

6.3

Water Usage and Care

6.3.3 Free Drinking Water for Students, Staff and Visitors

MRIIRS Weblink to SDG 6:

<https://mriirs.edu.in/sdg06-clean-water-and-sanitation/>

Free Drinking Water for Students, Staff and Visitors

Drinking water is free for all students, faculty members, staff and visitors and is available round the clock. MRIIRS is extracting groundwater from three tube wells in the campus and supplying to the drinking water storage overhead tanks (OHT) to each building. From these OHTs water through RO system goes to water coolers installed at each building and to taps of each floor. The taps are specially equipped with water efficient fixtures. The water cooler and RO system servicing is done as per the approved schedule. The raw water analysis by third party is done in regular interval to have a check on its quality.

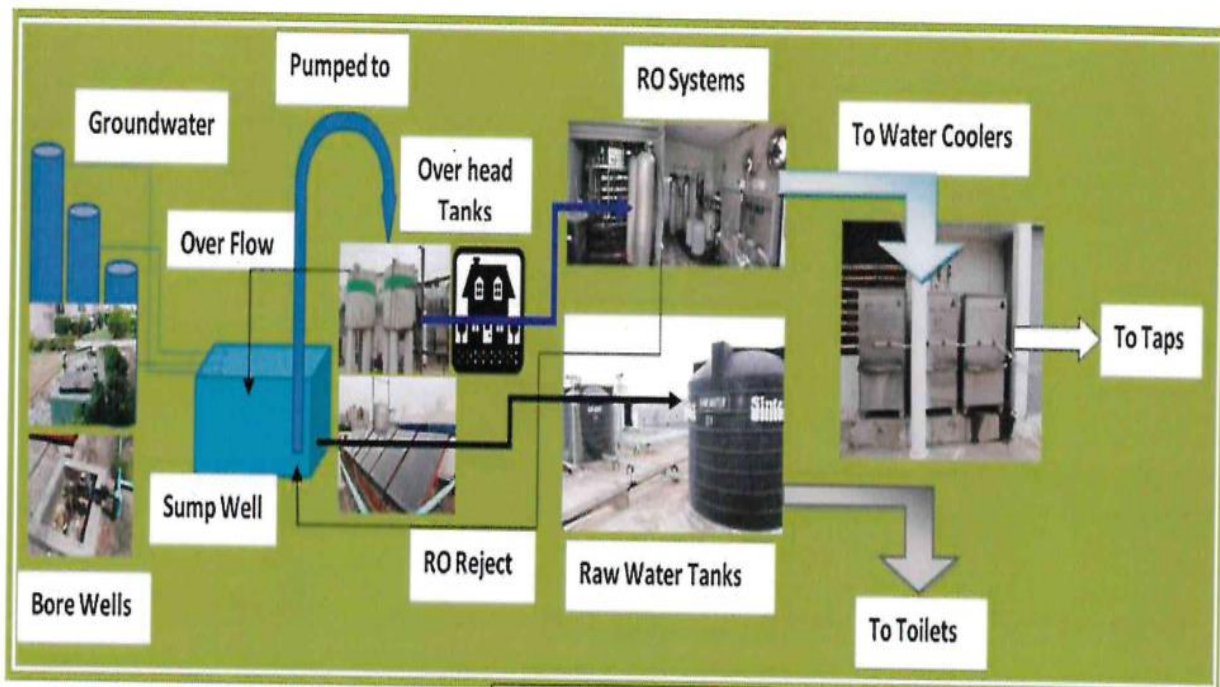
As evidence in support to 6.3.3 **ground water report on clean and free water supply for students, staff and visitors including water flow supply of MRIIRS, photographs of OHTs, Water cooler and RO systems** have been provided along with the **raw water analysis results**. All the data are available in public domain through web site of MRIIRS.

Ground Water Report
on
Free and Clean Water Supply
At MRIIRS

Ground Water and Water Supply at MRIIRS:

Drinking water is free for all students, faculty members, staff and visitors and is available round the clock. The MRIIRS campus is situated on Quartzite of Delhi Super group dipping nearly vertical. The groundwater level in the campus varies from 7 to 15 m below ground level and ground water flow direction is from west to east in accordance with regional groundwater flow pattern.

MRIIRS is extracting groundwater from three tube wells in the campus and supplying water to the drinking water storage overhead tanks (OHT) to each building. From these OHTs water through RO system goes to water coolers installed at each building and to taps of each floor. Since the campus is trying to achieve green campus criteria, the water supply system is fitted with water efficient fixture and fittings. All the OHT (over head tank) are fitted with sensors, all the toilets and taps have also been equipped with sensor. Therefore, the consumption of water is below of general domestic use in the campus.



Water Supply Flow Chart at MRIIRS



Ground Water Flow Pattern of MRIIRS

Overhead Tanks & Tube wells

The campus is depended on groundwater resource. Presently the MRIIRS campus has 03 working tube wells located at various places in the campus. All the wells are fitted with submersible pumps and flow meters. The details of pumps are as shown in Table-1. Tube well water is first located in 9 sumps having a capacity to store 660m³ of water located at various places. The water is then distributed to various blocks, where it is stored in 39 OHT (overhead tanks) having a capacity to store 131m³ each. The OHT are of two types, one is for drinking water use and others are for other domestic use available in white and black colours to be maintain the uniformity.

The ambient quality of groundwater drawn from these tube wells is very good and all the parameters are within the permissible limits prescribed for drinking water by ISI0500. The raw water TDS of wells ranges from 380 to 430mg/l. To ensure the drinking water quality further, RO plants have been installed at various locations having a discharge capacity of 45500l/day (Liters per day). The RO presently maintain output TDS in the range of 90 to 112mg/l and the RO

reject having the TDS between 450 and 700 mg/l. The RO reject is reused putting it in the raw OHT presently.

Table-1: Tube wells Details of MRIIRS Campus

SN	Location	Type of Well	Depth in metres	Diameter of well at top in metres	8" diameter (0.203m) Assembly in metres	8" dia slot from to in metres	Pump HP (stage)	DTW (Depth to Water) Mbgl	Ground water Elevation maml (meters above mean)
1	A Block	TW	120	0.203	60	42-60	4(18)	14.47	226.53
2	Football Ground	TW	120	0.203	60	42-60	3(18)	8.89	208.11
3	Girls H Block	TW	120	0.203	60	42-60	1.5	13.75	201.25



Photographs of Collection of water after Extraction



Photographs of Distribution of Water after Collection



RO system installed in the Campus



RO water available for drinking

The water cooler and RO system servicing is done as per the approved schedule. The raw water analysis by third party is done for its parameters of concern in regular intervals to have a check on its quality.

The Water quality testing certificates are appended with this report.

Water Quality Testing Certificates



Ref.No.:FDRA/20050/2021

Dated:27/12/2021

TEST CERTIFICATE

Date & Time of Collection:- N.A.
Collected by:- Sender
Source:- R.O. Water

Date of Receipt:23/12/2021
Date of Analysis:23/12/2021 to 27/12/2021

ISSUED TO:

M/S Manav Rachna International University,
A- Block, Sector-43, Suraj Kund Road,
Faridabad, Haryana

Lab No.: 6070/W/2021
Your Ref.No.: NIL

SAMPLE DESCRIPTION: A Water Sample in a Pet Bottle.

TEST RESULTS (AS PER IS:10500-2012)

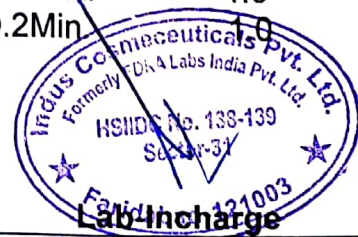
S.NO.PARAMETERS	RESULTS	IS:REQUIREMENTS	
		RELAXATION in absence Desirable Limits	of Alternate Source
PHYSICAL EXAMINATION			
1. Colour	Unobjectionable	5 H.U. (Max.)	15
2. Odour	Agreeable	Agreeable	Agreeable
3. Taste	Agreeable	Agreeable	Agreeable
4. Turbidity, NTU	NIL	1Max.	5
5. pH	6.58	6.5-8.5	No Relaxation
6. Dissolved Solids (mg/l)	68mg/l	500	2000

CHEMICAL EXAMINATION (mg/l)

1. Total Alkalinity (as CaCO ₃)	45mg/l	200Max.	600
2. Chlorides (as Cl)	40mg/l	250Max.	1000
3. Total Hardness (as CaCO ₃)	38mg/l	200Max.	600
4. Iron (as Fe)	*BDL	0.3Max.	No Relaxation
5. Fluoride (as F)	*BDL	1.0Max.	1.5
6. Residual Free Chlorine	*BDL	0.2Min	

*B.D.L.:- Below detectable Limits.

Chemist/Microbiologist



Note :

- The result listed refer only to tested parameters, Endorsement of product in neither inferred nor implied.
- Total Liabilities of our laboratory is limited to invoiced amount
- Sample will be destroyed after one month from the date of issue test certificate unless otherwise specified.
- This report is not to be reproduced wholly or in part & cannot be used in any advertising media or in any court without our special permission in writing.



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A- Block, Sector-43, Suraj Kund Road,
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Lab No.: 6070/W/2021

Your Ref.No.: NIL

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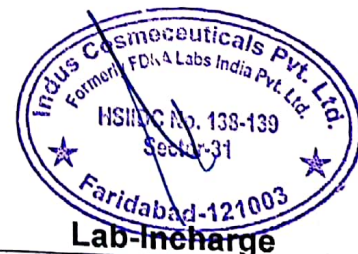
BACTERIOLOGICAL EXAMINATION

MAX. ALLOWED AS PER

<u>PARAMETERS</u>	<u>RESULTS</u>	<u>W.H.O. Guidelines</u>	<u>IS-10500:2012</u>
Most Probable Number of Coliforms Organisms per 100ml. of Water.	(Absent)	3	Absent

OPINION:- The Bacteriological analysis of the sample indicates that it is **Fit / Unfit / Repeat Sampling Required** for Human Consumption.

Chemist/Microbiologist



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TEST CERTIFICATE

Issued To : **MRIIRS**
Delhi Suraj kund Road
Sector 43,
Faridabad, Haryana - 121004

Report No: 11-290421-01
Report Date: 19/05/2021
Sample Received On : 29/04/2021
Sampled By: AES Labs (SM 1.4)

Description : **Raw Water, Source: Q- Block**

Analysis Start Date : 29/04/2021
Analysis End Date : 19/05/2021

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Drinking Water - Essential Tests as per IS 10500:2012

RESULTS

S.No. Parameter	Test Method	Results	Units	Limit	Extended Limits
Biological Water					
Bacteriological Quality of Drinking Water					
1 Coliform	IS 15185 : 2002	Absent	cfu/100ml	Absent	-
2 E. coli	IS 15185 : 2002	Absent	cfu/100ml	Absent	-
Chemical Water					
Organoleptic and Physical Parameters					
3 Colour	IS 3025: (Pt-4):1983	<1.0	Hazen	Max 5	Max 15
4 Odour	IS 3025: (Pt-6):1983	Agreeable	-	Agreeable	Agreeable
5 pH value at 25°C	IS 3025: (Pt-11):1983	7.3	-	6.5-8.5	No Relaxation
6 Taste	IS 3025: (Pt-8):1984	Agreeable	-	Agreeable	Agreeable
7 Turbidity	IS 3025: (Pt-10):1984	<1.0	NTU	Max 1	Max 5
8 Total Dissolved Solids	IS 3025 (Pt-16) : 1984	586*	mg/l	Max 500	Max 2000
General Parameters Concerning Substances Undesirable					
9 Chloride (as Cl)	IS 3025: (Pt-32):1988	75.44	mg/l	Max 250	Max 1000
10 Fluoride (as F)	IS 3025: (Pt-60):2008	0.601	mg/l	Max 1	Max 1.5



AUTHORISED SIGNATORY



AUTHORISED SIGNATORY



Terms & Conditions

visit us at <http://www.aeslabs.com>

- The results indicated only refer to the tested samples and listed parameters and do not endorse any product.
- Total liability of the laboratory is limited to the invoiced amount.
- This certificate shall not be reproduced wholly or in part without prior written consent of the laboratory.
- Samples received shall be destroyed after four weeks from the date of issue of the certificate unless specified otherwise.