	170	211	219	220
3	Ca (mg/L)	61	62	62	61	61	61	49	49	49	50	52	52
4	Cl (mg/L)	22.8	30.8	31.4	31.4	32.2	32.9	32.6	33.4	33.6	35.4	36.6	38.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.51	0.45	0.41	0.25	0.32	0.34
7	HCO3 (mg/L)	267	263	267	271	274	276	205	206	208	258	267	269
8	K (mg/L)	0.9	1.0	1.1	1.0	1.1	1.1	1.0	1.0	1.1	1.2	1.2	1.3
9	Mg (mg/L)	18.0	17.6	17.7	17.4	17.6	17.2	12.4	12.6	12.7	21.8	23.0	23.4
10	Na (mg/L)	17.8	21.5	22.1	22.0	22.1	22.1	18.4	18.5	18.7	21.6	22.1	24.1
11	NH3-N (mg N/L)	0.10	0.10	0.10	0.09	0.10	0.10	0.10	0.11	0.10	0.11	0.10	0.12
12	NO2+NO3 (mg N/L)	1.56	1.51	1.51	1.48	1.52	1.53	0.75	0.76	0.79	1.88	1.89	1.89
13	NO2-N (mgN/L)	0.14	0.14	0.14	0.12	0.13	0.13	0.12	0.12	0.13	0.18	0.19	0.19
14	NO3-N (mgN/L)	1.42	1.37	1.38	1.36	1.39	1.40	0.64	0.64	0.66	1.69	1.71	1.70
15	o-PO4-P (mg P/L)	0.383	0.361	0.360	0.351	0.354	0.358	0.218	0.228	0.233	0.351	0.375	0.379
16	SiO2 (mg/L)	64.3	63.6	63.8	62.9	63.9	64.3	43.9	44.1	44.1	56.2	57.0	57.1
17	SO4 (mg/L)	5.6	6.0	6.2	6.1	6.2	6.5	10.0	9.9	10.0	16.9	17.7	16.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.0	0.8	0.8	0.8	1.2	0.8	0.8	0.6	0.6	0.6
2	COD (mg/L)	5.4	5.5	5.4	5.6		5.6	5.2	5.3	5.4	5.3	5.5	5.3
3	DO (mg/L)	7.7	7.9	7.6	7.4	7.5	7.7	7.0	7.2	7.1	7.4	7.6	7.3
4	DO_SAT% (%)	80	85	84	80	81	90	86	88	91	96	98	96
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	153	154	155	152	153	153	122	123	123	124	130	130
2	HAR_Total (mgCaCO3/L)	228	228	229	224	226	225	174	175	176	215	226	227
3	Na% (%)	15	17	17	18	18	18	19	19	19	18	18	19
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : D/S Point of Sher before conf. Narmada (WQSS-202010)

Local River : Sher

Division:Narmada Division, Bhopal

Sub-Division : UNSD, Jabalpur

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	592	224	437
2	pH_GEN (pH units)	36	8.1	7.5	7.9
3	TDS (mg/L)	36	383	142	285
4	Temp (deg C)	36	30.0	17.0	22.6
5	Turb (NTU)	36	341.0	0.7	28.9
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	230	143	194
3	Ca (mg/L)	36	62	43	51
4	Cl (mg/L)	36	45.6	12.8	27.3
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.51	0.25	0.38
7	HCO3 (mg/L)	36	281	174	237
8	K (mg/L)	36	3.2	0.7	1.3
9	Mg (mg/L)	36	26.7	9.2	16.8
10	Na (mg/L)	36	24.1	6.9	16.9
11	NH3-N (mg N/L)	36	0.12	0.01	0.09
12	NO2+NO3 (mg N/L)	36	1.89	0.33	1.05
13	NO2-N (mgN/L)	36	0.19	0.01	0.1
14	NO3-N (mgN/L)	36	1.71	0.29	0.95
15	o-PO4-P (mg P/L)	36	0.383	0.142	0.256
16	SiO2 (mg/L)	36	64.3	30.5	47
17	SO4 (mg/L)	36	17.7	4.9	10.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.9	0.6	1
2	COD (mg/L)	21	6.3	5.1	5.5
3	DO (mg/L)	36	7.9	5.7	7.2
4	DO_SAT% (%)	36	98	66	83
	TRACE & TOXIC				
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	155	107	127
2	HAR_Total (mgCaCO3/L)	36	235	147	197
3	Na% (%)	36	20	7	15
4	RSC (-)	36	0.4	0.0	0.1
5	SAR (-)	36	0.7	0.2	0.5

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2021-2024

Station Name : D/S Point of Sher before conf. Narmada (WQSS-202010)

Division : Narmada Division, Bhopal

Local River : Sher

Sub-Division : UNSD, Jabalpur

River Water

S.No	Parameters	Flood			Winter			Summer		
		Jun - Oct			Nov - Feb			Mar - May		
		2021	2022	2023	2021-2022	2022-2023	2023-2024	2022	2023	2024
	PHYSICAL									
1	EC_GEN (µmho/cm)	317	299	331	482	531	530	537	500	490
2	pH_GEN (pH units)	7.5	8.0	8.0	7.3	7.8	7.9	7.7	7.8	7.8
3	TDS (mg/L)	203	183	217	310	361	345	295	333	317
4	Temp (deg C)	26.4	26.6	23.0	23.1	19.7	19.9	27.2	20.9	25.4
5	Turb (NTU)	10.3	108.6	64.2	4.0	4.9	4.5	2.5	7.5	2.5
	CHEMICAL									
1	ALK-TOT (mgCaCO3/L)	137	126	180	229	178	205	250	247	203
2	Ca (mg/L)	35	38	45	51	52	55	45	56	54
3	Cl (mg/L)	18.8	16.3	18.9	26.1	27.6	32.7	19.2	27.9	34.1
4	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	0.38
5	HCO3 (mg/L)	167	153	219	279	217	250	305	302	248
6	K (mg/L)	NA	1.4	0.9	NA	1.1	1.8	1.1	1.3	1.1
7	Mg (mg/L)	12.6	8.7	15.5	23.3	19.1	17.9	28.4	21.8	17.6
8	Na (mg/L)	NA	9.8	11.5	NA	17.0	20.5	17.9	19.4	21.1
9	NH3-N (mg N/L)	NA	0.06	0.07	NA	0.05	0.10	0.06	0.12	0.10
10	NO2+NO3 (mg N/L)	0.80	1.00	0.67	0.84	1.30	1.26	0.48	0.91	1.39
11	NO2-N (mgN/L)	0.08	0.09	0.05	0.14	0.11	0.13	0.12	0.14	0.14
12	NO3-N (mgN/L)	0.73	0.91	0.62	0.70	1.19	1.13	0.36	0.77	1.24
13	o-PO4-P (mg P/L)	0.134	0.247	0.186	0.175	0.166	0.298	0.104	0.179	0.316
14	SiO2 (mg/L)	35.7	45.4	35.0	30.0	37.4	55.9	29.5	40.3	54.8
15	SO4 (mg/L)	7.3	11.7	8.5	5.5	11.6	11.7	3.8	8.0	11.1
	BIOLOGICAL/BACTERIOLOGICAL									
1	BOD3-27 (mg/L)	1.2	1.7	1.1	1.4	0.9	1.1	2.1	1.3	0.8
2	COD (mg/L)	BDL	5.3	5.2	5.8	6.1	5.6	6.1	5.7	5.4
3	DO (mg/L)	6.1	6.4	6.9	7.4	7.4	7.5	5.0	7.1	7.3
4	DO_SAT% (%)	76	79	81	86	80	82	63	79	89
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO3/L)	88	96	113	127	131	139	113	140	134
2	HAR_Total (mgCaCO3/L)	141	132	177	224	211	213	231	231	208
3	Na% (%)	NA	14	12	NA	16	17	14	15	18
4	RSC (-)	0.2	0.1	0.1	0.2	0.0	0.0	0.5	0.4	0.0
5	SAR (-)	NA	0.4	0.4	NA	0.5	0.6	0.5	0.6	0.6

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.30 Narmada at U/S Narmadapuram

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: U/S NARMADAPURAM	Code	: WQSS-202011
State	: Madhya Pradesh	District	: NARMADAPURAM
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Middle Narmada Sub-Division-I, Narmadapuram
Drainage Area	: *	Bank	: Left
Latitude	: 22°46'26.0"	Longitude	: 77°45'31.0"
Current Zero of Gauge (m)	: *		
CATEGORY	Opening Date	Closing Date	
Gauge	: *		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at U/S Narmadapuram (WQSS-202011)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Narmadapuram

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
2	EC_GEN (μmho/cm)	196	191	207	203	194	198	277	210	216	235	253	268
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.9	8.0	8.1	8.1	8.0	7.9	7.9	8.0	8.0	7.7	7.8	7.9
5	TDS (mg/L)	131	132	140	137	127	122	181	137	147	159	165	171
6	Temp (deg C)	26.0	27.5	26.5	25.0	23.0	25.0	25.0	23.0	23.0	26.5	26.0	25.0
7	Turb (NTU)	23.3	16.0	9.0	351.0	942.0	875.0	200.0	154.0	114.0	81.3	54.7	34.7
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	101	97	105	107	110	114	121	123	125	128	130	93
3	Ca (mg/L)	26	28	30	30	31	32	34	33	34	36	37	37
4	Cl (mg/L)	14.3	13.0	15.7	18.4	18.4	18.1	22.5	16.3	16.7	19.5	19.7	18.7
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	123	118	128	131	134	139	148	150	153	156	158	113
8	K (mg/L)	1.3	1.2	1.2	1.1	1.1	1.1	1.9	1.9	2.0	1.7	1.6	2.0
9	Mg (mg/L)	8.3	8.4	7.7	8.0	8.1	8.0	8.5	8.5	8.4	8.8	8.7	8.5
10	Na (mg/L)	7.8	6.8	8.5	9.8	9.8	9.7	14.1	8.7	9.9	11.2	11.1	9.7
11	NH3-N (mg N/L)	0.06	0.07	0.09	0.09	0.08	0.07	0.06	0.06	0.06	0.07	0.09	0.08
12	NO2+NO3 (mg N/L)	0.21	0.15	0.76	0.34	0.35	0.37	0.76	0.78	0.73	0.71	0.69	0.70
13	NO2-N (mgN/L)	0.01	0.01	0.66	0.04	0.04	0.05	0.06	0.06	0.05	0.06	0.07	0.07
14	NO3-N (mgN/L)	0.20	0.14	0.10	0.30	0.31	0.33	0.70	0.72	0.68	0.65	0.62	0.63
15	o-PO4-P (mg P/L)	0.124	0.136	0.108	0.118	0.127	0.140	0.162	0.170	0.151	0.137	0.142	0.147
16	SiO2 (mg/L)	24.3	21.4	20.2	20.4	31.3	21.7	34.1	34.3	33.5	20.1	20.3	20.7
17	SO4 (mg/L)	5.4	6.1	2.1	6.2	5.7	5.4	10.4	10.0	9.9	7.3	7.5	7.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.7	1.5	1.4	1.2	1.2	0.8	1.0	1.0	1.0	0.8	0.8	0.8
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	5.9	6.3	6.6	6.6	6.3	6.9	6.8	6.8	6.7	7.9	7.9	7.9
4	DO_SAT% (%)	73	79	81	79	74	83	82	79	78	98	98	95
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	65	70	75	75	78	80	85	83	85	89	91	94
2	HAR_Total (mgCaCO3/L)	100	105	107	108	112	114	120	118	120	125	127	129
3	Na% (%)	14	12	15	16	16	16	20	14	15	16	16	14
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0
5	SAR (-)	0.3	0.3	0.4	0.4	0.4	0.4	0.6	0.3	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at U/S Narmadapuram (WQSS-202011)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Narmadapuram

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	259	261	267	326	330	333	651	548	481	340	325	319
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.6	7.7	7.7	8.0	8.1	8.2	7.6	7.6	7.4	7.9	8.0	7.9
5	TDS (mg/L)	169	172	179	210	214	216	421	320	284	221	216	209
6	Temp (deg C)	25.0	25.5	25.0	25.0	24.0	24.0	23.0	24.0	17.0	19.0	15.5	19.0
7	Turb (NTU)	39.4	38.0	37.4	4.6	4.4	3.7	3.4	3.6	3.7	4.7	4.7	5.2
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	102	107	110	130	134	137	234	199	193	130	134	149
3	Ca (mg/L)	33	34	35	39	41	43	51	53	40	42	43	46
4	Cl (mg/L)	15.8	15.6	16.2	19.1	21.3	20.1	34.6	35.2	24.9	20.7	20.3	20.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	125	130	134	158	163	167	286	243	235	159	163	182
8	K (mg/L)	1.7	1.7	1.7	1.7	1.4	1.6	2.2	2.2	1.8	1.8	1.7	1.6
9	Mg (mg/L)	5.6	5.8	5.5	7.5	8.0	7.7	19.6	16.7	15.6	11.0	10.6	10.2
10	Na (mg/L)	8.6	8.6	8.8	10.0	11.7	10.7	19.3	19.0	13.4	11.0	10.7	10.6
11	NH3-N (mg N/L)	0.08	0.08	0.08	0.09	0.09	0.10	0.07	0.07	0.07	0.08	0.08	0.07
12	NO2+NO3 (mg N/L)	0.38	0.39	0.41	0.52	0.53	1.22	0.76	0.72	0.64	0.54	0.53	0.51
13	NO2-N (mgN/L)	0.05	0.05	0.05	0.06	0.07	0.07	0.12	0.15	0.09	0.09	0.08	0.08
14	NO3-N (mgN/L)	0.33	0.35	0.35	0.46	0.47	1.15	0.64	0.57	0.55	0.45	0.44	0.43
15	o-PO4-P (mg P/L)	0.147	0.155	0.157	0.156	0.161	0.166	0.218	0.192	0.205	0.222	0.238	0.250
16	SiO2 (mg/L)	27.5	28.1	26.9	29.0	29.6	30.4	65.5	53.9	48.5	34.0	32.4	31.5
17	SO4 (mg/L)	7.0	7.1	7.3	7.8	8.3	8.7	10.4	9.8	6.9	6.7	6.1	5.6
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.4	1.4	1.0	0.8	0.8	0.8	1.0	1.0	1.4	1.4	1.4
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	6.6	5.3	5.3	BDL	BDL	BDL
3	DO (mg/L)	7.1	7.3	7.4	7.4	7.6	7.5	7.8	7.6	7.4	7.7	7.6	7.8
4	DO_SAT% (%)	86	88	89	89	90	89	91	90	76	83	75	84
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	84	84	88	97	103	108	128	132	100	105	107	114
2	HAR_Total (mgCaCO3/L)	107	109	111	128	136	140	210	202	165	151	151	157
3	Na% (%)	15	14	15	14	16	14	17	17	15	14	13	13
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.6	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.5	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at U/S Narmadapuram (WQSS-202011)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Narmadapuram

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	309	285	289	284	288	286	242	246	249	214	211	204
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.1	7.9	7.9	8.0	8.1	8.0	7.9	7.8	7.9	7.7	7.7	7.8
5	TDS (mg/L)	202	188	194	191	195	192	162	164	170	141	138	131
6	Temp (deg C)	18.0	19.0	20.0	21.0	21.0	22.0	27.0	28.0	28.0	29.0	29.0	28.0
7	Turb (NTU)	4.3	2.7	3.0	3.3	3.4	3.4	1.4	1.4	1.3	2.9	2.2	2.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	154	146	150	152	155	157	134	135	137	120	119	118
3	Ca (mg/L)	47	46	47	46	46	47	39	39	39	38	38	38
4	Cl (mg/L)	17.2	21.3	21.8	21.6	22.2	22.8	21.8	22.5	22.9	19.7	20.1	20.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.22	0.20	0.21	0.15	0.14	0.15
7	HCO3 (mg/L)	188	178	183	186	189	192	164	165	167	147	145	144
8	K (mg/L)	1.4	1.4	1.5	1.4	1.5	1.5	1.6	1.6	1.7	1.3	1.3	1.4
9	Mg (mg/L)	10.2	8.6	8.6	8.4	8.7	8.7	8.2	8.4	8.7	6.8	6.6	6.2
10	Na (mg/L)	13.1	12.9	13.1	13.0	13.1	13.1	12.2	12.2	12.3	10.5	10.5	11.1
11	NH3-N (mg N/L)	0.09	0.10	0.10	0.09	0.09	0.09	0.07	0.07	0.07	0.08	0.07	0.07
12	NO2+NO3 (mg N/L)	0.60	0.61	0.62	0.61	0.63	0.64	0.34	0.35	0.36	0.26	0.25	0.25
13	NO2-N (mgN/L)	0.05	0.05	0.06	0.05	0.06	0.06	0.04	0.04	0.05	0.04	0.03	0.04
14	NO3-N (mgN/L)	0.55	0.56	0.57	0.56	0.57	0.58	0.30	0.31	0.31	0.22	0.21	0.21
15	o-PO4-P (mg P/L)	0.161	0.169	0.175	0.156	0.160	0.163	0.143	0.150	0.157	0.100	0.097	0.085
16	SiO2 (mg/L)	33.1	34.6	34.8	33.2	34.1	34.7	33.4	33.5	33.6	24.9	24.7	24.4
17	SO4 (mg/L)	6.4	7.0	7.2	6.9	7.2	7.4	8.5	8.5	8.3	4.9	4.5	4.2
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.2	1.2	1.2	1.0	0.8	1.0	1.2	1.0	1.0	0.8	0.6	0.8
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	7.1	7.3	7.6	7.4	7.3	7.5	6.6	6.8	6.7	7.2	7.4	7.1
4	DO_SAT% (%)	75	79	84	83	82	86	82	86	86	93	96	90
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	118	116	117	115	115	117	96	97	97	95	94	94
2	HAR_Total (mgCaCO3/L)	160	151	153	150	152	153	131	132	133	123	122	120
3	Na% (%)	15	16	16	16	16	16	17	17	17	16	16	17
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at U/S Narmadapuram (WQSS-202011)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-I, Narmadapuram

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	651	191	283
2	pH_GEN (pH units)	36	8.2	7.4	7.9
3	TDS (mg/L)	36	421	122	185
4	Temp (deg C)	36	29.0	15.5	23.8
5	Turb (NTU)	36	942.0	1.3	84.4
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	234	93	133
3	Ca (mg/L)	36	53	26	39
4	Cl (mg/L)	36	35.2	13.0	20.3
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.22	0.14	0.18
7	HCO3 (mg/L)	36	286	113	162
8	K (mg/L)	36	2.2	1.1	1.6
9	Mg (mg/L)	36	19.6	5.5	8.9
10	Na (mg/L)	36	19.3	6.8	11.3
11	NH3-N (mg N/L)	36	0.10	0.06	0.08
12	NO2+NO3 (mg N/L)	36	1.22	0.15	0.53
13	NO2-N (mgN/L)	36	0.66	0.01	0.07
14	NO3-N (mgN/L)	36	1.15	0.10	0.46
15	o-PO4-P (mg P/L)	36	0.250	0.085	0.157
16	SiO2 (mg/L)	36	65.5	20.1	31.1
17	SO4 (mg/L)	36	10.4	2.1	7.1
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.7	0.6	1.1
2	COD (mg/L)	3	6.6	5.3	5.7
3	DO (mg/L)	36	7.9	5.9	7.2
4	DO_SAT% (%)	36	98	73	85
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	132	65	97
2	HAR_Total (mgCaCO3/L)	36	210	100	134
3	Na% (%)	36	20	12	15
4	RSC (-)	36	0.6	0.0	0.1
5	SAR (-)	36	0.6	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2021-2024

Station Name : Narmada at U/S Narmadapuram (WQSS-202011)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Narmadapuram

S.No	Parameters	Flood			Winter			Summer		
		Jun - Oct			Nov - Feb			Mar - May		
		2021	2022	2023	2021-2022	2022-2023	2023-2024	2022	2023	2024
	PHYSICAL									
1	EC_GEN (μmho/cm)	235	206	229	301	361	378	255	281	247
2	pH_GEN (pH units)	7.5	8.0	7.9	7.8	7.9	7.9	7.7	8.0	7.9
3	TDS (mg/L)	148	128	151	196	249	241	151	187	165
4	Temp (deg C)	26.5	27.3	25.1	19.7	17.8	20.6	26.4	24.9	25.9
5	Turb (NTU)	24.4	113.9	198.0	14.4	12.4	4.0	18.1	10.6	2.4
	CHEMICAL									
1	ALK-TOT (mgCaCO3/L)	120	102	111	160	154	157	108	148	137
2	Ca (mg/L)	27	34	33	36	46	45	28	36	41
3	Cl (mg/L)	16.5	16.0	17.3	19.0	28.3	23.0	15.1	21.6	21.6
4	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	0.18
5	HCO3 (mg/L)	147	124	136	195	188	192	132	181	167
6	K (mg/L)	NA	2.3	1.5	NA	1.9	1.7	1.4	1.8	1.5
7	Mg (mg/L)	9.0	6.3	7.8	13.3	9.8	11.2	9.7	10.9	7.9
8	Na (mg/L)	NA	9.0	9.5	NA	16.5	13.0	8.4	13.2	12.0
9	NH3-N (mg N/L)	NA	0.05	0.07	NA	0.04	0.08	0.06	0.21	0.08
10	NO2+NO3 (mg N/L)	0.49	0.96	0.52	0.35	0.49	0.65	0.24	0.36	0.41
11	NO2-N (mgN/L)	0.06	0.04	0.09	0.04	0.04	0.08	0.06	0.08	0.05
12	NO3-N (mgN/L)	0.43	0.92	0.43	0.31	0.45	0.57	0.17	0.28	0.36
13	o-PO4-P (mg P/L)	0.088	0.188	0.141	0.092	0.143	0.193	0.064	0.089	0.135
14	SiO2 (mg/L)	35.1	25.1	25.7	23.2	26.6	38.1	28.7	24.7	30.7
15	SO4 (mg/L)	5.8	8.4	7.0	7.8	7.3	7.6	4.4	7.0	6.7
	BIOLOGICAL/BACTERIOLOGICAL									
1	BOD3-27 (mg/L)	1.1	1.8	1.1	0.9	1.0	1.1	1.9	1.1	0.9
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	5.7	BDL	BDL	BDL
3	DO (mg/L)	6.0	6.4	7.0	7.3	7.7	7.5	6.0	7.1	7.1
4	DO_SAT% (%)	74	81	84	80	81	84	74	86	87
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO3/L)	69	86	82	90	114	112	70	91	102
2	HAR_Total (mgCaCO3/L)	106	112	114	146	155	159	111	136	135
3	Na% (%)	NA	15	15	NA	19	15	14	17	16
4	RSC (-)	0.3	0.0	0.0	0.3	0.1	0.1	0.1	0.3	0.1
5	SAR (-)	NA	0.4	0.4	NA	0.6	0.4	0.4	0.5	0.5

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.31 Narmada at D/S Narmadapuram

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: D/S NARMADAPURAM	Code	: WQSS-202012
State	: Madhya Pradesh	District	: SEHORE
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Middle Narmada Sub-Division-I, Narmadapuramd
Drainage Area	: *	Bank	: Right
Latitude	: 22°45'27.0"	Longitude	: 77°41'17.0"
Current Zero of Gauge (m)	: *		
CATEGORY	Opening Date	Closing Date	
Gauge	: *		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at D/S Narmadapuram (WQSS-202012)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Narmadapuram

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
2	EC_GEN (µmho/cm)	192	195	209	200	195	190	229	185	191	245	238	247
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.0	8.0	7.8	7.9	8.0
5	TDS (mg/L)	127	133	140	132	127	119	149	121	129	163	155	161
6	Temp (deg C)	29.0	29.0	30.0	28.0	29.0	28.0	27.0	24.0	25.0	29.0	24.0	27.0
7	Turb (NTU)	36.9	19.0	21.4	359.0	918.0	846.0	275.0	362.0	243.0	67.1	45.6	32.5
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	101	103	108	113	114	116	117	119	123	126	127	130
3	Ca (mg/L)	32	30	27	28	29	30	29	28	29	33	34	35
4	Cl (mg/L)	13.9	12.6	16.3	18.8	18.0	18.2	18.9	16.5	17.1	19.9	20.5	17.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	123	126	132	138	139	141	143	145	150	154	155	158
8	K (mg/L)	1.3	1.3	1.3	1.2	1.1	1.1	1.6	1.7	1.7	1.6	1.5	1.5
9	Mg (mg/L)	6.4	5.9	7.2	8.0	8.0	7.9	9.2	9.1	9.1	9.1	9.0	9.2
10	Na (mg/L)	7.4	6.7	8.5	9.9	9.8	9.8	10.8	8.6	9.5	11.7	11.5	8.9
11	NH3-N (mg N/L)	0.06	0.07	0.09	0.84	0.08	0.07	0.57	0.06	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.22	0.15	0.11	0.35	0.36	0.38	0.77	0.78	0.76	0.67	0.70	0.70
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.04	0.05	0.05	0.06	0.06	0.07	0.06	0.06	0.07
14	NO3-N (mgN/L)	0.20	0.14	0.11	0.31	0.31	0.33	0.71	0.72	0.69	0.61	0.63	0.63
15	o-PO4-P (mg P/L)	0.133	0.145	0.108	0.121	0.130	0.143	0.154	0.162	0.141	0.140	0.145	0.153
16	SiO2 (mg/L)	24.8	22.0	21.0	20.7	21.1	21.9	33.8	34.1	33.2	19.2	19.3	19.5
17	SO4 (mg/L)	6.3	6.9	3.5	6.5	6.1	5.6	9.5	10.0	9.8	7.4	7.4	7.5
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.1	0.8	1.0	1.0	1.0	1.0	1.0	0.8	0.8	1.0	1.0	0.8
2	DO (mg/L)	6.8	7.1	7.0	6.8	6.5	7.1	6.6	7.0	6.9	7.7	7.7	7.7
3	DO_SAT% (%)	88	92	93	86	85	90	83	83	84	100	92	96
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	79	75	69	70	73	75	72	70	72	83	85	87
2	HAR_Total (mgCaCO3/L)	106	99	99	103	106	108	110	108	110	121	123	125
3	Na% (%)	13	13	16	17	17	16	17	15	16	17	17	13
4	RSC (-)	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.1	0.1
5	SAR (-)	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.3

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at D/S Narmadapuram (WQSS-202012)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-I, Narmadapuram

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	276	279	284	317	321	326	258	265	285	320	310	294
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.9	7.9	7.9	8.0	8.2	8.2	7.9	7.9	7.7	8.0	8.0	8.2
5	TDS (mg/L)	180	183	188	201	208	211	167	174	197	208	202	192
6	Temp (deg C)	25.0	28.0	27.0	26.0	25.0	25.5	24.0	21.0	21.0	20.0	15.5	20.0
7	Turb (NTU)	48.6	46.9	45.6	15.0	14.7	14.4	7.4	7.2	6.8	3.7	4.0	3.9
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	111	114	117	123	126	133	130	138	134	134	138	145
3	Ca (mg/L)	35	35	36	38	40	42	47	45	46	43	43	45
4	Cl (mg/L)	15.6	15.4	15.6	19.0	21.4	21.3	19.1	20.1	20.3	20.5	20.5	19.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	135	139	143	150	154	162	159	168	164	163	168	177
8	K (mg/L)	1.6	1.6	1.7	1.6	1.4	1.5	1.6	1.7	1.6	1.7	1.7	1.6
9	Mg (mg/L)	6.3	6.5	6.3	6.7	7.0	7.4	9.3	9.7	12.1	9.8	9.1	9.5
10	Na (mg/L)	8.6	8.5	8.7	10.1	11.5	11.1	11.0	11.0	11.0	10.9	10.8	10.7
11	NH3-N (mg N/L)	0.08	0.08	0.08	0.09	0.09	0.10	0.06	0.07	0.07	0.07	0.08	0.08
12	NO2+NO3 (mg N/L)	0.40	0.41	0.43	0.50	0.51	0.53	0.40	0.41	0.43	0.50	0.49	0.47
13	NO2-N (mgN/L)	0.05	0.05	0.06	0.06	0.07	0.07	0.05	0.05	0.05	0.08	0.08	0.08
14	NO3-N (mgN/L)	0.35	0.36	0.37	0.43	0.44	0.46	0.35	0.36	0.38	0.42	0.41	0.40
15	o-PO4-P (mg P/L)	0.150	0.157	0.160	0.152	0.156	0.161	0.112	0.116	0.125	0.208	0.229	0.215
16	SiO2 (mg/L)	27.9	28.4	29.1	28.7	29.2	29.7	25.5	25.8	28.6	32.4	31.6	28.1
17	SO4 (mg/L)	8.3	8.5	8.6	7.4	7.8	8.1	7.3	7.9	7.3	7.0	6.7	6.4
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.2	1.2	1.0	1.0	0.8	0.8	1.0	1.2	1.2	1.4
2	DO (mg/L)	7.5	7.7	7.8	7.2	7.4	7.3	8.0	7.8	7.6	7.9	7.8	8.0
3	DO_SAT% (%)	91	98	97	88	89	88	96	87	85	87	77	88
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	87	88	91	96	101	105	117	113	115	108	107	113
2	HAR_Total (mgCaCO3/L)	114	115	117	124	130	136	156	153	166	149	145	152
3	Na% (%)	14	14	14	15	16	15	13	13	12	14	14	13
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at D/S Narmadapuram (WQSS-202012)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Narmadapuram

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	300	269	274	281	285	289	237	241	245	209	212	199
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	8.0	7.8	8.0	8.1	8.0	7.9	7.8	7.9	7.9	7.7	7.9
5	TDS (mg/L)	196	176	180	176	181	195	160	164	167	138	139	128
6	Temp (deg C)	24.0	22.0	22.0	22.0	21.0	21.0	28.0	28.0	28.0	29.5	29.0	28.0
7	Turb (NTU)	3.9	5.4	5.2	4.9	4.8	4.2	1.9	1.8	1.8	2.7	2.4	2.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	150	139	142	148	149	152	133	134	135	117	118	117
3	Ca (mg/L)	46	46	46	45	46	46	38	39	39	37	38	37
4	Cl (mg/L)	15.9	21.1	21.6	21.3	21.8	21.4	22.0	22.2	22.5	20.7	20.3	20.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.20	0.23	0.21	0.14	0.14	0.14
7	HCO3 (mg/L)	183	169	173	180	182	186	162	164	165	143	144	143
8	K (mg/L)	1.4	1.4	1.4	1.4	1.4	1.5	1.7	1.7	1.7	1.3	1.3	1.3
9	Mg (mg/L)	9.7	8.1	8.3	8.0	8.2	8.2	7.8	8.1	8.4	6.6	6.7	5.7
10	Na (mg/L)	11.3	11.1	11.3	11.3	11.3	11.4	11.5	11.5	11.7	10.9	10.6	11.1
11	NH3-N (mg N/L)	0.10	0.10	0.09	0.09	0.09	0.09	0.07	0.08	0.07	0.07	0.07	0.07
12	NO2+NO3 (mg N/L)	0.52	0.53	0.54	0.54	0.56	0.57	0.34	0.35	0.35	0.25	0.26	0.25
13	NO2-N (mgN/L)	0.05	0.05	0.05	0.05	0.06	0.06	0.04	0.04	0.04	0.03	0.04	0.04
14	NO3-N (mgN/L)	0.47	0.48	0.49	0.49	0.50	0.51	0.30	0.31	0.31	0.22	0.22	0.21
15	o-PO4-P (mg P/L)	0.156	0.166	0.166	0.165	0.168	0.171	0.140	0.145	0.152	0.095	0.099	0.097
16	SiO2 (mg/L)	32.9	34.1	34.3	33.1	33.4	34.4	33.2	33.3	33.4	24.5	24.7	24.0
17	SO4 (mg/L)	4.4	5.1	5.3	5.0	5.2	5.4	8.4	8.4	8.3	4.5	4.2	3.7
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.4	0.8	0.8	1.0	1.0	1.0	1.2	1.2	0.6	0.6	0.6
2	DO (mg/L)	7.3	7.5	7.8	7.2	7.3	7.3	6.4	6.6	6.5	7.4	7.6	7.3
3	DO_SAT% (%)	87	86	90	82	82	82	81	84	83	96	98	93
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	116	114	115	113	114	115	96	96	97	93	95	93
2	HAR_Total (mgCaCO3/L)	156	148	150	146	148	149	129	130	132	121	123	117
3	Na% (%)	13	14	14	14	14	14	16	16	16	16	16	17
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at D/S Narmadapuram (WQSS-202012)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD-I, Narmadapuram

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	326	185	253
2	pH_GEN (pH units)	36	8.2	7.7	8
3	TDS (mg/L)	36	211	119	166
4	Temp (deg C)	36	30.0	15.5	25.3
5	Turb (NTU)	36	918.0	1.8	96.8
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	152	101	127
3	Ca (mg/L)	36	47	27	38
4	Cl (mg/L)	36	22.5	12.6	19.1
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.23	0.14	0.18
7	HCO3 (mg/L)	36	186	123	155
8	K (mg/L)	36	1.7	1.1	1.5
9	Mg (mg/L)	36	12.1	5.7	8.1
10	Na (mg/L)	36	11.7	6.7	10.3
11	NH3-N (mg N/L)	36	0.84	0.06	0.11
12	NO2+NO3 (mg N/L)	36	0.78	0.11	0.46
13	NO2-N (mgN/L)	36	0.08	0.01	0.05
14	NO3-N (mgN/L)	36	0.72	0.11	0.41
15	o-PO4-P (mg P/L)	36	0.229	0.095	0.148
16	SiO2 (mg/L)	36	34.4	19.2	28.1
17	SO4 (mg/L)	36	10.0	3.5	6.8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.4	0.6	1
2	DO (mg/L)	36	8.0	6.4	7.3
3	DO_SAT% (%)	36	100	77	89
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	117	69	95
2	HAR_Total (mgCaCO3/L)	36	166	99	128
3	Na% (%)	36	17	12	15
4	RSC (-)	36	0.3	0.0	0.1
5	SAR (-)	36	0.5	0.3	0.4

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2021-2024

Station Name : Narmada at D/S Narmadapuram (WQSS-202012)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD-I, Narmadapuram

S.No	Parameters	Flood			Winter			Summer		
		Jun - Oct			Nov - Feb			Mar - May		
		2021	2022	2023	2021-2022	2022-2023	2023-2024	2022	2023	2024
	PHYSICAL									
1	EC_GEN (µmho/cm)	235	230	224	299	364	295	254	272	244
2	pH_GEN (pH units)	7.6	8.0	8.0	7.7	8.0	8.0	7.8	8.1	7.9
3	TDS (mg/L)	147	140	147	194	246	193	148	177	161
4	Temp (deg C)	26.9	27.5	27.3	21.2	19.5	22.2	28.3	26.5	26.1
5	Turb (NTU)	26.6	260.0	224.4	16.6	16.7	7.6	16.4	12.4	2.9
	CHEMICAL									
1	ALK-TOT (mgCaCO3/L)	117	107	116	158	155	136	106	138	134
2	Ca (mg/L)	29	35	31	36	45	44	27	36	41
3	Cl (mg/L)	17.9	17.6	17.0	15.3	27.4	20.0	15.5	21.2	21.4
4	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	0.18
5	HCO3 (mg/L)	143	130	141	192	189	166	129	168	163
6	K (mg/L)	NA	2.4	1.4	NA	1.8	1.6	1.4	1.7	1.5
7	Mg (mg/L)	9.2	7.7	7.8	13.8	10.7	8.9	8.8	10.3	7.5
8	Na (mg/L)	NA	10.1	9.3	NA	15.0	11.0	8.3	12.8	11.2
9	NH3-N (mg N/L)	NA	0.05	0.16	NA	0.05	0.08	0.08	0.11	0.08
10	NO2+NO3 (mg N/L)	14.64	1.12	0.48	0.51	0.48	0.48	0.25	0.39	0.39
11	NO2-N (mgN/L)	0.03	0.04	0.05	0.04	0.04	0.06	0.08	0.08	0.04
12	NO3-N (mgN/L)	14.61	1.08	0.43	0.46	0.44	0.42	0.17	0.31	0.34
13	o-PO4-P (mg P/L)	0.087	0.185	0.143	0.085	0.143	0.163	0.056	0.091	0.137
14	SiO2 (mg/L)	31.6	27.1	25.1	21.8	26.6	30.1	27.3	25.6	30.4
15	SO4 (mg/L)	6.1	8.3	7.5	6.3	7.2	6.7	4.7	7.6	5.9
	BIOLOGICAL/BACTERIOLOGICAL									
1	BOD3-27 (mg/L)	1.1	1.5	1.0	1.0	1.0	1.1	1.7	1.2	0.9
2	DO (mg/L)	6.2	6.7	7.2	7.3	7.7	7.6	6.4	7.4	7.1
3	DO_SAT% (%)	78	85	91	82	84	87	82	92	87
	TRACE & TOXIC									
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO3/L)	72	87	78	89	114	110	69	90	101
2	HAR_Total (mgCaCO3/L)	110	119	111	147	158	147	105	132	133
3	Na% (%)	NA	15	15	NA	17	14	14	17	15
4	RSC (-)	0.2	0.0	0.1	0.3	0.1	0.0	0.1	0.1	0.0
5	SAR (-)	NA	0.4	0.4	NA	0.5	0.4	0.4	0.5	0.4

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.32 Ganjal at Papan

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: PAPAN	Code	: WQSS-202013
State	: Madhya Pradesh	District	: HARDA
Basin	: Narmada	Independent River	: Narmada
Tributary	: Ganjal	Sub Tributary	: -
Sub-Sub Tributary	: -	Local River	: Ganjal
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Middle Narmada Sub-Division-II, Bhopal
Drainage Area	: *	Bank	: Left
Latitude	: 22°33'42.0"	Longitude	: 77°12'49.0"
Current Zero of Gauge (m)	: *		
CATEGORY	Opening Date	Closing Date	
Gauge	: *		
Discharge	: *		
Sediment	: *		
Water Quality	: 01/03/2021		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Ganjal at Papan (WQSS-202013)

Local River : Ganjal

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown
2	EC_GEN (µmho/cm)	242	239	216	236	228	223	270	212	219	274	252	260
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.6	8.0	8.1	8.0	8.1	7.8	8.0	8.0	7.9	7.7	7.9	7.9
5	TDS (mg/L)	160	161	143	158	149	144	175	138	146	185	165	172
6	Temp (deg C)	30.0	31.0	29.0	26.0	25.0	28.0	26.0	27.0	20.0	29.0	27.0	26.0
7	Turb (NTU)	66.4	18.5	27.1	104.3	473.0	511.0	246.0	320.0	218.0	26.9	21.4	17.0
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	134	130	108	114	115	122	139	142	144	140	146	148
3	Ca (mg/L)	34	33	27	27	29	30	33	32	32	37	37	39
4	Cl (mg/L)	21.7	20.0	16.8	19.3	19.1	19.4	21.8	15.9	15.9	19.1	19.9	20.3
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	164	158	132	139	140	149	170	173	176	171	178	181
8	K (mg/L)	1.5	1.5	1.4	1.2	1.2	1.3	1.6	1.7	1.8	1.7	1.5	1.5
9	Mg (mg/L)	9.0	8.3	10.7	10.2	10.4	10.4	12.7	12.6	12.6	10.1	10.9	11.0
10	Na (mg/L)	12.9	13.1	9.1	10.1	10.1	10.3	13.0	8.3	8.9	11.7	10.9	11.0
11	NH3-N (mg N/L)	0.06	0.07	0.08	0.08	0.07	0.08	0.07	0.08	0.08	0.09	0.08	0.08
12	NO2+NO3 (mg N/L)	0.24	0.18	0.14	0.36	0.37	0.39	0.72	0.76	0.72	0.82	0.81	0.79
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.05	0.05	0.05	0.05	0.06	0.07	0.07	0.07	0.08
14	NO3-N (mgN/L)	0.23	0.17	0.13	0.31	0.32	0.34	0.66	0.71	0.65	0.75	0.74	0.72
15	o-PO4-P (mg P/L)	0.164	0.177	0.148	0.145	0.158	0.171	0.138	0.146	0.127	0.153	0.158	0.166
16	SiO2 (mg/L)	29.3	26.5	25.4	25.4	25.7	26.7	33.1	33.4	32.6	22.2	22.4	22.6
17	SO4 (mg/L)	7.6	8.3	3.7	8.3	8.0	7.7	9.1	9.3	9.0	7.7	7.5	7.4
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	2.1	1.7	1.7	1.0	1.2	1.2	0.8	0.8	0.8	1.0	1.0	1.0
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	4.5	4.6	4.7	7.0	6.7	7.3	7.2	7.2	7.1	7.5	7.5	7.5
4	DO_SAT% (%)	59	62	62	86	81	93	89	90	78	98	94	92
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	86	82	67	68	72	76	82	80	81	92	92	96
2	HAR_Total (mgCaCO3/L)	123	116	111	111	115	119	135	132	134	134	137	142
3	Na% (%)	18	20	15	16	16	16	17	12	13	16	15	14
4	RSC (-)	0.2	0.3	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.1	0.2	0.1
5	SAR (-)	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.3	0.3	0.4	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Ganjal at Papan (WQSS-202013)

Local River : Ganjal

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	373	377	381	300	307	310	309	316	327	348	308	313
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	8.0	8.0	8.0	8.0	8.1	8.0	8.0	8.0	8.0	7.7	7.3
5	TDS (mg/L)	240	243	249	189	196	201	204	212	224	226	200	204
6	Temp (deg C)	26.0	25.0	26.0	25.0	24.0	22.0	19.0	20.0	19.0	20.0	20.0	21.0
7	Turb (NTU)	11.2	11.0	10.4	3.0	2.2	1.8	29.4	28.6	20.9	13.6	12.0	14.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	152	148	150	118	121	125	150	157	154	142	145	153
3	Ca (mg/L)	38	38	39	32	33	35	41	41	38	40	38	42
4	Cl (mg/L)	19.3	19.3	19.7	21.4	22.0	21.8	20.9	21.4	26.4	24.7	23.6	19.6
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	185	181	183	144	148	153	183	191	188	173	177	187
8	K (mg/L)	1.4	1.0	1.5	1.8	1.5	1.6	1.6	1.5	1.7	1.8	1.7	1.6
9	Mg (mg/L)	13.9	14.1	13.9	9.7	9.9	10.8	14.8	15.0	16.6	13.4	11.3	12.1
10	Na (mg/L)	10.5	10.5	10.6	12.8	15.1	14.9	15.2	15.2	15.7	13.0	12.6	11.7
11	NH3-N (mg N/L)	0.08	0.08	0.08	0.10	0.10	0.10	0.09	0.10	0.11	0.10	0.10	0.10
12	NO2+NO3 (mg N/L)	0.53	0.54	0.56	0.47	0.49	0.50	0.43	0.44	0.44	0.55	0.48	0.47
13	NO2-N (mgN/L)	0.06	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.06	0.09	0.08	0.08
14	NO3-N (mgN/L)	0.47	0.48	0.49	0.41	0.42	0.43	0.37	0.38	0.38	0.46	0.41	0.39
15	o-PO4-P (mg P/L)	0.172	0.179	0.179	0.166	0.170	0.175	0.144	0.149	0.155	0.224	0.224	0.236
16	SiO2 (mg/L)	35.8	36.3	37.0	28.3	28.7	31.1	30.2	31.1	32.2	34.3	30.3	31.1
17	SO4 (mg/L)	9.5	9.6	9.8	7.2	7.6	8.0	10.5	10.8	10.5	11.2	10.3	10.7
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	0.8	0.8	1.0	1.2	1.2	1.0	1.0	0.8	1.0	1.0	0.8
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	7.9	7.8	8.0	7.0	7.2	7.1	8.0	8.0	7.8	7.7	7.6	7.4
4	DO_SAT% (%)	97	94	98	84	85	81	87	88	84	85	84	83
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	94	95	99	80	84	86	101	103	95	99	96	105
2	HAR_Total (mgCaCO3/L)	152	154	157	121	125	131	163	166	164	155	143	155
3	Na% (%)	13	13	13	19	21	20	17	17	17	15	16	14
4	RSC (-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
5	SAR (-)	0.4	0.4	0.4	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Ganjal at Papan (WQSS-202013)

Local River : Ganjal

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	318	291	296	298	302	298	259	263	268	215	218	210
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.1	8.1	8.0	8.0	8.0	8.0	7.8	8.0	8.0	7.8	7.6	7.8
5	TDS (mg/L)	207	190	194	189	196	193	173	176	178	142	145	135
6	Temp (deg C)	19.0	20.0	26.0	21.0	19.0	24.0	26.5	26.5	26.0	29.0	29.5	30.5
7	Turb (NTU)	15.5	4.0	4.1	7.0	6.6	6.0	0.9	0.4	0.5	6.5	5.9	6.5
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	157	150	154	157	159	157	137	139	141	122	123	120
3	Ca (mg/L)	45	44	44	43	44	44	37	37	37	36	37	38
4	Cl (mg/L)	37.1	22.2	22.6	22.0	22.4	23.0	25.3	26.0	26.4	27.9	27.0	24.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.31	0.28	0.25	0.17	0.16	0.18
7	HCO3 (mg/L)	192	183	188	192	194	192	167	169	172	149	150	147
8	K (mg/L)	1.5	1.5	1.5	1.5	1.5	1.6	1.7	1.7	1.7	1.5	1.5	1.6
9	Mg (mg/L)	12.7	10.6	10.7	10.5	10.4	10.5	10.0	10.1	10.3	8.1	8.1	6.9
10	Na (mg/L)	21.7	14.9	15.1	15.0	15.1	15.1	14.5	14.6	14.7	14.9	14.2	13.1
11	NH3-N (mg N/L)	0.10	0.10	0.11	0.10	0.11	0.99	0.10	0.10	0.10	0.09	0.08	0.08
12	NO2+NO3 (mg N/L)	0.84	0.84	0.85	0.83	0.87	0.88	0.43	0.43	0.45	0.26	0.27	0.26
13	NO2-N (mgN/L)	0.07	0.07	0.08	0.07	0.08	0.08	0.07	0.07	0.07	0.04	0.04	0.04
14	NO3-N (mgN/L)	0.77	0.77	0.78	0.76	0.79	0.80	0.36	0.37	0.37	0.22	0.23	0.22
15	o-PO4-P (mg P/L)	0.184	0.194	0.197	0.181	0.184	0.188	0.160	0.167	0.175	0.104	0.105	0.095
16	SiO2 (mg/L)	33.6	34.8	35.2	33.4	34.5	35.0	35.6	35.8	35.9	25.0	25.8	25.3
17	SO4 (mg/L)	7.1	7.9	8.2	7.5	7.7	8.0	9.0	9.1	9.3	5.0	4.3	4.0
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.7	1.9	1.4	1.0	1.0	0.8	1.4	1.2	1.2	1.4	1.2	1.4
2	COD (mg/L)	10.0	12.0	9.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	7.5	7.7	7.4	7.4	7.5	7.7	6.4	6.6	6.5	7.0	7.2	6.9
4	DO_SAT% (%)	81	85	92	83	81	92	79	81	80	91	93	91
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	112	110	111	109	110	111	92	93	94	90	91	94
2	HAR_Total (mgCaCO3/L)	165	154	156	152	154	155	134	135	136	124	125	123
3	Na% (%)	22	17	17	18	17	17	19	19	19	21	20	19
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Ganjal at Papan (WQSS-202013)

Local River : Ganjal

Division : Narmada Division, Bhopal

Sub-Division : MNSD-II, Bhopal

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	381	210	280
2	pH_GEN (pH units)	36	8.1	7.3	7.9
3	TDS (mg/L)	36	249	135	183
4	Temp (deg C)	36	31.0	19.0	24.7
5	Turb (NTU)	36	511.0	0.4	63.1
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	159	108	139
3	Ca (mg/L)	36	45	27	37
4	Cl (mg/L)	36	37.1	15.9	22.1
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.31	0.16	0.23
7	HCO3 (mg/L)	36	194	132	170
8	K (mg/L)	36	1.8	1.0	1.5
9	Mg (mg/L)	36	16.6	6.9	11.2
10	Na (mg/L)	36	21.7	8.3	13.1
11	NH3-N (mg N/L)	36	0.99	0.06	0.11
12	NO2+NO3 (mg N/L)	36	0.88	0.14	0.54
13	NO2-N (mgN/L)	36	0.09	0.01	0.06
14	NO3-N (mgN/L)	36	0.80	0.13	0.48
15	o-PO4-P (mg P/L)	36	0.236	0.095	0.166
16	SiO2 (mg/L)	36	37.0	22.2	30.6
17	SO4 (mg/L)	35	11.2	3.7	8.2
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	2.1	0.8	1.1
2	COD (mg/L)	3	12.0	9.0	10.3
3	DO (mg/L)	36	8.0	4.5	7.1
4	DO_SAT% (%)	36	98	59	85
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	112	67	92
2	HAR_Total (mgCaCO3/L)	36	166	111	139
3	Na% (%)	36	22	12	17
4	RSC (-)	36	0.3	0.0	0.1
5	SAR (-)	36	0.7	0.3	0.5

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2021-2024

Station Name : Ganjal at Papan (WQSS-202013)

Local River : Ganjal

Division : Narmada Division, Bhopal

Sub-Division : MNSSD-II, Bhopal

River Water Summary

S.No	Parameters	Flood			Winter			Summer		
		Jun - Oct			Nov - Feb			Mar - May		
		2021	2022	2023	2021-2022	2022-2023	2023-2024	2022	2023	2024
	PHYSICAL									
1	EC_GEN (µmho/cm)	481	413	267	334	337	312	427	282	259
2	pH_GEN (pH units)	7.4	8.1	7.9	7.7	8.0	7.9	7.8	8.0	7.9
3	TDS (mg/L)	302	250	175	217	228	204	252	182	170
4	Temp (deg C)	26.3	26.4	26.7	21.3	18.9	21.3	26.1	26.1	25.8
5	Turb (NTU)	11.7	114.6	138.8	5.7	13.6	12.5	7.2	10.4	4.5
	CHEMICAL									
1	ALK-TOT (mgCaCO3/L)	181	142	136	175	160	144	180	158	140
2	Ca (mg/L)	41	41	34	40	41	39	36	39	39
3	Cl (mg/L)	34.2	46.1	19.2	15.6	26.8	23.6	17.9	23.0	25.0
4	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	0.23
5	HCO3 (mg/L)	221	174	165	213	195	176	219	192	170
6	K (mg/L)	NA	2.3	1.4	NA	1.8	1.6	1.6	1.9	1.6
7	Mg (mg/L)	16.7	12.1	11.4	16.1	11.6	12.3	14.6	11.0	9.4
8	Na (mg/L)	NA	31.1	10.7	NA	15.9	14.8	31.6	14.5	14.6
9	NH3-N (mg N/L)	NA	0.06	0.08	NA	0.07	0.10	0.05	0.12	0.19
10	NO2+NO3 (mg N/L)	4.18	1.96	0.53	0.62	1.01	0.57	1.07	0.51	0.52
11	NO2-N (mgN/L)	0.17	0.24	0.05	0.25	0.15	0.07	0.72	0.10	0.06
12	NO3-N (mgN/L)	4.01	1.72	0.48	0.37	0.86	0.50	0.35	0.41	0.46
13	o-PO4-P (mg P/L)	0.289	0.357	0.159	0.113	0.165	0.185	0.107	0.127	0.151
14	SiO2 (mg/L)	33.5	41.1	29.0	27.8	31.3	31.7	34.2	30.5	31.8
15	SO4 (mg/L)	11.2	8.8	8.1	12.6	9.6	9.3	9.9	8.4	7.1
	BIOLOGICAL/BACTERIOLOGICAL									
1	BOD3-27 (mg/L)	1.7	1.7	1.1	1.8	1.1	1.2	1.9	1.6	1.2
2	COD (mg/L)	7.4	8.0		5.3		10.3	5.3	BDL	BDL
3	DO (mg/L)	6.2	6.5	6.8	7.3	7.5	7.5	6.1	7.2	7.0
4	DO SAT% (%)	77	80	85	83	80	85	75	89	86
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO3/L)	103	102	84	100	103	98	89	98	98
2	HAR_Total (mgCaCO3/L)	173	152	131	168	151	150	150	144	138
3	Na% (%)	NA	29	15	NA	18	18	30	18	19
4	RSC (-)	0.3	0.0	0.1	0.3	0.3	0.0	0.7	0.3	0.1
5	SAR (-)	NA	1.2	0.4	NA	0.6	0.5	1.1	0.5	0.5

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.33 Narmada at Mortakka

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: MORTAKKA	Code	: WQSS-202014
State	: Madhya Pradesh	District	: Khandwa
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Middle Narmada Sub-Division-III, Indore
Drainage Area	: 67184 sq.km.	Bank	: Left
Latitude	: 22°13'24.0"	Longitude	: 76°20'28.0"
Current Zero of Gauge (m)	: 153.000 M		
CATEGORY	Opening Date	Closing Date	
Gauge	: 01.07.1999		
Discharge	: *		
Sediment	: *		
Water Quality	: 01.09.1999	01.07.2007	
	07.08.2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of GQ Station only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Mortakka (WQSS-202014)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD III, Indore

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
2	EC_GEN (μmho/cm)	240	262	260	297	291	284	292	235	241	182	371	379
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.0	7.8	7.9	8.1	8.2	7.8	8.1	8.1	8.1	7.7	8.2	8.1
5	TDS (mg/L)	160	176	175	197	190	186	186	153	162	123	239	247
6	Temp (deg C)	26.0	28.0	28.0	28.0	28.0	26.5	28.0	28.0	27.5	28.5	28.5	27.5
7	Turb (NTU)	75.6	2.3	1.9	15.3	17.6	45.4	27.7	23.2	21.4	25.1	14.7	11.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	135	141	124	130	131	134	141	143	147	137	143	143
3	Ca (mg/L)	33	34	31	31	32	33	34	33	34	35	36	37
4	Cl (mg/L)	23.1	21.6	21.6	19.7	20.3	21.7	21.6	19.8	16.3	18.7	20.1	20.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	165	172	151	159	160	164	172	175	179	167	175	175
8	K (mg/L)	1.6	1.6	1.6	1.4	1.5	1.6	1.9	1.7	1.7	1.7	1.8	4.5
9	Mg (mg/L)	8.1	9.0	10.3	10.2	10.1	10.4	11.9	11.9	11.7	11.4	11.6	11.3
10	Na (mg/L)	13.5	14.4	13.8	10.5	10.6	11.2	13.0	10.5	11.2	10.0	11.3	15.6
11	NH3-N (mg N/L)	0.07	0.07	0.08	0.08	0.09	0.08	0.07	0.08	0.08	0.08	0.08	0.08
12	NO2+NO3 (mg N/L)	0.25	0.22	0.19	0.33	0.34	0.38	0.71	0.73	0.68	0.90	0.89	0.87
13	NO2-N (mgN/L)	0.01	0.01	0.01	0.04	0.04	0.06	0.06	0.06	0.05	0.08	0.09	0.09
14	NO3-N (mgN/L)	0.24	0.22	0.19	0.29	0.30	0.32	0.65	0.67	0.63	0.82	0.80	0.78
15	o-PO4-P (mg P/L)	0.145	0.158	0.129	0.136	0.149	0.162	0.151	0.159	0.141	0.155	0.163	0.171
16	SiO2 (mg/L)	27.7	24.7	24.1	24.5	25.0	25.9	35.6	35.8	35.0	28.4	28.6	28.8
17	SO4 (mg/L)	6.8	7.4	4.6	7.5	7.3	6.7	9.9	10.1	9.9	7.9	7.8	7.9
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.1	0.8	1.0	1.4	1.3	1.3	0.6	0.6	0.6	1.2	1.4	1.2
2	DO (mg/L)	7.0	7.3	7.4	6.6	6.3	6.9	7.2	7.2	7.1	7.3	7.5	7.5
3	DO_SAT% (%)	86	94	95	84	81	85	92	91	89	94	96	94
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	82	84	78	78	81	83	86	83	85	88	91	94
2	HAR_Total (mgCaCO3/L)	116	121	121	121	123	127	135	133	134	135	139	141
3	Na% (%)	20	20	20	16	16	16	17	15	15	14	15	19
4	RSC (-)	0.4	0.4	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.0	0.1	0.1
5	SAR (-)	0.5	0.6	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.6

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Mortakka (WQSS-202014)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD III, Indore

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (μmho/cm)	292	295	300	241	248	252	323	329	336	303	265	254
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.1	8.0	8.0	8.0	8.1	8.1	8.1	8.1	8.0	8.0	7.8	7.1
5	TDS (mg/L)	189	192	198	154	160	168	214	221	229	198	174	166
6	Temp (deg C)	28.0	27.5	27.5	24.5	24.0	24.0	21.0	21.0	21.5	22.5	20.0	19.5
7	Turb (NTU)	15.6	14.3	12.7	3.8	2.4	1.8	1.4	1.7	2.6	2.6	3.0	2.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	120	123	126	90	93	96	142	149	146	145	145	142
3	Ca (mg/L)	37	37	38	23	25	27	37	38	35	37	39	40
4	Cl (mg/L)	16.4	16.2	16.6	18.8	20.3	19.1	19.1	18.4	19.5	23.6	22.4	20.0
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	147	150	154	110	113	117	173	182	178	177	177	173
8	K (mg/L)	1.5	1.5	1.5	1.7	1.6	1.6	1.7	1.6	1.8	1.8	1.8	1.7
9	Mg (mg/L)	6.8	7.0	6.7	9.2	8.9	8.9	11.3	11.3	12.7	12.4	10.3	10.2
10	Na (mg/L)	9.0	8.9	9.1	10.0	10.6	10.1	10.2	10.2	10.5	12.6	12.1	11.8
11	NH3-N (mg N/L)	0.08	0.08	0.08	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10
12	NO2+NO3 (mg N/L)	0.40	0.42	0.43	0.44	0.46	0.48	0.45	0.45	0.46	0.47	0.44	0.42
13	NO2-N (mgN/L)	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.07	0.08	0.07	0.07
14	NO3-N (mgN/L)	0.36	0.37	0.38	0.39	0.41	0.42	0.39	0.39	0.39	0.39	0.37	0.35
15	o-PO4-P (mg P/L)	0.155	0.162	0.165	0.133	0.138	0.143	0.151	0.155	0.159	0.200	0.148	0.123
16	SiO2 (mg/L)	27.9	28.3	29.0	26.8	27.5	28.0	32.1	32.4	32.7	30.6	26.7	25.9
17	SO4 (mg/L)	8.6	8.8	8.9	6.1	6.5	6.8	8.8	8.5	8.8	9.9	9.2	8.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.2	0.8	1.0	1.0	0.8	1.2	1.0	0.8	0.8	1.0
2	DO (mg/L)	7.5	7.7	7.8	7.6	7.4	7.3	8.0	7.8	7.4	7.7	7.6	7.8
3	DO_SAT% (%)	96	96	97	90	87	87	90	87	83	88	84	84
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	92	93	96	58	63	67	93	96	89	93	97	101
2	HAR_Total (mgCaCO3/L)	120	122	124	96	100	104	140	143	141	145	140	143
3	Na% (%)	14	14	14	18	18	17	14	13	14	16	16	15
4	RSC (-)	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0
5	SAR (-)	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name : Narmada at Mortakka (WQSS-202014)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD III, Indore

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	274	270	275	281	286	285	255	260	263	251	256	260
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.2	8.0	7.9	8.0	8.0	8.1	7.9	8.0	8.0	7.7	7.8	7.8
5	TDS (mg/L)	179	176	180	174	180	178	171	176	179	158	161	167
6	Temp (deg C)	19.0	21.5	21.0	21.5	22.0	21.5	24.5	25.0	23.5	26.0	24.5	26.5
7	Turb (NTU)	1.3	1.7	1.7	3.3	3.4	4.1	0.7	0.3	0.4	2.6	3.1	2.3
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	142	142	146	148	149	152	136	138	139	134	136	137
3	Ca (mg/L)	41	42	43	42	43	43	37	37	38	38	38	39
4	Cl (mg/L)	17.2	21.6	22.0	21.6	22.2	22.6	29.5	30.3	30.7	27.4	27.6	27.8
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.30	0.21	0.26	0.19	0.21	0.22
7	HCO3 (mg/L)	173	173	178	180	182	185	166	168	169	164	166	167
8	K (mg/L)	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.5	1.5	1.5
9	Mg (mg/L)	11.0	9.7	9.7	9.5	9.6	9.6	9.5	9.8	10.1	10.0	10.1	10.4
10	Na (mg/L)	12.4	13.3	13.5	13.4	13.5	13.5	16.0	16.1	16.1	14.7	14.6	14.8
11	NH3-N (mg N/L)	0.09	0.09	0.10	0.09	0.09	0.09	0.10	0.10	0.09	0.09	0.08	0.08
12	NO2+NO3 (mg N/L)	0.72	0.73	0.74	0.73	0.76	0.77	0.41	0.42	0.43	0.41	0.42	0.44
13	NO2-N (mgN/L)	0.07	0.07	0.07	0.07	0.07	0.08	0.06	0.06	0.07	0.05	0.06	0.06
14	NO3-N (mgN/L)	0.65	0.66	0.67	0.66	0.69	0.70	0.35	0.35	0.36	0.36	0.37	0.37
15	o-PO4-P (mg P/L)	0.174	0.184	0.187	0.174	0.178	0.184	0.157	0.162	0.167	0.127	0.130	0.137
16	SiO2 (mg/L)	33.5	35.1	35.3	34.2	34.8	35.3	35.1	35.2	35.3	29.5	29.8	30.3
17	SO4 (mg/L)	7.5	6.0	6.2	7.4	7.6	7.8	8.9	8.9	9.0	7.7	8.5	9.1
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	0.8	0.6	0.8	0.8	0.8	0.6	0.6	1.2	1.0	1.2
2	DO (mg/L)	7.7	7.9	7.8	7.6	7.3	7.5	7.4	7.4	7.3	7.0	7.4	6.9
3	DO_SAT% (%)	83	89	88	85	84	84	88	89	85	86	88	85
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	102	105	107	105	106	107	93	94	94	94	95	96
2	HAR_Total (mgCaCO3/L)	147	146	147	145	147	147	133	134	136	136	137	140
3	Na% (%)	15	16	16	17	17	17	21	20	20	19	19	19
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at Mortakka (WQSS-202014)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD III, Indore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	379	182	277
2	pH_GEN (pH units)	36	8.2	7.1	8
3	TDS (mg/L)	36	247	123	182
4	Temp (deg C)	36	28.5	19.0	24.7
5	Turb (NTU)	36	75.6	0.3	10.3
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	152	90	135
3	Ca (mg/L)	36	43	23	36
4	Cl (mg/L)	36	30.7	16.2	21.6
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.30	0.19	0.23
7	HCO3 (mg/L)	36	185	110	165
8	K (mg/L)	36	4.5	1.4	1.7
9	Mg (mg/L)	36	12.7	6.7	10.1
10	Na (mg/L)	36	16.1	8.9	12.3
11	NH3-N (mg N/L)	36	0.10	0.07	0.09
12	NO2+NO3 (mg N/L)	36	0.90	0.19	0.52
13	NO2-N (mgN/L)	36	0.09	0.01	0.06
14	NO3-N (mgN/L)	36	0.82	0.19	0.46
15	o-PO4-P (mg P/L)	36	0.200	0.123	0.156
16	SiO2 (mg/L)	36	35.8	24.1	30.4
17	SO4 (mg/L)	36	10.1	4.6	8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.4	0.6	1
2	DO (mg/L)	36	8.0	6.3	7.4
3	DO_SAT% (%)	36	97	81	88
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	107	58	90
2	HAR_Total (mgCaCO3/L)	36	147	96	132
3	Na% (%)	36	21	13	17
4	RSC (-)	36	0.4	0.0	0.1
5	SAR (-)	36	0.6	0.4	0.5

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2021-2024

Station Name : Narmada at Mortakka (WQSS-202014)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD III, Indore

S.No	Parameters	Flood			Winter			Summer		
		Jun - Oct			Nov - Feb			Mar - May		
		2021	2022	2023	2021-2022	2022-2023	2023-2024	2022	2023	2024
	PHYSICAL									
1	EC_GEN (µmho/cm)	346	276	281	324	292	281	313	292	266
2	pH_GEN (pH units)	7.6	8.0	8.0	7.7	8.1	7.9	7.9	7.9	7.9
3	TDS (mg/L)	219	170	185	207	198	185	188	193	172
4	Temp (deg C)	27.7	27.6	27.7	22.2	22.4	21.6	24.2	23.3	23.9
5	Turb (NTU)	3.2	45.8	21.6	4.7	3.6	2.2	2.4	2.6	2.2
	CHEMICAL									
1	ALK-TOT (mgCaCO3/L)	143	143	135	138	142	131	121	138	141
2	Ca (mg/L)	37	36	35	34	36	36	28	36	39
3	Cl (mg/L)	23.3	25.6	19.6	17.7	25.4	20.2	18.1	24.0	26.6
4	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	0.23
5	HCO3 (mg/L)	175	174	164	168	173	160	148	168	172
6	K (mg/L)	NA	2.1	1.8	NA	1.8	1.6	2.0	1.8	1.6
7	Mg (mg/L)	12.0	10.3	9.9	12.7	10.0	10.5	10.7	11.2	9.9
8	Na (mg/L)	NA	14.9	11.5	NA	14.3	11.4	17.2	15.9	14.7
9	NH3-N (mg N/L)	NA	0.06	0.08	NA	0.06	0.10	0.07	0.11	0.09
10	NO2+NO3 (mg N/L)	0.84	0.52	0.52	0.57	0.64	0.52	0.37	0.55	0.53
11	NO2-N (mgN/L)	0.02	0.04	0.05	0.05	0.04	0.06	0.07	0.08	0.07
12	NO3-N (mgN/L)	0.82	0.48	0.47	0.52	0.60	0.46	0.30	0.46	0.47
13	o-PO4-P (mg P/L)	0.122	0.153	0.153	0.083	0.107	0.158	0.103	0.115	0.157
14	SiO2 (mg/L)	37.6	24.7	28.6	24.1	28.4	30.5	32.5	29.0	33.3
15	SO4 (mg/L)	11.1	10.0	8.0	12.2	7.1	7.8	7.1	6.7	8.3
	BIOLOGICAL/BACTERIOLOGICAL									
1	BOD3-27 (mg/L)	1.1	1.3	1.1	1.0	1.0	0.9	1.8	1.3	0.8
2	COD (mg/L)	5.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	DO (mg/L)	6.0	6.5	7.2	7.3	7.6	7.7	6.6	6.4	7.3
4	DO_SAT% (%)	76	82	91	84	87	87	79	75	86
	TRACE & TOXIC									
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO3/L)	92	91	86	86	89	89	70	89	98
2	HAR_Total (mgCaCO3/L)	143	134	128	139	130	133	115	135	139
3	Na% (%)	NA	19	16	NA	19	16	24	20	19
4	RSC (-)	0.2	0.2	0.2	0.1	0.2	0.0	0.2	0.1	0.1
5	SAR (-)	NA	0.6	0.4	NA	0.5	0.4	0.7	0.6	0.5

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.34 Narmada at U/S Mandleshwar

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2022- 2024
Site	: U/S MANDLESHWR	Code	: WQSS-202015
State	: Madhya Pradesh	District	: Khargone
Basin	: Narmada	Independent River	: Narmada
Tributary	: Narmada	Sub Tributary	: Narmada
Sub-Sub Tributary	: Narmada	Local River	: Narmada
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Middle Narmada Sub-Division-III, Indore
Drainage Area	: *	Bank	: Right
Latitude	: 22°90'35.0"	Longitude	: 75°40'48.0"
Current Zero of Gauge (m)	: *		
CATEGORY	Opening Date	Closing Date	
Gauge	: *		
Discharge	: *		
Sediment	: *		
Water Quality	: 07/08/2020		
Reduced Level	Opening Date	Closing Date	

Note- "*" - Not Applicable because of WQSS (Water Quality Sampling Station) only.

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name :Narmada at U/S Mandleshwar (WQSS-202015)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD III, Indore

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Colour_Cod (-)	Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Brown
2	EC_GEN (µmho/cm)	251	260	263	276	269	263	235	214	221	175	261	268
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.1	7.9	8.0	8.2	8.2	8.0	8.1	8.0	8.1	7.7	8.0	8.0
5	TDS (mg/L)	166	175	177	182	175	164	157	138	149	118	178	186
6	Temp (deg C)	26.0	29.0	28.0	28.0	27.0	28.0	28.0	28.0	27.0	27.0	25.0	25.0
7	Turb (NTU)	3.1	3.8	2.8	15.7	13.0	56.9	35.9	25.6	160.0	28.2	20.1	15.9
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	120	124	125	133	134	139	125	125	128	116	120	138
3	Ca (mg/L)	31	32	27	27	28	30	29	28	29	30	31	32
4	Cl (mg/L)	20.7	21.4	20.9	27.1	21.6	21.7	18.1	16.7	17.3	16.8	17.9	20.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	146	151	153	162	164	170	153	152	156	142	146	168
8	K (mg/L)	1.6	1.6	1.6	1.8	1.8	1.8	1.7	1.6	1.7	1.7	1.9	5.0
9	Mg (mg/L)	12.9	12.8	13.3	13.5	13.0	13.1	9.2	9.2	9.2	9.1	9.1	9.2
10	Na (mg/L)	12.9	13.5	13.6	11.3	11.3	11.3	9.8	9.0	9.6	8.9	9.4	13.2
11	NH3-N (mg N/L)	0.07	0.07	0.09	0.08	0.09	0.08	0.07	0.08	0.08	0.09	0.09	0.09
12	NO2+NO3 (mg N/L)	0.26	0.17	0.12	0.34	0.35	0.37	0.78	0.81	0.74	0.77	0.76	0.77
13	NO2-N (mgN/L)	0.02	0.01	0.01	0.04	0.05	0.05	0.07	0.07	0.05	0.07	0.08	0.08
14	NO3-N (mgN/L)	0.25	0.15	0.11	0.30	0.30	0.32	0.71	0.73	0.69	0.70	0.68	0.69
15	o-PO4-P (mg P/L)	0.149	0.161	0.132	0.149	0.161	0.174	0.146	0.154	0.135	0.147	0.153	0.158
16	SiO2 (mg/L)	27.7	25.2	23.6	23.7	23.9	24.7	33.2	33.5	32.6	20.3	20.4	20.7
17	SO4 (mg/L)	7.6	8.2	2.1	8.3	8.1	7.8	7.1	7.6	7.3	8.0	7.8	7.9
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.0	1.0	1.0
2	COD (mg/L)												
3	DO (mg/L)	7.0	7.3	7.0	7.3	7.1	7.6	6.8	6.8	6.7	7.7	7.7	7.7
4	DO_SAT% (%)	86	95	89	94	89	98	87	86	84	97	93	93
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	78	80	68	68	71	74	73	71	73	76	78	80
2	HAR_Total (mgCaCO3/L)	132	133	123	124	125	128	112	109	111	114	116	119
3	Na% (%)	17	18	19	16	16	16	16	15	16	14	15	19
4	RSC (-)	0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.1	0.1	0.4
5	SAR (-)	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name :Narmada at U/S Mandleshwar (WQSS-202015)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD III, Indore

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (μmho/cm)	246	249	254	277	231	234	442	412	395	304	271	253
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	7.5	7.6	7.7	7.9	7.8	7.9	7.8	7.8	7.6	7.8	8.0	8.0
5	TDS (mg/L)	160	164	168	140	147	152	285	267	265	199	181	165
6	Temp (deg C)	27.0	26.0	25.0	26.0	25.0	25.0	23.0	21.0	20.0	21.0	20.0	21.0
7	Turb (NTU)	12.0	11.5	10.6	4.9	4.5	4.1	3.3	3.2	3.9	3.6	4.0	4.1
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	99	103	106	91	95	98	184	153	157	138	142	142
3	Ca (mg/L)	38	32	33	25	26	28	51	52	37	37	39	41
4	Cl (mg/L)	15.6	13.5	16.0	20.5	19.7	18.2	28.5	26.8	23.2	23.2	21.7	20.5
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	*	*	*	*	*	*
7	HCO3 (mg/L)	121	126	129	111	116	120	225	187	192	168	173	173
8	K (mg/L)	1.4	1.4	1.8	1.5	1.5	1.5	1.9	1.9	1.6	1.7	1.6	1.5
9	Mg (mg/L)	5.7	5.9	5.8	6.2	6.5	6.3	15.6	15.6	12.1	12.4	10.7	9.9
10	Na (mg/L)	7.6	7.4	7.6	10.7	10.4	9.7	14.9	15.0	12.5	12.5	12.1	11.5
11	NH3-N (mg N/L)	0.08	0.08	0.08	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10
12	NO2+NO3 (mg N/L)	0.38	0.40	0.41	0.40	0.42	0.43	0.52	0.50	0.47	0.47	0.45	0.42
13	NO2-N (mgN/L)	0.05	0.05	0.05	0.05	0.05	0.05	0.08	0.08	0.07	0.08	0.07	0.07
14	NO3-N (mgN/L)	0.34	0.35	0.36	0.35	0.37	0.38	0.44	0.42	0.40	0.40	0.37	0.35
15	o-PO4-P (mg P/L)	0.142	0.150	0.152	0.124	0.129	0.133	0.196	0.179	0.168	0.201	0.162	0.121
16	SiO2 (mg/L)	26.9	27.2	27.6	25.6	26.4	27.1	44.6	41.5	39.4	30.8	27.9	25.8
17	SO4 (mg/L)	8.1	8.3	8.4	5.3	6.0	6.5	10.7	9.6	9.1	9.7	9.7	8.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	1.0	1.2	1.2	0.8	0.8	0.8	1.2	1.2	1.0	1.0	1.0	1.2
2	COD (mg/L)							5.1	5.0				
3	DO (mg/L)	7.1	7.3	7.4	7.4	7.6	7.5	7.0	7.2	7.4	7.3	7.2	7.4
4	DO_SAT% (%)	89	90	89	91	91	91	82	80	81	82	79	83
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	94	80	83	62	65	70	128	131	92	93	98	103
2	HAR_Total (mgCaCO3/L)	118	105	107	88	92	96	194	196	143	145	143	144
3	Na% (%)	12	13	13	21	19	18	14	14	16	16	15	15
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.3	0.0	0.0	0.0
5	SAR (-)	0.3	0.3	0.3	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.4	0.4

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period : 2023-24

Station Name :Narmada at U/S Mandleshwar (WQSS-202015)

Local River : Narmada

Division : Narmada Division, Bhopal

Sub-Division : MNSD III, Indore

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Colour_Cod (-)	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	EC_GEN (µmho/cm)	273	282	288	286	291	294	236	241	245	247	251	255
3	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
4	pH_GEN (pH units)	8.2	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	7.8	7.8	7.9
5	TDS (mg/L)	178	185	190	186	190	192	159	162	168	155	158	164
6	Temp (deg C)	21.0	20.0	20.0	21.0	21.0	22.0	26.0	26.0	26.0	28.0	24.0	28.0
7	Turb (NTU)	2.0	2.2	2.4	3.0	3.2	3.9	1.0	0.9	0.7	1.9	2.6	1.4
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)	142	146	150	152	154	157	133	135	137	132	134	135
3	Ca (mg/L)	42	44	45	44	44	45	36	36	36	35	36	37
4	Cl (mg/L)	17.4	21.8	22.4	21.8	22.4	23.0	25.7	25.8	25.7	28.1	28.3	27.9
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	F (mg/L)	*	*	*	*	*	*	0.28	0.30	0.26	0.23	0.20	0.24
7	HCO3 (mg/L)	173	178	183	185	188	191	162	165	167	161	163	165
8	K (mg/L)	1.5	1.7	1.8	1.7	1.8	1.8	1.6	1.7	1.7	1.6	1.5	1.6
9	Mg (mg/L)	9.9	9.5	9.6	9.4	9.5	9.6	9.1	9.3	9.5	10.3	10.4	10.2
10	Na (mg/L)	11.6	13.4	13.6	13.5	13.6	13.6	13.3	13.4	13.4	15.0	14.9	14.7
11	NH3-N (mg N/L)	0.09	0.10	0.10	0.09	0.09	0.09	0.10	0.10	0.09	0.08	0.08	0.08
12	NO2+NO3 (mg N/L)	0.72	0.74	0.75	0.73	0.77	0.78	0.36	0.37	0.38	0.40	0.40	0.41
13	NO2-N (mgN/L)	0.07	0.07	0.07	0.07	0.08	0.08	0.05	0.05	0.05	0.05	0.05	0.06
14	NO3-N (mgN/L)	0.65	0.67	0.68	0.66	0.70	0.70	0.31	0.32	0.32	0.35	0.35	0.36
15	o-PO4-P (mg P/L)	0.177	0.190	0.194	0.191	0.193	0.196	0.117	0.125	0.130	0.120	0.127	0.134
16	SiO2 (mg/L)	33.8	34.5	34.9	33.7	33.9	34.7	33.1	33.3	33.4	29.3	29.6	29.9
17	SO4 (mg/L)	8.0	8.9	9.1	8.1	8.2	8.5	8.0	8.2	8.3	7.4	8.4	8.8
	BIOLOGICAL/BACTERIOLOGICAL												
1	BOD3-27 (mg/L)	0.8	1.0	1.0	0.8	0.6	0.6	1.0	0.8	0.8	0.8	0.6	0.8
2	COD (mg/L)												
3	DO (mg/L)	7.7	7.7	7.6	7.4	7.5	7.7	6.8	7.0	6.9	7.4	7.6	7.3
4	DO_SAT% (%)	87	85	84	83	84	88	83	86	85	94	90	93
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	105	111	112	110	111	111	90	90	91	89	90	93
2	HAR_Total (mgCaCO3/L)	146	150	152	149	150	152	127	129	131	131	133	136
3	Na% (%)	15	16	16	16	16	16	18	18	18	20	19	19
4	RSC (-)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
5	SAR (-)	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Narmada at U/S Mandleshwar (WQSS-202015)

Local River : Narmada

Division:Narmada Division, Bhopal

Sub-Division : MNSD III, Indore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	EC_GEN (µmho/cm)	36	442	175	270
2	pH_GEN (pH units)	36	8.2	7.5	7.9
3	TDS (mg/L)	36	285	118	176
4	Temp (deg C)	36	29.0	20.0	24.7
5	Turb (NTU)	36	160.0	0.7	13.2
	CHEMICAL				
1	Alk-Phen (mgCaCO3/L)	36	0.0	0.0	0
2	ALK-TOT (mgCaCO3/L)	36	184	91	132
3	Ca (mg/L)	36	52	25	35
4	Cl (mg/L)	36	28.5	13.5	21.6
5	CO3 (mg/L)	36	0.0	0.0	0
6	F (mg/L)	6	0.30	0.20	0.25
7	HCO3 (mg/L)	36	225	111	161
8	K (mg/L)	36	5.0	1.4	1.7
9	Mg (mg/L)	36	15.6	5.7	10.1
10	Na (mg/L)	36	15.0	7.4	11.9
11	NH3-N (mg N/L)	36	0.10	0.07	0.09
12	NO2+NO3 (mg N/L)	36	0.81	0.12	0.51
13	NO2-N (mgN/L)	36	0.08	0.01	0.06
14	NO3-N (mgN/L)	36	0.73	0.11	0.45
15	o-PO4-P (mg P/L)	36	0.201	0.117	0.155
16	SiO2 (mg/L)	36	44.6	20.3	29.8
17	SO4 (mg/L)	36	10.7	2.1	8
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD3-27 (mg/L)	36	1.2	0.6	0.9
2	COD (mg/L)	2	5.1	5.0	5
3	DO (mg/L)	36	7.7	6.7	7.3
4	DO_SAT% (%)	36	98	79	88
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO3/L)	36	131	62	89
2	HAR_Total (mgCaCO3/L)	36	196	88	131
3	Na% (%)	36	21	12	16
4	RSC (-)	36	0.4	0.0	0.1
5	SAR (-)	36	0.6	0.3	0.5

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period : 2021-2024

Station Name : Narmada at U/S Mandleshwar (WQSS-202015)

Division : Narmada Division, Bhopal

Local River : Narmada

Sub-Division : MNSD III, Indore

S.No	Parameters	Flood			Winter			Summer		
		Jun - Oct			Nov - Feb			Mar - May		
		2021	2022	2023	2021-2022	2022-2023	2023-2024	2022	2023	2024
	PHYSICAL									
1	EC_GEN (µmho/cm)	299	251	247	298	293	305	310	295	261
2	pH_GEN (pH units)	7.5	7.9	7.9	7.6	8.1	7.9	7.8	8.0	7.9
3	TDS (mg/L)	187	154	164	191	200	196	184	194	170
4	Temp (deg C)	26.0	26.6	26.9	23.3	21.5	21.9	24.6	24.4	24.7
5	Turb (NTU)	3.2	43.6	27.7	3.5	4.8	3.5	4.3	6.9	2.0
	CHEMICAL									
1	ALK-TOT (mgCaCO3/L)	127	130	122	126	148	137	129	142	141
2	Ca (mg/L)	33	38	31	33	35	39	31	34	39
3	Cl (mg/L)	21.2	21.7	19.0	15.0	26.4	22.0	19.7	23.0	25.4
4	F (mg/L)	NA	NA	NA	NA	NA	NA	NA	NA	0.25
5	HCO3 (mg/L)	155	158	149	154	181	167	158	174	172
6	K (mg/L)	NA	2.3	1.9	NA	1.9	1.6	2.2	1.8	1.7
7	Mg (mg/L)	9.5	6.0	10.1	9.8	10.4	10.4	9.6	11.9	9.7
8	Na (mg/L)	NA	12.7	10.4	NA	14.6	12.3	16.1	14.7	13.9
9	NH3-N (mg N/L)	NA	0.06	0.08	NA	0.05	0.10	40.76	0.12	0.09
10	NO2+NO3 (mg N/L)	0.69	0.71	0.49	0.56	0.70	0.52	0.46	0.71	0.51
11	NO2-N (mgN/L)	0.07	0.07	0.05	0.06	0.04	0.07	0.02	0.09	0.06
12	NO3-N (mgN/L)	0.62	0.64	0.45	0.50	0.66	0.46	0.44	0.62	0.45
13	o-PO4-P (mg P/L)	0.111	0.163	0.151	0.101	0.099	0.164	0.104	0.121	0.148
14	SiO2 (mg/L)	34.1	21.1	26.1	26.3	28.7	32.7	35.0	28.6	32.3
15	SO4 (mg/L)	8.1	9.4	7.5	10.6	7.5	8.4	7.2	7.3	8.2
	BIOLOGICAL/BACTERIOLOGICAL									
1	BOD3-27 (mg/L)	1.3	1.5	0.9	1.0	0.9	1.0	1.8	1.1	0.7
2	COD (mg/L)	BDL	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL
3	DO (mg/L)	6.3	6.2	7.2	7.3	7.5	7.4	6.5	7.2	7.3
4	DO_SAT% (%)	77	77	91	85	85	85	78	86	87
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO3/L)	83	95	76	83	86	97	76	84	97
2	HAR_Total (mgCaCO3/L)	122	119	118	123	130	141	116	134	138
3	Na% (%)	NA	18	16	NA	19	16	23	19	18
4	RSC (-)	0.2	0.3	0.1	0.1	0.4	0.0	0.3	0.2	0.1
5	SAR (-)	NA	0.5	0.4	NA	0.6	0.5	0.7	0.6	0.5

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

3.35 Uri at Dhulsar

HISTORY SHEET (WATER QUALITY)		
Water Year : 2023-24		
Site :	DHULSAR	Code : WQSS-202016
State :	Madhya Pradesh	District : DHAR
Basin :	Narmada	Independent River : Narmada
Tributary :	Uri	Sub Tributary : Uri
Sub-Sub Tributary :	Uri	Local River : Uri
Division :	Narmada Division(ND), Bhopal	Sub-Division : Middle Narmada Sub-Division-III, Indore
Drainage Area :	787 sq/km	Bank : Right
Latitude :	22°12'28.0"	Longitude : 74°52'9.0"
Current Zero of Gauge (m) :	151.000 M	
CATEGORY	Opening Date	Closing Date
Gauge :	15.03.1999	
Discharge :	15.03.1999	
Sediment :	NA	
Water Quality	01/07/2008 07/08/2020	31/03/2017
Reduced Level	Opening Date	Closing Date

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Uri at Dhulsar (WQSS-202016)

Local River : Uri

Division : Narmada Division, Bhopal

Sub-Division : MNSD III, Indore

River Water Analysis

S.No	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
	PHYSICAL												
1	Q (cumec)	0.00	36.16	14.36	1.45	18.72	16.59	17.53	15.59	16.74	1.64	41.68	67.56
2	Colour_Cod (-)	River Dry	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown	Light Brown
3	EC_GEN (µmho/cm)		366	376	415	408	395	654	651	657	678	456	450
4	Odour_Code (-)		odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
5	pH_GEN (pH units)		8.0	8.1	8.2	8.2	8.1	8.3	8.2	8.1	7.8	8.1	8.1
6	TDS (mg/L)		245	252	273	265	257	410	421	427	456	289	281
7	Temp (deg C)		28.0	28.0	30.0	26.0	26.0	26.0	26.0	26.0	28.0	27.0	26.0
8	Turb (NTU)		8.2	4.4	126.4	118.0	189.3	4.7	4.3	4.3	5.5	3.2	3.6
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	ALK-TOT (mgCaCO3/L)		163	177	193	193	190	198	200	198	207	193	195
3	Ca (mg/L)		34	32	37	40	38	40	40	40	46	45	45
4	Cl (mg/L)		30.9	30.8	22.4	22.6	24.3	49.7	53.6	55.2	56.2	41.2	23.5
5	CO3 (mg/L)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	HCO3 (mg/L)		199	216	235	235	232	241	244	241	253	235	238
7	K (mg/L)		2.7	2.6	2.0	1.9	1.8	3.7	3.7	3.6	11.1	8.8	7.2
8	Mg (mg/L)		18.7	18.1	19.8	19.8	20.7	26.9	26.8	26.6	19.7	18.8	18.9
9	Na (mg/L)		23.7	24.5	13.3	13.2	13.0	28.3	30.7	29.5	37.2	25.5	16.6
10	NH3-N (mg N/L)		0.14	0.14	0.09	0.09	0.09	0.11	0.12	0.11	0.12	0.11	0.12
11	NO2+NO3 (mg N/L)		0.40	0.37	1.09	1.10	1.14	1.91	2.07	1.83	2.81	2.79	2.83
12	NO2-N (mgN/L)		0.05	0.05	0.07	0.07	0.08	0.17	0.30	0.16	0.21	0.21	0.21
13	NO3-N (mgN/L)		0.36	0.32	1.02	1.03	1.06	1.75	1.77	1.67	2.61	2.58	2.62
14	o-PO4-P (mg P/L)		0.186	0.157	0.274	0.286	0.300	0.287	0.295	0.276	0.283	0.293	0.296
15	SiO2 (mg/L)		31.4	30.7	43.9	49.5	51.1	59.8	60.1	59.1	36.0	36.2	36.3
16	SO4 (mg/L)		19.0	13.2	18.4	18.6	17.6	26.7	27.1	26.3	13.5	13.7	13.9
	BIOLOGICAL/BACTERIOLOGICAL												
1.0	BOD3-27 (mg/L)		0.8	1.0	1.0	1.0	1.0	7.6	0.6	0.6	1.0	1.0	0.8
2	COD (mg/L)				5.0	4.5	4.5			6.4	6.5	5.4	
3	DO (mg/L)		7.1	7.2	7.1	6.9	7.5	7.6	7.4	7.3	7.9	7.9	7.9
4	DO_SAT% (%)		91	92	94	85	92	94	91	90	101	99	97
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)		85	81	92	99	96	101	99	100	115	111	113
2	HAR_Total (mgCaCO3/L)		163	157	174	182	182	213	211	211	197	190	192
3	Na% (%)		24	25	14	14	13	22	24	23	28	22	15
4	RSC (-)		0.0	0.4	0.4	0.2	0.2	0.0	0.0	0.0	0.2	0.1	0.1
5	SAR (-)		0.8	0.9	0.4	0.4	0.4	0.8	0.9	0.9	1.2	0.8	0.5

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Uri at Dhulsar (WQSS-202016)

Local River : Uri

Division : Narmada Division, Bhopal

Sub-Division : MNSD III, Indore

River Water Analysis

S.No	Parameters	03-10-2023	11-10-2023	20-10-2023	01-11-2023	09-11-2023	21-11-2023	01-12-2023	11-12-2023	21-12-2023	01-01-2024	11-01-2024	24-01-2024
	PHYSICAL												
1	Q (cumec)	41.87	5.52	3.59	2.11	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Colour_Cod (-)	Light Brown	Light Brown	Light Brown	Clear	Clear	River Dry	River Dry	River Dry	River Dry	River Dry	River Dry	River Dry
3	EC_GEN (µmho/cm)	468	471	478	473	481							
4	Odour_Code (-)	odour free	odour free	odour free	odour free	odour free							
5	pH_GEN (pH units)	7.9	8.0	8.0	8.0	8.0							
6	TDS (mg/L)	303	307	314	312	318							
7	Temp (deg C)	28.0	28.0	28.0	27.0	26.0							
8	Turb (NTU)	2.9	2.8	2.8	3.3	3.1							
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)	0.0	0.0	0.0	0.0	0.0							
2	ALK-TOT (mgCaCO3/L)	184	187	189	186	189							
3	Ca (mg/L)	45	45	46	44	45							
4	Cl (mg/L)	21.6	21.4	22.2	76.6	74.1							
5	CO3 (mg/L)	0.0	0.0	0.0	0.0	0.0							
6	HCO3 (mg/L)	225	228	230	227	231							
7	K (mg/L)	6.1	6.1	6.2	3.8								
8	Mg (mg/L)	19.9	20.0	19.8	20.6	20.4							
9	Na (mg/L)	76.5	16.4	16.7	41.2	38.8							
10	NH3-N (mg N/L)	0.11	0.11	0.12	0.10	0.11							
11	NO2+NO3 (mg N/L)	1.73	1.75	1.77	1.81	1.90							
12	NO2-N (mgN/L)	0.14	0.14	0.14	0.17	0.18							
13	NO3-N (mgN/L)	1.59	1.61	1.63	1.65	1.72							
14	o-PO4-P (mg P/L)	0.258	0.265	0.270	0.289	0.296							
15	SiO2 (mg/L)	54.0	54.5	55.0	57.0	61.6							
16	SO4 (mg/L)	13.3	13.6	14.1	16.6	15.9							
	BIOLOGICAL/BACTERIOLOGICAL												
1.0	BOD3-27 (mg/L)	1.2	1.4	1.4	1.0	0.8							
2	COD (mg/L)	5.0	5.0	5.1	5.6	5.8							
3	DO (mg/L)	6.1	6.3	6.4	8.2	8.0							
4	DO_SAT% (%)	78	80	81	102	98							
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)	111	112	115	110	114							
2	HAR_Total (mgCaCO3/L)	194	196	198	196	199							
3	Na% (%)	45	15	15	31								
4	RSC (-)	0.0	0.0	0.0	0.0	0.0							
5	SAR (-)	2.4	0.5	0.5	1.3	1.2							

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Uri at Dhulsar (WQSS-202016)

Local River : Uri

Division : Narmada Division, Bhopal

Sub-Division : MNSD III, Indore

River Water Analysis

S.No	Parameters	01-02-2024	12-02-2024	21-02-2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
	PHYSICAL												
1	Q (cumec)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Colour_Cod (-)	River Dry	River Dry	River Dry	River Dry	River Dry	River Dry	River Dry	River Dry	River Dry	River Dry	River Dry	River Dry
3	EC_GEN (μmho/cm)												
4	Odour_Code (-)												
5	pH_GEN (pH units)												
6	TDS (mg/L)												
7	Temp (deg C)												
8	Turb (NTU)												
	CHEMICAL												
1	Alk-Phen (mgCaCO3/L)												
2	ALK-TOT (mgCaCO3/L)												
3	Ca (mg/L)												
4	Cl (mg/L)												
5	CO3 (mg/L)												
6	HCO3 (mg/L)												
7	K (mg/L)												
8	Mg (mg/L)												
9	Na (mg/L)												
10	NH3-N (mg N/L)												
11	NO2+NO3 (mg N/L)												
12	NO2-N (mgN/L)												
13	NO3-N (mgN/L)												
14	o-PO4-P (mg P/L)												
15	SiO2 (mg/L)												
16	SO4 (mg/L)												
	BIOLOGICAL/BACTERIOLOGICAL												
1.0	BOD3-27 (mg/L)												
2	COD (mg/L)												
3	DO (mg/L)												
4	DO_SAT% (%)												
	CHEMICAL INDICES												
1	HAR_Ca (mgCaCO3/L)												
2	HAR_Total (mgCaCO3/L)												
3	Na% (%)												
4	RSC (-)												
5	SAR (-)												

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm)

*-Fluoride Analysis started from April 2024

Water Quality Data Book 2023-24

Water Quality Summary for the period : 2023-24

Station Name : Uri at Dhulsar (WQSS-202016)

Division : Narmada Division, Bhopal

Local River : Uri

Sub-Division : MNSD III, Indore

River Water Summary

S.No	Parameters	Number of Observations	Maximum	Minimum	Mean
	PHYSICAL				
1	Q (cumec)				
2	EC_GEN ($\mu\text{mho/cm}$)	16	678	366	492
3	pH_GEN (pH units)	16	8.3	7.8	8.1
4	TDS (mg/L)	16	456	245	321
5	Temp (deg C)	16	30.0	26.0	27.1
6	Turb (NTU)	16	189.3	2.8	30.4
	CHEMICAL				
1	Alk-Phen (mgCaCO ₃ /L)	16	0.0	0.0	0
2	ALK-TOT (mgCaCO ₃ /L)	16	207	163	190
3	Ca (mg/L)	16	46	32	41
4	Cl (mg/L)	16	76.6	21.4	39.1
5	CO ₃ (mg/L)	16	0.0	0.0	0
6	HCO ₃ (mg/L)	16	253	199	232
7	K (mg/L)	15	11.1	1.8	4.7
8	Mg (mg/L)	16	26.9	18.1	21
9	Na (mg/L)	16	76.5	13.0	27.8
10	NH ₃ -N (mg N/L)	16	0.14	0.09	0.11
11	NO ₂ +NO ₃ (mg N/L)	16	2.83	0.37	1.71
12	NO ₂ -N (mgN/L)	16	0.30	0.05	0.15
13	NO ₃ -N (mgN/L)	16	2.62	0.32	1.56
14	o-PO ₄ -P (mg P/L)	16	0.300	0.157	0.269
15	SiO ₂ (mg/L)	16	61.6	30.7	48.5
16	SO ₄ (mg/L)	16	27.1	13.2	17.6
	BIOLOGICAL/BACTERIOLOGICAL				
1	BOD ₃₋₂₇ (mg/L)	16	7.6	0.6	1.4
2	COD (mg/L)	11	6.5	4.5	5.3
3	DO (mg/L)	16	8.2	6.1	7.3
4	DO_SAT% (%)	16	102	78	92
	CHEMICAL INDICES				
1	HAR_Ca (mgCaCO ₃ /L)	16	115	81	103
2	HAR_Total (mgCaCO ₃ /L)	16	213	157	191
3	Na% (%)	15	45	13	22
4	RSC (-)	16	0.4	0.0	0.1
5	SAR (-)	16	2.4	0.4	0.9

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period: 2020-2022

Station Name : Uri at Dhulsar (WQSS-202016)

Division : Narmada Division, Bhopal

Local River : Uri

Sub-Division : MNSD III, Indore

River Water

S.No	Parameters	Flood			Winter			Summer		
		Jun - Oct			Nov - Feb			Mar - May		
		2021	2022	2023	2021-2022	2022-2023	2023-2024	2022	2023	2024
	PHYSICAL									
1	Q (cumec)									
2	EC_GEN (µmho/cm)	407	448	495	353	507	477			
3	pH_GEN (pH units)	7.5	8.1	8.1	7.8	8.0	8.0			
4	TDS (mg/L)	253	275	321	243	359	315			
5	Temp (deg C)	26.5	26.7	27.2	25.0	26.0	26.5			
6	Turb (NTU)	2.0	21.9	34.3	5.0	16.2	3.2			
	CHEMICAL									
1	ALK-TOT (mgCaCO3/L)	168	173	190	156	190	188			
2	Ca (mg/L)	38	51	41	30	53	45			
3	Cl (mg/L)	28.1	39.7	34.0	26.2	46.4	75.3			
4	HCO3 (mg/L)	205	211	232	190	232	229			
5	K (mg/L)	NA	3.9	4.8	NA	3.1	3.8			
6	Mg (mg/L)	12.6	18.8	21.0	18.0	21.2	20.5			
7	Na (mg/L)	NA	22.9	26.1	NA	27.3	40.0	RIVER DRY		
8	NH3-N (mg N/L)	NA	0.09	0.11	NA	0.27	0.11			
9	NO2+NO3 (mg N/L)	3.21	2.40	1.68	0.78	5.78	1.86			
10	NO2-N (mgN/L)	0.05	0.33	0.14	0.03	0.17	0.17			
11	NO3-N (mgN/L)	3.16	2.07	1.54	0.75	5.61	1.68			
12	o-PO4-P (mg P/L)	0.245	0.376	0.266	0.080	0.263	0.293			
13	SiO2 (mg/L)	46.7	43.9	47.0	26.2	42.5	59.3			
14	SO4 (mg/L)	17.4	20.0	17.8	5.7	14.8	16.3			
	BIOLOGICAL/BACTERIOLOGICAL									
1	BOD3-27 (mg/L)	1.3	1.3	1.4	1.6	0.6	0.9			
2	COD (mg/L)	5.1	5.2	5.3		6.3	5.7			
3	DO (mg/L)	5.9	6.6	7.2	7.2	7.9	8.1			
4	DO SAT% (%)	74	82	90	87	98	100			
	CHEMICAL INDICES									
1	HAR_Ca (mgCaCO3/L)	95	127	102	75	134	112			
2	HAR_Total (mgCaCO3/L)	148	205	190	150	222	197			
3	Na% (%)	NA	19	21	NA	20	31			
4	RSC (-)	0.4	0.0	0.1	0.1	0.1	0.0			
5	SAR (-)	NA	0.7	0.8	NA	0.8	1.2			

NA- Not Analysed (Sodium, Potassium and Ammonia Analysis started From May 2022).

NA- Not Analysed (Fluoride Analysis started from April 2024)

BDL- Below Detection Limit (Detection limit of equipment is above 5 ppm),

4. LOCAL WATER BODIES

4.1 Bhojtal at Bhopal

HISTORY SHEET (WATER QUALITY)			
		Water Year	: 2023-24
Site	: BHOJTAL (Upper Lake)	Code	: LWB-202317
State	: Madhya Pradesh	District	: BHOPAL
Local Water Body Name	: BHOJTAL		
Water body Type	: Lake		
Sampling Point	: Boat Club		
Division	: Narmada Division (ND), Bhopal	Sub-Division	: Middle Narmada Sub-Division-II, Bhopal
Latitude	: 23°14'34.674" N	Longitude	: 77°22'49.4688" E
CATEGORY	Opening Date	Closing Date	
Water Quality	: 01/03/2023		

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Bhojtal at Bhopal (LWB-202317)

Water Body Type : Lake

Division : Narmada Division, Bhopal

Sub-Division : MNSD II, Bhopal

S.No.	Parameters	01-06-2023	12-06-2023	21-06-2023	03-07-2023	11-07-2023	21-07-2023	01-08-2023	09-08-2023	21-08-2023	01-09-2023	11-09-2023	21-09-2023
1	Colour	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	Odour	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free
3	EC (µmhos / cm)	218	239	244	253	246	261	196	238	246	197	218	228
4	pH	8.20	8.23	8.29	8.19	8.21	8.14	8.08	8.21	8.20	8.18	8.21	8.18
5	Temp. (°C)	28.00	29.00	30.00	27.00	28.00	25.00	25.00	28.00	28.00	30.00	27.00	27.00
6	DO (mg/L)	7.42	7.11	7.62	6.95	7.87	7.26	7.20	7.16	7.09	7.13	7.33	7.29
7	BOD (mg/L)	2.33	2.51	2.47	2.51	2.30	2.48	2.40	2.59	2.56	2.18	2.38	2.36
8	COD (mg/L)	18.00	18.00	16.00	16.00	18.00	18.00	15.00	16.00	15.00	17.00	18.00	17.00
9	(NH3-N) (mg/L)	0.071	0.100	0.120	0.051	0.063	0.057	0.049	0.053	0.051	0.110	0.100	0.097
10	(NO3-N) (mg/L)	0.347	0.310	0.281	0.663	0.673	0.654	0.671	0.657	0.605	0.451	0.471	0.483
11	(NO2-N) (mg/L)	0.210	0.198	0.183	0.119	0.123	0.130	0.398	0.404	0.378	0.179	0.184	0.190
12	(PO4-P) (mg/L)	0.152	0.164	0.136	0.127	0.139	0.152	0.210	0.215	0.199	0.194	0.202	0.212

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Bhojtal at Bhopal (LWB-202317)

Division : Narmada Division, Bhopal

Water Body Type : Lake

Sub-Division : MNSD II, Bhopal

S.N o.	Parameters	03-10-2023	11-10-2023	20/10/2023	01-11-2023	09-11-2023	21/11/2023	01-12-2023	11-12-2023	21/12/2023	01-01-2024	11-01-2024	23/01/2024
1	Colour	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	Odour	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free
3	EC (μ mhos / cm)	227	231	238	259	248	253	253	264	259	282	275	271
4	pH	7.78	7.84	7.89	7.71	7.79	7.85	7.85	7.7	7.81	7.81	8.00	8.11
5	Temp. (°C)	29.00	30.00	26.00	29.00	27.00	25.00	20.00	22.00	20.00	20.00	21.00	17.00
6	DO (mg/L)	6.90	7.09	7.16	7.76	7.36	7.29	8.04	7.96	7.76	7.10	7.02	7.22
7	BOD (mg/L)	1.77	1.97	1.99	1.79	1.59	1.58	2.61	2.59	2.79	2.17	2.14	2.34
8	COD (mg/L)	14.00	14.00	16.00	10.00	9.00	8.00	12.00	14.00	15.00	15.00	15.00	16.00
9	(NH ₃ -N) (mg/L)	0.095	0.098	0.100	0.097	0.100	0.099	0.096	0.098	0.100	0.100	0.110	0.100
10	(NO ₃ -N) (mg/L)	0.451	0.463	0.474	0.478	0.489	0.497	0.411	0.418	0.408	0.425	0.421	0.413
11	(NO ₂ -N) (mg/L)	0.173	0.175	0.179	0.204	0.206	0.210	0.186	0.190	0.197	0.252	0.248	0.238
12	(PO ₄ -P) (mg/L)	0.201	0.209	0.214	0.212	0.219	0.224	0.203	0.211	0.209	0.188	0.171	0.162

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Bhojtal at Bhopal (LWB-202317)

Division : Narmada Division, Bhopal

Water Body Type : Lake

Sub-Division : MNSD II, Bhopal

S.N o.	Parameters	01-02-2024	12-02-2024	21/2/2024	01-03-2024	11-03-2024	21-03-2024	01-04-2024	09-04-2024	22-04-2024	01-05-2024	09-05-2024	21-05-2024
1	Colour	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
2	Odour	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free	Odour free
3	EC (μ mhos / cm)	297	289	296	297	304	298	240	246	250	247	250	249
4	pH	8.21	8.05	8.00	7.99	8.00	8.04	8.05	8.01	8.06	8.05	8.10	8.01
5	Temp. (°C)	23.00	24.00	27.00	22.00	25.00	27.00	27.00	27.00	28.00	28.00	30.00	30.00
6	DO (mg/L)	7.91	7.72	7.44	7.20	7.49	7.72	6.37	6.57	6.50	7.36	7.56	7.25
7	BOD (mg/L)	1.74	1.93	1.61	1.60	1.74	1.78	2.19	1.99	2.17	1.99	1.79	1.96
8	COD (mg/L)	13.00	15.00	12.00	10.00	10.00	12.00	11.00	13.00	12.00	13.00	11.00	14.00
9	(NH ₃ -N) (mg/L)	0.098	0.100	0.100	0.093	0.096	0.098	0.098	0.100	0.097	0.100	0.110	0.110
10	(NO ₃ -N) (mg/L)	0.415	0.431	0.438	0.425	0.450	0.460	0.405	0.412	0.415	0.440	0.450	0.447
11	(NO ₂ -N) (mg/L)	0.262	0.265	0.271	0.267	0.271	0.275	0.191	0.195	0.199	0.203	0.207	0.205
12	(PO ₄ -P) (mg/L)	0.146	0.154	0.159	0.168	0.171	0.178	0.167	0.173	0.182	0.187	0.185	0.190

Water Quality Data Book 2023-24

Water Quality Datasheet for the period: 2023-24

Station Name : Bhojtal at Bhopal (LWB-202317)

Water Body Type : Lake

Division : Narmada Division, Bhopal

Sub-Division : MNSD II, Bhopal

S.No	Sampling date & time	No of Observations	Maximum	Minimum	Mean
1	Colour	36	-	-	-
2	Odour	36	-	-	-
3	EC (µmhos / cm)	36	304	196	253
4	pH	36	8.29	7.70	8.03
5	Temp. (°C)	36	30.00	17.00	26.00
6	DO (mg/L)	36	8.04	6.37	7.31
7	BOD (mg/L)	36	2.79	1.58	2.14
8	COD (mg/L)	36	18.00	8.00	14.06
9	(NH3-N) (mg/L)	36	0.12	0.05	0.09
10	(NO3-N) (mg/L)	36	0.67	0.28	0.47
11	(NO2-N) (mg/L)	36	0.40	0.12	0.22
12	(PO4-P) (mg/L)	36	0.22	0.13	0.18

Water Quality Data Book 2023-24

Water Quality Seasonal Average for the period: 2023-2024

Station Name : Bhojtal at Bhopal (LWB-202317)

Division : Narmada Division, Bhopal

Water Body Type : Lake

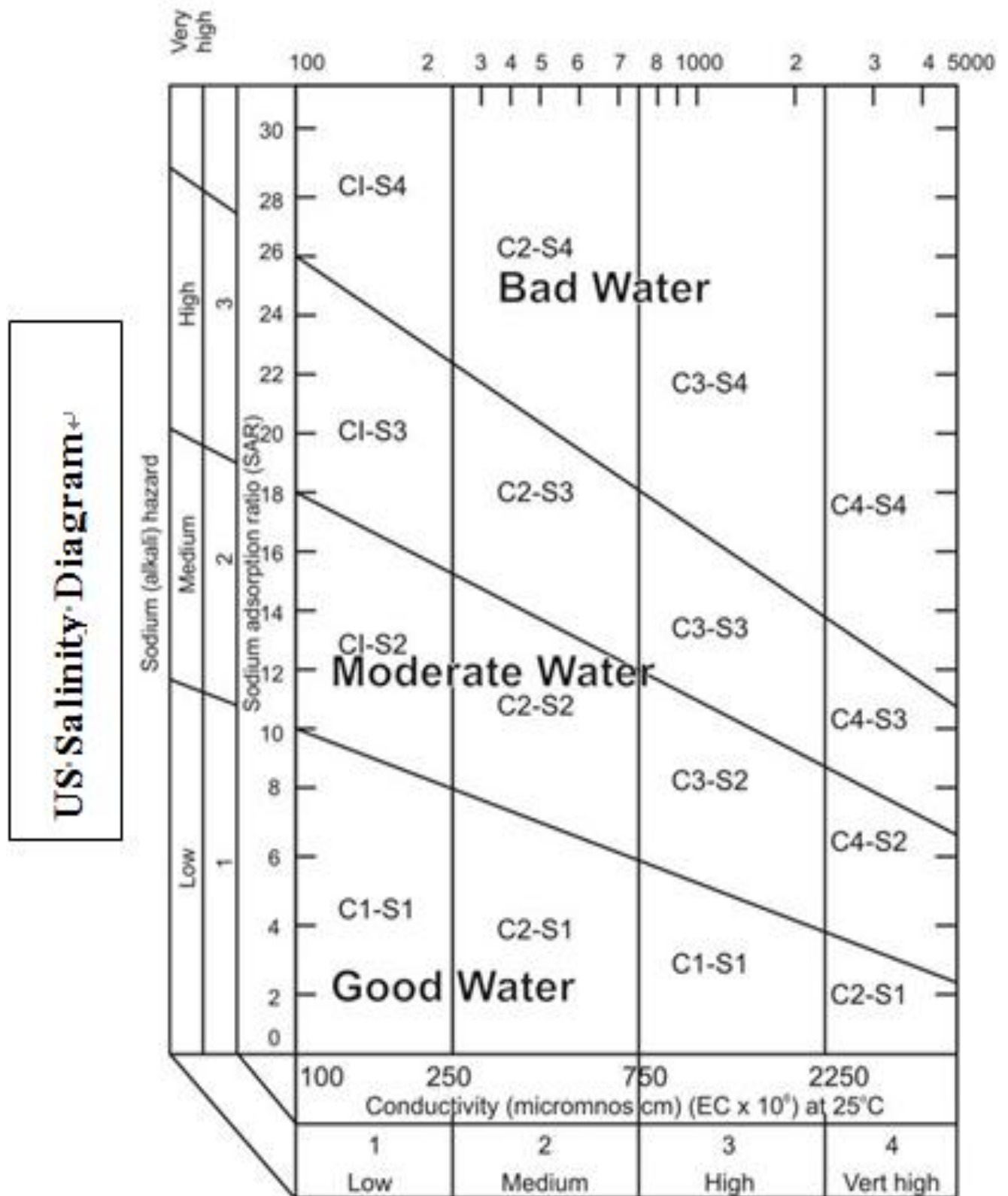
Sub-Division : MNSD II, Bhopal

Lake Water

S.No	Parameters	Flood	Winter	Summer
		Jun - Oct	Nov - Feb	Mar - May
		2023	2023-24	2024
	PHYSICAL			
1	Colour	Clear	Clear	Clear
2	Odour	Odour Free	Odour Free	Odour Free
3	EC (μ mhos / cm)	232	271	265
4	pH	8.12	7.91	8.03
5	Temp. (°C)	27.80	22.92	27.11
	BIOLOGICAL			
6	DO (mg/L)	7.24	7.55	7.11
7	BOD (mg/L)	2.32	2.07	1.91
8	COD (mg/L)	16.40	12.83	11.78
	CHEMICAL			
9	(NH ₃ -N) (mg/L)	0.08	0.10	0.10
10	(NO ₃ -N) (mg/L)	0.51	0.44	0.43
11	(NO ₂ -N) (mg/L)	0.21	0.23	0.22
12	(PO ₄ -P) (mg/L)	0.18	0.19	0.18

Annexure 1 - U. S. Salinity diagram

U. S. Salinity diagram for the classification of irrigation of water



Water Quality Data for the period 2023-24

Annexure 2 -Tolerance Limits as prescribed by the Bureau of Indian Standards (2296:1992)

Characteristics	Designated best use				
	A	B	C	D	E
Dissolved Oxygen (DO)mg/l, min	6	5	4	4	-
Biochemical Oxygen demand (BOD)mg/l, max	2	3	3	-	-
Total coliform organisms MPN/100ml, max	50	500	5,000	-	-
pH value	6.5-8.5	6.5-8.5	6.0-9.0	6.5-8.5	6.0-8.5
Colour, Hazen units, max.	10	300	300	-	-
Odour	Un-objectionable		-	-	-
Taste	Tasteless	-	-	-	-
Total dissolved solids, mg/l, max.	500	-	1,500	-	2,100
Total hardness (as CaCO ₃), mg/l, max.	200	-	-	-	-
Calcium hardness (as CaCO ₃), mg/l, max.	200	-	-	-	-
Magnesium hardness (as CaCO ₃), mg/l, max.	200	-	-	-	-
Copper (as Cu), mg/l, max.	1.5	-	1.5	-	-
Iron (as Fe), mg/l, max.	0.3	-	0.5	-	-
Manganese (as Mn), mg/l, max.	0.5	-	-	-	-
Chlorides (as Cu), mg/l, max.	250	-	600	-	600
Sulphates (as SO ₄), mg/l, max.	400	-	400	-	1,000
Nitrates (as NO ₃), mg/l, max.	20	-	50	-	-
Fluorides (as F), mg/l, max.	1.5	1.5	1.5	-	-
Phenolic compounds (as C ₂ H ₅ OH), mg/l, max.	0.002	0.005	0.005	-	-
Mercury (as Hg), mg/l, max.	0.001	-	-	-	-
Cadmium (as Cd), mg/l, max.	0.01	-	0.01	-	-
Selenium (as Se), mg/l, max.	0.01	-	0.05	-	-
Arsenic (as As), mg/l, max.	0.05	0.2	0.2	-	-
Cyanide (as Pb), mg/l, max.	0.05	0.05	0.05	-	-
Lead (as Pb), mg/l, max.	0.1	-	0.1	-	-
Zinc (as Zn), mg/l, max.	15	-	15	-	-
Chromium (as Cr ⁶⁺), mg/l, max.	0.05	-	0.05	-	-
Anionic detergents (as MBAS), mg/l, max.	0.2	1	1	-	-
Barium (as Ba), mg/l, max.	1	-	-	-	-
Free Ammonia (as N), mg/l, max	-	-	-	1.2	-
Electrical conductivity, micromhos/cm, max	-	-	-	-	2,250
Sodium absorption ratio, max	-	-	-	-	26
Boron, mg/l, max	-	-	-	-	2

A Drinking water source without conventional treatment but after disinfections

B Outdoor bathing-organized

C Drinking water source with conventional treatment followed by disinfections

D Propagation of wildlife, fisheries

E Irrigation, industrial cooling and controlled waste disposal