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DEPARTMENT OF PUBLIC HEALTH AND PREVENTIVE MEDICINE

From

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To

The Commissioner,
Thindivanam Municipality,
Villupuram District.

R. No.1871/C/2024 (TNR 698 to 703) Dated: 20.07.2024

Sir,

Sub : Report on examination of Water samples from the
Tindivanam Municipality, Villupuram District -
collected on 02.07.2024 and 03.07.2024.

Tindivanam Municipality in Villupuram district derives its drinking water supply from the following sources :

Water Sources :

1. Infiltration well laid in the Tondi river bed at Rettani village.
2. Bore well (3 Nos.) at Katrambakkam village.
3. Bore well (3 Nos.) at Kandarakottai.

Water Supply :

1. The water from Infiltration well laid in the Tondi river bed at Rettani village is pumped to OHT (4,50,000 litres capacity) at Gingee Road.
2. The water from Bore well (3 Nos.) at Katrambakkam village is collected in a Booster sump (1,00,000 litres capacity) at Iraiyanoor and pumped to OHT (5,00,000 litres capacity) at Bharathidasan Nagar.
3. The water from Bore well (3 Nos.) laid along the river bed of Thenpennai at Kandarakottai village is collected in a Booster sump (2,85,000 litres capacity) at Jayapuram and pumped to OHT (5,00,000 litres capacity) at the same place.

From the above OHTs, the drinking water is supplied to the public through tap points after chlorination.

It was stated that water supply is being maintained once in two days by adopting zonal system.

28 samples of water for bacteriological analysis and 6 samples of water of chemical and biological analysis were collected on 02.07.24 and 03.07.24 for periodical water quality monitoring for drinking purpose.

RESULTS OF EXAMINATION OF SAMPLES OF WATER

From: The Thindivanam Municipality, Villupuram District.

Collected by: Thiru.K.Mohammed Sheik Dawood, H.I. Gr.I

TNR/698 TNR/699

Date of Collection : 02.07.2024&03.07.2024 Date of Receipt : 04.07.2024 Source as per label		Infiltration well water from OHT at Gingee Road	Water from 1 st tap after OHT at Gingee Road	Middle Tap in Senji Road	Tap in Subramaniya Nagar	Tap in Bharathiyar Street	
OBacteriological Examination	Total colonies per ml. on agar at 37°C	200					
	MPN of Coliform bacteria per 100 ml.	1100	0	0	0	0	
	Rapid Test for Ecoli-I	Positive					
	Results of vibrio test						
Physical Examination	Colour	Colourless	Colourless				
	Turbidity (Units)	5	5				
	Smell	None	Chlorinous (2ppm)				
Chemical Examination (in mg/l).	Total Solids	1100	1110				
	Carbonate hardness as CaCO ₃	272					
	Non- Carbonate hardness as CaCO ₃	232					
	Total hardness as CaCO ₃	504					
	Chloride as Chlorine	310	280				
	Ammoniacal Nitrogen						
	Albuminoid Nitrogen	0.72	0.0				
	Oxygen absorbed (Tidy's test)	1.0					
	Nitrate-Nitrogen	0					
	Alkalinity } Phenolphthalein as CaCO ₃ } Methyl Orange		272				
			0.4				
	Fluoride as Fluorine	7.4	7.5				
	pH.	0.05	0.05				
	Iron as Fe Total						
	Ferrous						
	Manganese as Mn.						
	Qualitative- Nitrite Nitrogen	Trace	Nil				
	Sulphate	Trace					
	Phosphate						
	Toxic Substances						
Electrical Conductivity (Reciprocal megohms per Cm ³ at 20°C)	1570	1580					

Microscopical Examination

Chlorella Monas

Amorphous Matter

Colpoda Amorphous Matter

Available chlorine Present in the Bleaching Powder Sample is 28.6% by mass.

The results of analysis are furnished herewith :

1. Infiltration well water from OHT at Gingee Road - (TNR No. 698).

The sample of water is colourless and clear in physical appearance.

Chemical analysis reveals that, it is very hard and mineralized. However, it is acceptable of chemical quality for drinking purpose.

But, it is very poor bacteriological quality as evidenced by the presence of E-coli I organisms of faecal origin and also show few microscopical organisms. This is due to the absence of disinfection of drinking water at the OHT.

2. Mixture of Bore wells water from sump at Jayapuram - (TNR No. 702).

3. Water from 1st tap after OHT at Jayapuram - (TNR No. 703).

The above two samples of water are colourless and clear in physical appearance.

The sample of water collected from 1st tap after OHT at Jayapuram (TNR No. - 703) is smelt chlorinous and recorded R.C. 2.0 mg/l.

Chemical analysis reveals that, they are hard and mineralized. The sulphate (>400 mg/l) content is exceeding the maximum permissible limit (400 mg/l) prescribed for a drinking water as per BIS. Hence as such these water are **UNFIT** for drinking purposes in its present condition.

However they can be used for other non drinking purpose such as cleaning, washing, flushing etc.

Hence it is advised that, to stop pumping from these bore wells and it is further advised to make arrangements for the collection of bore wells (3 Nos.) water individually on next sampling day so as to find out which bore well source is unfit and alternative drinking water with better chemical quality sources should be arranged to these locality.

However they are free from coliform organisms an microscopical organisms on this occasion.

4. Water from 1st tap after OHT at Gingee Road - (TNR No. 699).

The above sample of water is colourless and clear in physical appearance with chlorinous odour and recorded R.C. of 2.00 mg/l It is advised that the chlorine doze should be optimized.

Judged by the results of analysis it is acceptable of chemical, quality and satisfactory of bacteriological and biological quality for drinking purposes on this occasion.

5. Mixture of Bore wells water from sump at Iraivanoor - (TNR No. 700).

6. Water from 1st tap after OHT at Bharathidasan Nagar - (TNR No. 701).

The above two samples of water are colourless and clear in physical appearance with slightly chlorinous odour and recorded R.C. of 0.02 mg/l.

Chemical analysis reveals that, they very hard and mineralized. The total hardness content (600 mg/l) has reached the maximum permissible limit of 600 mg/l prescribed by BIS for a drinking water. However the two samples of water are considered as tolerable chemical quality for drinking in the absence of any other better sources.

They are satisfactory of bacteriological and biological quality for drinking purposes on this occasion.

The sample of water collected from all the distribution tap points are of satisfactory bacteriological quality for drinking on this occasion except the sample of water collected from the tap points after Jayapuram OHT are of unfit for drinking as their mixture of sources (Bore well) water in OHT is chemically **UNFIT** for drinking.

The bleaching powder sample brought for analysis is having **28.6%** of available chlorine content as against the permissible limit of **32 to 34%** of chlorine content prescribed as per BIS grade for drinking water disinfection purposes. However it can be used with slightly increase of its dosage until the stock is over.

Further, it is advised that action should be taken to procure fresh stock of BIS grade bleaching powder having 32% - 34% of chlorine content (or) **4 to 6%** of sodium hypochlorite solution and used to systematic and uninterrupted chlorination to ensure hygienic safety at all times.

The following suggestions are offered for immediate implementation to ensure hygienic safety of drinking water supply :

1. Unwanted Vegetation noticed in the premises of Jayapuram OHT should be removed immediately and the surroundings should be kept clean and tidy as per sanitary specifications.
2. Unwanted waste materials dumped in the premises of Gingee Road OHT should be removed immediately and the surroundings should be kept clean and tidy as per sanitary specifications.
3. All the sumps/OHTs should be scrubbed and cleaned with strong solution of bleaching powder atleast once a month so as to ensure hygienic safety of storage units.
4. It is advised for systematic and uninterrupted chlorination of all storage units so that all the distribution ends should record 0.2 ppm to 0.5 ppm of residual chlorine.
5. A separate Stock Register showing the particulars of procurement of Bleaching Powder/Sodium Hypo Chlorite solution, stock on hand, daily usage for chlorination, date of cleaning of OHT, scouring of pipelines etc. should be maintained for the perusal of inspecting authorities.

RESULTS OF EXAMINATION OF SAMPLES OF WATER

From: The Thindivanam Municipality, Villupuram District.

Collected by: Thiru.K.Mohammed Sheik Dawood, H.I. Gr.I

TNR/700 TNR/701

Date of Collection : 02.07.2024&03.07.2024 Date of Receipt : 04.07.2024 Source as per label		Tap in Earikarai 1st Street	Mixture of Bore wells water from sump at Iraivanoor	Water from 1 st tap after OHT at Bharathidasan Nagar	Tap in Maruthi Nagar	Tap in Thirunavukarasar Street	
OBacteriological Examination	Total colonies per ml. on agar at 37°C		0				
	MPN of Coliform bacteria per 100 ml.	0	0	0	0	0	
	Nature of Coliform bacteria isolated.						
	Rapid Test for Ecoli						
	Results of vibrio test						
Physical Examination	Colour		Colourless	Colourless			
	Turbidity (Units)		5	5			
	Smell		Faintly Chlorinous (0.2ppm)	Chlorinous (2ppm)			
Chemical Examination (in mg/l).	Total Solids		1280	1270			
	Carbonate hardness as CaCO ₃		364				
	Non- Carbonate hardness as CaCO ₃		236				
	Total hardness as CaCO ₃		600				
	Chloride as Chlorine		280	290			
	Ammoniacal Nitrogen						
	Albuminoid Nitrogen						
	Oxygen absorbed (Tidy's test)		0.0	0.0			
	Nitrate-Nitrogen		0.5				
	Alkalinity as CaCO ₃	} Phenolphthalein		0			
			} Methyl Orange		364		
	Fluoride as Fluorine			0.2			
	pH.		7.5	7.5			
	Iron as Fe Total		0.05	0.05			
	Ferrous						
	Manganese as Mn.						
	Qualitative- Nitrite Nitrogen			Nil	Nil		
	Sulphate			Present			
	Phosphate			Trace			
	Toxic Substances						
Electrical Conductivity (Reciprocal megohms per Cm ³ at 20°C)			1830	1810			

Microscopical Examination

----- Amorphous Matter -----

6. The public should be health educated to use only protected water or boiled and cooled water for driking.

A. Yamina 11/8/2024
for
CHIEF WATER ANALYST,
Chief Water Analysis Laboratory,
Guindy, Chennai – 32.
MSP
26/7/24

Copy submitted to : The Director of Public Health and Preventive Medicine,
Anna Salai, Chennai -6.
The Commissioner of Municipal Administration, 75,
Santhome High Road, MRC Nagar, Chennai -28.

Copy to : The District Health Officer, Villupuram,
Villupuram District.
The Municipal Engineer, Tindivanam Municipality,
Villupuram District.
The Lab and File.

RESULTS OF EXAMINATION OF SAMPLES OF WATER

From: The Thindivanam Municipality, Villupuram District.

Collected by: Thiru.K.Mohammed Sheik Dawood, H.I. Gr.I

Date of Collection : 02.07.2024&03.07.2024		Tap in Kambar Street	Tap in Saibaba Koil Street	Tap in Amma Kovil Street	Tap in Ottakoothar Street	Tap in Pandiya Street
Date of Receipt : 04.07.2024						
Source as per label						
OBacteriological Examination	Total colonies per ml. on agar at 37°C					
	MPN of Coliform bacteria per 100 ml.	0	0	0	0	0
	Nature of Coliform bacteria isolated.					
	Rapid Test for Ecoli					
	Results of vibrio test					
Physical Examination	Colour					
	Turbidity (Units)					
	Smell					
Chemical Examination (in mg/l).	Total Solids					
	Carbonate hardness as CaCO ₃					
	Non- Carbonate hardness as CaCO ₃					
	Total hardness as CaCO ₃					
	Chloride as Chlorine					
	Ammoniacal Nitrogen					
	Albuminoid Nitrogen					
	Oxygen absorbed (Tidy's test)					
	Nitrate-Nitrogen					
	Alkalinity } Phenolphthalein					
	as CaCO ₃ } Methyl Orange					
	Fluoride as Fluorine					
	pH.					
	Iron as Fe Total					
	Ferrous					
	Manganese as Mn.					
	Qualitative-					
	Nitrite Nitrogen					
	Sulphate					
	Phosphate					
Toxic Substances						
Electrical Conductivity (Reciprocal megohms per Cm ³ at 20°C)						

Microscopical Examination

RESULTS OF EXAMINATION OF SAMPLES OF WATER
From: The Thindivanam Municipality, Villupuram District.
Collected by: Thiru.K.Mohammed Sheik Dawood, H.I. Gr.I
 TNR/702 TNR/703

Date of Collection : 02.07.2024&03.07.2024		Mixture of Bore wells water from sump at Jayapuram	Water from 1 st tap after OHT at Jayapuram	Tap in Jayam Nagar	Tap in MGR Street	Tap in Sapthagiri Nagar
Date of Receipt : 04.07.2024						
Source as per label						
OBacteriological Examination	Total colonies per ml. on agar at 37°C	20				
	MPN of Coliform bacteria per 100 ml.	0	0	0	0	0
	Nature of Coliform bacteria isolated					
	Rapid Test for Ecoli					
	Results of vibrio test					
Physical Examination	Colour	Colourless	Colourless			
	Turbidity (Units)	5	5			
	Smell	None	Chlorinous (2ppm)			
Chemical Examination (in mg/l).	Total Solids	1620	1570			
	Carbonate hardness as CaCO ₃	320				
	Non- Carbonate hardness as CaCO ₃	0				
	Total hardness as CaCO ₃	320				
	Chloride as Chlorine	370	350			
	Ammoniacal Nitrogen					
	Albuminoid Nitrogen					
	Oxygen absorbed (Tidy's test)	0.40	0.0			
	Nitrate-Nitrogen	0.5				
	Alkalinity } Phenolphthalein as CaCO ₃ } Methyl Orange	0				
		320				
	Fluoride as Fluoride	0.6				
	pH.	7.9	8.0			
	Iron as Fe Total	0.05	0.05			
	Ferrous					
	Manganese as Mn.					
	Qualitative- Nitrite Nitrogen	Nil	Nil			
	Sulphate	Marked	Marked			
	Phosphate	Trace	Trace			
	Toxic Substances					
Electrical Conductivity (Reciprocal megohms per Cm ³ at 20°C)	2320	2240				

Microscopical Examination

----- Amorphous Matter -----

RESULTS OF EXAMINATION OF SAMPLES OF WATER
From: The Thindivanam Municipality, Villupuram District.
Collected by: Thiru.K.Mohammed Sheik Dawood, H.I. Gr.I

Date of Collection : 02.07.2024&03.07.2024		Tap in Sapthagiri Nagar 3 rd Street	Tap in Mangalakizhar Nagar	Tap in Gandhi Nagar	Maximum permissible limit for drinking water as per BIS 10500/2012	
Date of Receipt : 04.07.2024						
Source as per label						
OBacteriological Examination	Total colonies per ml. on agar at 37°C				20	
	MPN of Coliform bacteria per 100 ml.	0	0	0	0	
	Nature of Coliform bacteria isolated.				absent	
	Rapid Test for Ecoli					
	Results of vibrio test					
Physical Examination	Colour				Colourless	
	Turbidity (Units)				5	
	Smell				None	
Chemical Examination (in mg/l).	Total Solids				2000	
	Carbonate hardness as CaCO ₃				-	
	Non- Carbonate hardness as CaCO ₃				-	
	Total hardness as CaCO ₃				600	
	Chloride as Chlorine				1000	
	Ammoniacal Nitrogen				Nil	
	Albuminoid Nitrogen				Nil	
	Oxygen absorbed (Tidy's test)				1.0	
	Nitrate-Nitrogen				10.2	
	Alkalinity as CaCO ₃	Phenolphthalein Methyl Orange				-
						600
	Fluoride as Fluorine				1.5	
	pH.				6.5-8.5	
	Iron as Fe Total				1.0	
	Ferrous				Nil	
	Manganese as Mn.				0.3	
	Qualitative- Nitrite Nitrogen				Trace	
	Sulphate				Present	
	Phosphate				Trace	
	Toxic Substances					
Electrical Conductivity (Reciprocal megohms per Cm ³ at 20°C)				-		
Microscopical Examination						