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GOVERNMENT OF MAHARASHTRA WATER RESOURCES DEPARTMENT

HYDROLOGY PROJECT (SW) HYDROLOGY PROJECT DIVISION, AURANGABAD

WATER QUALITY LAB LEVEL-II, AURANGABAD



ANNUAL REPORT YEAR 2014-2015

EXECUTIVE ENGINEER

HYDROLOGY PROJECT DIVISION, AURANGABAD

CERTIFICATE OF COMPLIANCE



INTERNATIONAL CERTIFICATION SERVICES PVT. LTD.

This is to certify that the QUALITY MANAGEMENT SYSTEM of

HYDROLOGY PROJECT DIVISION WATER QUALITY LAB LEVEL II - AURANGABAD

Hydrology Project Division, Near Hedgewar Hospital, Garkheda,

Aurangabad - 431 005, Maharashtra, India.

has been assessed and registered as complying with the requirements of the following International Standard:

ISO 9001:2008

The Quality Management System applicable to:

Scope: Collection, Testing And Analysis Of Water And Waste Water Sample.

	Registration No. Registered Date Reassessment Date Issue Date Expiry Date	: RQ91/6398 : 11 th February, 2010 e : 08 th March, 2013 : 08 th March, 2013 : 10 th February, 2016	
R	JAS-A	NZ g/register	
	RED Invalid After 08/01/2014 Unless Hologram Pasted	GREEN Invalid After 06/01/015 Unless Hologram Pasted	
		Shula Kata	in
		Director International Certification Ser	vices
Accredited by Jo	oint Accreditation Sys	tem of Australia and New Zeala	nd
Validity of this certificate is bas	ed on periodic audits of the ma otification of significant changes to	nagement system defined by the above scope a o the management system and/or its components th	and is hereof

shall be immediately communicated to ICS. Further clarifications regarding the scope of this certificate and the applicability of ISO 9001:2008 requirements may be obtained at www.icsasian.com

22/23, Goodwill Premises, Swastik Estate, 178 CST Road, Kalina, Santacruz (E), Mumbai - 400 098, Maharashtra, India. Tel.: 022-42200900

QUALITY POLICY

WATER QUALITY LABORATORY, LEVEL-*I*I, AURANGABAD. DECLARED THE PURPOSE OF THE ORGANIZATION i.e

COLLECTION & TESTING OF WATER SAMPLES

HAS LAID DOWN THE FOLLOWING QUALITY POLICY, THAT HAS BEEN COMMUNICATED AND UNDERSTOOD WITHIN THE ORGANIZATION AND HAS PROVIDED ADEQUATE FRAME WORK FOR REVIEWING ITS QUALITY OBJECTIVES AND QUALITY POLICY FOR CONTINUING SUITABILITY AND IS COMMITTED.....

- > TO MONITOR EFFECTIVENESS OF QMS TIME TO TIME & WILL ALSO WORK FOR CONTINUAL IMPROVEMENT OF THE ACTIVITIES.
- > TO WORK FOR CONTINUAL IMPROVEMENT IN ITS TECHNOLOGY, PROCESSES AND TO INCREASE COMPETENCY LEVELS HAVE ITS PERSONNEL.
- > TO DELIGHT THE CUSTOMER BY FULFILLING CUSTOMER NEEDS, STATUTORY/REGULATORY REQUIREMENTS AND ANY REQUIREMENT WHICH IS NOT STATED BUT WHICH IS REQUIRED FOR APPLICATION OF CUSTOMER SERVICE.

Rev. No.: 00 DATE: 02 March 2009. EXECUTIVE ENGINEER HYDROLOGY PROJECT DIVISION, AURANGABAD

PREFACE

Well equipped (level-II) grade Water Quality Laboratory at Aurangabad, is set up under technical assistance of World-Bank aided Hydrology Project, for monitoring the surface water quality of Godavari basin and East flowing rivers of Marathwada & Amravati region in Maharashtra state.

This report includes water quality data for the period of **June 2014 to May 2015 (this period is known as water year)**, to know changes occurs in the selected parameters of selecting all stations of Dams & River water body which comes under Hydrology Project Division Aurangabad. The agency **M/s. Papilon Enviro Engineers** was awarded the contract towards Operation and Maintenance of Water Quality Lab Level-II, Aurangabad for the said period. The data has been interpreted to know the trends in the water quality of the locations.

It is a great pleasure to hand over this precise report on analysis of water samples at Water Quality Lab Level–II, Aurangabad. This booklet attempts to briefly describe an over view and general conclusion on the basis of water quality data of water samples collected from selected locations for define frequencies for the reported period.

Our efforts can always be updated through valuable suggestions.

Govt. Analyst W. Q. Lab Level-II Aurangabad Sub Divisional Engineer HP – Sub Division Aurangabad Executive Engineer Hydrology Project Aurangabad

Annual Report

Water Quality Monitoring Through Water Quality Lab Level-II @ Aurangabad for the Year 2014-2015

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CHAPTER-I EXECUTIVE SUMMERY

Annual Report

Water Quality Monitoring Through Water Quality Lab Level-II @ Aurangabad for The Year 2014-2015

1.1 Preamble:

Water is the most vital resources for life. With the increasing population & changing life patterns, consumption of water has increased many folds particularly for domestic, agriculture, & industrial consumption. **"The negative change in physical, chemical & biological properties of natural water due to addition of pollutants causing adverse effect on aquatic life, & other living being, including man is known as water pollution."**

The water quality monitoring in the area of surface water is performed in order to determine the quality of water. Various parameters are analyzed in the laboratory and 6 parameters are tested at field level. All these tasks are recorded and utilized for preparing the Annual Report by performing some specific exercise. This data is considered in order to specify the quality of water at each location. This also helps to determine the pollution level or concentration of some parameters of water at each station.

1.2 Water Quality Monitoring – Objectives:

Observations of analysis of physical & chemical parameters are carried out as per **"Uniform Protocol for Water Quality Monitoring Order 2005"** for each location followed by Operation and Maintenance of Water Quality Laboratory Level-II @ Aurangabad. As per Standard Guidelines and mandates including collection, transportation, analysis of samples, data entry in SWDES Software and preparation of the said Annual Report as per specific guidelines issued by Executive Engineer, Hydrology Project Division, Aurangabad.

1.3 Water Quality Monitoring – Scope:

Annual Report is prepared for the period from **June-2014 to May-2015** (which is considered as Water Year period). In order to study the water quality status location wise, all stations are covered for this report which comes under this lab during the year 2014-15.

1.4 Methodology:

Analysis of Physical and Chemical parameters is done in the laboratory on the basis of Standard Analytical Methods, Instrument Operating Instructions, HIS Manuals, CPCB Guidelines and APHA 21st Ed., 2005.

Data analyzed further validated with prescribed method as per Water Quality Manuals to verify various ratios manually and is entered in SWDES Software for Water Quality Data Entry. Further the data is sent to State Data Center for further dissemination to user end.

Furthermore to get brief idea about data generated for the period it is decided and instructed to analyzed the generated data for the said period in the form of Annual Report with the help of various tools in SWDES Software to find out critical parameters and critical locations in the jurisdiction of this Lab.

1.5 Result and Observation:

In the year 2014-15 after observing all this data it is clear that most of the physical parameters are within tolerance limit except at few locations, we found that some parameter's value exceeds marginally.

1.6 Conclusion:

In the Year 2014-15 it can be concluded that all the parameter of stations are in tolerance limit.

The discharge of waste from industries, agriculture and urban communities into water bodies generally stretches the biological capacities of aquatic systems. Chemical run-off from fields also adds nutrients to water. Excess nutrients cause the water body to become choked with organic substances and organisms. When organic matter exceeds the capacity of the micro-organisms in water that break down and recycle the organic matter, it encourages rapid growth or blooms of algae. When they die, the remains of the algae add to the organic wastes already in the water, eventually the water becomes deficient in oxygen. Anaerobic organisms (those that do not require oxygen to live) then attack the organic wastes, releasing gases such as methane and hydrogen sulphide, which are harmful to the oxygen-requiring (aerobic) forms of life. Hence it can be concluded that water from all these sources have pollution and so it requires treatment before its usage.

In the point of consideration for above locations, water is suitable for irrigation purpose followed by traditional irrigation method.

1.7 Recommendations/Remedial Measures:

- Domestic effluents may be treated and disinfected before discharging.
- Effluents from the non-point sources may be identified. These are required to be collected and treated.
- Use of water of such polluted locations may be useful for salt tolerance crop and is recommended based on special study.
- Use of direct source of water is to be avoided.
- Bathing at such location should be restricted.

1.8 Suggestions:

- Create mass awareness in general public regarding surface and ground water quality aspects.
- Water Quality Annual Report shall be publicly published every year and made available to everyone on demand.
- Sampling points of sampling location need to be increased to better analysis of data at different stages of that location.

1.9 Water Quality Trend in Aurangabad Division.

Water Quality Trend in Aurangabad division is based on the data available from June 2014 to May 2015 in Water Quality Lab Level-II, Aurangabad. This comparison of change is related to Irrigation parameters on their concentration.



CHAPTER-II INTRODUCTION

2.1 General:

To check the pollution load & water safety for different uses there is need to regularly monitor water quality by using laboratory analysis method. The test includes physicochemical parameters & biological parameters.

The water quality monitoring in the area of surface water is performed in order to determine the quality of water. Various parameters are analyzed in the laboratory and 6 parameters are tested at field level. All these tasks are recorded and utilized for preparing the Annual Report by performing some specific exercise. This data is considered in order to specify the quality of water at each location.

2.2 Water Quality Monitoring – Objectives:

Observations of analysis of physical & chemical parameters are carried out as per **"Uniform Protocol for Water Quality Monitoring Order 2005"** for each location followed by Operation and Maintenance of Water Quality Laboratory Level-II, Aurangabad. As per Standard Guidelines and mandates including collection, transportation, analysis of samples, data entry in SWDES Software and preparation of the said Annual Report as per specific guidelines issued by Executive Engineer, Hydrology Project Division, Aurangabad.

2.3 Water Quality Monitoring – Scope:

The Annual Report is prepared for the year 2014-15. The Table below shows the number of sample analyzed during the reported period. In order to study water quality status station wise, all locations covered under this lab during the year 2014-2015 are considered.

Sr. No.	Water Year	No. of Samples Analyzed	Amount Received
1.	2014-2015	2084	14,47,642

REVENUE GENERATED DURING THE REPORTING PERIOD (June 2012 – May 2013)

Month wise details are as under No of Sample **Total Amount** Month & Year Jun-14 78208 66 Jul-14 49892 56 155465 257 Aug-14 59477 81 Sep-14 Oct-14 122211 302 Nov-14 196885 368 Dec-14 224928 416 Jan-15 48416 202 Feb-15 185270 98 179353 Mar-15 71 85632 78 Apr-15 May-15 61905 89 14,47,642 Total: 2084





2.4 Other Activities:

Apart from working for regular Water Quality Monitoring for Water Quality lab level II at Aurangabad, the infrastructure facility is made available to the users from various Government, Non Government, Private sector as well as individuals.

The facility is availed by many users with testing of sample towards drinking purpose, ice factory, construction purpose, swimming tanks, irrigation purpose & study purpose, also in plant training facility for Students of Educational Institutes.

2.5 Extended Scope of Laboratory:

Water Quality Lab Level – II is certified by **ISO 9001-2008** in the year 2009-10 and it is now renewed in the month of Jan 2013. We are working as per the standards of ISO to maintain the quality of work to streamline the process of work to achieve the set objectives.

AQC Exercise:

In this Year

Training and Visits:

Infrastructure facility is made available to many college students for in plant training and their research purposes. Many visitors from various institutes like Dr. B. A. M. U. Aurangabad, College students & students of various schools visited the laboratory. The infrastructure facility is also made available to all institutional organization for visit and study purposes and the generated data of Water Quality is also made available to the users who are a member of Hydrology Project.

WATER QUALITY LABORATORY LEVEL-II @ AURANGABAD SALIENT FEATURES OF LABORATORY

1.	Latitude	: 19º 51"30"
2.	Longitude	: 75º 21"18"
3.	River Basin	: Godavari
4.	Year of Establishment	: 2001
5.	Actual Working Started	: October-2001
6.	Sampling Locations As	
	Per W.Q. Network covered in this lab.	: 28
7.	Monthly sample collection	: 28 samples
8.	Samples Frequencies	
	a) Baseline	:
	b) Trend/Flux	: Monthly
	c) Reservoir	: Monthly
9.	Level of Lab	: Level II
10.	W.Q. Parameters for Level II Lab	: 39 Nos.
11.	Observation Frequency	: Daily
12.	Govt. Staff related to the	 1) Mr. Mundada(Ex. Engineer) 2) Mr. Sirdeshpande (S.D.O) 3) Mr. A. K.Dabir (A.E. II)
13.	Lab. Operating Agency & Staff on contract basis	: 1) Papilon Enviro Engineers
14.	Staff Position	 1) Ms. Vaishali P. Pawar (Chief Chemist) 2) Ms. Shilpa A. Gujar (Microbiologist) 3) Mr. D. G. Gawali (Field Chemist) 4) Mr. S. Gangawane (Lab Assistant)

SCOPE OF WORK: OPERATION AND MAINTENANCE OF WATER QUALITY LABORATORY LEVEL-II AURANGABAD.

Outdoor work: Surface water sampling from selected water quality network sampling points as per schedule of sampling, to be collected as per norms given by World Bank including field test to be carried out on site as per specific Performa of sampling to be collected from laboratory and sample should be reached in the lab, within 24 hrs with field determination test as specified by lab in charge etc.

The Surface Water sampling includes:

- Field determination as per standard guideline.
- Field parameters to be tested on site & entry to be taken on ID form.
- Sample to be transported to laboratory within prescribed time limit. Work is carried out as per flow chart.

Transportation: Transportation of collected samples from selected sampling points as per list including transportation sampling material as per check list from lab and transportation samples from sampling points back to laboratory as per schedule within 24 hrs.

Indoor work:- Operation & Maintenance of Water Quality Laboratory Level-II @ Aurangabad including analysis of water samples as per test procedure & taking entry of collected samples, operating instruments as per manual & keeping data record, primary & secondary validation, participating in AQC Exercise, analysis of samples under AQC, operation within Laboratory AQC exercise including analysis of samples within 31/29 parameters for Dam Samples and 29/27 parameters for trend samples as directed by Lab Incharge each from every station per month within stipulated period by using scientific staff including instrument operations data record maintenance & laboratory Management etc complete.

Steps in Indoor work:

- Day to Day Operation and Maintenance of Water Quality Laboratory Level II.
- The work includes analysis of water samples as per the test procedures.
- Operating the instruments as per specified instruction manual.
- Entry of data in SWDES Software.
- Conducting Analytical Quality Control Exercise (AQC) round.
- Within Laboratory AQC ii) Intra Laboratory AQC
- The Laboratory staff employed;
 - ➤ Chief Chemist: 1 No.
 - Sr. Research Officers: 1 No.
 - Research Assistant: 2 No.
 - ➤ Lab. Assistant: 1 No.
- The Indoor work also includes keeping data record.
- Log book of Lab equipment
- Preparation of monthly sampling Schedule.
- Keeping sampling record, instruments operation, Laboratory Management, demonstration
- Training to Departmental staff as and when required.
- Information to Visitors & Customer

Water Quality Lab Level-II @ Aurangabad.

Statement Showing Number of Samples proposed to be collected for the Period of Work- June 2014 to May 2015

The Water Quality Laboratory Level-II at Aurangabad data for the period of June 2014 to May 2015 is taken for report preparation. Total no of 28 sampling location covered, out of which 20 locations are from river stations of Aurangabad division & Amaravati division, 7 Dam Stations & 1 is creator station. Actual sample from Pategaon Trend Station is collected from Jayakwadi Project.

Sr.	Name & Type of Sampling Stations		Monthly	Remark		
No.	Туре	Station Name of River		Frequency of sampling		
	Location as per W.Q. Network					
Aura	ngabad Divi	sion: River Location				
1	Trend	Newasa	Godavari	Monthly		
2	Trend	Raheri	Purna	Monthly		
3	Trend	Kesrali	Manar	Monthly		
4	Trend	Sundagi	Lendi	Monthly		
5	Trend	Nandednaga	Godavari	Monthly		
6	Flux	Yelli	Godavari	Monthly		
7	Trend	Purnabridge	Purna	Monthly		
8	Trend	Takalidhangar	Godavari	Monthly		
9	Trend	Aurangabad	Kham	Monthly		
10	Trend	Parli Vaijanath	Wan	Monthly		
11	Trend	Gangakhed	Godavari	Monthly		
12	Trend	Latur	Manjara	Monthly		
13	Trend	Killari	Terna	Monthly		
14	Trend	Udgir Takali	Manjara	Monthly		
15	Trend	Hirapur	Sindaphana	Monthly		
16	Trend	Auradshahajani	Terna	Monthly		
17	Trend	Shendurwada	Kham	Monthly		
18	Trend	Rahati	Purna	Monthly		
Ama	rvati Divisio	n: River Location				
19	Trend	Padalse	Тарі	Monthly		
20	Trend	Bhusaval	Тарі	Monthly		
Aura	ngabad Divi	sion: Dam Location				
21	Dam	Lower Terna	Terna	Monthly		
22	Dam	Manjara	Manjara	Monthly		
23	Dam	Majalgaon	Sindaphana	Monthly		
24	Dam	Yeldari	Purna	Monthly		
25	Dam	Vishnupuri	Godavari	Monthly		
26	Dam	U.P.P.	Penganga	Monthly		
27	Dam	Pategaon	Godavari	Monthly	Sample is collected from Jayakwadi project	
28	Creator	Lonar	Natural Creator	Monthly		

Table showing No. of Locations Covered under the Jurisdiction of Water Quality Lab level – II, Aurangabad.

Trend & Flux			
	First Round	Second Round	
Sr. No.	Parameters	Parameters	
1	Colour	Colour	
2	Odour	Odour	
3	Temperature	Temperature	
4	рН	рН	
5	Electrical Conductivity	Electrical Conductivity	
6	DO	DO	
7	Turbidity	Turbidity	
8	Total Solids	Total Solids	
9	Dissolved Solids	Dissolved Solids	
10	Suspended Solids	Suspended Solids	
11	Ammonia NH ₃	Ammonia NH ₃	
12	Nitrite NO ₂	Nitrite NO ₂	
13	Nitrate NO ₃	Nitrate NO ₃	
14	T Phosphorous	T Phosphorous	
15	B.O.D	B.O.D	
16	C.O.D	C.O.D	
17	Potassium K	Potassium K	
18	Sodium Na	Sodium Na	
19	Magnesium Mg	Magnesium Mg	
20	Carbonate CO ₃	Carbonate CO ₃	
21	Bicarbonate HCO ₃	Bicarbonate HCO ₃	
22	Calcium	Calcium	
23	Chloride Cl	Chloride Cl	
24	Fluoride F	Total Coliforms	
25	Boron B	Fecal Coliforms	
26	Total Coliforms	Alkalinity	
27	Fecal Coliforms	Total Hardness	
28	Alkalinity	Sulphate	
29	Total Hardness		
30	Sulphate		

Statement Showing Water Quality Parameter Tested at W.Q. Lab Level-II Aurangabad.

Dam Sample (Reservoir)			
	First Round	Second Round	
Sr. No.	Parameters	Parameters	
1	Colour	Colour	
2	Odour	Odour	
3	Temperature	Temperature	
4	рН	рН	
5	Electrical Conductivity	Electrical Conductivity	
6	DO	DO	
7	Turbidity	Turbidity	
8	Total Solids	Total Solids	
9	Dissolved Solids	Dissolved Solids	
10	Suspended Solids	Suspended Solids	
11	Ammonia NH ₃	Ammonia NH ₃	
12	Nitrite NO ₂	Nitrite NO ₂	
13	Nitrate NO ₃	Nitrate NO ₃	
14	T Phosphorous	T Phosphorous	
15	B.O.D	B.O.D	
16	C.O.D	C.O.D	
17	Pottassium K	Pottassium K	
18	Sodium Na	Sodium Na	
19	Magnesium Mg	Magnesium Mg	
20	Carbonate CO ₃	Carbonate CO ₃	
21	Bicarbonate HCO ₃	Bicarbonate HCO ₃	
22	Calcium	Calcium	
23	Chloride Cl	Chloride Cl	
24	Fluoride F	Total Coliforms	
25	Boron B	Fecal Coliforms	
26	Total Coliforms	Alkalinity	
27	Fecal Coliforms	Kjeldahl Nitrogen	
28	Alkalinity	Chlorophyll-a	
29	Kjeldahl Nitrogen	Total Hardness	
30	Chlorophyll-a	Sulphate	
31	Total Hardness		
32	Sulphate		

Statement Showing Water Quality Parameter Tested at W.Q. Lab Level-II Aurangabad.





CHAPTER-III METHODOLOGY

3.0 General:

This Water Quality laboratory covers Surface Water component Rivers like Godavari, Purna, Manjara, Terna and Reservoir like Dams & Lonar Creator from different district locations.

3.1 Rivers:

A river is a natural watercourse, usually freshwater, flowing toward an ocean, a lake, a sea or another river. In a few cases, a river simply flows into the ground or dries up completely before reaching another body of water. Small rivers may also be called by several other names, including stream, creek, brook, rivulet and rill.

Fortunately almost the entire country is criss-crossed by rivers. Geographical area of the state is divided in different river basins viz. Godavari, Purna, Manjara, Terna etc.

3.2 Methodology

Analysis of Physical and Chemical parameters is done in the laboratory on the basis of Standard Analytical Methods, Instrument Operating Instructions, HIS Manuals, CPCB Guidelines and APHA, 21st Ed., 2005.

Data analyzed further validated with prescribed method as per Water Quality Manuals to verify various ratios manually and is entered in SWDES Software for Water Quality Data Entry. Further the data is sent to State Data Center for further dissemination to user end.

Furthermore to get an idea about data generated for the period it is decided and instructed to analyzed the generated data for the said period in the form of Annual report with the help of various tools in SWDES Software to find out critical parameters and critical locations in the jurisdiction of this Lab.

Methodology For the analysis of Water Quality samples the following parameters were analyzed during the Period 2014-15 Table showing List of parameters and the methodology used for analysis.

Sr. No	Parameters	Methodology
1.	Colour	APHA, 21 st Ed., 2005, 2120-B, 2-2
2.	Odour	IS 3025 (Part 5): 1983, Reaffirmed 2006
3.	Temperature	APHA, 21 st Ed., 2005, 2550-B, 2-61
4.	рН	APHA, 21 st Ed., 2005, 4500-H+- B, 4-90
5.	Electric Conductivity	APHA, 21 st Ed., 2005, 2510- B, 2-47
6.	Dissolved Oxygen	APHA, 21 st Ed., 2005, 4500-0, 4138
7.	Turbidity	APHA, 21 st Ed., 2005, 2130-B, 2-9
8.	Total Solids	APHA, 21 st Ed., 2005, 2540 B, -266
9.	Dissolved Solids	APHA, 21 st Ed., 2005, 2540 C, 251
10.	Suspended Solids	APHA, 21 st Ed., 2005, 2454 D-258
11.	NH ₃ -N	APHA, 21 st Ed., 2005, 4500-NH ₃ F, 4-110
12.	NO ₂ -	APHA, 21 st Ed., 2005, 4500-NO ₂ -B, 4-118
13.	NO ₃ -	APHA, 21 st Ed., 2005, 4500-NO ₃ , B -4 -120
14.	Total Phosphorous	APHA, 21 st Ed., 2005, 4500 P, E, 4-153
15.	Biochemical Oxygen	APHA, 21 st Ed., 2005, 5210-52
	Demand	
16.	Chemical Oxygen Demand	APHA, 21 st Ed., 2005, 5220-B, 5-15
17.	Potassium K+	APHA, 21 st Ed., 20053500K,388
18.	Sodium Na+	APHA, 21 st Ed., 2005, 3500NA,398
19.	Calcium Ca++	APHA, 21 st Ed., 2005, 3500-B, 3-65
20.	Magnesium Mg++	APHA, 21 st Ed., 2005, 3500-Mg, B, 3-84
21.	Total Hardness	APHA, 21stEd., 2005, 2340-C, 2-37
22.	Carbonate CO ₃	APHA, 21 st Ed., 2005, 2320-B, 2-27, 5 -1 & 4500-
		CO ₂ -D, 4-34
23.	Bi-Carbonate H CO ₃	APHA, 21 st Ed., 2005, 2320-B, 2-27, 5 -3 & 4500-
		CO ₂ -D, 4-34
24.	Chloride Cl	APHA, 21 st Ed., 2005, 4500-Cl, B, 4-70
25.	Fluoride F	APHA, 21 st Ed., 2005, 4500-F ⁻ , D, 4-85
26.	Boron B	APHA, 21 st Ed., 2005, 4500-B-C, 4-23
27.	Total Coliforms	APHA, 21 st Ed., 2005, 9221-B, 9-49
28.	Faecal Coliforms	APHA, 21 st Ed., 2005, 9221-E, 9-56
29.	Alkalinity	IS 3025 (Part 23): 1986, Reaffirmed 2003, Amds.1

3.4 Flow Chart:

The work of analysis of sample is being monitored on the basis of flow chart generated in the lab as per standard guidelines and analysis of sample is performs as per guidelines of world bank with HIS manuals and APHA, 21st Ed, 2005 as a standard procedures for analysis of samples.

As well refers BIS standards IS:10500 and other relevant BIS standards for analysis of various samples received from users for various purpose like drinking, irrigation, bathing (swimming tank), construction, study & various R & D activities.

FLOW CHART OF ANALYSIS OF HP WATER SAMPLE

Sample Collection from Sampling Source with the help of Depth Sampler

Treatment: D.O. Fixing, Preservation of MPN Sample, Colour, Odour Temp, pH, EC is tested on field, and fill up in ID form.

At Laboratory: Inward the Sample, Giving the Sr. No. to the sample noted into sample entry register

ID form entry taken into SWEDS Software

Tests are carried out in lab as per Protocols. These tests are: Microbiological test, Chlorophyll-a, Temp, pH, D.O., B.O.D, Ammonia, Nitrate, Nitrite, TDS, TSS, C.O.D., Turbidity, Alkalinity, Carbonate & Bicarbonate, Chloride, Fluoride, Boron, Sodium, Potassium, Total Hardness, Phosphorous & Calcium etc.

Observations & Calculations of all Analyzed Parameters are entered in the Data Sheet

The results of parameters are checked & validated

After Validation Check, all the data is entered in to Data Record And Validation Register

This data is finally entered in to SWEDS Software

This data is submitted to Hydro Metrological Division Nashik for Further action

FLOW CHART OF ANALYSIS OF NHP WATER SAMPLE

Sample Collection from Party/Person

Sample forms fill up and issuing receipt of cash received.

Inward the Sample, Giving the Sr. No. to the sample noted into Sample entry register

Sample Analysis as per the customer's requirement

Observations & calculations of all Analyzed Parameters

The results of parameters are checked & prepared

Issue of Final Result to Customer

Annual Report On Water Quality Monitoring through Water Quality Lab level - II Aurangabad for the year 2014-15

TABLE SHOWING SAMPLES ANALYSED DURING THE REPORTING PERIOD

Year	Trend Sample (First Round)	Trend Sample (Balance Round)	Dam Sample (First Round)	Dam Sample (Balance Round)	Total
2014-2015	16	19	8	37	80

CHAPTER – IV RESULT & OBSERVATIONS

CHAPTER – IV

RESULTS AND OBSERVATIONS

4.0 Results and Conclusions:

The water quality monitoring in the area of surface water is performed in order to determine the quality of water. Various parameters are analyzed in the laboratory and 6 parameters are tested at field level. All these tasks are recorded are utilized for preparing the Annual Report by performing some specific exercise. These data are considered in order to specify the quality of water at each location. This also helps to determine the pollution level or concentration in each source of water at each station.

4.1 Water Quality status- Stations wise Exercise:

In order to study water quality status station wise, all locations are considered which comes under the jurisdiction of this lab during the year 2014-15.

4.2 Objectives:

Observations of respective parameters in view with use of water i.e. for drinking purpose or irrigation purpose, analyzed for each location individually & interpretation of data has done to identify the trend at that location. Also critical parameters are identified at every location.

4.3 Irrigation Water Quality Criteria:

Soil scientists use the following categories to describe irrigation water effects on crop production and soil quality:

- Salinity hazard total soluble salt content
- Sodium hazard relative proportion of sodium (Na+) to calcium (Ca2+) and magnesium (Mg2+) ions
- pH
- Alkalinity carbonate and bicarbonate

Specific ions: chloride (Cl), sulfate (SO4²⁻), boron (B), and nitrate-nitrogen (NO3^{-N}). Other potential irrigation water contaminants that may affect suitability for agricultural use include heavy metals and microbial contaminants

Sr. No.	Parameter	Limit	Unit
1.	рН	6.5-8.5	-
2.	Electrical Conductivity	2250	Micromhos/cm
3.	Total Dissolved Solids	2100	mg/Lit
4.	Chloride	600	mg/Lit
5.	Sulphate	1000	mg/Lit
6.	Boron	2	mg/Lit
7.	% Sodium	60	%
8.	SAR (Sodium Absorbance Ratio)	26	Meq/L

ICAR Standard for Irrigation Water

4.4 Effects of water pollution:

The effects of water pollution are not only devastating to people but also to animals, fish and birds. Polluted water is unsuitable for drinking, recreation, agriculture and industry. It diminishes the aesthetic quality of lakes and rivers. More seriously, contaminated water destroys aquatic life and reduces its reproductive ability. Eventually, it is a hazard to human health. Nobody can escape from the effects of water pollution.

4.5 Critical parameters Identified:

After observing all this data it is clear that most of the physical parameters are within tolerance limit, Physical parameters like TDS and Chloride are within tolerance limits of Dam Samples & some of the River samples but in case of few stations it is observed that the value of TDS is increased. Tested parameters of rivers & dams are within tolerance limit as per Irrigation ICAR Standards. Most of the chemical parameters are also within tolerance limit.

0	OBSERVATION ON THE BASIS OF CLASSIFICATION OF LOCATION			
Sr. No.	River	Year	Observations	
1	Aurangabad Division – Trend (River) Station (18)	2014-15	Water is good for irrigation without any further treatment. Except Aurangabad	
2	Amaravati Division - Trend (River) Station (2)	2014-15	Water is good for irrigation without any further treatment.	
3	Dams Stations (7 +1)	2014-15	Water is good for irrigation without any further treatment. Except Lonar.	

4.6 Classification of locations on the basis of results for the year 2014-2015.

CPCB Water Quality Criteria

Designated best use	Quality Class	Primary Water Quality Criteria
Drinking water source without conventional treatment but with chlorination	А	 Total coliform organisms (MPN/100 ml) shall be 50 or less pH between 6.5 and 8.5 Dissolved Oxygen 6 mg/l or more, and Biochemical Oxygen Demand 2 mg/l or less
Outdoor bathing (organized)	В	 Total coliform organisms(MPN/100 ml) shall be 500 or less pH between 6.5 and 8.5 Dissolved Oxygen 5 mg/l or more, and Biochemical Oxygen Demand 3 mg/l or less
Drinking water source with conventional treatment	С	 Total coliform organisms(MPN/100 ml) shall be 5000 or less pH between 6 and 9 Dissolved Oxygen 4 mg/l or more, and Biochemical Oxygen Demand 3 mg/l or less
Propagation of wildlife and fisheries	D	 pH between 6.5 and 8.5 Dissolved Oxygen 4 mg/l or more, and Free ammonia (as N) 1.2 mg/l or less
Irrigation, industrial cooling, and controlled disposal	E Below F	 pH between 6.0 and 8.5 Electrical conductivity less than 2250 micro mhos/cm, Sodium Aborption Ratio less than 26, and Boron less than 2 mg/l. Not Meeting A. B. C. D. & E. Criterio.
	Below F	🔎 NOT Meeting A, B, C, D & E Criteria

Graphical Representation of ICAR Standards Parameter of Rivers for the Year 2014-2015

In the monsoon period for the year 2014-2015, only one river sample is collected by Aurangabad water quality lab level – II which is Aurangabad station sample. Following are the reasons for non sample collection at other sample collection stations.

- In adequate rain fall during the monsoon.
- Less & non-continuous flow at sample collection station.
- Delay in tendering process of outsourcing work of sample collection and analysis.

Due this there was only one sample collection at Aurangabad Lab; other river station's sample is not collected, which leads to no data of river samples to represent the quality of water for ICAR standards parameters.



At the time of testing for bacteria two results are given as total Coliform. The first, total coliform is a test for coliform bacteria which are distributed widely in the environment. They are on animals, plants and in the solid, mainly in large numbers on the feces of warm-blooded animals. A positive reading for total coliform bacteria means the water has been affected by the environment and disease-causing organism may or may not be present.

From above graph it is observed that at every station there is Bacterial count in every month. Water should be treated before use.



When a sample is positive for coliform, it means there is fecal contamination in the water. This could be human or animal, but its implications are more serious than total coli form.

From above graph it is found that at every station there is Fecal Contamination in the water in various seasons. It needs chlorination treatment before use.



Boron is the element that is essential in low amounts, but toxic at higher concentrations. In fact, toxicity can occur on sensitive crops at concentrations less than 2.0 ppm. From above station's graph it is observed that Boron is within tolerance limit.



Chloride is a common ion in irrigation waters. Although chloride is essential to plants in very low amounts, it can cause toxicity to sensitive crops at high concentrations, like sodium high chloride concentrations cause more problems.

From above station's graph it is observed that Chloride is within tolerance limit.



Electrical conductivity is an indicator of dissolved metals. Some common metals that may be found in surface water include iron, aluminum, calcium, magnesium and others. High conductivity levels may be due to several different factors.

From above graph it is observed that as per ICAR Stds Electrical Conductivity at all stations is within tolerance limit.



From above Graph it is observed that the Na% value has fluctuation at every station. However many factors including soil texture, organic matter, crop type, climate, irrigation system and management impacts on how sodium in irrigation water affects soils. Though as per ICAR standards it is within limit.



The acidity or basicity of irrigation water is expressed as pH (< 7.0 acidic; > 7.0 basic). High pH's above 8.5 are often caused by high bicarbonate (HCO_3^-) and carbonate (CO_3^2 -) concentrations, known as alkalinity.

From above graph it is observed that as per ICAR standards water of all station's pH is not within tolerance limit, many times it exceeds the maximum limit slightly.



SAR fluctuate while EC is an assessment of all soluble salts in a sample, sodium hazard is defined separately because of sodium's specific detrimental effects on soil physical properties. The sodium hazard is typically expressed as the sodium adsorption ratio (SAR). This index quantifies the proportion of sodium (Na⁺) to calcium (Ca⁺⁺) and magnesium (Mg⁺⁺) ions in a sample. Calcium will flocculate (hold together), while sodium disperses (pushes apart) soil particles. This dispersed soil will readily crust and have water infiltration and permeability problems.

As per above graph SAR is within tolerance limit.



As per ICAR Standards of TDS limit (2100 mg/L), from above graph it is observed that in every month TDS of water is within tolerance limit. TDS is a general indicator of overall water quality. It is a measure of inorganic and organic materials dissolved in water. High levels of TDS in surface water may be due to several factors.

















Water Quality Lab Level - II @ Aurangabad

















CHAPTER - V

CONCLUSION

5.0 Classes of Water:

Source: 2295, 1982 & (IS10500, 1983)

Class A:

Surface water for use as "Drinking water" Sources without Conventional Treatment

Class B:

Surface water for out door bathing

Class C:

Surface water used as "Drinking Water" Source within conventional treatment followed by disinfection.

Class D:

Surface water used for fish culture & wild life propagation.

Class E:

Surface water for irrigation, industrial cooling, waste disposal.

5.1 Surface water:

In order to understand drinking water contamination, it is necessary to first understand from where our drinking water comes. For most urban residents, relying upon municipal water systems, drinking water comes from two major sources, groundwater and surface water. These two sources of drinking water will be referenced throughout this guide to water contamination.

Surface water refers to water occurring in lakes, rivers, streams or other fresh water sources used for drinking water supplies. While most drinking water is withdrawn from groundwater sources, surface water remains a significant water resource.

5.2 Contaminants resulting from Biological Matter in Water - Human and Animal Feces:

Though there are multiple ways that pathogens and harmful microorganisms enter the water supply, the principal means of entry is through water contamination by human sewage and/or animal feces. These types of contamination largely affect surface water areas like rivers, lakes and streams from which drinking water is taken. Though most of the diseases caused by drinking water containing fecal material are gastrointestinal, such water can cause more serious and life threatening diseases like hepatitis (A, B and C) and Legionnaire's disease. Hepatitis is an inflammation of the liver, characterized by jaundice, fever and abdominal pain. Acute cases of hepatitis, especially hepatitis C can be fatal. Legionnaire's disease is an infectious, sometimes fatal disease that is characterized by high fever, incessant cough, lung congestion and subsequent pneumonia. The disease can permanently damage such vital, internal organs as the heart and lungs. Ingestion of drinking water contaminated by human or animal feces can also result in higher rates of spontaneous abortion in pregnant women. The effects of pathogen-contaminated drinking water are especially detrimental to cancer patients, as well.

Human and animal feces enter water systems primarily through breakdowns in sewage and improper treatment of surface water sources. Human and animal fecal matter affects surface water almost exclusively, but as surface water bleeds into groundwater through stream and riverbeds, the groundwater can become contaminated as well. Water treatment facilities can certainly lower the presence of human and animal feces in drinking water but they cannot remove it entirely. Current treatment methods are aimed at protecting surface water sources from contamination before the water enters a treatment plant.

5.3 Significance of inorganic chemicals in drinking water:

Chloride: The secondary drinking water standard for chloride is 250 mg/L, because some people can detect a salty taste when chloride exceeds 250 mg/L. Chloride itself has no health effect. However, the amount of chloride can be directly tied to the amount of sodium in the water. To find the sodium level of this sample, multiply the chloride level by 1.6. Those individuals, who have high blood pressure and monitor their salt intake, may want to let their physician know if the level is over 250 mg/L.

Fluoride: The primary drinking water standard for fluoride is 4 mg/L, and the secondary standard is 2 mg/L. A fluoride concentration of approximately 1.0 mg/L helps to prevent dental cavities and osteoporosis. At concentrations above 2.0 mg/L, fluoride may cause mottling of enamel of permanent teeth (most common in children up to age 10 while teeth are forming). Bone changes can occur if drinking water contains more than 4 mg/L fluoride and if fluoride exceeds 20 mg/L, crippling fluorosis can occur after long term consumption.

Nitrates: The primary drinking water standard for nitrate (as N) is 10 mg/L. Excessive nitrate consumption by infants less than one year of age may result in "blue baby" syndrome, also known as methemoglobinemia. Nitrate replaces the oxygen in red blood cells causing an oxygen deficiency in the infants. At the extreme, it can be fatal. High nitrates also effect ruminants (sheep, cattle, etc.) Which are sensitive to nitrates. Elevated nitrates are thought to not pose a direct health threat to children over the age of one or adults

pH: The pH scale extends from 0 (which is very acidic) to 14 (which is very alkaline), with 7 being neutral. Drinking water should ideally range from 6.5 to 8.5. Lower pH tends to make metals and hardness minerals more soluble, possible allowing unwanted heavy metals into a water supply. pH levels below 6.5 or above 8.5 could also indicate the presence of a contamination source

Total Dissolved Solids (TDS): TDS is a measure of all dissolved inorganic material in water. TDS over 1,000 mg/L is objectionable because of the mineral taste. Harm to humans has not been proven however high TDS (over 400 mg/L) does shorten the lives of water heaters. Concentrations more than 1,000 mg/L can accelerate corrosion in general.

Total Hardness: Also called "hardness as Calcium Carbonate." Calcium and magnesium are the principle minerals contributing to Total hardness; coming from soil and rocks where water readily dissolves them. Iron and manganese can also contribute to the Total Hardness. Water with less than 50 mg/L is considered soft. Although hard water requires more soap and detergent for laundering and deposits scale on fixtures, soft water may be corrosive. Hard water may also possibly aid in the prevention of heart and arterial diseases. Even so, a Total Hardness greater than 400 mg/L is considered excessive hardness as calcium: Hardness as Calcium is usually compared to Total Hardness. When the amount of Hardness as Calcium is subtracted from the Total Hardness reading, the difference is the amount of magnesium in the water. Calcium is usually more prevalent than magnesium. Excessive calcium has been implicated in formation of kidney or bladder stones, while high levels of magnesium may have a laxative effect on these not used to high levels.

Explanation of bacterial analysis:

Bacteria: At the time of testing for bacteria two results are given – total coliform E.coli. The first, total coliform is a test for coliform bacteria which are distributed widely in the environment. They are on animals, plants and in the solid, but are in large numbers in the feces of warm-blooded animals. A positive reading for total coliform bacteria means that the water supply has been affected by the environment, and disease-causing organism may or may not be present. However, it is cause for concern and corrective action, such as well chlorination, should be taken. E.coli is a species of bacteria found in the intestinal tract of warm-blooded animals. When a sample is positive for E.coli, it means there is fecal contamination in the well water. This could be human or animal, but its implications are more serious than total coliform. The well's construction should be reviewed and the well chlorinated, with a follow-up test done 10 days after chlorination. A negative reading means none of the above bacteria were found in the sample.

CONCLUSIONS

5.4 PART I: Conclusion for River Samples:

In the Year 2014-15 it can be concluded that for Rivers Stations water is good for irrigation purpose without any treatment except Aurangabad, Where contamination is very high. This is mainly due to Contamination of Industrial waste & Sewage waste. Hence, it can be concluded that water from all these sources is suitable for Irrigation purpose except Aurangabad station; it requires treatment before its usage.

5.5 Part II: Conclusion for Dam Samples:

The threat of harmful contaminants in drinking water can no longer be reasonably ignored. The correlation between contaminated drinking water and many significant diseases and health problems is far too strong to discount.

Of course, municipal water treatment facilities have lowered the presence of many of the more harmful contaminants and it has set maximum contaminant levels below which it is assumed that contaminants may be safely ingested into the body. Municipal treatments facilities are not infallible and its levels do not represent a safety level for every person. Children, the elderly and those individuals who already have weakened immune systems, are particularly at risk to drinking water contaminants. Two of the most volatile drinking water contaminants chlorine and fluoride are actually treatment additives. Also lead is other more harmful contaminants, enters drinking water after treatment and cannot be regulated by municipal water systems. Therefore, municipal water systems cannot and should not be trusted to provide healthy, clean drinking water.

There are many home treatment alternatives that can purify drinking water to a greater extent than city treatment plants. Reverse osmosis and distillation two of these alternatives are moderately successful at removing some contaminants, but they are expensive and wasteful.

5.6 REMEDIAL MESAURES:

- Use of such water for salt tolerance crop is recommended based on special study.
- Before letting out to the down stream reservoir such source of water to be taken into consideration for the specific use.
- Classification of source may be as per use of water for irrigation based on Sodium Absorption Ratio, Percent Sodium, and Residual Sodium Carbonate.
- Effluent from non point sources to be treated before discharging into the river, Use of direct source of water to be avoided

CHAPTER – VI OTHER ACTIVITIES

CHAPTER-VI

OTHER ACTIVITIES

6.1 REVENUE GENERATION TO GOVERNMENT OF MAHARASHTRA

Apart from monitoring of water quality network for Water Quality lab level II at Aurangabad, the infrastructure facility is made available to the users from various Government, Non Government, Private sector as well as individuals.

The facility is availed by many users with testing of sample towards drinking purpose, ice factory, construction purpose, swimming tanks, irrigation purpose & study purpose.

During the year 2014-15 many clients approached to the laboratory. The valuable clients availed the facility of the laboratory are as below;

Year	Amount
2001-02	408
2002-03	35,995
2003-04	25,941
2004-05	54,248
2005-06	29,557
2006-07	74,652
2007-08	82,879
2008-09	2,20,243
2009-10	2,67,252
2010-11	4,70,278
2011-12	8,06,846
2012-13	5,82,127
2013-14	8,14,990
2014-15	14,47,642

Revenue Received from year 2001-02 to 2014-15

Pie Diagram Of Revenue Received from month year 2001-02 to 2014-15 Water Quality Lab Level II Aurangabad



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Water Quality Monitoring Through Water Quality Lab Level-II Aurangabad for the Year 2014-15

A N N E X U R E - II

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Sr NO.	Name of Clients	Purpose
	Hospitals/ Hotels	•
1	Dr. Hedgewar Rugnalya A'bad	Drinking
2	7 APPLE Hotels Pvt Ltd. A'bad	Drinking
3	Ankur Eye & Maternity Hospital, A'bad	Solar
4	Balaji Bikaner Mithaiwala, A'bad	Drinking
5	Ciigma Institute of Medical Science, A'bad	Drinking
6	Hotal Jay Maharashtra, Shendra	Drinking
7	Hotel Akshada, Khandala, Vaijapur	Drinking
8	Hotel Deva, Kumbhephal	Drinking
9	Hotel Ice Spicy A'bad	Drinking
10	Hotel Rajdarbar Kannad	Drinking
11	Hotel Ramaji A'bad	Drinking
12	Hotel Sagar, A'bad	Drinking
13	Hotel Sai Shradha Phulambri	Drinking
14	Hotel Shivani Reastaurant, Sawangi	Drinking
15	Hotel Sunrise,	Drinking
16	Indian Multiservices Goli Vada Pav A'bad	Drinking
17	Kamalnayan Bajaj Hospital A'bad	Drinking
18	Kodlikari Hospital, A'bad	Drinking
19	Labaik Hot Spot (Fast Food), A'bad	Drinking
20	Lemon Tree Hotel	Drinking
21	Madhur Milan Food Pvt. Ltd. A'bad	Drinking
22	Madni Resturant, A'bad	Drinking
23	Manik Hospital, A'bad	Drinking
24	MGM Hospital CIDCO A'bad	Drinking
25	Milan Foods, A'bad	Drinking
26	New Rajesh Hotel, A'bad	Drinking
27	Rajdarabar Maratha Hotel, A'bad	Drinking
28	Sai Rajmata Hotel	Drinking
29	Sairaj & Suruchi Food Services, A'bad	Drinking
30	Soham Pure Veg Unit of Natraj Pvt. Ltd. A,bad	Drinking
31	United Ciigma Hopslital	Drinking
32	Welcome Hotel Rama International A'bad	Drinking
	Industries	
33	Ajanta Pharama Ltd. A'bad	Industrial
34	Ajeet Seeds Ltd.	Industrial
35	Akar Tools Ltd., A'bad	Drinking
36	Align Components Pvt. Ltd. (BU-II), Shendra	Drinking
37	Aqualine Corporation Ltd.	Drinking
38	Arunoday Enterprises, Jalgaon	Drinking
39	Aurangabad Electricals Ltd., A'bad	Industrial
40	Automotive Manufacturers Pvt. Ltd., Chikalthana	Drinking

LIST OF CLIENTS

41	B. G. Shirke Construction Technology Pvt. Ltd.	Construction
42	Baramati Agro Ltd. Unit-2, A'bad	Drinking
43	Bhagirath Industries A'bad	Drinking
44	Bhagyalaxmi Rolling Mill Pvt. Ltd. Jalna	Industrial
45	Bhimashankar Sugar Mill Ltd. Osmanabad	Drinking
46	Cosmo Films Ltd., Shendra	Drinking
47	CTR Manufacturing Industries Ltd.	Drinking
48	D. P. Auto Parts Pyt. Ltd. A'bad	Drinking
49	Devgirir Forgins Pvt. Ltd.	Industrial
50	Dhoot Transmission Pyt 1td Aurangabad	Drinking
51	Dover Tea Pyt 1td Shendra	Drinking
52	Fast West Seed India Pyt 11d	Drinking
52	Endurance Technology Pyt 1td Walui	Industrial
55	Eninger Leser Values Dut Ltd. Walui	Industrial
54	Failiger Leser Valves PVL. Ltu. Waluj	Drinking
55		Drinking
56	Fine Packaging Pvt. Ltd., A'bad	Drinking
57	Fortress Infrastructure Advisory Servises, Pune	Industrial
58	Frank Faber (I) Ltd., A'bad	Drinking
59	Galaxy Laboratories Pvt. Ltd. MIDC, Newasa	Drinking
60	Glenmark Pharmace Ltd. Shendra	Industrial
61	Good Year South Asia Tyers Waluj	Industrial
62	Goodwill Handmade Paper, Partur	Industrial
63	Graffic Inftrasture Pvt. Ltd. Jalna	Construction
64	Grind Master Machins Pvt. Ltd. A'bad	Drinking
65	Hitech Seeed Company Pvt. Ltd.	irregation
66	Ion Exchange India Pvt. Ltd.	Drinking
67	IPCA Lab Ltd. Waluj	Industrial
68	Iskon Food Relief Foundation A'bad	Drinking
69	Jagdish Oil Mill Chikalthana	Industrial
70	Jailaxmi Casting & Alloys Pvt. Ld.	Drinking
71	Jaldhara Technologies Pvt. Ltd. Thane	Industrial
72	Jeevan Mineral Water Suppliers, A'bad	Drinking
73	Jolly Board Ltd.	Drinking
74	Kankariya Estate Agency, A'bad	Drinking
75	Kaygaon Paper mill Gangapur	Industrial
76	Kumar Elastomech Pvt. Ltd. A'bad	Industrial
77	L. G. Balkrishanan & Bros Ltd. Jalna	Drinking
78	Laxmi Agni Components Forgings Pvt. Ltd., A'bad	Drinking
79	Laxmi Industries Vaijapur	Drinking
80	Lokmat Media Ltd. Shendra	Drinking
81	Lozaniya Indusrties, Shendra	Drinking
82	Marathwada Chamicala Industrias Dist. Ltd. Albed	Drinking
83 01	Matrix Eine Sciences Dut 1td Albad	Drinking
04 95	Max Engineering Works Albad	Industrial
86	Monsanto Holdings Put Itd Albad	Drinking
87	Morganite Crusible (I) Itd. Walui	Drinking
07		

88	Morya Gramin Distlilleris Pvt. Ltd. A'bad	Drinking
89	Mukteshwar Sugar Mill Gangapur	Industrial
90	Nahara Engineering (I) Pvt. Ltd. Waluj	Industrial
91	Nath Biogene (I) Ltd.,	Industrial
92	Neel Operations A'bad	Industrial
93	Neel Water ServicesA'bad	Industrial
94	Neepaz V.forge India Ltd.	Industrial
95	Nirlep Aplliances Ltd. A'bad	Drinking
96	NRB Ltd. A'bad	Drinking
97	Om Sai Agro Industries A'bad	Drinking
98	OMR Bagla Automotive System Ltd.	Drinking
99	Parason Machinery (I) Pvt. Ltd. Chikalthana	Drinking
100	Patil & Company Polutry, Nandgaon, Vaijapur	Drinking
101	Premium Transmission Ltd., A'bad	Industrial
102	Progressive Sterlite Ltd. Waluj	Drinking
103	RADICO NV Distillaries, Shendra, A'bad	Industrial
104	Radient Industries Pvt. Ltd. A'bad	Drinking
105	Rushikesh Drinking Water Plant, Ambajogai	Drinking
106	S. R. Metals, Chitegaon	Drinking
107	Sahil Plastic Pvt. Ltd. A'bad	Drinking
108	Sai Gangajal Ind. Ltd.	Drinking
109	Sanjeev Auto Parts Manufacturing Pvt. Ltd.	Drinking
110	Saptshrungi Alloy Pvt. Ltd. Jalna	Industrial
111	Severa Auto Camps Pvt. Ltd. A'bad	Industrial
112	Shapoorjii Pallonji & Co. Ltd.	Drinking
113	Shradha Energy & Infraprojects Pvt. Ltd.	Drinking
114	Shree Tuljabhavani Sugar Pvt. Ltd. Aadgaon, Sailu	Industrial
115	Shri Swami Samarth Industries, A'bad	Drinking
116	SMS Waluj CETP Pvt. Ltd.	Industrial
117	SOM Autotech (I) Pvt. Ltd.	Drinking
118	Sterling & Wilson Ltd., Shendra	Drinking
119	Sudarshan Saur Pvt. Ltd.	Drinking
120	Supreme Industries Ltd. Khane, Dist. Pune	Industrial
121	Suvikas Enterprises Pvt. Ltd. A'bad	Drinking
122	Trend Electronics	Industrial
123	Trinity Services (I) Pvt. Ltd. Mumbai	Industrial
124	Unique Developers, A'bad	Drinking
125	United Ciigma Institute of Medical Science Pvt. Ltd.	Drinking
126	Varroc Engg. Pvt Ltd. Plant-VIII, Waluj	Industrial
127	Varroc Polymers Pvt. Ltd. Waluj	Drinking
128	Videcon Industries Ltd. A'bad	Drinking
129	Wockhardt Infrastructer Dev. Ltd.	Drinking
130	Wockhardt Ltd. Shendra	Drinking
131	Wockhardt R & D, Chikalthana	Drinking
132	Yemen Company For Desalination, Mokha City, Yemen	Industrial
	Government	
133	AE, CPWD, A,bad	Construction
134	Airport Autority of India, A'bad	Drinking
135	Chief Officer Munciple Corporation, Partur	Construction
136	Chief Officer Nagarparishad Buldhana	Drinking

137	Chief Officer, Muncipal Corporation Jalna	Research
138	D. E. MIDC A'bad	Drinking
139	D. E. MIDC Jalgaon	Drinking
140	D. E. MIDC Latur	Drinking
141	D. E. Sub-Division, Jalna	Drinking
142	Deputy Commissioner, Muncipal Corporation, Parbhani	Drinking
		Waste
143	Deputy Commissioner, Zillha Parishad, A'bad	Management
144	Dy. Executive Engineer, MSETCL, A'bad	Drinking
145	EE Jaykwadi Irrigation Beed	Irrigation
146	EE, IRD A'bad	Irrigation
147	Grampanchayat, Palod	Drinking
148	Irrigation Subdivision Majalgaon	Irrigation
149	Muncipal Corporation A'bad	Drinking
150	Muncipal Corporation, Georai, Dist. Beed	Drinking
151	Nagar Parishad, Ambad	Research
152	Nagar Parishad, Ausa	Research
153	Nanded Waghala City Muncipal Corporation, Nanded	Drinking
154	NBCC Latur	Drinking
155	P. J. Rangari, CE MIDC Nanded	Research
156	Power Grid corporation of India Ltd., Ambajogai	Drinking
157	SDE Irrigation Division Sub-Division Kannad	Drinking
158	SDE, World Bank Project SD No. 2, A'bad	Construction
159	SDO Jaykawadi Land Drainage SD-2, Ambajogai	Irrigation
160	SDO Land Devlopment (Civil) SD No. 3, Gangakhed	Irrigation
161	SDO MI Subdivision Ahmedpur, Latur	Construction
162	Sectional Officer, Jaykwadi Backwater Section, Newasa	Drinking
	Others	
163	Ajanta International Vipassana Samiti, Rampuri	Drinking
164	3 Tech Green Solutions Thane	Research
165	Agnivesh Health Care Centre Pvt. Ltd, Shendra	Drinking
166	Ajanta Pharma Limited, Chitegaon	Drinking
167	Aurangabad Zillha Krushi Utpanna Bazar Samitee, A'bad	Drinking
168	Bajaja Finance A'bad	Drinking
169	Best Price Walmart (I) Pvt. Ltd. Itkheda	Drinking
170	Bharati Retail Ltd., Easy Day Market, A'bad	Drinking
171	Bharati Wall Mart Pvt. Ltd., A'bad	Drinking
172	Dainik Divya Marathi, A'bad	Drinking
173	Dilasa Baliraja Krushi Utpadak, A'bad	Drinking
174	Dilasa Janvikas Pratishthan	Drinking
175	Enovatek Infra Construction & Energy Pvt. Ltd., Suregaon, Newasa	Drinking
176	Eureka Forbes Ltd. A'bad	Drinking
177	Inox Leisure Ltd.	Drinking
178	Isckon Food Relief Foundation	Drinking
179	Jankidevi Bajaj Gram Vikas Sanstha, A'bad	Drinking
180	Kedia Rain Water Harvesting Pvt. Ltd., A'bad	Drinking

181	Lokpatra Papers Pvt. Ltd., A'bad	Drinking
182	Mahatma Phule Krida Mandal, Phulambri	Drinking
183	Meadows Hill-View Homes, A'bad	Drinking
184	MGM Sports Club & Stadium, A'bad	Swimming
185	Nagpal Project & Construction Pvt. Ltd. A'bad	Drinking
186	Pantaloons Retail India Ltd. Prozon Mall A'bad	Drinking
187	Police Training Center, Jalna	Drinking
188	Praj Hi Purity System Ltd. Mumbai	Drinking
189	Sakal Paper Pvt. Ltd. A'bad	Drinking
190	Saniya Motors Pvt. Ltd.	Drinking
191	Sanjeev Auto Parts Pvt. Ltd.	Drinking
192	Satyam Cineplexes Ltd. A'bad	Drinking
193	Savitribai Phule Mahila Ekatma Samaj Mandal, A'bad	Drinking
194	Shri Gruhudyog	Drinking
195	Star Bazar Trend Hyper Market Ltd. A'bad	Drinking
196	Sunder Heritage, Octozone Project, A'bad	Drinking
197	Tapdia & Kasliwal Associates A'bad	Drinking
198	YZ Motors Ltd. A'bad	Drinking
	School/Colleges	
199	Aliva Urdu School. A'bad	Drinking
200	ACE Academy, A'bad	Drinking
201	Ambarwadikar Instituet of Technology A'bad	Drinking
202	Anand Vidyadham, A'bad	Drinking
203	Arohan Acadamy English School, Vaijapur	Drinking
204	Aryachanakya Vidyala Jatwada	Drinking
205	Dnyanda English School	Drinking
206	Dr. Babasaheb Ambedkar Marathwada University, A'bad	Research
207	Govt. Polytechnic Jalna	Research
208	HPL Secondary & H. Secondary School, Bidkin	Drinking
209	Indo German Tool Room, A'bad	Drinking
210	Jai Laxmi Primary School, A'bad	Drinking
211	Jain International School A'bad	Drinking
212	Jawaharlal Neharu Engineering Collage, A'bad	Drinking
213	Jijamata Kanisht Mahavidyalaya, Nipani	Drinking
214	K. Kamalsing Naik Secondary & H. Secondary School, Dhawalapuri	Drinking
215	Kalptaru Kanisht Mahavidyalaya, Parsoda	Drinking
216	Kamala Nehru Siskhan Sanstha A'bad	Drinking
217	M. S. Public School, Deolai	Drinking
218	Maharashtra Public School (CBSE), Daulatabad	Drinking
219	Masiha Urdu Primary School, A'bad	Drinking
220	MGM Medical College A'bad	Drinking
221	New High School, Pirbawada	Drinking
222	P.E.S. College of Engineering, A'bad	Drinking
223	Parth Vidya Mandir, A'bad	Drinking
224	Pratham Mimbai Education Inititative, Kultabad	Drinking
225	Raizing Star Balak Mandir Primary School, A'bad	Drinking

226	Rashtriy Madhyamic Vidyalaya, A'bad	Drinking
227	Sant Kabir Madhyamik Vidhyalaya, Varthan	Drinking
228	Sarosh Marathi Primary School, A'bad	Drinking
229	Sarosh Marathi Urdu School, A'bad	Drinking
230	Shivtej Vidya Mandir, A'bad	Drinking
231	Shree Junneshwar Higher Secondary School, Varud	Drinking
232	Shree Sai Caterers, A'bad	Drinking
233	Shree Sant Janardhan Swami Vidyalaya (Gurukul), Mahalgaon	Drinking
234	Shree Sant Janardhan Swami Vidyalaya Verul	Drinking
235	Shree Vanktesh Vidya Mandir, Ambajogai	Drinking
236	Siddhivinayak Junior College, Ladsawangi	Drinking
237	Swami Vivekanand Higher Secondary School, Chitepimaplgaon	Drinking
238	Venkyatesh Balsadan, A,bad	Drinking
239	Y. B. Chavhan College of Pharmacy, A'bad	Drinking
240	Yogeshwari Madhyamic Vidyala, A'bad	Drinking
241	Zillha Parishad High School, Bazar Sawangi	Drinking



LAY OUT OF LAB LEVEL- II, Aurangabad

PAPER CUTTING



आरोग्य विभागाची पाणी तपासणी प्रयोगशाळा आहे.

पिण्याच्या पाण्यासाठी (कर:10500) प्रमानकानसार 84 तपासण्या करण्याची व्यवस्था नाही. वरील

२४, टॉझिक- १२, रेडिओॲक्टिव्ह- २, पेस्टिर्साड १८. बॅक्टरीओलॉजिक्ल- ३. अशा ६५ तपासण्या करणे गरजेचे

जलगुणवत्ता तपासणी प्रयोगशाळा स्तर क्र. २ मध्ये, तर आरोग्य विभागाच्या प्रयोगशाळेत

यामुळे शहरात होणारा पाणीपुरवठा शद्ध होतो का असा प्रश्न समोर उभा

आरोग्यास धोका : पिण्यासाठी वापरायचे असल्यास शुद्धीकरण आवश्यक

धरण व नद्यांचे पाणी दू

औरंगाबाद : गेल्या काही वर्षांत कमी पावसामुळे भूजल पातळी घटत असून पाण्याचा प्रश्न गंभीर बनला आहे. त्यात दूषित पाण्याचे प्रमाण वाढल्यामुळे प्रश्न अधिकच गंभीर होत आहे. जायकवाडी धरण, गोदावरी नदीचे पाणी थेट पिण्यासाठी अयोग्य, तर खाम नदीचे पाणी पिण्यासाठी व शेतीसाठीही योग्य नसल्याचे जलसंपदा विभागाच्या जलगुणवत्ता प्रयोगशाळेतील सूत्रांनी सांगितले.

प्रयोगशाळेत दर महिन्याला गोदावरी नदीच्या नेवासा, येली, टाकळी धनगर, गंगाखेड आदी ठिकाणच्या पाण्याच्या नमुन्यांची तपासणी केली जाते. शहरातून जाणाऱ्या खाम नदीचे शेंदुरवादा,

खाम नदीवर एसटीपी प्रकल्पाची गरज

- शहरातील घाणपाणी व काही ठिकाणी ड्रेनेज लाईन खाम नदीत सोडल्यामुळे नदीतून बारमाही घाण जायकवाडी धरणात जात
- 🔶 नदीचे पाणी धरणात सोडण्यापूर्वी स्विवेज ट्रीटमेंट प्लान्ट (एसटीपी) बसविणे गरजेचे झाले आहे.



१३ वर्षात ४,२७५• नमुन्यांची तपासणी 🔶 जल गुणवता प्रयोगशाळा

- स्तर क्र. २ मध्ये शहरासह मराठवाड्यातील ४,२७५ खाजगी पाणी नमुन्यांची तपासणी केली आहे. 🔶 २००१-२००२ मध्ये दोन
- पाण्याच्या नमुन्याची तपासणी करण्यात आली तर २००२-२००३ मध्ये १२९ नमुन्यांची तपासणी करण्यात आली

 २००३-२००४ मध्ये ६५ नमुन्यांची तपासणी केली आहे. सर्वांत जास्त २०११-२०१२ मध्ये ८४६ नमुन्यांची तपासणी करण्यात आली आहे.

छावणी परिसरातील पाण्याच्या नमन्याची तपासणी केली जाते.

दरमहा होणाऱ्या या तपासणीत गोदावरी नदीचे पाणी शेती वापरासाठी योग्य असल्याचे व नदीपात्रातील पाणी क्षारयक्त असल्याने थेट पिण्यासाठी अयोग्य असल्याचे स्पष्ट झाले आहे. खाम नदीमध्ये शहरातील घाण पाणी सोडल्यामुळे नदी पूर्ण प्रदूषित झाली असून, पाणी शेती व पिण्यासाठी योग्य नसल्याचे तपासणीत समोर आले आहे. जायकवाडी धरणात खाम नदी व इतर नद्यांचे पाणी प्रक्रिया न करता सोडल्यामुळे दूषित झाले आहे. जायकवाडी धरणाचे पाणी पिण्यासाठी योग्य नाही.

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18/11/14	Andhale N.C.	CONTACTS	E-MAIL	REMARKS
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elizioni and Science College Khultabad 6/2/2015 Virekanard College Samasth Nagar, Aurargabad	<u>3850600674</u> (02437)241782	obpavlar@rediffmail.com Eccadm@gmail.com Shalini.dengle@gmail.co	Today Weosqunied Visit to Lab, students of UGA and PG Visited the Lab all Gudents are statist with the explanation given by Gorl Initish Mr. Dabissis and Naishali parlas Madam, Shilpa Gulas. Thanking to AH staff m-Dept of chemistry. BSC Students Visited to Holx orgest Mr. Dabis SI, Mr Vaishali Pawar & Mrs Shilp Gujar Explained all The water analysis techniques with insta

	****	isitor's	Bask	
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20/10/2015	Prof. s.s. want gaan lear, JNEC, Aurangabad.	<u>\$98351546)</u>	Supriyawanegaunkun @ jnec- acin	Explanation given by Aarre & Jadhov sir was really very helpful for student's. hils."
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17.7.13	जाय यागकम् निद्धार्थाम् जाटनाम् ज्योरंगानाद्	9421 (7 9644	E-MAIL Sachin Kul 20 @ gmail (REMARKS
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2.2.20	Vivekanand college, Avsaugabad	9923373880	E-MAIL negset v;vekennen college.edu.in	REMARKS We visited the water of petter quality lab with our 50 students. The detailed inform tion about Jessing of same singles and also instrum
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