



**GOVERNMENT OF MAHARASHTRA
WATER RESOURCES DEPARTMENT**

**HYDROLOGY PROJECT (SW)
HYDROLOGY PROJECT DIVISION, AURANGABAD**

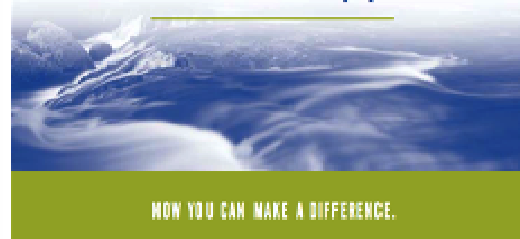


Polluted river water
kills as many people
as a nuclear explosion.

One in three people

**DON'T HAVE ACCESS
TO CLEAN
WATER**

That's more than a billion people.



WATER QUALITY LAB LEVEL-II, AURANGABAD

ANNUAL REPORT

YEAR 2011

EXECUTIVE ENGINEER

HYDROLOGY PROJECT DIVISION, AURANGABAD

CERTIFICATE OF COMPLIANCE



This is to certify that the
QUALITY MANAGEMENT SYSTEM of

HYDROLOGY PROJECT DIVISION WATER QUALITY LAB LEVEL II - AURANGABAD

Near Hedgewar Hospital, Garkheda, Aurangabad – 431 005,
Maharashtra, India.

has been assessed by International Certification Services Pvt. Ltd. and registered as
complying with the requirements of the following International Standard:

ISO 9001:2008

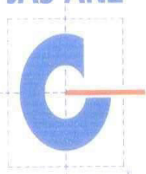
The Quality Management System applicable to:

**Scope: Collection, Testing and Analysis Of Water And Waste Water
Samples.**

Registration No. : RQ91/6398
Registered Date : 11th February, 2010.
Expiry Date : 10th January, 2013.



JAS-ANZ



Shanku Kataria

Director

International Certification Services

Accredited by Joint Accreditation System of Australia and New Zealand

Validity of this certificate is based on periodic audits of the management system defined by the above scope and is contingent upon prompt, written notification of significant changes to the management system and/or its components thereof 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 by consulting the above certification body.

International Certification Services Pvt. Ltd. E-7, Chand Society, Juhu Road, Juhu, Mumbai – 400 049, India

PREFACE

Water covers 70.9% of the Earth's surface and is vital for all known forms of life. Approximately 70% of the fresh water which is actively handled by humans is consumed by agriculture. Clean drinking water is essential to humans and other life forms. Access to safe drinking water has improved steadily and substantially over the last decades in almost every part of the world. There is a clear correlation between access to safe water and GDP per capita. However, some observers have estimated that by 2025 more than half of the world population will be facing water-based vulnerability. Water plays an important role in the world economy, as it functions as a solvent for a wide variety of chemical substances and facilitates industrial cooling and transportation.

This report includes water quality data for the period of **June 2010 to May 2011 (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. Ashwamedh Engineers & Consultants Co-Op. Soc. Ltd. Aurangabad** 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 affected locations.

Therefore 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.

It is expected that this booklet will provide a brief idea about Water Quality at the locations which comes under the Water Quality Lab Level -II at Aurangabad. Our efforts can always be updated through valuable suggestions.

(V. L. Joshi)
Executive Engineer
Hydrology Project Division
Aurangabad.

Annual Report

Water Quality Monitoring Through Water Quality Lab Level-II Aurangabad for the Year 2010-11

I N D E X

Chapter	Particulars	Page No.
I	EXECUTIVE SUMMARY	04 - 08
II	INTRODUCTION	09 - 21
III	METHODOLOGY	22 - 28
IV	RESULT & OBSERVATION	29 - 65
V	CONCLUSION	66 - 73
VI	OTHER ACTIVITIES	74 - 77

CHAPTER – I

EXECUTIVE SUMMARY

CHAPTER-I

EXECUTIVE SUMMERY

Annual Report

Water Quality Monitoring Through Water Quality Lab Level-II, Aurangabad for the Year 2010-2011

1.1 Preamble:

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 in each source 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 – 2010 to May – 2011 (which is consider 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 2010-11.

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 an idea of 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 2010-11, 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, mainly in stations like Aurangabad & Lonar. We have here separately exhibited the identical difference in the water of Lonar by providing detail graphs of some of the important parameters of water analysis. This will help to understand that how much water can be critical & have no use in such condition.

1.6 Conclusion:

In the Year 2010-11 it can be concluded that all the parameters of stations are in tolerance limit except some stations like Aurangabad & Lonar, which are observed polluted. When fresh water is artificially supplemented with nutrients, it results in an abnormal increase in the growth of water plants. This is known as eutrophication. 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 & Amaravati Division

Water Quality Trend in Aurangabad & Amaravati division is based on the data available from June 2010 to May 2011 in Water Quality Lab Level-II, Aurangabad. This comparison of change is related to Irrigation parameters on their concentration.

CHAPTER -II

INTRODUCTION

CHAPTER-II

INTRODUCTION

2.1 General:

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. 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.

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 2010-11. 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 2010-11 are considered.

Seasonal averages of all analyzed parameters are calculated for study of seasonal water quality trend at each location.

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.

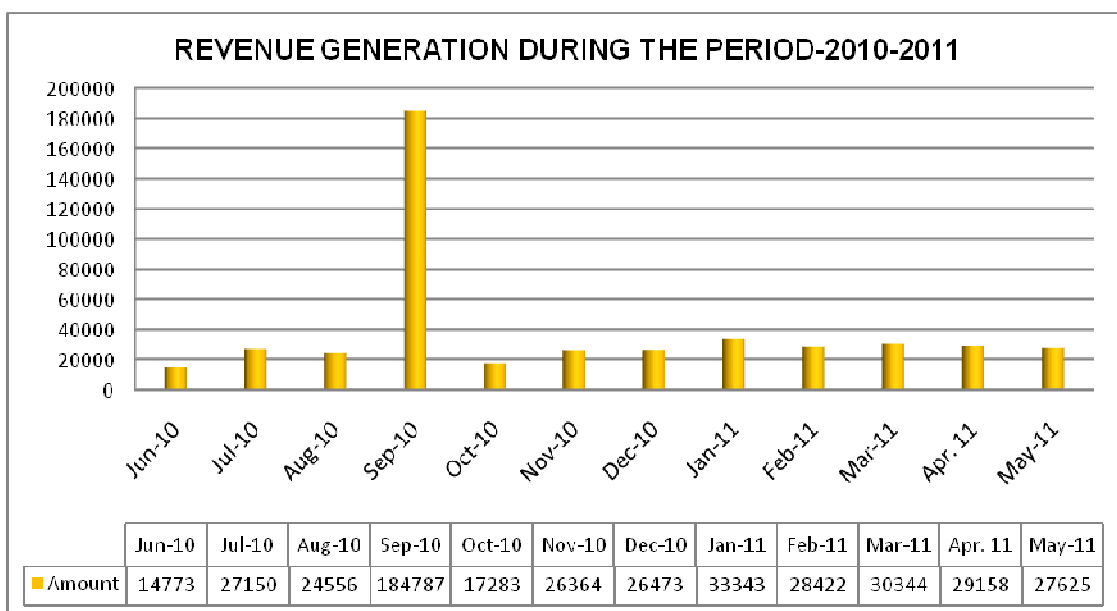
During the year 2010-11 many clients approached to the laboratory. The valuable clients availed the facility of the laboratory are as below;

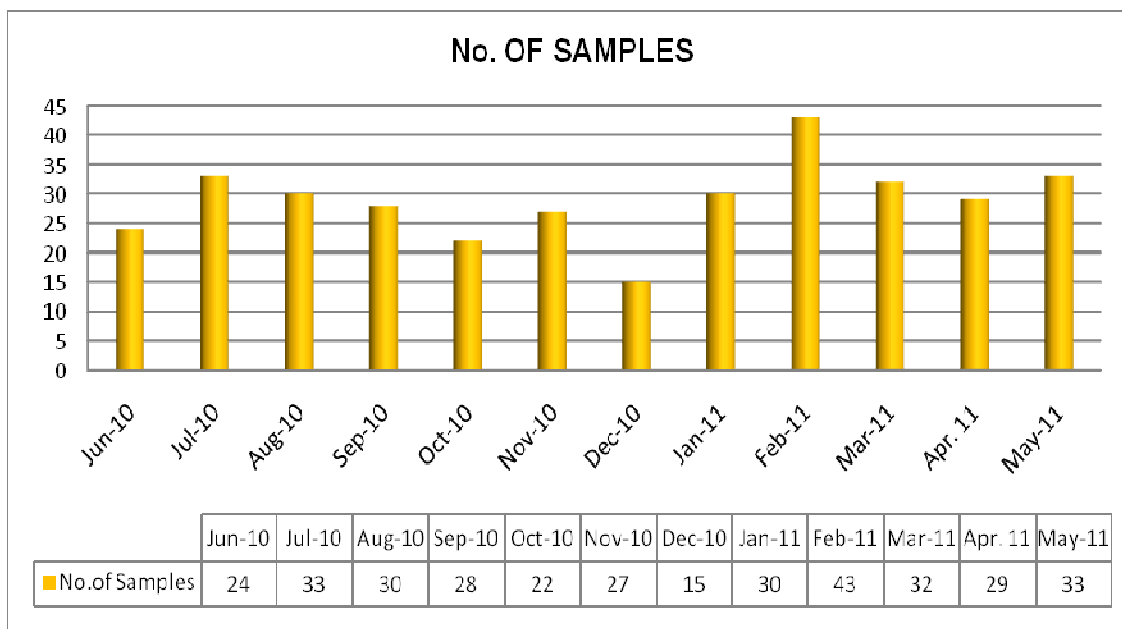
**REVENUE GENERATED DURING THE REPORTING PERIOD
(June 2010 –May 2011)**

Sr. No.	Water Year	No. of Samples Analyzed	Amount Received
1.	2010-2011	346	4,70,278

Month wise details are as under

Month & Year	Total Amount	No of Sample
Jun-10	14,773	24
Jul-10	27,150	33
Aug-10	24,556	30
Sep-10	1,84,787	28
Oct-10	17,283	22
Nov-10	26,364	27
Dec-10	26,473	15
Jan-11	33,343	30
Feb-11	28,422	43
Mar-11	30,344	32
Apr. 11	29,158	29
May-11	27,625	33
Total:	4,70,278	346





2.5 Extended Scope of Laboratory:

Water Quality Lab Level – II is certified by **ISO 9001-2008** in the year 2009-10 and 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.

CPCB AQC Exercise:

In the month of Feb. 2011 CPCB conducted the AQC Exercise, in which this lab score 81.72%.

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. University, Aurangabad, JNEC College Aurangabad, students of Savitribai Phule B.Ed. College & 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 : 19° 51"30"
2. Longitude : 75° 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. : 36
7. Monthly sample collection : 43 samples
8. Samples Frequencies
 - a) Baseline : --
 - b) Trend/Flux : Monthly
 - c) Reservoir : Fortnightly
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. V. D. Nemade (Ex. Engineer)
2) Mr. V. P. Kulkarni (S.D.O)
3) Mr. A. D. Mahajan (A.E. II)
4) Mrs. S. S. Quadri (Silt Analyst)
13. Lab. Operating Agency & Staff on contract basis : Ashwamedh Engrs. & Cons. C. S. L. Aurangabad Branch.
14. Staff Position : 1) Ms. V. P. Pawar (Chief Chemist)
2) Ms. S. P. Deshpande (Microbiologist)
3) Ms. Pushpa Patil (Chemist)
4) Mr. S. R. Wankhede (Field Chemist)
5) 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 30/23 parameters for Dam Samples and 28/21 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 2010 to May-2011

The Water Quality Laboratory Level-II at Aurangabad is taken in Operation and Maintenance and data for the period of June 2010 to May 2011 is taken for report preparation. Total no of 36 sampling location covered, out of which 28 locations are from old 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.

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

Sr. No.	Name & Type of Sampling Stations			Monthly Frequency of sampling	Remark
	Type	Station	Name of River		
Location as per W.Q. Network					
Aurangabad Division: River Location					
1	Trend	Killari	Terna	Monthly	
2	Trend	Takali Udgir	Manjara	Monthly	
3	Trend	Newasa	Godavari	Monthly	
4	Trend	Wadvali	Godavari	Monthly	
5	Trend	Tokabridge	Pravra	Monthly	
6	Trend	Shirur	Sindaphana	Monthly	
7	Trend	Patoda	Manjara	Monthly	
8	Trend	Raheri	Purna	Monthly	
9	Trend	Kesrali	Manar	Monthly	
10	Trend	Sundagi	Lendi	Monthly	
11	Trend	Nandednaga	Godavari	Monthly	
12	Trend	Yelli	Godavari	Monthly	
13	Trend	Purnabridge	Purna	Monthly	
14	Trend	Takalidhangar	Godavari	Monthly	
15	Trend	Hirapur	Sindaphana	Monthly	
16	Trend	Shahgad	Godavari	Monthly	
17	Trend	Aurangabad	Kham	Monthly	
18	Trend	Shendurwada	Kham	Monthly	
19	Trend	Parli Vaijanath	Wan	Monthly	
20	Trend	Gangakhed	Godavari	Monthly	
21	Trend	Latur	Manjara	Monthly	
22	Trend	Auradshahjahani	Lower Terna	Monthly	
23	Trend	Rahata	Purna	Monthly	
24	Trend	Ajanta-Andhari	Andhari	Monthly	

Amarvati Division: River Location					
25	Trend	Padalse	Tapi	Monthly	
26	Trend	Bhusaval	Tapi	Monthly	
27	Trend	Savkheda	Girna	Monthly	
28	Trend	Hingona	Mor	Monthly	
Aurangabad Division: Dam Location					
29	Dam	Lower Terna	Terna	Fortnightly	
30	Dam	Manjara	Manjara	Fortnightly	
31	Dam	Majalgaon	Sindaphana	Fortnightly	
32	Dam	Yeldari	Purna	Fortnightly	
33	Dam	Vishnupuri	Godavari	Fortnightly	
34	Dam	U.P.P.	Penganga	Fortnightly	
35	(Trend / Dam)	Pategaon	Godavari	Fortnightly	Sample is collected from Jayakwadi project
36	Dam	Lonar Creator	Natural Creator	Fortnightly	

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

Trend & Flux

	First Round	Second Round
Sr. No.	Parameters	Parameters
1	Colour	Colour
2	Odour	Odour
3	Temperature	Temperature
4	pH	pH
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	Chloride Cl
18	Sodium Na	Total coliforms
19	Magnesium Mg	Fecal Coliforms
20	Carbonate CO ₃	Alkalinity
21	Bicarbonate HCO ₃	Sodium Na
22	Calcium	
23	Chloride Cl	
24	Fluoride F	
25	Boron B	
26	Total coliforms	
27	Fecal Coliforms	
28	Alkalinity	

**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	pH	pH
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	Chloride Cl
18	Sodium Na	Total coliforms
19	Magnesium Mg	Fecal Coliforms
20	Carbonate CO ₃	Alkalinity
21	Bicarbonate HCO ₃	Sodium Na
22	Calcium	Kjeldahl Nitrogen
23	Chloride Cl	Chlorophyll-a
24	Fluoride F	
25	Boron B	
26	Total coliforms	
27	Fecal Coliforms	
28	Alkalinity	
29	Kjeldahl Nitrogen	
30	Chlorophyll-a	

**HYDROLOGY PROJECT DIVISION,
AURANGABAD**

WATER QUALITY LAB, LEVEL – II AURANGABAD

ORGANISATION CHART

**EXECUTIVE ENGINEER,
HYDROLOGY PROJECT DIVISION, AURANGABAD**
Mr. V. D. Nemade

SUB DIVISIONAL OFFICER/ HOD TRAINING/MR
Mr. V. P. Kulkarni

**LAB INCHARGE / STORE AND PURCHASE
INCHARGE/Asst. MR**
Mr. A. D. Mahajan

OPERATING AGENCY
M/s Mahabal Enviro Engineers Pvt. Ltd.

CHIEF CHEMIST
Mrs. V. P. Pawar

ASSISTANT CHEMIST
Ms. S. P. Deshpande (Microbiologist)
Ms. P. J. Patil (Chemist)
Mr. S. Wankhede (Field Chemist)

CHAPTER – III

METHODOLOGY

CHAPTER-III

METHODOLOGY

3.0 General:

This Water Quality laboratory covers Surface Water component like Rivers 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 of 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 2010-11

Table showing List of parameters and the methodology used for analysis.

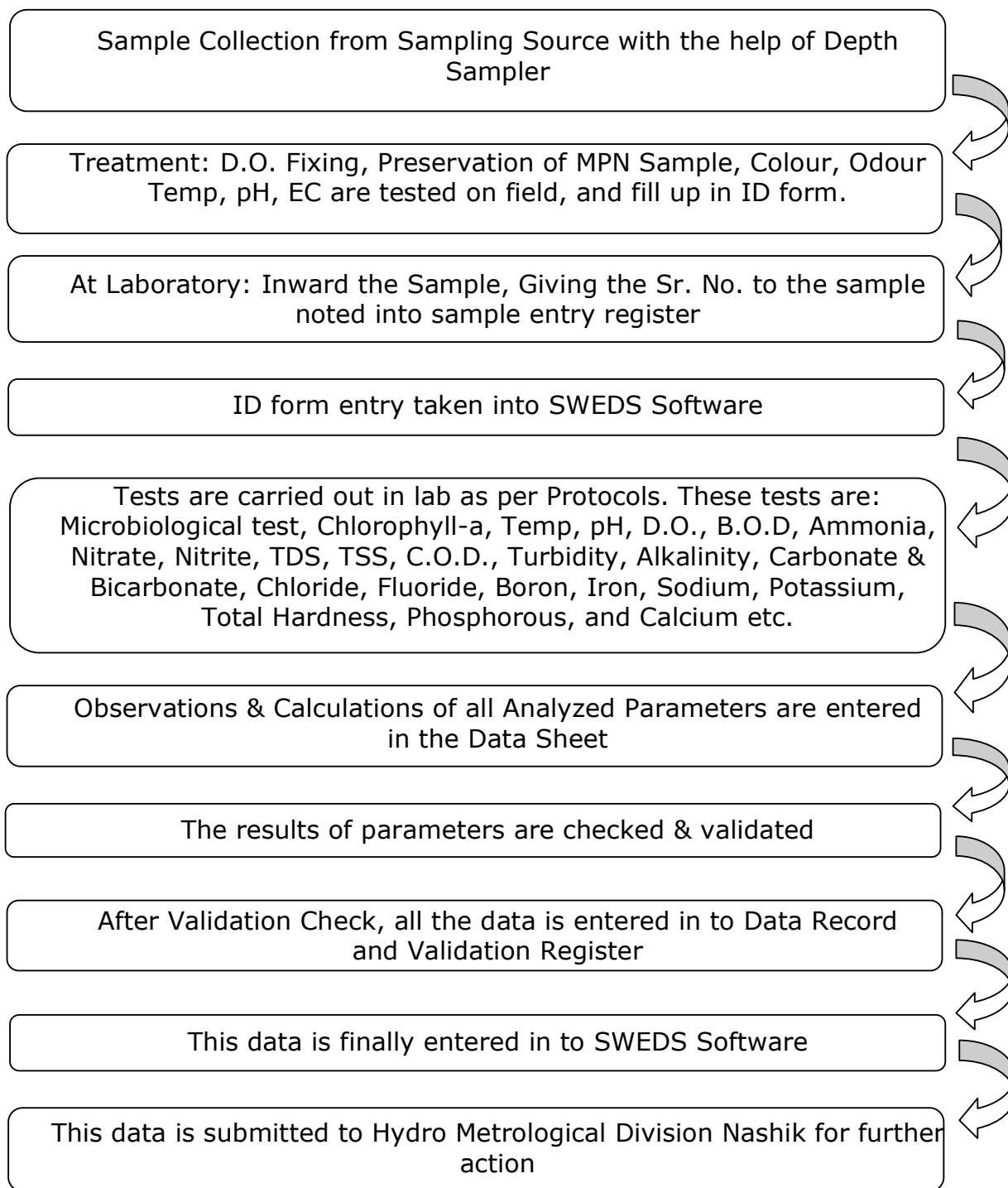
Sr. No	Parameters	Methodology
1.	Colour	APHA, 21 st Ed., 2005, 2120-B, 2-2
2.	Odour	IS 3025 (Part 5): 1983, Reaffirmed 2006
3.	Temperature	APHA, 21 st Ed., 2005, 2550-B, 2-61
4.	pH	APHA, 21 st Ed., 2005, 4500-H ⁺ - B, 4-90
5.	Electric Conductivity	APHA, 21 st Ed., 2005, 2510- B, 2-47
6.	Dissolved Oxygen	APHA, 21 st Ed., 2005, 4500-O, 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 Demand	APHA, 21 st Ed., 2005, 5210-52
16.	Chemical Oxygen Demand	APHA, 21 st Ed., 2005, 5220-B, 5-15
17.	Potassium K ⁺	APHA, 21 st Ed., 2005, 3500K, 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.	Iron (as Fe)	APHA, 21 st Ed., 2005, 3111-B, 3-17
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:

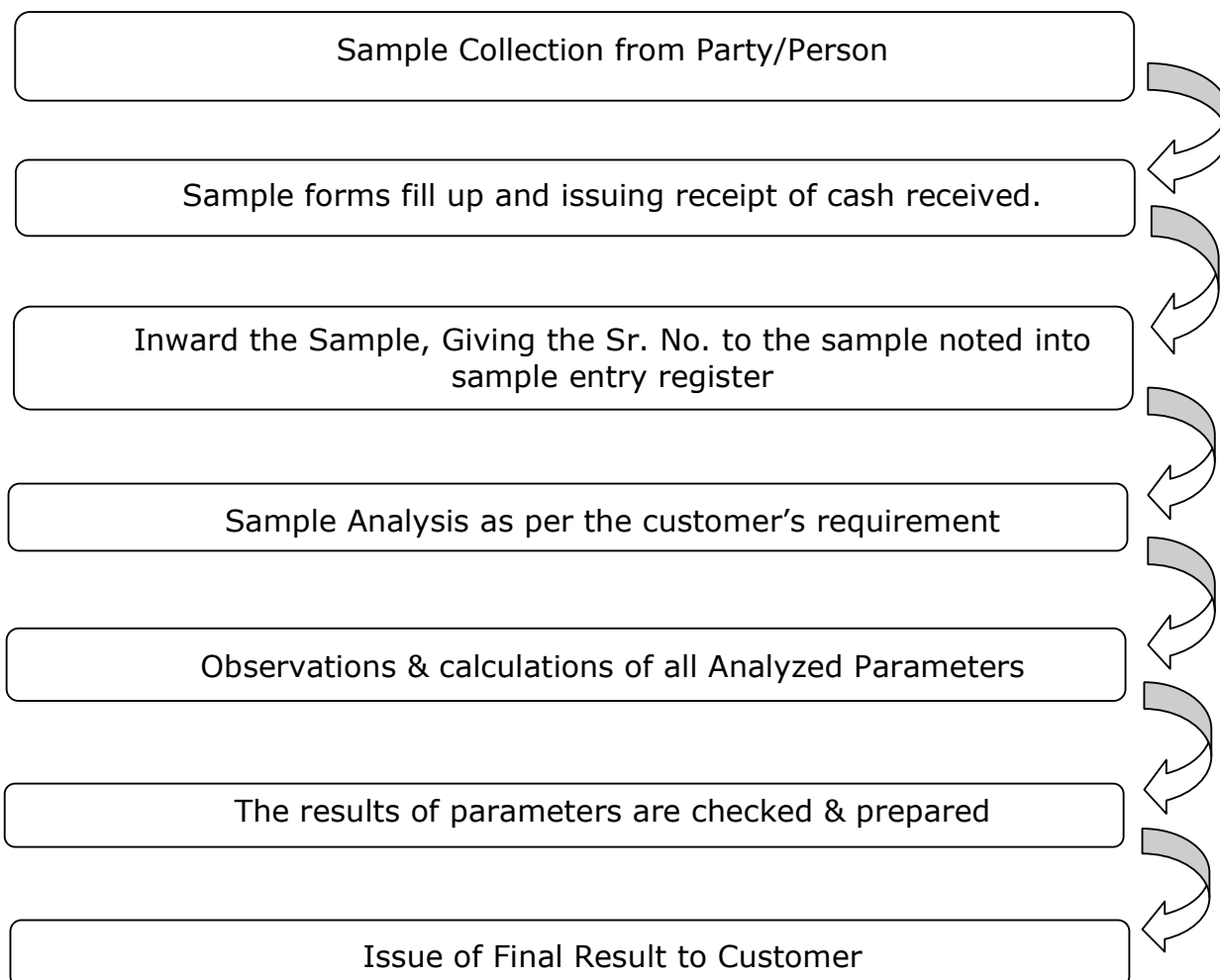
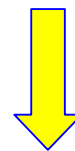
The work of analysis of sample is being monitored on the basis of flow chart generated in the lab as per standard guidelines and analysis of sample is performed as per guidelines of world bank with HIS manuals and APHA ,21 st Ed, 2005 as a standard procedures for analysis of samples.

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



FLOW CHART OF ANALYSIS OF NHP WATER SAMPLE



**Annual Report
On Water Quality Monitoring through
Water Quality Lab level II.
Aurangabad for the year 2010-11**

**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
2010-11	28	96	8	183	315

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 and 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 2010-11.

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 been 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 (Ca^{2+}) and magnesium (Mg^{2+}) ions

- pH
- Alkalinity - carbonate and bicarbonate

Specific ions: chloride (Cl), sulfate (SO_4^{2-}), boron (B), and nitrate-nitrogen (NO_3^-).

Other potential irrigation water contaminants that may affect suitability for agricultural use include heavy metals and microbial contaminants

ICAR Standard for Irrigation Water

Sr. No.	Parameter	limit	Unit
1.	pH	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	-

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. Most of the stations from Aurangabad Division & Amaravati Division, tested parameters are within tolerance limit as per Irrigation ICAR Standards. Most of the chemical parameters are also within tolerance limit.

4.6 Classification of locations on the basis of Wilcox diagram for the year 2010-11

OBSERVATION ON THE BASIS OF CLASSIFICATION OF LOCATION			
Sr. No.	River	Year	Observations
1	Aurangabad Division – Trend (River) Station (24)	2010-11	Water is good for irrigation without any further treatment & it belongs to C2 & S1, but at station wadwali & Nanded nagapur it is high, belongs to C3 & S1, so it can be use after treatment. Except Aurangabad
2	Amaravati Division - Trend (River) Station (4)	2010-11	Water is good for irrigation without any further treatment & it belongs to C2 & S1.
3	Dams Stations (7 +1)	2010-11	Water is good for irrigation without any further treatment & it belongs to C2 & S1. Except Lonar.

Wilcox diagram

**Details of Sample Collection Stations
W.R. Stations under W.R. Division, Amaravati.
For the year 2010-11**

From the above diagram it can be observed that, all station's water belongs to C_2 & S_1 class. Hence, it can be concluded that the water can be used for irrigation purpose without any further treatment.

Details of Sample Collection Stations
W.R. Stations under W.R. Division, Aurangabad.
For the year 2010-11

From the above diagram it can be observed that, above station's water belongs to C_2 & S_1 class except station at Nanded nagapur & Wadwali belongs to C_3 & S_1 Class, hence it can be concluded that the water can be used for irrigation purpose without any further treatment. Except Wadwali & Nandednagapur station it requires treatment before usage.

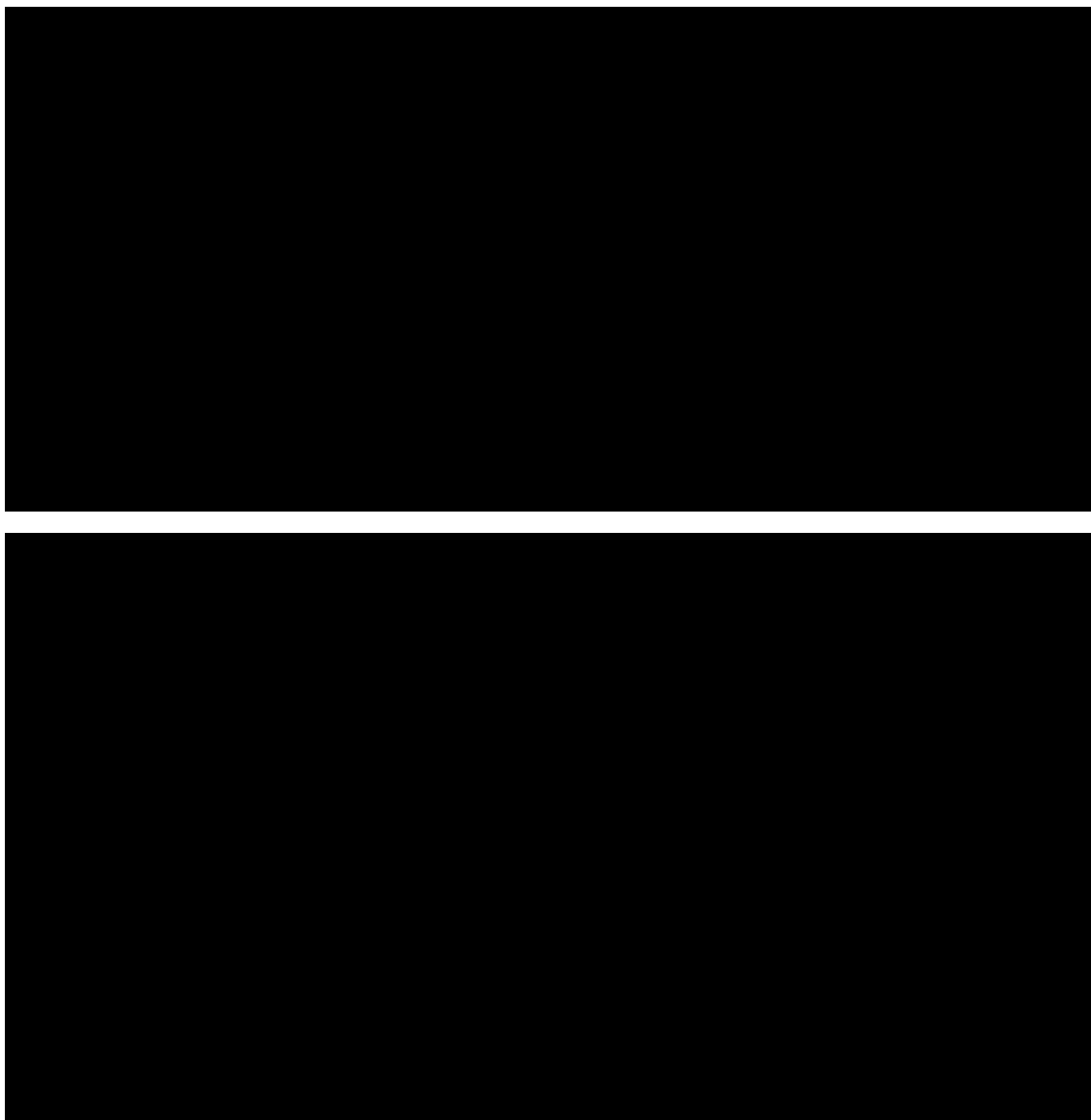
Details of Sample Collection Stations
W.R. Stations under W.R. Division, Aurangabad.
Dam Location for the year 2010-11

From the above diagram it can be observed that, all station's water belongs to C₂ & S₁ class. Hence, it can be concluded that the water can be used for irrigation purpose without any further treatment.

Details of Sample Collection Stations
W.R. Stations under W.R. Division, Aurangabad.
New Station for the year 2010-11

From the above diagram it can be observed that, above station's water belongs to C2 & S₁, C3 & S1class except Aurangabad (C3 & S1class), hence it can be concluded that the water can be used for irrigation purpose without any further treatment but in Aurangabad it requires treatment before usage.

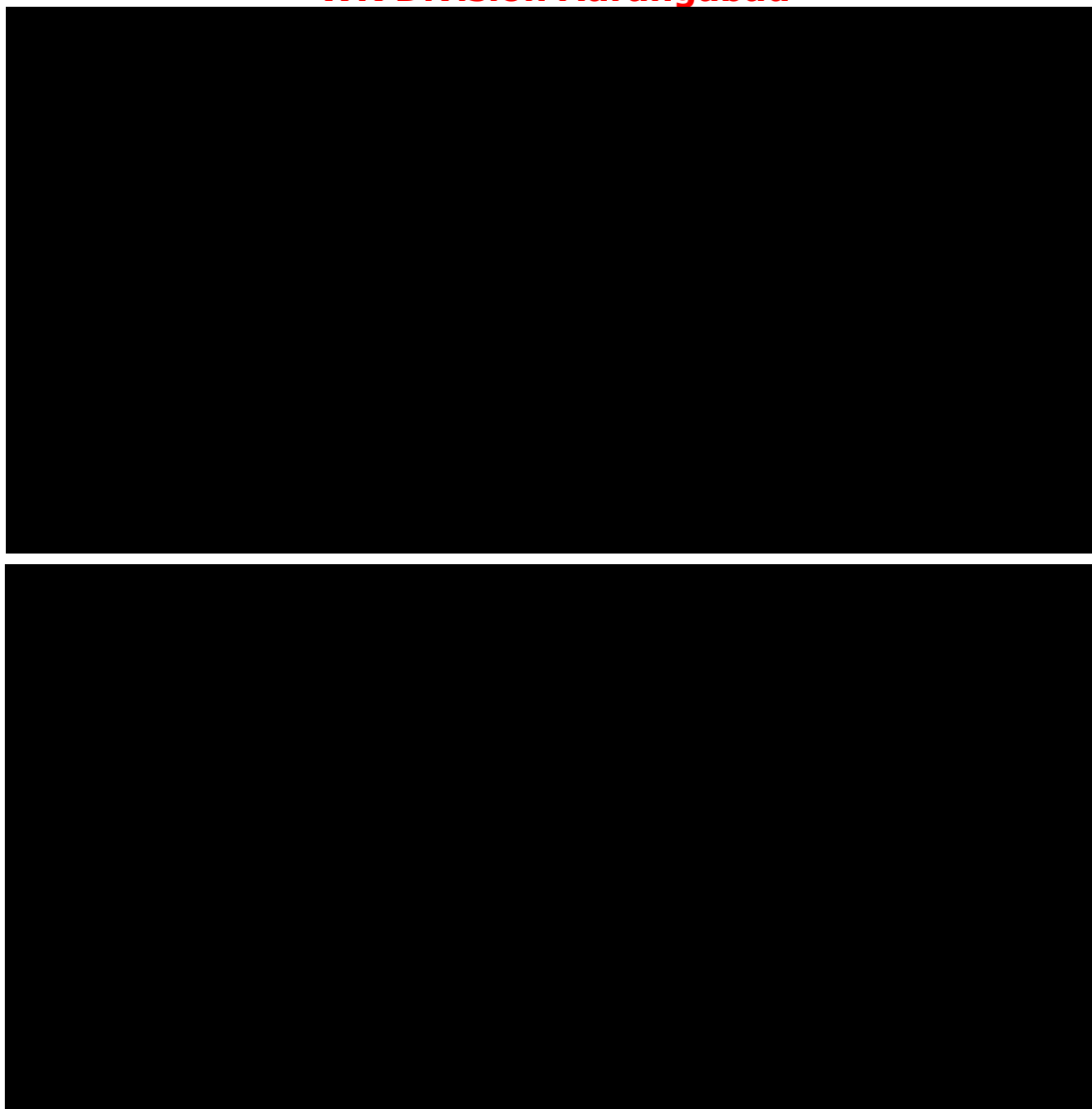
**Graphical Representation of Boron
(As per ICAR Standards Parameter)
for the Year 2010-2011
WR Division Aurangabad**



Boron is another 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 at all stations.

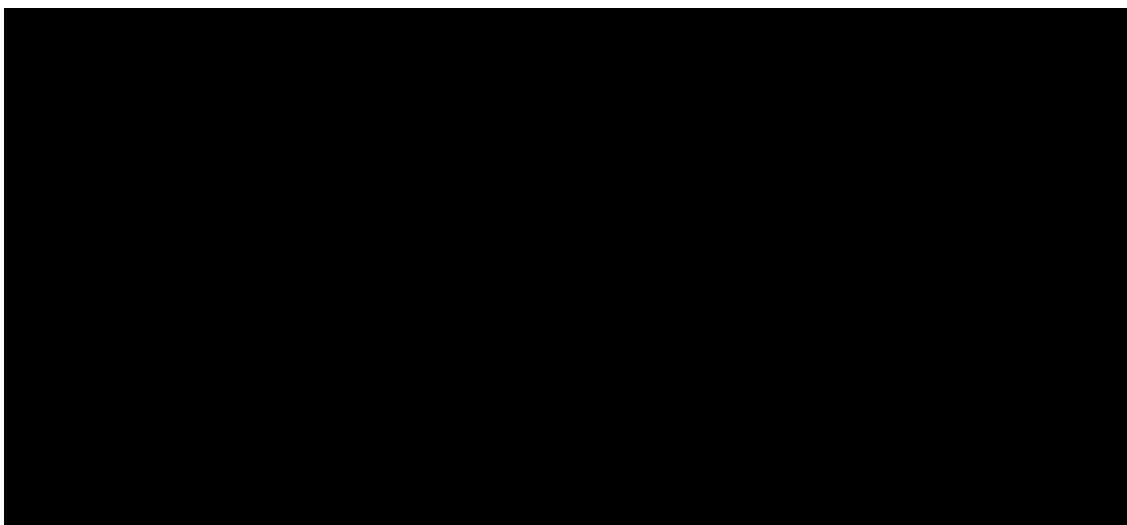
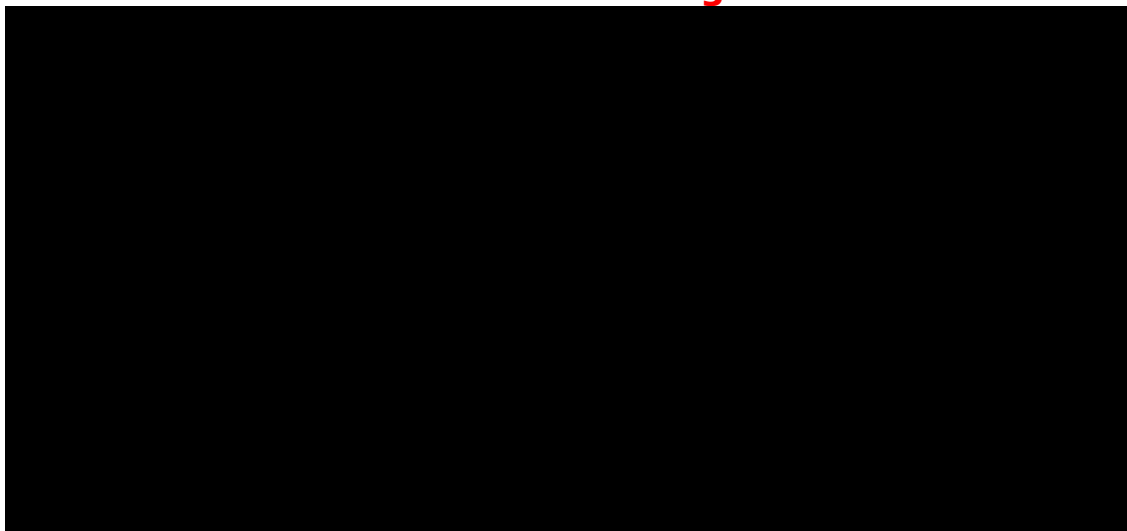
**Graphical Representation of Chloride
(As per ICAR Standards Parameter)
for the Year 2010-2011
WR Division Aurangabad**



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 graph it is observed that at these stations maximum chloride is found at Aurangabad, Wadvali & Shendurwada stations, as per ICAR Stds., it is within limit.

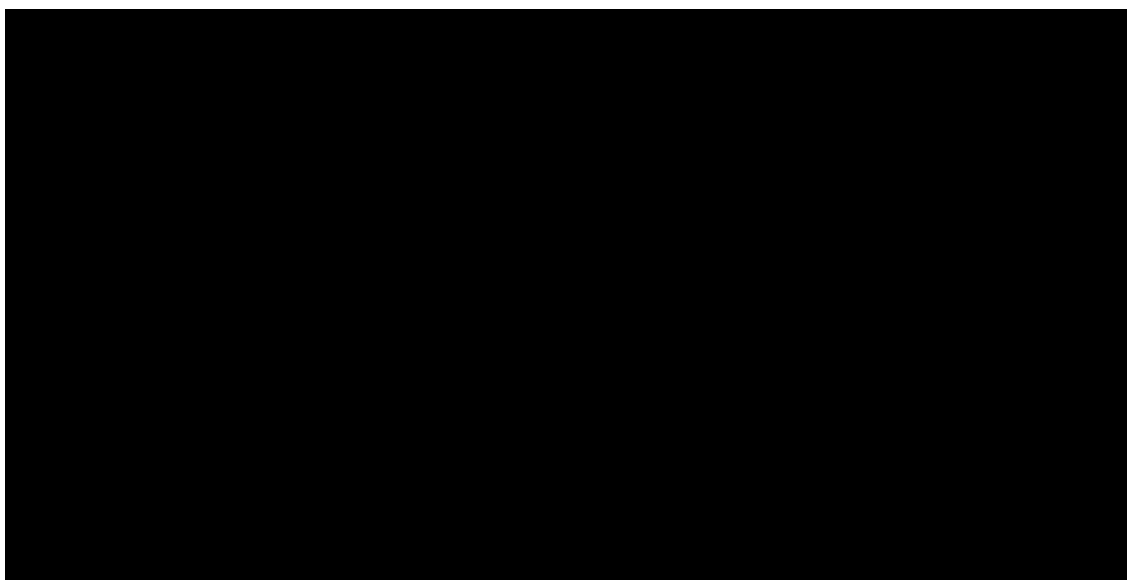
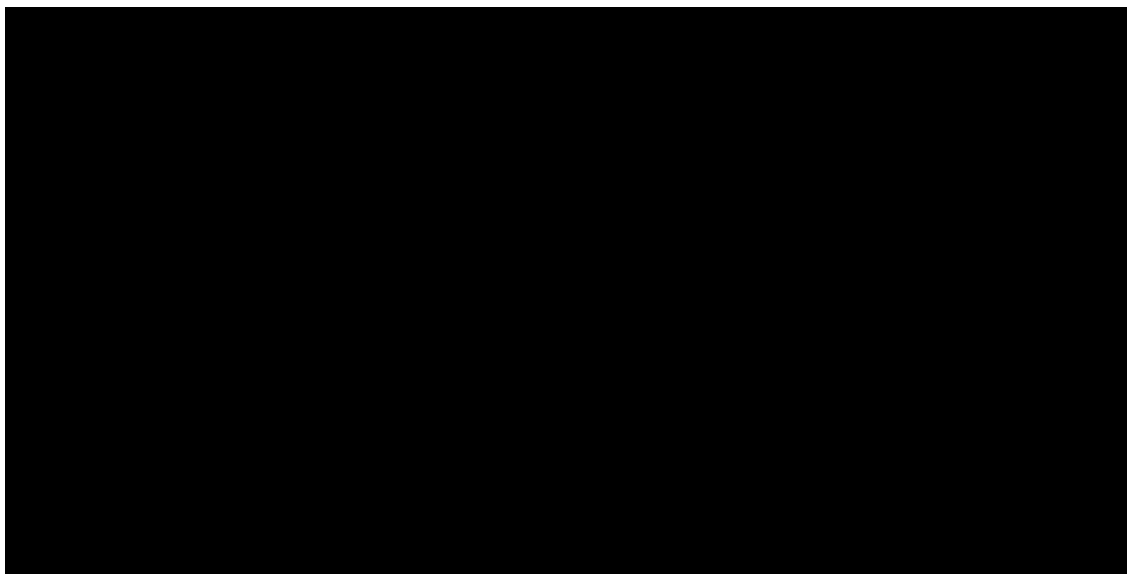
**Graphical Representation of Electrical Conductivity
(As per ICAR Standards Parameter)
for the Year 2010-2011
WR Division Aurangabad**



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.

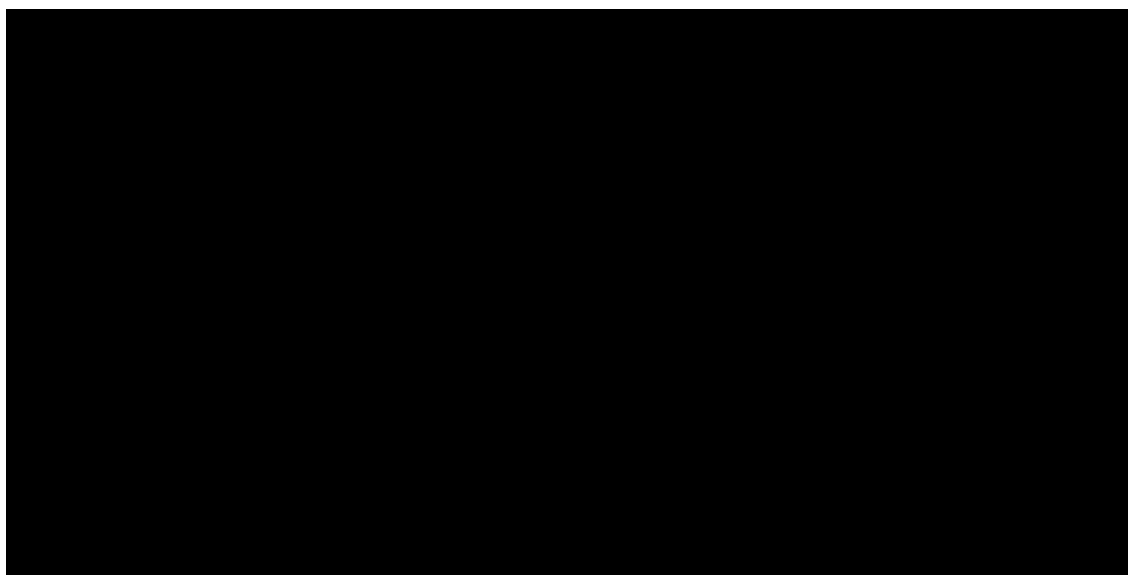
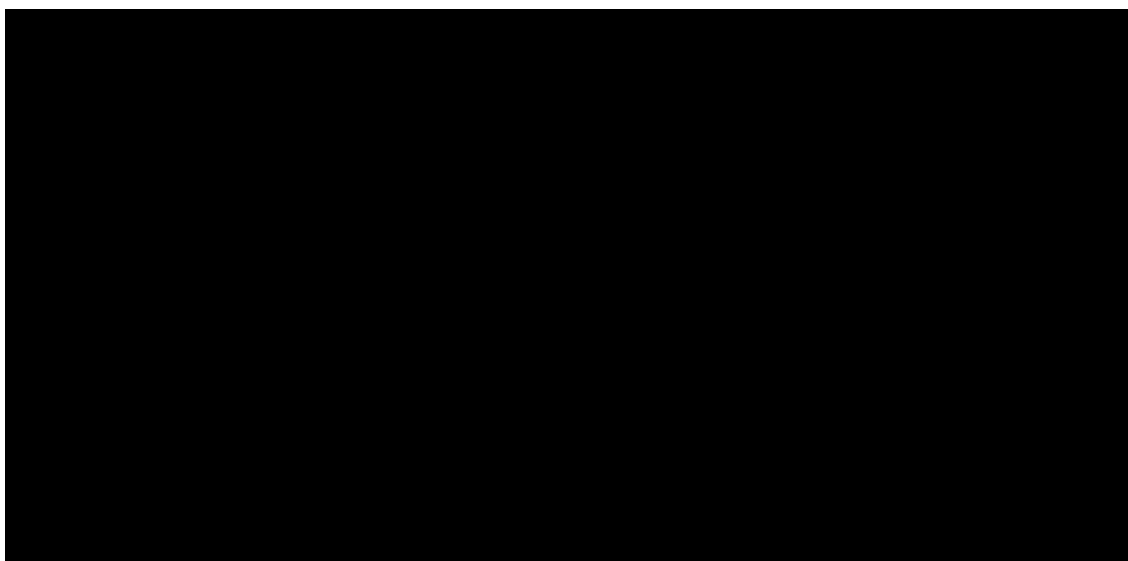
From above graph it is observed that maximum Electrical conductivity found at Aurangabad station. As per ICAR Stds water at all stations is within tolerance limit.

Graphical Representation of Na%
(As per ICAR Standards Parameter)
for the Year 2010-2011
WR Division Aurangabad



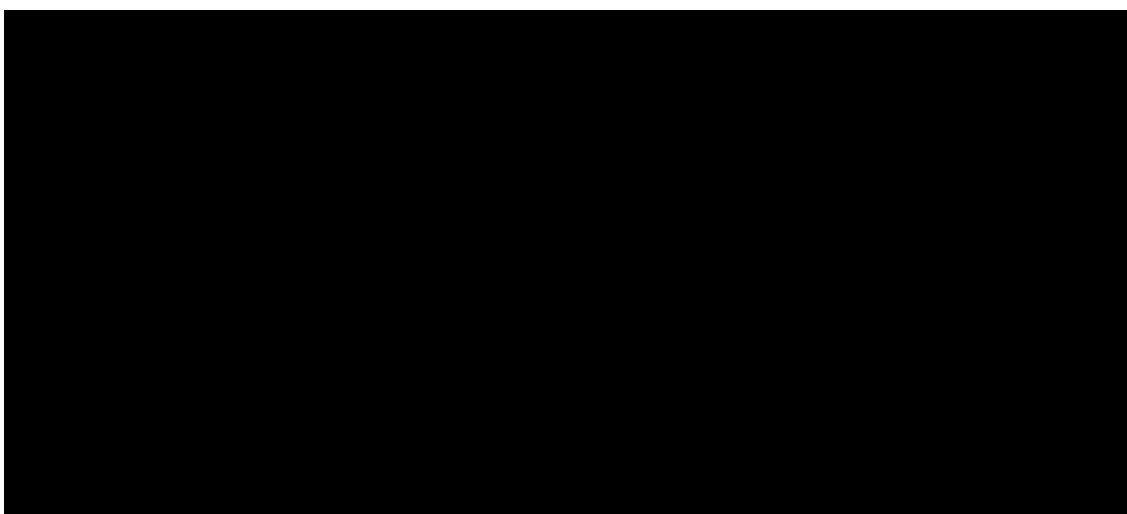
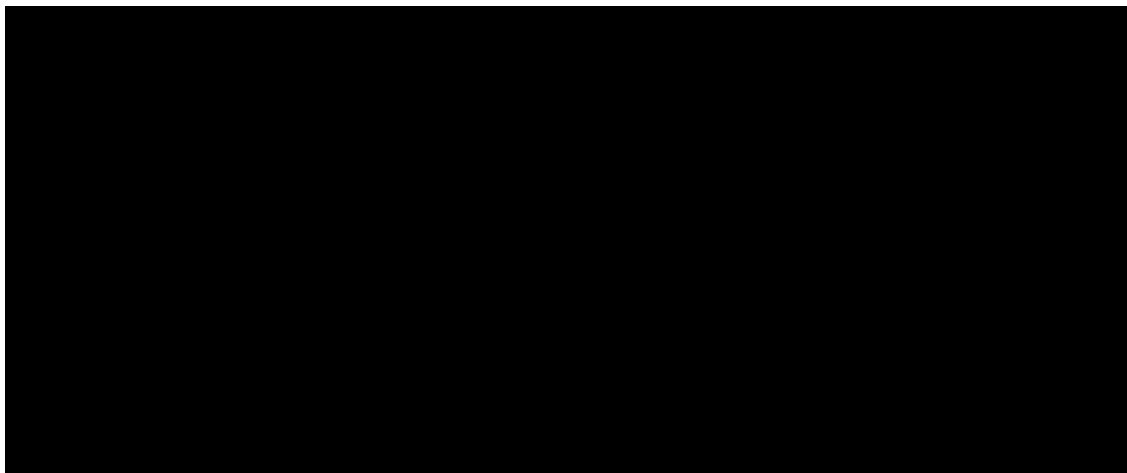
From above Graph it is observed that the Na% value has fluctuation at every station. However many factors including soil texture, organic matter, crop type, climate, irrigation system and management impacts on how sodium in irrigation water affects soils. Though as per ICAR standards it is within limit,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

**Graphical Representation of pH
(As per ICAR Standards Parameter)
for the Year 2010-2011
WR Division Aurangabad**



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 stations is not within tolerance limit.

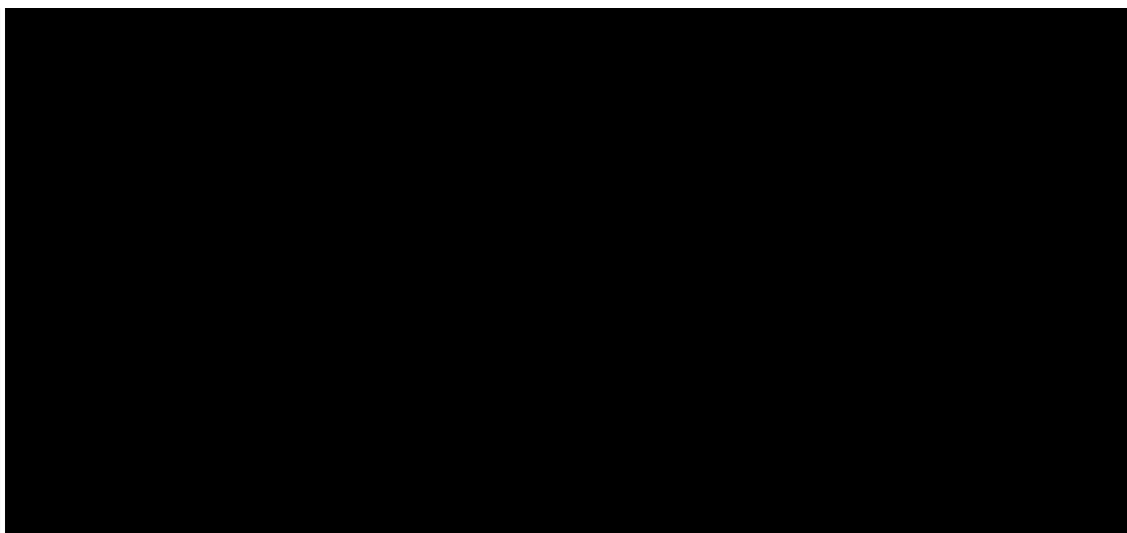
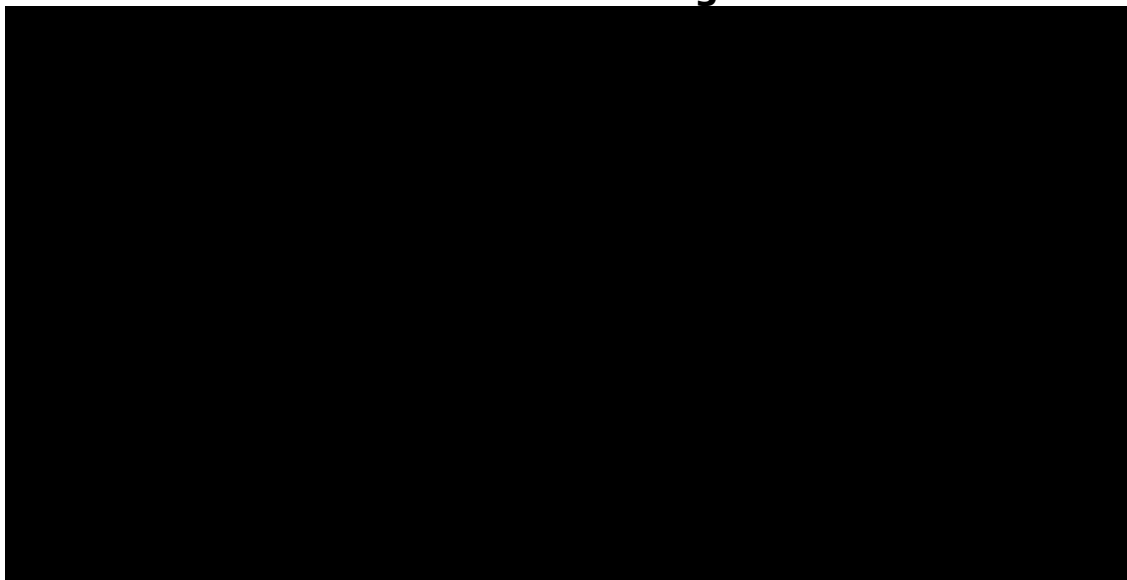
Graphical Representation of SAR
(As per ICAR standards Parameter)
for the Year 2010-2011
WR Division Aurangabad



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.

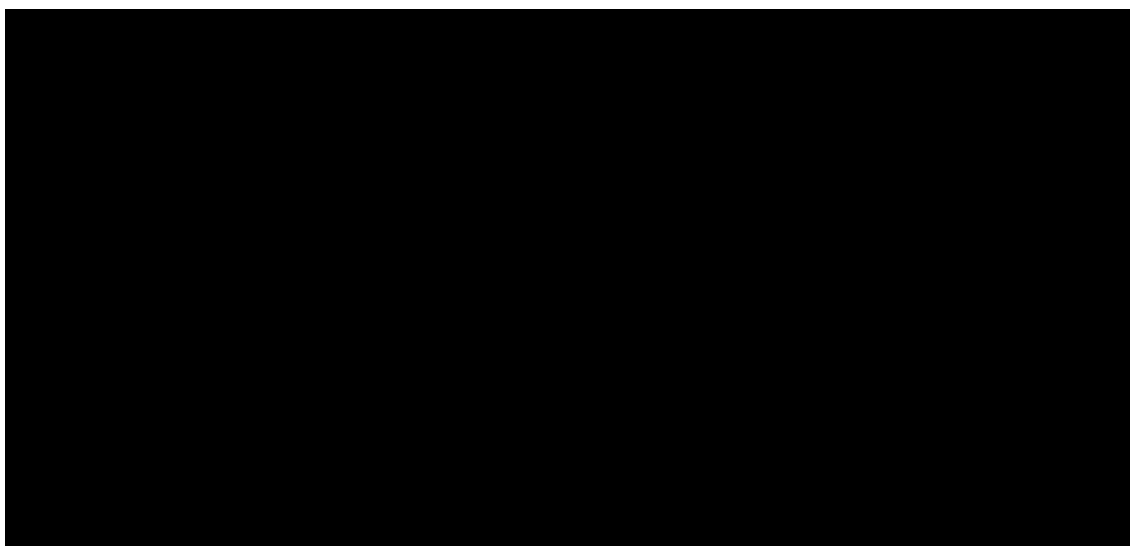
**Graphical Representation of Total Dissolved Solids
(As per ICAR Standards Parameter)
for the Year 2010-2011
WR Division Aurangabad**



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, including sedimentation, mining or storm water runoff. Increased TDS may impart a bad odor or taste to drinking water.

From above graph it is observed that the TDS value at all stations is not within tolerance limit, at some locations like Aurangabad, Shendurwada, Toka & Shahagad, it is on much higher side.

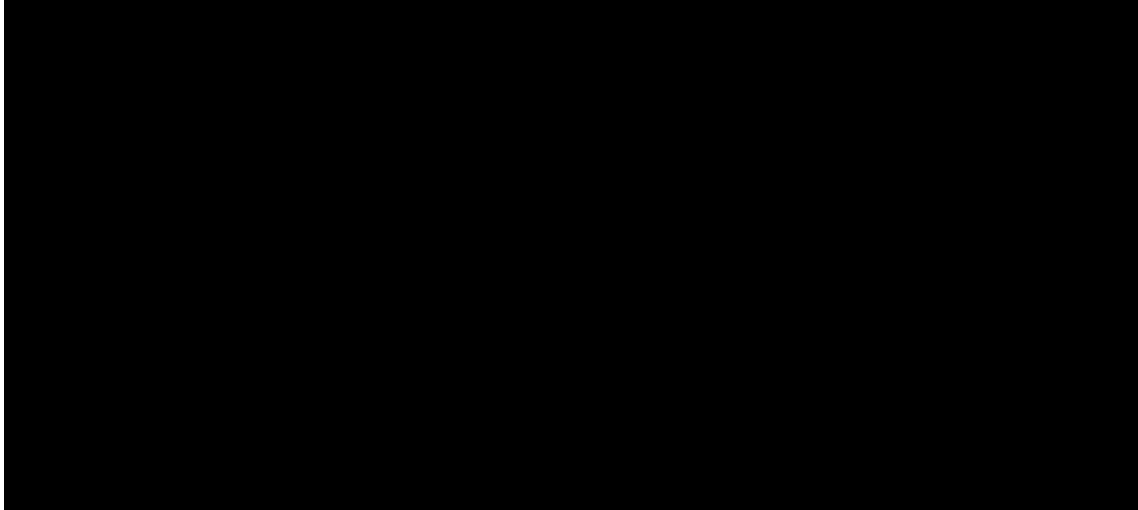
**Graphical Representation of Boron
(As per IS10500 Standards)
for the Year 2010-2011
WR Division Aurangabad
Dam Locations**



Boron is another 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.

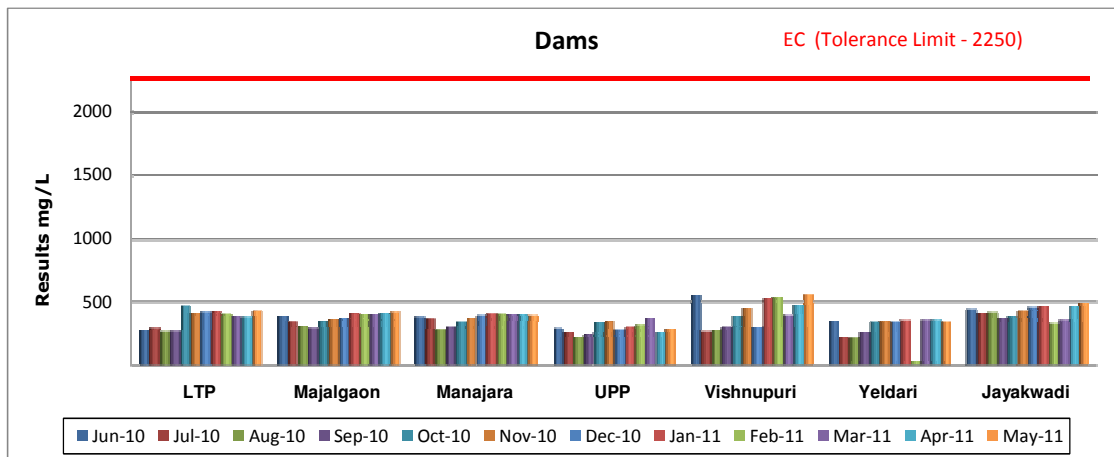
From above station's graph it is observed that Boron is within tolerance limit.

**Graphical Representation of Na%
(As per IS10500 Standards)
for the Year 2010-2011
WR Division Aurangabad
Dam Locations**



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 IS-10500 standards it is within limit.

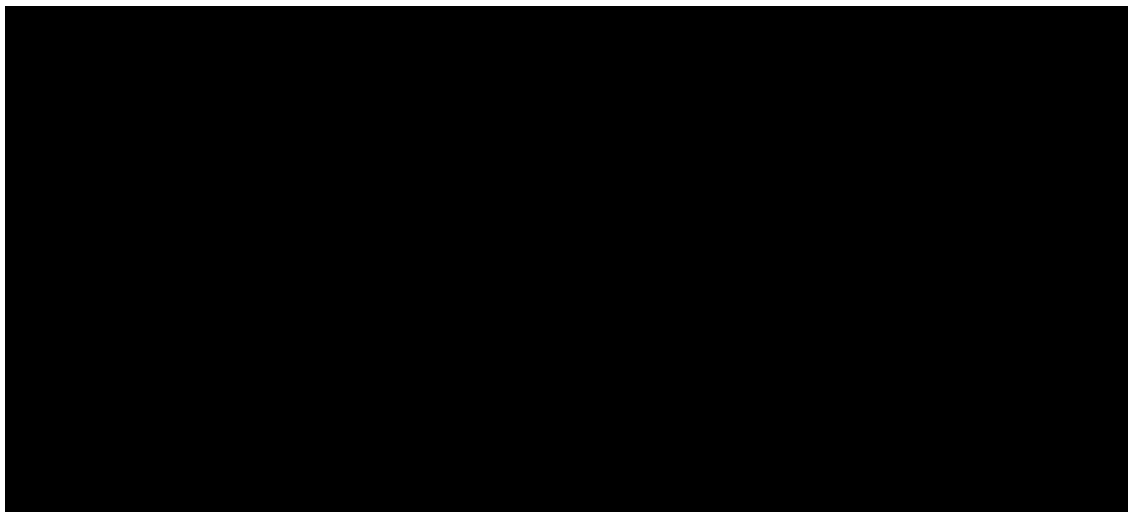
**Graphical Representation of Electrical Conductivity
(As per IS10500 Standards)
for the Year 2010-2011
WR Division Aurangabad
Dam Locations**



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 IS-10500 Stds water at all station's Electrical Conductivity is within tolerance limit.

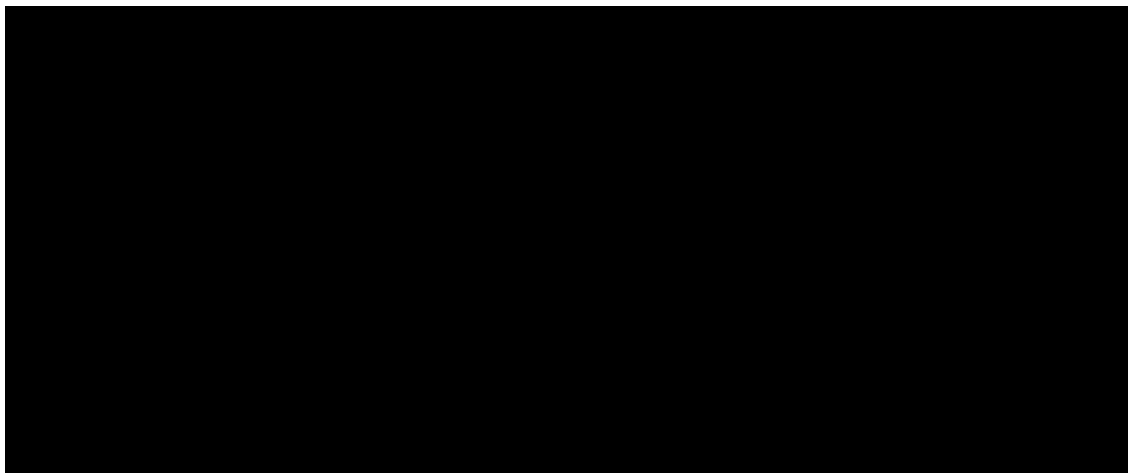
**Graphical Representation of pH
(As per IS10500 Standards)
for the Year 2010-2011
WR Division Aurangabad
Dam Locations**



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 IS-10500 standards water of all station's pH is within tolerance limit, except LTP & Jayakwadi.

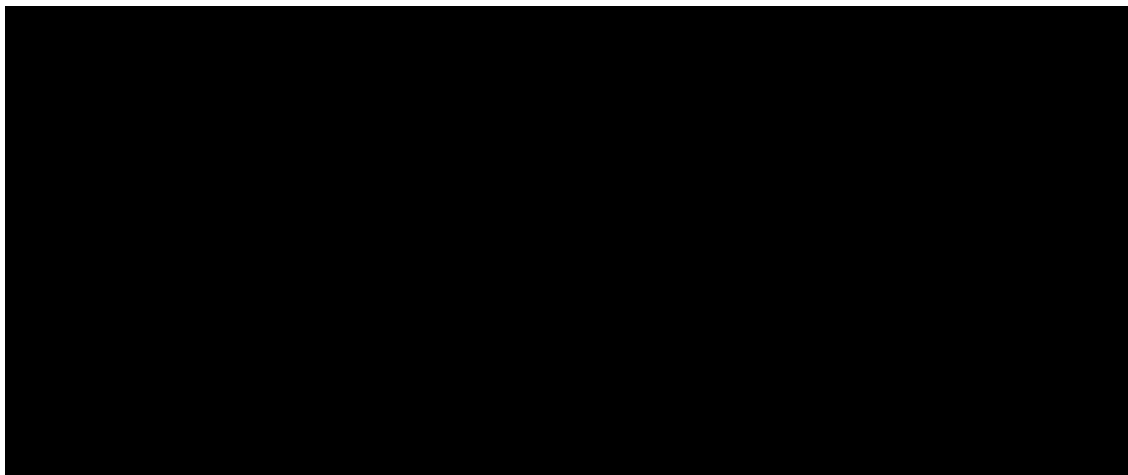
**Graphical Representation of SAR
(As per ICAR Standards)
for the Year 2010-2011
WR Division Aurangabad
Dam Locations**



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.

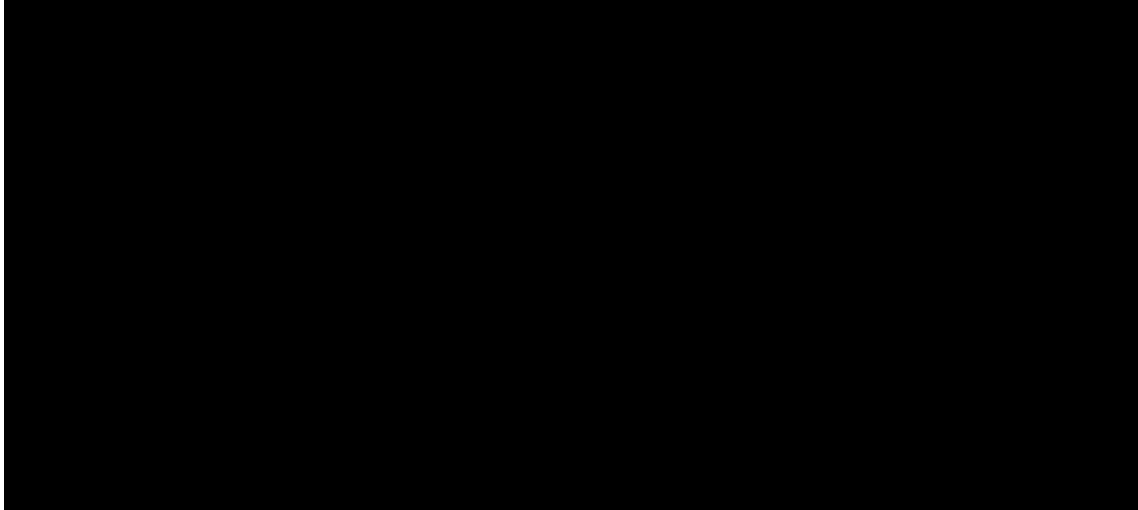
As per above graph SAR is within tolerance limit.

**Graphical Representation of TDS
(As per IS10500 Standards)
for the Year 2010-2011
WR Division Aurangabad
Dam Locations**



As per drinking Standards of TDS limit (500 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.

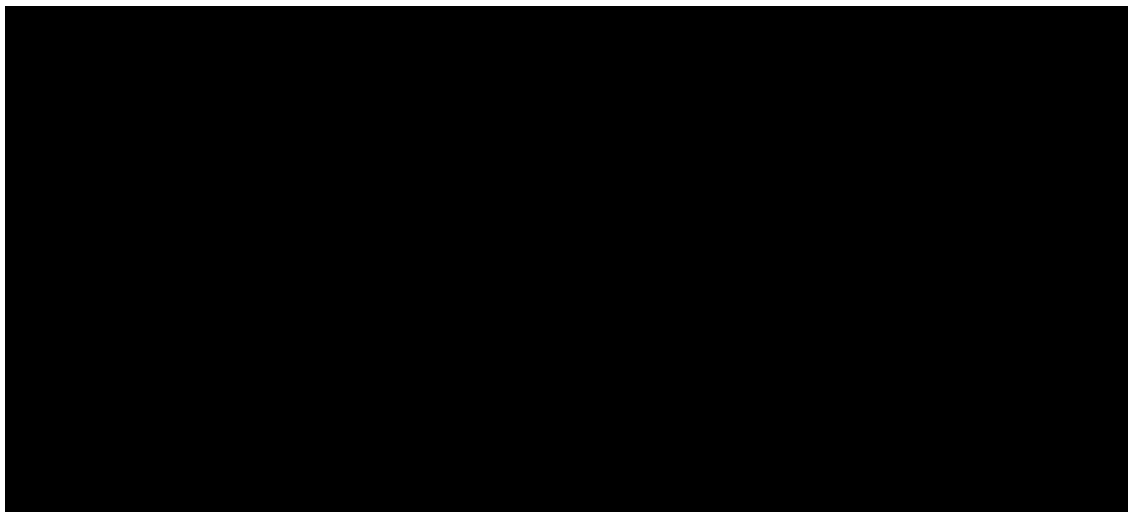
**Graphical Representation of FCol-MPN
(As per IS10500 Standards)
for the Year 2010-2011
WR Division Aurangabad
Dam Locations**



When a sample is positive for T 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.

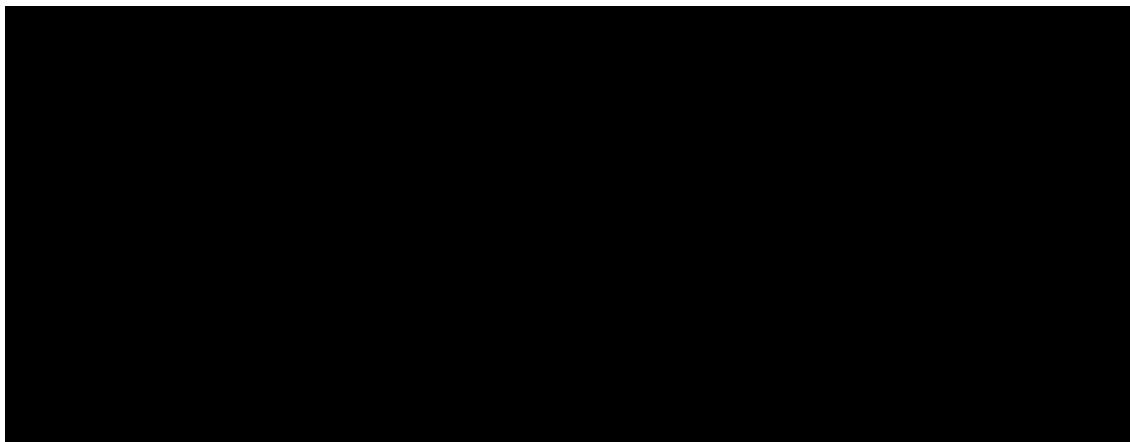
**Graphical Representation of TCol-MPN
(As per IS10500 Standards)
for the Year 2010-2011
WR Division Aurangabad
Dam Locations**



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.

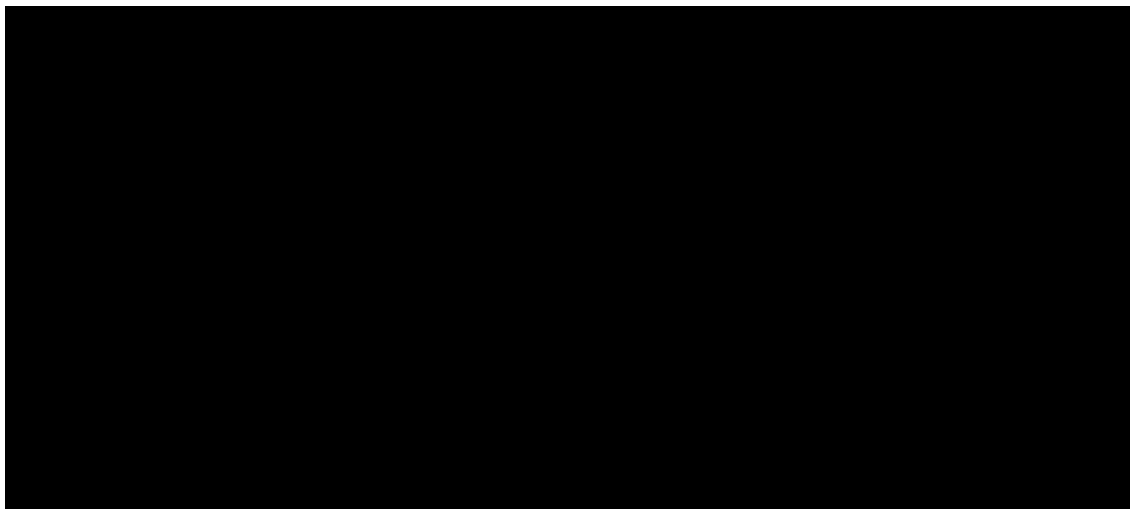
From above graph it is observed that at every station there is Bacterial count in every month. Water should be treated before use.

**Graphical Representation of Boron
(As per ICAR Standards)
for the Year 2010-2011
Amaravati Division**



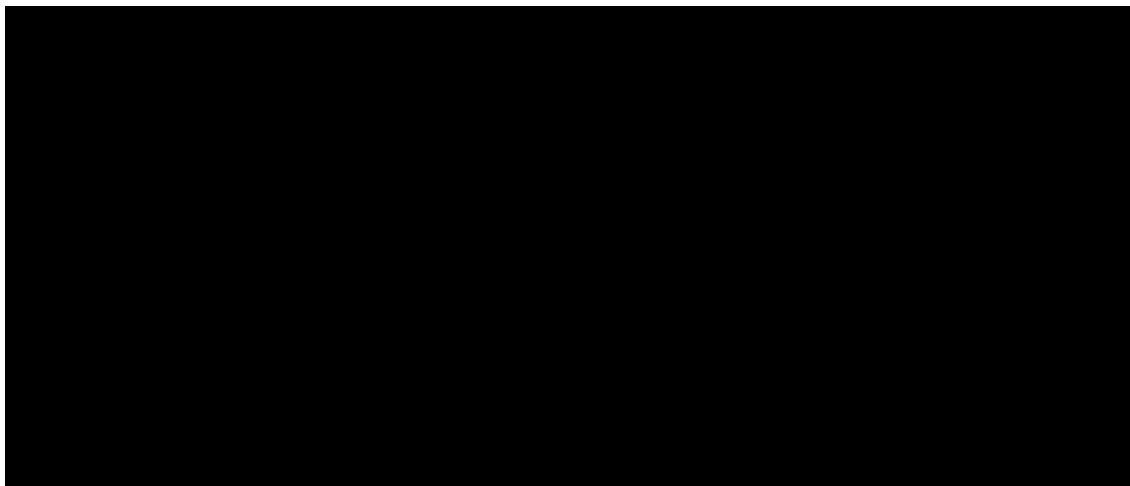
As per above station's graph it is observed that Boron is within tolerance limit. Boron is another element that is essential in low amounts, but toxic at higher concentrations. In fact toxicity can occur on sensitive crops at concentrations less than 2.0 ppm. Soils and irrigation waters contain enough Boron, that additional Boron fertilizer is not required in most situations. Because Boron toxicity can occur at such low concentrations, an irrigation water analysis is advised for ground water before applying additional Boron to crops.

**Graphical Representation of Chloride
(As per ICAR Standards)
for the Year 2010-2011
Amaravati Division**



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. From graph it is observed that at all stations it is within tolerance limit.

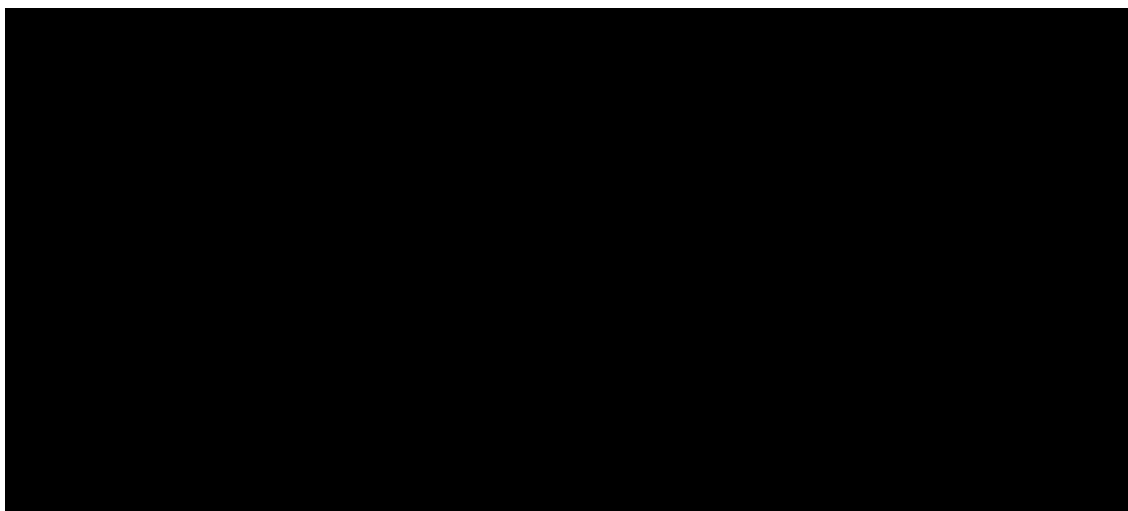
**Graphical Representation of Electrical Conductivity
(As per ICAR Standards)
for the Year 2010-2011
Amaravati Division**



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.

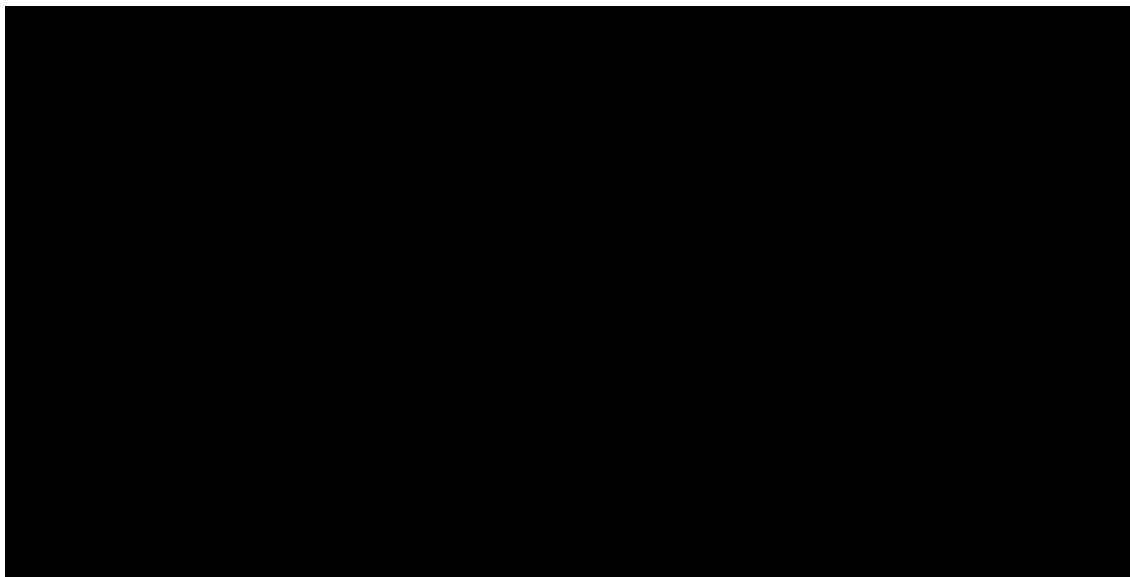
From above graph it is observed that as per ICAR Stds water at all stations is within tolerance limit.

**Graphical Representation of Na%
(As per ICAR Standards)
for the Year 2010-2011
Amaravati Division**



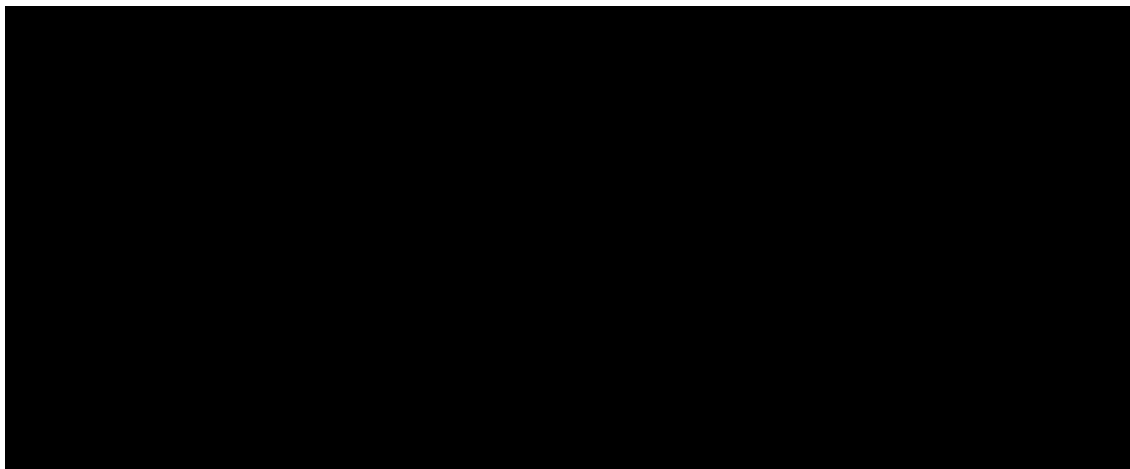
From above Graph it is observed that the Na% value has fluctuation at every station. However many factors including soil texture, organic matter, crop type, climate, irrigation system and management impacts on how sodium in irrigation water affects soils. But as per ICAR standards it is within limit

**Graphical Representation of pH
(As per ICAR Standards)
for the Year 2010-2011
Amaravati Division**



pH means the acidity or basicity of water. From graph we observed that pH value is in range of 8.1 to 8.3. The normal pH range for irrigation water is from 6.5 to 8.5. Abnormally low pH's are not common in Colorado, but may cause accelerated irrigation system corrosion where they occur. High pH's above 8.5 are often caused by high bicarbonate (HCO_3^-) and carbonate (CO_3^{2-}) concentrations, known as alkalinity.

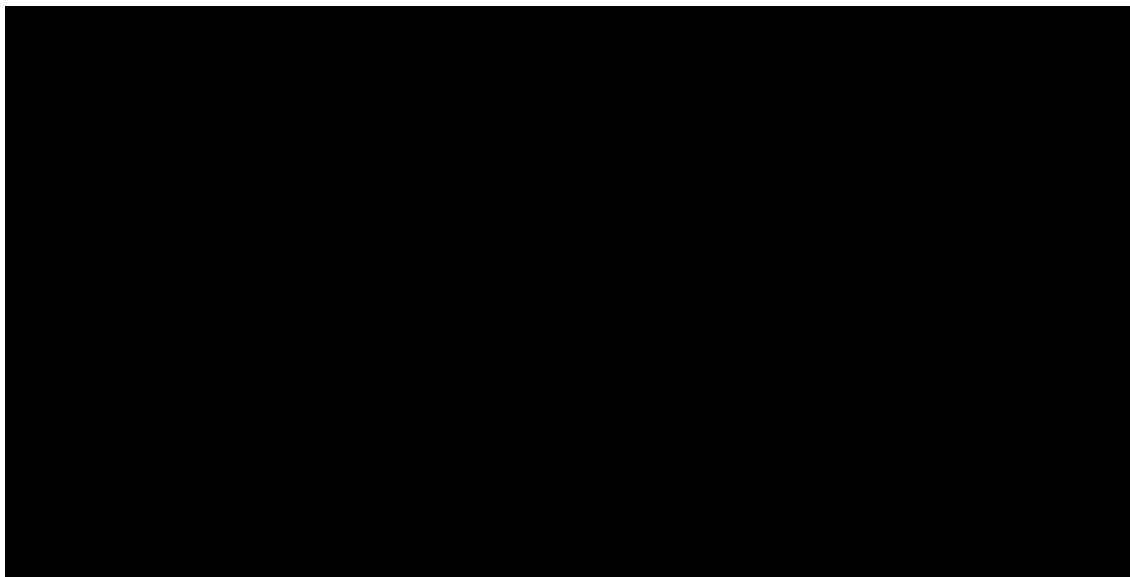
**Graphical Representation of SAR
(As per ICAR Standards)
for the Year 2010-2011
Amaravati Division**



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.

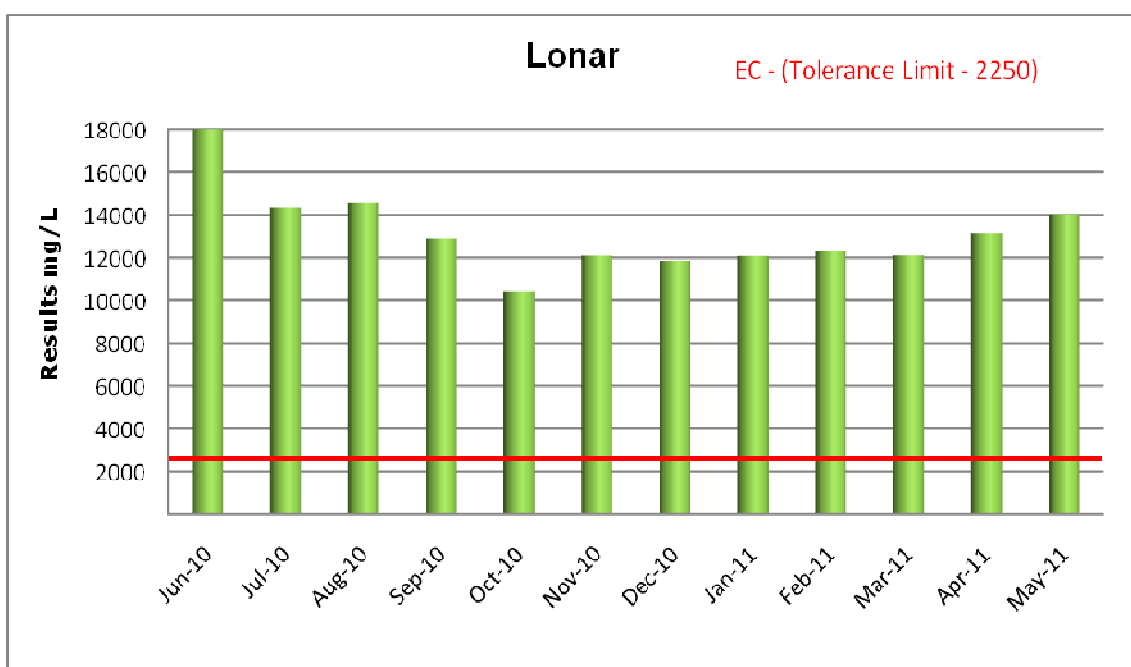
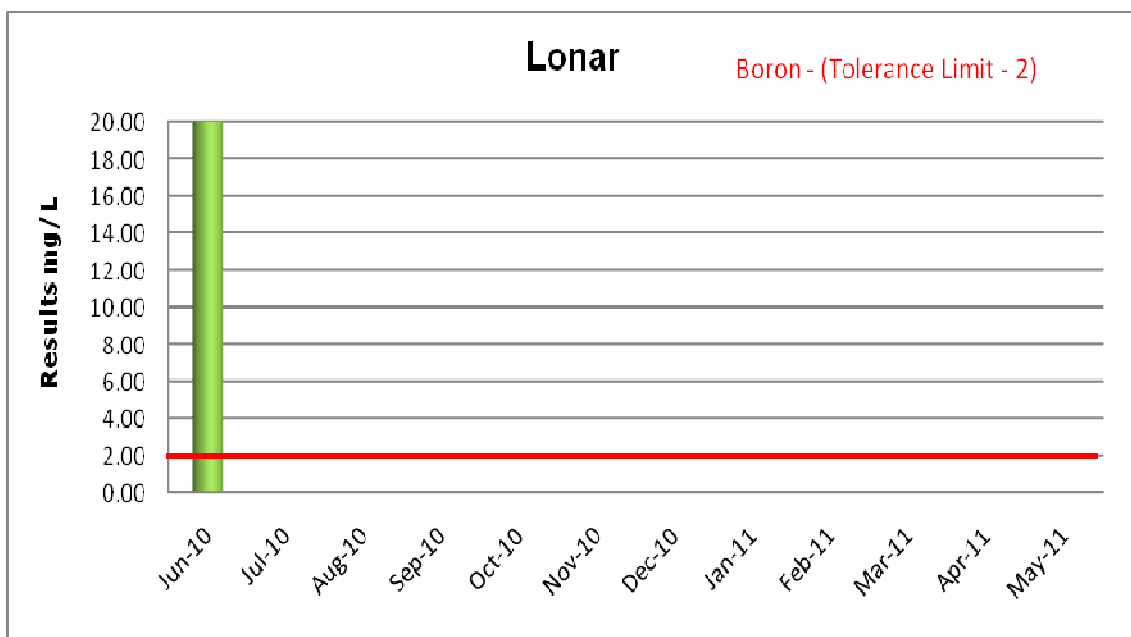
As per above graph SAR is within tolerance limit.

**Graphical Representation of Total Dissolved Solids
(As per ICAR Standards)
for the Year 2010-2011
Amaravati Division**

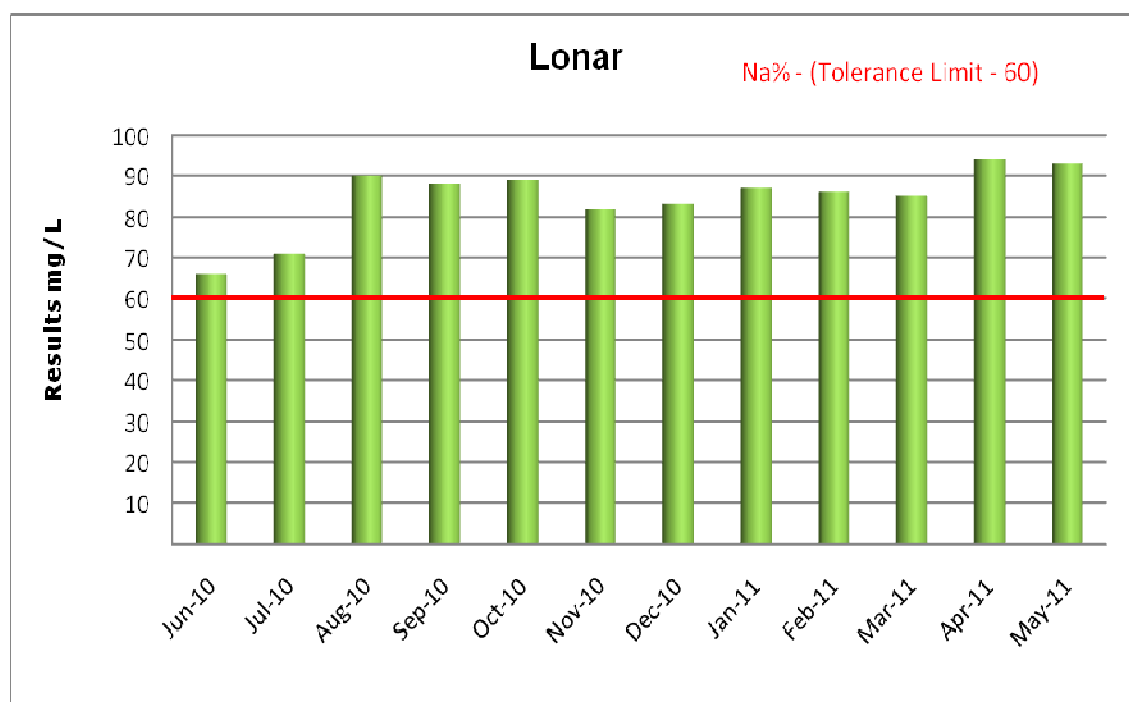
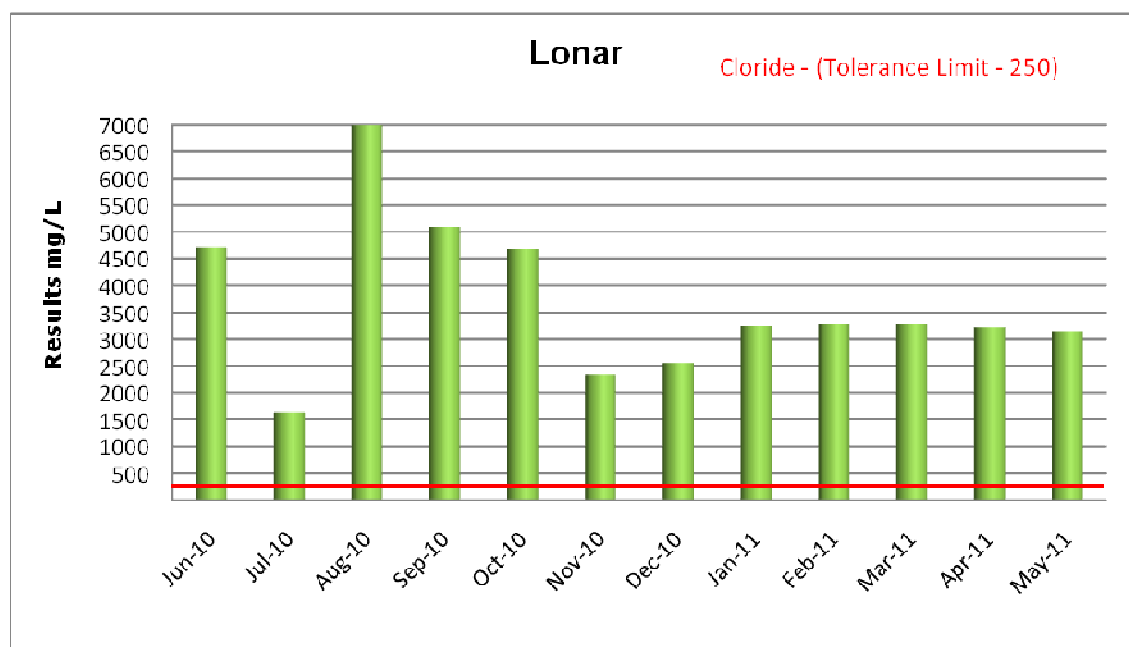


As per drinking Standards of TDS limit (500 mg/L), from above graph it is observed that in every month TDS of water is within limit. TDS is a general indicator of overall water quality. It is a measure of inorganic and organic materials dissolved in water. High levels of TDS in surface water may be due to several factors.

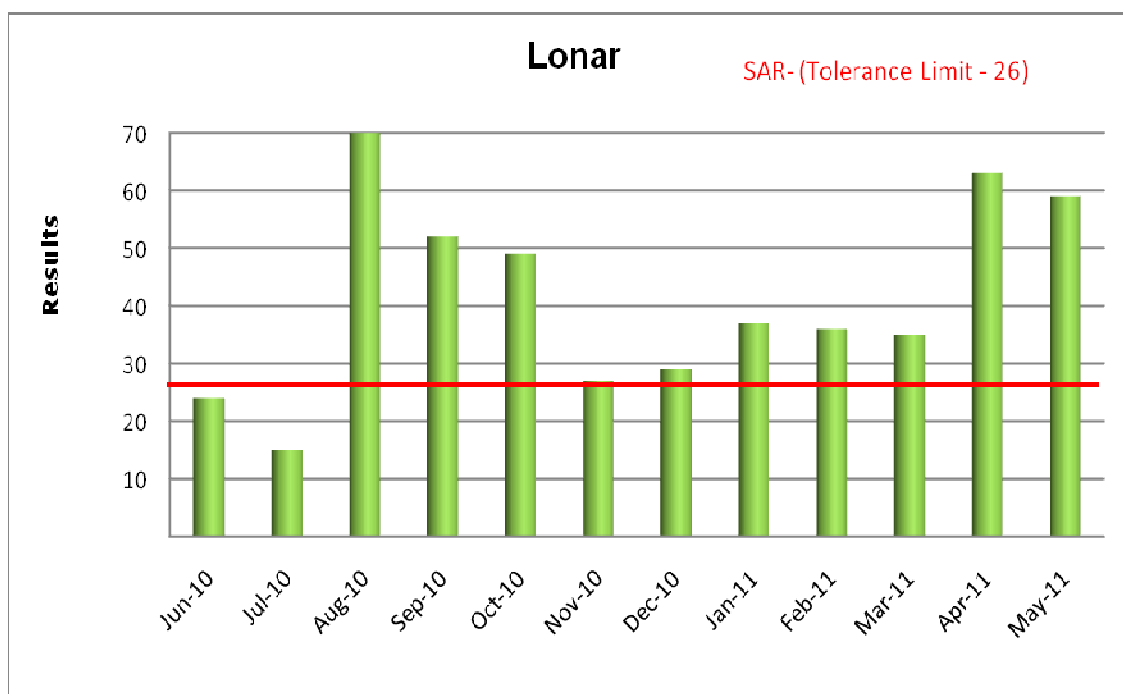
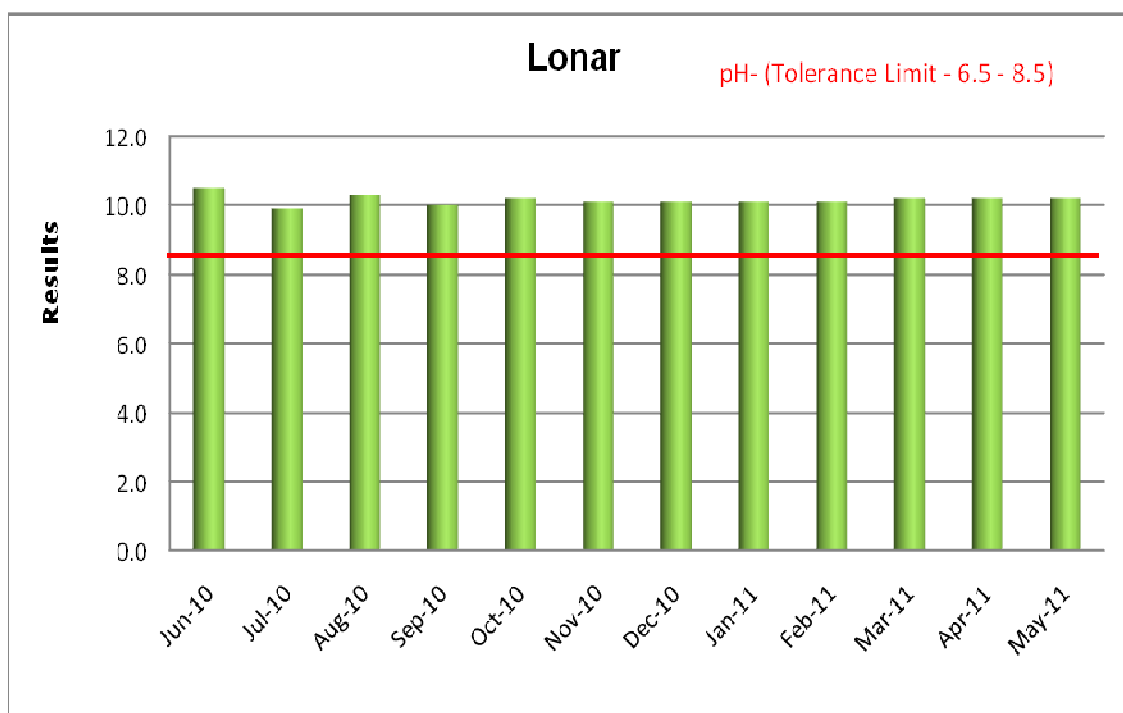
**Graphical Representation of Chloride
(As per ICAR Standards Parameter)
for the Year 2010-2011
WR Division Aurangabad
Lonar Station**



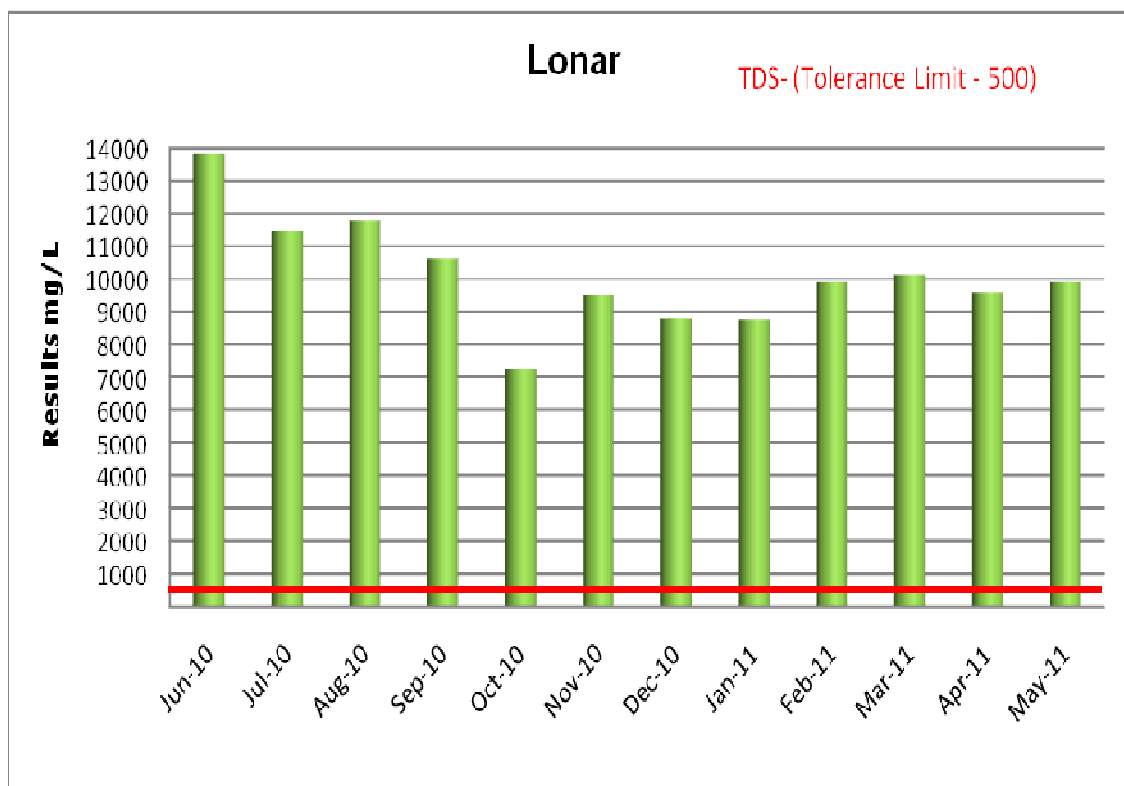
**Graphical Representation of Chloride
(As per ICAR Standards Parameter)
for the Year 2010-2011
WR Division Aurangabad
Lonar Station**



**Graphical Representation of Electrical Conductivity
(As per ICAR Standards Parameter)
for the Year **2010-2011**
WR Division Aurangabad
Lonar Station**



**Graphical Representation of Na%
(As per ICAR Standards Parameter)
for the Year **2010-2011**
WR Division Aurangabad
Lonar Station**



LONAR



LONAR Famous for : In the whole world, this is the biggest natural salt-water lake.

The shape of this lake is like a bowl. This lake came into existence when a huge meteor from the space descended on the earth some 50,000 years ago. This lake is 7 km in consideration and the diameter is 1.8km .This is the oldest and the largest meteoric crater in the whole world.

This lake was created by the hypervelocity of meteoritic affect in basaltic rock and the research has shown that the meteor, which had stroked was sixty meters in diameters.Lonar has been recorded to be the third biggest natural salt-water lake in the world.

One of the British officers C.J.E Alexander noticed this lake and in 1896, GK Gilbert conducted thorough research to prove the existence. The lake was proved to be formed due to the meteoric hit by using Cosmic Ray.

This crater is gifted with distinctive self-emerged ecosystem heading to evolution of new forms of life. Blue green algae, Spirula are found in the lake. This lake is an attractive brackish lake. There are many features of moon rocks found in the rocks here.

This lake has been mentioned in the ancient scripts. It is mentioned in Aain-i-Akbari .There was a salt factory during the era of Emperor Akbar.The name of the lake has been mentioned in Sanskrit literature Viraj Mahatma. In ancient time, this lake was known, as Viraj Kshetra.There is an old temple of Lord Vishnu, which was built in the 13th century during the era of Chalukya. This temple has a width of (450m) and is (150m) long .This temple is a magnificent example of huge and lustrous ancient structure.

The Paphareshwar pilgrimage is close to this lake .This temple has ancient Sanskrit engravings, which are still not deciphered.

CHAPTER – V

RESULT & DISCUSSION

CHAPTER - V

CONCLUSION

Designated best use	Quality Class	Primary Water Quality Criteria
---------------------	---------------	--------------------------------

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.

Drinking water source without conventional treatment but with chlorination	A	<ul style="list-style-type: none"> ➤ 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)	B	<ul style="list-style-type: none"> ➤ 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	C	<ul style="list-style-type: none"> ➤ 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	<ul style="list-style-type: none"> ➤ 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	<ul style="list-style-type: none"> ➤ pH between 6.0 and 8.5 ➤ Electrical conductivity less than 2250 micro mhos/cm, ➤ Sodium Absorption Ratio less than 26, ➤ and Boron less than 2 mg/l.
	Below E	➤ Not Meeting A, B, C, D & E Criteria

CPCB Water Quality Criteria

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 6.6 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 6.0 or above 10.0 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 those 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 soil, 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 2010-11 it can be concluded that for the Aurangabad Division Station & Amaravati Division Stations water is good for irrigation purpose without any treatment but it is observed that the stations like Aurangabad & Lonar, the 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 not suitable for Irrigation purpose; 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 another 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.

Bottled water besides being expensive and highly unfeasible as a main drinking water source is not under the same government regulations as municipal water systems and may actually contain more contaminants than tap water. The absolute best technology now available for treating water and removing undesirable contaminants is water filtration. Water filters when compared to any other water treatment alternative will remove more contaminants and provide safer, healthier drinking water.

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

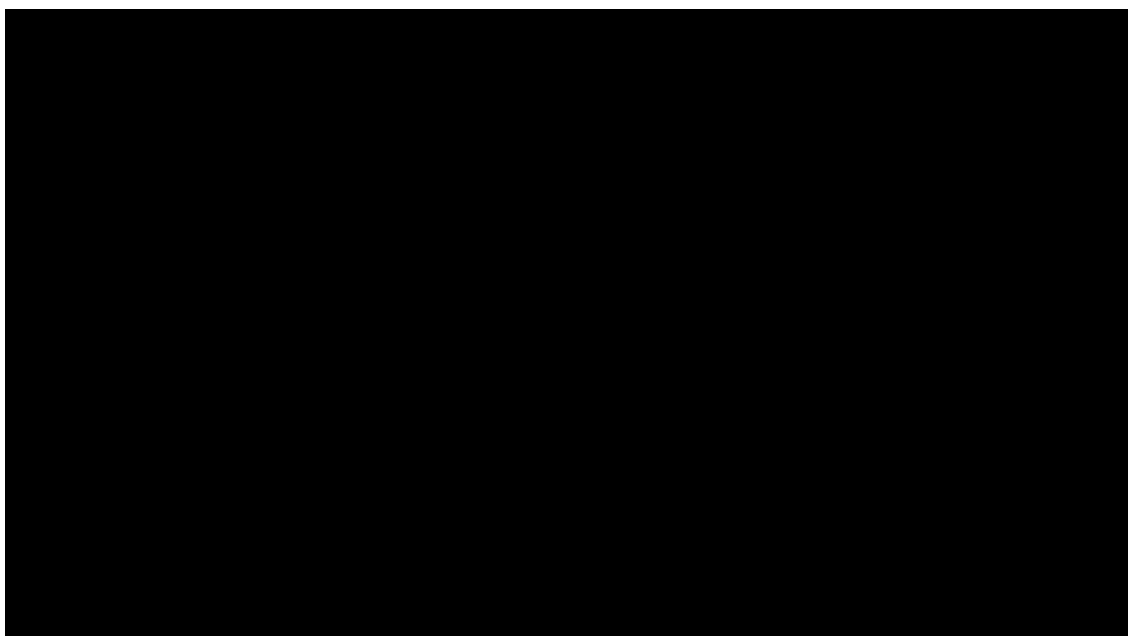
Apart from monitoring of water quality network for Water Quality lab level II at Aurangabad, the infrastructure facility is made available to the users from various Government, Non Government, Private sector as well as individuals.

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

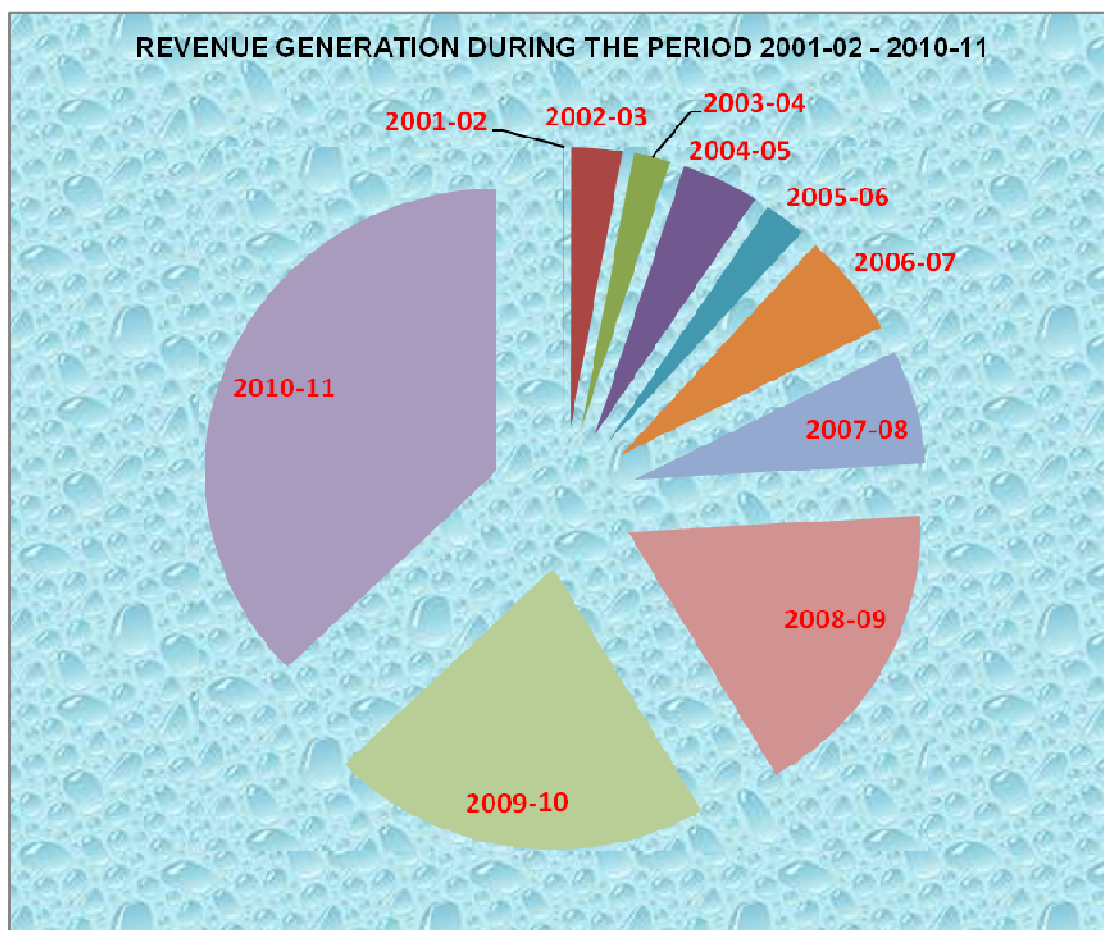
During the year 2010-11 many clients approached to the laboratory. The valuable clients availed the facility of the laboratory are as below;

Revenue Received from year 2001-02 to 2010-11

Year	Aurangabad Lab
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



**Pie Diagram Of
Revenue Received from month year 2001-02 to 2010-11
Water Quality Lab Level II Aurangabad**



Annual Report

Water Quality Monitoring through Water Quality Lab Level-II Aurangabad
for the Year 2010-11

A N N E X U R E

Chapter	Particulars	Page No.
I	LIST OF CLIENTS 2010-11	79
II	QUALITY POLICY TOWARDS ISO 9001:2008	80
III	LAY OUT OF LAB LEVEL- II	81
IV	PAPER CUTTINGS	82 – 84
V	VISITORS COMMENTS	85 – 90
Vi	PHOTOGRAPHS	91 – 92
VI	JURISDICTION MAP OF LABORATORY	93

List of Selected Clients OF 2010-11
Analyzed water Sample

Sr. No.	Name of Clients	Purpose
1.	Chief Officer Muncipal Council Sindhkhed Raja	
	M.A.E.T. Hotel Mangement	
	M.A.E.T. Y.B. Chauhan college of pharmacy	
	M.A.E.T. Millinium Institute	
	M.A.E.T. tom patric inst of computer	
	Sigma Institute of medical Scien Pvt Ltd	
	Good Year SouthAsia Tyers ,A'bad	
	Bharkha Farm Paithan	
	MGM Polytechnic College	
	Neel Operations,Abad	
	Godavari jaldhara,A'bad	
	Airport Authority of India,Aurangabad	
	Bhaskaracharya Pratishthan,Chate English school A'bad	
	Auranhgabad Jalna Tollways Ltd.A'bad	
	Gram Aryogya Pani Purwatha	
	OMR Bagla	
	Franky India Pvt Ltd.Abad	
	KT Sangam Infrastucture	
	Regional Manager,Frozen semen Laboratory,Harsul,Aurangabad	
	Marathwada Urban Banks Co Op Aso, Ltd A'bad	
	Welcom Hotel Ram International A'bad	
	Mukteshwar Suger Mill	
	Orchid Pharma Ltd. Waluj A'bad	
	Saylee Trust College of Pharmacy,Mitmita, Aurangabad	
	Lemon Tree Hotel A'bad	
	Nirmal Water System	
	Muncipal Corporation Aurangabad	
	Gram Arogya Water Supply & Sanitation Comitte	
	Purti Power & Sugar Ltd.Nagpur	
	Foster Development School of Management A'bad	
	OMR Bagla Automotive A'bad	
	ndian Oil Co. Ltd.	
	Dr. Babasaheb Ambedkar Marathwada University A'bad	
	MIDC E & M Division A'bad	
	Ecosterile Marketing Pvt.Ltd.Mumbai	

	Hotel Trimurthy	
	Depo Manager MSRTC Soygaon	
	Junior Telecom Officer BSNL Civil Sub-Division Shrirampur	
	Glanze Engg. Co. Ltd.	
	Executive Engineer,Majalgaon Irrigation Divison,Parli	
	Saptshrungi steel Pant,Jalna	
	M/s.Beten Concrete Products	
	M/S.Tulsi Buildcon,A'bad	
	Hotel Abhi,A'bad	
	Peri Fresh Bultin ,A'bad	
	New Arts ,Science,Commerce College,Shevgaon Dist.Ahmadnagar	
	Jaylaxmi casting ,Farola	
	ILFS Water Limited A'bad	
	Om Sai Industries,A'abad	
	Ajeet seeds Ltd,Chitegaon Tq.Paithan dist A'bad	
	Bohra Foods Pvt.Ltd.Jamner Dist Jalgaon	
	Arti Farms Pvt.Ltd	
	Mukteshwar Sugar Mills Ltd	
	Endurance Technology Ltd	
	Navkisan Bioplant Tech Ltd.	
	Grampanchayat Office, Krishnapurwadi, Sawngi	
	Dhoot Transmission Ltd. A'bad	
	Shakuntala Industries Gangapur	
	Kashvi Chemicals, A'bad	
	Deputy Engg. MIDC, E & M, Sub Division Aurangabad	
	Videocon Ltd. A'bad	
	Village Health Water & Sanitation Comm. Janjala, A'bad	
	Yash Assocites abad	
	Jailakshami Casting Alloy	
	Dy Engineer MIDC EM sub division Abad	
	Executive Engineer MIDC Abad	
	Asst Engr sholapur CentralSub Divn	
	Indian Institute of rural Development	
	Lemontree Hotel abad	
	Siddhivinayak Enterprizes Abad	
	Fortrees Infrastructure A'bad	
	Group Grampanchayat Paithnkheda	
	Bembde Hospital A'bad	
	SVS Chemical Corporation Pune	
	M. G. M. J. N. E. College	

	Bajaj Finance	
	Hindalco Almex Aerospace	
	Pantallons Retail Prozon Mall	
	Savera Auto Comps	
	Larsen Toubro Ltd ecc divn	
	Water life Kranti Chowk ABAD	
	Principal Dr Zakria institute of tech science	
	RADICO NV Distillaries,Shendra, A'bad	
	Sectional Engineer,South Central railway, Jalna	
	Principal, New Arts ,Science College, Shevgaon Dist Ahmednagar	
	Nath Polytechnic,MIDC,Paithan	
	Rock & Water Scape International Super stone KoatsPvt Ltd.Joint Venture,Sakinaka,Mumbai	
	Shree Swami Samarth Industries,Chikalthana,A'bad	
	Kaygaon Paper mill	
	More Mega Store A'bad	
	Excedy India Ltd. A'bad	
	Aurangabad Electricals Ltd.,A'bad	
	WIPRO ltd.Consumer Care & Lightening Dn.A'bad	
	Ion Exchange India Ltd. Dapoli Pune	
	Dhoot Trasmission Pvt. Ltd. Aurangabad	
	SE, Signal (SE Railway) Nanaded	
	Kamalnayan Bajaj Hospital	

QUALITY POLICY

**WATER QUALITY LABORATORY, LEVEL-II,
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.....

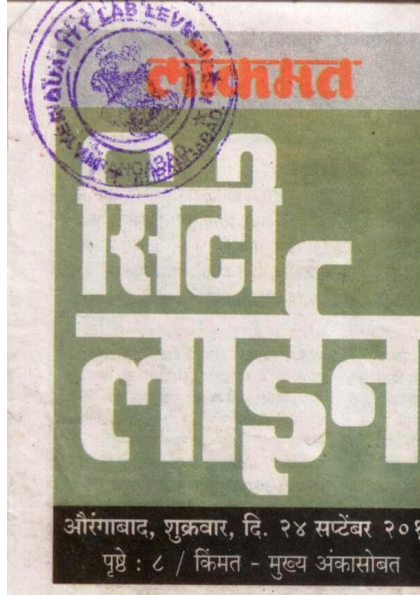
- **TO MONITOR EFFECTIVENESS OF QMS TIME TO TIME & WILL ALSO WORK FOR CONTINUAL IMPROVEMENT OF THE ACTIVITIES.**
- **TO WORK FOR CONTINUAL IMPROVEMENT IN ITS TECHNOLOGY, PROCESSES AND TO INCREASE COMPETENCY LEVELS HAVE ITS PERSONNEL.**
- **TO DELIGHT THE CUSTOMER BY FULFILLING CUSTOMER NEEDS, STATUTORY/REGULATORY 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**



1	Display Board
2	Cup Board 1
3	Cup Board 2
4	Computer Table
5	Inverter
6	Cup Board 3
7	Cup Board 4
8	Distilled Water Assembly
9	Sink
10	Kjaldahl Distillation Unit
11	Sink
12	Refrigerator
13	Cupboard Lab 1
14	Non Hazardous Chemicals
15	Desigator, Weighing Balance
16	Hazardous Chemicals
17	Working Table
18	Autoclave
19	Distillation Unit
20	Centrifuge & Water Bath Unit
21	BOD Incubator
22	Deep Fridge
23	Bacteriological Incubator
24	Computer
25	Spectrp Photometer
26	Sink
27	Turbidity Meter
28	pH Meter
29	EC Meter
30	COD Digester Unit
31	Analysis Platform
32	Exhaust
A	Reception Table
B	INWARD & OUTWORD
C	Lab Office
D	Toilet
E	Distillation Unit/Pantry
F	Chemical Storage Room
G	Microbiological Room
H	Instrumental Room
I	Washing Bath
J	Chemist Table
K	Waste Disposal Area
L	Received Sample Location
M	Field Kit Cupboard



औरंगाबाद, दि. २३- प्रादेशिक आरोग्य प्रयोगशाळेत चव
देशी दारूच्या बाटलीत आणलेले पाण्याचे नमुने तपासले जा
आहेत. यामुळे पाण्याची सूक्ष्मजीवशास्त्रीय तपासणी किं
गुणवत्तापूर्ण होते यावरच प्रश्नचिन्ह निर्माण झाले आहे.
मनपाचा पाणीपुरवठा विभाग असो की जिल्हा परिषदेचे
प्राथमिक आरोग्य केंद्र येथे पाण्याच्या नमुन्यासाठी सर्रास
'चपटी'चा वापर करीत असल्याने नागरिकांच्या आरोग्याचा
या सरकारी यंत्रणेने खेळ मांडला आहे.

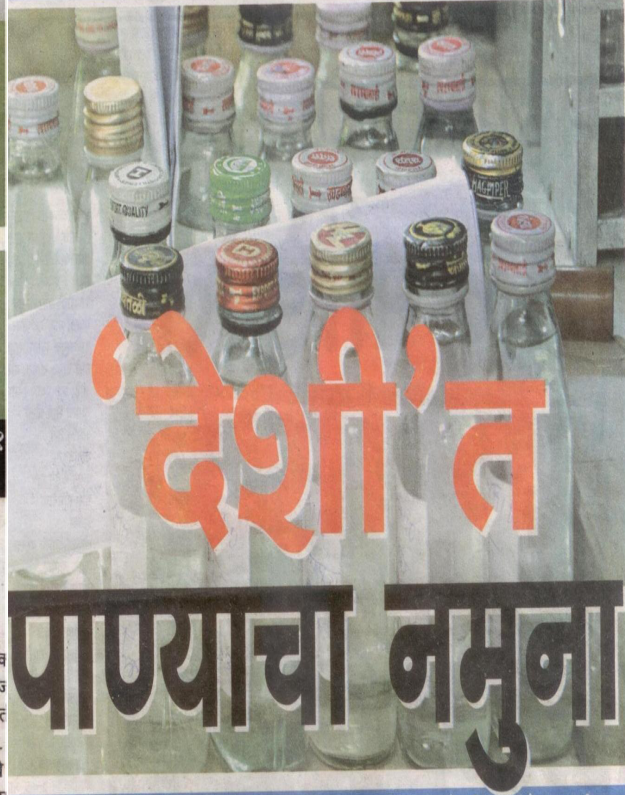
सार्वजनिक पाणीपुरवठा, विहीर, बोअरचे पाणी पिण्यासाठी योग्य
का? पाणी दुषित होऊन साधीचे आजार पसरू नयेत किंवा त्वचारागे
नयेत यासाठी शासकीय यंत्रणा नळाचे पाणी, विहीर, बोअरमधील पा
नमुने तपासणीसाठी वेळोवेळी घेत असते. या पाण्याच्या नमुन्याची तपा
छावणी येथील प्रादेशिक आरोग्य प्रयोगशाळेत करण्यात
महानगरपालिका हद्दीतील विविध वसाहतीमधील पाण्याचे दररोज १०
तपासणीसाठी घेतले जातात. मनपा पाणीपुरवठा विभाग व आरोग्य
पाण्याचे नमुने घेते. याशिवाय १३ ग्रामीण रुग्णालये व ५० प्राथमिक आ
केंद्रातून पाण्याचे नमुने तपासणीसाठी आणले जातात. पाण्याचे नमुने घे
कोणती काळजी घ्यावी, पाण्याचे नमुने कोणत्या बाटलीत आणावेत,

राज्यभरात त्याच बाटल्या

प्रादेशिक आरोग्य प्रयोगशाळेतील मुख्य अणुजीवशास्त्रज्ञ सु.वि. पल्ल
यांनी सांगितले की, अनेक वर्षांपासून प्रयोगशाळेत दारूच्या बाटल्या
पिण्याच्या पाण्याचे नमुने घेण्यासाठी वापर केला जातो. या बाटल्यांचे
वॉशिंग केले जाते, त्यानंतर निर्जंतुकीकरणसाठी हॉट एअर
ओव्हनमध्ये १६० डिग्री सेंटिग्रेड या तापमानात २ तास ठेवले जाते.
या निर्जंतुक केलेल्या बाटल्याच मनपा, ग्रामीण रुग्णालये, प्राथमिक
आरोग्य केंद्रांना पाण्याच्या नमुन्यासाठी दिल्या जातात. मध्यंतरी आम
दारूच्या बाटल्यांवरील झाकण बदलण्याचा प्रयत्न केला; पण तो प्रयो
अयशस्वी ठरला. या दारूच्या बाटल्यांत पाण्याचे नमुने घेण्याबाबत
आजपर्यंत कोणी आक्षेप नोंदविला नसल्याने या बाटल्यांचाच सर्व
आरोग्य प्रयोगशाळेत वापर होत असल्याचे त्यांनी नमूद केले.

बाटलीस कोणते झाकण लावावे, त्या बाटलीत हवा जाऊ नये यास
कोणती खबरदारी घ्यावी यासाठी कडक नियम आहेत; पण हे सर्व नि
धाब्यावर बसवून पाण्याचे नमुने घेतले जात आहेत. दारूच्या फेकून दिले
बाटल्यांचा पाण्याचे नमुने घेण्यासाठी सर्रास वापर केला जात अ
उल्लेखनीय म्हणजे, पाण्याच्या नमुन्यासाठी शासनच दारूच्या बाटल
पुरवठा करीत आहे. देशी दारूची बाटली चपटी असते व ने-आण करण
सोयीस्कर असते. एका बॅगमध्ये दहा ते पंधरा बाटल्या आरामशीर मावत

प्रादेशिक आरोग्य प्रयोगशाळेचा अजब कारभार



'देशी'त पाण्याचा नमुना

■ पाणी तपासणीचा 'खेळखंडोबा' ■ शासनच करते नियमांचे उल्लंघन

झाकणावर कागद गुंडाळता जातो किंवा वेष्टून लावले जाते. मात्र, येथे
एकाही बाटलीच्या झाकणाची दृष्टता घेता येत नाही. यामुळे
देशी दारूच्या बाटलीवरील झाकण एवढे कुचकामी असते की ते
दाबल्यास लगेच तुटते. मग या पाण्याच्या नमुन्यात हवा न फिरण्याची
काय गॅंटी, असा प्रश्नही उपस्थित होतो. चप्पल-बूट घालूनच सर्व
जण प्रयोगशाळेत वावरात. प्रयोगशाळेचे सर्व दरवाजे-छिडक्या
सतत उघड्या ठेवल्या जातात. प्रयोगशाळेत धूळ नसावी यासाठी
प्रयोगशाळेचा आतील भाग बंदीत असावा. या प्रयोगशाळेत

फेकून दिलेल्या बाटल्या

पिंपरी, सैरा, नारी या देशी दारूच्या बाटलीस 'चपटी' म्हटले जाते. सर्व सहज उपलब्ध होणारी
ही चपटी कचऱ्यात फेकून दिली जाते. कचरा वेचणारे या बाटल्या जमा करून भंगारत विकतात.
भंगारतील या बाटल्या प्रादेशिक आरोग्य प्रयोगशाळा खरेदी करते. या बाटल्या नंतर पाण्याचे नमुने
घेण्यासाठी वापरल्या जातात. मध्यंतरी जमा झालेल्या किंचिततार दारूच्या ठिकाण्या बाटल्या प्रादेशिक
आरोग्य प्रयोगशाळेने विकून टाकल्या, अशी माहिती कर्मचाऱ्यांनी दिली.

झाकणावर प्रश्नचिन्ह

प्रादेशिक आरोग्य प्रयोगशाळेत बाटली निर्जंतुक करण्यासाठी हॉट
एअर ओव्हनमध्ये २ तास ठेवली जाते. या देशी दारूच्या बाटल्यांवरील
झाकण कुचकामी असते. या तापमानात ते धा धरू शकते काय, असा
प्रश्न निर्माण होतो. झाकण तुटल्यास पाण्याचे नमुने गोळा करणारे कर्मचारी
दुसऱ्या निर्जंतुक केलेल्या बाटलीचे झाकण तावतात. मग पाण्याच्या
गुळवेतवर याचा परिणाम होतो की नाही, या प्रश्नावर अधिक्यांनी उत्तर
दिले नाही.

तपासणीचे नियम

- पाण्याची सूक्ष्मजीवशास्त्रीय तपासणी करण्याकरिता काचेचे
घट्ट बसणारे अथवा धातूचे फिरकीचे झाकण असलेली २००
मि.लि.ची बाटली असावी. ही बाटली पाण्याचा नमुना
घेण्यापूर्वी निर्जंतुक असणे आवश्यक आहे.
- ही बाटली पाणी नमुना घेणेवेळीच उघडावी.
- झाकणाच्या आतील बाजूस स्पर्श न करता बाटलीचे झाकण
उघडावे.
- बाटलीत पाणी घेतल्यावर झाकण पूर्ववत ताबूत पुन्हा उघडू
नये. यासाठी झाकणावर कागदी आच्छादन लावावे.
- बाटलीवर नमुना घेतल्यावर ठिकाणचे नाव, पत्ता लिहिणे
महत्वाचे.

नळाच्या पाण्याचा नमुना घेण्याची दृष्टत

■ सुवातीस नळाची टोटी बाहेरून धुऊन काढावी.

Festival Shoppee gets underway

Aurangabad, Oct 28: The five-day exhibition-cum-sale 'Festival Shoppee' began at S F S High School ground on Thursday.

The leading industrialist Yashwant Bhogale inaugurated the exhibition.

Commander Anil Save, Ram Bhogale, Madhav Bhogale, Anjali Save, Rajni Bhogale, Shyam Bhogale, Savitri Bafna, Ashish Garde and others were also present.

More than 100 companies have set up its stalls of the branded goods in the exhibition. These include Hyper, Godrej, Onida, BSA, Nirlep, Prestige, Pigeon, Usha International, Filltronics, Mitashi, Fuji Film, Kodak, Bajaj, Maharaja, Camlin, Ganesh Papad, Pitambari, Gala Brush, Prince Plastic, Wagh



Industrialist Yashwant Bhogale inaugurating the 'Festival Shoppee' exhibition at S F S High School ground on Thursday. Also seen are Cdr Anil Save, Ram Bhogale, Madhav Bhogale and Anjali Save.

Bakri Chaha, Pravin Masale, Ram Bandhu, Tata B P Solar, Cycle Agarbatti and Sudarshan Saur.

There are also stalls of food items like 'bhail puri, vada

pav, Chinese vegetarian and non-vegetarian, juice and gobi manchurian'. The entry is free and the exhibition will remain open from 11 am to 9 pm till November 1. -(LNS)

सामना

संभाजीनगर, शुक्रवार, दि. २० ऑगस्ट २०१० शिवटचं पाल

दूषित पाण्यामुळे आजारांचा धोका जलगुणवत्ता प्रयोगशाळेत ४९० नमुन्यांची तपासणी

अनिल भाले

संभाजीनगर, दि. १९ - शहरातील बहुतांशी वसाहतींमध्ये नागरिक बोअरच्या पाण्यावर तहान भागवत आहेत. दरम्यान, शहरातील काही खासगी व संस्थांच्या बोअरच्या पाण्याची तपासणी केली असता ९० टक्के नमुन्यांत शारांचे प्रमाण आवश्यकतेपेक्षा जास्त असल्याचे जलसंपदा विभागाच्या जलगुणवत्ता प्रयोगशाळेत केलेल्या तपासणीत आढळून आले आहे. शारयुक्त व दूषित पाण्यामुळे जडणाऱ्या व्याधींचे प्रमाण वाढत आहे. शहराचा सर्व बाजूंनी मोठ्या प्रमाणात विस्तार होत असून, अनेक वसाहतींमधील नागरिक व खासगी अस्थापने, शहरानजिकच्या हॉटेल्स, हॉस्पिटल्सना बोअरच्या पाण्यावरच आपली तहान भागवावी लागते. अलीकडे जलजन्य आजारांच्या रुग्णांत मोठ्या प्रमाणात वाढ झाली आहे. शारयुक्त व दूषित पाणीच विविध आजारास कारणीभूत ठरते. त्यामुळे पोटाचे विकार, कावीळ, संसर्गजन्य रोग, दंत किडनीचे विकार त्वचारोग, कावीळ हे आजार जडतात. जलसंपदा विभाग जलविज्ञान प्रकल्पाच्या जलगुणवत्ता प्रयोगशाळा स्तर-२ मध्ये जून २००९ ते मे २०१० या वर्षात ४९० पाण्याचे नमुने तपासण्यात आले. यातील तपासणी बोअरच्या ९० टक्के नमुन्यात शारांचे प्रमाण आवश्यकतेपेक्षा जास्त आढळून आले आहे. या

प्रयोगशाळेत आतापर्यंत २०० शासकीय तर १४०० नमुने हे खासगी संस्था, व्यक्ती, कारखाने, पंचतारांकित हॉटेल्स, हॉस्पिटल्स असे एकूण १६०० पाण्याचे नमुने तपासण्यात आले आहेत. बोअरच्या पाण्याच्या तपासणीत शारांचे प्रमाण प्रति लिटर १००० मिलिग्राम ते १२०० मिलिग्राम एवढे जास्त प्रमाणात आढळून आले आहे. प्रतिलिटर हे प्रमाण साधारणतः ५०० मिलि. ग्रॅमएवढेच असणे आवश्यक आहे. पाण्यातील जडपणा ३०० मि. लि. ग्रॅमएवढा असावा. मात्र हे प्रमाणही ५०० ते ७०० मि. ली. ग्रॅमपर्यंत गेल्याचे तपासणीअंती आढळून आले आहे.

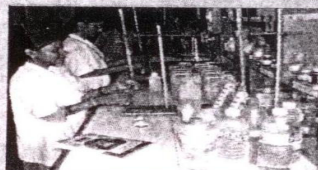
जलगुणवत्ता तपासणी आवश्यक

या संदर्भात जलविज्ञान प्रकल्पाचे उपविभागीय अधिकारी व्ही. पी. कुलकर्णी म्हणाले की, प्रत्येक नागरिकाने वर्षातून २ वेळा आपण पितो त्या पाण्याची गुणवत्ता तपासणे आवश्यक आहे. दूषित पाण्यामुळे जडणाऱ्या रोगांच्या उपचारावरील खर्च पाणी तपासणीच्या खर्चापेक्षा अधिक असतो. प्रत्येकने पाण्याची तपासणी करणे आवश्यक आहे. बोअरच्या पाण्याची जलगुणवत्ता आवश्यक असून, शारांचे प्रमाण कमी करण्यासाठी बॉटर वयुरी बसवणे आवश्यक असल्याचे ए. डी. महाजन यांनी सांगितले.

अत्याधुनिक प्रयोगशाळा

राज्य सरकारच्या जलसंपदा विभागांतर्गत जलविज्ञान प्रकल्प जागतिक बँकेच्या सहकार्याने १९९५ पासून सुरू करण्यात आला. या प्रकल्पांतर्गत शहरातील हेडगेवार् हॉस्पिटलनजीक २००१ पासून जलगुणवत्ता प्रयोगशाळा स्तर-२ कार्यान्वित करण्यात आली.

ही प्रयोगशाळा अत्याधुनिक उपकरणांनी

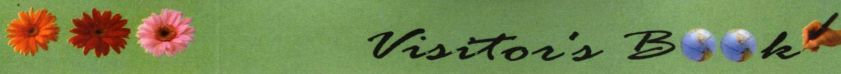
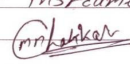



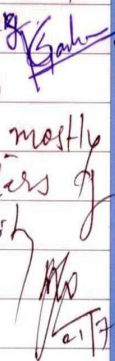
सज्ज असून, येथील कर्मचारी उच्चशिक्षित आहेत. प्रयोगशाळेत मराठवाड्यातील मोठी धरणे, नद्यांचे पाणी नमुने संकलित करून त्याची भौतिक, रासायनिक, जैविक तपासणी करून त्याचे निष्कर्ष संगणकीय प्रणालीद्वारे जतन केले जातात. या प्रयोगशाळेस फेब्रुवारी २०१० मध्ये आय.एस.ओ. ९००१-२००८ हे प्रमाण मान्यता प्राप्त झाले आहे. प्रयोगशाळेमार्फत जलसाक्षरतेच्या प्रसारासाठी विविध उपक्रमांचे आयोजन करण्यात येते.

Visitors visit to the Laboratory and their remarks

				
DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
29/06/10	श्री. राजेन्द्र वन्सीलाल शुक्ला. मुख्य अभियंता. महाराष्ट्र जलसंपत्ती विकास केंद्र, औरंगाबाद.	0280- 23061943	shuklaraj2001@yahoo. co.in	प्रयोगशाळा अत्युत्कृष्ट आहे. ISO भिल्ल्यामुळे एक मानाचा तुला खोवता गेला आहे. सामान्य जनमानसात गुणवत्तेबाबत जनजागृती आवणं गरजेचं आहे. अजून प्रयत्न केले तर भविष्यात भरपूर काम होऊ शकेल. प्रसारमाध्यमातून भरपूर प्रसिद्धी द्यावी ही सूचना. R.B. Shinde

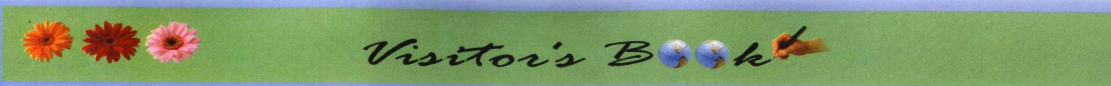
				
DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
25-6-10	T. S. R. Gupta DAG o/o A.G (AU) II Nagpur.	9422305448	tsrgupta@gmail.com	Lab is one of the best and observing well laid down procedure worldwide applicable. I hope the results are flawless. Good & Qualified, trained personnel on the specified jobs. Hope the results are suited to the expectations of all concerned bodies public at large. Gupta 25/6/10.

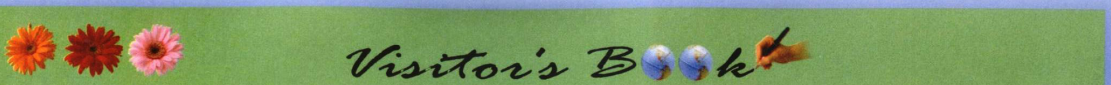
				
DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
31/7/2010	Pr. Shaikh S.M. New Arts com & Sci college Shergaon.	9420241826	sm.sk69@yahoo.com	Very nice lab & excel- cooking.
3/7/2010	Pr. Borade D.A. New Art com & Sci college Shergaon.	9975906908	Devikarani borade@gmail.com	Excellent lab also very good working.
3-7-2010	Prof. C.S. Ansule New, Art, comm & sci college Shergaon.	9423160730	Ansules Gmail @.com	Very nice lab, good environment, we got very dmt. information about water analysis. Mahajansir, pawar madam & shripande give dmt information.
19/07/10	Mayuresh M. Chakkarwar. project fellow. Devgiri college Aurangabad.	9970401614	mchakkarwar@rediffmail.com	Very nice lab & well established with Advance instruments 

				
DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
21/07/10	Sanjay K. Gavhane AE (E&M) MIDC (water works)	9423149701	sgavhane69@yahoo.in	found a complete technically sound and good quality lab at Aurangabad level. Really it is very good thing.
21/7/10	Ravikant T. Marwade DECEBM) MIDC	9422714693		Nicely set up laboratory as mostly all parameters of water quality being tested 

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
21/8/10	P. J. Rangai CE, MIDC, Nanded	9702991666	ce@wide ce@wideindia.org	Laboratory is maintained very good. It is creditable that this lab has received ISO 9000. Officers & staff of the lab are nice and perform very good. For 21/8/10
26/8/10	Dr. J. N. Bhugat L.D. frozen semen lab Harwal, Awaraj	9423942845	bhugajn@yahoo.in	Very much impressed by visiting ISO certified updated laboratory. Officers & staff working is cooperative & illustrated the importance of water analysis. Hence it is utmost imp. to check water samples to save the life human & animal.

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
1.	Snait J. Rohatkar Back Asstt.	9822111627	-	Laboratory is Very good & waste done Very nice. staff work is co-operative & giving guidelines. For
2.	श्री प्र. सि. सक्ते उप निवारण अधिकारी	9422272942	-	प्रयोगशाळा अचूक आहे. त्यामुळे संविधान च्या चर्चाची सोय होऊ आहे. या प्रयोग शाळेचा स्वतःचा उपयोग होईल याचा आनंद मिळेल प्र. सि. सक्ते

				
DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
8-12-10	रविंद्र नाथयालब कुलकर्णी प्रकल्प अधिकारी, म. फुले कृषी प्रविष्टान, औरंगाबाद.	9423150067	ravikulkarni1969@gmail.com	आपली प्रयोगशाळा अत्यंत उत्कृष्ट असून येथे कार्यपद्धती, व कार्यप्रणालीची लक्षणे वाचकांना सांगिते आहे. आपला आगामी कार्ये तारीख सांगत.
19-3-11	Shalmughna Parshram Patil Executive Engineer, WALMI Aurangabad	9271232347		The lab is well equipped with highly sophisticated instruments having reasonable accuracy of testing of water quality S.P. Patil

				
DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
22/3/11	Pratik K Nawale Dept of Chem Tech Dr. BAMU, A'bad.	9272652166	pk.nawale@gmail.com	The lab is having very well instruments and water analysis facilities. All the methods of water analysis were explained to us by staff members. P. Nawale
23/3/11	Quazi Munna . Dept. of Chem. Tech. Dr. BAMU, A'bad	9665519784	q.munna@gmail.com	The lab is well maintained and is well equipped with instruments Even the staff is very serious in their work and gave us much knowledge and cleared our doubts. Q. Munna

Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
29-03-11	Siddhant Patil	9595921212	siddhantpatil@gmail.com	The lab is very well equipped with standard norms. And we appreciate efforts of staff very much.
6/4/11	A. A. Shah	9422291141	amitkunj-1@hotmail.com	It's well maintained both by equipment and staff and more so by professional Caliber. The staff is well versed with industrial and professional procedures in vogue. The exposure to B-Tech (final) third year students in your laboratory has proven a unique experience. I extend my sincere thanks to the organization for its social work and help rendered.

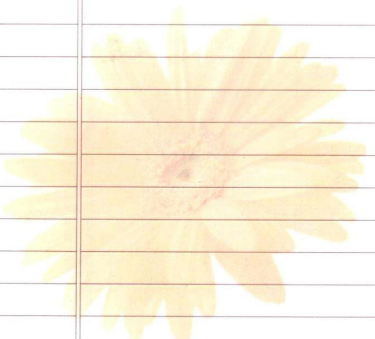
Visitor's Book

DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
26/06/11	Dr. S. M. Deshpande Head, Deptt of. Geology Govt. Institute of Science Aurangabad.	9421303658	dr_smd_cavediffmaji.com	I have seen the Lab and find everything region this lab is well equipped and maintained in good manner. The analytical procedure followed by chemist is as per APHA hence this lab is good for research and common people.

Visitor's Book



DATE	NAME & ADDRESS	CONTACTS	E-MAIL	REMARKS
30/6/2011	श्री यशवंत अर्जुन अंकुश समुपदेशक संत रोहिदास हारोण केंद्र मुकुलवाडी कोरगावाड	7588696538	yashwant.Amkush@gmail	संत रोहिदास हारोण केंद्रील N.S.D.L. प्रकल्प केंद्रील असलेल्या हारोण मिनांना स्वयं वसुध पाणी गुल्लि फुल स्पष्ट केल टोसय प्रत्येक लवामधील भेट देऊन सर्वांना समाजातून संगितले ही माहिती समाज्यासाठी आलेल्या मुकुलवाडी नाह. या माहितीमुळे वस्तीमधील लोकांचे 80% माजार लायबू शकली हान्यवाद 30/6/2011



[illegible][illegible][illegible]

डिझाईनर सारीज्
 कापटाना कपडनन का
सारीज् जेठ सटाकरन
"डिस्काउंट धमाका"
 कोरनेरन शुक्र के है ।
 सारे मुहारी निम ओ ।
 साराप सरीज्, साराप
 HONG के के सरी,
 सरी सरी सरी सरी
 सरीज् सरी सरी सरी

हार्ड वर महाभारती का काला उज्ज्वल
स्वास्ति विजयाना भया सुगुणम्
काला हारी मोहोती सारी प्रेम व
अनेक नयन विहारीय कथी व
साक्षात् वर वरुण भरीय
हार्ड वर महाभारती सारी प्रेम व
अनेक नयन विहारीय कथी व
साक्षात् वर वरुण भरीय
हार्ड वर महाभारती सारी प्रेम व
अनेक नयन विहारीय कथी व
साक्षात् वर वरुण भरीय

हालक्ष्मी ॥

जिरीणावा, फोन २३३२०२८

[illegible]