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DEPARTMENT OF PUBLIC HEALTH AND PREVENTIVE MEDICINE

From

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To

The Commissioner,
Villupuram Municipality, **403**
Villupuram,
Villupuram District.

R.No.3267/C/2023 (TNR 1890 to 1902) Dated:17.11.2023

Sir,

Sub : Report on examination of Water samples from the
Villupuram Municipality, Villupuram District - collected on
17.10.2023.

The Villupuram Municipality derives its drinking water supply from the
following sources :

Water Sources :

1. Infiltration Well (3 Nos.) laid along the river bed of Thenpennai at Ellis Chattram.
2. Bore Wells (5 Nos.) laid along the river bed of Thenpennai at Ellis Chattram.
3. Bore Wells (2 Nos.) at Konangippalayam.
4. Bore Well (1 No.) at Pillur.
5. Bore Well (1 No.) at Ezhil Nagar.

Water Supply :

1. Mixture of Infiltration Wells (3 Nos.) and from Bore Wells (5 Nos.) is collected in two separate sumps located at Ellis Chattram pumping station and pumped into OHTs (6 Nos.).

S.No.	Location of OHTs	Capacity in Litres
1	Travellers Bungalow	9,00,000
2	Alamelupuram	4,00,000
3	Narasingapuram	6,00,000
4	Kamarajar Nagar	4,00,000
5	Throwpathi Amman Koil Street	4,00,000
6	Collectorate Campus	1,00,000

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

		TNR- 1890	TNR-1891			
Date of Collection : 17.10.2023		Mixture of the Infiltration Wells (3 Nos.) water from collection sump at Ellis Chathiram pumping station	Water from 1 st tap after Travellers Bungalow OHT -Zone I	Tap in Kamarajar Street	Tap in Thanthai Periyar Street	Tap in Mel Theru
Date of Receipt : 18.10.2023						
Source as per label						
Bacteriological Examination	Total colonies per ml on agar at 37°C	100	0			
	MPN of Coliform bacteria per 100 ml.	210	0	0	0	0
	Rapid Test for E.Coli-I	Positive				
	Results of vibrio test					
Physical Examination	Colour	Colourless	Colourless			
	Turbidity (Units)	5	5			
	Smell	None	Faintly Chlorinous (0.5 ppm)			
Chemical Examination (in mg/l).	Total Solids	830	830			
	Carbonate hardness as CaCO ₃	228	232			
	Non- Carbonate hardness as CaCO ₃	44	40			
	Total hardness as CaCO ₃	272	272			
	Chloride as Chlorine	188	188			
	Ammoniacal nitrogen	-	-			
	Albuminoid nitrogen	-	-			
Oxygen absorbed (Tidy's test)	0.56	0.0				
Nitrate-nitrogen	1.0	1.0				
Acidity	Phenolphthalein as CaCO ₃ } Methyl Orange	0	0			
		228	232			
Fluoride as Fluorine		0.6	0.6			
PH.		7.9	7.7			
Iron as Fe Total		0.05	0.05			
Ferrous						
Manganese as Mn.						
Qualitative- Nitrite nitrogen		Trace	Nil			
Sulphate		Trace	Trace			
Phosphate		Trace	Trace			
Toxic substances						
Electrical conductivity (Reciprocal megohms/Cm ³ at 25°C)		1180	1190			
Microscopical Examination		Spirogyra, Monas, & Amorphous matter	Amorphous matter			

The mixture of water from the Concerned OHTs is distributed to the Public after Chlorination for drinking purpose.

2. Mixture of water from the Bore Wells (2 Nos.) located at Konangippalayam pumping station and Water from the Bore Well (1 No.) located at Pillur pumping station is collected in two separate sumps (each 1,00,000 liter capacity) in their respective areas, pumped into OHT located at Zone II East Pandy Road and then distributed to the Public and directly supplied to some streets where there is no OHT.

3. Water from a Bore Well located at Ezhil Nagar pumping station is collected in a sump, pumped into OHT located at Ezhil Nagar (1,00,000 liter capacity) and then distributed to the public for drinking.

Drinking water is distributed every two days and adequate water supply is being maintained by adopting zonal system throughout the municipality.

37 samples of water for bacteriological analysis and 13 samples of water or chemical and biological analysis were collected on 17.10.2023 from the Villupuram Municipality in connection with the periodical water quality monitoring for drinking purpose.

The results of analysis are furnished herewith :

1.Mixture of the Infiltration Wells (3 Nos.) water from collection sump at Ellis Chathiram pumping station (TNR – 1890).

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

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

It is of very poor bacteriological and biological quality as evidenced by the presence of E-Coli I organisms of faecal origin and is found some algae and unicellular organisms. It is due to absence of chlorination.

2.Mixture of Bore Wells(5 Nos.) water from collection sump located at Ellis Chathiram pumping station (TNR – 1892).

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

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

It is of satisfactory bacteriological and biological quality on this occasion.

3.Mixture of BoreWells(2 Nos.) water from collection sump located at Konangippalayam pumping station (TNR – 1898).

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

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

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

		TNR- 1892	TNR-1893			
Date of Collection : 17.10.2023		Mixture of Bore Wells(5 Nos.) water from collection sump located at Ellis Chathiram pumping station	Water from 1 st tap after Alamelu puram OHT	Tap in Subiksha Garden	Tap in Mooventhar Nagar	Tap in Dhana-lakshmi Garden
Date of Receipt : 18.10.2023						
Source as per label						
Bacteriological Examination	Total colonies per ml on agar at 37°C	100	0			
	MPN of Coliform bacteria per 100 ml.	210	0	0	0	0
	Rapid Test for E.Coli-I	Negative				
	Results of vibrio test					
Physical Examination	Colour	Colourless	Colourless			
	Turbidity (Units)	5	5			
	Smell	None	Chlorinous (2 ppm)			
	Total Solids	800	830			
	Carbonate hardness as CaCO ₃	204	232			
	Non- Carbonate hardness as CaCO ₃	52	40			
	Total hardness as CaCO ₃	256	272			
	Chloride as Chlorine	188	188			
Chemical Examination (in mg/l).	Ammoniacal nitrogen	-	-			
	Albuminoid nitrogen	-	-			
	Oxygen absorbed (Tidy's test)	0.48	0.0			
	Nitrate-nitrogen	1.0	1.0			
	Acidity } Phenolphthalein as CaCO ₃ } Methyl Orange	0	0			
		204	232			
	Fluoride as Fluorine	0.6	0.6			
	PH.	7.5	7.4			
	Iron as Fe Total Ferrous	0.05	0.05			
	Manganese as Mn.					
	Qualitative- Nitrite nitrogen	Trace	Nil			
	Sulphate	Trace	Trace			
	Phosphate	Trace	Trace			
	Toxic substances					
Electrical conductivity (Reciprocal megohms/Cm ³ at 25°C)	1140	1190				
Microscopical Examination		Amorphous matter	Amorphous matter			

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

TNR- 1894

TNR-1895

Date of Collection : 17.10.2023		Water from 1 st tap after Narasingapuram OHT	Tap in Santhana Gopalapuram	Tap in Ilango Adigal Street	Tap in Maga baratha Theru	Water from 1 st tap after Kamarajar HSS Backside OHT	
Date of Receipt : 18.10.2023							
Source as per label							
Bacteriological Examination	Total colonies per ml on agar at 37°C	0				0	
	MPN of Coliform bacteria per 100 ml.	0	0	0	0	0	
	Rapid Test for E.Coli-I						
	Results of vibrio test						
Physical Examination	Colour	Colourless				Colourless	
	Turbidity (Units)	5				5	
	Smell	Faintly Chlorinous (0.5 ppm)				Faintly Chlorinous (0.5 ppm)	
Chemical Examination (in mg/l).	Total Solids	780				780	
	Carbonate hardness as CaCO ₃	204				208	
	Non- Carbonate hardness as CaCO ₃	44				48	
	Total hardness as CaCO ₃	248				256	
	Chloride as Chlorine	180				180	
	Ammoniacal nitrogen	-				-	
	Albuminoid nitrogen	-				-	
	Oxygen absorbed (Tidy's test)	0.0				0.0	
	Nitrate-nitrogen	1.0				1.0	
	Acidity as CaCO ₃	Phenolphthalein	0				0
			Methyl Orange	204			208
	Fluoride as Fluorine	0.6				0.6	
	PH.	7.8				7.7	
	Iron as Fe Total	0.1				0.1	
	Ferrous						
	Manganese as Mn.						
	Qualitative- Nitrite nitrogen	Nil					Nil
	Sulphate	Trace					Trace
	Phosphate	Trace					Trace
	Toxic substances						
Electrical conductivity (Reciprocal megohms/Cm ³ at 25°C)	1120					1120	

Microscopical Examination

Amorphous matter

Amorphous matter

It is poor bacteriological quality as evidenced by the presence of coliform organisms.

It also shows few microscopical organisms.

4. Water from the Bore Well(1 No.) water from collection sump located at Pillur pumping station (TNR – 1899).

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

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

It is of satisfactory bacteriological and biological quality on this occasion.

5. Water from the Bore Well (1 No.) from as it falls in OHT in East Pandy Road (TNR – 1900).

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

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

It is of satisfactory bacteriological and biological quality on this occasion.

6. Water from 1st tap after Travellers Bungalow OHT – Zone I (TNR – 1891).

7. Water from 1st tap after Alamelupuram OHT (TNR – 1893).

8. Water from 1st tap after Narasingapuram OHT (TNR – 1894).

9. Water from 1st tap after Kamarajar HSS Backside OHT (TNR – 1895).

10. Water from 1st tap after Throwpathi Amman Street OHT (TNR – 1896).

11. Water from 1st tap after Collectorate Campus OHT (TNR – 1897).

12. Water from 1st tap after East Pandy Road OHT Zone II (TNR – 1901).

The above seven samples of water are colourless and clear in physical appearance with chlorinous odour and recorded (R.C. between 0.5 mg/l to 2.00 mg/l).

Judged by the results of analysis, they are very hard and mineralized, however they are of acceptable chemical quality and satisfactory of biological and bacteriological quality for drinking purposes on this occasion.

The samples of water collected from all the distribution taps are of satisfactory hygienic quality for drinking on this occasion.

13. Water from 1st tap after Ezhil Nagar OHT (TNR – 1902).

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

Chemical analysis reveals that, it is very hard and highly mineralized. The total solids (2200mg/l), total Hardness (672 mg/l), and total sulphate (< 400 mg/l) contents are exceeding the maximum permissible limits (2000 mg/l, 600 mg/l and 400

mg/l respectively) as per BIS for drinking water. Hence this water is of unsuitable for drinking.

However, it is of satisfactory bacteriological and biological quality on this occasion.

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

1. Proper fencing/compound wall should be provided to pumping station without a perimeter wall to prevent the entry of strangers/cattle and to prevent the extraneous contamination of drinking water.
2. Any unwanted Vegetation in the OHT area should be removed and the surroundings should be kept clean and tidy as per sanitary specifications.
3. 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. The public should be health educated to use only protected water or boiled and cooled water for drinking.

A. Y. Srinivasan 24/11/2023
for **CHIEF WATER ANALYST,
Chief Water Analysis Laboratory,
Guindy, Chennai – 32.**

A. Srinivasan 24/11/23 *DB* 24/11/23

Copy submitted to: The Director of Public Health and Preventive Medicine,
Anna Salai, Chennai – 6.

The Commissioner of Municipal Administration, Urban
Administrative Building, Santhome High Road, MRC
Nagar, Raja Annamalaipuram, Chennai -28.

Copy to: The Deputy Director of Health Service , Villupuram HUD,
Villupuram District.

The Municipal Engineer, Villupuram Municipality,
Villupuram District.

The Lab and File

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

TNR-1896

Date of Collection : 17.10.2023		Tap in VOC Street	Tap in Napalayan Theru	Tap in Gurusami Pillai Street	Water from 1 st tap after Throwpathi Amman Street OHT	Tap in Thiruppugazh Street	
Date of Receipt : 18.10.2023							
Source as per label							
Bacteriological Examination	Total colonies per ml on agar at 37°C	0			0		
	MPN of Coliform bacteria per 100 ml.	0	0	0	0	0	
	Rapid Test for E.Coli-I						
	Results of vibrio test						
Physical Examination	Colour				Colourless		
	Turbidity (Units)				5		
	Smell				Faintly Chlorinous (0.5 ppm)		
Chemical Examination (in mg/l).	Total Solids				780		
	Carbonate hardness as CaCO ₃				204		
	Non- Carbonate hardness as CaCO ₃				52		
	Total hardness as CaCO ₃				256		
	Chloride as Chlorine				184		
	Ammoniacal nitrogen						
	Albuminoid nitrogen				0.0		
	Oxygen absorbed (Tidy's test)				1.0		
	Nitrate-nitrogen				0		
	Acidity	} Phenolphthalein Methyl Orange				0	
	as CaCO ₃					204	
	Fluoride as Fluorine				0.6		
	PH.				7.6		
	Iron as Fe Total				0.1		
	Ferrous						
	Manganese as Mn.						
	Qualitative- Nitrite nitrogen					Nil	
Sulphate					Trace		
Phosphate					Trace		
Toxic substances							
Electrical conductivity (Reciprocal megohms/Cm ³ at 25°C)					1120		

Microscopical Examination

Amorphous matter

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

TNR-1897

Date of Collection : 17.10.2023		Tap in Sarveswaran Street	Tap in Sanmuga peruman main Road	Water from 1 st tap after Collectorate Campus OHT	Tap in Es Garden	Tap in VAO Garden	
Date of Receipt : 18.10.2023							
Source as per label							
Bacteriological Examination	Total colonies per ml on agar at 37°C			0			
	MPN of Coliform bacteria per 100 ml.	0	0	0	0	0	
	Rapid Test for E.Coli-I						
	Results of vibrio test	Negative					
Physical Examination	Colour			Colourless			
	Turbidity (Units)			5			
	Smell			Chlorinous (2 ppm)			
Chemical Examination (in mg/l).	Total Solids			850			
	Carbonate hardness as CaCO ₃			224			
	Non- Carbonate hardness as CaCO ₃			56			
	Total hardness as CaCO ₃			280			
	Chloride as Chlorine			208			
	Ammoniacal nitrogen						
	Albuminoid nitrogen						
	Oxygen absorbed (Tidy's test)			0.0			
	Nitrate-nitrogen			3.0			
	Acidity	Phenolphthalein as CaCO ₃ } Methyl Orange			0		
					224		
	Fluoride as Fluorine			0.6			
	PH.			8.0			
	Iron as Fe Total			0.05			
		Ferrous					
	Manganese as Mn.						
	Qualitative- Nitrite nitrogen				Nil		
Sulphate				Trace			
Phosphate				Trace			
Toxic substances							
Electrical conductivity (Reciprocal megohms/Cm ³ at 25°C)				1220			
Microscopical Examination				Amorphous matter			

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

		TNR-1898	TNR-1899	TNR-1900	TNR-1901		
Date of Collection : 17.10.2023							
Date of Receipt : 18.10.2023							
Source as per label		Tap in Subramaniya Sami Street	Mixture of Bore Wells(2 Nos.) water from collection sump located at Konangippalayam pumping station	Water from the Bore Well(1 No.) water from collection sump located at Pillur pumping station	Water from the Bore Well(1 No.) from as it falls in OHT in East Pondy Road	Water from 1 st tap after East Pondy Road OHT Zone II	
Bacteriological Examination	Total colonies per ml on agar at 37°C		100	10	90	0	
	MPN of Coliform bacteria per 100 ml.	0	>1100	0	210	0	
	Rapid Test for E.Coli-I		Negative		Negative		
	Results of vibrio test						
Physical Examination	Colour		Colourless	Colourless	Colourless	Colourless	
	Turbidity (Units)		5	5	5	5	
	Smell		None	None	None	Slightly Chlorinous (1 ppm)	
Chemical Examination (in mg/l).	Total Solids		1270	860	910	830	
	Carbonate hardness as CaCO ₃		400	224	272	232	
	Non- Carbonate hardness as CaCO ₃		0	56	0	40	
	Total hardness as CaCO ₃		400	280	272	272	
	Chloride as Chlorine		180	208	148	188	
	Ammoniacal nitrogen						
	Albuminoid nitrogen						
	Oxygen absorbed (Tidy's test)		0.80	0.4	0.48	0.0	
	Nitrate-nitrogen		3.0	3.0	3.0	3.0	
	Acidity as CaCO ₃	Phenolphthalein		0	0	0	0
		Methyl Orange		440	224	332	232
	Fluoride as Fluorine		0.1	0.4	0.4	0.8	
	PH.		7.0	7.4	7.7	7.6	
	Iron as Fe Total		0.05	0.05	0.05	0.05	
	Ferrous						
	Manganese as Mn.						
	Qualitative- Nitrite nitrogen		Trace	Trace	Trace	Nil	
Sulphate		Present	Trace	Present	Trace		
Phosphate		Trace	Trace	Trace	Trace		
Toxic substances							
Electrical conductivity (Reciprocal megohms/Cm ³ at 25°C)		1810	1230	1300	1190		
Microscopical Examination		Anabaena, Monas Amorphous matter	Amorphous matter	Amorphous matter	Amorphous matter		

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

TNR-1902

Date of Collection : 17.10.2023		Tap in Power House Road	Tap in Mariamman Kovil Street	Tap in Vanakkara Kuppusami Theru	Water from 1 st tap after Ezhil Nagar OHT	Tap in Ezhil Nagar 1 st Street
Date of Receipt : 18.10.2023						
Source as per label						
Bacteriological Examination	Total colonies per ml on agar at 37°C				10	
	MPN of Coliform bacteria per 100 ml.	0	0	0	0	0
	Rapid Test for E.Coli-I					
	Results of vibrio test					
Physical Examination	Colour				Colourless	
	Turbidity (Units)				5	
	Smell				None	
Chemical Examination (in mg/l).	Total Solids				2200	
	Carbonate hardness as CaCO ₃				476	
	Non- Carbonate hardness as CaCO ₃				196	
	Total hardness as CaCO ₃				672	
	Chloride as Chlorine				564	
	Ammoniacal nitrogen					
	Albuminoid nitrogen					
	Oxygen absorbed (Tidy's test)				0.40	
	Nitrate-nitrogen				3.0	
	Acidity } Phenolphthalein as CaCO ₃ } Methyl Orange				0	
					476	
	Fluoride as Fluorine				0.4	
	PH.				7.1	
	Iron as Fe Total				0.05	
	Ferrous					
	Manganese as Mn.					
	Qualitative- Nitrite nitrogen					Trace
	Sulphate					Marked
	Phosphate					Trace
	Toxic substances					
Electrical conductivity (Reciprocal megohms/Cm ³ at 25°C)					3140	

Microscopical Examination

Amorphous matter

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

Date of Collection : 17.10.2023		Tap in Ezhil Nagar 2 nd Street	Tap in Ezhil Nagar Cross Street			Maximum permissible limit for drinking water as per BIS 10500/2012	
Date of Receipt : 18.10.2023							
Source as per label							
Bacteriological Examination	Total colonies per ml on agar at 37°C					20	
	MPN of Coliform bacteria per 100 ml.	0	0			0	
	Rapid Test for E.Coli-I					absent	
	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)					--	
	Nitrate-nitrogen					10.2	
	Acidity as CaCO ₃	} Phenolphthalein					--
			} Methyl Orange				
	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/Cm ³ at 25°C)						-	