UWR Rainwater Offset Unit Standard

(UWR RoU Standard)

Concept & Design: Universal Water Registry

www.uwaterregistry.io

Project Concept Note & Monitoring Report (PCNMR)

Project Name: "0.3 MLD Sustainable Wastewater Treatment by Shree Kamrej Vibhag Sahakari Khand Udyog Mandali Ltd".

UWR RoU Scope: Scope 5

Monitoring Period: 01-01-2014 to 31-12-2024
Crediting Period: 01-01-2014 to 31-12-2024
UNDP Human Development Indicator: 0.66[1] (India)

RoUs Generated During 1st Monitoring Period: 3,29,384 RoUs

[1] [1] https://www.undp.org/" https://www.undp.org/

A.1 Location of Project Activity

State	Gujarat
District	Kamrej, Surat District, Village Navi Pardi Gujarat.
Block Basin/Sub Basin/Watershed	Please refer to http://cgwb.gov.in/watershed/basinsindia.html
Lat. & Longitude	Lat 21°20'03.6"N long 72°57'50.4"E
Area Extent	National Highway No .48, At. Navi Pardi – 394150, Taluka Kamrej, Dist. Surat (Gujarat)
No. of Villages/Towns	Navi Pardi Village

Bird view

Project Title: "0.3 MLD Sustainable Wastewater Treatment by Shree Kamrej Vibhag Sahakari Khand Udyog Mandali Ltd"

Purpose of the Project Activity:

Shree Kamrej Vibhag Sahakari Khand Udyog Mandali Ltd. has commissioned a 0.3 MLD Effluent Treatment Plant (ETP) to manage wastewater from its sugar and distillery operations. The

facility manufactures crystal white sugar and industrial alcohol, with by-products such as bagasse, molasses, press mud, and bio-compost. The production processes release effluents rich in organic matter, suspended solids, and oil traces, necessitating controlled treatment before reuse or discharge. The ETP employs a sequential process including pH correction, screening, oil removal, equalization, primary clarification, biological aeration, and tertiary filtration. The treated water is reused within the plant for non-potable applications including cooling, floor cleaning, and gardening. This initiative ensures adherence to environmental norms, promotes water conservation, and advances the plant's transition toward sustainable and zero-liquid discharge practices.

- ETP Capacity: *0.3 MLD*
- Commissioning Date: 18/05/1994.

Project Activity

CLARIFLOCULATOR

HOLDING TANK

AERATED LAGOONS

A.2. Project owner information, key roles and responsibilities

Project Proponent (PP):	Shree Kamrej Vibhag Sahakari Khand Udyog Mandali Ltd.
UCR Project Aggregator	Viviid Emissions Reductions Universal Private Limited
Contact Information:	lokesh.jain@viviidgreen.com

The Project Proponent (PP) confirms that They meet all requirements in the management plan for the successful implementation of the project, as outlined below:

Water Rights: They hold legal water user rights for the project area, ensuring we can use the necessary water resources for the project.

Land Ownership: They have a clear and undisputed legal land title for the entire project area, confirming our right to use the land.

Permits: They have secured all required permits for the project. For any permits still pending, we have submitted applications and are complying with all regulations to start on time.

Costs: They have documented all project costs in the Detailed Project /Auditor Certificate. The project cost is approximately **₹50 Lakh** Cover Land, building, machineries, ETP and operational expenses.

Project Proponent is committed to meet there all legal and regulatory requirements to ensure the project proceeds without issues. covering infrastructure, permits, equipment, and operational expenses.

A.2.1 Project RoU Scope

PROJECT NAME	"0.3 MLD Sustainable Wastewater Treatment by Shree Kamrej Vibhag Sahakari Khand Udyog Mandali Ltd."
UWR Scope:	**SCOPE 5:** Conservation measures taken to recycle and/or reuse water, spent wash, water etc across or within specific industrial processes and systems, including wastewater recycled/ reused in a different process, but within the same site or location of the project activity. Recycled wastewater used in off-site landscaping, gardening or tree plantations/forests activity are also eligible under this Scope.
Date PCNMR Prepared	21-07-2025

A.3. Land use and Drainage Pattern

Not Applicable.

This Project treats and reuses wastewater. It does not involve land-use activities. It is an industrial process that meets technical standards and follows local pollution control board rules. The project does not damage land or drainage systems.

A.4. Climate

The Project treats and reuses wastewater from Sugar industry It does not depend on the area's weather since the water is not exposed to outside conditions or harm the environment.

A.5. Rainfall

The Project activity is not dependent on the rainfall pattern of the area as it treats and reuses the wastewater from ETP.

A.6. Ground Water

The project activity does not rely on groundwater (fresh water); instead, it treats the effluent and recycles it back into the process.

A.7. Alternate methods

Conventional sugar and distillery units often rely on high-volume freshwater intake and discharge untreated or partially treated effluents, contributing to long-term water stress and ecosystem degradation. Alternatives such as basic sedimentation ponds, single-stage clarifiers, or limited filtration systems offer minimal reuse potential and cannot reliably meet pollution control norms. In contrast, the selected project activity uses advanced multi-stage treatment to recycle wastewater for non-potable functions like cooling, gardening, and floor cleaning, reducing strain on local water sources and enabling year-round sustainability.

Traditional discharge methods to water bodies frequently release high BOD, COD, oils, and suspended solids into nearby water bodies, harming aquatic life and soil health. Although some facilities opt for minimal biological treatment, these are insufficient for zero-discharge goals. The chosen approach ensures full effluent treatment with pH correction, screening, aeration, and filtration—delivering compliance, ecosystem protection, and community benefits through safe water reuse.

Instead of excessive freshwater intake or groundwater use—especially critical during summer—the project activity enables the facility to reuse treated water, conserving resources and enhancing plant self-sufficiency.

The RoU program promotes wastewater treatment and reuse initiatives, thereby offering an alternative to the release of wastewater through surface Discharge which could have an adverse impact on soil Health.

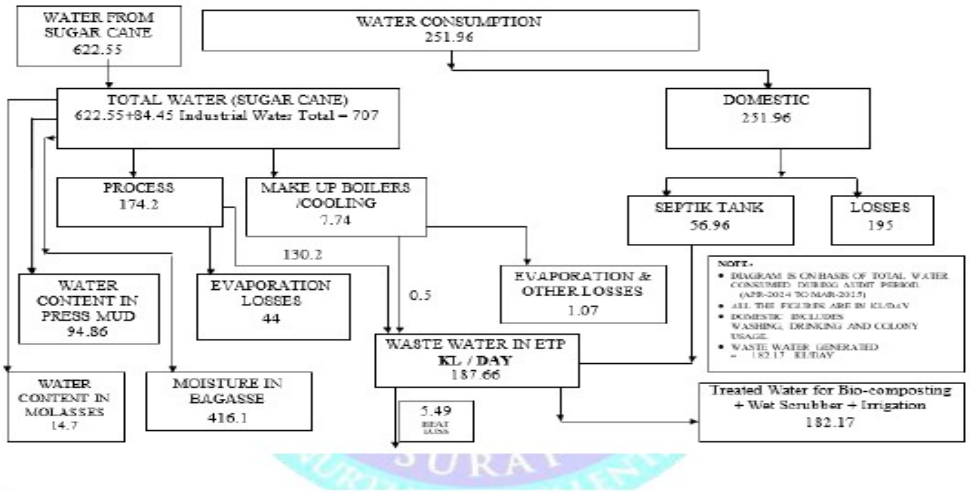
A.8. Design Specifications

PROCESS FLOW: -

EAR: April 2024 – March 2025

M/s. Shree Kamrej Vibhag Sahakari Khand Udyog Mandli Ltd.

ANNEXURE – 12
WATER BALANCE DIAGRAM



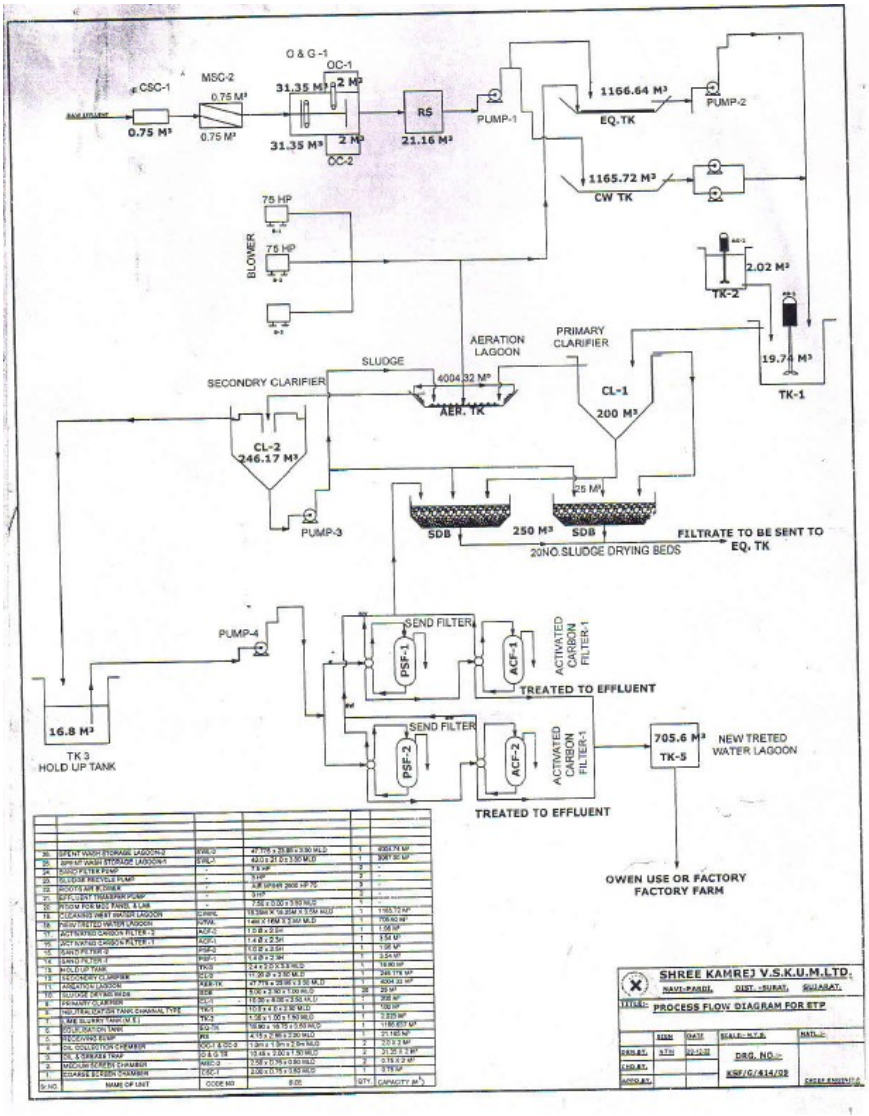
Note:

1) No. of working days during audit period (Apr. 2024 to Mar. 2025): 224 Days

2) Water balance is prepared on the basis of data provided by the company representative.

3) All the units are in **KLD**

.



AUTO CAD DESIGN OF ETP

DESIGN SPECIFICATION

Main ETP Units

Sr. No.	Description	Specifications (in terms of dimension, size, type, MOC)	Total Quantity	Total Volume of Units (m^3)
1	Course screen chamber	2m × 0.75m × 0.50m	1	0.75
2	Medium screen chamber	2.5m × 0.75m × 0.5m	2	1.875
3	Oil & grease trap	1.5m × 0.75m × 0.5m	1	0.5625
4	Oil collection Chamber	1.0m × 1.0m × 0.6m	1	0.6
5	Receiving Sump	4.15m × 2.55m × 2.0m	1	21.165
6	Equalization tank	19.90m × 16.75m × 3.5m	1	1166.63
7	Lime Slurry Tank	1.35m × 1.0m × 1.50m	1	2.025
8	Neutralization Tank Channel Type	10.00m × 4.00m × 2.50m	1	100
9	Primary Clarifier	10.00m × 0.80m × 2.5m	1	200
10	Sludge Drying Beds	5.0m × 2.5m × 1.0m	10	250

11	Aeration Lagoon	47.77m × 25.93m × 3.5m	1	4324.3
12	Secondary Clarifier	11.00m × 4.3m ht	1	246.176
13	Hold up Tank	2.4m × 12.0m × 3.5 m MLD	1	100.8
14	Sand Filter	1.6 dia × 1.6 Dia × 3.5 ht m	1	5.5
15	Activated Carbon Filter	1.4 Dia × 1.4 dia × 3.5 ht m	2	5.502
16	Cleaning West Water Lagoon	18.25m × 13.05m × 3.5 m MLD	1	1165.72
17	Room for MCC Panel & Lab	7.50 × 3.80 × 3.0 m	1	-
18	Effluent Transfer Pump	-	2	-
19	Roots Air Blower	Air m^3/hr 2600, HP 7.5	2	-
20	Sludge Recycle Pump	HP 3.0	2	-
21	Sand Filter Pump	HP 7.5	2	-
	Total Volume in m^3			**7253.165**

SPENT WASH & TREATED WATER LAGOONS

Sr. No.	Description	Dimensions (L × W × D) (in m)	Quantity	Volume (m^3)
1	Spent wash Lagoon no-1	42.0 × 21.0 × 3.50	1	3087
2	Spent wash Lagoon no-2	47.77 × 23.95 × 3.50	1	4004.793

3	Spent wash Lagoon no-3	64.5 × 26.5 × 3.50	1	5976.375
4	Spent wash pumping station	5.0m × 3.0m × 3.5m	1	52.5
5	New Treated Water Lagoon	14.0 × 18.2 × 2.8	1	705.6
	Total Volume in m^3			**14826.09**

PROPOSED LAGOON

Description	Dimensions (m)	Volume (m^3)
Proposed new storage lagoon	70 × 50 × 3.5	12250

PROCESS DESCRIPTION: -

The Effluent Treatment plant (Etp) has designed to efficiently treat wastewater generated from process within the industry. The treatment system incorporates physical, chemical, biological, and tertiary processes to ensure treated water is safe for reuse or disposal in accordance with environmental regulations.

1. Preliminary treatment

The influent wastewater from the factory, containing suspended solids, oils, and organic matter, first undergoes ph correction using lime to bring it within a neutral range suitable for biological treatment.

- Screening units:
  The effluent then passed through a coarse screen chamber and a medium screen chamber to remove floating debris, plastics, fibers, and other large particulate matter that may damage downstream equipment or hinder treatment performance.

- Oil & grease separation:
  post-screening, the effluent enters the oil & grease trap, where floating oils and fats separated. An oil skimmer helps in continuous removal of surface oils, which are collected in a designated oil collection chamber for safe disposal.

SAND & GRID REMOVER

- 2. Flow Equalization and Ph Adjustment

- Receiving Sump & Equalization Tank:
  The Screened and Deoiled Effluent Is Transferred to The Receiving Sump and Then into The Equalization Tank. This Tank Plays a Crucial Role in Buffering Flow and Load Variations, Ensuring Steady-State Conditions for the Biological Treatment That Follows.

- Neutralization Tank:
  Further Fine-Tuning of The Ph Is Conducted in the Neutralization Tank (Chanel Type), Using Acid or Alkali Dosing If Required, Based on The Inlet Ph Levels.

- Lime Slurry Preparation:
  Lime Is Prepared in A Lime Slurry Tank and Dosed into the System as Part of Ph Control and Coagulation Support.

REACTION TANK

PRIMARY CLARIFIER

- 3. Primary treatment
- Primary clarifier:
  the neutralized effluent is passed into a primary clarifier were heavier suspended solids settle down as sludge. this clarifier aids in significant removal of tss (total suspended solids) and some portion of bod/cod.

- Sludge Management:
  the settled sludge from the clarifier is directed to sludge drying beds, where it is dewatered and dried before safe disposal or composting.

- 4. Secondary (biological) treatment

- Aeration lagoon:
  the clarified supernatant from the primary clarifier is sent to a large aeration lagoon, where aerobic microorganisms degrade dissolved organic pollutants (bod and cod). adequate oxygen is supplied via roots air blowers to maintain the desired mlss (mixed liquor suspended solids) concentration.

- Secondary Clarifier:
  the biologically treated water from the aeration lagoon enters the secondary clarifier, where microbial flocs (biomass) settle down. part of this sludge is recycled back to The Aeration Lagoon to Maintain Microbial Population, And Excess Sludge Is Sent to Drying Beds.

AERATION LAGOON:

- 5. Tertiary Treatment (filtration & polishing)

- Hold-up tank:
  acts as a buffer before filtration and helps maintain a consistent flow to the tertiary units.

- Filtration units:
    - Multi-grade sand filters: remove fine suspended particles and turbidity.
    - Activated carbon filters: adsorb dissolved organics, color, and odorous compounds, enhancing water clarity and quality.

The final treated effluent is then collected in a treated water storage lagoon, ready for safe reuse or application.

SAND & CARBON

- 6. Treated water reuse

The polished effluent is reused within the industry for:

- Cooling tower makeup
- Floor and equipment washing
- Gardening and greenbelt maintenance
- Bio-composting processes

Treated water that is not immediately reused is stored in lined lagoons for future use, especially in non-monsoon months, supporting water sustainability.

STORED AERATED LAGOONS

- 7. Additional storage infrastructure to support continuous treatment and seasonal storage:
- Three spent wash lagoons and a treated water lagoon are constructed with large holding capacities.
- A new lagoon is proposed with a volume of 12,250 m^3 to meet future operational needs and improve water reuse flexibility.
- Etp sludge is used as manure in factory farms and treated effluent is used for irrigation in factory farm.
-

SLUDGE DISPOSAL & WASTE CATEGORY

Cat.no	Types of Solid / Hazardous Waste	Consent Quantity (MT/Year) Source of Waste	Consent Quantity (MT/Year)	Actual Quantity Generated (MT/Month & MT/Year	Mode of Storage	Method of Disposal
35.3	Chemical sludge from wastewater treatment (ETP	ETP	120	6.030 MT/Month	Storage area	Used as manure in compost and own cane farm

	sludge)			72.36 MT/Year		
5.1	Used oil	Utility	2.083	0.080 MT/Year	PVC Drum	Sold to Authorized Agency
33.1	Discarded container	Production	5400 MT	240 Nos PVC Drums 2700 Nos HDPE Drums	Storage Room	Authorized Agency
--	Fly Ash	Boiler	--	560.812 MT/Year Month: 93.835 MT	Near ETP Plant	Used in Bio composting

A.9. Implementation Benefits to Water Security

The project's Effluent Treatment Plant (ETP) saves water by treating and reusing wastewater from sugar and distillery operations. The 0.3 MLD ETP cleans wastewater from sugar and alcohol production, removing organic waste, solids, and oil. The process involves pH adjustment, screening, oil removal, flow balancing, clarification, aeration, and filtration to meet discharge standards. Sand and carbon filters remove final impurities.

Treated water has stored in lagoons and reused for non-drinking tasks like cooling, cleaning, and gardening. This cuts freshwater use and promotes sustainable water practices. The ETP ensures pollution compliance, protects the environment, reduces freshwater costs, and prepares for future regulations.

Moreover, the ETP supports compliance with pollution control norms and promotes ecosystem protection by eliminating the risk of untreated effluent discharge. In doing so, the initiative contributes to long-term environmental sustainability, cost savings on freshwater procurement, and strengthened resilience against future regulatory requirements.

A9.1 Objectives vs Outcomes

The impact assessment or objectives of this project activity can generally be enumerated as follows:

- The Project activity highlights the catalytic role that corporate India must play vital role in reducing industrial water consumption as well as water pollution per unit of industrial output.

- The PP has showcased technology that creates safe industrial grade water from an effluent source and has overcome the challenges faced by the alternate methods implemented and/or being proposed for the same.

- The PP has showcased the successful wastewater treatment of industrial effluent, thus saving millions of liters of wastewater.

A9.2 Interventions by Project Owner / Proponent / Seller

The Project promotes sustainable water use by recycling treated wastewater from sugar and distillery operations, reducing reliance on scarce groundwater. A 0.3 MLD Effluent Treatment Plant (ETP) treats and reuses water for non-drinking purposes like cooling, cleaning, and gardening, saving significant groundwater.

Increasing water demand from agriculture and industry has led to groundwater depletion, shortages, and higher pumping energy costs. Reusing treated wastewater eases pressure on groundwater, prevents aquifer depletion, and reduces saltwater contamination. This initiative enhances plant sustainability and supports regional water conservation efforts.

A.10. Feasibility Evaluation

The Effluent Treatment Plant (ETP) and aerated storage lagoons, set up by the project proponent in 1994, are robust and adapt well to changes in wastewater from sugar and distillery operations. The 2024-25 audit report confirms the system's impressive performance, treating water to meet standards and enabling reuse for non-drinking purposes, promoting sustainable water management.

A.11. Ecological Aspects & Sustainable Development Goals (SDGs):

The sugar factory contains chloride and sulphates (and to a smaller extent others such as phosphates, nitrates etc.) of metals such as sodium, calcium etc. The implementation of ETPs has been crucial in safeguarding soil contamination by effectively treating this harmful effluent.

Recycling wastewater from the sugar factory and reusing it to the irrigation after treatment is a pivotal step toward sustainability. This circular approach significantly reduces the reliance on groundwater, a precious natural resource. By minimizing the demand for fresh water, factories can contribute to water conservation efforts and alleviate pressure on depleting aquifers. This project aims to inspire sugar factories, particularly large multinational corporations, to implement sustainable water management practices. By demonstrating effective strategies for reducing captive water consumption and responsibly managing groundwater, the project hopes to foster a broader adoption of environmentally responsible approaches within the industry.

Sustainable Development Goals Targeted	**Most relevant SDG Target/Impact**	**Indicator (SDG Indicator)**
	13.2: Integrate climate change measures into national policies, strategies and planning	By preventing effluent discharge, you reduce environmental degradation that could exacerbate climate-related issues like water scarcity. The project integrates climate-responsive wastewater treatment through aerated lagoons, reducing environmental pollution and enhancing resilience. This approach supports SDG 13.2 by aligning industrial practices with sustainable planning and national climate goals.
	3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	The project minimizes health risks by effectively treating industrial effluent, preventing water and soil contamination. This supports SDG 3.9 by reducing exposure to hazardous pollutants and safeguarding community well-being.

	6.3: By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	PP Shows there how ETP processes 0.3 MLD of effluent is preventing untreated effluent discharge into land or water bodies. The project supports SDG 6.3 by treating wastewater through aerated lagoons and tertiary filtration, significantly improving effluent quality. It promotes safe reuse within the facility, reducing pollution and minimizing hazardous discharge into the environment.
	8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	Number of jobs created, and the Number of people trained as part of this project activity. No of employee: 05

A.12. Recharge Aspects:

NA

A.12.1 Solving for Recharge

Water Budget Component	Typical Estimated Uncertainty (%)	Description
Surface Inflow	1%	In accordance with the Rou Standard version 7, and considering that the flow meters are calibrated, PP has

		accounted for a 1% uncertainty factor in both inflow and outflow volumes to maintain a conservative approach. Consequently, an uncertainty factor of 0.98 is applied to all ROUs.
Precipitation	0	NOT APPLICABLE
Surface Outflow	1%	In accordance with the Rou Standard version 7, and considering that the flow meters are calibrated, PP has accounted for a 1% uncertainty factor in both inflow and outflow volumes to maintain a conservative approach. Consequently, an uncertainty factor of 0.98 is applied to all ROUs.
Evapotranspiration	NA	NOT APPLICABLE
Deep Percolation	NA	NOT APPLICABLE

A.13. Quantification Tools

Baseline scenario:

The baseline scenario is the situation were, in the absence of project activity, the PP would have **one or all** the following options:

- (a) installed multiple bore wells within the project boundary which would have depleted the local groundwater resources (aquifers); **and/or**
- (b) diverted existing safe drinking water resources from the surrounding residential area; **and/or**
- (c) discharged the ETP effluent without further recycling and reusing.

Hence the following baseline scenario is applicable for this project activity:

"The net quantity of treated ETP effluent / wastewater that would be discharged directly into the local drain/sewer without further being recycled and/or reused daily post treatment per year"

The net quantity of treated water used is measured via flow meters installed at the site. The primary set of data records are kept at plant level, managed by PP's ETP team. The working days or operational days have been 180 days; the 1st monitoring period is from **01-01-2014 -31-12-2024.** However, the number of days is not an influential parameter on Rouss calculation as RoUs are calculated based on the total quantity of treated water being recycled & reused.

Season	Month	ETP Inlet m3	ETP Outlet m3	Recycled & Reused water m3	Rouss (Robine) *0.98	Year wise Rouss
JAN 2014-DEC 2014	Jan-14	7626	6094	6094	5972	
	Feb-14	7801	7224	7224	7080	
	Mar-14	9785	6575	6575	6444	
	Apr-14	7794	7094	7094	6952	
	May-14	636	0	0	0	
	Oct-14	1509	0	0	0	
	Nov-14	11977	3760	3760	3685	
	Dec-14	9906	6311	6311	6185	36317
JAN 2015-DEC 2015	Jan-15	10152	5888	5888	5770	
	Feb-15	9088	6880	6880	6742	
	Mar-15	10050	6960	6960	6821	
	Apr-15	3745	3954	3954	3875	
	Nov-15	6585	3203	3203	3139	
	Dec-15	8470	8190	8190	8026	34374
JAN 2016-DEC 2016	Jan-16	12837	12550	12550	12299	
	Feb-16	13162	8712	8712	8538	
	Mar-16	8510	7144	7144	7001	
	Apr-16	2472	3351	3351	3284	
	Oct-16	7420	2530	2530	2479	
	Nov-16	6851	3061	3061	3000	
	Dec-16	14259	10015	10015	9815	46416
JAN 2017-DEC 2017	Jan-17	9530	6685	6685	6551	
	Feb-17	9810	8410	8410	8242	
	Mar-17	4222	2282	2282	2236	28180

	Apr-17	689	189	189	185	
	Oct-17	5278	0	0	0	
	Nov-17	10998	1874	1874	1837	
	Dec-17	10738	9315	9315	9129	
JAN 2018-DEC 2018	Jan-18	7040	8690	8690	8516	
	Feb-18	9530	8210	8210	8046	
	Mar-18	14280	10211	10211	10007	
	Apr-18	3453	3174	3174	3111	
	May-18	0	502	502	492	
	Oct-18	653	0	0	0	
	Nov-18	8884	0	0	0	
	Dec-18	13019	4770	4770	4675	34846
JAN 2019-DEC 2019	Jan-19	10893	6942	6942	6803	
	Feb-19	10088	9215	9215	9031	
	Mar-19	10048	9944	9944	9745	
	Apr-19	3369	4727	4727	4632	
	May-19	336	3876	3876	3798	
	Nov-19	3777	2724	2724	2670	
	Dec-19	12908	4440	4440	4351	41031
JAN 2020-DEC 2020	Jan-20	14414	6994	6994	6854	
	Feb-20	13382	3106	3106	3044	
	Mar-20	20570	3037	3037	2976	
	Apr-20	1591	279	279	273	
	Nov-20	11430	1215	1215	1191	
	Dec-20	15610	4455	4455	4366	18704
JAN 2021-DEC 2021	Jan-21	15235	4715	4715	4621	
	Feb-21	15360	4780	4780	4684	
	Mar-21	14605	3245	3245	3180	
	Apr-21	8600	1841	1841	1804	
	Oct-21	1047	0	0	0	
	Nov-21	10092	320	320	314	
	Dec-21	11584	2891	2891	2833	17436
JAN 2022-DEC 2022	Jan-22	17693	4369	4369	4282	
	Feb-22	16752	3570	3570	3499	
	Mar-22	18003	2307	2307	2261	
	Apr-22	11848	3043	3043	2982	
	May-22	1022	2237	2237	2192	
	Nov-22	1131	0	0	0	
	Dec-22	15000	7341	7341	7194	22410
JAN 2023-DEC 2023	Jan-23	15000	5049	5049	4948	
	Feb-23	15000	4410	4410	4322	23345

	Mar-23	17933	6869	6869	6732	
	Apr-23	3549	2873	2873	2816	
	Oct-23	602	0	0	0	
	Nov-23	9656	1000	1000	980	
	Dec-23	11551	3620	3620	3548	
	Jan-24	8582	4800	4800	4704	
	Feb-24	13072	3650	3650	3577	
	Mar-24	14345	4840	4840	4743	
	Apr-24	2560	3570	3570	3499	
	May-24	520	618	618	606	
	Oct-24	1420	0	0	0	
JAN 2024-DEC 2024	Nov-24	18365	2450	2450	2401	
	Dec-24	19775	6936	6936	6797	26327
TOTAL		7,17,077	3,36,106	3,36,106	3,29,384	3,29,384

Quantification: -

Sr.no	Year	Total ROUs (1000 litters)/yr UCR Cap (1 million Rouss/yr
1	2014	36317
2	2015	34374
3	2016	46416
4	2017	28180
5	2018	34846
6	2019	41031
7	2020	18704
8	2021	17436
9	2022	22410
10	2023	23345
11	2024	26327
TOTAL		**3,29,384**

A.14. UWR Rainwater Offset Do No Net Harm Principles

According to the UCR Rou Standard principles, the project activity accomplishes the following:

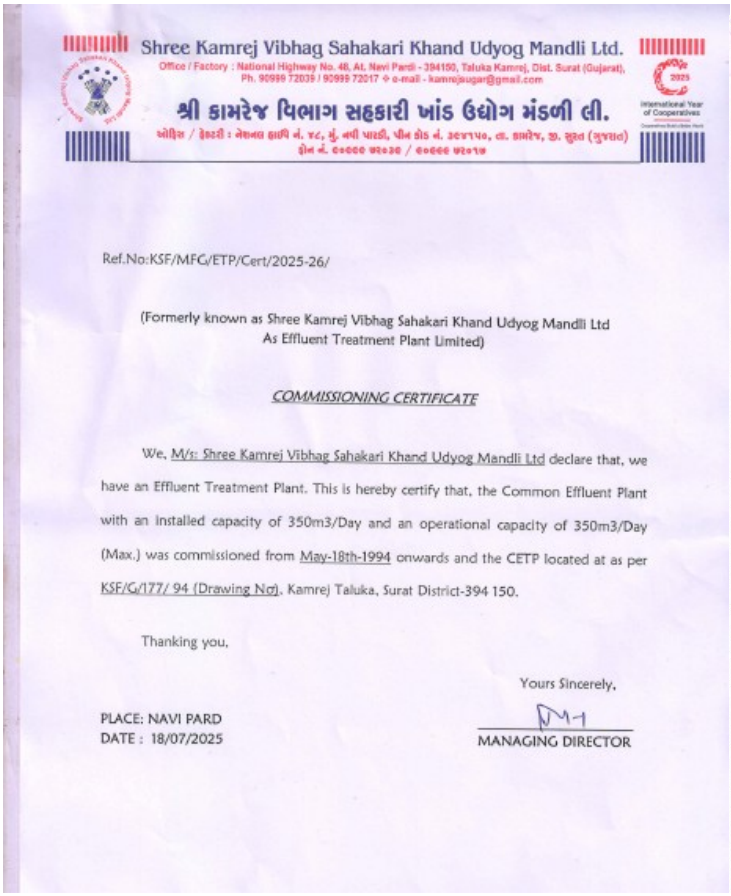
• Increases the sustainable water yield in areas where over development has depleted the aquifer
Based on the 2021 Central Groundwater Board data, India's total utilizable groundwater is 398 billion cubic meters (BCM) annually, with 245 BCM (approximately 62%) currently utilized. States like Punjab, Rajasthan, Haryana, Delhi, and Tamil Nadu face high groundwater exploitation. The project, commissioned on **18/05/1994**, in Gujarat, reduces untreated wastewater by promoting recycling and safe reuse within the industry using unutilized water resources (UWR). Additionally, the project stores water treated at the Effluent Treatment Plant (ETP) and uses it for irrigation, eliminating dependency on groundwater and preventing its depletion. Revenue from selling UWR Rights of Use (Rouss) supports scaling up such initiatives.
• Collect unutilized water or rainwater and preserve it for future use
In India, at the district level, in 24 states/UTs, as many as 267 districts had stages of groundwater extraction more than 63 per cent, ranging from 64 per cent to 385 per cent (source:https://www.business-standard.com/article/current-affairs/from-58-to-63-india-pumpedmore-groundwater-between-2004-and-2017-121122101377_1.html). This project activity serves as an example to recycle and reuse wastewater and encourages companies, especially large and transnational companies in the biotechnology and biopharmaceuticals sector, to adopt similar sustainable practices in regard to captive water requirements and groundwater management.
• Conserve and store excess water for future use
The project activity decreases the dependence on groundwater, thereby preventing excessive depletion. Between 2014 to 2024, the project activity has reused 3,29,384 kiloliters of ETP effluent successfully post treatment with gainful end use of the same.

A.15. Scaling Projects-Lessons Learned-Restarting Projects

Efforts to treat and reuse wastewater in agro-industrial facilities like sugar and distillery units have often faced operational and cost-related challenges, particularly in rural and semi-urban India where awareness of wastewater recycling benefits remains limited. However, the experience at **Shree Kamrej Vibhag Sahakari Khand Udyog Mandali Ltd.** demonstrates that with clear planning and dedicated treatment infrastructure—such as the 0.3 MLD Effluent Treatment Plant (ETP) with aerated lagoons and tertiary filtration—dependable, safe, and cost-effective reuse of treated effluent is achievable. The plant has successfully reused treated water for irrigation purpose within the facility, helping reduce reliance on freshwater sources. This success offers a replicable model for other cooperative-run or medium-scale agro-industrial units, particularly in water-stressed regions of Gujarat and Maharashtra.

There is now an opportunity to **scale this approach** by integrating treated effluent reuse into **local agricultural irrigation schemes** or **greenbelt development** in surrounding areas. With minor modifications and pipeline infrastructure, treated water that is currently reused within the factory farm could also serve community gardens or help maintain rural infrastructure like school grounds or parks. Additionally, existing infrastructure, such as lagoons and sludge drying beds, can be optimized to **avoid duplication of resources** and improve solid waste handling. In future phases, the project proponent (PP) may consider **incorporating solar-powered pumps or smart irrigation systems**, thereby linking wastewater management to energy efficiency and smart rural water management. Such an integrated and scalable approach would enhance sustainability outcomes and contribute meaningfully to SDGs.

APPENDIX



Shree Kamrej Vibhag Sahakari Khand Udyog Mandli Ltd.
Office / Factory : National Highway No. 48, At. Navi Pardi - 394150, Taluka Kamrej, Dist. Surat (Gujarat),
Ph. 90999 72039 / 90999 72017 ✆ e-mail - kamrejsugar@gmail.com

શ્રી કામરેજ વિભાગ સહકારી ખાંડ ઉદ્યોગ મંડળી લી.
ઓફિસ / ફેક્ટરી : નેશનલ હાઈવે નં. ૪૮, મુ. નવી પારડી, પીન કોડ નં. ૩૯૪૧૫૦, તા. કામરેજ, જી. સુરત (ગુજરાત)
ફોન નં. ૦૨૬૨૮ ૭૨૦૩૯ / ૦૨૬૨૮ ૭૨૦૧૭

International Year of Cooperatives

Ref.No:KSF/MFG/ETP/Cert/2025-26/

(Formerly known as Shree Kamrej Vibhag Sahakari Khand Udyog Mandli Ltd
As Effluent Treatment Plant Limited)

COMMISSIONING CERTIFICATE

We, M/s: Shree Kamrej Vibhag Sahakari Khand Udyog Mandli Ltd declare that, we have an Effluent Treatment Plant. This is hereby certify that, the Common Effluent Plant with an installed capacity of 350m3/Day and an operational capacity of 350m3/Day (Max.) was commissioned from May-18th-1994 onwards and the CETP located at as per KSF/G/177/ 94 (Drawing No). Kamrej Taluka, Surat District-394 150.

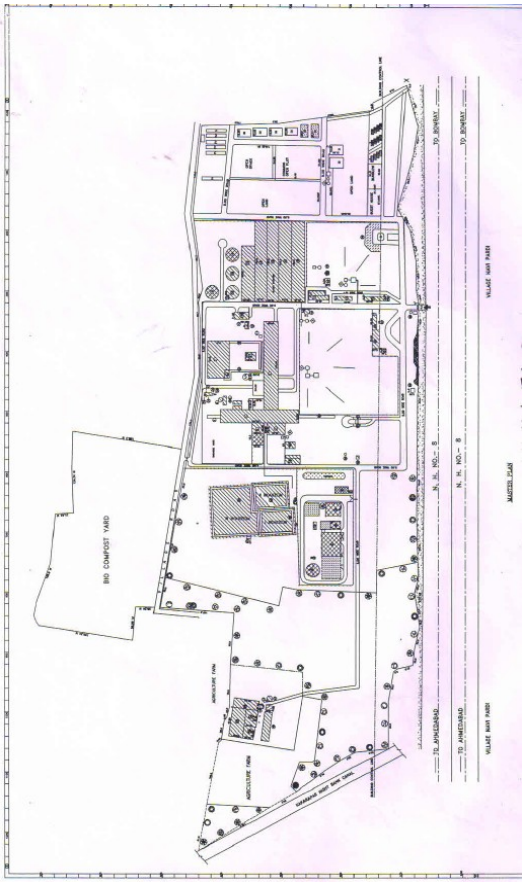
Thanking you,

Yours Sincerely,

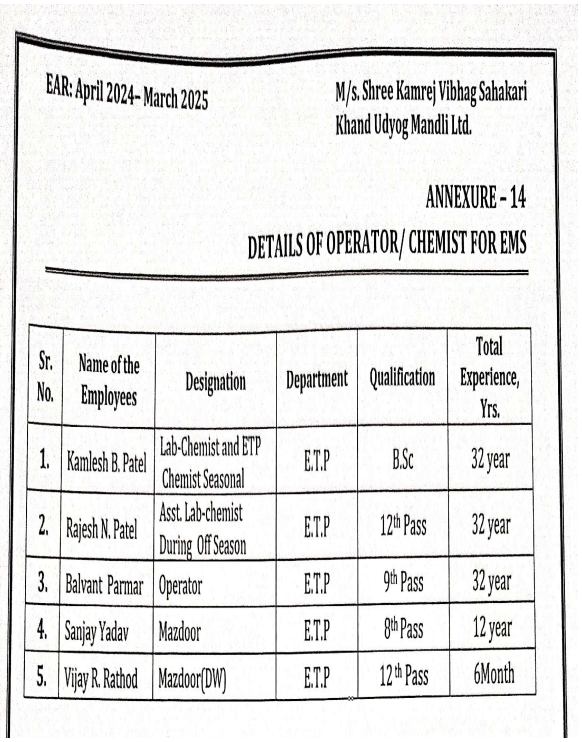
PLACE: NAVI PARD
DATE : 18/07/2025

MANAGING DIRECTOR

COMMISIONING CERTIFICATE



SITE PLAN



EAR: April 2024– March 2025

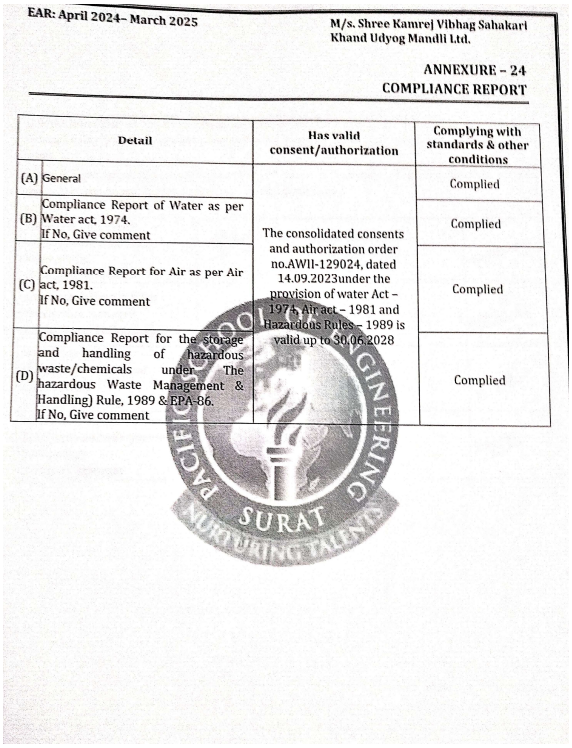
M/s. Shree Kamrej Vibhag Sahakari Khand Udyog Mandli Ltd.

ANNEXURE - 14

DETAILS OF OPERATOR/ CHEMIST FOR EMS

Sr. No.	Name of the Employees	Designation	Department	Qualification	Total Experience, Yrs.
1.	Kamlesh B. Patel	Lab-Chemist and ETP Chemist Seasonal	E.T.P	B.Sc	32 year
2.	Rajesh N. Patel	Asst. Lab-chemist During Off Season	E.T.P	12th Pass	32 year
3.	Balvant Parmar	Operator	E.T.P	9th Pass	32 year
4.	Sanjay Yadav	Mazdoor	E.T.P	8th Pass	12 year
5.	Vijay R. Rathod	Mazdoor(DW)	E.T.P	12th Pass	6Month

LOCAL EMPLOYEE DATA



EAR: April 2024– March 2025

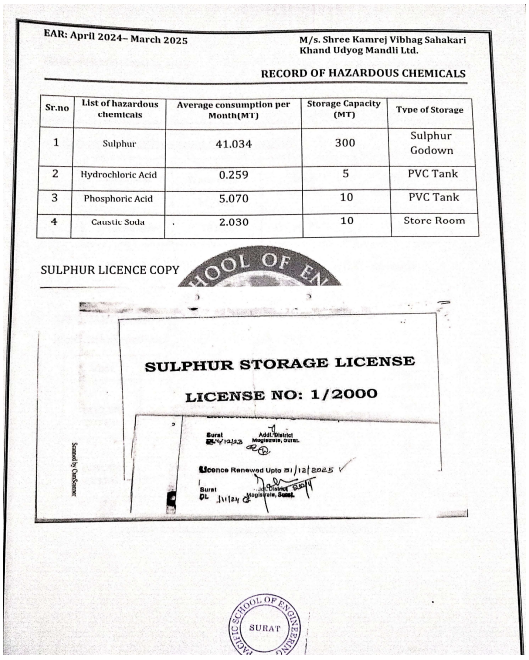
M/s. Shree Kamrej Vibhag Sahakari Khand Udyog Mandli Ltd.

ANNEXURE – 24

COMPLIANCE REPORT

	Detail	Has valid consent/authorization	Complying with standards & other conditions
(A)	General	The consolidated consents and authorization order no.AWII-129024, dated 14.09.2023under the provision of water Act – 1974, Air act – 1981 and Hazardous Rules – 1989 is valid up to 30.06.2028	Complied
(B)	Compliance Report of Water as per Water act, 1974. If No, Give comment		Complied
(C)	Compliance Report for Air as per Air act, 1981. If No, Give comment		Complied
(D)	Compliance Report for the storage and handling of hazardous waste/chemicals under The hazardous Waste Management & Handling) Rule, 1989 & EPA-86. If No, Give comment		Complied

COMPLIANCE OF WATER RECORD



EAR: April 2024– March 2025

M/s. Shree Kamrej Vibhag Sahakari Khand Udyog Mandli Ltd.

RECORD OF HAZARDOUS CHEMICALS

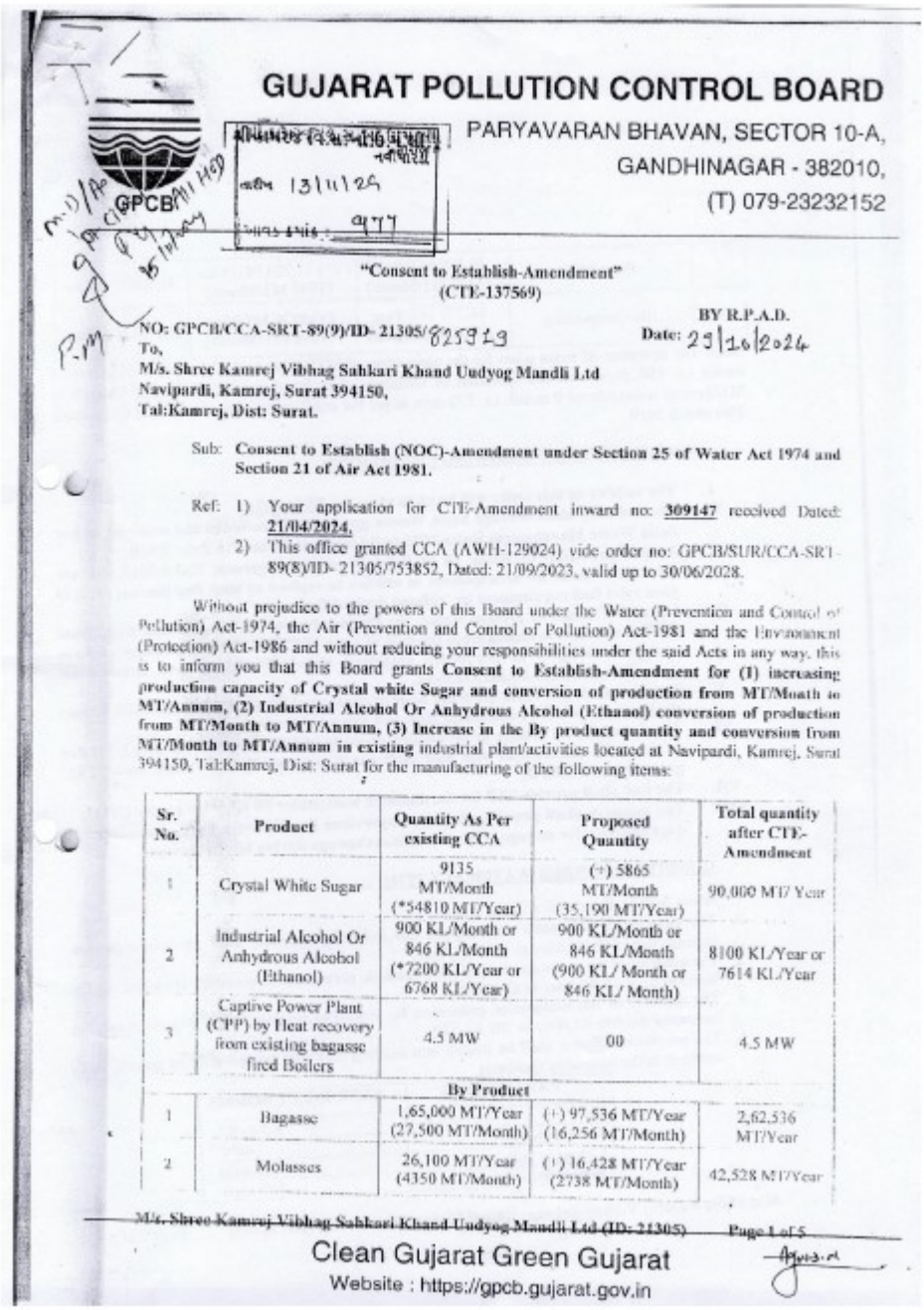
Sr.no	List of hazardous chemicals	Average consumption per Month(MT)	Storage Capacity (MT)	Type of Storage
1	Sulphur	41.034	300	Sulphur Godown
2	Hydrochloric Acid	0.259	5	PVC Tank
3	Phosphoric Acid	5.070	10	PVC Tank
4	Caustic Soda	2.030	10	Store Room

SULPHUR LICENCE COPY

SULPHUR STORAGE LICENSE

LICENSE NO: 1/2000

HAZARDOUS WASTE STORAGE /COSUMPTION



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN, SECTOR 10-A,
GANDHINAGAR - 382010,
(T) 079-23232152

"Consent to Establish-Amendment"
(CTE-137569)

BY R.P.A.D.
Date: 29/10/2024

NO: GPCB/CCA-SRT-89(9)/ID- 21305/825913

To,
M/s. Shree Kamrej Vibhag Sahkari Khand Uudyog Mandli Ltd
Navipardi, Kamrej, Surat 394150,
Tal:Kamrej, Dist: Surat.

Sub: **Consent to Establish (NOC)-Amendment under Section 25 of Water Act 1974 and Section 21 of Air Act 1981.**

Ref: 1) Your application for CTE-Amendment inward no: **309147** received Dated: **21/04/2024.**
2) This office granted CCA (AWH-129024) vide order no: GPCB/SUR/CCA-SRT-89(8)/ID- 21305/753852, Dated: 21/09/2023, valid up to 30/06/2028.

Without prejudice to the powers of this Board under the Water (Prevention and Control of Pollution) Act-1974, the Air (Prevention and Control of Pollution) Act-1981 and the Environment (Protection) Act-1986 and without reducing your responsibilities under the said Acts in any way, this is to inform you that this Board grants **Consent to Establish-Amendment for (1) increasing production capacity of Crystal white Sugar and conversion of production from MT/Month to MT/Annum, (2) Industrial Alcohol Or Anhydrous Alcohol (Ethanol) conversion of production from MT/Month to MT/Annum, (3) Increase in the By product quantity and conversion from MT/Month to MT/Annum in existing** industrial plant/activities located at Navipardi, Kamrej, Surat 394150, Tal:Kamrej, Dist: Surat for the manufacturing of the following items:

Sr. No.	Product	Quantity As Per existing CCA	Proposed Quantity	Total quantity after CTE-Amendment
1	Crystal White Sugar	9135 MT/Month (*54810 MT/Year)	(+) 5865 MT/Month (35,190 MT/Year)	90,000 MT/ Year
2	Industrial Alcohol Or Anhydrous Alcohol (Ethanol)	900 KL/Month or 846 KL/Month (*7200 KL/Year or 6768 KL/Year)	900 KL/Month or 846 KL/Month (900 KL/ Month or 846 KL/ Month)	8100 KL/Year or 7614 KL/Year
3	Captive Power Plant (CPP) by Heat recovery from existing bagasse fired Boilers	4.5 MW	00	4.5 MW
	By Product			
1	Bagasse	1,65,000 MT/Year (27,500 MT/Month)	(+) 97,536 MT/Year (16,256 MT/Month)	2,62,536 MT/Year
2	Molasses	26,100 MT/Year (4350 MT/Month)	(+) 16,428 MT/Year (2738 MT/Month)	42,528 MT/Year

CONSENT DATED: 29/10/2024

Parameters	1st Visit			2nd visit			3rd visit		
	ETP Inlet	Final Outlet	% Reduction	ETP Inlet	Final Outlet	% Reduction	ETP Inlet	Final Outlet	% Reduction
Colour, Hazen Unit	810	80	90.12	820	85	89.63	900	90	90
COD (mg/L)	1000	78.41	92.15	1500	84.98	94.33	1600	85	94.68
BOD (mg/L)	280	15.41	94.4	320	16.56	95	450	20	95.55
TSS (mg/L)	1200	90	92.5	1300	95	92.69	1500	90	94
TDS (mg/L)	4550	570	87.47	5000	650	87	6200	750	87.90
AN (mg/L)	36.84	2.5	93.21	35.45	*BDL	100	42.11	*BDL	100

ONLINE MONITORING REPORT OF 3 VISITS

QUALITY OF TRADE EFFLUENT

Sr. No.	Parameter	Unit	RESULTS				
			ETP Inlet	Primary Outlet	Secondary Outlet	Final Outlet	Limit
1	pH	---	5.30 @ 25 °C	6.54 @ 25 °C	7.45 @ 25 °C	7.27 @ 25 °C	6.5 to 8.5
2	Temperature	°C	28	28	28	28	40
3	Colour	Hazen	810	400	150	80	100
4	Total Suspended Solids	mg/L	1200	600	300	90	100
5	Total Dissolved Solids	mg/L	4550	1020	880	570	2100
6	Biochemical Oxygen Demand (27°C @ 3 days)	mg/L	280	200	80	15.41	30
7	Chemical Oxygen Demand (COD)	mg/L	1000	840	160	78.41	100
8	Oil and Grease	mg/L	45.1	10.14	2.5	*BDL	10
9	Phenolic Compound as C_6H_5OH	mg/L	25.12	17.58	*BDL	*BDL	1
10	Sulphides as S	mg/L	10.21	5.22	*BDL	*BDL	2
11	Ammonical Nitrogen	mg/L	36.84	25.14	10.41	2.5	50
12	Chloride (as Cl^-)	mg/L	1200	1100	1100	800	600
13	Sulphate	mg/L	1100	1000	1000	200	100
14	Total Chromium	mg/L	1.8	*BDL	*BDL	*BDL	2
15	Hexavalent Chromium (as Cr+6)	mg/L	0.7	*BDL	*BDL	*BDL	0.1

LAB TEST REPORT (2024)