



Allied Blenders
& Distillers

ABD/RANGAPUR/DISTILLERY/MOEFCC/2025-26/01

Date: 22.04.2026

To,
The Regional Officer,
MOEFCC,
3rd Floor, Room No. 309
Aranya Bhawan, Opposite RBI, Saifabad
Hyderabad – 500004, Telangana,

Subject: Submission of Annual Self Environment Audit for the year 2025-26 of stipulated conditions in existing Environment Clearance No, EC23B022TG193689; dated 09.03.2023 and Transfer of Environment Clearance from Allied Blenders and Distillers Private Limited to Allied Blenders and Distillers Limited with online Proposal NO.SIA/TG/IND2/299381/2023 granted by SEIAA) at Survey No. 690/AA, 691/AA2, 692, Village - Rangapur, Mandal - Pebbair, District - Wanaparthy, State - Telangana, Pin Code – 509104 - Regarding.

Ref:

1. Environment Clearance vide Identification No. EC23B022TG193689; SIA/TG/IND2/403131/2022, dated 09.03.2023.
2. Transfer of Environment Clearance from Allied Blenders and Distillers Private Limited to Allied Blenders and Distillers Limited with online Proposal No. SIA/TG/IND2/299381/2023 granted by SEIAA, Telangana on dated 02.05.2023

Dear Sir,

With reference to the above, we hereby submit the current compliance status regarding the directions issued by EC. The details of compliance are provided below:

| Sr.No. | Directions | Compliance status |
|--------|--|--|
| a) | Self-environmental audit shall be conducted annually. Every three years third part environmental audit shall be carried out. | Self-Environment Audit report is enclosed as Appendix - 1 |

Kindly acknowledge for the same.

Thanking you.

For Allied Blenders and Distillers Limited,

Sudhan̄su Sekhar Rout

Head Distillery

Enclosure: As above

CC: 1) Regional Officer – CPCB and MoEF&CC, Hyderabad.



Allied Blenders And Distillers Limited

Factories: Survey No : 692, 699 & 700, Rangapur Village, Pebbair Mandal, Wanaparthy District, Telangana - 509 104.

Registered Office : 394/C, Ground Floor, Lamington Chambers, Lamington Road, Mumbai - 400004. India.

Website : www.abdindia.com info@abdindia.com CIN No. : L15511MH2008PLC187368

**Self-Environmental Audit Report
For the year 2025-26**



**Prepared
By
Environmental Division
M/S. Allied Blenders and Distillers Private Limited
at Survey No. : 690/AA, 691/AA2/, 692 Ranger(V),
Pebbair-(M)
Wanaparthy District,
Telangana State -Pin Code – 509104**

**Submitted
To
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority (SEIAA), TELANGANA)**

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1. SELF ENVIRONMENTAL AUDIT:

A self-environmental audit is a proactive and systematic approach used by an organization to evaluate its environmental performance, compliance status, and operational efficiency. It helps identify gaps and implement corrective actions for continuous improvement.

Importance of Self-Auditing in an Organization

1. Early Problem Identification

Detect Issues Early: Helps identify potential environmental and operational problems before they escalate.

Preemptive Action: Enables timely corrective measures, reducing risks of legal penalties and environmental damage.

2. Ensures Compliance

Regulatory Adherence: Ensures compliance with environmental laws, regulations, and standards.

Internal Standards: Confirms that company policies and procedures are consistently followed.

3. Cost-Effectiveness

Reduces External Audit Costs: Minimizes issues before third-party audits.

Avoids Fines: Prevents penalties related to environmental violations.

4. Enhances Operational Efficiency

Improves Processes: Identifies inefficiencies and optimizes resource use.

Encourages Innovation: Promotes adoption of modern technologies and best practices.

5. Strengthens Internal Controls

Protects Resources: Prevents misuse of materials, energy, and finances.

Improves Accountability: Encourages responsibility among employees.

6. Builds Trust

With Regulators: Shows commitment to environmental compliance.

With Stakeholders: Enhances credibility with customers, investors, and partners.

7. Supports Continuous Improvement

Feedback Loop: Provides insights for ongoing improvements.

Benchmarking: Compares performance with industry standards.

8. Risk Management

Proactive Mitigation: Identifies environmental and safety risks early.

Crisis Prevention: Reduces chances of accidents and environmental incidents.

9. Prepares for External Audits

Audit Readiness: Keeps records and systems well-prepared.

Reduces Surprises: Eliminates unexpected issues during formal audits.

10. Encourages a Culture of Excellence

Employee Engagement: Motivates employees to maintain high standards.

Organizational Growth: Promotes continuous learning and improvement.

A) Key Objectives of Environmental Audit

The environmental audit aims to strengthen environmental management and ensure sustainable operations within the organization. The key objectives include:

- **Facilitate Environmental Management Control:**
Establish a systematic approach to monitor and manage environmental performance.
- **Identify Areas for Improvement:**
Detect gaps in environmental practices and recommend corrective actions.
- **Ensure Consistency:**
Promote uniform implementation of sustainable practices and regulatory requirements across all operations.
- **Evaluate Compliance:**
Assess adherence to environmental laws, regulations, and internal policies.
- **Verify System Effectiveness:**
Ensure that systems in place effectively prevent environmental damage and pollution.
- **Enhance Transparency and Accountability:**
Improve reporting practices and promote responsible environmental behavior.
- **Improve Operational Efficiency:**
Identify inefficiencies, reduce waste, and optimize resource utilization.
- **Build Stakeholder Trust:**
Strengthen confidence among regulators, investors, customers, and the public.
- **Support Risk Mitigation:**
Identify potential environmental risks and liabilities at an early stage to prevent future issues.

B) Purpose of the Environmental Audit

An environmental audit is an essential tool for evaluating an organization's environmental performance and ensuring compliance with applicable legal and regulatory frameworks.

As per Condition XIX of the Environmental Clearance (EC) issued by the State Environment Impact Assessment Authority (SEIAA) on March 9, 2023, the organization is required to:

- Conduct an annual self-environmental audit, and
- Undertake a third-party environmental audit every three years.

In compliance with this requirement, the management established an internal audit team on 2 .04.2026, to 04.04.2026 carry out a comprehensive self-environmental audit of the organization's operations.

Primary Objectives of the Audit

- **Identify Environmental Risks:**
Assess potential environmental impacts arising from operational activities.
- **Review Management Systems:**
Evaluate existing environmental controls, systems, and any liabilities from past or ongoing operations.
- **Assess Implementation of Previous Recommendations:**
Determine whether corrective actions from earlier audits have been effectively implemented.
- **Evaluate Operational Processes:**
Examine plant operations and procedures for compliance with environmental standards and internal policies.
- **Review Emergency Preparedness:**
Analyze response plans, monitoring systems, and reporting mechanisms for environmental incidents.
- **Assess Future Readiness:**
Evaluate the organization's ability to adapt to changes in environmental regulations and operational processes

C) Audit Team

1. Umasankar Padhi- Regional Manufacturing Head South-1

2. Sudhansu Sekhar Rout- Lead Distillery

3. V. Srinivas- Environmental Engineer

4. Dr. B.B.S.V. Seshagiri Rao- EHS Consultant & Lead Auditor

TUV Nord India Pvt.Ltd , & Certified water auditor

2.Audit Plan: TableNo-1

| S.No | Date & Time | location | Functional Department | Auditor | Focus/requirements |
|------|--------------------------------------|-------------------------------|---|--|--|
| 1 | 02.04.2026 10.00 to 13.30pm | Distillery unit at Pebbair | Production Operational Planning, Operations Identification & Traceability, Preservation Release of Product, Non conforming output, Monitoring & Measuring Resources | Dr BBSV | Operational controls SOP's Log books Calibrations Environmental significant impacts HIRA Emergency preparedness |
| 2 | 02.04.2026 14.00Pm to 17.00pm | Distillery unit at Pebbair | Utilities Operational Planning, Operations Identification & Traceability, Preservation Release of Product, Non conforming output, Monitoring & Measuring Resources | Sudhansu Sekhar Rout Lead Distillery | Operational Controls Aspects & impacts Risks Green belt Occupational health |
| 3 | 03.04.2026 10.00to 17.30pm | Distillery unit at Pebbair | WTP&ETP Operational Planning, Operations Identification & Traceability, Preservation Release of Product, Non conforming output, Monitoring & Measuring Resources | Uma Shankar Regional Head | Operational Controls Risks Aspects & impact's Significant impacts |
| 4 | 04.04.2025 10.30 am to 17.00pm | Distillery unit at Pebbair | Quality & legal Operational Planning, Operations Identification & Traceability, Preservation Release of Product, Non conforming output, Monitoring & Measuring Resources | Dr..BBSV & V.Srinivas | Risks and opportunities documented information EHS Policy Operational planning and control |

Scope of the Environmental Audit

The scope of the environmental audit involves a detailed evaluation of the organization's Environmental Management System (EMS) for the financial year 2025-26. The audit focuses on assessing overall environmental performance and ensuring that the system operates effectively and in compliance with applicable requirements.

It covers the following aspects:

Compliance Assessment:

Verification of adherence to all relevant environmental laws, regulations, and statutory obligations.

Environmental Aspects and Impacts:

Identification and evaluation of significant environmental aspects arising from organizational activities and their potential impacts.

Effectiveness of Controls:

Review of the adequacy and performance of control measures implemented to manage environmental risks and prevent adverse impacts.

System Performance Evaluation:

Assessment of how effectively the Environmental Management System is implemented and maintained.

Monitoring and Documentation:

Examination of environmental monitoring practices, record-keeping, and reporting systems. Continual Improvement Opportunities:

Identification of gaps, inefficiencies, and areas for enhancing environmental performance.

3.EOHS POLICY:

| | |
|--|---|
| <p style="text-align: center;">ALLIED BLENDERS AND DISTILLERS LIMITED</p> <p style="font-size: small;">Registered Office – 394/C, Lamington Chambers, Lamington Road, Mumbai – 04, Maharashtra, India</p> <p style="text-align: center;">ENVIRONMENT, OCCUPATIONAL HEALTH & SAFETY (EOHS) POLICY</p> |  |
|--|---|



ENVIRONMENT, OCCUPATIONAL HEALTH & SAFETY (EOHS) POLICY

We, Allied Blenders and Distillers Limited, Manufacturer of Grain based Extra Neutral Alcohol and Indian Made Foreign Liquor, are committed to continual improvement in Occupational Health and safety & Environmental protection. We are committed to abide by the Health and safety regulations and environmental protection regulations.

To meet these objectives Allied Blenders and Distillers Limited will:

- Provide and maintain the facility, equipment, personal protective equipment (PPE), operational conditions which are safe for employees and contractors in our quest towards achieving our goal of “Zero Accident” organization.
- Minimize waste generation and conserve natural resources by adopting relevant technologies and practices for controlling pollution.
- We shall ensure safe handling, storage, use and disposal of all substances & materials which are classified as hazardous for health & environment, while following applicable statutory & regulatory provisions of the state.
- Create awareness in employees by providing appropriate training and information so as to create individual sense of duty, responsibility & participations and a sustainable culture of continual improvement in occupational health and safety and environment matters.
- Use relevant techniques and methods, such as safety audit, periodical risk assessment for health, safety and environment and taking due remedial measures.
- Take into account the health and safety performance of individuals at different levels while considering their career advancement.
- Review this policy periodically for continual improvement.

We shall communicate this policy to all persons working for and on behalf of the organization and also make it available to the public on request.

Approved By

Arun Barik

ARUN
BARIK

Digitally signed by
ARUN BARIK
Date: 2022.09.01
13:28:07 +05'30'

Executive Director

Environmental Monitoring and EOHS Policy Implementation

Regular monitoring activities are conducted in strict accordance with the applicable norms and guidelines established by the Ministry of Environment, Forest and Climate Change (MoEF&CC), the Central Pollution Control Board (CPCB), the Telangana State Pollution Control Board (TSPCB), and other relevant statutory authorities. This systematic approach ensures transparency and accountability while fostering continuous improvement and providing valuable insights for future environmental and safety initiatives.

Furthermore, our company's Executive Director approved the Environment, Occupational Health, and Safety (EOHS) Policy on 1st September 2022. Since then, the policy has been effectively implemented across all functional departments to reinforce our commitment to sustainable and responsible business practices.

4. Production form April 2025 to March-2026Table.No-2

| M/s. ALLIED BLENDERS AND DISTILLERS LIMITED | | | | | | | | | | | | | |
|---|-------------|-------------|-------------|-------------|--------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|----------|
| Village Rangapur, Mandal Pebbair, Dist. Wanaparthy, Telangana | | | | | | | | | | | | | |
| ENA & By-Products Production details for the Month April 2025 to March 2026 | | | | | | | | | | | | | |
| Products | 25-Apr | 25-May | 25-Jun | 25-Jul | 25-Aug | 25-Sep | 25-Oct | 25-Nov | 25-Dec | 26-Jan | 26-Feb | 26-Mar | Total |
| ENA in KL | 3340.3 1 | 4561.7 9 | 5551.6 2 | 5672.0 6 | 4662.58 4 | 4860.2 3 | 5829.3 5 | 5585.1 6 | 4426.88 9 | 5753.84 | 5323.17 9 | 5636.12 | 61203.13 |
| Impure Sprit in KL | 59.02 | 81.31 | 102.43 | 171.29 | 64.646 | 90.4 | 97.74 | 93.1 | 74.05 | 98.512 | 88.598 | 101.9 | 1122.98 |
| Fusel Oil in KL | 1.14 | 1.5 | 1.78 | 1.55 | 1.3 | 0.84 | 0.93 | 0.9 | 1.92 | 2.48 | 2.24 | 2.48 | 19.06 |
| CO2 in Metric Tons | 701.64 | 1021.3 8 | 1409.4 8 | 1468.6 3 | 1045.83 2 | 1264.5 1 | 658.43 | 333.18 | 428.815 | 1110.36 | 866.05 | 1262.98 | 11571.28 |
| DDGS in Metric Tons | 1288.2 9 | 1772.9 5 | 2428.2 6 | 2496.2 6 | 1861.37 4 | 1777.4 | 2300.6 8 | 2227.6 6 | 1900.88 2 | 2208.35 4 | 2162.69 2 | 2313.83 3 | 24738.63 |

Avg. ENA Production -170.00KLD against permitted Production 180KLD (94.44%)

Avg. impure sprit 3.11KLD against permitted 6.0KLD (51.83%)

Fuel oil ----0.05KLD against permitted 0.12KLD (58.33%)

CO2 Generation 32.14TPD against 96TPD

(66.52%)

DWGS/DDGS Generation-68.71TPD against

142TPD(51.61%)

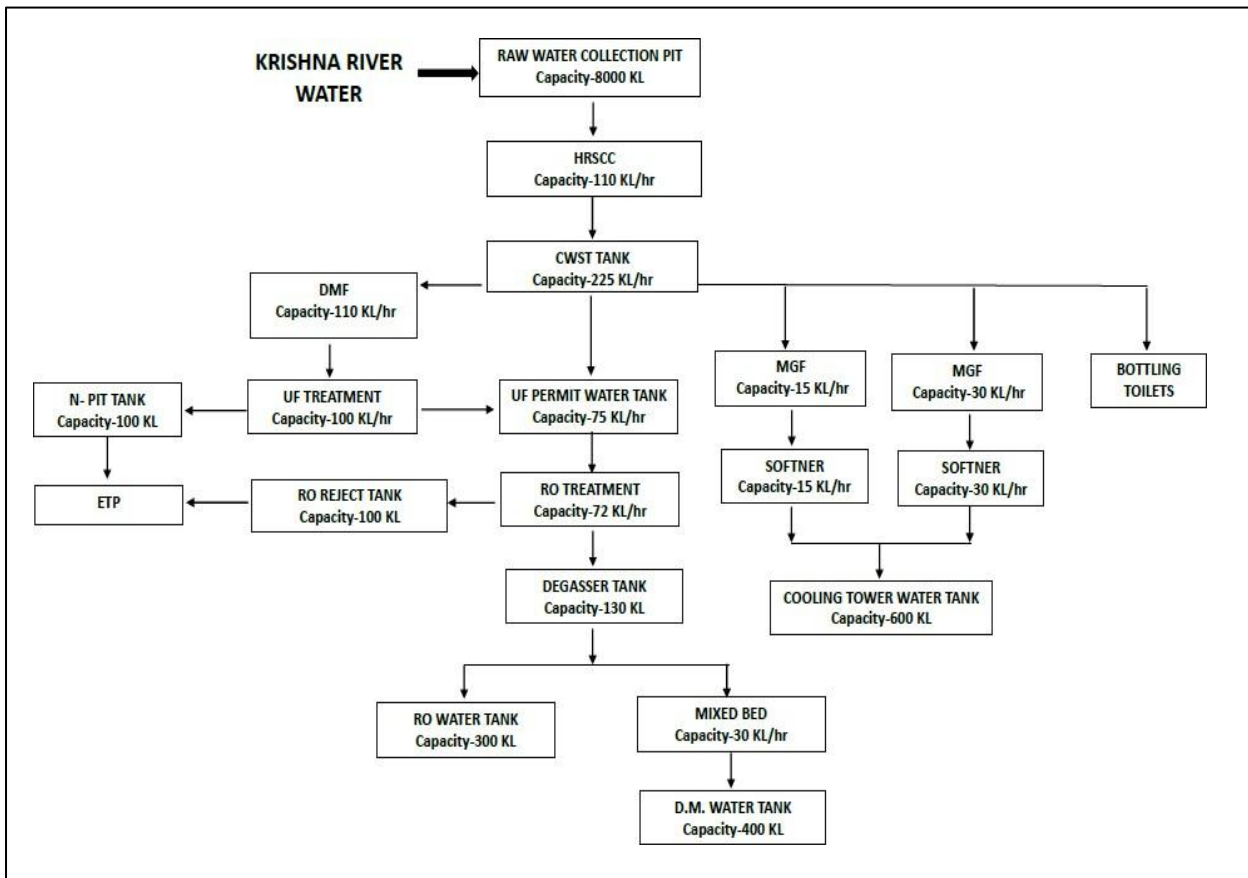
The Production of ENA (during the year 2025-26) and byproducts are less than the CFO's permitted capacity.

Raw materials Consumption

1. Avg. Broken Rice Consumption is 314.75TPD
2. Avg. Coal Consumption 153.13TPD
3. Avg. Rice Husk Consumption 207.44TPD
4. Diesel Consumption 175.46LPD

5. Water requirement /Day. Table.No-3

| S.NO | purpose | Fresh water consumption as per CFO-KLD | Recycled water used KLD | Water Consumption after implementation of ZLD system |
|------|--------------------------------------|--|-------------------------|--|
| 1 | Process | 525 | 900 | 1425 |
| 2 | Cooling tower make up | 608 | 951 | 1559 |
| 3 | Boiler feed | 400 | - | 400 |
| 4 | CO2 Plant | 12 | - | 12.0 |
| 5 | Domestic | 15 | - | 15.0 |
| 6 | Green belt development/ash quenching | - | 155 | 155 |
| 7 | ETP/WTP reject's | 840 | | 840 |
| | Total | 2400 | 2006 | 4406 |



Water Consumption from April 2025 to March-2026.Table. No-4

| M/s Allied Blenders and Distillers Limited | | | | | | | | | | | | | |
|---|--------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Village Rangapur, Mandal Pebbair, Dist. Wanaparthy, Telangana | | | | | | | | | | | | | |
| Water Consumption from April - 2025 to February 26 | | | | | | | | | | | | | |
| Sr. No. | Description | Apr-25 | May-25 | Jun-25 | Jul-25 | Aug-25 | Sep-25 | Oct-25 | Nov-25 | Dec-25 | Jan-26 | Feb-26 | Mar-26 |
| | | Water Qty in KLM | Water Qty in KLM | Water Qty in KLM | Water Qty in KLM | Water Qty in KLM | Water Qty in KLM | Water Qty in KLM | Water Qty in KLM | Water Qty in KLM | Water Qty in KLM | Water Qty in KLM | Water Qty in KLM |
| 1 | Process | 6150 | 9489 | 10700 | 10892 | 8825 | 10948 | 12944 | 9435 | 9184 | 10797 | 9613 | 10849 |
| 2 | Cooling Tower Makeup | 10003 | 11800 | 10492 | 7783 | 5152 | 9156 | 15397 | 10400 | 10584 | 11212 | 11415 | 13143 |
| 3 | Boiler Feed | 5425 | 7049 | 8484 | 8445 | 7173 | 8098 | 8249 | 8186 | 7318 | 8403 | 8399 | 9289 |
| 4 | CO2 Plant | 90 | 216 | 210 | 205 | 170 | 250 | 270 | 240 | 279 | 279 | 224 | 341 |
| 5 | Domestic | 45 | 120 | 444 | 390 | 390 | 403 | 420 | 417 | 403 | 403 | 364 | 372 |
| 6 | ETP Tertiary/ WTP reject Water | 11218 | 14143 | 14947 | 16277 | 14644 | 16142 | 15981 | 16381 | 11661 | 16850 | 14995 | 16857 |

Avg. Water Consumption for cooling tower make is 453.59 against the permitted qty. 1559KLD fresh water (70.90 % less than the permitted qty)

Avg. water consumption for Boiler feed 262.15KLD against 400KLD (34.46% less than the permitted qty)

Avg. water consumption for Process & CO2 776.58 KLD against 1425KLD fresh water (45.50% less than the permitted qty)

Avg. fresh water consumption 1465.77KLD against 2400KLD (38.92% less than the permitted qty) Avg.

Recycled water consumption 588.61 KL against the permitted recycled water 1851KLD (68.20% less than the permitted)

Water consumption for KL of ENA production is 12.0847KL/KL of ENA(both fresh water & recycled water together)

We have installed separate water meters for measuring water consumption for process, washings, boiler feed & utilities, and domestic reasons, as well as maintaining daily records.

6. Waste water Management. Table. No-5

| M/s. ALLIED BLENDERS AND DISTILLERS LIMITED | | | | | | | | | |
|--|---------------|---------------------|-------------------|---------------------------|----------------|----------------|----------------------------------|--|----------------|
| Survey No.692, Village Rangapur, Mandal Pebbair, Dist. Wanaparthy, Telangana | | | | | | | | | |
| Spent wash, MEE & Effluent Water Details for the Month of April 2025 to March 26 | | | | | | | | | |
| Month | MEE Feed (M3) | MEE CONDENSATE | | | MEE Syrup (M3) | Effluent Water | | | |
| | | Qty. Generated (M3) | Qty. Treated (M3) | Qty. Used in Process (M3) | | ETP Feed (M3) | Qty. Used for Ash Quenching (M3) | Qty. Used for Cooling Tower Make-up (M3) | RO Reject (M3) |
| Apr-25 | 11427 | 10047 | 1380 | 10047 | 1380 | 5288 | 600 | 2160 | 2528 |
| May-25 | 16973 | 14576 | 2396 | 14576 | 2396 | 6379 | 558 | 2298 | 3523 |
| Jun-25 | 45809 | 20354 | 17561 | 2793 | 17561 | 2793 | 6323 | 540 | 1778 |
| Jul-25 | 45839 | 20892 | 17871 | 3020 | 17871 | 3020 | 6320 | 540 | 2086 |
| Aug-25 | 16402 | 13801 | 2601 | 13801 | 2601 | 6466 | 558 | 2516 | 3392 |
| Sep-25 | 19233 | 16536.3 | 2696.7 | 16536.3 | 2696.7 | 7105 | 540 | 5411 | 1154 |
| Oct-25 | 20714 | 17189.9 | 3524.1 | 17189.9 | 3524.1 | 7700 | 558 | 6052 | 1090 |
| Nov-25 | 19484 | 16346 | 3138 | 16346 | 3138 | 7131 | 540 | 3005 | 3586 |
| Dec-25 | 14638 | 12160.7 | 2477.3 | 12160.7 | 2477.3 | 6744 | 558 | 3075 | 3111 |
| Jan-26 | 20516 | 17527 | 2989 | 17527 | 2989 | 8267 | 558 | 3937 | 3772 |
| Feb-26 | 18813 | 16022 | 2791 | 16022 | 2791 | 6713 | 504 | 2617 | 3592 |
| Mar-26 | 19822 | 16953 | 2868 | 16953 | 2868 | 7355 | 558 | 4605 | 2192 |

Waste water Generation from Process & fermentation together is 534.45 KLD & RO rejects 88.34KLD =622.79 against 1191KLD (47.70% less than the permitted)

During the year 2025-26-Avg. MEE Condensate water re- used into the process 436.03KLD.

During the year 2025-26 Avg. waste water generation from Boiler blow down-30KLD, Cooling tower blowdown, 160.52KLD, CO2 Plant -7.70KLD & Domestic 10.0 KLD total =208.22KLD

Treated water re used for ash quenching during the year 2025-26 is Avg. 50.48KLD.

Treated water re used into cooling tower during the year 2024-25 is Avg. 102.1KLD

Avg. RO reject water feed to MEE – 88.34KLD

Total Avg. Recycled water per day is 588.61KLD against the total waste water generation =742.67KLD(79.25%)

We have implemented a comprehensive system for effluent management and monitoring in compliance with the guidelines issued by the Central Pollution Control Board (CPCB) and Telangana State Pollution Control Board (TSPCB). Our key measures include.

1. Effluent Flow Measurement:

- Digital Flow Meters: Installed at critical points, including the Multiple Effect Evaporator (MEE) feed, MEE concentrate, and MEE condensate streams, to record effluent generation and flow accurately.
- Daily Record Maintenance: All flow data is recorded and maintained systematically to ensure traceability and compliance.

2. Real-Time Effluent Quality Monitoring:

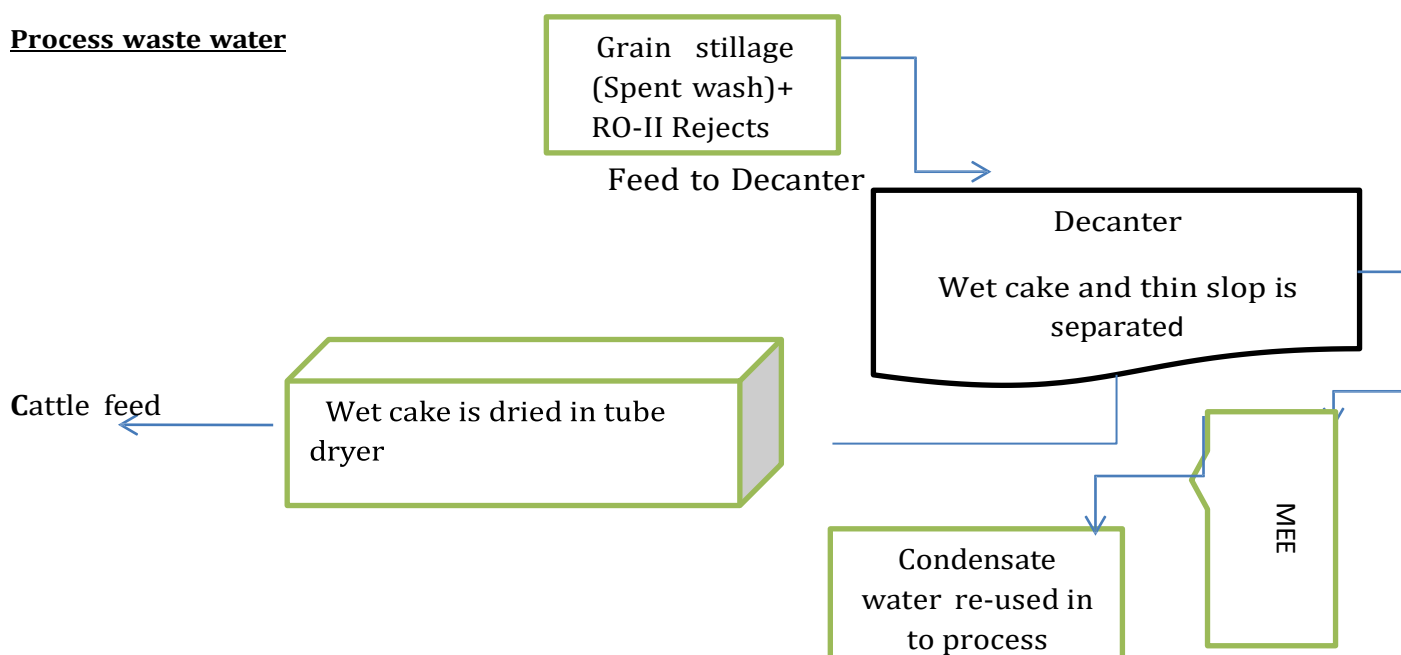
- We have deployed a real-time effluent quality monitoring system at the Effluent Treatment Plant (ETP) outlet to track parameters such as flow, pH, Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), and Total Suspended Solids (TSS).
- The system is linked to CPCB and TSPCB servers for seamless data transmission and regulatory oversight.

3. Groundwater Quality Monitoring:

- Piezometric Wells: Provided around the plant area as per CPCB guidelines to monitor groundwater quality.
- Sampling and Trend Analysis: Regular groundwater sampling and trend analysis are conducted, and reports are systematically maintained for review and compliance purpose

a) Treatment for Process waste water: Spent wash& fermentation +RO -II Rejects- - Total---563.34KLD Grain stillage along with RO-II reject's are fed into the decanter centrifuge system, wet cake & thin liquor gets separated. Thin slop is concentrated in a multistage evaporator up to 90% solids concentration. The total evaporation takes place under vacuum and the vapors generated in the system are re-used to economize steam consumption. Condensate water generated from the evaporation system is clear and can be used for the process. The concentrated effluent is then mixed with wet cake and dried in a Steam Tube Dryer to generate Distillers Dry Grain with Solubles (DDGS). DDGS has high nutrition value and used as cattle feed 68.71 TPD and condensate water 436.03 KLD re-used in the process (as per CFO permitted capacity)

Process waste water



Process Effluent Management

Spent wash from distillation process is being sent to the decanter where wet cake is being separated and remaining thin slops is being treated in ECOPHOTOX Plant.

ECOPHOTOX Plant

Ecophotox ETP is installed for the treatment of evaporation condensate. The “ECOPHOTOx” has the ability of enhancing the oxidation reaction to many folds & has the capability of destroying pollutants

To eliminate the complex organic molecules, pathogenic bacteria, and easily oxidizable organics, the ECOPHOTOx process is provided where Advanced Oxidation process will be carried out. An Activator will be dosed online prior to ECOPHOTOx & would be allowed to pass through the reactor in order to oxidize the complex organics in Water. To achieve the treatment efficiency levels more than 98% the “ECOPHOTOx” system will be provided in stages. The condensate after MEE is filtered, degassed and disinfected through UV in CRPU for further uses in process/ cooling towers.

Multi Effect Evaporator (MEE)

The spent wash after separation of the suspended solids (wet cake) is partially utilized for slurry making and remaining part is being taken to MEE system for concentration and condensate recovery. The condensate is being utilized in cooling towers or in slurry making after treatment in Ecophotox. Thin slope concentrated in the MEE and syrup which is then mixed with wet cake which is DWGS.

Drying Process

The wet cake from the Decanter and the concentrated syrup with 30-35% solids from the Evaporator is dried in a steam tube bundle dryer to produce a dry powder called Distillers Dried Grain Soluble (DDGS) with 10% moisture and 90% solids, which is being sold as animal feed. It is totally a zero spent wash discharge process, which is in accordance with the CPCB/TSPCB recommendations.

Non-Process Effluent Management

Total non-process effluent from project –

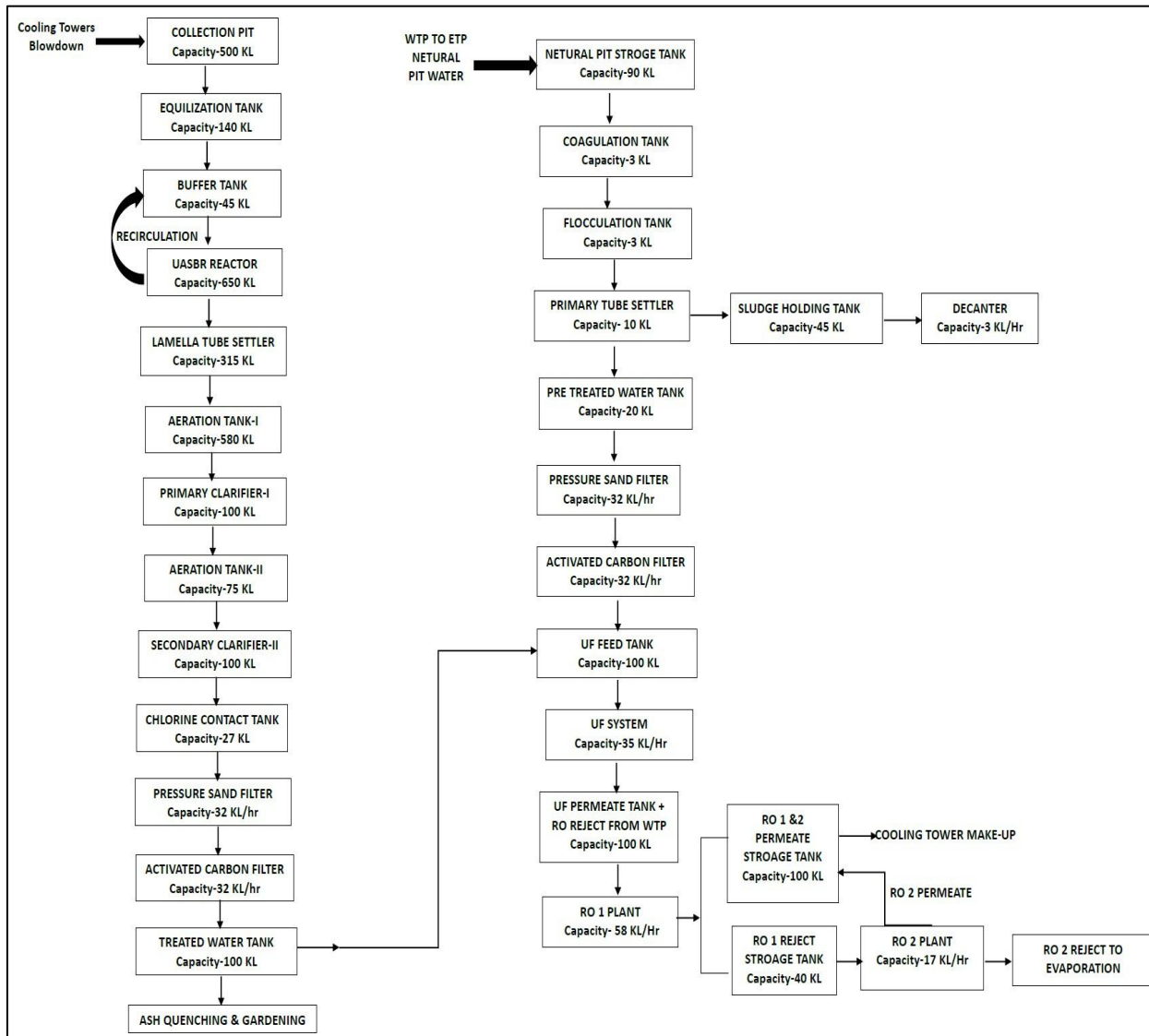
1. WTP reject water is being treated in UF, RO1 & RO2 at ETP Plant.
2. CO2 plant discharge water, Boiler blow down water and Cooling Tower blow down water are being treated in UASBR based ETP plant.

Water is being recycled at Cooling Towers. ETP treated water is being utilized for greenbelt development, ash quenching and dust suppression.

Effluent Treatment scheme

Liquid waste effluent is treated in the existing Effluent Treatment Plant (ETP) consist of UASBR (Up-flow Anaerobic Sludge Bed Reactor) system followed by lamella tube settler, sludge holding tank with Decanter, Aeration-I followed by clarifier, Aeration-II followed by clarifier, chlorination tank then treated in Pressure Sand Filter (PSF) and Activate Carbon Filter (ACF). Then further treated in Ultra filtration (UF) & Reverse Osmosis (RO1 & RO2 stages).

| Treatment chemicals consumption month wise from April'25 to March-26 | | | | | | | | | | | | | | |
|--|--------------------------------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|------------------|
| Chemical Code | Name of the Chemical | Apr-25 | May-25 | Jun-25 | Jul-25 | Aug-25 | Sep-25 | Oct-25 | Nov-25 | Dec-25 | Jan-26 | Feb-26 | Mar-26 | Total Qty in Kgs |
| 500083 | Nacl (Kgs) | 2500 | 2750 | 3500 | 4500 | 12000 | 3250 | 4010 | 3000 | 3258.5 | 8950 | 8750 | 8100 | 64568.5 |
| 500080 | Antiscalant (9002) (kgs) | 220 | 231 | 286.5 | 269 | 223 | 230 | 413 | 367 | 385 | 397 | 314 | 373 | 3708.5 |
| 500067 | HCL (Liters) | 4477 | 6986 | 6516 | 7650.2 | 3275 | 5760 | 6625 | 7255.85 | 13775 | 13212 | 13370 | 11820 | 100722 |
| 500108 | EDTA (Kgs) | 249.5 | 255 | 282 | 448.5 | 374.5 | 305 | 245 | 324.5 | 501 | 402 | 365 | 220 | 3972 |
| 500086 | SMBS (kgs) | 498 | 595 | 400 | 487 | 303 | 335 | 441 | 506 | 404 | 283 | 465 | 286 | 5003 |
| 500066 | Fecl3 (kgs) | 285 | 350 | 347.5 | 608.5 | 617.5 | 390.1 | 325 | 285 | 325 | 198 | 252.5 | 285 | 4269.1 |
| 500084 | Sodium Hypochlorite (Liters) | 3770 | 7769.5 | 6570 | 6600 | 4931 | 12395 | 9980 | 9514 | 8490 | 6135 | 10320 | 9050 | 95524 |
| 500078 | Max Treat 617 (liters) | 8 | 2 | 16 | 27 | 25 | 35 | 19 | 9 | 15 | 26 | 35 | 53 | 270 |
| 500071 | Poly Electrolyte MXT 107 (kgs) | 13.4 | 17.7 | 17.9 | 29.5 | 17.7 | 9.4 | 8.1 | 9.5 | 5.5 | 12.4 | 11.2 | 11.4 | 163.7 |
| 500068 | Citric Acid (kgs) | 200 | 310 | 249.5 | 370 | 195.5 | 207.5 | 180 | 445 | 256.5 | 283 | 415 | 95 | 3207 |
| 500076 | MAX 3333Morpholine (liters) | 64.3 | 102.1 | 112.5 | 106.5 | 74.7 | 108.5 | 72.5 | 88.5 | 80 | 102.5 | 88 | 107.3 | 1107.4 |
| 500172 | Lime (kgs) | 591 | 294 | 730 | 2090 | 1015 | 1570 | 2035 | 660 | 1570 | 4365 | 1555 | 240 | 16715 |
| 500139 | Alum | 0 | 48 | 310 | 535 | 555 | 659 | 1181 | 558 | 544 | 646 | 402 | 604 | 6042 |
| 500173 | Cationic Poly | 4.6 | 13.8 | 18.9 | 36.4 | 27.79 | 0.2 | 7.6 | 51.6 | 91.95 | 0 | 0 | 106.3 | 359.14 |
| 500440 | Antiscalant (9123) | 149.6 | 320.8 | 369.6 | 380 | 516 | 266 | 448 | 540 | 549 | 469 | 121 | 200 | 4329 |



Waste water analysis. Table.No-7

| Parameters | Units | Methods | Standards | Avg. | |
|--|-------|-----------------------------|----------------|----------|---------|
| | | | Inland Surface | (Before) | (After) |
| pH | --- | APHA 4500H ⁺ B | 5.50 to 9.00 | 6.2 | 7.2 |
| Total Suspended Solids at 105 ^o C | mg/L | APHA 2540 D | 100 | 180 | 20 |
| Total Dissolved Solids at 180 ^o C | mg/L | APHA 2540 C | --- | 1350 | 50 |
| Chlorides as Cl ⁻ | mg/L | APHA 4500Cl ⁻ C | --- | 380 | 20 |
| Sulphates as SO ₄ ²⁻ | mg/L | APHA 2450 SO ₄ D | --- | 65 | <10 |
| Sulphide as S ²⁻ | mg/L | APHA 4500S ²⁻ F | --- | <1.0 | <1.0 |
| Total Solids | mg/L | APHA 2540 B | --- | 1550 | 65 |
| Phosphorus as P | mg/L | APHA 4500PC | --- | 8.5 | <1 |
| Chemical Oxygen Demand | mg/L | APHA 5220 B | 250 | 2450 | 60 |
| Biological Oxygen Demand (3 Day at 27 dg C) | mg/L | IS 3025(P-44) | 30 | 850 | 20 |
| Oil & Grease | mg/L | APHA 5520 B | 10 | 1.4 | <1.0 |
| Nitrate Nitrogen as NO ₃ | mg/L | APHA 4530NO ₃ B | 50 | 2.6 | <1 |

Avg. TSS reduction is 88.88% Avg.
TDS reduction is 96.29% Avg. COD
reduction is 97.55% Avg. BOD
reduction is 97.64%
Observed That SV30 in Aeration Tank
@220ML and MLVSS/MLSS is maintained
around 0.8 Maintained Preventive
maintenance Schedule for Production,
utilities and ETP

5. Air Quality Monitoring:

a) Ambient Air Quality Monitoring

Ambient air quality monitoring has been carried out at 2 locations namely 1. Near Main Gate 2. Near DG Set This will enable to have a comparative analytical understanding about air quality and the changes in the air environment in the factory area with respect to the condition prevailing.

Ambient Air Quality Monitoring Methodology

Monitoring was conducted in respect of the following parameters:

- Particulate Matter 10 (PM10)
- Particulate Matter 2.5 (PM2.5)
- Sulphur Dioxide (SO₂)
- Oxides of Nitrogen (NO_x)



Instrument used Repairable Dust Sampler Model
RDS9000/040506,507&040139

The duration of sampling of PM_{2.5}, PM₁₀, SO₂ and NO_x was 24 hourly continuous sampling per day The monitoring was conducted for one day at the location. This is to allow a comparison with the National Ambient Air Quality Standards. The air samples were analyzed as per standard methods specified by Central Pollution Control Board (CPCB) and IS:5182. The techniques used for ambient air quality monitoring and minimum detectable levels. Fine Particulate Sampler instruments have been used for monitoring Particulate Matter_{2.5} (PM_{2.5} i.e. <2.5 microns), and Respirable Dust Sampler was used for sampling Respirable fraction (<10 microns), gaseous pollutants like SO₂, and NO_x.

Techniques used for Ambient Air Quality Monitoring

| Sr. No. | Parameter | Technique | Technical Protocol |
|---------|-----------------------------------|--------------------------------|-------------------------|
| 1 | Particulate Matter _{2.5} | Fine Particulate Sampler, | CPCB/MoEF Guidelines |
| | | Gravimetric Method | |
| 2 | Particulate Matter ₁₀ | Cyclone separator, Gravimetric | IS-5182 (Part-23):2006 |
| 3 | Sulphur dioxide | Modified West and Gaeke | IS-5182 (Part- II):2001 |
| 4 | Oxides of Nitrogen | Jacob & Hochheiser | IS-5182 (Part-VI):2006 |

Ambient Air Quality Data: Table.No-8

| Month | Near Main Gate | | | | Near Distillation | | | | Near power plant | | | | Near Godown Area | | | |
|---------|----------------|-------|-------|-------|-------------------|-------|-------|-------|------------------|-------|-------|-------|------------------|-------|-------|-------|
| | PM10 | PM2.5 | SO2 | NOX | PM10 | PM2.5 | SO2 | NOX | PM10 | PM2.5 | SO2 | NOX | PM10 | PM2.5 | SO2 | NOX |
| NAAQS | 100 | 60 | 80 | 80 | 100 | 60 | 80 | 80 | 100 | 60 | 80 | 80 | 100 | 60 | 80 | 80 |
| Apr-25 | 56 | 25.5 | 18.3 | 36 | 40 | 20.8 | 25.6 | 42 | 66 | 32.2 | 28.8 | 44 | 38 | 19.4 | 24.2 | 28 |
| May-25 | 54 | 27.5 | 20.2 | 26 | 36 | 21.8 | 22.6 | 30 | 62 | 31.5 | 27.4 | 32 | 34 | 17.2 | 21.8 | 28 |
| Jun-25 | 56.3 | 22.4 | 16.4 | 25.8 | 49.5 | 16.8 | 18.5 | 28.3 | 16.4 | 18.5 | 13.2 | 32.7 | 51.2 | 15.2 | 10.8 | 22.3 |
| Jul-25 | 54.2 | 26.5 | 18.4 | 28.8 | 48.4 | 15.8 | 16.1 | 24.4 | 48.2 | 16.5 | 14.4 | 30.6 | 52.8 | 18.4 | 12.6 | 24.3 |
| Aug-25 | 52.1 | 26.8 | 18.6 | 32.4 | 38.6 | 19.5 | 20.3 | 36.2 | 58 | 28.4 | 25.5 | 38 | 36.5 | 18.2 | 2.4 | 30.3 |
| Sep-25 | 53.4 | 22.6 | 7.6 | 28.9 | 49.8 | 20.1 | 9.8 | 31.2 | 55.6 | 23.9 | 11.2 | 33.4 | 61.3 | 19.6 | 13.7 | 30.1 |
| Oct-25 | 46 | 22.8 | 10.2 | 22 | 40 | 19.3 | 12.8 | 24 | 52 | 28.8 | 14.3 | 26 | 50 | 25.4 | 16.8 | 22.8 |
| Nov-25 | 50 | 25.2 | 16.5 | 30 | 36 | 18.2 | 18.1 | 34 | 56 | 26.8 | 22.4 | 36 | 34 | 18.5 | 20.3 | 32 |
| Dec-25 | 48 | 23.5 | 14.8 | 28 | 34 | 17.2 | 16.2 | 32 | 54 | 27.6 | 20.5 | 40 | 32 | 16.4 | 18.2 | 36 |
| Jan-26 | 42 | 21.8 | 12.4 | 26 | 32 | 16.5 | 14.8 | 30 | 48 | 25.2 | 18.5 | 36 | 26 | 14.4 | 16.8 | 32 |
| Feb-26 | 46 | 26.5 | 14.2 | 28 | 38 | 19.8 | 16.4 | 32 | 54 | 28.1 | 20.6 | 40 | 36 | 20.3 | 18.2 | 36 |
| Mar-26 | 49 | 24.16 | 15.6 | 26 | 41 | 20.05 | 17.8 | 34 | 59 | 31.7 | 21.3 | 43 | 38 | 17.4 | 16.2 | 39 |
| Average | 50.58 | 24.61 | 15.27 | 28.16 | 40.28 | 18.82 | 17.42 | 31.51 | 52.43 | 26.60 | 19.84 | 35.98 | 40.82 | 18.37 | 16.00 | 30.07 |


Ambient air quality PM 10 Avg. 50.58 ug/m3 against Standard limit 100 ug/m3 (49.42% less than the Standard limit)
 PM2.5 Avg. 24.61ug/m3 against Standard limit 60ug/m3 (58.45% less than the Standard limit)
 SO2 Avg. 15.27 ug/m3 against standard limit 80ug/m3 (80.91% less than the Standard limit)
 Nox Avg. 28.16 ug/m3 against standard limit 80ug/m3 (64.80% less than the Standard limit)

The ambient air Quality levels are at all the locations were found to within limits prescribed by CPCB/SPCB.

b) Ambient Noise Monitoring Locations

The main objective of noise monitoring in the site area is to assess the present ambient noise levels near factory site due to vehicular movement. A preliminary reconnaissance survey has been undertaken to identify the major noise generating sources in the area. Ambient noise monitoring was conducted at 10 locations in the factory premises.

- Milling Section
- Fermentation Area
- Boiler-DCS
- Boiler Turbine Hall
- CO2 Plant Area
- WTP Area
- Dryer Section
- Security Area
- ETP Area
- Near DG Set Area



Calibration on 23.11.2025 due date 22.11.2026 Monitored through Lutron SL-4001 Model instrument

Noise Pollution Management

The major noise generation during operation phase will be from the equipment's listed in Table No. 4.7 of Chapter 4. The noise levels are likely to be affected due to the proposed capacity enhancement as additional plant & machinery are proposed to be added. The existing noise levels of the working hours are being within the prescribed standards and will be maintained after proposed expansion.

Various components of industrial operations will cause some amount of noise, which is being and will be controlled by proper maintenance and compact technology.

- i. Time to time oiling and servicing of machineries.
- ii. Acoustic enclosure for Turbine and D.G. sets.
- iii. Green belt development (plantation of dense trees across the boundary) will help in reducing noise levels in the plant as a result of attenuation of noise generated due to plant operations, and transportation.
- iv. Earplugs provided to the workers and this is being enforced strictly.
- v. Display should be made clearly indicating noise prone area along with dB level. The equipment, which is prone to generate excessive noise, will be provided with enclosures etc.
- vi. Roads are being maintained in good condition to reduce the noise due to traffic.
- vii. Rotation of workers shall be done based on their exposure to noise level during the working hours as per the Factory Act, 1948 and amendments thereof.

Ambient Noise levels. Table.No-9

| Month | Day time Unit: dB(A) | | | | | | | | | |
|---------|--|-------------------|-------------|---------------------|----------------|----------|---------------|---------------|----------|------------------|
| | CPCB Limits: Leq (Industrial area) During Day Time (6:00 am to 10:00 pm) 75.00 dB(A) | | | | | | | | | |
| | Milling Section | Fermentation Area | Boiler- DCS | Boiler Turbine Hall | CO2 Plant Area | WTP Area | Dryer Section | Security Area | ETP Area | Near DG Set Area |
| Average | 70.5 | 70.2 | 66.2 | 71.1 | 70.8 | 64.4 | 65.8 | 42.6 | 55.07 | 70.1 |
| Month | Night Time Unit: dB(A) | | | | | | | | | |
| | CPCB Limits: Leq (Industrial area) During Night Time (10:00 pm to 06:00 am) 70.00 dB(A) | | | | | | | | | |
| | Milling Section | Fermentation Area | Boiler- DCS | Boiler Turbine Hall | CO2 Plant Area | WTP Area | Dryer Section | Security Area | ETP Area | Near DG Set Area |
| Average | 65.16 | 64.63 | 57.97 | 66.38 | 58.41 | 52.42 | 52.69 | 37.06 | 49.50 | 65.02 |

Ambient Noise Monitoring Results Day Time Noise Levels (Lday):

The day time noise level at all the locations were found to within limits prescribed for industrial area i.e. 75 db (A).

Night Time Noise Levels (Lnight):

The night time noise level at all the locations were found to within limit prescribed for industrial area i.e. 70 dB (A).

Boiler:

Presently, steam requirement is met by Coal/ Rice Husk/ Briquette based Boiler – 1 No. (50 TPH capacity). The flue gases through ESP are discharged to atmosphere through Chimney of height 54 meter. The emissions of the boiler monitored periodically through third party. Existing Electrostatic Precipitator three field is taking care of stack emissions and always kept below permissible limits of 115 mg/Nm³. In the event of failure of any pollution control system adopted by the unit, the respective unit will not be restarted until the control measures are rectified to achieve the desired efficiency. Online monitoring system is installed on the stack and is connected to CPCB as well as TSPCB portal.

| Stack Connected to SOTPH Boiler | | Apr-25 | May-25 | Jun-25 | Jul-25 | Aug-25 | Sep-25 | Oct-25 | Nov-25 | Dec-25 | Jan-26 | Feb-26 | Mar-26 | Avg |
|---------------------------------|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------|
| Fuel | Coal/Rice husk | | | | | | | | | | | | | |
| Total Height | Meters | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 |
| Sampling Height | Meters | 24.4 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.491667 |
| Stack Diameter | Meters | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 |
| Stack Cross Sectional Area | m ² | 4.1564 | 4.1564 | 4.1548 | 4.1548 | 4.1564 | 4.1564 | 4.1564 | 4.1564 | 4.1564 | 4.1564 | 4.1564 | 4.1564 | 4.1561333 |
| Ambient Temp (Ta) | K | 312 | 314 | 307 | 307 | 302 | 303 | 306 | 303 | 302 | 299 | 304 | 309 | 305.66667 |
| Stack Temperature (Ts) | K | 418 | 420 | 550 | 412 | 424 | 381 | 413 | 430 | 433 | 438 | 435 | 439 | 432.75 |
| Velocity | m/sec | 11.08 | 10.15 | 11.4 | 9.9 | 10.27 | 7.1 | 9.56 | 10.42 | 10.5 | 10.62 | 10.54 | 11.16 | 10.225 |
| Flow Rate | m ³ /hr | 165790 | 151874 | 165946 | 148077 | 153670 | 82351 | 143046 | 155915 | 157112 | 158907 | 157710 | 166987 | 150615.417 |

1500KVA DG Set Stack Monitoring Details

| | | Apr-25 | May-25 | Jun-25 | Jul-25 | Aug-25 | Sep-25 | Oct-25 | Nov-25 | Dec-25 | Jan-26 | Feb-26 | Mar-26 | Avg |
|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Stack Connected to | | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. | 1500 kVA D.G. Set. |
| Stack Height | Meters | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| Stack Diameter | Meters | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| Stack Cross Sectional Area | Sq. m | 0.049 | 0.049 | 0.049 | 0.049 | 0.049 | 0.049 | 0.049 | 0.049 | 0.049 | 0.049 | 0.049 | 0.049 | 0.049 |
| Temperature | K | 415 | 412 | 686 | 686 | 418 | 672 | 407 | 424 | 428 | 425 | 426 | 429 | 485.6667 |
| Velocity | m/s | 9.61 | 9.44 | 20.5 | 20.2 | 9.58 | 20.5 | 9.27 | 9.71 | 9.8 | 9.72 | 9.8 | 10.06 | 12.34917 |
| Flow Rate | m ³ /hr | 1695 | 1665 | 1557 | 1557 | 1690 | 1593 | 1635 | 1713 | 1729 | 1715 | 1729 | 1774 | 1671 |

CO2 Scrubbing and Recovery

The carbon-di-oxide produced during fermentation from all fermenter is carried by a common header to scrubber for scrubbing alcohol with water scrubber to recover alcohol from vent gases. The water from both the scrubber is returned to respective Fermenters.

The CO₂ produced from fermenters after scrubbing is liquefied and stored in bullets to avoid air pollution and is being reused (sold) for manufacture of carbonated beverages and industrial applications.

CO₂ is being generated in fermentation process for which CO₂ Plant is installed for collection of the CO₂ released during the fermentation process. The CO₂ collected is being sold to various related companies on BOT basis. CO₂ recovery is now optimized to 32.14TPD from existing 96 TPD. ABDL have installed CO₂ recovery plant and contributing greatly towards climate change and conservation of environment.

Presently, 1 x 1500 KVA DG set is provided as emergency power supply or during shutdown condition. These DG sets are confirming the requirements of emissions standards of E.P. Act. For proposed expansion, 1 x 500 KVA DG set will be provided as emergency power supply. The expected pollutants emitted from the DG sets will be PM₁₀, PM_{2.5}, SO₂, NO_x and CO. There will not be any impact on surrounding area as this will be the occasional activities. DG sets are equipped with stacks as per CPCB norms.

- i. Ambient air quality and stack emission is being regularly monitored and effective control exercised, so as to keep limits on stack emission loads well below the stipulated norms.
- ii. The ambient air monitoring is being carried out regularly in the work zone and surrounding areas, to check that ambient air levels of the contaminants, are well below the stipulated norms.
- iii. Green belt around the periphery and within premises will be developed which will help in attenuating the pollutants emitted by the plant.

e) Fugitive Emission

Fugitive dust emissions are likely in the unloading areas, fuel transfer point area etc. Fugitive emission will be regularly monitored in the plant area as per CPCB stipulations and record of the same shall be maintained.

Control of Fugitive Dust Emissions-

- i. In order to avoid fugitive emissions from different sources spraying of treated ETP is being used.
 - ii. All the internal roads are already asphalted to reduce the fugitive dust due to truck movement.
 - iii. All transportation vehicles are being carried a valid PUC (Pollution under Control) Certificate. Proper servicing and maintenance of vehicles is being carried out.
- i. Regular sweeping of all the roads and floors is being done.
 - ii. All the conveyers covered with sheets to prevent the fly off of fugitive dust.

- iii. There is no open storage of ash and the ash is being covered under shed.
- iv. Green belt act as surface for settling of dust particle and thus will reduce the particulate matter in air.
- v. Ambient air quality is being regularly monitored and effective control exercised, so as to keep emission within the limits.

Maintenance of Pollution Control Equipment

- The Pollution Control Equipment like ESP, suction hood, etc. will be examined and maintained in frequent shutdowns to meet the stipulated norms.
- ESP spares are also kept in stock to meet any immediate requirement.
- Condition based maintenance also will be taken up.

8. Water Conservation

The first step towards the management of water environment would be conservation of the water. Proper step will be taken to conserve the water, apart from the reuse and recycle of the wastewater generated.

- Storm water drainage network will be collected and utilized.
- W.C., Flush and Urinal Flush valve will be of low water consumption type
- Rain water harvesting scheme is being implemented.

Rain Water Harvesting

the unit area falls under ‘Safe’ category as per CGWA Categorization of Assessment Units as per Dynamic Ground Water Resources of India. Six rainwater harvesting / recharge structures well are constructed in line with the conditions. Contour map and Water flow direction map of the premises is prepared and From the contour and water flow map it is observed that natural flow of surface water is going towards NW side of plant. So Storm water drainage and harvesting structures are designed and constructed accordingly.

According to average rainfall (1165 mm) of the unit area, their total recharge Potential is given in below mentioned table

AREA DETAILS WITH CALCULATION OF RAIN WATER HARVESTING OF ABDL. Table.No-10

| Sr. No. | Particulars | Area (Sq m) | Rainfall (m) | Runoff Coefficient* | Quantum of Run off available (Cum/Year) |
|--------------|---------------------------|-------------|--------------|----------------------|---|
| 1. | Roof Top of building/Shed | 34800 | 1.16 | 0.85 | 34,278.0 |
| 2. | Road/Paved area | 20719.9 | 1.16 | 0.65 | 5,614.0 |
| 3. | Open Land | 22140 | 1.16 | 0.20 | 5,138.9 |
| 4. | Green Belt | 43746.52 | 1.16 | 0.15 | 7,617.0 |
| Total (sq m) | | 12141 | | Total runoff (cum/y) | 62,648 |

It is observed that total recharge potential of Rain Water is 62648 Cum/Year of rainfall run-off can be recharged/Harvested annually within the premises. Six (6) artificial recharge structures are being constructed in the project area for augmentation ground water resources. To enhance effectiveness, Recharge pit with bore well structure exist in the plant.

9. Solid & Hazardous Waste Generation Management

The major solid and hazardous waste generation from the process is mainly comprised of Organic waste, recyclable items, Drum & plastic cans and used oil etc. The details of waste management are given below:

- i. Bio-degradable waste is being collected & treated in compost pit and used as manure for greenbelt development.
- ii. Boiler ash is being collected and sold to brick manufacturers & cement industries.
- iii. The other solid wastes expected from the unit are containers, empty drums which are returned to the product seller or sold to authorize buyers after detoxification.
- iv. Used oil & grease generated from plant machinery as hazardous waste is being sold out to the CPCB authorized recycler.
- v. ETP Sludge is being disposed to Authorized TSDF.
- vi. Solid from Spent wash is collected from Decanter in the form of DWGS/ DDGS which comprises of fibers and proteins, being sold as animal feed.

Ash Management

Details of Hazardous Waste Generation and Disposal for the Year 2025-26

| ASH details 2025-26 (Tons) | |
|-----------------------------|---------|
| Apr-25 | 793.32 |
| May-25 | 275.84 |
| Jun-25 | 1868 |
| Jul-25 | 1955.09 |
| Aug-25 | 1208.1 |
| Sep-25 | 1109.83 |
| Oct-25 | 1473.58 |
| Nov-25 | 1508.51 |
| Dec-25 | 1174 |
| Jan-26 | 1181.31 |
| Feb-26 | 1259.82 |
| Mar-26 | 1493 |
| Sum | 15300.4 |
| avg | 1275.03 |

Power Consumption for the year 2025-26

| Description | Apr-25 | May-25 | Jun-25 | Jul-25 | Aug-25 | Sep-25 | Oct-25 | Nov-25 | Dec-25 | Jan-26 | Feb-26 | Mar-26 | Total KWA/YTD | Total KWA/Day |
|---|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|---------|---------------|---------------|
| Evaporation Decantation | 48514 | 71587 | 82491 | 84615 | 101570 | 118939 | 118435 | 91309 | 59409 | 184306 | 110907 | 107500 | 1179582 | 3232 |
| Dryer | 71171 | 91231 | 121376 | 120652 | 84661 | 94092 | 117492 | 112899 | 84353 | 206354 | 114518 | 119000 | 1337799 | 3665 |
| MEE condensate treatment plant | 3149 | 1679 | 3448 | 3613 | 352 | 5615 | 3485 | 2869 | 2496 | 5764 | 2958 | 3664.5 | 39092 | 107 |
| ETP(Treatment of cooling blowdown DM&Softner reg,boiler blowdown) | 32391 | 40423 | 49648 | 52756 | 42385 | 47290 | 49773 | 53355 | 44025 | 56475 | 50557 | 59775 | 578853 | 1586 |
| Coal dust collecting system | 1899 | 143 | 97 | 503 | 83 | 292 | 301.00 | 2597 | 3323 | 11616 | 112 | 121.06 | 21087 | 58 |
| ESP-1 | 161 | 228 | 106 | 406 | 247 | 650 | 1410.64 | 1255 | 824 | 839 | 745 | 805.74 | 7677 | 21 |
| ESP-2 | -441 | 302 | 160 | 531 | 379 | 480 | 542.77 | 520 | 523.28 | 1528 | 1352 | 1707.04 | 7584 | 21 |
| ESP-3 | 128 | 159 | 161 | 5 | 4 | 51 | 54.75 | 53 | 148 | 1609 | 1378 | 1671.1 | 5421 | 15 |

- Ash generated from captive power unit is being collected and stored.
- Regular water sprinkling is being done in the ash storage area.
- Ash generated shall be transported in covered dumpers from generation point to the final disposal point.
- Ash generated is being used for brick manufacturing or to be given to cement industry.
- MoEF&CC guidelines for ash management are followed.

10. Odour Management

Potential odour-generating sources identified include grain husks, the fermentation unit, DDGS (Dried Distillers Grains with Solubles), ETP sludge, and the septic tank. To effectively manage and minimize odour emissions, the following control measures have been implemented:

- Design Phase Integration: All odour control measures were incorporated during the plant's design phase.
- Fermentation Unit Enclosure: The fermentation unit is fully covered, eliminating direct odour emissions.
- Operational Best Practices:
 - Regular steaming and thorough cleaning of all fermentation equipment ensure hygiene and odour control.
 - Fermentation temperature is carefully regulated to maintain yeast viability and prevent spoilage.
 - Staling of fermented wash is actively avoided through timely processing.
- Greenbelt Development: A dense greenbelt has been established around the plant perimeter to act as a natural odour barrier.
- CO₂ Scrubbing System: An efficient CO₂ scrubber is in operation to minimize the release of alcohol vapours and associated fumes.
- DDGS Dryer Installation: A dryer is being used for the proper handling and drying of solids, reducing the chances of odour generation.
- Pest Control Measures: Regular pest control is carried out to reduce biological sources of odour around the facility.

12. Green Belt Development

With rapid industrialization and consequent deleterious impact of pollutants on environment, values of environmental protection offered by trees are becoming clear. Trees are very suitable for detecting, recognizing and monitoring air pollution effects. Monitoring of biological effect due to air pollutants by the use of plant as indicators has been applied on local, regional and national scale. Trees function as sinks of air pollutants, besides their bio-aesthetical values, owing to its large surface area.

The development of Green Belt is an important aspect for any plant because:

- It acts as a 'Heat Sink'.
- It improves the ambient air quality by controlling Suspended Particulate Matter (SPM) in air.
- It helps in noise abatement for the surrounding area.
- It helps in settlement of new birds, butterflies and insects within itself.
- It maintains the ecological balance.
- It increases the aesthetic value of site.

The total plant area is 12.141 hectares, of which 4.375 hectares (33%) is designated as greenbelt area. This greenbelt will be maintained using local species with broad leaves, high canopy, and fast-growing characteristics. A total of 10,937.5 plants are required, while 7,952 plants are planned, including the existing 6,600 live trees within the plant premises (based on a planting density of 2,500 trees per hectare).

Green belt development during the year 2025-26 Table.No-11

| Area | Sq. Mtrs | Conv. Factor | Acres | No. of plants |
|-----------------------------|----------|--------------|---------|---------------|
| Solar Pond | 7953.28 | 0.000247105 | 1.97 | 915 |
| WTP | 2818.18 | 0.000247105 | 0.70 | 464 |
| ETP | 12914.55 | 0.000247105 | 3.19 | 1590 |
| CT area | 926.84 | 0.000247105 | 0.23 | 319 |
| ETP Boundary | 2478.62 | 0.000247105 | 0.61 | 418 |
| Boiler boundary | 2289.42 | 0.000247105 | 0.57 | 600 |
| Canteen | 650.81 | 0.000247105 | 0.16 | 75 |
| Bottling DG | 553.25 | 0.000247105 | 0.14 | 43 |
| Ecophotex | 265.93 | 0.000247105 | 0.07 | 101 |
| Godwon front area | 7760.14 | 0.000247105 | 1.92 | 1015 |
| Co2 | 742.72 | 0.000247105 | 0.18 | 140 |
| GH both side | 1244.36 | 0.000247105 | 0.31 | 589 |
| Fermentation & Distillation | 795.3 | 0.000247105 | 0.20 | 211 |
| Coal shed | 1148.57 | 0.000247105 | 0.28 | 360 |
| Store area | 1207.62 | 0.000247105 | 0.30 | 260 |
| Near New Malt ENA plant | 3800 | 0.000247105 | 0.94 | 852 |
| | 47549.59 | 0.00395368 | 11.7497 | 7952 |

Self-Audit Observations & Findings (2025–26)

1. Production Performance

- ENA production achieved 170.00 KLD (94.44% of permitted capacity).
- By-product generation remained lower than permitted levels:
 - Impure Spirit: 3.11 KLD (51.83%)
 - Fuel Oil: 0.05 KLD (58.33%)
 - CO₂: 32.14 TPD (66.52%)
 - DDGS/DWGS: 68.71 TPD (51.61%)

Observation:

Production and by-product generation are maintained within CFO limits, reflecting controlled and compliant plant operations; however, lower by-product recovery indicates scope for process optimization.

2. Raw Material Consumption

- Broken Rice: 314.75 TPD
- Coal: 153.13 TPD
- Rice Husk: 207.44 TPD
- Diesel: 175.46 LPD

Observation:

Raw material consumption is consistent with production levels and operational requirements.

3. Water Consumption

- Total Fresh Water Consumption: 1465.77 KLD (38.92% below permitted)
- Recycled Water Usage: 588.61 KLD
- Specific Water Consumption: 12.08 KL/KL of ENA

Observation:

Water consumption is well within permitted limits, supported by installed metering systems. However, recycled water utilization is relatively low compared to the permitted capacity.

4. Wastewater Generation & Recycling

- Total Wastewater Generation: 742.67 KLD
- Recycled Water: 588.61 KLD (~79.25%)

Observation:

Wastewater generation is significantly below permitted limits, and a strong recycling system is in place, demonstrating effective implementation of Zero Liquid Discharge (ZLD) principles.

5. Effluent Treatment & Monitoring

- Real-time monitoring system installed and connected to regulatory authorities
- Treatment efficiencies achieved:
 - COD: 97.55%
 - BOD: 97.64%
 - TDS: 96.29%
 - TSS: 88.88%

Observation:

ETP performance is highly efficient, with robust monitoring and compliance systems in place.

6. Quantity of Chemical Consumption (April 2025 – March 2026)

The following table summarizes the total quantity of chemicals consumed during the reporting period for water treatment, ETP operations, and utility processes:

| Chemical Name | Total Consumption |
|--------------------------------------|-------------------|
| Sodium Chloride (NaCl) | 64,568.5 kg |
| Antiscalant (9002) | 3,708.5 kg |
| Hydrochloric Acid (HCl) | 100,722 liters |
| EDTA | 3,972 kg |
| SMBS | 5,003 kg |
| Ferric Chloride (FeCl ₃) | 4,269.1 kg |
| Sodium Hypochlorite | 95,524 liters |
| Max Treat 617 | 270 liters |
| Poly Electrolyte MXT 107 | 163.7 kg |
| Citric Acid | 3,207 kg |
| Morpholine (MAX 3333) | 1,107.4 liters |
| Lime | 16,715 kg |
| Alum | 6,042 kg |
| Cationic Poly | 359.14 kg |
| Antiscalant (9123) | 4,329 kg |

Observation:

Chemical consumption is in line with plant operational and treatment requirements. The dosing practices are effective, as reflected in high treatment efficiencies of COD, BOD, TDS, and TSS removal. However, there is scope for further optimization through controlled dosing and automation.

7. Air & Noise Quality

Ambient Air Quality

Ambient air quality monitoring was carried out at designated locations within and around the plant premises. The observed values are as follows:

- PM₁₀: 50.58 µg/m³ (against standard limit of 100 µg/m³)
- PM_{2.5}: 24.61 µg/m³ (against standard limit of 60 µg/m³)
- SO₂: 15.27 µg/m³ (against standard limit of 80 µg/m³)
- NO_x: 28.16 µg/m³ (against standard limit of 80 µg/m³)

Observation:

All monitored ambient air quality parameters are significantly below the prescribed limits, indicating effective control of air emissions and minimal environmental impact.

Effective air pollution and noise control systems are implemented and maintained. Continuous Noise Quality Noise monitoring was conducted at various locations within the plant premises during both daytime and nighttime.

- Daytime Noise Levels (L_{day}): Within 75 dB(A) (industrial standard limit)
- Nighttime Noise Levels (L_{night}): Within 70 dB(A) (industrial standard limit)

Observation:

Noise levels at all monitored locations are within the prescribed industrial limits, indicating adequate noise control measures and minimal disturbance to the surrounding environment.

8. Stack & Emission Monitoring

Boiler Stack Details

- The plant is equipped with a 50 TPH boiler connected to a 54-meter-high stack, designed as per regulatory guidelines to ensure effective dispersion of flue gases.
- The stack is provided with adequate sampling ports and platforms for periodic monitoring.

Air Pollution Control Systems

- A three-field Electrostatic Precipitator (ESP) is installed to control particulate matter emissions from the boiler.
- The ESP is operated and maintained regularly to ensure optimal collection efficiency.

Continuous Emission Monitoring

- A Continuous Emission Monitoring System (CEMS) is installed at the boiler stack.
- Key parameters monitored include:
 - Particulate Matter (PM)
 - SO₂
 - NO_x
- The system is integrated with regulatory authorities for real-time data transmission and compliance tracking.

DG Set Emission Monitoring

- Stack connected to the 1500 kVA DG set is also monitored periodically.
- Adequate stack height and dispersion arrangements are provided as per norms.

Monitoring & Maintenance Practices

- Regular stack monitoring is conducted through authorized agencies.
- Preventive maintenance schedules are followed for ESP and CEMS systems.
- Calibration of monitoring instruments is carried out periodically to ensure accuracy.

Observation

Stack emissions are effectively controlled through the installation of ESP and proper stack design. Continuous monitoring through CEMS, along with regular maintenance and calibration practices, ensures that emissions consistently comply with prescribed environmental standards and regulatory requirements.

9. Ash Utilization – Quantity

- Total Ash Generated: 15,300.4 T/year (2025–26)
- Average Generation: 1,275.03 T/month

Observation:

The generated ash is systematically tracked and managed. However, opportunities exist to enhance utilization in cement and brick manufacturing industries and achieve 100% utilization with proper documentation and reconciliation.

10. Odour Management.

Odour generation is associated with the following process areas:

- Fermentation Unit
- DDGS Handling System
- ETP Sludge Generation
- Septic / Wastewater Handling Areas

Observation:

Odour generation is site-specific and controlled through existing mitigation measures. Further improvement can be achieved by installing online odour monitoring systems and strengthening sludge handling practices

11. Rainwater Harvesting – Quantity

- Total Rainwater Runoff Potential: 62,648 m³/year

Observation:

The plant has significant rainwater harvesting potential. Completion of infrastructure and integration with plant reuse systems will improve water conservation and reduce freshwater dependency.

12. Legal & Statutory Compliance (Detailed)

The facility maintains a strong compliance framework with all major statutory approvals and environmental consents in force. The Consent for Operation (CFO) is valid up to March 2028, ensuring uninterrupted production activities under regulatory approval.

Environmental monitoring and reporting obligations are being met consistently, with monthly and half-yearly compliance reports submitted to the concerned authorities as per statutory requirements. This reflects a structured environmental governance system and timely regulatory communication.

The Boiler License remains valid up to 15.04.2026, and all boiler operations are currently being conducted within approved safety and operational standards.

The Factory License is active, confirming compliance with industrial safety, worker welfare, and operational norms under applicable labor regulations.

The facility also holds a valid Fire No Objection Certificate (NOC) up to 29.09.2027, indicating adherence to fire safety standards, emergency preparedness, and periodic inspections.

Additionally, the Public Liability Insurance is valid up to 11.08.2026, ensuring financial protection against potential industrial hazards and environmental incidents.

13. Opportunities for Improvement (OFI) – Detailed

1. Water Management Efficiency

The facility is currently within permissible limits for fresh water consumption; however, optimization opportunities exist in recycled water utilization.

- Recycled water usage is 588 KLD against a permitted capacity of 1851 KLD, indicating utilization of approximately 79% recycling efficiency.
- While fresh water usage is controlled, the potential for higher reuse of treated water remains underutilized.

Recommended Improvements:

- Increase treated water reuse in:
 - Cooling tower makeup systems
 - Floor washing and housekeeping activities
 - Utility operations and non-process applications
- Enhance pipeline connectivity and storage systems to maximize reuse potential
- Target recycling efficiency improvement to above 90%
- Reduce water intensity from 12.08 KL/KL of ENA to an industry benchmark of 8-10 KL/KL

2. Wastewater Reduction

Wastewater generation is currently within regulatory limits, indicating good process control. However, optimization opportunities exist in reducing reject streams.

Key Observations:

- RO reject generation is 88.34 KLD, which presents an opportunity for recovery improvement.
- Certain high-COD streams are not fully segregated, leading to mixed loading on treatment systems.

Recommended Improvements:

- Improve RO system recovery efficiency through:
 - Membrane performance optimization
 - Scheduled chemical cleaning (CIP) and preventive maintenance
- Evaluate advanced RO configurations or multi-stage filtration systems
- Segregate high COD wastewater streams at source to reduce load on ETP
- Explore possibilities for partial recovery of RO reject water for non-critical applications

3. ETP Process Optimization

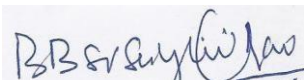
The Effluent Treatment Plant is performing well with >97% removal efficiency for COD and BOD, indicating stable biological and chemical treatment performance.

Key Observations:

- The biological system shows stable operation, though optimization potential exists in biomass concentration and process stability.
- SV30 value of approximately 220 ml is acceptable but can be further stabilized.
- MLVSS/MLSS ratio of ~0.8 indicates scope for improved microbial activity balance.

Recommended Improvements:

- Optimize MLVSS/MLSS ratio to improve sludge quality and microbial efficiency
- Maintain consistent sludge age (SRT) for stable biological activity
- Enhance monitoring of key parameters such as DO, pH, and MLSS



(Dr. B.B.S.V.Seshagiri Rao)

M.sc(Env),LLM., PGDEHS., Phd.

Lead Auditor-QMS&EMS, OHSAS&ESG, BRSR,
Certified water Auditor, Technical Expert for
QMS,EMS&OHSAS,SA8000.

