

JAWAHARLAL NEHRU HOMOEOPATHIC MEDICAL COLLEGE

VISIT TO SEWAGE TREATMENT PLANT, TARSALI.

GENERAL DETAILS:

Course/department: Community medicine department

Year: 4th year BHMS

Date of visit: 01/09/2015

No. of students: 85

Time: 10.00 am to 2.00 pm

Name of accompanying teacher: dr. zankhana desai

Name & address of sewage treatment plant: Sewage Treatment Plant, Tarsali,
Vadodara.

Operated by Vadodara Municipal Corporation, Tarsali-390009



4TH BHMS STUDENTS AT SEWAGE TREATMENT PLANT



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SLUDGE DIGESTION TANK



SEWAGE PUMP



PRIMARY SEDIMENTATION TANK

GENERAL OUTLINE OF SEWAGE TREATMENT PLANT:

- Sewage treatment is process of removing contaminants from waste water & household sewage, both run offs (effluents), domestic, commercial & institutional.
- It includes physical, chemical & biological processes to remove physical, chemical & biological contaminants.
- Its objective is to produce an environmentally safe fluid waste stream (or treated effluents) & a solid waste (or treated sludge) suitable for disposal or release (usually as farm fertilizer)

CAPACITY OF STPs:

DRAINAGE ZONE	CAPACITY	PROCESS
ZONE I AT TARSALI	52 MLD	ASP
ZONE II AT GAJRAWADI	66 MLD	ASP
ZONE III AT ATLADRA	43 MLD	UASB

COVERAGE OF APS:

DRAINAGE ZONE	NO. OF APS
DRAINAGE ZONE I	5
DRAINAGE ZONE II	11
DRAINAGE ZONE III	10

- Vadodara city has an underground drainage system since year 1894. The sewage, which is collected through a system composed of an underground drainage network, auxiliary pumping stations (aps) & pressure mains, disposes into natural drains & rivers after treatment.
- For treatment of sewage, collected through sewage system is treated in sewage treatment plant constructed by VMSS at Atladara, Gajrawadi & Tarsali area. For efficient management system, 3 sewage zones have been formed. The total sewage generated by city of Vadodara is 215 mld, of with only 180 mld gets treated.
- Tarsali sewage treatment plant is based on modern sewage treatment technology of 52 mld capacities.
- Tarasali sewage treatment plant serves zone i. it covers Sharadnagar, GIDC, tarsali, Makarpura & Manjalpur area.

PROCESS FLOW CHART:

Modern sewage treatment plant is based on biological principles of sewage purification, where purification is brought about by action of anaerobic & aerobic bacteria.

A. PRIMARY TREATMENT:

1) SCREENING:

Arriving disposal is passed through metal screen with intercepts large, floating objects. The screen consists of vertical or inclined steel bars usually 5 cm apart.

2) GRIT CHAMBER:

Passed through long narrow chamber 10 to 20 m. in length, grit collects at bottom of chamber is removed periodically or continuously & disposed of by plain dumping or trenching.

3) PRIMARY SEDIMENTATION:

Sewage now admitted into huge tank. holding $\frac{1}{4}$ to $\frac{1}{3}$ dry weather flow. Sewage is made to flow very slowly across tank at velocity 1-2 feet/min. spends about 6-8 hrs. in tank. Nearly 50-70 per cent of solids settle down under influence of gravity.

B. SECONDARY TREATMENT:

Effluent from 1^o sedimentation tank contains proportion of organic matter in solution or colloidal state. It has high demand for O₂ & cause pollution of soil or water. It is subjected to further treatment, aerobic oxidation by activated sludge process.

SECONDARY SEDIMENTATION:

Oxidized sewage from aeration chamber is led into second tank where it is detained for 2-3 hrs.

SLUDGE DIGESTION:

Under favourable conditions of temperature & pH, it undergoes anaerobic digestion, in which solids are broken into water, CO₂, methane & ammonia. It takes 3-4 weeks for complete sludge digestion. Then sludge is kept in sludge drying beds & kept for 150 days & corporation transport