Performance Evaluation of Water Treatment Plant at Miraj City

Mr. S. M. Bhosale
Department of Technology,
Shivaji University, Kolhapur. 416004

Mr. V.T. Gaikwad
Department of Civil Engineering,
P.V.P.I.T., Budhgaon. 416304

Mr. Navnath. B. Ghodake
Department of Technology,
Shivaji University, Kolhapur. 416004

***Abstract*: Water is one of the most crucial components for all forms of life. The need of the day is viable supply of portable water for human utilization so that health and beneficial of the community can be addressed. Furthermore treated of the polluted water and making it safe for drinking and domestic use is the main challenge for the world today. Drinking polluted water can transmit diseases so potable water treatment is one of the most challenging and complex systems in countries. Continuous auditing for evaluation process in water treatment plant is essential. Yet proper designing and grouping of treatment plants to ensure its proper functioning and its requires frequent evaluation of performance of various units of treatment plant. Proper operation of plant and attention to the requirements of the sources of supply and distribution system are equally important to guarantee.**

Keywords: Water treatment plant, performance evaluation, turbidity, pH, hardness, alkalinity, DO, MPN, chloride

1. INTRODUCTION

Water is one of the essential parts of the physical condition. Sheltered, sufficient and open supplies of water are the fundamental needs and basic parts of essential human services. Deficient arrangement of safe drinking water is one of the primary sources of transferable illnesses and united wellbeing hazard. Thusly, giving safe drinking water is one of significant general wellbeing needs in the rate. The World Health Organization (WHO) assessed that up 80% of all infection on the planet is brought about by insufficient sanitation, dirtied water or inaccessibility of safe Water. The World Health Organization says that, consistently more than 3.4 million individuals kick the bucket because of water related sicknesses, making it the main source of ailment and passing the world over. The greater part of the unfortunate casualties are little youngsters, most by far of whom bite the dust of sicknesses brought about by living beings that flourish in water sources tainted by raw sewage. Poor access to safe water sources in both urban and provincial regions have been embroiled for the commonness of water illnesses in our nation, minerals, for example, asbestos, silica and radioactive particles. Expanding turbidity in the water as a rule demonstrates the expansion of life forms like microscopic organisms, Giardia, Cryptosporidium pimples and oocytes. Consumable water treatment is one of the most testing and complex frameworks in nations with thinking about restricted assets.

The regular issue alongside the unsatisfactory quality is insufficient measure of supply because of quickly developing populace and industrialization. On account of the varieties in sort, nature and centralization of polluting influences in waterway water and furthermore because of occasional variety in the raw water quality no single hypothesis or configuration approach can be utilized all around for all water treatment plants and each treatment plant ought to be considered as an exceptional case before planning and choosing the distinctive unit procedures and activities to be utilized to water quality no single hypothesis or configuration approach can be utilized all around for all water treatment plants and each treatment plant ought to be considered as a special case before structuring and choosing the diverse unit procedures and tasks to be utilized to treat the water around for all water treatment plants and each treatment plant ought to be considered as a special case before structuring and choosing the diverse unit procedures and tasks to be utilized to treat the water.

It is regularly seen in a large portion of the customary WTP in urban region can't meet the quality, amount and weight prerequisites play out this errand. The normal issue alongside the unsuitable quality is lacking measure of supply because of quickly developing populace and industrialization. On account of the varieties in sort, nature and convergence of pollutions in waterway water and furthermore because of occasional variety in the raw water quality no single hypothesis or configuration approach can be utilized all around for all water treatment plants and each treatment plant ought to be considered as a remarkable case before structuring and choosing the distinctive unit procedures and activities to be utilized to water quality no single hypothesis or configuration approach can be utilized generally for all water treatment plants and each treatment plant ought to be considered as a one of a kind case before planning and choosing the diverse unit procedures and tasks to be utilized to treat the water.

The present investigation is restricted to Miraj city of Sangli region, having populace of 854581.The city is situated on banks of Krishna waterway. Krishna and Warna River is real wellspring of water. The treatment office for this city comprises of two water treatment plants, on old plant having limit of 28.8 MLD and new plant with 10 MLD limits. The complete plan limit of Miraj WTP is 38.80 MLD.

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 8 Issue 11, November-2019

It is seen that the nature of water provided to the network differs much of the time. It is important to survey the exhibition of the treatment units of both the plants, research the issues and recommend the cures .Also the presentation of old plant will be contrasted and new plant which comprises of cylinder pilgrim. The examination will be do net investigate the approaches to reuse the slime produced from the treatment plant.

2. OBJECTIVE

1. Performance evaluation of Miraj water treatment plants.
2. To investigate operational problems.
3. To suggest suitable remedies.
4. To investigate the suitability of pure alum sludge generate from plant as a Partial substitute for clay in brick making.

3. METHODOLOGY

3.1 Methodology adopted for performance analysis of WTP-1 and WTP-2

Different Water tests were gathered persistently, from bay and outlet of all water medicines units of WTP-1 and WTP-2, for a period in November to February months at customary interim of fifteen days and February to May at ordinary interim of multi month from the water treatment plants according to the accessible standard of AWWA. The Samples were gathered in 1litr artificially clean plastic jugs containing few drops of 3% sodium thiosulfate to kill the lingering chlorine and these examples will be promptly conveyed to the research facility for investigation. The examples will be broke down for water quality parameters like smell, pH, Total alkalinity (as CaCO3), Dissolved Oxygen (DO), Turbidity, MPN, Electrical Conductivity (EC), Total Hardness (asCaCO3), Chloride, (as CI), Acidity (as CaCO3), Total Coliform, Residual Chlorine utilizing standard strategies for AWWA, APA. The areas of the testing focuses for WTP-1 and WTP-2 as appeared for raw water, aerated water, clarified water, filtered water, and treated water.

4. CHEMICAL TESTS

Odour, pH, Turbidity, EC, DO, Chlorides (as CL^-), Total Coli form, Total Hardness (as $CaCO_3$), Acidity (as $CaCO_3$), Residual Chlorine, Total Alkalinity (as $CaCO_3$).

5. RESULTS AND DISCUSSION

For determining the performance evaluation of both water treatment plant - 1 and Water treatment plant - 2.

5.1 Results of all water treatment Parameters units

5.1.1 pH

Table: 5.1 (pH)

Date	Raw Water		Aerated Water		Clarified Water		Filtered Water		Treated Water	
	WTP-1	WTP-2	WTP-1	WTP-2	WTP-1	WTP-2	WTP-1	WTP-2	WTP-1	WTP-2
	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
10th Nov	7.9	7.93	8.15	8.04	8.1	8.06	7.9	8.1	8.22	8.1
27th Nov	8.26	8.32	8.42	8.28	8.6	8.64	8.62	8.56	8.52	8.48
15th Dec	7.64	7.8	7.4	7.5	7.52	8.08	7.68	7.72	7.6	7.68
31st Dec	7.93	7.9	8.04	8.15	8.11	8.07	7.92	8.11	8.23	8.12
18th Jan	8.27	8.33	8.46	8.24	8.62	8.66	8.63	8.57	8.54	8.51
01st Feb	7.98	8	7.91	7.89	7.84	7.78	7.81	7.82	7.85	7.88
20th Feb	8.35	8.3	8.37	8.34	8.15	7.8	8.04	8.21	8.21	8.05
28th Mar	7.63	7.87	7.53	7.55	7.57	8.05	7.71	7.67	7.63	7.65
29th April	8.29	8.09	8.02	8	8.01	7.94	7.98	7.95	7.93	7.86
25th May	8.42	8.29	8.19	8.12	8.09	8.13	8.07	8.03	8	7.95

5.1.2 Turbidity

Table: 5.2 (Turbidity)

Date	Raw Water		Aerated Water		Clarified Water		Filtered Water		Treated Water	
	WTP-1	WTP-2	WTP-1	WTP-2	WTP-1	WTP-2	WTP-1	WTP-2	WTP-1	WTP-2
	(NTU)	(NTU)	(NTU)	(NTU)	(NTU)	(NTU)	(NTU)	(NTU)	(NTU)	(NTU)
10th Nov	8.42	12.01	8.26	8.02	6.3	8.96	1.34	1.24	5.82	1.08
27th Nov	4.02	4.04	4.04	5.08	2.8	2.4	2.22	2.68	2.6	6.7
15th Dec	6.18	6.48	5	5.06	4.48	8.88	2.26	3.6	1.4	5.2
31st Dec	12.05	8.42	8.28	8.03	6.31	9.98	1.36	1.25	5.84	1.06
18th Jan	4.05	4.2	4.07	5.06	2.6	7.5	2.25	2.69	1.9	6.81
01st Feb	11.03	8.06	7.97	8.29	1.83	9.83	1.11	4.56	1.12	7.41
20th Feb	6.6	6.57	5.81	6.59	1.98	8.1	1.12	4.52	1.15	7.2
28th Mar	6.14	6.26	5.02	5.04	4.46	8.92	2.21	3.52	1.23	5.24
29th April	5.12	5.3	5.6	5.4	4.42	7.92	2.15	2.75	1.2	4.98
25th May	5.02	5.12	4.5	5.2	2.18	8.93	2.42	4.49	2.21	5.42

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 8 Issue 11, November-2019

5.1.3 Dissolved Oxygen

Table: 5.3 Dissolved Oxygen (DO)

Date	Raw Water		Aerated Water		Clarified Water		Filtered Water		Treated Water	
	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)
10th Nov	6.50	6.10	7.40	7.50	7.10	7.10	7.20	7.30	7.40	7.30
27th Nov	6.80	6.90	6.90	7.20	6.60	7.00	7.40	7.20	7.20	7.80
15th Dec	6.50	7.20	8.00	8.20	7.60	7.80	8.20	8.80	8.20	8.80
31st Dec	6.10	6.50	7.20	7.50	7.20	7.20	6.40	6.50	6.30	6.60
18th Jan	7.90	7.40	7.00	7.10	6.80	7.20	6.90	6.60	6.80	6.50
01st Feb	7.40	6.50	7.40	6.50	7.80	7.60	7.20	6.30	7.30	6.90
20th Feb	7.90	7.40	7.50	7.70	7.50	8.10	7.60	7.30	7.60	7.20
28th Mar	7.00	6.80	8.30	8.40	7.80	8.00	6.80	6.40	7.20	6.40
29th April	5.30	5.40	5.90	6.10	5.60	6.80	5.80	6.60	6.40	6.80
25th May	6.20	6.50	7.10	7.30	6.90	6.80	6.70	6.90	7.50	7.90

5.1.4 Total Hardness (as $CaCO_3$)

Table: 5.4 Total hardness (as $CaCO_3$)

Date	Raw Water		Aerated Water		Clarified Water		Filtered Water		Treated Water	
	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)
10th Nov	150.00	152.00	182.00	142.00	166.00	162.00	166.00	162.00	158.00	170.00
27th Nov	102.00	118.00	114.00	106.00	94.00	126.00	94.00	126.00	142.00	148.00
15th Dec	98.00	126.00	136.00	142.00	138.00	158.00	138.00	158.00	144.00	148.00
31st Dec	140.00	152.00	180.00	148.00	168.00	124.00	168.00	124.00	156.00	172.00
18th Jan	100.00	120.00	116.00	104.00	96.00	128.00	96.00	128.00	136.00	148.00
01st Feb	120.00	144.00	148.00	128.00	140.00	100.00	140.00	100.00	116.00	96.00
20th Feb	100.00	120.00	140.00	140.00	136.00	108.00	136.00	108.00	100.00	104.00
28th Mar	100.00	120.00	140.00	148.00	140.00	152.00	140.00	152.00	140.00	144.00
29th April	72.00	80.00	76.00	72.00	96.00	88.00	96.00	88.00	100.00	132.00
25th May	46.00	128.00	84.00	88.00	140.00	148.00	140.00	148.00	140.00	136.00

5.1.5 Chloride (as CL^-)

Table: 5.5 Chloride (as CL^-)

Date	Raw Water		Aerated Water		Clarified Water		Filtered Water		Treated Water	
	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)
10th Nov	65.00	72.00	62.00	64.00	62.00	64.00	64.00	68.00	66.00	64.00
27th Nov	36.00	40.00	36.00	44.00	36.00	44.00	40.00	32.00	40.00	30.00
15th Dec	76.00	96.00	80.00	72.00	80.00	72.00	84.00	92.00	80.00	90.00
31st Dec	68.00	74.00	60.00	62.00	60.00	62.00	62.00	64.00	68.00	68.00
18th Jan	38.00	42.00	34.00	42.00	34.00	42.00	35.00	44.00	42.00	26.00
01st Feb	48.00	46.00	42.00	52.00	42.00	52.00	43.00	56.00	60.00	68.00
20th Feb	52.00	60.00	64.00	68.00	64.00	68.00	63.00	69.00	52.00	60.00
28th Mar	72.00	98.00	84.00	68.00	84.00	68.00	80.00	70.00	82.00	88.00
29th April	44.00	48.00	46.00	44.00	46.00	44.00	47.00	46.00	46.00	50.00
25th May	58.00	48.00	38.00	40.00	38.00	40.00	55.00	49.00	28.00	26.00

5.1.6 Total Alkalinity (as $CaCO_3$)

Table: 5.6 Total Alkalinity (as $CaCO_3$)

Date	Raw Water		Aerated Water		Clarified Water		Filtered Water		Treated Water	
	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)	WTP-1 (mg/l)	WTP-2 (mg/l)
10th Nov	152.00	206.00	154.00	204.00	157.00	210.00	158.00	170.00	162.00	160.00
27th Nov	62.00	114.00	66.00	118.00	70.00	120.00	94.00	114.00	116.00	108.00
15th Dec	76.00	96.00	72.00	98.00	70.00	102.00	150.00	148.00	148.00	158.00
31st Dec	152.00	208.00	154.00	209.00	155.00	206.00	160.00	172.00	164.00	160.00
18th Jan	60.00	116.00	64.00	120.00	65.00	118.00	96.00	108.00	112.00	104.00
01st Feb	88.00	80.00	92.00	85.00	91.00	83.00	116.00	108.00	108.00	112.00
20th Feb	164.00	180.00	169.00	184.00	162.00	185.00	128.00	104.00	136.00	124.00
28th Mar	168.00	184.00	171.00	182.00	172.00	186.00	152.00	144.00	144.00	152.00
29th April	140.00	128.00	136.00	126.00	120.00	132.00	116.00	128.00	108.00	120.00
25th May	136.00	128.00	134.00	126.00	88.00	83.00	84.00	80.00	100.00	108.00

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 8 Issue 11, November-2019

5.1.7 Acidity (as $CaCO_3$)

Table: 5.7 Acidity (as $CaCO_3$)

Date	Raw Water		Aerated Water	
	WTP-1	WTP-2	WTP-1	WTP-2
	(mg/l)	(mg/l)	(mg/l)	(mg/l)
10th Nov	44.00	35.00	42.00	30.00
27th Nov	42.00	24.00	18.00	30.00
15th Dec	22.00	28.00	28.00	26.00
31st Dec	44.00	36.00	40.00	32.00
18th Jan	40.00	20.00	20.00	32.00
01st Feb	100.00	40.00	36.00	44.00
20th Feb	20.00	24.00	20.00	24.00
28th Mar	20.00	25.00	24.00	25.00
29th April	20.00	24.00	12.00	12.00
25th May	20.00	20.00	24.40	24.80

5.1.8 Electrical Conductivity (EC)

Table: 5.8 Electrical Conductivity (EC)

Date	Raw Water	
	WTP-1	WTP-2
	(µS)	(µS)
10th Nov	360.00	355.00
27th Nov	230.00	114.00
15th Dec	512.00	532.00
31st Dec	358.00	362.00
18th Jan	231.00	112.00
01st Feb	278.00	297.00
20th Feb	589.00	460.00
28th Mar	521.00	543.00
29th April	354.00	350.00
25th May	367.00	349.00

5.1.9 Total Coliform

Table: 5.9 Total Coliform

Date	Raw Water		Filtered Water		Treated Water	
	WTP-1	WTP-2	WTP-1	WTP-2	WTP-1	WTP-2
	(MPN/100ml)	(MPN/100ml)	(MPN/100ml)	(MPN/100ml)	(MPN/100ml)	(MPN/100ml)
10th Nov	142.00	294.00	12.00	140.00	15.00	26.00
27th Nov	NIL	NIL	NIL	NIL	NIL	NIL
15th Dec	NIL	NIL	8.00	5.00	18.00	116.00
31st Dec	140.00	290.00	12.00	140.00	15.00	28.00
18th Jan	NIL	NIL	NIL	NIL	NIL	NIL
01st Feb	NIL	NIL	NIL	NIL	NIL	NIL
20th Feb	13.00	2.00	5.00	2.00	13.00	2.00
28th Mar	17.00	110.00	2.00	5.00	NIL	NIL
29th April	NIL	10.00	NIL	2.00	NIL	5
25th May	NIL	NIL	NIL	NIL	NIL	NIL

5.1.10 Residual Chlorine

Table: 5.10 Residual Chlorine

Date	Raw Water	
	WTP-1	WTP-2
	(ppm)	(ppm)
10th Nov	1.50	2.00
27th Nov	0.80	1.20
15th Dec	1.00	1.20
31st Dec	1.00	2.00
18th Jan	0.70	0.20
01st Feb	0.20	0.10
20th Feb	0.20	0.30
28th Mar	0.10	0.14
29th April	0.10	0.11
25th May	0.10	0.11

6. OPERATIONAL PROBLEMS AND SUITABLE REMEDIES

6.1 Investigated operational issues in WTP-1 and WTP-2

1. Sufficient plan of water treatment units and operational parameters like maintenance time, surface stacking rate, speed, and dose must be done precisely.
2. Guidelines of channels sedimentation tanks must be kept up.
3. Legitimate auspicious upkeep of plants must be accomplished for proficient working.
4. Inappropriate transfer of muck causes perils of encompassing so legitimate procedure must be utilized for transfer.
5. Normal upkeep consistently and fixes must be required.
6. Fast sand channel beds likewise should be discharged at appropriate time.

6.2 Suitable Remedies

1. Check every single electrical association, MCC board before beginning the electromechanical types of gear.
2. So as to guarantee that plant and procedures are appropriately worked and controlled to limit hazard to wellbeing, agreeable safe frameworks of work should be set up and kept up by methods for suitable preparing and supervision.
3. Ordinary support and fixing of the two plants are generally significant.
4. It is recommended that the customary observing of the water quality is required to guarantee the arrangement of safe drinking water to the network.
5. The both water treatment plants of Miraj needs a few changes in their working procedure for giving better and safe water treatment for Miraj city.
6. The ebb and flow laborers and officials working in water treatment plant-2 are very less and ought to be increment to required level.
7. The security frameworks of the two plants ought to be refreshed.

7. MANUFACTURING OF CLAY BRICKS WITH ALUM SLUDGE AND GRANITE POWDER

7.1 Brick

Brick is one of the significant structure materials to develop dividers, asphalts and different components in stone work development. Conventional blocks are absolutely made by utilizing earth with less amount of medium fine sand. Directly various sorts of blocks are assembling utilizing principle fixings as various non-degradable materials like fly fiery debris, quarry residue and assembling sand materials with lime, gypsum, bond and so on. With required sum and quality. Blocks are for the most part characterized dependent on materials utilized, strategy for assembling, shape and quality. Among these groupings blocks are chosen dependent on its quality order.

7.2 Clay:

Enduring or decay of shake produces earth. Downpour, wind, tremors, volcanic emissions and other physical and synthetic procedures all reason enduring in some structure. All stones contain minerals, and when rocks containing iron oxides climate, they produce red earth. Stone and basalt are instances of rocks containing iron oxides. Red mud comprises of fine particles that are in excess of multiple times littler than grains of sand. Mud particles contain silica (SiO2) and a blend of different minerals, for example, quartz, carbonate, aluminum oxides and iron oxides.

7.3 Granite Powder:

Stone has a place with volcanic shake family. The thickness of the rock is between 2.65 to 2.75 g/cm^3 and compressive quality will be more prominent than 200MPa. Stone powder got from the cleaning units and the properties were found. Since the stone powder was fine, hydrometer examination was done on the powder to decide the molecule size appropriation. It was discovered that coefficient of ebb and flow was 1.95 and coefficient of consistency was 7.82. The particular gravity of stone powder was observed to be 25.

RESULT AND DISCUSSION:

From the test outcomes, the blend extents M1 (5%), M2 (10%) and M3 (15%) retains almost 2.5% to 3% of water more than regular blocks. Simultaneously M1 (5%), M2 (10%) and M3 (15%) blend extents withstands high compressive quality especially 10% substitution of earth give great outcome looked at regular blocks. Consequently 5%, 10% and 15% supplanting of mud with alum slop and rock powder are reasonable for auxiliary works like as customary blocks. These blocks are under the classification of second rate class. Other blend proportion blocks are reasonable for the auxiliary works like compound divider and planting reason and so on.

CONCLUSION:

The blocks which are comprised of earth, alum ooze and rock powder are additionally reasonable for different kinds of basic works dependent on the quality. Henceforth use of these non-degradable squanders decreases the landfill territories and furthermore diminish the ecological contamination. In view of the outcomes it is conceivable to use as development material and furthermore conceivable approach to secure our common asset.

8. CONCLUSION

During the venture work it is discovered that the examination of results regarding execution of individual treatment units and attributes of treated water lead to the end that different treatment units considered for study are working acceptably and sizes of the units are in affirmation with standard criteria. Anyway persistent support and observing of treatment units is proposed. The water quality parameters tried demonstrate the outcomes for WTP 1 (Old Plant) with WTP 2 (New Plant) in the near outline underneath.

Table: 8.1 Comparative investigation outline of parameters for WTP-1 (Old Plant) and WTP- 2 (New Plant).

Sr. No	Parameters	WTP-1	WTP-2	IS 10500:2012 Desirable Limits
1.	Odour	Odourless	Odourless	Agreeable
2.	pH	7.52 to 8.5	7.50 to 8.66	6.5 to 8.65
3.	Turbidity	1.11 to 12.5	1.08 to 12.1	10 NTU
4.	EC	230 to 589	110 to 540	1400 µS
5.	DO	5.3 to 8.4	5.4 to 8.8	4-6mg/l
6.	Total Hardness (as $CaCO_3$)	72 to 182	72 to 172	300 mg/l
7.	Chloride (as CI)	34 to 84	26 to 98	250 mg/l
8.	Total Alkalinity (as $CaCO_3$)	60 to 168	80 to 210	600 mg/l
9.	Acidity (as$CaCO_3$)	12 to 100	12 to 44	100 mg/l
10.	Total Coliform	NIL to 142	NIL to 140	NIL/100ml
11.	Residual Chlorine	0.2 to 1.50	0.2 to 2.0	ppm

The consequences of the investigation demonstrate that both WTP-1 and WTP-2 has been effectively treating water during pinnacle and lean heaps of contaminants and last water fulfills the guidelines of drinking water according to IS:10500:2012. The treated water of by and large pH of the two plants is inside the passable furthest reaches of IS 10500:2012. Raw water of the two plants is scentless. Turbidity, EC, DO, Total Hardness (as CaCO3), Chloride (as CI), Acidity (as CaCO3), Total Alkalinity (as CaCO3), and Total coliform and so on all water quality parameters of treated water consistently stays inside as far as possible. Broken down Oxygen increments as the water travels through the different unit activities. All out Hardness somewhat increments as the water develops through different synthetic procedures. Bacteriological pollutions have been dealt with by keeping up chlorine levels of
2.0 ppm in the treated water. Chlorine measurements not appropriate blending in WTP-2 as contrast with the WTP-1. Chlorination procedure was not functional with legitimate consideration in WTP-2. The general turbidity of WTP-1 is relatively superior to that of WTP-2. Filtration pace of WTP-2 is similarly superior to that of WTP-2. After the general aftereffects of lab examination the nearly consequences of WTP-1 is superior to WTP-2. It is seen that for the most part all water quality parameters are inside the scope of IS 10500:2012 and henceforth drinking water discharge from Miraj water treatment plant is a safe for drinking.

The accompanying ends that can be drawn from these designing and lab examinations can be abridged as pursues;

Quick sand channels sand ought to accord norms.

Fast sand channel beds are not discharging at appropriate time.

Persistent upkeep and examination will prompt exact assessment of plant execution and meaning of any required adjustments.

Parts of treatment procedure presenting most trouble for every day activity like the treatment plant comes up short on an ooze treatment unit. The settled ooze from the slime tidal pond is discarded physically with the assistance of a valve to the adjacent nullah.

After the general aftereffects of research facility examination the nearly consequences of WTP-1was superior to WTP-2

It is proposed that the normal observing of the water quality is required to guarantee the arrangement of safe drinking water to the network.

The blocks which are comprised of earth, alum slime and rock powder are likewise appropriate for different sorts of auxiliary works dependent on the quality.

9. REFERENCES

[1] Absar Ahmed Khan1, Syed Khursheed Ahmad, Performance evaluation of water treatment plant at Nangloi, New Delhi: Case Study. International Journal of Research in Engineering and Technology eissn: 2319-1163 | pissn: 2321-7308.

[2] Ajay. S. Mahinge, Isha. P. Khedikar, performance evaluation of water treatment plant at MIDC hingna, Nagpur- a review IJSTE - International Journal of Science Technology & Engineering| Volume2| Issue07| January 2016 ISSN (online): 2349- 784X.

[3] Arshad Ali, Hashim Nisar Hashmi, Naseem Baig, Shahid Iqbal, Khurram Mumtaz, Performance evaluation of the water treatment plants of Islamabad – Pakistan, ARCH. ENVIRON. SCI. (2012), 6,111-117 ASHISH R. MISHRA, PRASHANT A. KADU, Performance Evaluation of Water Treatment Plant at Yavatmal (M.S.): Case Study, International Journal of Research in Advent Technology, Vol.2, No.5, May 2014 E-ISSN: 2321-9637.

[4] G. Chandrakant, P. Jaswanth, S. Tejareddy, G. Kiranmai, Design & Performance Evaluation of Wastewater Treatment Plant-D at Tirumala, International Journal of Scientific & Engineering Research, Volume 6, Issue7, July-2015, ISSN 2229-5518.

International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181
Vol. 8 Issue 11, November-2019

[5] H M Kalibbala, M Nalubega, O Wahlberg and B Hultman, Performance Evaluation of Drinking Water Treatment Plants in Kampala – Case of Ggaba-II, In Proceedings of 32nd WEDC International Conference - Sri Lanka Sustainable Development of Water Resources, Water Supply and Environmental Sanitation, 2006: 231–234.

[6] M. A. ElDib and Mahmoud A. Azeem Elbayoumy, "Evaluation Of A Water Treatment Plant Performance– Case Study" , Seventh International Water Technology Conference IWTC7 Egypt 1-3 April 2003, pp-471-478.

[7] Meghana M *1, Manjunath N T, Performance evaluation of water treatment plant of units Bhadravati, KARNATAKA: A CASE STUDY, International Journal of Engineering Sciences & Research Technology, and ISSN: 2277-9655.

[8] M. S. Hossain, M. S. Reza, M. A. Halim and Habibur Reza, Performance Evolution of drinking water treatment plant of BANGLADESH, Proceedings of the 3rd International Conference on Civil Engineering for Sustainable Development (ICCESD2016), 12~14 February 2016, KUET, Khulna, Bangladesh (ISBN: 978-984- 34-0265-3).

[9] Zahra Ahmadli, Mohammad Fahiminia, Shahram Arsang Jang, Reza Ansari, Maryam Savadkouhi, Azita Anbaz, Akbar Escandari, Performance Evaluation of Qom Water Treatment of Plant during 2005 to 2014, Iran, Volume 6, Number 1,Winter 2017.

[10] G. Chandrakant, P. Jaswanth, S. Tejareddy, G. Kiranmai, Design and performance evaluation of water treatement plant-D at Tirumala IJSER, Volume6, Issue 7, july-2015. ISSN 2229-5518.