



**AN INDUSTRIAL VISIT REPORT
ON
SEWAGE TREATMENT PLANT,
BAMROLI, SURAT.**



छोटुभाई गोपालभाई पटेल प्रौद्योगिकी संस्थान, बारडोली
Chhotubhai Gopalbhai Patel Institute of Technology, Bardoli

Organized By:

*Chhotubhai Gopalbhai Patel Institute of Technology,
Department of Civil Engineering
Uka Tarsadia University, Maliba Campus, Bardoli.*

(12th March, 2021, Friday)

Branch: B. Tech and M. Tech

Course: Civil Engineering, Environmental Engineering

Semester: B. Tech (6th) and M. Tech (2nd)

No of Students: Total 56 (B. Tech-54), (M. Tech-02)

Faculty Coordinator/Organizer: Prof. (Dr.) Manoj J. Gundalia and Prof. Palak V.
Trivedi



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DEPARTMENT OF CIVIL ENGINEERING

Visit Permission Letter



Surat Municipal Corporation
Drainage Department, Tadwadi,
Rander Road, Surat
Fax: (0261) 2451935
Phone No. 3041228 Ex.No.228

To,
The Director (Dr. Rajkumar Patil),
Chhotubhai Gopalbhai Patel Institute of Technology,
Uka Tarsadia University
Maliba- Mahuva Campus,
Dist. Surat, Bardol

DNG/OUT/No. 21605
Date- 01/03/21

Sub:- Regarding the Visit of the Sewage treatment plant at BAMROLI TTP.
Reference: Your letter No.CGPIT/CIVIL/SMC/2020-21/063, dated
23/02/2021


Respected Sir,

With reference to the above subject, you are hereby permitted to visit the Sewage treatment plant at **BAMROLI TTP** on 12/03/2021 For 34 Students Diploma 6th Sem +54 students in B.Tech 6th Sem + 2 Students in M.Tech(Environment Engineering) subject to following conditions.

- The visitor shall have to visit the plant under the guidance of site supervisor / laboratory staff at Sewage Treatment Plant.
- The visitor shall have to be instructed to behave politely with staff.
- The visitor shall not touch/damage any machineries/equipments at Sewage Treatment Plant.
- The visitor shall have to arrange bag/container for collection of sample on their own.
- The plantation shall not be damaged.
- It is prohibited to throw any paper/garbage within plant campus. The dustbin provided within the campus shall have to be used for the same.
- Photography and video recording through any means is strictly prohibited.
- **Surat Municipal Corporation shall not be responsible for any type of accident / damage/ health hazardous during plant visit.**

All the above conditions shall have to be followed strictly. If any mischief is found during visit, Surat Municipal Corporation may terminate the visit and take legal action.

Thanking you,
Yours faithfully


Environment Engineer (Drainage)
Surat Municipal Corporation,
Surat.

C.C.TO :- SSG INFRATECH PVT LTD ,SURAT. FOR N.A. PLEASE AS ABOVE
✓ C.C.TO :- ENVIRO CONTROL PVT LTD ,SURAT. FOR N.A. PLEASE AS ABOVE



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Schedule of Visit:

TIMINGS (From – To)		LOCATION
-	10:45 AM	At Sewage Treatment Plant, Bamroli, Surat
10:45 AM	11:15 AM	Give overview of STP & TTP by Mr. Jignesh Parmar (Site Supervisor)
11:15 AM	13:15 PM	Visit to Sewage Treatment Plant and Tertiary Treatment Plant
13:15 PM	13:30 PM	Group Photos
13:30 PM	13:45 PM	Taking Attendance of the Students (List of the students)



Detail Visit Report

Visit at Sewage and Tertiary Treatment Plant, Surat.

This filed visit is arranged with co-operation with Sewage Treatment Plant, Bamroli, Surat.

The co-coordinator of Sewage Treatment Plant: Mr. Kiran Desai

Date of Visit: 12/03/2021

Total No. of Student: 56 (B. Tech-54 and M. Tech- 02)

Total No. of Faculty: 02

Faculty Coordinator: Prof. (Dr.) Manoj J. Gundalia and Prof. Palak V. Trivedi

🚧 Plant visit at Sewage Treatment Plant, Bardoli.

The department of Civil Engineering of Chhotubhai Gopalbhai Patel Institute of Technology organized a one day educational visit to 100 MLD Tertiary Sewage Treatment Plant at Bamroli-Surat on 12th March, 2021 for B. Tech and M. Tech Civil engineering students. Purpose of the visit was to make students aware about how various preliminary, primary, secondary and advanced processes related to sewage treatment are carried out in the field. The Visit was mandatory to fulfill the curriculum requirement of Uka Tarsadia University (UTU) for Civil Engineering students under the subjects like Advanced Environmental Engineering and Biological Treatment of Water & Wastewater Engineering. Main aim of industrial visit is to acquaint the students with the process of municipal waste water treatment. Through industrial visit students are acquainted about new technologies and knowledge. The site Visit was organized with the prior permission of Environment Engineer (Drainage), Surat Municipal Corporation, Surat (Gujarat-India) and Dr. Rajkumar V. Patil, Director, CGPIT, UTU, Bardoli. Prof. (Dr.) Manoj J. Gundalia, Prof. Palak V. Trivedi and Prof. Nikita A. Patel, subject in charges accompanied students and guided them throughout the visit.



In the beginning, Mr. Jignesh Parmar briefed the students about 100 MLD Tertiary Sewage Treatment Plant. He has made this session interesting by asking basic questions to the students. After introduction, all students were divided in two groups of batches and were headed by one staff member of respective program who helped them to understand the processes going in the plant. Mr. Jignesh Parmar has explained functions of each unit of preliminary, primary, secondary and tertiary process. He explained mechanism of UASB (Up flow Anaerobic Sludge Blanket) and nutrients removal process including Nitrification, De-Nitrification and Phosphorous removal processes. Mr. Pinakin has described the generation and collection processes of Methane and Carbon Dioxide gases from anaerobic treatments. Students took almost two hours to see complete set of units and treatments for sewage. This was followed by questions of students. It is rightly said that “See & know’ is better than ‘read & learn’. Students got real feel of advanced treatments to sewage after this visit. They got a chance to transfer their theoretical knowledge to practical implications. This will even help students to understand subject matter clearly in future also.

At the end, the DCE team extends their gratitude to the Environment Engineer (Drainage) of Surat Municipal Corporation for permission and support they gave to make this visit a grand success with accomplishment of objectives. Total 56 (B. Tech-54), (M. Tech-02) students and 02 faculty members of DCE have participated in this visit.

Plant Visit

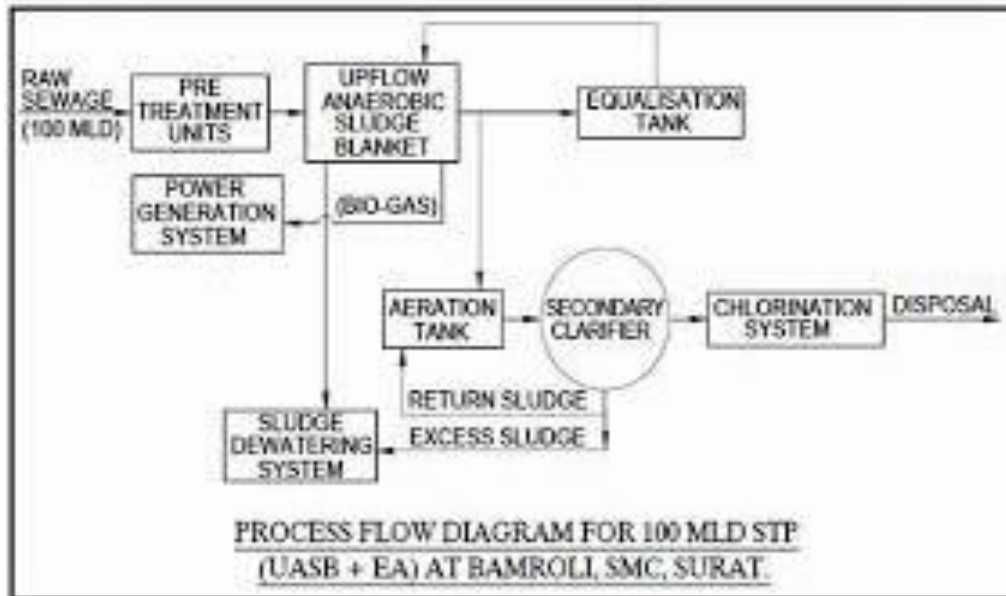
Location: Sewage Treatment Plant, Bamroli, Surat.

Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater that is safe enough for release into the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge. The sludge has to undergo further treatment before being suitable for disposal or application to land.



Sewage treatment generally involves three stages, called primary, secondary and tertiary treatment.

- **Primary Treatment** consists of temporarily holding the sewage in a quiescent basin where heavy solids can settle to the bottom while oil, grease and lighter solids float to the surface. The settled and floating materials are removed and the remaining liquid may be discharged or subjected to secondary treatment. Some sewage treatment plants that are connected to a combined sewer system have a bypass arrangement after the primary treatment unit. This means that during very heavy rainfall events, the secondary and tertiary treatment systems can be bypassed to protect them from hydraulic over loading and the mixture of sewage and storm water only receives primary treatment.
- **Secondary Treatment** removes dissolved and suspended biological matter. Secondary treatment is typically performed by indigenous, water-borne micro-organisms in a managed habitat. Secondary treatment may require a separation process to remove the micro-organisms from the treated water prior to discharge or tertiary treatment.
- **Tertiary Treatment** is sometimes defined as anything more than primary and secondary treatment in order to allow ejection into a highly sensitive or fragile ecosystem (estuaries, low-flow Rivers, coral reefs...). Treated water is sometimes disinfected chemically or physically (for example, by lagoons and microfiltration) prior to discharge into a stream, river, bay, lagoon or wetland, or it can be used for the irrigation of a golf course, greenway or park. If it is sufficiently clean, it can also be used for groundwater recharge or agricultural purposes.
- The process flow diagram for 100 MLD Sewage Treatment Plant is given below:



Process Flow Diagram of Sewage Treatment Plant

Phase: I – Single Stage Biological Treatment

Capacity: 100 MLD

Technology: Anaerobic Biological Treatment through UASB system.

Year of Commissioning: 2003

Phase: II – Two Stage Biological / Secondary Treatment

Capacity: 100 MLD

Technology: Plant upgraded through Extended Aeration to meet the revised stringent effluent discharge standards.

Year of Commissioning: 2008

Phase: III - Tertiary Treatment

Capacity: 40 MLD Product Water

Technology: Ultra Filtration (UF) & Reverse Osmosis (RO) System.

Year of Commissioning: 2014

Phase : IV – Addition in Tertiary Treatment Capacity

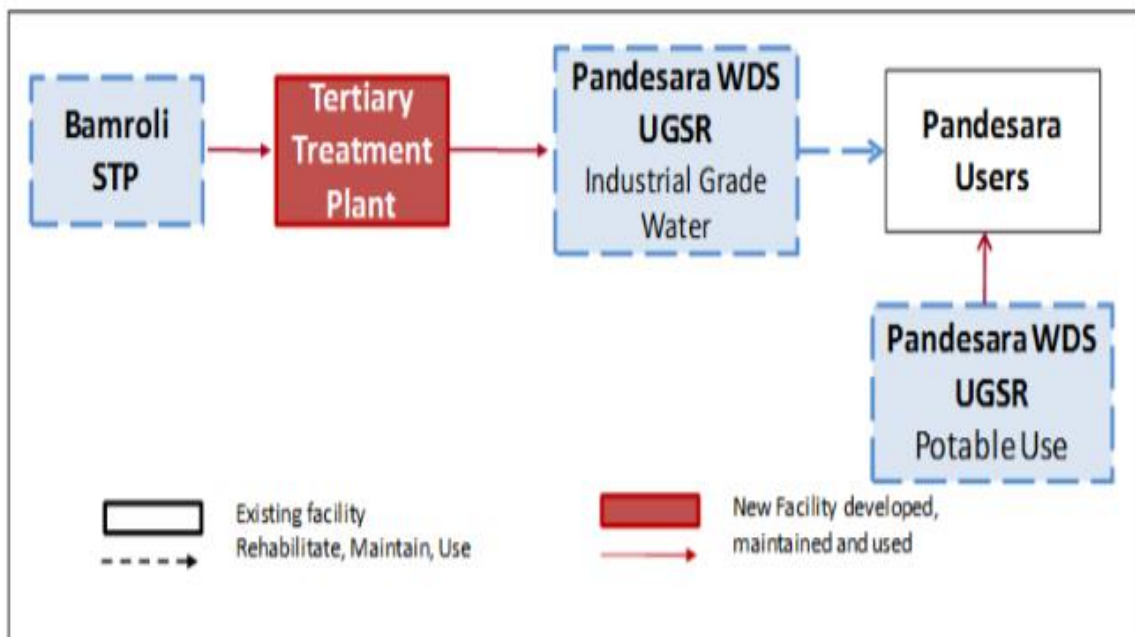
Capacity: 35 MLD Product Water

Technology: Ultra Filtration (UF) & Reverse Osmosis (RO) System.

Year for Commissioning: 2019

RECYCLE, REUSE OF SEWAGE WATER THROUGH TERTIARY TREATMENT: BAMROLI-PANDESARA

A 40 MLD capacity Tertiary Treatment Plant (TTP) to treat secondary treated water from Bamroli Sewage Treatment Plant (100 MLD capacity) to supply Industrial Grade Water to Pandesara Industrial Estate



Process Flow Diagram of Tertiary Treatment Plant

PROJECT-CONCEPT

Objective- Recycle / Reuse of waste water

Contribution towards reducing the dependency on conventional resources of water

Technology- Sand Filtration

Ultra-filtration(UF)

Reverse Osmosis(RO)

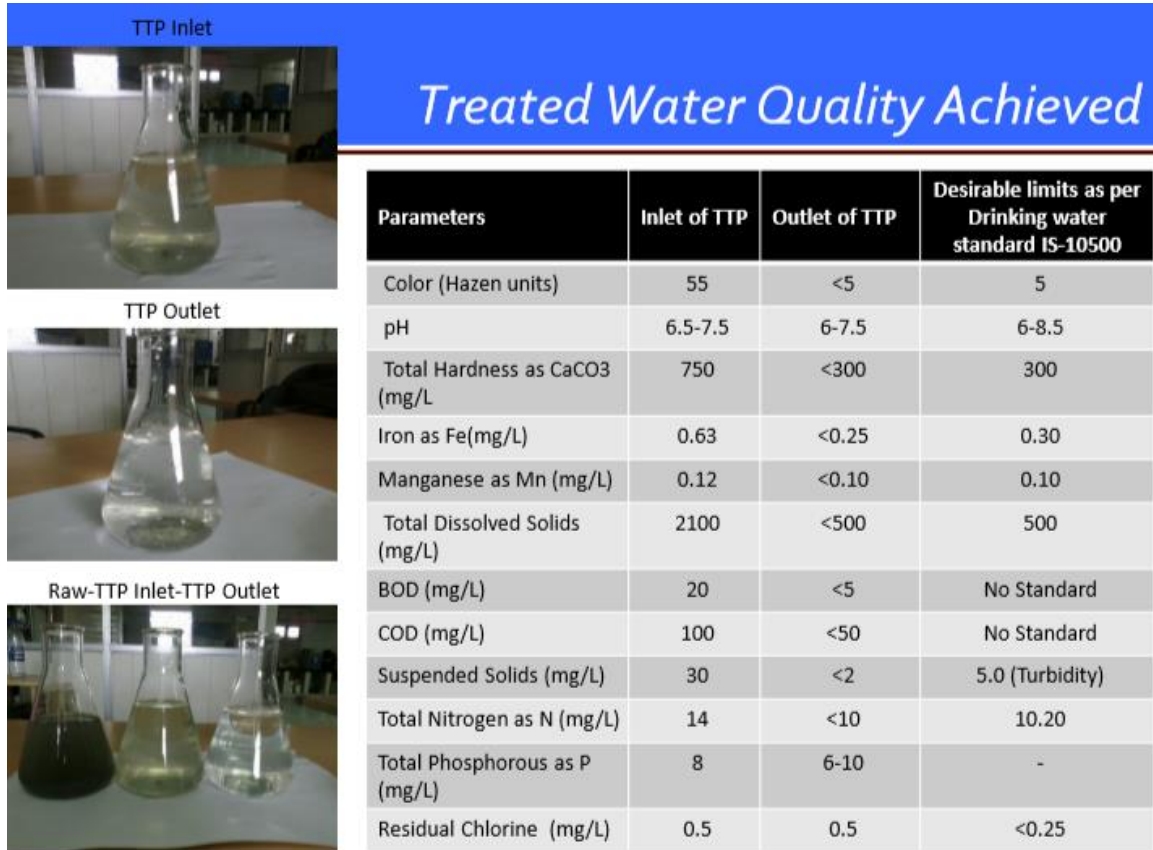


Chart Showing Treated Water Quality

Tertiary water distribution mechanism

- SMC was supplying 50-55 MLD potable water to Pandesara industries.
- After introduction of tertiary water; supply is increased to 80-85 MLD.
- New network with separate water lines has been installed for potable water and tertiary water in Pandesara industrial area.
- Tertiary water and portable water lines are separately color coded.
- Tertiary water is currently blended with fresh water up to 50%.



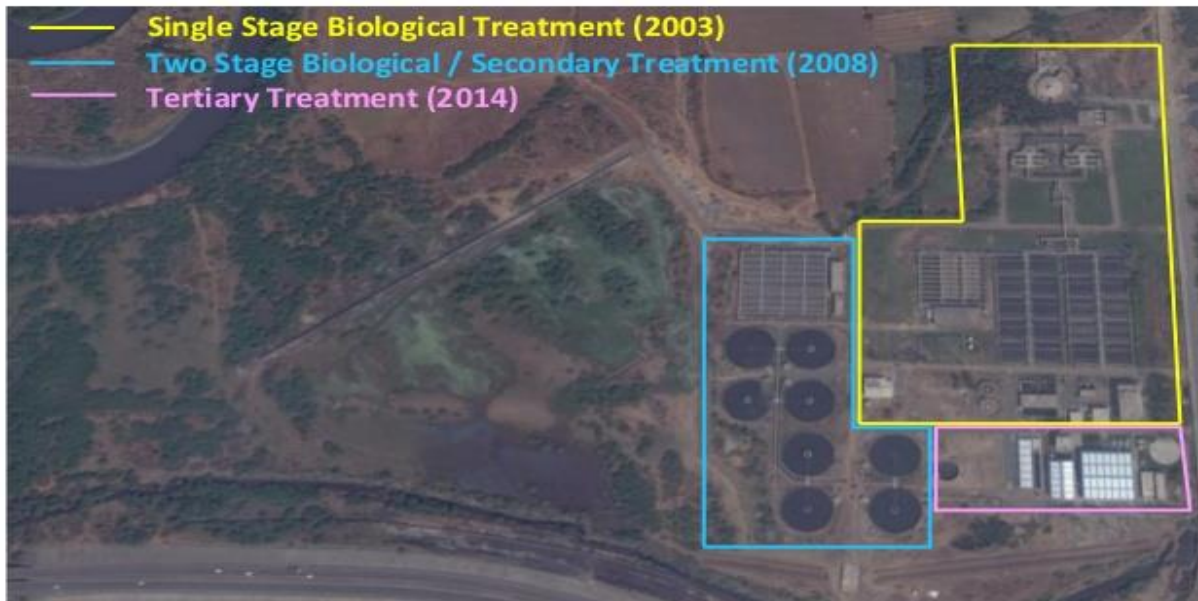
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Summary

This visit helped UG and PG students to enhance their collective theoretical and practical knowledge of sewage primary, secondary treatment and tertiary Treatment Plants. Students can understand detailed design of plant and process which were covered in the subjects. They can identify their prospective study areas for their further study and research. Physical observation of various processes of plants will definitely be enhanced the skill and understanding of students in the filled of environmental engineering.



Bamroli Sewage Treatment Plant



Location map of Sewage Treatment Plant & Tertiary Treatment Plant



Mr Jignesh Parmar briefing the students about Tertiary Sewage Treatment Plant



B. Tech Civil Engineering Students



M. Tech Environmental Engineering Students



Students Attendance Sheet

B.TECH 6TH SEMESTER

Sr No.	Enrl No.	Name
1	201703100410022	UMANG A PATEL
2	201703100410030	KEVAL V DONGA
3	201703100410035	ALEX R DOBARIYA
4	201703100410059	SARANSH M PATEL
5	201703100410061	MANAV S MEHTA
6	201703100410063	JENIL A PATEL
7	201703100410064	KISHAN M KALATHIYA
8	201703100410068	PRIYANKKUMAR K TALA
9	201703100410073	ROMIL D PARMAR
10	201703100410082	JAYKUMAR T PATEL
11	201703100410104	ADITYAKUMAR D PATEL
12	201703100410111	AXAT R SHAH
13	201803100410001	PARTH N PATEL
14	201803100410003	OM H SHAH
15	201803100410004	NILAY H SURTI
16	201803100410006	GRESHI S PATEL
17	201803100410007	HARDIK M BHORANIYA
18	201803100410008	KRUNAL D AMIPARA
19	201803100410010	DHRUVAL K RATHOD
20	201803100410011	JENIS R DOBARIYA
21	201803100410012	YASHKUMAR D BORAD
22	201803100410013	ANUJKUMAR B TARSARIYA
23	201803100410015	MEETKUMAR R PANSURIYA
24	201803100410016	YAGNESH S SONI
25	201803100410017	JASHKUMAR G DABHI
26	201803100410018	AYAZ M PINJARI
27	201803100410021	DRASHTI D GAJERA
28	201803100410022	DIP A SHAH
29	201803100410023	SANTOSHKUMAR H BHIKADIYA
30	201803100410025	PRIJESH K GODHANI
31	201803100410026	MARK A BULSARI
32	201803100410027	MAYANKKUMAR S PATEL



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33	201803100410028	VATSAL J MISTRY
34	201803100410029	RAMESH M KUMAVAT
35	201803100410031	KUNAL D PATEL
36	201803100410032	TEJAS J GOLAKIYA
37	201803100410033	SMIT D KALATHIYA
38	201803100410034	KAUTIK M BHUTKA
39	201803100410039	Mihirkumar R Dobariya
40	201903103520005	DIPT P PATEL
41	201903103520009	ZENITHKUMAR S PATEL
42	201903103520025	LOMASH G KUMBHANI
43	201903103520035	JAY P RUDANI
44	201903103520039	MEET N VANJARI
45	201903103520051	Divyesh M Rana
46	201903103520070	FARUK S PATEL
47	201903103520076	Vikrambhai K Makwana
48	201903103520079	BHAVINKUMAR S PATEL
49	201903103520080	DIBA T KHAN
50	201903103520081	Smeetkumar S Prajapati
51	201903103520082	MAHENDRA P DAYMA
52	201903103520134	RITULKUMAR G MAKWANA
53	201903103520135	YASHKUMAR A PATEL
54	202003103530001	HARSH V RATHOD

M.TECH 2nd SEMESTER

Sr No.	Enrl No.	Name
01	202004104210001	LAD DARSHIT J.
02	202004104210002	SHARMA KARTIK M.