

Covering Letter

KALLAPPANNA AWADE JAWAHAR SHETKARI SAHAKARI SAKHAR KARKHANA LTD.,

Hupari-Yalgud 416 203, Tal.: Hatkanangale, Dist.: Kolhapur (Maharashtra)

Phone (0230) 2450402 to 06 E-mail : kprjsssk@gmail.com Website : www.kallappannaawadejawaharsssk.com

Ref. No. MFG/ ETP / 695 /2025-2026

Date: - 3 /05/2025

To,
The Regional Officer,
MoEFCC; Western Region (WCZ),
Ground Floor, East Wing,
New Secretariat Building,
Civil Lines,
Nagpur – 440001.

Sub: Submission of Six Monthly Environment Compliance report for period October 2024 to March 2025 w.r.t Co-gen Unit of 28.5 MW – Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal.: Hatkanangale, Dist.: Kolhapur, Maharashtra State.

Ref: Environmental Clearance (EC) Letter No. ENV (NOC) 2005/1591/CR224/TC-II dated 27.08.2007.

Dear Sir,

This has reference to Environmental Clearance (EC) granted to our Co-gen Unit of 28.5 MW– Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal.: Hatkanangale, Dist.: Kolhapur, Maharashtra State.

We are submitting a six monthly compliance report for a period of October 2024 to March 2025.

We hope the details furnished by us are in accordance with your requirements.

Thanking you,

Yours Faithfully,



(M.G.Joshi)

Managing Director

Encl. - As above

Copy for information to:-

1. The Integrated Regional Office,
MoEFCC; Western Region (WCZ),
Ground Floor, East Wing,
New Secretariat Building,
Civil Lines,
Nagpur – 440001.
Email – ecompliance-mh@gov.in
Ecompliance-mh@gov.in
2. Sh. Pratik D. Bharane,
Scientist 'E'
Central Pollution Control Board,
Pune.
Email – pratik.cpcb@gov.in
3. Member Secretary,
Maharashtra Pollution Control Board,
Kalpataru Point, 3rd & 4th Floor,
Opp.Cine Planet,
Near Sion Circle, Sion (E),
Mumbai (Maharashtra) - 400 022.
Email – ms@mpcb.gov.in
4. Regional Officer,
Maharashtra Pollution Control Board,
Udyog Bhavan Building,
Naer Collector Office,
Kolhapur- 416 002.
Email – rokolhapur@mpcb.gov.in

Environmental Clearance Letter

GOVERNMENT OF MAHARASHTRA

☎ 2285 50 82
☎ 2202 59 48

No. ENV(NOC)2005/1591/CR224/TC-II
ENVIRONMENT DEPARTMENT,
Mantralaya, New Administrative Bldg.,
15th floor, Madam Cama Marg,
MUMBAI - 400 032.

Dated : 27 AUG 2007

To,

The Chairman /Managing Director,
M/s. Jawahar Shetkari Sahakari Sakhar Kharkhana Ltd.,
Kallapanna Awade Nagar,
Hupri Yalgud Road,
Dist. Kolhapur

Sub : Environment clearance.

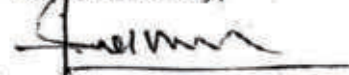
Sir,

I am directed to refer to your letter dated 11th October, 2006, on the subject mentioned above and to state that the Environment Department of the State Government has no objection from the environmental angle to permit you expansion of sugarcane crushing capacity from 5000 TCD to 7500 TCD (from Five Thousand TCD to Seven Thousand Five Hundred TCD only) and Co-Generation from 24 MW to 28.5 MW at, Kallapanna Awade Nagar, Hupri Yalgud Road] Dist. Kolhapur, Maharashtra State subject to the following conditions & general conditions stipulated in the Annexure.

These stipulations will be enforced among others under the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 alongwith their amendments.

The above permission is without prejudice to any other permissions required under any of the laws, bye-laws or regulations in force and that the Government may impose any additional conditions from time to time for control of pollution, if necessary.

Yours faithfully,



(Surendra Jadhav)

Deputy Secretary to Government

ENCL : As above.

JAWAHAR SSSK LTD. HUP.
WV No. 2292 Date 1/9/07
Sent To MD
Up to ADM, Chemical Engg. ChE.
Secretary / Managing Director.

1. The Project Authority shall take adequate safety precautions in handling the raw materials, plant and machinery and the products of the processes so as to avoid any damage / loss of life or property, or environment.
2. The Project Authority shall provide personal protective equipments, impart training and medical facilities to the workers handling the hazardous / dangerous raw materials, finished products or processes.
3. The Project Authority shall prepare the on-site disaster management plan and should submit to the Director, Industrial Safety and Health. The copies of which shall also be submitted to the District Collector, Local Authority, Maharashtra Pollution Control Board (MPCB) and the Environment Department, Government of Maharashtra. The Project Authority shall submit the information to the Director, Industrial Safety and Health for the preparation of the off-site disaster management plan. The Project Authority should carry out periodical rehearsal of the on-site disaster management plan.
4. The Project Authority shall comply with all statutory requirements for safe transportation of raw materials / finished products in case of trucks / tankers carrying hazardous raw materials shall be washed and cleaned up within the plant premises, so as to ensure no pollution in the vicinity.
5. The Project Authority shall use cleaner technology for the manufacturing process and the clean fuel for the operations so as to reduce process waste, liquid effluents and gaseous emissions.
6. The Project Authority shall treat the liquid effluents so as to conform to the standards prescribed by MPCB. The disposal of the treated effluent shall be in accordance with the conditions imposed by MPCB / GOM (Government of Maharashtra / Government of India). The continuous monitoring facility for the effluents should be provided by the project authority. If the effluent quality exceeds the standards at any time the corresponding units of the plant which are contributing the excessive pollutant load shall be stopped from the operations till the quality of pollutant discharged from those units are brought down to the required level. Under no circumstances, the quality of the effluent shall exceed the limits mentioned in the consent letter. The Project Authority should draw water consumption plans and the time bound sincere efforts for the reduction of water consumption should be made.
7. In case the treated effluent is proposed to be utilized for land irrigation / gardening on the land owned by the Project Authority, the sufficient area should be earmarked for the same purpose in consultation with the Agriculture Department. Under no circumstances, such an effluent should be allowed to flow outside the premises of the project. During Monsoon, on heavy rainfall period, if the treated effluent can not be absorbed in the project land and there is likelihood of the effluent going into the nearby areas, the respective unit should be put out of operation immediately. For the purpose of effluent disposal, mechanical system (Sprinkler etc.) and shall make adequate arrangements for the storage of excessive effluent (impervious storage tank etc.) in consultation with MPCB.
8. The Project Authority shall regularly and periodically undertake soil testing of the land which are being used for the disposal of the effluent and shall also undertake periodical and regular testing of water sources in the vicinity of the project.
9. The Project Authority shall control the air emissions as per the standards prescribed by MPCB. No change in the design of stack and fuel mix be done without the permission of MPCB. Minimum number of air quality monitoring

stations should be set up in consultation with MPCB in the plant and nearby areas. The air quality should be monitored on regular basis. All the stacks of the plant should be provided with the continuous stack monitoring equipment and the stack emission levels shall be recorded and submitted to the MPCB as per their directives.

10. The process emissions shall meet the standards prescribed by MPCB. At no time, the emissions should be beyond the standards. The respective units which exceed the standard should be put out of order immediately and should not be restarted until the control systems are rectified.
11. The solid waste shall be treated and disposed off as prescribed in the authorization certificate granted by MPCB in accordance with the Hazardous Waste (Handling and Management) Rules, 1989 (wherever applicable).
12. The Project Authority shall take precautions so as to reduce other types of environmental problems like noise, odour, thermal / heat and radio activity etc. (if applicable).
13. The Project Authority shall set up environment management cell with a suitably qualified staff, to carry out various functions of the environment management. The Environment Management Plan should be prepared by the project authority shall also earmarked submitted to MPCB. The Project Authority shall also earmarked funds for the Environment Management Cell and same shall not be diverted for any other purpose. The Project Authority shall prepare environment statement every year and copy of the same should be submitted to the MPCB.
14. The cases of any disaster / accident / mishap due to handling raw materials, process, plant and machinery or finished products, the Project Authority shall be personally, jointly and severally be responsible for the event.
15. Tree plantation programs should be undertaken at the rate of not less than 2500 trees per ha. on the factory land, in consultation with the Forest Department of the State Government and MPCB.
16. This environment clearance is not transferable and shall lapse after a period of 2 years from the date on which the clearance is given, unless the intended development is commenced before the expiry of the period.
17. The Project Authority must strictly adheres to the stipulations made by MPCB / Government of Maharashtra / Government of India. The Project Authority shall submit the compliance report regarding conditions imposed by MPCB / Government of Maharashtra (Environment Department) / Government of India before commencement of production / activity.
18. The Company should used a treated effluent for afforestation and create a green belt around the factory premises with necessary fencing around it.

Pointwise compliance of Co-gen Unit of 28.5 MW

	M/s. Jawahar Shetakari SSKL Expansion of sugar cane Crushing Capacity from 5000 TCD to 7500 TCD & Co-generation from 24MW to 28.5 MW	
		Brief Summary of the Project
1	Name of Project	M/s. Jawahar Shetakari SSKL
2	Type of Project	Expansion of sugar cane Crushing Capacity from 5000 TCD to 7500 TCD & Co-generation from 24MW to 28.5 MW
2	Clearance Letter No. & date	Located at, Tal.: Hatkanangale, dist.: Kolhapur Maharashtra
3	Location: District & State/UT	Located at, Tal.: Hatkanangale, dist.: Kolhapur Maharashtra
		Six Monthly Period
		October 2024 to March 2025
No.	Environmental Clearance Conditions	Compliance towards the Conditions Stipulated
A	SPECIFIC CONDITIONS	
1	Condition No. I	
	The Project Authority shall take adequate safety precautions in handling the raw materials, plant and machinery and the products of the processes so as to avoid any damage/ less of lie of property or environment.	Adequate safety measures for handling the raw material, plant and machinery are taken. Employees are provided with PPEs kits. Bagasse which is used as fuel for boiler is transported to boiler through close conveyor belt. Moreover, Industry is following the safety measures during manufacturing process in material handling. Industry has installed & provided fire fighting system infrastructure comprising of fire water lines, fire hydrants, fire tender, fire extinguishers etc. at all strategic & fire prone areas in the industry, bagasse yard, molasses storage section etc. The firefighting arrangements have been provided on site as per Factories Act. Regular firefighting mock drills are conducted to train workers for fire hazards. Latest mock drill was carried out dated on 04.03.2025 . Photographs of Firefighting system, Mock drill, Boiler interlocks is enclosed at Annexure – I .
2	Condition No. II	
	The Project Authority shall provide personal protective equipments; impart training and medical facilities to the workers handling the hazardous/dangerous raw materials, finished products or processes.	No hazardous chemicals are being used in the process. The workers engaged in handling operations are provided with necessary Personal Protective Equipment's (PPEs) like safety helmet, shoes, goggles, face mask, dust mask, hand gloves, welder goggles, earmuffs, safety belts etc. Regular training is important for workers who are handling the hazardous / dangerous raw materials, finished products or processes etc. Moreover, annual health checkup of all workers is done through authorized and qualified doctor and records are maintained. Latest health checkup report dated 09.09.2024 to 08.09.2025 is enclosed at Annexure-II .
3	Condition No. III	
	The Project Authority shall prepare the on site disaster management plan and should submit to the Director, Industrial Safety and Health. The copies of which shall also be submitted to the District Collector, Local Authority, Maharashtra Pollution Control Board (MPCB) and the Environment Department, Government of Maharashtra. The Project Authority shall submit the information to the Director, Industrial Safety and Health for preparation of the off-site disaster management plan. The Project Authority should carry out periodical rehearsal of the on-site disaster management plan.	Risk Assessment Report have already prepared for entire project complex. Therein, identification of hazard and migration measures have been suggested. Moreover, the fire hazard areas like bagasse storage yard, switch yard etc. have been provided with appropriate firefighting arrangement. Periodic mock drills are conducted for imparting training on handling hazardous situations and handling of firefighting equipments. Photographs of Firefighting system and latest Mock drill conducted on 04.03.2025 is enclosed at Annexure III .
4	Condition No. IV	
	The Project Authority shall comply with all statutory requirements for safe transportation of raw materials/ finished products in case of trucks/tankers carrying hazardous raw material shall be washed and cleaned up within the plant premises, so as to ensure no pollution in the vicinity.	Not applicable. Since electricity generated is directly fed to MSEB grid.
5	Condition No. V	
	The Project Authority shall be use cleaner technology for the manufacturing process and the clean fuel for the operations so as to reduce process waste, liquid effluents and gaseous emissions.	In the Co-gen plant electricity is generated using steam from boiler. Bagasse is used as fuel for steam generation, which is one of the process waste of sugar factory. Moreover, excess condensate water from sugar factory is used in process.
6	Condition No. VI	
	The Project Authority shall treat the liquid effluents so as to conform to the standards prescribed by MPCB. The disposal of the treated effluent shall be in accordance with the conditions imposed by MPCB / GOM (Government of Maharashtra / Government of India). The continuous monitoring facility for the effluent should be provided by the project authority. If the effluent quality exceeds the standards at any time, the corresponding units of the plant which are contributing the excessive pollutant load shall be stopped from the operations till the quality of pollutant discharged from those units are brought down to the required level. Under no circumstances, the quality of the effluent shall exceed the limits mentioned in the consent letter. The Project Authority should draw water consumption plans and the time bound sincere efforts for the reductions of water consumption should be made.	The effluent generated from the Co-gen plant operation is forwarded to the sugar factory ETP. The same is treated in state of art effluent treatment plant. The treated effluent is used for gardening and the development of green belt in own factory premises. OCMS is installed for ETP. Moreover, STPs of capacity 100 KLPD and 50 KLPD has been installed on-site for the treatment of domestic effluent. Flow sheet and Photographs of ETP as well as that of STP is enclosed at Annexure –IV
7	Condition No. VII	

	<p>In case of the treated effluent is proposed to be utilized for land irrigation / gardening on the land owned by the project Authority, the sufficient area should be earmarked for the same purpose in consultation with the Agriculture Department. Under no circumstances, such an effluent should be allowed to flow outside the premises of the project. During Monsoon on heavy rainfall period, if the treated effluent cannot be absorbed in the project land and there is likelihood of the effluent going into the nearby areas, the respective unit should be put out of operation immediately. For the purpose of effluent disposal, mechanical system (Sprinkler etc.) and shall make adequate arrangements for the storage of excessive effluent (impervious storage tank etc.) in consultation with MPCB.</p>	<p>No effluent is discharged outside industrial premises. The treated effluent is being recycled and used for gardening in premises. An online continuous monitoring system as well as a flow meter is provided for ETP. Moreover, impervious storage tank has been provided for the storage of treated effluent. Flow sheet and Photographs of ETP as well as that of STP is enclosed at Annexure –IV.</p>
8	Condition No. VIII	
	<p>The Project Authority shall regularly and periodically undertake soil testing of land which are being used for the disposal of the effluent and shall also undertake periodical and regular testing of water sources in the vicinity of the project.</p>	<p>The treated effluent from sugar factory ETP is used for gardening and development of green belt in own factory premises. Moreover, soil testing laboratory is established within plant premises and regular monitoring is being carried out.</p>

9	Condition No. IX	
	The Project Authority shall control the air emissions as per the standards prescribed by MPCB. No change in the design of stack and fuel mix be done without the permission of MPCB. Minimum number of air quality monitoring stations should be set up in consultation with MPCB in the plant and nearby areas. The air quality should be monitored on regular basis. All the stacks of the plant should be provided with the continuous stack monitoring equipment and stack emission levels shall be recorded and submitted to the MPCB as per their directives.	ESPs as APC are provided followed by stack height of 75M (common for 90 TPH and 20 TPH) & 72M for 75 TPH boiler to control particulate matter and Gaseous pollutants. As per latest guidelines of CPCB, an online monitoring system (OCMS) has been installed for boiler. Moreover, industry conducts self monitoring w.r.t. Ambient Air, Stack Emissions, Noise as well as analysis of untreated and treated effluent on monthly basis. The same is done through an NABL approved laboratory. The AAQ locations are selected in upwind and downwind directions. The report as well as OCMS Photographs of the same are enclosed at Annexure - V
10	Condition No. X	
	The process emissions shall meet the standards prescribed by MPCB. At no time, the emissions should be beyond the standards. The respective units which exceed the standard should be put out of order immediately and should not be restarted until the control systems are rectified.	The condition is being followed. As per latest guidelines of CPCB, online monitoring systems (OCMS) have been installed for boiler. Moreover, industry conducts self-monitoring w.r.t. Ambient Air, Stack Emissions, Noise as well as analysis of untreated and treated effluent on monthly basis. The same is done through an NABL approved laboratory. The report of the same are enclosed at Annexure VI.
11	Condition No. XI	
	The solid waste shall be treated and disposed off as prescribed in the authorization certificate granted by MPCB in accordance with the Hazardous Waste (Handling and Management) Rules, 1989 (Wherever applicable).	Hazardous waste in form of Used Oil is burnt in boiler along with bagasse. Moreover, Solids waste in form of boiler ash is given to farmers as Manure / Brick Manufacturing.
12	Condition No. XII	
	The project Authority shall take precautions so as to reduce other types of environment problems like noise, odour, thermal/heat and radio activity etc. (if applicable).	Major noise-generating sources are Boilers, Turbines, D.G. Set, etc. The overall noise level in around the plant area are maintained within the standards prescribed under the Environment (Protection) Act, 1986 Rules. Workers working in noisy area are provided with personal protective equipment's such as earplug, earmuffs etc. The measures adopted under existing unit for controlling the same are proper housekeeping, sludge management in biological ETP units, steaming of major pipe lines, regular use of bleaching powder in the drains, efficient handling, prompt & proper disposal of pressmud. No any radioactive substances are used in Co-gen plant.
13	Condition No. XIII	
	The Project Authority shall set up environment management cell with suitably qualified staff, to carry out various functions of the environment management. The Environment Management Plan should be prepared by the project authority shall also earmarked submitted to MPCB. The project Authority shall also earmarked funds for the Environment Management Cell and same shall not be diverted for any other purpose. The Project Authority shall prepare environment statement every year and copy of the same should be submitted to the MPCB.	The industry has an Environmental Management Cell (EMC) functioning. Members of the EMC are well qualified and experienced in their concerned fields. A separate Environment Management cell is already established. Structure of EMC is enclosed at Annexure - VII
14	Condition No. XIV	
	The cases of any disaster/accident/mishap due to handling raw materials, process, plant and machinery or finished products, the Project Authority shall be personally, jointly and severally be responsible for the event.	Noted.
15	Condition No. XV	
	Tree plantation programs should be undertaken at the rate of not less than 2500 trees per ha on the factory land, in consultation with the Forest Department of the state Government and MPCB.	Total Plot area of JSSSKL is 99.57 Ha. Industry has developed a green belt on area of 39.9 Ha. This comes to about 40% of total plot area. Total 69,879 Nos. of trees have been planted in the factory premises. Which includes evergreen & pollution resistant species like Silver Oak, Rain tree, Neem, Suru, Saag etc have been planted. Avenue plantation, shelter belt plantation, mass plantation & pocket plantation has been done on site. Details and Photographs of the Green belt is enclosed at Annexure VIII.
16	Condition No. XVI	
	This environment clearance is not transferable and shall lapse after a period of 2 years from the date on which the clearance is given, unless the intended development is commenced before the expiry of the period.	The Condition is followed by industry.
17	Condition No. XVII	
	The Project Authority must strictly adhere to the stipulations made by MPCB/ Government of Maharashtra/ Government of India. The Project Authority shall submit the compliance report regarding conditions imposed by MPCB/ Government of Maharashtra (Environment Department)/ Government of India before commencement of production/activity.	Industry is strictly following all the stipulations made by the Central Pollution Control Board (CPCB) as well as Maharashtra State Pollution Control Board (MPCB).
18	Condition No. XVIII	
	The Company should use treated effluent for afforestation and create a green belt around the factory premises with necessary fencing around it.	Effluent is treated in existing sugar factory ETP. Treated effluent is used for gardening and the development of Green belt purposes in the industrial premises.

Annexures mentioned in EC

Annexure- I

Photographs of firefighting arrangements



KALLAPPANNAWADE JAWAHAR SHETKARI SAHAKARI SAKHAR KARKHANA LTD.,

Hupari – Yalgud, 416 203. Tal.: Hatkanangale, Dist.: Kolhapur (Maharashtra)

Phone (0230) 2450402, Fax No. : (0230) 2450401,

E-mail : kprjsssk@gmail.com

MOCK DRILL REPORT

March – 2025

KALLAPPANNAWADE JAWAHAR SHETKARI SAHAKARI SAKHAR KARKHANA LTD.,

Hupari – Yalgud, 416 203. Tal.: Hatkanangale, Dist.: Kolhapur (Maharashtra)

Phone (0230) 2450402, Fax No. : (0230) 2450401,

E-mail : kprjsssk@gmail.com

MOCK DRILL REPORT.

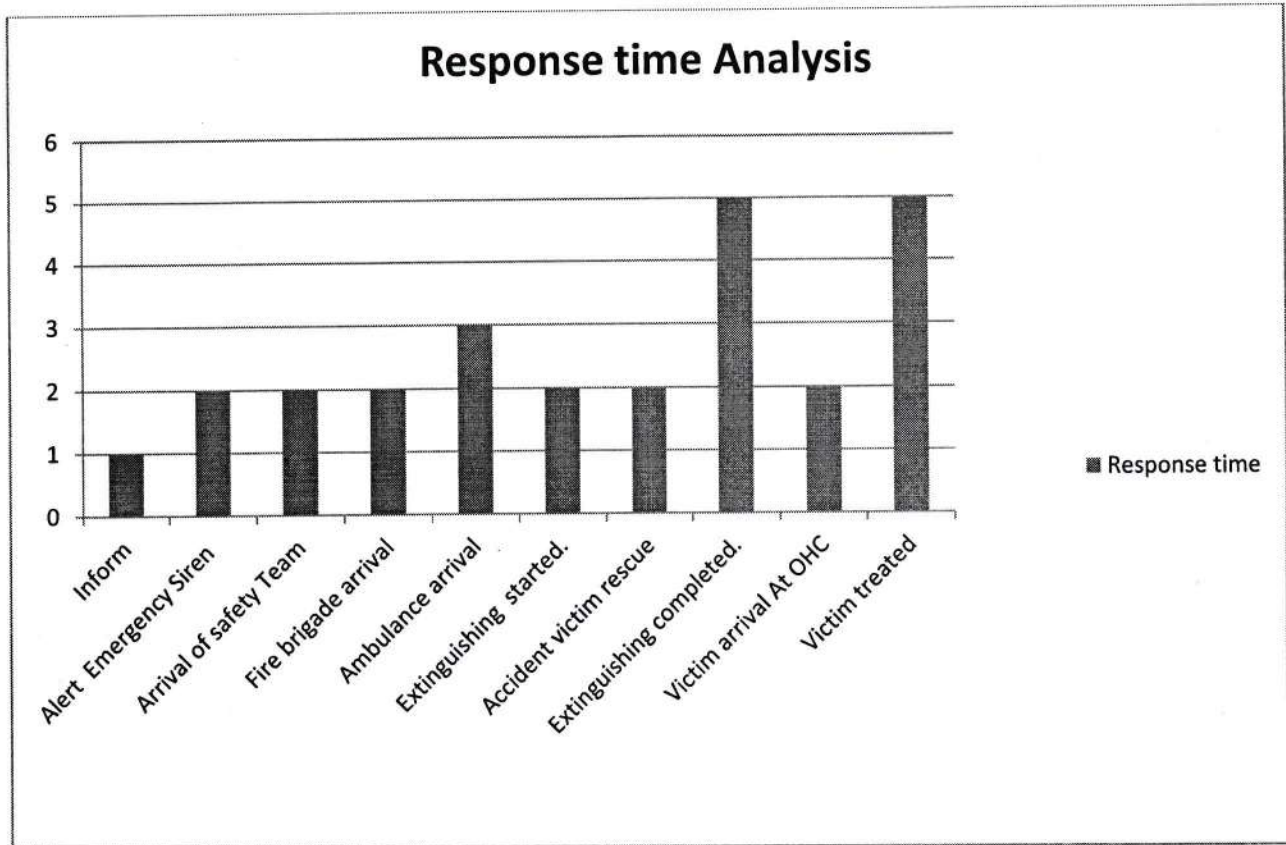
SR.NO	ASPECT	DISCREPTION
1.	Subject Of Drill	Mock Drill is conducted on the occasion of National Safety Week in which fire drill is conducted and demonstration of fire extinguishing system is carried out along with measurement of response system and other observations.
2.	Type of Drill	Fire mock drill.
3.	Conducted By	Safety department & Security department of the factory.
4.	Scheduled Time	From 10:45 to 11:15 am on dated 4th March,2025.
5.	Location	Main Gate – Corridor
6.	Possible hazards of incident	Social Impact –No any social Impact is there.
		Property damage - Yes, Property damage may possible.
		Environmental Impact–Partial environmental Impact.
		Critical infra impact - No any affect.
		Process / Business Impact –It may impact process of Factory.
		Physical harm –Physical harm is possible.
		Psychological Impact - Partially affected.
6	Groups& Teams (Security Department)	Team 1 : Fire Fighting Team
		1. Mr. Hindurav Patil 2. Mr. Tatysaheb sangavade 3. Mr . Tatyasaheb Patil.
		To execute fie extinguishing work on the location of fire incident.
		Team 2 : Fire picket Team
		1. Mr. Harun Naikwade 2. Mr. Amol Patil 3. Mr. Jalandhar Patil
		To surround the affected area of the incident and restrict the entry of man and flammable material from outside to inside the affected area.
		Team 3 : Salvage Team
7.	Methodologies, techniques & Strategies	1. Mr. Deepak Chougule. 2. Mr. Avinash Dongle. 3. Mr Ramesh Patil
		To Dispose a damaged material and evaluation of material damage due to the fire incident.
		Team 4 : Reserve Team
		1. Mr. Sharad Kamble 2. Mr. Mallappa Khadage 3. Mr. Guatam Kable.
		To Help the accident victim to have a further treatment.
		Fire fighting team operations.
		Rescue team operations
		Fire picket team operations
		Reserve team operations.
		Salvage team operations

	used.		
8.	Name of the volunteers	Total no of Volunteers are participated in Mock drill. Some of them are as below.	
		Mr. Bhauso Dongare	Mr. Jalandhar Patil
		Mr. Sanjay Sheregar	Mr. Avinash kamble
		Mr. Pradip Patil	Mr. Jivandhar Patil
		Mr. Anil Nikam	Mr. Vilas kamble
		Mr. Laxman Lali	
		Mr. Kumar Mane	
9	Equipments, tools , material used	Personal Protective equipments.	Emergency flag
		Sand buckets	Siren
		Fire extinguishers.	Woolen cloth
		Fire Extinguishing vehicle.	Disposal & segregation equipments.
		Ambulance	stretcher

QUANTITATIVE TIME STUDY ANALYSIS - :

SR.NO	MAJOR EVENT	TIME OF OCCURANCE	RESPONSE TIME
1	Occurrence of the fire incident at the Main gate corridor.	10:47	-
2	Inform to the Security & Safety department about incident.	10:48	1 Min
3	Alert message to all employee through Emergency Siren	10:50	2 Min
4	Arrival Safety officer along with security team and Fire fighting team.	10:52	2 Min
5	Fire brigade arrives on the location of incident.	10:55	2 Min
6	Ambulance arrives at location of incident.	10:58	3 Min
7	Fire extinguishing work started.	10:57	2 Min
8	Accident victim pick up by rescue team.	11:00	2 Min
9	Fire extinguishing work completed & situation taken under control.	11:00	5 Min
10	Ambulance arrives at medical center of the Factory.	11:02	2 Min
11	Treatment has given to the victim.	11:07	5 Min
12	General instruction given to the employees and supervisors by Factory manager, safety officer, and Security officer.	11:15	-
13	Declaration of successfully completion of mock drill by authorities.	11:18	-

Discriptive Analysis –



Key Insights –

From the Quantitative time study analysis it is observed that the time taken for the Informing to the key personals, Emergency siren alert, extinguishing starting time and Accident victim rescue time are the fastest in the process of extinguishing. Also the time response of arrival of fire tender and ambulance is also improved slightly which is good measure.

Completion of fire incident operation and taking situation under control takes 5 minutes of response time and treatment of victim takes 5 minutes of time respectively. This time can be further improved by changing the Operational strategy of fire fighting operation.

Mock drill Assessment sheet

SR. NO	ASSESSMENT CHECKS	NA	YES	NO	REMARK
1	Were all volunteers aware about the potential of the incident to hazard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes. They are all aware about it.
2	Was Every rescue team / Crew member aware about their responsibilities in the case of emergency?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Responsibilities are specifically assigned to each member.
3	Have employees / members of rescue team well assimilated the methodologies, procedures & strategies employed during the drills?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Employees should clearly understand their role in the fire extinguishing procedure.
4	Was any Physiological problem evidenced among employee/ rescue team member during the drill?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No any Physiological problem was evidenced.
5	Was any Psychological problem evidenced among employee/ rescue team member during the drill?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No any Psychological problem was evidenced.
6	Were all equipments / machines find in place so that they were easily accessible in the case of the emergency?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	All Equipment was placed at a assigned location.
7	Were all equipments / machines found to work effectively during the drill?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	all equipment /machines are regularly tested and maintained in good condition
8	Is there any need to modify or replace any equipment / machine as per changing requirements of situations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No.
9	Was there any material which can add potential to the hazard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cotton waste was available on the location which is used for cleaning purpose.
10	Was the material properly segregated from the place of hazard to the safe place?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes. Salvage team done the segregation work.
11	Was there any method / procedure which have to modify/improve/replace as per current necessities and standards in order to improve the effectiveness of system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rescue team should be follow the assigned work.
12	Was there any defect in the communication system which employed during the emergency?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There is a time lag in the communication.
13	Is there any possibility of arising unusual conditions during the time of emergency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No such possibility is there.

Conclusions & Results -

1. All the procedure of fire extinguishing is followed as per standard procedure within assigned time limit.
2. No any possibility of arising unusual conditions during the mock drill.
3. Communication system was found effective during the mock drill.
4. All fire fighting equipment are found to be working in good conditions.
5. Inlet line knob of low pressure pump of fire tender found leak.

Improvement measures -

1. While the mock drill it is observed that the Inlet knob of the low pressure pump of fire tender is leaked. Leakage is to be attended on time in order to avoid the pressure loss during the fire fighting operations.

**Vikas .S Kavade****(GM Tech & Factory Manager)**

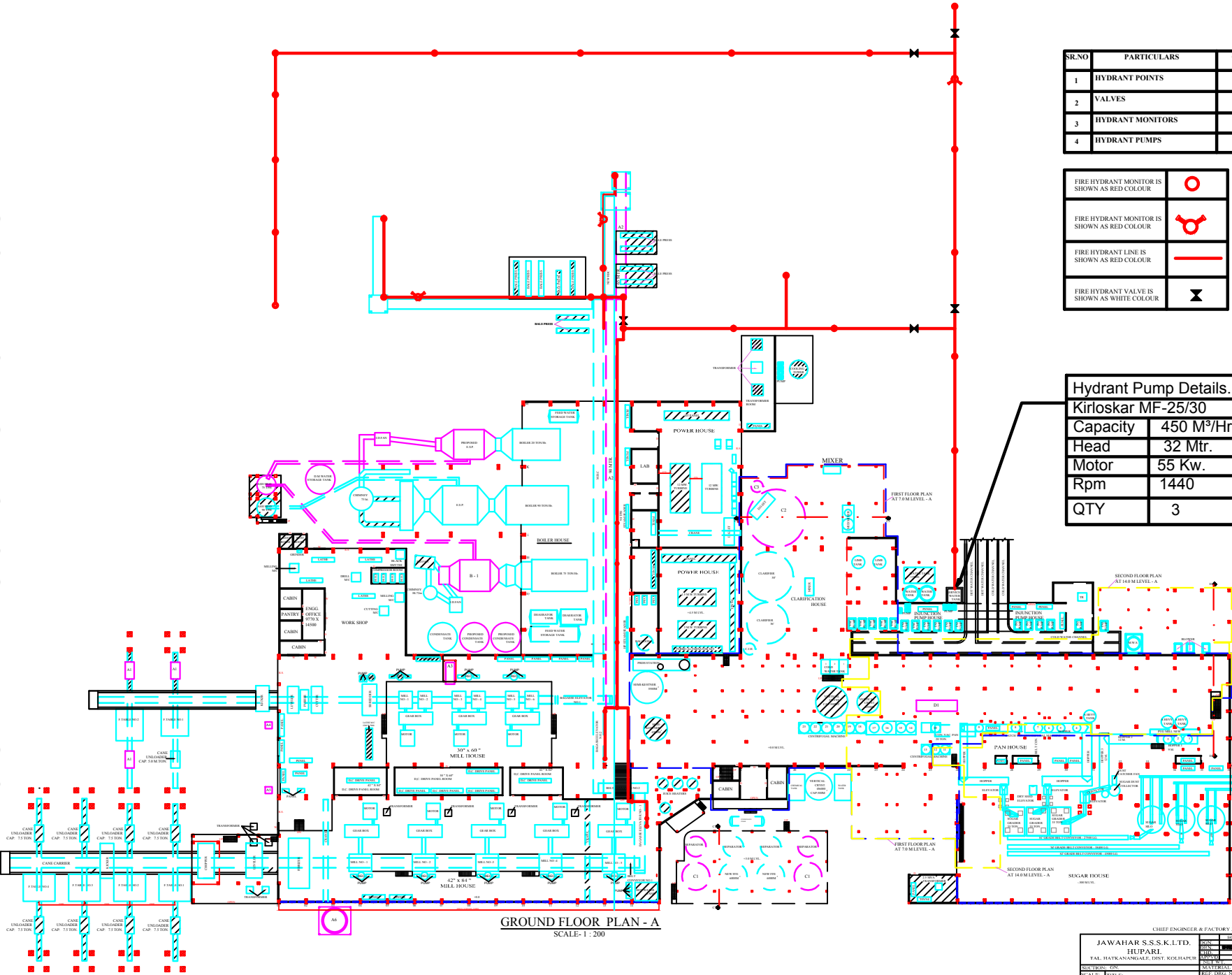
Photographs of Mock Drill





Photographs of Mock Drills





SR.NO	PARTICULARS	QTY
1	HYDRANT POINTS	35
2	VALVES	5
3	HYDRANT MONITORS	3
4	HYDRANT PUMPS	3

FIRE HYDRANT MONITOR IS SHOWN AS RED COLOUR	○
FIRE HYDRANT MONITOR IS SHOWN AS RED COLOUR	⊗
FIRE HYDRANT LINE IS SHOWN AS RED COLOUR	—
FIRE HYDRANT VALVE IS SHOWN AS WHITE COLOUR	⊕

Hydrant Pump Details.	
Kilroskar MF-25/30	
Capacity	450 M ³ /Hr.
Head	32 Mtr.
Motor	55 Kw.
Rpm	1440
QTY	3

JAWAHAR S.S.S.K.LTD.		HUPARI	
TAL. HATKANANGALE, DIST. KODHAPUR		DIST. KODHAPUR	
SCALE: 1 : 200		TITLE: TENTATIVE ENGINEERING LAY-OUT OF THE FIRE HYDRANT SYSTEM	
DATE: 10/10/2019		PAGE: 01 OF 01	

Boiler Interlock

Fuel Handling System:-

- 1) Excess Bagasse Carrier stopped or tripped then MBC, CCSC and RBC tripped.
- 2) MBC stopped or tripped then CCSC and RBC tripped.
- 3) CCSC stopped or tripped then RBC tripped.
- 4) Pole cord switch or belt swa switch act then RBC tripped.

Ash Handling System:-

- 1) Ash Belt elevator stopped or tripped then all ash belt conveyer and ESP and APH RAV tripped.

FAN Interlock System:-

- 1) ID FAN stopped or tripped then FD FAN, SA FAN and fuel handling System are tripped.
- 2) FD FAN stopped or tripped then SA FAN and fuel handling System are tripped.
- 3) SA FAN stopped or tripped then fuel handlings System are tripped.

Drum Level Interlock:-

- 1) Drum level greater than 80% or less than 20% then FD Fan tripped.

Bagasse Feeder interlocks:-

- 1) Screw feeder stopped or tripped then bagasse feeder tripped.
- 2) SA FAN air pressure for fuel feeding less than 350 mmWc or both SA Fan stopped or tripped.

Feed Pump Interlock :-

- 1) Deareator level less than 30% or suction pressure less than 1kg/cm^2 or suction valve close or in between feedback or motor bearing temperature 90°C or winding temperature greater than 110°C or feed pump cooling water pressure less than 2 kg/cm^2 . All any above conditions or any one of above conditions occur then feed pump tripped.

ESP Interlock System:-

- 1) Any of ESP RAV stopped or purge air blower stopped or tripped or ESP inlet flue gas temperature less than 130°C or ESP hopper level hi hi alarm then ESP TRCC tripped.

Boiler Alarm

- 1) ID, FD, SA and BFW bearing temperature greater than 80°C .
- 2) ID, FD, SA and BFW winding temperature greater than 90°C .
- 3) Fuel feeding air pressure for bagasse less than 450 mmWc.
- 4) ESP inlet Temperature 140°C .
- 5) Main steam pressure less than 80 kg/cm^2 .
- 6) Main steam Temperature 500°C .
- 7) Main steam pressure greater than 90 kg/cm^2 .
- 8) Main steam Temperature 529°C .
- 9) Deareator level less than 60%
- 10) Deareator level greater than 90%
- 11) Deareator Temperature less than 105°C .
- 12) Deareator Temperature greater than 112°C .

Turbine Interlock System

Turbine Tripping Interlock:-

- 1) Lube oil pressure less than 1.8 kg/cm^2 .
- 2) Control oil pressure less than 7.8 kg/cm^2 .
- 3) Oil tank level less than 36.5%.
- 4) Turbine inlet pressure less than 41.5 kg/cm^2 .
- 5) Turbine inlet temperature less than 485°C .
- 6) Turbine inlet pressure greater than 99 kg/cm^2 .
- 7) Turbine inlet temperature greater than 543°C .
- 8) Exhaust steam temperature less than 120°C .
- 9) Exhaust steam Temp. between 105°C and 120°C . more than 1hr.
- 10) Exhaust steam pressure less than -0.763 kg/cm^2 .
- 11) Hotwell level greater than 92.5%.
- 12) OHT level less than 94%.
- 13) Turbine no load more than 1hr.

Pressure Timer:-

Timer T1:

TG inlet pressure in between 87.12 kg/cm^2 And 99.56 kg/cm^2 Then timer start for counting 12 hr (paused timer). After completion 12 hr then turbine trip.

Timer T2:

Turbine running time 1year after that turbine Trip.

Temperature Timer:**Timer T1 (Retentive Timer):**

TG inlet Temp. in Between 523 °C to 529 °C then timer start counting 16 day 16 hr (paused timer) after completion 16 day 16 hr then turbine trip.

Timer T2 (Retentive Timer):

Turbine running time 1year after that turbine Trip.

Timer T3 (Retentive Timer):

TG inlet Temp. in Between 529 °C to 543 °C then timer start counting 3 day 8 hr (paused timer) after completion 3 day 8 hr then turbine trip.

Timer T1:

TG inlet Temp. in Between 529 °C to 543 °C continuously timer start for 15 min (reset timer) after completion 15 min then turbine trip.

Vibration Alarm and Trip Condition(Turbine, gearbox and Alternator):-

SR NO	TAG	Service Name	Alarm H	Trip HH	Alarm L	Alarm LL
1	ZI-801	Axial Displacement	0.4 mm	0.6 mm	-0.4mm	-0.6mm
2	ZI-802	Axial Displacement	0.4 mm	0.6 mm	-0.4mm	-0.6mm
3	YI-801	Turbine Front Bearing Vibration X-axis	76 μ	99 μ		
4	YI-802	Turbine Front Bearing Vibration Y-axis	76 μ	99 μ		
5	YI-803	Turbine Rear Bearing Vibration X-axis	76 μ	99 μ		
6	YI-804	Turbine Rear Bearing Vibration Y-axis	76 μ	99 μ		
7	YI-805	GB High Speed DE Vibration X-axis	65 μ	125 μ		
8	YI-806	GB High Speed DE Vibration Y-axis	65 μ	125 μ		
9	YI-807	GB High Speed NDE Vibration X-axis	65 μ	125 μ		
10	YI-808	GB High Speed NDE Vibration Y-axis	65 μ	125 μ		
11	YI-809	GB Low Speed NDE Vibration X-axis	90 μ	150 μ		
12	YI-810	GB Low Speed NDE Vibration Y-axis	90 μ	150 μ		
13	YI-811	GB Low Speed DE Vibration X-axis	90 μ	150 μ		
14	YI-812	GB Low Speed DE Vibration Y-axis	90 μ	150 μ		
15	YI-813	Alternator Front Vibration X-axis	178 μ	232 μ		
16	YI-814	Alternator Front Vibration Y-axis	178 μ	232 μ		
17	YI-816	Alternator Rear Vibration X-axis	178 μ	232 μ		
18	YI-817	Alternator Rear Vibration Y-axis	178 μ	232 μ		
19	-	Exciter Field Volt	200 V	200 V		
20	-	Exciter Field Current	25 A	25 A		

Bearing Temperature, Alarm and Trip Condition(Turbine, gearbox):-

SR NO	SENSOR	ALARM	TRIP
1	Turbine Thrust active top bearing Temp.	95 °C.	100 °C.
2	Turbine Thrust non active top bearing Temp.	95 °C.	100 °C.
3	Turbine Front Bearing Temp.	110 °C.	120 °C.
4	Turbine Rear Bearing Temp.	110 °C.	120 °C.
5	Turbine active bearing Bottom Temp.	95 °C.	100 °C.
6	Turbine non active bearing Bottom Temp.	95 °C.	100 °C.
7	Gear box High speed front bearing Temp.	100 °C.	107 °C.
8	Gear box High speed rear bearing Temp.	100 °C.	107 °C.
9	Gear box low speed front bearing Temp.	85 °C.	90 °C.
10	Gear box low speed rear bearing Temp.	85 °C.	90 °C.

Bearing Temperature, Alarm and Trip Condition(Alternator):-

SR NO	SENSOR	ALARM	TRIP
1	Alternator Front Bearing Temp.	85 °C.	95 °C.
2	Alternator Rear Bearing Temp.	85 °C.	95 °C.
3	Alternator Winding Temp. (U1)	125 °C.	130 °C.
4	Alternator Winding Temp. (V1)	125 °C.	130 °C.
5	Alternator Winding Temp. (W1)	125 °C.	130 °C.
6	Alternator Winding Temp. (U2)	125 °C.	130 °C.
7	Alternator Winding Temp. (V2)	125 °C.	130 °C.
8	Alternator Winding Temp. (W2)	125 °C.	130 °C.
9	Inlet air Temp.-1 (Not Trip)	50 °C.	55 °C.
10	Outlet air Temp.-1 (Not Trip)	80 °C.	85 °C.
11	Inlet air Temp.-2 (Not Trip)	50 °C.	55 °C.
12	Outlet air Temp.-2 (Not Trip)	80 °C.	85 °C.
13	Alternator Core-1 Temp.	125 °C.	130 °C.
14	Alternator Core-2 Temp.	125 °C.	130 °C.
15	Alternator Core-3 Temp.	125 °C.	130 °C.
16	Exciter Field Temp.	125 °C.	130 °C.

CEP Interlock System:-

- 1) Condensate discharge header pressure less than 3.5 kg/cm² then CEP auto start.
- 2) Hotwell level Greater 84.40% then auto start.
- 3) Hotwell level less than 20% then CEP Pump tripped.

Barring Gear Motor Interlock System:-

- 1) Lube oil pressure greater than 1.95 kg/cm² then barring gear motor start permissive.
- 2) Turbine RPM less than 250 RPM then barring gear motor start permissive.
- 3) EOP ready or HOT level greater than 94% barring gear motor start permissive.

- 4) Turbine speed greater than 350 RPM then barring gear motor auto stopped.

Hood Spray Valve Interlock System:-

- 1) Exhaust temperature greater than 80 °C then auto open valve.
- 2) Exhaust temperature less than 55 °C then auto close valve.
- 3) Hood spray valve continuously 1 hr open then auto valve closed.

Vacuum Breaker Valve Interlock System:-

- 1) Lube oil header pressure less 1.95 kg/cm² then auto open.
- 2) Generator differential relay operated then auto open.
- 3) Turbine rotor axial movement hi hi.
- 4) Turbine RPM less than 70% then open.

Turbine Extraction QCNRV Interlock System:-

- 1) Active Power greater than 6.6 MW then valve open permissive.
- 2) Active Power less than 5.5 MW then valve auto closed.
- 3) Turbine Trip then valve auto closed.

Turbine Bleed QCNRV (HP Heater) Interlock System:-

- 1) TG inlet Steam flow greater than 40 TPH then open permissive.
- 2) TG inlet Steam flow less than 35 TPH then valve auto closed.
- 3) Turbine Trip then valve auto closed.

Turbine Bleed QCNRV (MP Process) Interlock System:-

- 1) TG inlet Steam flow greater than 40 TPH then open permissive.
- 2) TG inlet Steam flow less than 35 TPH then valve auto closed.
- 3) Turbine Trip then valve auto closed.

Wonder Bleed Control Valve 101 Interlock System:-

- 1) TG Steam Flow greater than 40 TPH then valve open permissive.
- 2) TG Steam Flow less than 35 TPH then valve auto closed.
- 3) TG Steam Flow greater than 65 TPH then valve auto closed slowly and wonder valve 102 slowly simultaneously opened.
- 4) Turbine Trip then valve auto closed.

Wonder Bleed Control Valve 102 Interlock System:-

- 1) TG Steam Flow greater than 65 TPH then valve open permissive.
- 2) TG Steam Flow less than 60 TPH then valve auto closed.
- 3) TG Steam Flow greater than 60 TPH then valve auto closed slowly and wonder valve 101 slowly simultaneously opened.
- 4) Turbine Trip then valve auto closed.

Photographs of Health Care Facility



Form No 7 (Prescribed under Rule 18 (7))**HEALTH REGISTER**

From: 09/09/2024 To 08/09/2025

Certifying Surgeon

DR.ARVIND MANE

MBBS DPH AFIH.(Mumbai)

Company Name : KALLAPPANNA AWADE JAWAHAR SHETKARI SAHAKARI SAKHAR KARKHANA LTD.

Sr. No.	Emp. No.	Name	Age	Sex	Dept of employment of present work	Date of leaving or transfer to other work	Reason for leaving Transfer of discharge	Nature of job or occupation	Raw material or by product handled	Exam. Date	Result of Medical Examination	If suspended from work, state period of suspension with detailed reasons	Certified fit to resume duty on with signature of Certifying Surgeon	If Certificate of unfitness or suspension issued to worker	Signature with gate certifying surgeon.
1	612	MR. PRAKASH M UNDURE	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
2	1217	MR. SHAMBHAJI B SADALE	50	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
3	1826	MR. SANTOSH G PALSKAR	47	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
4	957	MR. BHIMRAO M JADHAV	52	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
5	1523	MR. SHRIKANT G TELI	55	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
6	0092	MR. LAXMAN K CHOUGULE	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
7	0516	MR. ASHOK R GAIKWAD	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
8	2360	MR. PRADEEP A HANDE	27	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
9	0392	MR. TUSHAR T POWAR	56	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
10	7025	MR. AKSHAYKUMAR P SHETKE	30	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
11	2366	MR. AJIT A PATIL	28	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
12	0168	MR. IMTIYAJHAMAD M BHADGAONKAR	57	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
13	1991	MR. SACHIN A KERGUTTE	39	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
14	7616	MR. MAHESH B BHANGE	25	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
15	7428	MR. SOURABH D MANE	24	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
16	7452	MR. FARUK A JADAMAR	26	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
17	6015	MR. ABHAY A MAYGONDA	36	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
18	1589	MR. JAYSING M PATIL	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
19	7449	MR. MORESHWAR K METKAR	31	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	

कारखाने अधिनियम १९४८ च्या कलम १०(२) प्रमाणे
कोल्हापूर जिल्हाकरिता

Form No 7 (Prescribed under Rule 18 (7))**HEALTH REGISTER**

From: 09/09/2024 To 08/09/2025

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Sr. No.	Emp. No.	Name	Age	Sex	Dept of employment of present work	Date of leaving or transfer to other work	Reason for leaving Transfer of discharg	Nature of job or occupation	Raw material or by product handled	Exam. Date	Result of Medical Examination	If suspended from work, state period of suspension with detailed reasons	Certified fit to resume duty on with signature of Certifying Surgeon	If Certificate of unfitness or suspension issued to worker	Signature with gate certifying surgeon.
20	1266	MR. B N SHAMBHUSHETTY	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
21	7582	MR. SANKET S PATIL	24	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
22	7473	MR. ADITYA M SARNAIK	26	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
23	1394	MR. TANAJI S PATOLE	53	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
24	2028	MR. SOPAN B BIRJE	35	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
25	7242	MR. SOURABH J GEVISE	27	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
26	1006	MR. SANJAY M KUDALKAR	53	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
27	1680	MR. BABASO S DAINGADE	48	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
28	985	MR. DEEPAK V SHEREGAR	51	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
29	2029	MR. YOURAJ A GUNAKE	36	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
30	1868	MR. BALASO A SANADI	58	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
31	2192	MR. MAHAVEER P NEJE	46	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
32	912	MR. PANDURANG N SHINGARE	53	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
33	1370	MR. SUBRAV A KAGALE	46	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
34	1437	MR. SADIK I MUJAWAR	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
35	1695	MR. SHRENIK B MAGDUM	51	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
36	0862	MR. RAHIM M MALDAR	57	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
37	965	MR. MAHAVEER R KOGNOLE	55	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
38	1335	MR. VIJAY V YADAV	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	

कारखाने अधिनियम १९४८ च्या कलम १०(२) प्रमाणे

कोल्हापूर जिल्हाकरिता

Form No 7 (Prescribed under Rule 18 (7))**HEALTH REGISTER**

From: 09/09/2024 To 08/09/2025

Certifying Surgeon

DR. ARVIND MANE

MBBS DPH AFIH. (Mumbai)

Company Name : KALLAPPANNA AWADE JAWAHAR SHETKARI SAHAKARI SAKHAR KARKHANA LTD.

Sr. No.	Emp. No.	Name	Age	Sex	Dept of employment of present work	Date of leaving or transfer to other work	Reason for leaving Transfer of discharge	Nature of job or occupation	Raw material or by product handled	Exam. Date	Result of Medical Examination	If suspended from work, state period of suspension with detailed reasons	Certified fit to resume duty on with signature of Certifying Surgeon	If Certificate of unfitness or suspension issued to worker	Signature with gate certifying surgeon.
39	1683	MR. AMOL B HEARWADE	46	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
40	1810	MR. SHANTINATH K GANGAI	49	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
41	1261	MR. SANDIP B PATIL	43	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
42	7119	MR. AVINASH D CHAKARE	28	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
43	7260	MR. PRANAV V ATHANE	29	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
44	6017	MR. YUVRAJ A BHOSALE	33	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
45	0946	MR. APPASO V HAVALDAR	55	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
46	7301	MR. SURAJ P AWATE	26	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
47	2362	MR. PRAVIN J SIDANALE	31	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
48	6043	MR. SAGAR M PATIL	37	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
49	7431	MR. YOGESH J KATKOLE	28	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
50	1976	MR. SHRENIK B KOLHAPURE	48	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
51	7290	MR. BHUSHAN J NARAWADE	28	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
52	1228	MR. SHASHIKANT A SHINDE	48	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
53	6007	MR. AMIT J BHAGAJE	34	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
54	0230	MR. BHAUSO H DONGARE	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
55	2141	MR. MACHINDRA A CHAVAN	50	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
56	621	MR. BHIMRAO S PARIT	52	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
57	1692	MR. MUSTAK A NAYANE	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	

कारखाने अधिनियम १९४८ च्या कलम १०(२) प्रमाणे

कोल्हापूर जिल्हाकरिता

प्राधिकृत प्रमाणकशल्यचिकित्सक

क्र. ACS 15-AM/2016

Form No 7 (Prescribed under Rule 18 (7))**HEALTH REGISTER**

From: 09/09/2024 To 08/09/2025

Certifying Surgeon

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MBBS DPH AFIH.(Mumbai)

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58	1629	MR. SANJAY A TONAPE	46	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
59	1862	MR. RAHUL R CHOUGULE	42	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
60	396	MR. UDAY A AINAPURE	56	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
61	1730	MR. BHIMA P KURALI	42	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
62	1707	MR. DHANANJAY S BAGAL	50	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
63	0650	MR. MAYAPPA L MUDHALE	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
64	111	MR. RAGHUNATH Y DAVARI	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
65	7216	MR. SANKET A SHIRADWADE	27	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
66	370	MR. MARUTI G SHINDE	52	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
67	7070	MR. AMIT P SUBHEDAR	30	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
68	2066	MR. BHIMRAO M WAJANTRI	58	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
69	2172	MR. SANTU B GORADE	44	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
70	2353	MR. NITIN N SHINDE	30	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
71	1278	MR. UMESH B MANE	49	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
72	1425	MR. SHIVAJI K POWAR	50	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
73	1898	MR. KUNTINATH A PATIL	48	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
74	1665	MR. ABHIJIT S KUMBHAR	44	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
75	1398	MR. SHANKAR T PATIL	50	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
76	1362	MR. SHRIKANT B PAWAR	58	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	

कारखाने अधिनियम १९४८ च्या कलम १०(२) प्रमाणे

कोल्हापूर जिल्हाकरिता

प्राधिकृत प्रमाणक शल्यचिकित्सक

क्र. ACS 15-AM/2016

Form No 7 (Prescribed under Rule 18 (7))

HEALTH REGISTER

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Sr. No.	Emp. No.	Name	Age	Sex	Dept of employment of present work	Date of leaving or transfer to other work	Reason for leaving Transfer of discharg	Nature of job or occupation	Raw material or by product handled	Exam. Date	Result of Medical Examination	If suspended from work, state period of suspension with detailed reasons	Certified fit to resume duty on with signature of Certifying Surgeon	If Certificate of unfitness or suspension issued to worker	Signature with gate certifying surgeon.
77	7097	MR. PRAMOD S NAGAVE	29	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
78	372	MR. J D PATIL	55	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
79	6009	MR. PAVANKUMAR B PATIL	34	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
80	1476	MR. SANJAY D PATIL	56	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
81	2356	MR. SAGAR M MALI	29	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
82	7225	MR. SAMMED M KASHMIRE	27	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
83	7477	MR. SANTOSH S PUJARI	25	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
84	7333	MR. PRITAM S INGALE	24	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
85	1944	MR. AJIT S MANE	45	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
86	7486	MR. ANIKET G NAGARE	26	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
87	7422	MR. ANUP S DATTAWADE	23	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
88	1563	MR. ANIL S MALI	56	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
89	2383	MR. VIJAY S PODJALE	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
90	2205	MR. TUSHAR V KUMBHAR	30	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
91	0684	MR. MOHAN R BHATANWADE	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
92	685	MR. AVINASH K MORE	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
93	1524	MR. BABASAHEB A PATIL	50	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
94	-	MR. DADASO J GAVANDI	40	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
95	1738	MR. KASHINATH M KAWADE	43	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	

कारखाने अधिनियम १९४८ च्या कलम १०(२) प्रमाणे

कोल्हापूर जिल्हाकरिता

प्राधिकृत प्रमाणकशल्यचिकित्सक

क्र. ACS 15-AM/2016

Form No 7 (Prescribed under Rule 18 (7))

HEALTH REGISTER

From: 09/09/2024 To 08/09/2025

Certifying Surgeon

DR.ARVIND MANE

MBBS DPH AFIH.(Mumbai)

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96	1791	MR. SANJAYKUMAR D PATIL	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
97	1807	MR. BALGONDA S PATIL	52	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
98	0610	MR. SHASHIKANT R CHARATE	53	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
99	1494	MR. BABASO I PATIL	55	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
100	7490	MR. SOURABH S GAIKWAD	25	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
101	1627	MR. SHITAL A MURABATTE	57	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
102	7267	MR. FAIYAZ S SANADI	27	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
103	1657	MR. ANIL V FULE	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
104	0805	MR. SHIVAJI D PATIL	53	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
105	7594	MR. NITIN A KORVI	24	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
106	1602	MR. SANJAY A KHANJIRE	57	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
107	7552	MR. VIJAY S KUMBHAR	23	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
108	0846	MR. ADUM A MULLA	53	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
109	7380	MR. ONKAR R VIBHUTE	24	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
110	2302	MR. ANANDA R DHAVANE	51	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
111	1744	MR. AJIT R CHIKHALE	50	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
112	7581	MR. SAMMER S PATIL	24	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
113	1381	MR. KESHAV T KHOT	50	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
114	7278	MR. VAIBHAV T SHINDE	26	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	

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115	1897	MR. AMOL G HANDE	43	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
116	1998	MR. SUNIL S GURAV	47	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
117	7288	MR. SHASHIKANT B PATIL	52	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
118	1864	MR. SHIVAJI G MADHALE	45	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
119	1760	MR. PRAKASH S JADHAV	46	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
120	777	MR. AJIT D VASWADE	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
121	2165	MR. PANKAJ P PATIL	37	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
122	0527	MR. RAJENDRA K PATIL	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
123	0709	MR. DILIP R PATIL	52	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
124	579	MR. DHULGONDA K MORE	56	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
125	1619	MR. PANDURANG D KUMBHAR	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
126	387	MR. SURESH B HANBAR	57	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
127	2084	MR. BALASO D CHOUGULE	48	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
128	7332	MR. SADGONDA A SHIROLE	31	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
129	1054	MR. SHITAL C KAJAVE	52	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
130	1077	MR. RAJGONDA A PATIL	57	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
131	1955	MR. TANAJI P BHORE	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
132	7121	MR. SANJAY S PATIL	51	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
133	2000	MR. A J CHOUGULE	37	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	

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134	380	MR. VILAS M PATIL	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
135	1722	MR. SANTOSH R BHOPE	50	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
136	675	MR. SUNIL S SHINDE	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
137	1579	MR. SANJAY G BHOI	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
138	32	MR. JAYPAL B GATH	56	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
139	2341	MR. SANTOSH S DHARKADE	35	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
140	7433	MR. RAHUL B GURAV	28	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
141	7407	MR. VINOD A PATIL	32	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
142	466	MR. DHONDIRAM N PATIL	50	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
143	7516	MR. ANIKET A KAMBLE	28	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
144	1735	MR. ANIL B MORE	44	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
145	0457	MR. ANANTKUMAR M UPADHYE	40	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
146	0007	MR. RAMESH R CHAVAN	55	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
147	1595	MR. SUKUMAR S AINAPURE	51	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
148	405	MR. ASLAM G SHAIKH	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
149	1802	MR. ASLAM U MULLANI	49	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
150	2096	MR. SHRIPAD S KUMBHAR	39	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
151	1382	MR. SHRIKANT G SHETAKE	57	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
152	2195	MR. SHAMGONDA D PATIL	30	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	

कारखाने अधिनियम १९४८ च्या कलम १०(२) प्रमाणे

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प्राधिकृत प्रमाणकशल्यचिकित्सक

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153	1341	MR. AYUBKHAN H JAMADAR	52	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
154	7518	MR. SHUBHAM S PATIL	29	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
155	7383	MR. FIROJ N MAKUBHAI	38	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
156	7276	MR. ABHIJEET S KAMBLE	37	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
157	1387	MR. RAJKUMAR S MAGDUM	58	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
158	1825	MR. SANTOSH R KAMBLE	47	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
159	1633	MR. SHIVAJI B MALI	46	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
160	0516	MR. RAJENDRA A MAGDUM	56	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
161	1605	MR. SUDHIR A PATIL	47	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
162	1792	MR. BAHUBALI S GOTHURE	43	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
163	507	MR. PRAKASH A KHOCHAGE	52	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
164	0786	MR. BALASO A GOTKHINDE	49	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
165	2044	MR. ARUN A ARVADE	42	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
166	7277	MR. NIKHIL M KANIRE	32	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
167	1431	MR. JAYRAM B GURAV	58	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
168	2140	MR. LAXMAN B BANKE	55	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
169	1921	MR. RAVINDRA P KARANGE	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
170	35	MR. BHAUSAHEB N SHENDGE	55	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
171	7528	MR. ABHIMANYU A NIKAT	25	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	

कारखाने अधिनियम १९४८ च्या कलम १०(२) प्रमाणे

कोल्हापूर जिल्हाकरिता

प्राधिकृत प्रमाणक शल्यचिकित्सक

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172	733	MR. UDAY B CHOUGULE	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
173	1739	MR. VIJAYKUMAR A PATIL	42	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
174	1658	MR. VIJAY P SHINDE	49	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
175	913	MR. SUNIL R CHOUGULE	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
176	7423	MR. YOGESH R KALYANI	27	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
177	1647	MR. YUVRAJ B PATIL	50	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
178	7495	MR. VISHAL U JOG	24	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
179	7599	MR. ONKAR V ARUNKAR	25	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
180	7515	MR. SHRIDHAR K PATIL	23	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
181	7619	MR. PRASHANT K PARIT	21	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
182	2310	MR. AKSHAY KULKARNI	29	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
183	7496	MR. SURAJ M PATIL	26	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
184	2339	MR. MAHADEV R KUMBHAR	56	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
185	1037	MR. BALKRUSHAN K CHOUGULE	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
186	1930	MR. ANSAR A CHILLI	44	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
187	6295	MR. GULAB S DABADE	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
188	2335	MR. SUSHANT S PATIL	35	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
189	467	MR. VIJAY J UTTURE	59	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	
190	0737	MR. USMAN M SHAIKH	54	M	-	NA	NA			09/09/2024	Fit	NA	Fit	NA	

कारखाने अधिनियम १९४८ च्या कलम १०(२) प्रमाणे

कोल्हापूर जिल्हाकरिता

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1141	7210	MR. INDRAJEET B KARADE	28	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1142	7394	MR. KUBER S PUJARI	26	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1143	7249	MR. SANTOSH K PUJARI	28	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1144	1393	MR. VILAS D KAMBLE	53	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1145	1858	MR. UDAY R PATIL	45	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1146	1448	MR. SUBHASH V GAJARE	48	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1147	2350	MR. SANTOSH A PATIL	34	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1148	6002	MR. AMIT A CHOUGULE	38	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1149	7116	MR. SHUBHAM B MORE	26	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1150	0009	MR. ARUN K GADE	52	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1151	1893	MR. AMAR S PATIL	44	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1152	6230	MR. BABANRAO B DESAI	59	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1153	7209	MR. ARUN S JOG	29	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1154	7608	MR. DATTA M KHOT	23	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1155	7458	MR. ABHISHEK K GORWADE	27	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1156	7403	MR. SOURABH R CHOUGULE	26	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1157	7474	MR. RUSHIKESH R PUJARI	25	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1158	2307	MR. KUMAR B KERGULE	41	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1159	655	MR. SANJAY A KUMBHAR	52	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	

कारखाने अधिनियम पर प्रोटॉन के लिये 40(2) प्रमाण
कोल्हापुर जिल्हाकरिता

प्राधिकृत प्रमाणक शल्यचिकित्सक
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Sr. No.	Emp. No.	Name	Age	Sex	Dept of employment of present work	Date of leaving or transfer to other work	Reason for leaving Transfer of discharg	Nature of job or occupation	Raw material or by product handled	Exam. Date	Result of Medical Examination	If suspended from work, state period of suspension with detailed reasons	Certified fit to resume duty on with signature of Certifying Surgeon	If Certificate of unfitness or suspension issued to worker	Signature with gate certifying surgeon.
1160	1011	MR. ANANDA S MAGDUM	54	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1161	7092	MR. PANKAJ R PATIL	29	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1162	7252	MR. VAIBHAV S JOG	25	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1163	7059	MR. V B BHANDAWADE	29	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1164	7344	MR. SAGAR S AIHALE	27	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1165	6004	MR. BHARAT J CHOUGULE	46	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1166	7578	MR. SAMMED S GATURE	22	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1167	0836	MR. SANJAY R ZANJAGE	56	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1168	7096	MR. ASHITOSH R CHOUGULE	27	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1169	1227	MR. ASHOK A KHOT	52	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1170	7575	MR. SAMMED S MANGAVE	24	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1171	1834	MR. DAWAL M SHAIKH	52	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	
1172	7061	MR. SHRINIVAS B SAVALE	29	M	-	NA	NA			12/09/2024	Fit	NA	Fit	NA	

कारखाने अधिनियम १९४८ च्या कलम १०(२) प्रमाण
कोल्हापूर जिल्हाकरिता
प्राधिकृत प्रमाणकशल्यचिकित्सक
क्र. ACS 15-AM/2016

Photographs of firefighting arrangements



Photographs of Mock Drill





Photographs of Mock Drills



KALLAPPANNAWADE JAWAHAR SHETKARI SAHAKARI SAKHAR KARKHANA LTD.,

Hupari – Yalgud, 416 203. Tal.: Hatkanangale, Dist.: Kolhapur (Maharashtra)

Phone (0230) 2450402, Fax No. : (0230) 2450401,

E-mail : kprjsssk@gmail.com

MOCK DRILL REPORT

March – 2025

KALLAPPANNAWADE JAWAHAR SHETKARI SAHAKARI SAKHAR KARKHANA LTD.,

Hupari – Yalgud, 416 203. Tal.: Hatkanangale, Dist.: Kolhapur (Maharashtra)

Phone (0230) 2450402, Fax No. : (0230) 2450401,

E-mail : kprjsssk@gmail.com

MOCK DRILL REPORT.

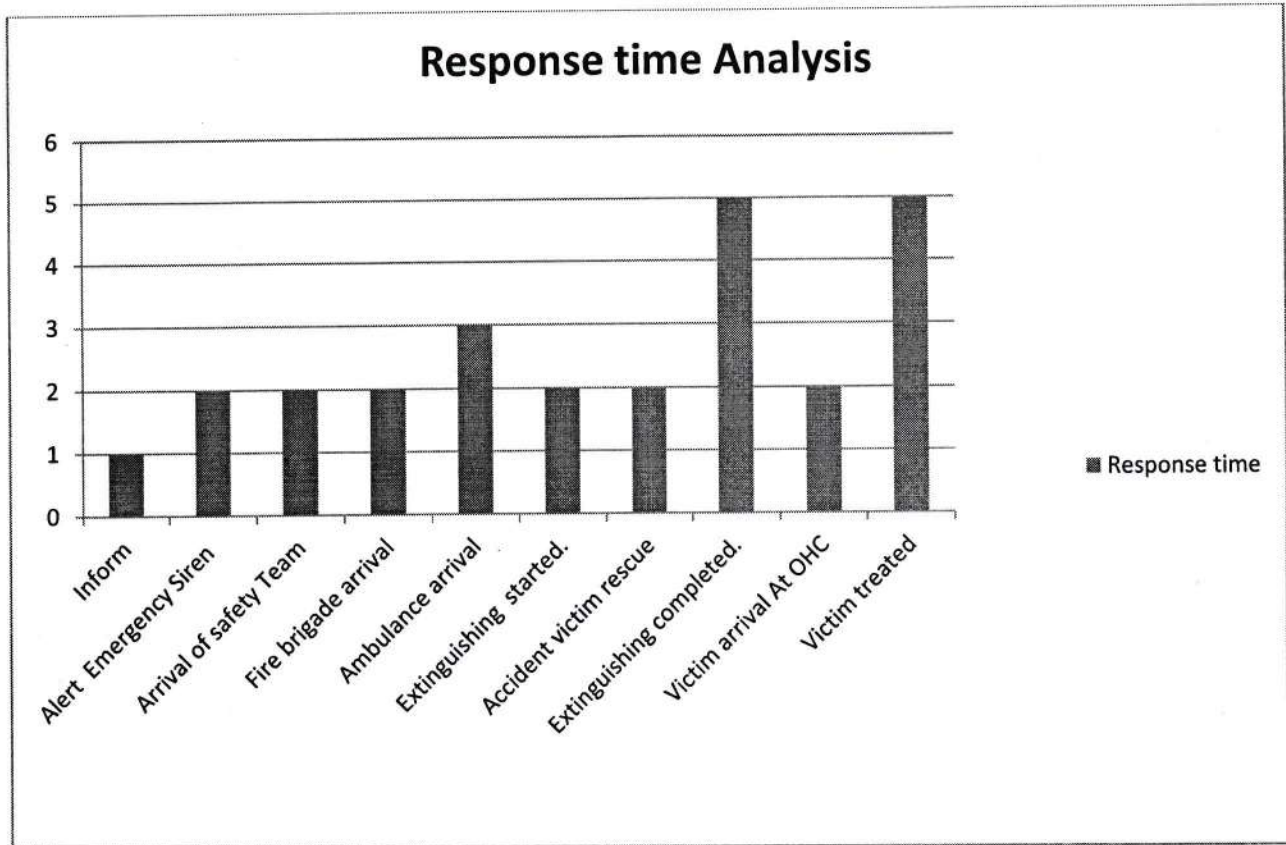
SR.NO	ASPECT	DISCREPTION
1.	Subject Of Drill	Mock Drill is conducted on the occasion of National Safety Week in which fire drill is conducted and demonstration of fire extinguishing system is carried out along with measurement of response system and other observations.
2.	Type of Drill	Fire mock drill.
3.	Conducted By	Safety department & Security department of the factory.
4.	Scheduled Time	From 10:45 to 11:15 am on dated 4th March,2025.
5.	Location	Main Gate – Corridor
6.	Possible hazards of incident	Social Impact –No any social Impact is there.
		Property damage - Yes, Property damage may possible.
		Environmental Impact–Partial environmental Impact.
		Critical infra impact - No any affect.
		Process / Business Impact –It may impact process of Factory.
		Physical harm –Physical harm is possible.
		Psychological Impact - Partially affected.
6	Groups& Teams (Security Department)	Team 1 : Fire Fighting Team
		1. Mr. Hindurav Patil 2. Mr. Tatysaheb sangavade 3. Mr . Tatyasaheb Patil.
		To execute fie extinguishing work on the location of fire incident.
		Team 2 : Fire picket Team
		1. Mr. Harun Naikwade 2. Mr. Amol Patil 3. Mr. Jalandhar Patil
		To surround the affected area of the incident and restrict the entry of man and flammable material from outside to inside the affected area.
		Team 3 : Salvage Team
7.	Methodologies, techniques & Strategies	1. Mr. Deepak Chougule. 2. Mr. Avinash Dongle. 3. Mr Ramesh Patil
		To Dispose a damaged material and evaluation of material damage due to the fire incident.
		Team 4 : Reserve Team
		1. Mr. Sharad Kamble 2. Mr. Mallappa Khadage 3. Mr. Guatam Kable.
		To Help the accident victim to have a further treatment.
		Fire fighting team operations.
		Rescue team operations
		Fire picket team operations
		Reserve team operations.
		Salvage team operations

	used.		
8.	Name of the volunteers	Total no of Volunteers are participated in Mock drill. Some of them are as below.	
		Mr. Bhauso Dongare	Mr. Jalandhar Patil
		Mr. Sanjay Sheregar	Mr. Avinash kamble
		Mr. Pradip Patil	Mr. Jivandhar Patil
		Mr. Anil Nikam	Mr. Vilas kamble
		Mr. Laxman Lali	
		Mr. Kumar Mane	
9	Equipments, tools , material used	Personal Protective equipments.	Emergency flag
		Sand buckets	Siren
		Fire extinguishers.	Woolen cloth
		Fire Extinguishing vehicle.	Disposal & segregation equipments.
		Ambulance	stretcher

QUANTITATIVE TIME STUDY ANALYSIS - :

SR.NO	MAJOR EVENT	TIME OF OCCURANCE	RESPONSE TIME
1	Occurrence of the fire incident at the Main gate corridor.	10:47	-
2	Inform to the Security & Safety department about incident.	10:48	1 Min
3	Alert message to all employee through Emergency Siren	10:50	2 Min
4	Arrival Safety officer along with security team and Fire fighting team.	10:52	2 Min
5	Fire brigade arrives on the location of incident.	10:55	2 Min
6	Ambulance arrives at location of incident.	10:58	3 Min
7	Fire extinguishing work started.	10:57	2 Min
8	Accident victim pick up by rescue team.	11:00	2 Min
9	Fire extinguishing work completed & situation taken under control.	11:00	5 Min
10	Ambulance arrives at medical center of the Factory.	11:02	2 Min
11	Treatment has given to the victim.	11:07	5 Min
12	General instruction given to the employees and supervisors by Factory manager, safety officer, and Security officer.	11:15	-
13	Declaration of successfully completion of mock drill by authorities.	11:18	-

Discriptive Analysis –



Key Insights –

From the Quantitative time study analysis it is observed that the time taken for the Informing to the key personals, Emergency siren alert, extinguishing starting time and Accident victim rescue time are the fastest in the process of extinguishing. Also the time response of arrival of fire tender and ambulance is also improved slightly which is good measure.

Completion of fire incident operation and taking situation under control takes 5 minutes of response time and treatment of victim takes 5 minutes of time respectively. This time can be further improved by changing the Operational strategy of fire fighting operation.

Mock drill Assessment sheet

SR. NO	ASSESSMENT CHECKS	NA	YES	NO	REMARK
1	Were all volunteers aware about the potential of the incident to hazard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes. They are all aware about it.
2	Was Every rescue team / Crew member aware about their responsibilities in the case of emergency?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Responsibilities are specifically assigned to each member.
3	Have employees / members of rescue team well assimilated the methodologies, procedures & strategies employed during the drills?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Employees should clearly understand their role in the fire extinguishing procedure.
4	Was any Physiological problem evidenced among employee/ rescue team member during the drill?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No any Physiological problem was evidenced.
5	Was any Psychological problem evidenced among employee/ rescue team member during the drill?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No any Psychological problem was evidenced.
6	Were all equipments / machines find in place so that they were easily accessible in the case of the emergency?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	All Equipment was placed at a assigned location.
7	Were all equipments / machines found to work effectively during the drill?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	all equipment /machines are regularly tested and maintained in good condition
8	Is there any need to modify or replace any equipment / machine as per changing requirements of situations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No.
9	Was there any material which can add potential to the hazard?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cotton waste was available on the location which is used for cleaning purpose.
10	Was the material properly segregated from the place of hazard to the safe place?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yes. Salvage team done the segregation work.
11	Was there any method / procedure which have to modify/improve/replace as per current necessities and standards in order to improve the effectiveness of system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Rescue team should be follow the assigned work.
12	Was there any defect in the communication system which employed during the emergency?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	There is a time lag in the communication.
13	Is there any possibility of arising unusual conditions during the time of emergency?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No such possibility is there.

Conclusions & Results -

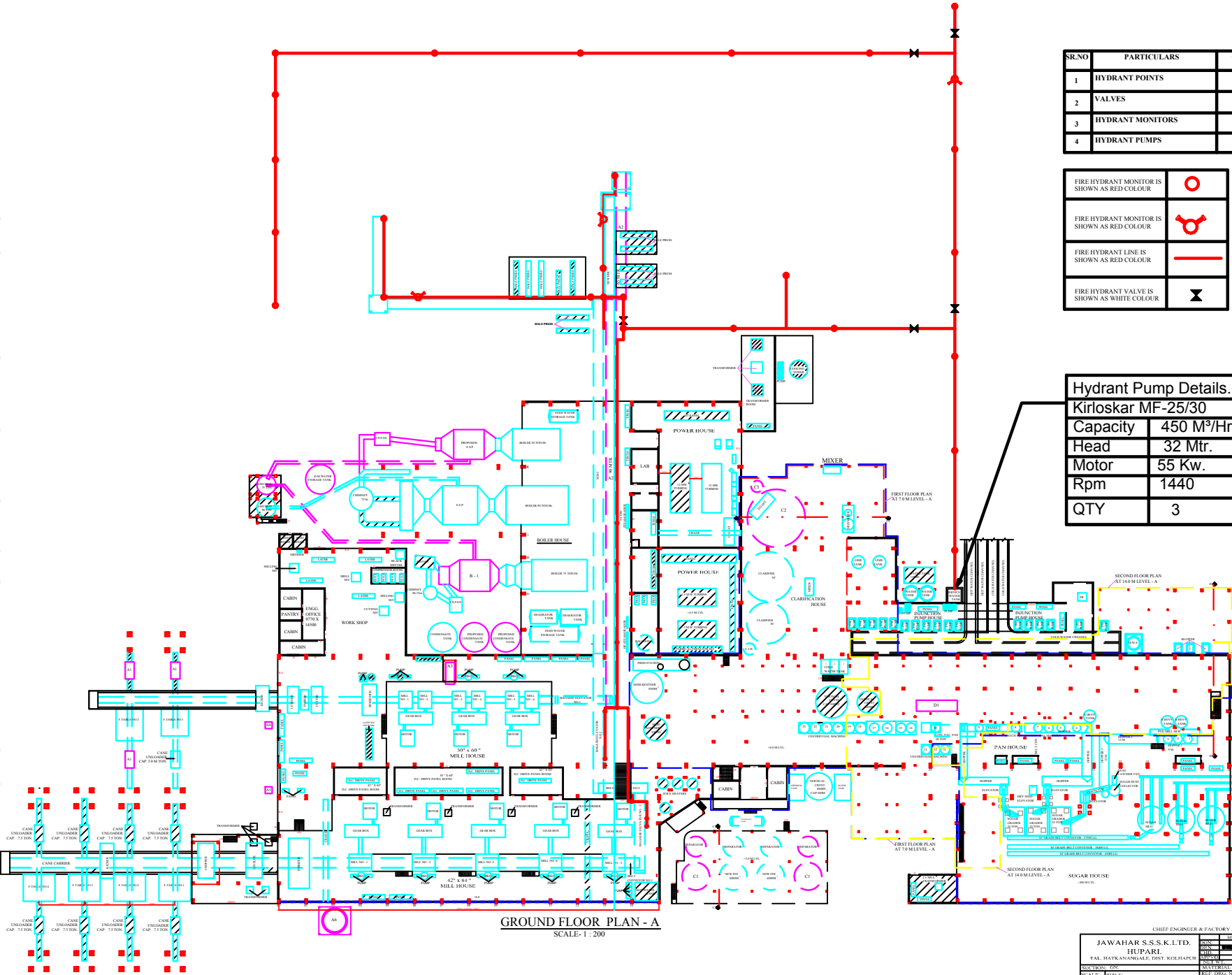
1. All the procedure of fire extinguishing is followed as per standard procedure within assigned time limit.
2. No any possibility of arising unusual conditions during the mock drill.
3. Communication system was found effective during the mock drill.
4. All fire fighting equipment are found to be working in good conditions.
5. Inlet line knob of low pressure pump of fire tender found leak.

Improvement measures -

1. While the mock drill it is observed that the Inlet knob of the low pressure pump of fire tender is leaked. Leakage is to be attended on time in order to avoid the pressure loss during the fire fighting operations.

**Vikas .S Kavade****(GM Tech & Factory Manager)**

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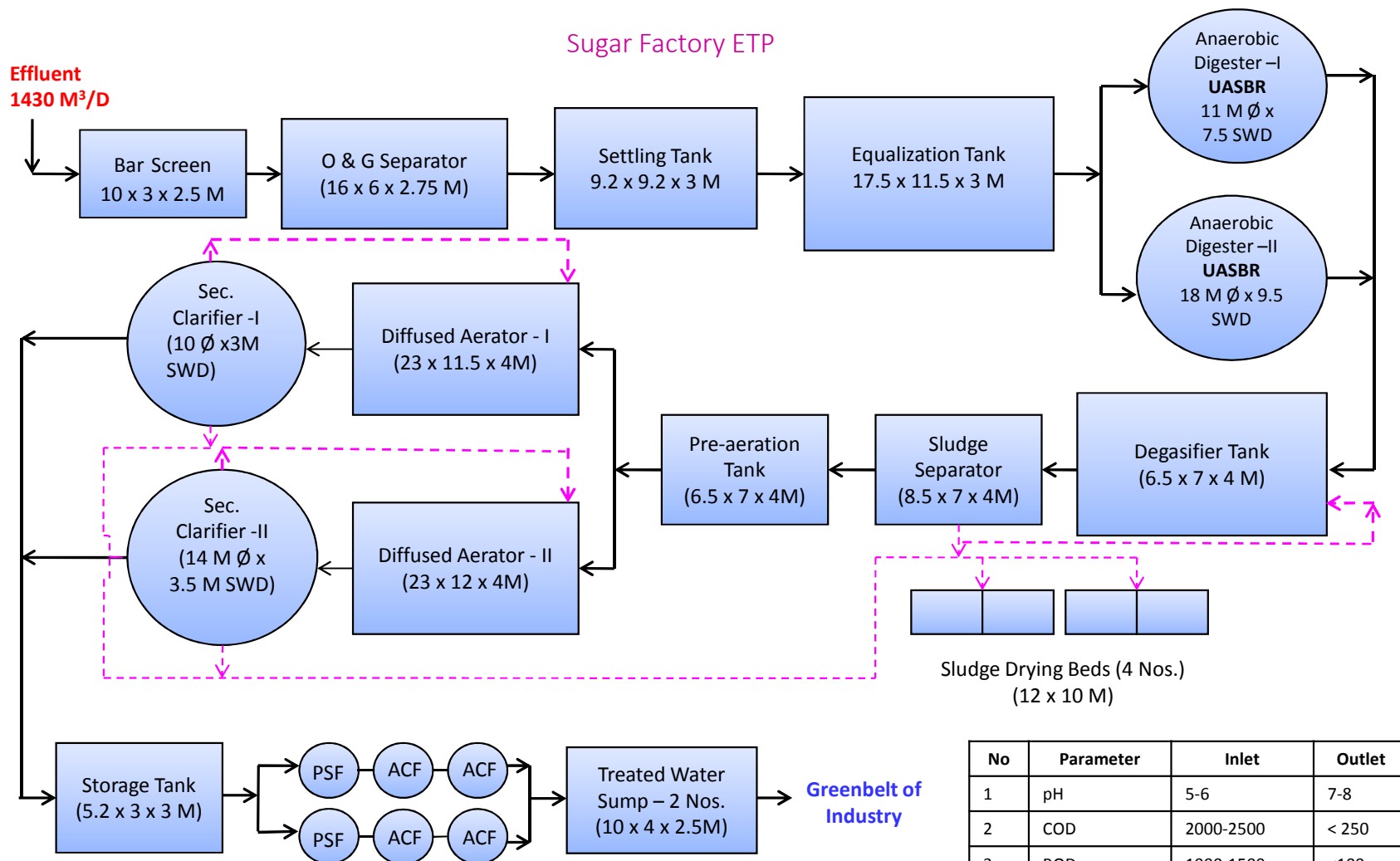
SR.NO	PARTICULARS	QTY
1	HYDRANT POINTS	35
2	VALVES	5
3	HYDRANT MONITORS	3
4	HYDRANT PUMPS	3

FIRE HYDRANT MONITOR IS SHOWN AS RED COLOUR	○
FIRE HYDRANT MONITOR IS SHOWN AS RED COLOUR	⊗
FIRE HYDRANT LINE IS SHOWN AS RED COLOUR	—
FIRE HYDRANT VALVE IS SHOWN AS WHITE COLOUR	⊕

Hydrant Pump Details.	
Kilroskar MF-25/30	
Capacity	450 M ³ /Hr.
Head	32 Mtr.
Motor	55 Kw.
Rpm	1440
QTY	3

JAWAHAR S.S.S.K.LTD.		HUPARI	
TAL. HATKANANGALE, DIST. KODHAPUR		DIST. KODHAPUR	
SCALE: 1 : 200		TITLE: TENTATIVE ENGINEERING LAY-OUT OF THE FIRE HYDRANT SYSTEM	
DATE: 10/10/2019		PAGE: 01 OF 01	

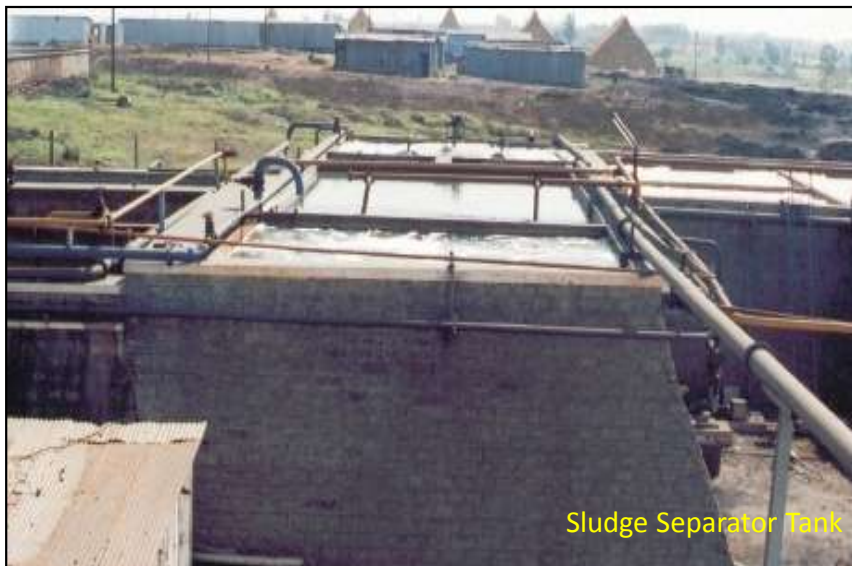
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No	Parameter	Inlet	Outlet
1	pH	5-6	7-8
2	COD	2000-2500	< 250
3	BOD	1000-1500	<100
4	TDS	1800-2200	<2100
5	SS	250-300	<100

All parameters except pH are in mg/lit.

Photographs of Sugar Factory ETP



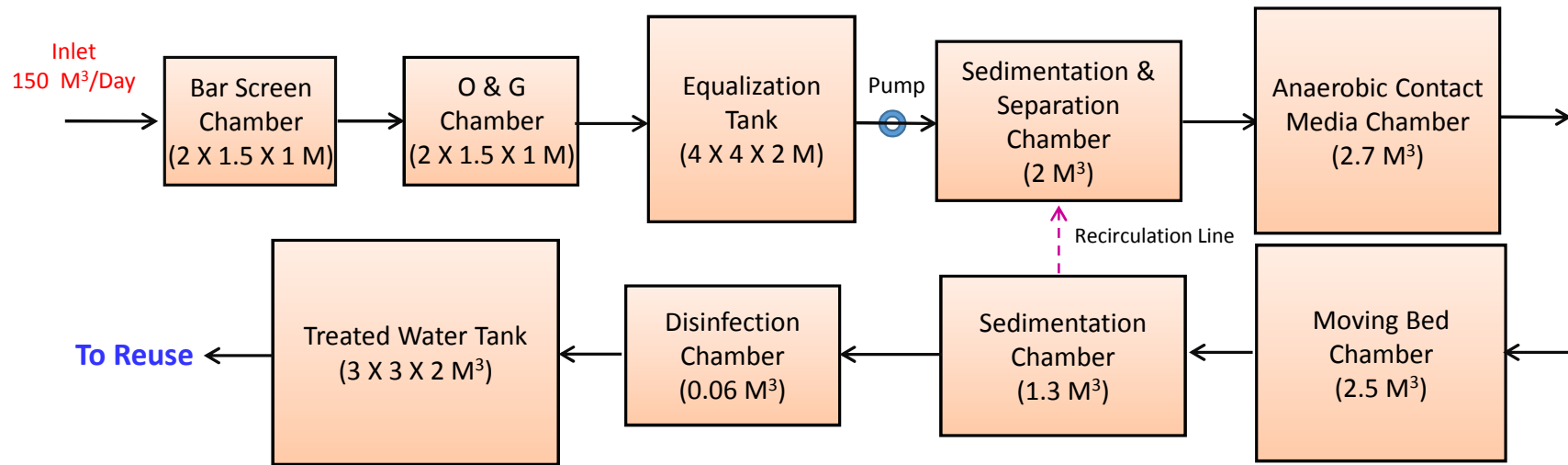
Sugar Factory ETP



Photographs of Sugar Factory ETP

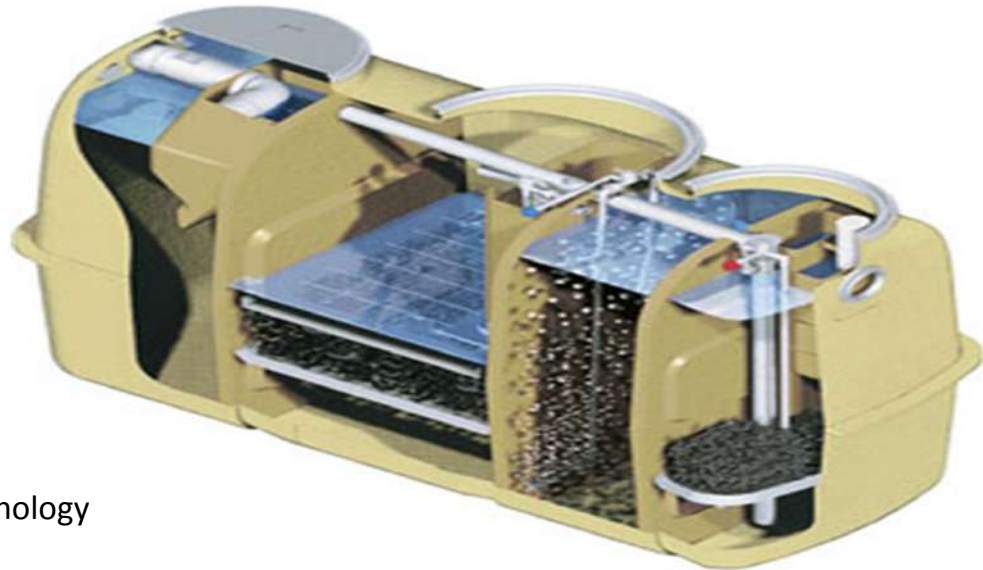


Sewage Treatment Plant

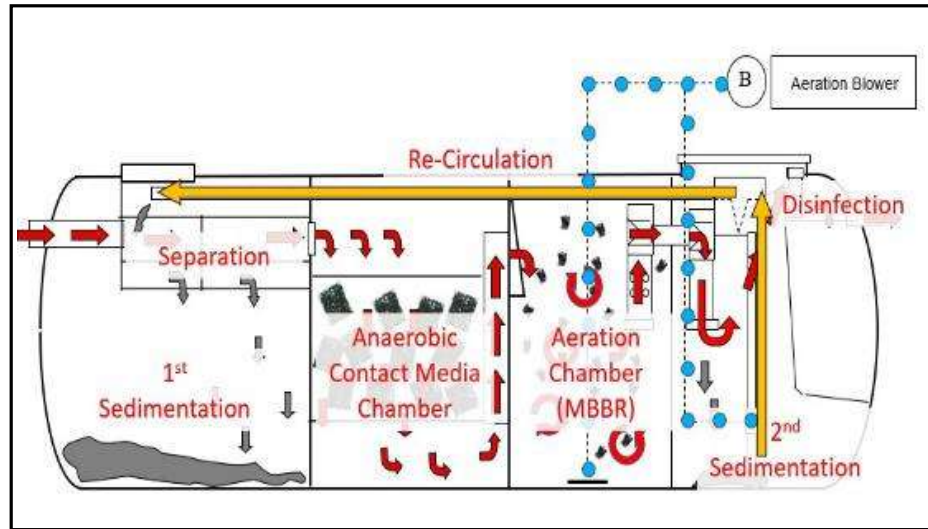


No	Parameter	Unit	Inlet	Outlet
1	pH	---	6.0 – 8.5	6.0 – 8.5
2	COD	mg/lit	400 – 500	< 50
3	BOD	mg/lit	250 – 300	< 10
4	TSS	mg/lit	150 - 250	< 30
5	O & G	mg/lit	20 - 30	< 10

- Expeditious treatment; easy maintenance
- Energy-saving
- Most updated automated manufacturing technology
- Stable high-quality FRP material



Johkasou STP Treatment Process



Unit	MOC	Process Description
Separation & Sedimentation Chamber	FRP	Suspended Solids (SS) are separated.
Anaerobic Chamber	FRP	Organic matters are anaerobically decomposed.
Moving Bed Chamber	FRP	BOD content reduced by continuous aeration.
Sedimentation Chamber	FRP	SS are settled and clear treated water is obtained.
Disinfection Chamber	FRP	Treated Water is disinfected by Disinfection agent.
Sludge Re-circulation Arrangement	-	Sludge from 2 nd Sedimentation Chamber is recirculated to the 1 st Sedimentation Chamber.

Technological Frame Work

- Technology approved by National Jal Jeevan Mission.
- Technology Approved by CII (Confederation of Indian Industry)
- No COVID-19 Trace observed in outlet water

Photographs of STP



Online Monitoring System



Boiler Ash Handling System



OCMS for Sugar Factory ETP





ESP for 20 & 90 TPH Boiler Capacity



ESP for 75 TPH Boiler Capacity



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ISO 9001:2015, ISO 45001 : 2018 and ISO 14001 : 2015 Certified Company

TEST REPORT				
Test Report No. -	GESEC/PRO/AAQM/2024-2025/02/174		Report Date	17.02.2025
Sample ID: -	GESEC/PRO/AAQM/2024-2025/02/174			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	Near Main Gate		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
09:30 AM.	10:30 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	24.0	Wet Bulb Temperature °C	15.0	
Dry Bulb Temperature °C	24.0	Relative Humidity % RH	36.9	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
11.02.2025	12.02.2025	12.02.2025	17.02.2025	
Name of Instrument	Fine Particulate Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	FDS 2021-22/76/ GESEC/Lab/Inst/76	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 11	µg/cum	100.00	62.23
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I, 36/2012-13, Page no. 15	µg/cum	60.00	26.11
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 01	µg/cum	80.00	12.95
Oxides of Nitrogen (NO _x)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 07	µg/cum	80.00	20.78
Remark				
➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B – 29016 / 20 / 90 / PCI – I, New Delhi, the 18th November 2009.				
<div style="display: flex; justify-content: space-between; align-items: center;"> <div>  </div> <div>  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div> </div>				



END OF REPORT

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- MoEF approved Lab by Govt. of India. Till 28/02/2026 and NABL approved by the Quality Council of India. till 28/02/2026.

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TEST REPORT				
Test Report No: -	GESEC/PRO/AAQM/2024-2025/02/175		Report Date	17.02.2025
Sample ID: -	GESEC/PRO/AAQM/2024-2025/02/175			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	Near ETP		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
09:45 AM.	10:45 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	24.0	Wet Bulb Temperature °C	15.0	
Dry Bulb Temperature °C	24.0	Relative Humidity % RH	36.9	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
11.02.2025	12.02.2025	12.02.2025	17.02.2025	
Name of Instrument	Fine Particulate Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	FDS 2021-22/77/ GESEC/Lab/Inst/77	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 11	µg/cum	100.00	59.63
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I, 36/2012-13, Page no. 15	µg/cum	60.00	23.50
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 01	µg/cum	80.00	10.19
Oxides of Nitrogen(NO _x)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 07	µg/cum	80.00	16.87
Remark				
➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B – 29016 / 20 / 90 / PCI – I, New Delhi, the 18th November 2009.				
		 <div>  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div>		


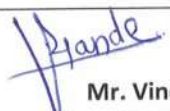
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TEST REPORT				
Test Report No. -	GESEC/PRO/AAQM/2024-2025/02/176		Report Date	17.02.2025
Sample ID: -	GESEC/PRO/AAQM/2024-2025/02/176			
Name & Address of the Customer	M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	Near Cane Yard		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
10:00 AM.	11:00 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	25.0	Wet Bulb Temperature °C	15.0	
Dry Bulb Temperature °C	25.0	Relative Humidity % RH	32.6	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
11.02.2025	12.02.2025	12.02.2025	17.02.2025	
Name Of Instrument	Fine Particulate Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	FDS 2021-22/78/ GESEC/Lab/Inst/78	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 11	µg/cum	100.00	64.83
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I ,36/2012-13, Page no. 15	µg/cum	60.00	29.47
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 01	µg/cum	80.00	13.00
Oxides of Nitrogen(NO _x)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 07	µg/cum	80.00	23.65
Remark:- ➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B – 29016 / 20 / 90 / PCI – I, New Delhi, the 18th November 2009.				
		 <div>  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div>		


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TEST REPORT				
Test Report No: -	GESEC/PRO/WZM/2024-2025/02/177		Report Date	17.02.2025
Sample ID: -	GESEC/PRO/WZM/2024-2025/02/177			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
WORKZONE AIR QUALITY MONITORING RESULTS				
Type	Sampling Location		Sampling done by	
Ambient Air	Pan Section		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
10:15 AM.	11:15 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	28.0	Wet Bulb Temperature °C	17.0	
Dry Bulb Temperature °C	28.0	Relative Humidity % RH	31.7	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
11.02.2025	12.02.2025	12.02.2025	17.02.2025	
Name of Instrument	Handy sampler	Date of Calibration	26/04/2024	
Calibration Certificate No.	220412/GESEC/LAB/INST/100	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	Limits	Result
Particulate Matter (PM)	GESEC/LAB/SOP/WZM/30	mg/m ³	10	0.650
Sulphur Dioxide (SO ₂)	GESEC/LAB/SOP/WZM/28	mg/m ³	5	0.008
Oxides of Nitrogen (NO _x)	GESEC/LAB/SOP/WZM/29	mg/m ³	6	0.013
Note:				
➤ Limits: As per the Second Schedule of Factories Act /OSHA TWA				
		 Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By		


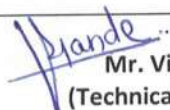
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TEST REPORT				
Test Report No: -	GESEC/PRO/WZM/2024-2025/02/178		Report Date	17.02.2025
Sample ID: -	GESEC/PRO/WZM/2024-2025/02/178			
Name & Address of the Customer	M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
WORKZONE AIR QUALITY MONITORING RESULTS				
Type	Sampling Location		Sampling was done by	
Ambient Air	Sugar House		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
10:30 AM.	11:30 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	29.0	Wet Bulb Temperature °C	17.0	
Dry Bulb Temperature °C	29.0	Relative Humidity % RH	28.3	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
11.02.2025	12.02.2025	12.02.2025	17.02.2025	
Name Of Instrument	Handy sampler	Date of Calibration	26/04/2024	
Calibration Certificate No.	220413/GESEC/LAB/INST/101	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	Limits	Result
Particulate Matter (PM)	GESEC/LAB/SOP/WZM/30	mg/m ³	10	0.701
Sulphur Dioxide (SO ₂)	GESEC/LAB/SOP/WZM/28	mg/m ³	5	0.008
Oxides of Nitrogen(NO _x)	GESEC/LAB/SOP/WZM/29	mg/m ³	6	0.013
Note:				
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TEST REPORT				
Test Report No	GESEC/PRO/ST/2024-2025/02/179		Report Date	17.02.2025
Sample ID -	GESEC/PRO/ST/2024-2025/02/179			
Name & Address of the Customer				
M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)				
Sample Details				
Sample collection Date	Sample receipt Date	Analysis start Date	Analysis complete Date	
11.02.2025	12.02.2025	12.02.2025	17.02.2025	
Instrument Details				
Name Of Instrument	Stack Sampler	Date Of Calibration	08/10/2024	
Calibration Certificate No.	5919/GESEC/LAB/INST/33	Due Date of Calibration	07/10/2025	
Stack Details				
Stack No/ID	Stack Attached to		Sampling done by	
01	Stack 1 (90+20 TPH)		GESEC	
Shape	Round	Fuel Used	Bagasse	
Diameter/ Dimensions (m)	4.73	Pressure	3.50	
Height (m)	75			
Temperature (°C)	141	Velocity (m/s)	7.23	
Gas Volume (Nm ³ /Hr)	328945.37			
Parameters	Method	Unit	Limit	Result
Total Particulate Matter (TPM)	EPA METHOD 17: 2017	mg/Nm ³	150	41.05
Sulphur Dioxide (SO ₂)	EPA METHOD 06: 2017	mg/Nm ³	-	12.37
		Kg/day	-	97.66
Remarks-				
➤ Maharashtra Pollution Control Board (MPCB) Limits: TPM: 150 mg/NM ³ .				
➤ Maharashtra Pollution Control Board (MPCB) Limits: SO ₂ : As per consent.				
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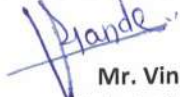
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TEST REPORT				
Test Report No	GESEC/PRO/ST/2024-2025/02/180		Report Date	17.02.2025
Sample ID -	GESEC/PRO/ST/2024-2025/02/180			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Sample Details				
Sample collection Date	Sample receipt Date	Analysis start Date	Analysis complete Date	
11.02.2025	12.02.2025	12.02.2025	17.02.2025	
Instrument Details				
Name Of Instrument	Stack Sampler	Date Of Calibration	03/08/2024	
Calibration Certificate No.	231018/GESEC/LAB/INST/89	Due Date of Calibration	02/08/2025	
Stack Details				
Stack No/ID	Stack Attached to		Sampling done by	
01	Stack 2 (75 TPH)		GESEC	
Shape	Round	Fuel Used	Bagasse	
Diameter/ Dimensions (m)	2.50	Pressure	3.00	
Height (m)	72			
Temperature (°C)	134	Velocity (m/s)	6.63	
Gas Volume (Nm ³ /Hr)	85804.70			
Parameters	Method	Unit	Limit	Result
Total Particulate Matter (TPM)	EPA METHOD 17: 2017	mg/Nm ³	150	39.65
Sulphur Dioxide (SO ₂)	EPA METHOD 06: 2017	mg/Nm ³	-	10.10
		Kg/day	-	20.80
Remarks- ➤ Maharashtra Pollution Control Board (MPCB) Limits: TPM: 150 mg/Nm ³ . ➤ Maharashtra Pollution Control Board (MPCB) Limits: SO ₂ : As per consent.				
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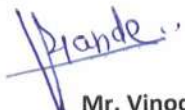
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TEST REPORT				
Test Report No: -	GESEC/PRO/ANLM/2024-2025/02/181		Report Date	17.02.2025
Sample ID: -	GESEC/PRO/ANLM/2024-2025/02/181			
Name & Address of the Customer		M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		
Ambient Noise Sample Details				
Type	Ambient Noise			
Sampling done by	GESEC			
Standard method	GESEC/LAB/NLM/ST/31			
Date of Sampling	Sample Receipt Date	Analysis Start Date		Analysis End Date
11.02.2025	11.02.2025	11.02.2025		11.02.2025
Name Of Instrument	Sound Level Meter	Date Of Calibration		16/02/2024
Calibration Certificate No.	GESEC/LAB/INST/29	Due Date of Calibration		15/02/2025
Test Location	Unit	Average Noise Level Readings		CPCB Standards dB(A)
		Day (12:45 P.M.)	Night (10:20 P.M.)	
Near Main Gate	dB(A)	64.5	61.9	During Day time = 75 dB (A) During Night time= 70 dB(A)
Near ETP	dB(A)	58.6	56.0	
Near Bagasse Section	dB(A)	60.2	58.7	
Near Sugar Godown	dB(A)	59.1	57.2	
Near Cane Yard	dB(A)	66.0	63.8	
Remark- ➤ Centre Pollution Control Board (CPCB) has prescribed 75 dB (A) as an upper limit of Noise Level during the Day Time & 70 dB (A) during the Night Time.				
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TEST REPORT

Test Report No: -	GESEC/PRO/WNLM/2024-2025/02/182	Report Date	17.02.2025
Sample ID: -	GESEC/PRO/WNLM/2024-2025/02/182		

Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)
--------------------------------	--

Work Zone Noise Sample Details

Type	Work Zone Noise
Sampling done by	GESEC
Standard method	GESEC/LAB/NLM/ST/31

Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date
11.02.2025	11.02.2025	11.02.2025	11.02.2025

Name of Instrument	Sound Level Meter	Date Of Calibration	16/02/2024
Calibration Certificate No.	GH2482296/GESEC/LAB/INST/59	Due Date of Calibration	15/02/2025

Test Location	Unit	Average Noise Level Readings		The Factories Act 1948, standards
		Day (01:45 P.M.)	Night (11:15 P.M.)	
Centrifugal Section	dB(A)	72.4	71.7	≤ 90
Turbine Section	dB(A)	71.0	69.8	
Boiler Section	dB(A)	75.1	73.2	
Mill Section	dB(A)	76.9	73.0	
Pan Section	dB(A)	70.6	69.1	

Remark-
➤ The Factories Act, 1948, has prescribed 90 dB (A) as an upper limit of noise level for 8 hours exposure.
➤ All above results are within Factories Act 1948 Standards.



V. Hande
Mr. Vinod Hande
(Technical Manager)
Reviewed & Authorized By


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TEST REPORT			
Test Report No: GESEC/PRO/WW/2024-2025/02/183	Report Date	17.02.2025	
Sample ID : GESEC/PRO/WW/2024-2025/02/183	Sample Details	ETP Inlet	
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)	Type of Sample	Waste Water	
	Volume Of Sample	1 Lit plastic bottle	
	Sample Status	Sealed	
	Sample Collected By	GESEC	
	Date of Sample Collection	11.02.2025	
	Sample Receipt Date	12.02.2025	
	Analysis start Date	12.02.2025	
	Analysis End Date	17.02.2025	
Parameters	Results	Unit	Standard Method
pH	3.27	--	APHA 4500 H+,B 23rd Edition.2017
Suspended Solids (SS)	194.58	mg/lit	APHA 2540 D 23 rd Edition:2017
Total Dissolved Solids (TDS)	2651.34	mg/lit	APHA 2540,C,23rd Edition, 2017
Chemical Oxygen Demand (COD)	3187.05	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	1060.75	mg/lit	USEPA NERL 405.1
Chlorides as Cl-	562.10	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ²⁻	401.93	mg/lit	APHA 4500-SO ₄ E 24 th Edition:2023
Oil & Grease	16.00	mg/lit	APHA 5520 D 24 th Edition:2023
<div style="display: flex; justify-content: space-between; align-items: center;"> <div> <p>***END OF REPORT***</p> </div> <div style="text-align: center;">  </div> <div style="text-align: right;"> <p><i>(Signature)</i> Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By</p> </div> </div>			

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TEST REPORT				
Test Report No: GESEC/PRO/WW/2024-2025/02/184		Report Date		17.02.2025
Sample ID : GESEC/PRO/WW/2024-2025/02/184		Sample Details		ETP Outlet
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		Type of Sample		Waste Water
		Volume Of Sample		1 Lit plastic bottle
		Sample Status		Sealed
		Sample Collected By		GESEC
		Date of Sample Collection		11.02.2025
		Sample Receipt Date		12.02.2025
		Analysis start Date		12.02.2025
		Analysis End Date		17.02.2025
Parameters	Results	MPCB LIMIT	Unit	Standard Method
pH	7.59	6.5-8.5	--	APHA 4500 H+,B 23rd Edition.2017
Suspended Solids (SS)	43.01	100	mg/lit	APHA 2540 D 23 rd Edition:2017
Total Dissolved Solids (TDS)	1079.5	2100	mg/lit	APHA 2540,C,23rd Edition, 2017
Chemical Oxygen Demand (COD)	64.17	250	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	23.00	100	mg/lit	USEPA NERL 405.1
Chlorides as Cl-	169.35	600	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO4 --	114.67	1000	mg/lit	APHA 4500-SO4 E 24 th Edition:2023
Oil & Grease	BDL	10	mg/lit	APHA 5520 D 24 th Edition:2023
Remark: ➤ BDL – Below Detectable Limit. ➤ All parameters are within the MPCB limit.				
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: right;">  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div> </div>				

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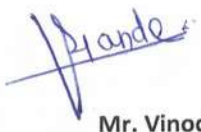
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TEST REPORT

Test Report No: GESEC/PRO/WW/2024-2025/02/185		Report Date	17.02.2025
Sample ID : GESEC/PRO/WW/2024-2025/02/185		Sample Details	Factory STP Inlet 50 KLPD
Name & Address of the Customer: M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)	Type of Sample	Waste Water	
	Volume Of Sample	1 Lit plastic bottle	
	Sample Status	Sealed	
	Sample Collected By	GESEC	
	Date of Sample Collection	11.02.2025	
	Sample Receipt Date	12.02.2025	
	Analysis start Date	12.02.2025	
	Analysis End Date	17.02.2025	
Parameters	Results	Unit	Standard Method
pH	6.13	--	APHA 4500 H+,B, 24 th Edition: 2023
Suspended Solids (SS)	216.39	mg/lit	APHA 2540, D, 24 th Edition: 2023
Total Dissolved Solids (TDS)	1147.02	mg/lit	APHA 2540,C, 24 th Edition: 2023
Chemical Oxygen Demand (COD)	230.92	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	102.69	mg/lit	USEPA NERL 405.1
Chlorides as Cl ⁻	369.57	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ⁼⁼	241.08	mg/lit	APHA 4500-SO4 E 24 th Edition:2023
Oil & Grease	BDL	mg/lit	APHA 5520 D 24 th Edition:2023
Remark: ➤ BDL – Below Detectable Limit. ➤ All parameters are within the MPCB limit.			
			 Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By

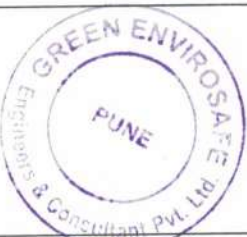

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TEST REPORT				
Test Report No: GESEC/PRO/WW/2024-2025/02/186		Report Date		17.02.2025
Sample ID : GESEC/PRO/WW/2024-2025/02/186		Sample Details		Factory STP Outlet 50 KLPD
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		Type of Sample		Waste Water
		Volume Of Sample		1 Lit plastic bottle
		Sample Status		Sealed
		Sample Collected By		GESEC
		Date of Sample Collection		11.02.2025
		Sample Receipt Date		12.02.2025
		Analysis start Date		12.02.2025
		Analysis End Date		17.02.2025
Parameters	Results	MPCB LIMIT	Unit	Standard Method
pH	7.59	6.5-8.5	--	APHA 4500 H+,B, 24 th Edition: 2023
Suspended Solids (SS)	19.63	100	mg/lit	APHA 2540, D, 24 th Edition: 2023
Total Dissolved Solids (TDS)	725.88	2100	mg/lit	APHA 2540,C, 24 th Edition: 2023
Chemical Oxygen Demand (COD)	47.16	250	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	16.02	100	mg/lit	USEPA NERL 405.1
Chlorides as Cl ⁻	185.36	600	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ²⁻	160.70	1000	mg/lit	APHA 4500-SO4 E 24 th Edition:2023
Oil & Grease	BDL	10	mg/lit	APHA 5520 D 24 th Edition:2023
Remark: ➤ BDL – Below Detectable Limit. ➤ All parameters are within the MPCB limit.				
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: right;">  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div> </div>				



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TEST REPORT																																							
Test Report No: GESEC/PRO/WW/2024-2025/02/187		Report Date																																					
Sample ID : GESEC/PRO/WW/2024-2025/02/187		Colony STP Inlet 100 KLPD																																					
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		Type of Sample	Waste Water																																				
		Volume Of Sample	1 Lit plastic bottle																																				
		Sample Status	Sealed																																				
		Sample Collected By	GESEC																																				
		Date of Sample Collection	11.02.2025																																				
		Sample Receipt Date	12.02.2025																																				
		Analysis start Date	12.02.2025																																				
		Analysis End Date	17.02.2025																																				
<table border="1"> <thead> <tr> <th>Parameters</th> <th>Results</th> <th>Unit</th> <th>Standard Method</th> </tr> </thead> <tbody> <tr> <td>pH</td> <td>6.25</td> <td>--</td> <td>APHA 4500 H+,B, 24th Edition: 2023</td> </tr> <tr> <td>Suspended Solids (SS)</td> <td>196.25</td> <td>mg/lit</td> <td>APHA 2540, D, 24th Edition: 2023</td> </tr> <tr> <td>Total Dissolved Solids (TDS)</td> <td>1056.47</td> <td>mg/lit</td> <td>APHA 2540,C, 24th Edition: 2023</td> </tr> <tr> <td>Chemical Oxygen Demand (COD)</td> <td>202.96</td> <td>mg/lit</td> <td>USEPA 410.1</td> </tr> <tr> <td>Biochemical Oxygen Demand (BOD)</td> <td>95.11</td> <td>mg/lit</td> <td>USEPA NERL 405.1</td> </tr> <tr> <td>Chlorides as Cl⁻</td> <td>352.47</td> <td>mg/lit</td> <td>APHA 4500-Cl-B 24 th Edition:2023</td> </tr> <tr> <td>Sulphates as SO₄⁼⁼</td> <td>221.79</td> <td>mg/lit</td> <td>APHA 4500-SO4 E 24 th Edition:2023</td> </tr> <tr> <td>Oil & Grease</td> <td>BDL</td> <td>mg/lit</td> <td>APHA 5520 D 24 th Edition:2023</td> </tr> </tbody> </table>				Parameters	Results	Unit	Standard Method	pH	6.25	--	APHA 4500 H+,B, 24 th Edition: 2023	Suspended Solids (SS)	196.25	mg/lit	APHA 2540, D, 24 th Edition: 2023	Total Dissolved Solids (TDS)	1056.47	mg/lit	APHA 2540,C, 24 th Edition: 2023	Chemical Oxygen Demand (COD)	202.96	mg/lit	USEPA 410.1	Biochemical Oxygen Demand (BOD)	95.11	mg/lit	USEPA NERL 405.1	Chlorides as Cl ⁻	352.47	mg/lit	APHA 4500-Cl-B 24 th Edition:2023	Sulphates as SO ₄ ⁼⁼	221.79	mg/lit	APHA 4500-SO4 E 24 th Edition:2023	Oil & Grease	BDL	mg/lit	APHA 5520 D 24 th Edition:2023
Parameters	Results	Unit	Standard Method																																				
pH	6.25	--	APHA 4500 H+,B, 24 th Edition: 2023																																				
Suspended Solids (SS)	196.25	mg/lit	APHA 2540, D, 24 th Edition: 2023																																				
Total Dissolved Solids (TDS)	1056.47	mg/lit	APHA 2540,C, 24 th Edition: 2023																																				
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TEST REPORT				
Test Report No: GESEC/PRO/WW/2024-2025/02/188		Report Date		17.02.2025
Sample ID : GESEC/PRO/WW/2024-2025/02/188		Sample Details		Colony STP Outlet 100 KLPD
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		Type of Sample		Waste Water
		Volume Of Sample		1 Lit plastic bottle
		Sample Status		Sealed
		Sample Collected By		GESEC
		Date of Sample Collection		11.02.2025
		Sample Receipt Date		12.02.2025
		Analysis start Date		12.02.2025
		Analysis End Date		17.02.2025
Parameters	Results	MPCB LIMIT	Unit	Standard Method
pH	7.48	6.5-8.5	--	APHA 4500 H+,B, 24 th Edition: 2023
Suspended Solids (SS)	15.64	100	mg/lit	APHA 2540, D, 24 th Edition: 2023
Total Dissolved Solids (TDS)	699.01	2100	mg/lit	APHA 2540,C, 24 th Edition: 2023
Chemical Oxygen Demand (COD)	42.37	250	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	15.94	100	mg/lit	USEPA NERL 405.1
Chlorides as Cl ⁻	174.68	600	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ⁼⁼	135.49	1000	mg/lit	APHA 4500-SO4 E 24 th Edition:2023
Oil & Grease	BDL	10	mg/lit	APHA 5520 D 24 th Edition:2023
Remark: ➤ BDL – Below Detectable Limit. ➤ All parameters are within the MPCB limit.				
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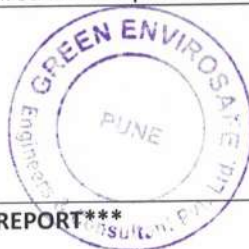
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TEST REPORT				
Test Report No – GESEC/PRO/DW/2024-2025/02/189		Date of Reporting		17.02.2025
Sample ID - GESEC/PRO/DW/2024-2025/02/189		Sample Details		Drinking Water (Laboratory)
Name & Address of the Customer: M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra).		Type of Sample		Water
		Volume Of Sample		2 Lit
		Sample Status		Sealed
		Sample Collected By		GESEC
		Date of Sample Collection		11.02.2025
		Date of Sample received in lab		12.02.2025
		Analysis start Date		12.02.2025
		Analysis End Date		17.02.2025
WATER ANALYSIS REPORT				
Parameter	Result	Limits as per IS 10500:2012	Unit(s)	Standard Method
Physical Parameter				
Turbidity	<0.1	<1	NTU	APHA 2130 B24 th Edition:2023
TDS	105.69	<500	mg/lit	APHA 2540 C 24 th Edition:2023
Chemical Parameter				
pH	7.58	6.5 to 8.5	--	APHA 4500 H+ B 24 th Ed: 2023
Total Hardness	56.80	<200	mg/lit	APHA 2340 C 24 th Ed: 2023
Total Alkalinity	43.81	<200	mg/lit	APHA 2320 B 24 th Ed: 2023
Sulphate	3.66	<200	mg/lit	APHA 4500-SO4 - E 24 th Ed: 2023
Residual Chlorine	BDL	<0.2	mg/lit	EPA 334.0,
Chloride	10.47	<250	mg/lit	APHA 4500-Cl-B 24 th Ed: 2023
Calcium (as Ca)	15.95	<75	mg/lit	APHA 3500-Ca B 24 th Ed: 2023
Magnesium (as Mg)	4.12	<30	mg/lit	IS 3025 (Part 46):2023
Elemental Analysis				
Iron as Fe	<0.1	<0.3	mg/lit	EPA200.7
Microbiological Parameter				
Total Coliform	Absent	Absent	/100ml	APHA 9222, J, 24th Ed. 2023
E. coli.	Absent	Absent	/100ml	APHA 9222, J, 24th Ed. 2023
Remark(s): ➤ All the above results are well within the MPCB Limit. ➤ The above water sample is completed with the required limit as per 10500:2012 for above tested parameters.				



Hande
Mr. Vinod Hande
 (Technical Manager)
 Reviewed & Authorized By

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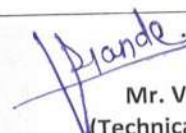
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TEST REPORT				
Test Report No: -	GESEC/PRO/AAQM/2024-25/01/476		Report Date	21/01/2025
Sample ID: -	GESEC/PRO/AAQM/2024-25/01/476			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	Upwind Village (Talandage)		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
08:00 AM.	09:00 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	16.0	Wet Bulb Temperature °C	12.0	
Dry Bulb Temperature °C	16.0	Relative Humidity % RH	62.4	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
15/01/2025	16/01/2025	16/01/2025	21/01/2025	
Name of Instrument	Fine Dust Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	FDS 24/GESEC/Lab/Inst/70	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 11	µg/cum	100.00	55.16
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I, 36/2012-13, Page no. 15	µg/cum	60.00	21.80
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 01	µg/cum	80.00	06.25
Oxides of Nitrogen (NO _x)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 07	µg/cum	80.00	14.77
Remark				
➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B - 29016 / 20 / 90 / PCI - I, New Delhi, the 18th November 2009.				
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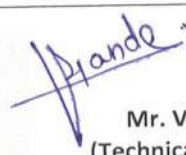
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TEST REPORT				
Test Report No: -	GESEC/PRO/AAQM/2024-25/01/477		Report Date	21/01/2025
Sample ID: -	GESEC/PRO/AAQM/2024-25/01/477			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	Downwind Village (Jagamwadi)		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
08:45 AM.	09:45 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	18.0	Wet Bulb Temperature °C	12.0	
Dry Bulb Temperature °C	18.0	Relative Humidity % RH	48.0	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
15/01/2025	16/01/2025	16/01/2025	21/01/2025	
Name of Instrument	Fine Particulate Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	107L2/GESEC/Lab/Inst/73	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 11	µg/cum	100.00	58.33
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I, 36/2012-13, Page no. 15	µg/cum	60.00	24.10
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 01	µg/cum	80.00	07.02
Oxides of Nitrogen (NO _x)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 07	µg/cum	80.00	16.35
Remark ➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B – 29016 / 20 / 90 / PCI – I, New Delhi, the 18th November 2009.				
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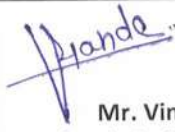
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TEST REPORT				
Test Report No: -	GESEC/PRO/AAQM/2024-25/01/478		Report Date	21/01/2025
Sample ID: -	GESEC/PRO/AAQM/2024-25/01/478			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	GLC Village (Rendal)		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
09:35 AM.	10:35 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	20.0	Wet Bulb Temperature °C	13.0	
Dry Bulb Temperature °C	20.0	Relative Humidity % RH	44.0	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
15/01/2025	16/01/2025	16/01/2025	21/01/2025	
Name of Instrument	Fine Particulate Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	107L1/GESEC/Lab/Inst/74	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 11	µg/cum	100.00	59.13
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I ,36/2012-13, Page no. 15	µg/cum	60.00	25.09
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 01	µg/cum	80.00	07.45
Oxides of Nitrogen(NO _x)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 07	µg/cum	80.00	16.91
Remark				
➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B – 29016 / 20 / 90 / PCI – I, New Delhi, the 18th November 2009.				
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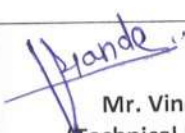
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TEST REPORT				
Test Report No: -	GESEC/PRO/AAQM/2024-25/01/479		Report Date	21/01/2025
Sample ID: -	GESEC/PRO/AAQM/2024-25/01/479			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	Near Main Gate		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
10:00 AM.	11:00 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	21.0	Wet Bulb Temperature °C	14.0	
Dry Bulb Temperature °C	21.0	Relative Humidity % RH	45.4	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
15/01/2025	16/01/2025	16/01/2025	21/01/2025	
Name of Instrument	Fine Particulate Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	FDS 2021-22/76/ GESEC/Lab/Inst/76	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 11	µg/cum	100.00	64.23
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I, 36/2012-13, Page no. 15	µg/cum	60.00	27.48
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 01	µg/cum	80.00	13.25
Oxides of Nitrogen (NO _x)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 07	µg/cum	80.00	22.10
Remark ➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B – 29016 / 20 / 90 / PCI – I, New Delhi, the 18th November 2009.				
<div style="display: flex; justify-content: space-between; align-items: center;"> <div>  </div> <div>  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div> </div>				

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TEST REPORT				
Test Report No: -	GESEC/PRO/AAQM/2024-25/01/480		Report Date	21/01/2025
Sample ID: -	GESEC/PRO/AAQM/2024-25/01/480			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	Near ETP		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
10:15 AM.	11:15 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	21.0	Wet Bulb Temperature °C	14.0	
Dry Bulb Temperature °C	21.0	Relative Humidity % RH	45.4	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
15/01/2025	16/01/2025	16/01/2025	21/01/2025	
Name of Instrument	Fine Particulate Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	FDS 2021-22/77/ GESEC/Lab/Inst/77	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 11	µg/cum	100.00	60.33
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I ,36/2012-13, Page no. 15	µg/cum	60.00	25.10
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 01	µg/cum	80.00	12.98
Oxides of Nitrogen(NO _x)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 07	µg/cum	80.00	18.62
Remark				
➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B – 29016 / 20 / 90 / PCI – I, New Delhi, the 18th November 2009.				




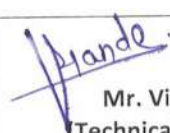
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TEST REPORT				
Test Report No: -	GESEC/PRO/AAQM/2024-25/01/481		Report Date	21/01/2025
Sample ID: -	GESEC/PRO/AAQM/2024-25/01/481			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	Near Cane Yard		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
10:40 AM.	11:40 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	23.0	Wet Bulb Temperature °C	15.0	
Dry Bulb Temperature °C	23.0	Relative Humidity % RH	41.6	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
15/01/2025	16/01/2025	16/01/2025	21/01/2025	
Name Of Instrument	Fine Particulate Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	FDS 2021-22/78/ GESEC/Lab/Inst/78	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 11	µg/cum	100.00	67.16
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I ,36/2012-13, Page no. 15	µg/cum	60.00	30.97
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 01	µg/cum	80.00	13.22
Oxides of Nitrogen(NO _x)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 07	µg/cum	80.00	26.64
Remark:- ➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B – 29016 / 20 / 90 / PCI – I, New Delhi, the 18th November 2009.				
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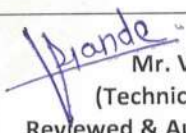
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TEST REPORT				
Test Report No: -	GESEC/PRO/WZM/2024-25/01/482		Report Date	21/01/2025
Sample ID: -	GESEC/PRO/WZM/2024-25/01/482			
Name & Address of the Customer	M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
WORKZONE AIR QUALITY MONITORING RESULTS				
Type	Sampling Location		Sampling done by	
Ambient Air	Pan Section		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
11:00 AM.	12:00 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	30.0	Wet Bulb Temperature °C	19.0	
Dry Bulb Temperature °C	30.0	Relative Humidity % RH	34.4	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
15/01/2025	16/01/2025	16/01/2025	21/01/2025	
Name of Instrument	Handy sampler	Date of Calibration	26/04/2024	
Calibration Certificate No.	220412/GESEC/LAB/INST/100	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	Limits	Result
Particulate Matter (PM)	GESEC/LAB/SOP/WZM/30	mg/m ³	10	0.782
Sulphur Dioxide (SO ₂)	GESEC/LAB/SOP/WZM/28	mg/m ³	5	0.009
Oxides of Nitrogen(NO _x)	GESEC/LAB/SOP/WZM/29	mg/m ³	6	0.015
Note: ➤ Limits: As per the Second Schedule of Factories Act /OSHA TWA				
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TEST REPORT				
Test Report No: -	GESEC/PRO/WZM/2024-25/01/483		Report Date	21/01/2025
Sample ID: -	GESEC/PRO/WZM/2024-25/01/483			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
WORKZONE AIR QUALITY MONITORING RESULTS				
Type	Sampling Location		Sampling was done by	
Ambient Air	Sugar House		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
11:20 AM.	12:20 AM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	31.0	Wet Bulb Temperature °C	19.0	
Dry Bulb Temperature °C	31.0	Relative Humidity % RH	31.0	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
15/01/2025	16/01/2025	16/01/2025	21/01/2025	
Name Of Instrument	Handy sampler	Date of Calibration	26/04/2024	
Calibration Certificate No.	220413/GESEC/LAB/INST/101	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	Limits	Result
Particulate Matter (PM)	GESEC/LAB/SOP/WZM/30	mg/m ³	10	0.580
Sulphur Dioxide (SO ₂)	GESEC/LAB/SOP/WZM/28	mg/m ³	5	0.007
Oxides of Nitrogen(NO _x)	GESEC/LAB/SOP/WZM/29	mg/m ³	6	0.012
Note: ➤ Limits: As per Second Schedule of Factories Act /OSHA TWA.				
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TEST REPORT				
Test Report No	GESEC/PRO/ST/2024-25/01/484		Report Date	21/01/2025
Sample ID -	GESEC/PRO/ST/2024-25/01/484			
Name & Address of the Customer				
M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)				
Sample Details				
Sample collection Date	Sample receipt Date	Analysis start Date	Analysis complete Date	
15/01/2025	16/01/2025	16/01/2025	21/01/2025	
Instrument Details				
Name Of Instrument	Stack Sampler	Date Of Calibration	08/10/2024	
Calibration Certificate No.	5919/GESEC/LAB/INST/33	Due Date of Calibration	07/10/2025	
Stack Details				
Stack No/ID	Stack Attached to		Sampling done by	
01	Stack 1 (90+20 TPH)		GESEC	
Shape	Round	Fuel Used	Bagasse	
Diameter/ Dimensions (m)	4.73	Pressure	3.75	
Height (m)	75			
Temperature (°C)	135	Velocity (m/s)	7.43	
Gas Volume (Nm ³ /Hr)	342985.28			
Parameters	Method	Unit	Limit	Result
Total Particulate Matter (TPM)	EPA METHOD 17: 2017	mg/Nm ³	150	45.78
Sulphur Dioxide (SO ₂)	EPA METHOD 06: 2017	mg/Nm ³	-	13.60
		Kg/day	-	111.95
Remarks-				
➤ Maharashtra Pollution Control Board (MPCB) Limits: TPM: 150 mg/NM ³ .				
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TEST REPORT				
Test Report No	GESEC/PRO/ST/2024-25/01/485		Report Date	21/01/2025
Sample ID -	GESEC/PRO/ST/2024-25/01/485			
Name & Address of the Customer				
M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)				
Sample Details				
Sample collection Date	Sample receipt Date	Analysis start Date	Analysis complete Date	
15/01/2025	16/01/2025	16/01/2025	21/01/2025	
Instrument Details				
Name Of Instrument	Stack Sampler	Date Of Calibration	03/08/2024	
Calibration Certificate No.	231018/GESEC/LAB/INST/89	Due Date of Calibration	02/08/2025	
Stack Details				
Stack No/ID	Stack Attached to		Sampling done by	
01	Stack 2 (75 TPH)		GESEC	
Shape	Round	Fuel Used	Bagasse	
Diameter/ Dimensions (m)	2.5	Pressure	3.10	
Height (m)	72			
Temperature (°C)	130	Velocity (m/s)	6.71	
Gas Volume (Nm ³ /Hr)	87654.86			
Parameters	Method	Unit	Limit	Result
Total Particulate Matter (TPM)	EPA METHOD 17: 2017	mg/Nm ³	150	41.95
Sulphur Dioxide (SO ₂)	EPA METHOD 06: 2017	mg/Nm ³	-	11.26
		Kg/day	-	23.71
Remarks-				
➤ Maharashtra Pollution Control Board (MPCB) Limits: TPM: 150 mg/Nm ³ .				
<div style="display: flex; justify-content: space-between; align-items: center;"> <div> <p>***END OF REPORT***</p> </div> <div>  </div> <div> <p><i>Vinod Hande</i> Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By</p> </div> </div>				

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TEST REPORT

Test Report No: -	GESEC/PRO/ANLM/2024-25/01/486	Report Date	21/01/2025
Sample ID: -	GESEC/PRO/ANLM/2024-25/01/486		

Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)
--------------------------------	--

Ambient Noise Sample Details

Type	Ambient Noise
Sampling done by	GESEC
Standard method	GESEC/LAB/NLM/ST/31

Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date
15/01/2025	15/01/2025	15/01/2025	15/01/2025

Name Of Instrument	Sound Level Meter	Date Of Calibration	16/02/2024
Calibration Certificate No.	GESEC/LAB/INST/29	Due Date of Calibration	15/02/2025

Test Location	Unit	Average Noise Level Readings		CPCB Standards dB(A)
		Day (01:30 P.M.)	Night (10:10 P.M.)	
Near Main Gate	dB(A)	62.9	59.0	During Day time = 75 dB (A) During Night time= 70 dB(A)
Near ETP	dB(A)	60.4	57.1	
Near Bagasse Section	dB(A)	61.8	56.7	
Near Sugar Godown	dB(A)	60.5	57.1	
Near Cane Yard	dB(A)	63.8	60.9	

Remark-
➤ Centre Pollution Control Board (CPCB) has prescribed 75 dB (A) as an upper limit of Noise Level during the Day Time & 70 dB (A) during the Night Time.

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TEST REPORT

Test Report No: -	GESEC/PRO/WNLM/2024-25/01/487	Report Date	21/01/2025
Sample ID: -	GESEC/PRO/WNLM/2024-25/01/487		

Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)
--------------------------------	--

Work Zone Noise Sample Details

Type	Work Zone Noise
Sampling done by	GESEC
Standard method	GESEC/LAB/NLM/ST/31

Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date
15/01/2025	15/01/2025	15/01/2025	15/01/2025

Name of Instrument	Sound Level Meter	Date Of Calibration	16/02/2024
Calibration Certificate No.	GH2482296/GESEC/LAB/INST/59	Due Date of Calibration	15/02/2025

Test Location	Unit	Average Noise Level Readings		The Factories Act 1948, standards
		Day (02:30 P.M.)	Night (10:50 P.M.)	
Centrifugal Section	dB(A)	70.2	68.7	≤ 90
Turbine Section	dB(A)	71.8	69.0	
Boiler Section	dB(A)	72.9	70.5	
Mill Section	dB(A)	74.7	71.9	
Pan Section	dB(A)	73.6	69.8	

Remark-
➤ The Factories Act, 1948, has prescribed 90 dB (A) as an upper limit of noise level for 8 hours exposure.
➤ All above results are within Factories Act 1948 Standards.



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TEST REPORT

Test Report No: GESEC/PRO/WW/2024-25/01/488	Report Date	21/01/2025
Sample ID : GESEC/PRO/WW/2024-25/01/488	Sample Details	ETP Inlet
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)	Type of Sample	Waste Water
	Volume Of Sample	1 Lit plastic bottle
	Sample Status	Sealed
	Sample Collected By	GESEC
	Date of Sample Collection	15/01/2025
	Sample Receipt Date	16/01/2025
	Analysis start Date	16/01/2025
	Analysis End Date	21/01/2025

Parameters	Results	Unit	Standard Method
pH	3.44	--	APHA 4500 H+,B, 24 th Edition: 2023
Suspended Solids (SS)	165.20	mg/lit	APHA 2540, D, 24 th Edition: 2023
Total Dissolved Solids (TDS)	3741.96	mg/lit	APHA 2540,C, 24 th Edition: 2023
Chemical Oxygen Demand (COD)	2965.11	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	1248.95	mg/lit	USEPA NERL 405.1
Chlorides as Cl-	677.10	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ²⁻	589.40	mg/lit	APHA 4500-SO4 E 24 th Edition:2023
Oil & Grease	14.00	mg/lit	APHA 5520 D 24 th Edition:2023



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TEST REPORT

Test Report No: GESEC/PRO/WW/2024-25/01/489	Report Date	21/01/2025
Sample ID : GESEC/PRO/WW/2024-25/01/489	Sample Details	ETP Outlet
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)	Type of Sample	Waste Water
	Volume Of Sample	1 Lit plastic bottle
	Sample Status	Sealed
	Sample Collected By	GESEC
	Date of Sample Collection	15/01/2025
	Sample Receipt Date	16/01/2025
	Analysis start Date	16/01/2025
	Analysis End Date	21/01/2025

Parameters	Results	MPCB LIMIT	Unit	Standard Method
pH	7.42	6.5-8.5	--	APHA 4500 H+,B, 24 th Edition: 2023
Suspended Solids (SS)	39.63	100	mg/lit	APHA 2540, D, 24 th Edition: 2023
Total Dissolved Solids (TDS)	1245.78	2100	mg/lit	APHA 2540,C, 24 th Edition: 2023
Chemical Oxygen Demand (COD)	69.10	250	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	25.88	100	mg/lit	USEPA NERL 405.1
Chlorides as Cl-	184.63	600	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO4 --	125.40	1000	mg/lit	APHA 4500-SO4 E 24 th Edition:2023
Oil & Grease	BDL	10	mg/lit	APHA 5520 D 24 th Edition:2023

Remark:

- BDL – Below Detectable Limit.
- All parameters are within the MPCB limit.



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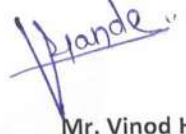
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TEST REPORT			
Test Report No: GESEC/PRO/WW/2024-25/01/490		Report Date	21/01/2025
Sample ID : GESEC/PRO/WW/2024-25/01/490		Sample Details	Factory STP Inlet 50 KLPD
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		Type of Sample	Waste Water
		Volume Of Sample	1 Lit plastic bottle
		Sample Status	Sealed
		Sample Collected By	GESEC
		Date of Sample Collection	15/01/2025
		Sample Receipt Date	16/01/2025
		Analysis start Date	16/01/2025
		Analysis End Date	21/01/2025
Parameters	Results	Unit	Standard Method
pH	6.25	--	APHA 4500 H+,B, 24 th Edition: 2023
Suspended Solids (SS)	136.70	mg/lit	APHA 2540, D, 24 th Edition: 2023
Total Dissolved Solids (TDS)	852.11	mg/lit	APHA 2540,C, 24 th Edition: 2023
Chemical Oxygen Demand (COD)	148.26	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	87.07	mg/lit	USEPA NERL 405.1
Chlorides as Cl ⁻	289.50	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ²⁻	145.20	mg/lit	APHA 4500-SO4 E 24 th Edition:2023
Oil & Grease	BDL	mg/lit	APHA 5520 D 24 th Edition:2023
Remark: ➤ BDL – Below Detectable Limit.			
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TEST REPORT

Test Report No: GESEC/PRO/WW/2024-25/01/491	Report Date	21/01/2025
Sample ID : GESEC/PRO/WW/2024-25/01/491	Sample Details	Factory STP Outlet 50 KLPD
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)	Type of Sample	Waste Water
	Volume Of Sample	1 Lit plastic bottle
	Sample Status	Sealed
	Sample Collected By	GESEC
	Date of Sample Collection	15/01/2025
	Sample Receipt Date	16/01/2025
	Analysis start Date	16/01/2025
	Analysis End Date	21/01/2025

Parameters	Results	MPCB LIMIT	Unit	Standard Method
pH	7.44	6.5-8.5	---	APHA 4500 H+,B, 24 th Edition: 2023
Suspended Solids (SS)	16.89	100	mg/lit	APHA 2540, D, 24 th Edition: 2023
Total Dissolved Solids (TDS)	542.10	2100	mg/lit	APHA 2540,C, 24 th Edition: 2023
Chemical Oxygen Demand (COD)	39.65	250	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	17.82	100	mg/lit	USEPA NERL 405.1
Chlorides as Cl ⁻	125.96	600	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ⁻	93.77	1000	mg/lit	APHA 4500-SO4 E 24 th Edition:2023
Oil & Grease	BDL	10	mg/lit	APHA 5520 D 24 th Edition:2023

Remark:

- BDL – Below Detectable Limit.
- All parameters are within the MPCB limit.



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TEST REPORT			
Test Report No: GESEC/PRO/WW/2024-25/01/492	Report Date	21/01/2025	
Sample ID : GESEC/PRO/WW/2024-25/01/492	Sample Details	Colony STP Inlet 100 KLPD	
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)	Type of Sample	Waste Water	
	Volume Of Sample	1 Lit plastic bottle	
	Sample Status	Sealed	
	Sample Collected By	GESEC	
	Date of Sample Collection	15/01/2025	
	Sample Receipt Date	16/01/2025	
	Analysis start Date	16/01/2025	
	Analysis End Date	21/01/2025	
Parameters	Results	Unit	Standard Method
pH	6.35	--	APHA 4500 H+,B, 24 th Edition: 2023
Suspended Solids (SS)	165.20	mg/lit	APHA 2540, D, 24 th Edition: 2023
Total Dissolved Solids (TDS)	1069.37	mg/lit	APHA 2540,C, 24 th Edition: 2023
Chemical Oxygen Demand (COD)	174.65	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	83.01	mg/lit	USEPA NERL 405.1
Chlorides as Cl ⁻	169.52	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ²⁻	147.80	mg/lit	APHA 4500-SO ₄ E 24 th Edition:2023
Oil & Grease	BDL	mg/lit	APHA 5520 D 24 th Edition:2023
Remark: ➤ BDL – Below Detectable Limit.			
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TEST REPORT

Test Report No: GESEC/PRO/WW/2024-25/01/493

Report Date

21/01/2025

Sample ID : GESEC/PRO/WW/2024-25/01/493

Sample Details

Colony STP Outlet 100 KLPD

Name & Address of the Customer:

M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari
Sakhar Karkhana Ltd.,
Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur
(Maharashtra)

Type of Sample

Waste Water

Volume Of Sample

1 Lit plastic bottle

Sample Status

Sealed

Sample Collected By

GESEC

Date of Sample
Collection

15/01/2025

Sample Receipt Date

16/01/2025

Analysis start Date

16/01/2025

Analysis End Date

21/01/2025

Parameters	Results	MPCB LIMIT	Unit	Standard Method
pH	7.52	6.5-8.5	--	APHA 4500 H+,B, 24 th Edition: 2023
Suspended Solids (SS)	19.45	100	mg/lit	APHA 2540, D, 24 th Edition: 2023
Total Dissolved Solids (TDS)	613.03	2100	mg/lit	APHA 2540,C, 24 th Edition: 2023
Chemical Oxygen Demand (COD)	45.07	250	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	18.96	100	mg/lit	USEPA NERL 405.1
Chlorides as Cl ⁻	143.02	600	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ⁻⁻	63.85	1000	mg/lit	APHA 4500-SO ₄ E 24 th Edition:2023
Oil & Grease	BDL	10	mg/lit	APHA 5520 D 24 th Edition:2023

Remark:

- BDL – Below Detectable Limit.
- All parameters are within the MPCB limit.

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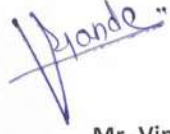

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TEST REPORT			
Test Report No: GESEC/PRO/SW/2024-25/01/494	Report Date	21/01/2025	
Sample ID: GESEC/PRO/SW/2024-25/01/494	Sample Details	ETP Sludge Sample	
Name & Address of the Customer: M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra).	Type of Sample	Solid	
	Volume Of Sample	1 KG Plastic Bag	
	Sample Status	Sealed	
	Sample Collected By	GESEC	
	Date of Sample Collection	15/01/2025	
	Sample Receipt Date	16/01/2025	
	Analysis start Date	16/01/2025	
	Analysis End Date	21/01/2025	
Parameters	Results	Unit	Standard Method
pH	8.66	--	IS 10158-2019
Total Solids	85.10	%	GESEC /SOP/A-01
Total Volatile Solids	20.75	%	IS 3025 10158 : 2019
Moisture Content	14.87	%	CPCB Manual LATS/16/2003-2004,Ch.4,4.7.2Page no.34
Organic Carbon	6.95	%	IS 3025 10158 : 2019
Calcium	9523.10	mg/kg	ICARDA-Methods of soil, Plant and water analysis, Page No. 113-116:2013
Magnesium	4152.37	mg/kg	ICARDA-Methods of soil, Plant and water analysis, Page No. 113-116:2013
Potassium as K	7413.95	mg/kg	USEPA / SW 846/ 6010 C, Rev 3,feb 2007
<div style="text-align: right;">  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div> <div style="text-align: center;">  GREEN ENVIROSAFE PUNE Engineers & Consultant Pvt. Ltd. </div>			


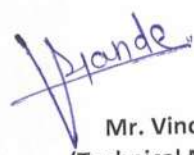
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TEST REPORT			
Test Report No: GESEC/PRO/SO/2024-25/01/495	Report Date	21/01/2025	
Sample ID : GESEC/PRO/SO/2024-25/01/495	Sample Details	Soil	
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra).	Type of Sample	Solid	
	Volume Of Sample	1 KG Plastic Bag	
	Sample Status	Sealed	
	Sample Collected By	GESEC	
	Date of Sample Collection	15/01/2025	
	Sample Receipt Date	16/01/2025	
	Analysis start Date	16/01/2025	
	Analysis End Date	21/01/2025	
Parameters	Results	Unit	Standard Method
Nitrogen (N)	186.20	Kg/ha	ICARDA-Methods of soil, Plant and water analysis, Page No. 87-89:2013
Available Phosphorous (P)	27.14	Kg/ha	ISRIC, Page No.14-1:2002
Available Potassium	156.87	Kg/ha	Food and Agriculture Organization Sec III,8-1,Page no115
Organic Carbon	0.40	%	ICARDA-Methods of soil, Plant and water analysis, Page No. 74 :2013
Organic Matter	0.69	%	ICARDA-Methods of soil, Plant and water analysis, Page No. 74:2013
Water Soluble Chloride (Cl ⁻)	185.20	mg/kg	Soil Analysis a laboratory manual PK Behera Page no.54 & 55
Water Soluble Sulphate (SO ₄)	146.93	mg/kg	ICARDA -3rd Edition methods of soil, plant, and water analysis: A manual for the West Asia and North Africa region page no.120-121:2013
Sodium Absorption Ratio	1.27	-----	Food and agriculture organization of the United nation Page no14:2016
<div style="display: flex; justify-content: space-between; align-items: center;"> <div>  </div> <div>  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div> </div>			


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TEST REPORT																																							
Test Report No: GESEC/PRO/SW/2024-25/01/496	Report Date	21/01/2025																																					
Sample ID : GESEC/PRO/SW/2024-25/01/496	Sample Details	Ash Sample																																					
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra).	Type of Sample	Solid																																					
	Volume Of Sample	1 KG Plastic Bag																																					
	Sample Status	Sealed																																					
	Sample Collected By	GESEC																																					
	Date of Sample Collection	15/01/2025																																					
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<table border="1"> <thead> <tr> <th>Parameters</th> <th>Results</th> <th>Unit</th> <th>Standard Method</th> </tr> </thead> <tbody> <tr> <td>Moisture Contain</td> <td>3.12</td> <td>%</td> <td>IS 9235:2019</td> </tr> <tr> <td>Total Solid</td> <td>94.87</td> <td>%</td> <td>GESEC /SOP/A-01</td> </tr> <tr> <td>Total Volatile Solid</td> <td>8.45</td> <td>%</td> <td>IS 3025 10158 2019</td> </tr> <tr> <td>Iron</td> <td>1.63</td> <td>mg/kg</td> <td>GESEC/LAB/SOP/ICP-OES/05</td> </tr> <tr> <td>Lead</td> <td>BDL</td> <td>mg/kg</td> <td>GESEC/LAB/SOP/ICP-OES/05</td> </tr> <tr> <td>Total Phosphate (as P₂O₅)</td> <td>369.20</td> <td>mg/kg</td> <td>ISRIC, Page No.14-1:2002</td> </tr> <tr> <td>Total Nitrogen (as N)</td> <td>0.15</td> <td>%</td> <td>ICARDA-Methods of soil, Plant and water analysis, Page No. 87-89:2013</td> </tr> <tr> <td>Zinc</td> <td>136.20</td> <td>mg/kg</td> <td>GESEC/LAB/SOP/ICP-OES/05</td> </tr> </tbody> </table>				Parameters	Results	Unit	Standard Method	Moisture Contain	3.12	%	IS 9235:2019	Total Solid	94.87	%	GESEC /SOP/A-01	Total Volatile Solid	8.45	%	IS 3025 10158 2019	Iron	1.63	mg/kg	GESEC/LAB/SOP/ICP-OES/05	Lead	BDL	mg/kg	GESEC/LAB/SOP/ICP-OES/05	Total Phosphate (as P ₂ O ₅)	369.20	mg/kg	ISRIC, Page No.14-1:2002	Total Nitrogen (as N)	0.15	%	ICARDA-Methods of soil, Plant and water analysis, Page No. 87-89:2013	Zinc	136.20	mg/kg	GESEC/LAB/SOP/ICP-OES/05
Parameters	Results	Unit	Standard Method																																				
Moisture Contain	3.12	%	IS 9235:2019																																				
Total Solid	94.87	%	GESEC /SOP/A-01																																				
Total Volatile Solid	8.45	%	IS 3025 10158 2019																																				
Iron	1.63	mg/kg	GESEC/LAB/SOP/ICP-OES/05																																				
Lead	BDL	mg/kg	GESEC/LAB/SOP/ICP-OES/05																																				
Total Phosphate (as P ₂ O ₅)	369.20	mg/kg	ISRIC, Page No.14-1:2002																																				
Total Nitrogen (as N)	0.15	%	ICARDA-Methods of soil, Plant and water analysis, Page No. 87-89:2013																																				
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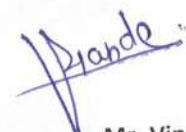

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Dist. Pune-410501. Mob+ 9545084620, 8421365421 CIN No. : U74900PN2013PTC149666
E-mail : envirosafetyeng@gmail.com, gesec12@gmail.com | www.greenenvirosafe.co.in

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and ISO/IEC 17025:2017 (NABL), ISO 9001:2015, ISO 45001 : 2018 and ISO 14001 : 2015 Certified Company

TEST REPORT			
Test Report No: GESEC/PRO/SW/2024-25/01/497	Report Date	21/01/2025	
Sample ID : GESEC/PRO/SW/2024-25/01/497	Sample Details	Lime	
Name & Address of the Customer: M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra).	Type of Sample	Solid	
	Volume Of Sample	1 KG Plastic Bag	
	Sample Status	Sealed	
	Sample Collected By	GESEC	
	Date of Sample Collection	15/01/2025	
	Sample Receipt Date	16/01/2025	
	Analysis start Date	16/01/2025	
	Analysis End Date	21/01/2025	
Parameters	Results	Unit	Standard Method
Moisture Contain	65.20	%	IS 9235:2019
Total Solid	36.93	%	IS 712,1984
Total Volatile Solid	7.88	%	IS 712,1984
Iron	0.77	mg/kg	GESEC/LAB/SOP/ICP-OES/05
Lead	BDL	mg/kg	GESEC/LAB/SOP/ICP-OES/05
Total Phosphate (as P ₂ O ₅)	119.63	mg/kg	ISRIC, Page No.14-1:2002
Total Nitrogen (as N)	0.46	%	ICARDA-Methods of soil, Plant and water analysis, Page No. 87-89:2013
Zinc	74.01	mg/kg	GESEC/LAB/SOP/ICP-OES/05
Remark(s): ➤ BDL – Below Detectable Limit.			
<div style="text-align: right;"> Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By</div> <div style="text-align: center;"></div>			



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TEST REPORT																																							
Test Report No: GESEC/PRO/SW/2024-25/01/498	Report Date	21/01/2025																																					
Sample ID : GESEC/PRO/SW/2024-25/01/498	Sample Details	Press Mud																																					
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra).	Type of Sample	Solid																																					
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	Analysis Start Date	16/01/2025																																					
	Analysis End Date	21/01/2025																																					
<table border="1"> <thead> <tr> <th>Parameters</th> <th>Results</th> <th>Unit</th> <th>Standard Method</th> </tr> </thead> <tbody> <tr> <td>pH</td> <td>7.69</td> <td>--</td> <td>IS 10158-2019</td> </tr> <tr> <td>Organic Carbon</td> <td>9.00</td> <td>%</td> <td>FCO,A-vii,1985</td> </tr> <tr> <td>Moisture Content</td> <td>41.27</td> <td>%</td> <td>IS 9235:2019</td> </tr> <tr> <td>Residual Ash</td> <td>0.45</td> <td>%</td> <td>GESEC /SOP/COM-8-2</td> </tr> <tr> <td>C/N Ratio</td> <td>13.06</td> <td>--</td> <td>FCO,A-X,1985</td> </tr> <tr> <td>Nitrogen as N</td> <td>72.10</td> <td>mg/kg</td> <td>FCO,A-vii,1985</td> </tr> <tr> <td>Phosphorous as P</td> <td>18.63</td> <td>mg/kg</td> <td>FCO,A-viii,1985</td> </tr> <tr> <td>Potassium as K</td> <td>45.78</td> <td>mg/kg</td> <td>FCO,A-ix,1985</td> </tr> </tbody> </table>				Parameters	Results	Unit	Standard Method	pH	7.69	--	IS 10158-2019	Organic Carbon	9.00	%	FCO,A-vii,1985	Moisture Content	41.27	%	IS 9235:2019	Residual Ash	0.45	%	GESEC /SOP/COM-8-2	C/N Ratio	13.06	--	FCO,A-X,1985	Nitrogen as N	72.10	mg/kg	FCO,A-vii,1985	Phosphorous as P	18.63	mg/kg	FCO,A-viii,1985	Potassium as K	45.78	mg/kg	FCO,A-ix,1985
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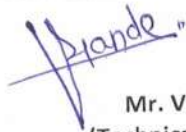
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TEST REPORT				
Test Report No – GESEC/PRO/DW/2024-25/01/499	Date of Reporting		21/01/2025	
Sample ID - GESEC/PRO/DW/2024-25/01/499	Sample Details		Drinking Water (Laboratory)	
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra).	Type of Sample		Water	
	Volume Of Sample		2 Lit	
	Sample Status		Sealed	
	Sample Collected By		GESEC	
	Date of Sample Collection		15/01/2025	
	Date of Sample received in lab		16/01/2025	
	Analysis start Date		16/01/2025	
	Analysis End Date		21/01/2025	
WATER ANALYSIS REPORT				
Parameter	Result	Limits as per IS 10500:2012	Unit(s)	Standard Method
Physical Parameter				
Turbidity	<0.1	<1	NTU	APHA 2130 B24 th Edition:2023
TDS	92.01	<500	mg/lit	APHA 2540 C 24 th Edition:2023
Chemical Parameter				
pH	7.75	6.5 to 8.5	--	APHA 4500 H+ B 24 th Ed: 2023
Total Hardness	43.38	<200	mg/lit	APHA 2340 C 24 th Ed: 2023
Total Alkalinity	30.10	<200	mg/lit	APHA 2320 B 24 th Ed: 2023
Sulphate	2.68	<200	mg/lit	APHA 4500-SO4 - E 24 th Ed: 2023
Residual Chlorine	BDL	<0.2	mg/lit	EPA 334.0,
Chloride	8.77	<250	mg/lit	APHA 4500-Cl-B 24 th Ed: 2023
Calcium (as Ca)	12.34	<75	mg/lit	APHA 3500-Ca B 24 th Ed: 2023
Magnesium (as Mg)	3.05	<30	mg/lit	IS 3025 (Part 46):2023
Elemental Analysis				
Iron as Fe	<0.1	<0.3	mg/lit	EPA200.7
Microbiological Parameter				
Total Coliform	Absent	Absent	/100ml	APHA 9222, J, 24th Ed. 2023
E. coli.	Absent	Absent	/100ml	APHA 9222, J, 24th Ed. 2023
Remark(s): ➤ The above water sample is completed with the required limit as per 10500:2012 for above tested parameters only.				
<div><div></div><div> Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By</div></div>				

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TEST REPORT				
Test Report No: -	GESEC/PRO/AAQM/2024-25/12/1424		Report Date	02/01/2025
Sample ID: -	GESEC/PRO/AAQM/2024-25/12/1424			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	Near Main Gate		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
04:00 PM.	05:00 PM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	28.0	Wet Bulb Temperature °C	18.0	
Dry Bulb Temperature °C	28.0	Relative Humidity % RH	36.8	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
25/12/2024	26/12/2024	26/12/2024	02/01/2025	
Name of Instrument	Fine Dust Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	FDS 24/GESEC/Lab/Inst/70	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 11	µg/cum	100.00	68.23
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I ,36/2012-13, Page no. 15	µg/cum	60.00	31.55
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 01	µg/cum	80.00	15.98
Oxides of Nitrogen(NO _x)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 07	µg/cum	80.00	26.54
Remark ➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B – 29016 / 20 / 90 / PCI – I, New Delhi, the 18th November 2009.				



[Signature]
Mr. Vinod Hande
(Technical Manager)
Reviewed & Authorized By


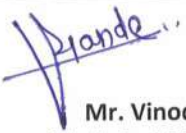
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TEST REPORT				
Test Report No: -	GESEC/PRO/AAQM/2024-25/12/1425		Report Date	02/01/2025
Sample ID: -	GESEC/PRO/AAQM/2024-25/12/1425			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	Near ETP		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
04:15 PM.	05:15 PM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	28.0	Wet Bulb Temperature °C	18.0	
Dry Bulb Temperature °C	28.0	Relative Humidity % RH	36.8	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
25/12/2024	26/12/2024	26/12/2024	02/01/2025	
Name of Instrument	Fine Particulate Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	107L2/GESEC/Lab/Inst/73	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 11	µg/cum	100.00	62.36
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I ,36/2012-13, Page no. 15	µg/cum	60.00	27.41
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 01	µg/cum	80.00	14.59
Oxides of Nitrogen(NO _x)	CPCB Guidelines, Volume I ,36/2012-13, Page no. 07	µg/cum	80.00	18.77
Remark				
➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B – 29016 / 20 / 90 / PCI – I, New Delhi, the 18th November 2009.				
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  <p>GREEN ENVIROSAFE PUNE Engineers & Consultant Pvt. Ltd.</p> </div> <div style="text-align: right;">  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div> </div>				

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TEST REPORT				
Test Report No: -	GESEC/PRO/AAQM/2024-25/12/1426		Report Date	02/01/2025
Sample ID: -	GESEC/PRO/AAQM/2024-25/12/1426			
Name & Address of the Customer	M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Air Sample Details				
Type	Sampling Location		Sampling done by	
Ambient Air	Near Cane Yard		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
04:30 PM.	05:30 PM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	28.0	Wet Bulb Temperature °C	19.0	
Dry Bulb Temperature °C	28.0	Relative Humidity % RH	42.1	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
25/12/2024	26/12/2024	26/12/2024	02/01/2025	
Name Of Instrument	Fine Particulate Sampler	Date Of Calibration	26/04/2024	
Calibration Certificate No.	107L1/GESEC/Lab/Inst/74	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	NAAQ Standards	Result
Particulate Matter (PM ₁₀)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 11	µg/cum	100.00	69.33
Particulate Matter (PM _{2.5})	CPCB Guidelines, Volume I, 36/2012-13, Page no. 15	µg/cum	60.00	33.65
Sulphur Dioxide (SO ₂)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 01	µg/cum	80.00	15.11
Oxides of Nitrogen (NO _x)	CPCB Guidelines, Volume I, 36/2012-13, Page no. 07	µg/cum	80.00	28.47
Remark:- ➤ NAAQS - National Ambient Air Quality Standards, Central Pollution Control Board Notification, No. B – 29016 / 20 / 90 / PCI – I, New Delhi, the 18th November 2009.				

END OF REPORT



V. Hande

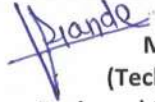
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TEST REPORT				
Test Report No: -	GESEC/PRO/WZM/2024-25/12/1427		Report Date	02/01/2025
Sample ID: -	GESEC/PRO/WZM/2024-25/12/1427			
Name & Address of the Customer	M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
WORKZONE AIR QUALITY MONITORING RESULTS				
Type	Sampling Location		Sampling done by	
Ambient Air	Pan Section		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
04:45 PM.	05:45 PM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	29.0	Wet Bulb Temperature °C	20.0	
Dry Bulb Temperature °C	29.0	Relative Humidity % RH	43.3	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
25/12/2024	26/12/2024	26/12/2024	02/01/2025	
Name of Instrument	Handy sampler	Date of Calibration	26/04/2024	
Calibration Certificate No.	220412/GESEC/LAB/INST/100	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	Limits	Result
Particulate Matter (PM)	GESEC/LAB/SOP/WZM/30	mg/m ³	10	0.682
Sulphur Dioxide (SO ₂)	GESEC/LAB/SOP/WZM/28	mg/m ³	5	0.010
Oxides of Nitrogen(NO _x)	GESEC/LAB/SOP/WZM/29	mg/m ³	6	0.016
Note:				
➤ Limits: As per the Second Schedule of Factories Act /OSHA TWA				
		 <div>  <p>Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By</p> </div>		


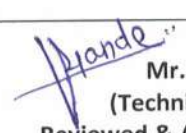
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TEST REPORT				
Test Report No: -	GESEC/PRO/WZM/2024-25/12/1428		Report Date	02/01/2025
Sample ID: -	GESEC/PRO/WZM/2024-25/12/1428			
Name & Address of the Customer	M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
WORKZONE AIR QUALITY MONITORING RESULTS				
Type	Sampling Location		Sampling was done by	
Ambient Air	Sugar House		GESEC	
Sampling Time				
Start Time	Stop Time		Total Hrs.	
05:00 PM.	06:00 PM.		60 Min	
Metrological Data/Environmental Conditions				
Ambient Temperature °C	30.0	Wet Bulb Temperature °C	20.0	
Dry Bulb Temperature °C	30.0	Relative Humidity % RH	39.3	
Date of Sampling	Sample Receipt Date	Analysis Start Date	Analysis End Date	
25/12/2024	26/12/2024	26/12/2024	02/01/2025	
Name Of Instrument	Handy sampler	Date of Calibration	26/04/2024	
Calibration Certificate No.	220413/GESEC/LAB/INST/101	Due Date of Calibration	25/04/2025	
Parameters	Method	Unit	Limits	Result
Particulate Matter (PM)	GESEC/LAB/SOP/WZM/30	mg/m ³	10	0.635
Sulphur Dioxide (SO ₂)	GESEC/LAB/SOP/WZM/28	mg/m ³	5	0.008
Oxides of Nitrogen(NO _x)	GESEC/LAB/SOP/WZM/29	mg/m ³	6	0.013
Note:				
➤ Limits: As per Second Schedule of Factories Act /OSHA TWA.				
		 <div>  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div>		


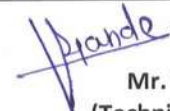
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ISO 9001:2015, ISO 45001 : 2018 and ISO 14001 : 2015 Certified Company

TEST REPORT				
Test Report No	GESEC/PRO/ST/2024-25/12/1429		Report Date	02/01/2025
Sample ID -	GESEC/PRO/ST/2024-25/12/1429			
Name & Address of the Customer				
M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)				
Sample Details				
Sample collection Date	Sample receipt Date	Analysis start Date	Analysis complete Date	
25/12/2024	26/12/2024	26/12/2024	02/01/2025	
Instrument Details				
Name Of Instrument	Stack Sampler	Date Of Calibration	08/10/2024	
Calibration Certificate No.	5919/GESEC/LAB/INST/33	Due Date of Calibration	07/10/2025	
Stack Details				
Stack No/ID	Stack Attached to		Sampling done by	
01	Stack 1 (90+20 TPH)		GESEC	
Shape	Round	Fuel Used	Bagasse	
Diameter/ Dimensions (m)	4.73	Pressure	4.0	
Height (m)	75			
Temperature (°C)	130	Velocity (m/s)	7.62	
Gas Volume (Nm ³ /Hr)	356424.38			
Parameters				
Method		Unit	Limit	Result
Total Particulate Matter (TPM)	EPA METHOD 17: 2017	mg/Nm ³	150	48.22
Sulphur Dioxide (SO ₂)	EPA METHOD 06: 2017	mg/Nm ³	-	15.63
		Kg/day	-	133.70
Remarks-				
➤ Maharashtra Pollution Control Board (MPCB) Limits: TPM: 150 mg/NM ³ .				
			 Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By	


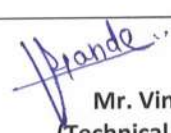
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TEST REPORT				
Test Report No	GESEC/PRO/ST/2024-25/12/1430		Report Date	02/01/2025
Sample ID -	GESEC/PRO/ST/2024-25/12/1430			
Name & Address of the Customer	M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Sample Details				
Sample collection Date	Sample receipt Date	Analysis start Date	Analysis complete Date	
25/12/2024	26/12/2024	26/12/2024	02/01/2025	
Instrument Details				
Name Of Instrument	Stack Sampler	Date Of Calibration	03/08/2024	
Calibration Certificate No.	231018/GESEC/LAB/INST/89	Due Date of Calibration	02/08/2025	
Stack Details				
Stack No/ID	Stack Attached to		Sampling done by	
01	Stack 2 (75 TPH)		GESEC	
Shape	Round	Fuel Used	Bagasse	
Diameter/ Dimensions (m)	2.5	Pressure	3.5	
Height (m)	72			
Temperature (°C)	125	Velocity (m/s)	6.52	
Gas Volume (Nm ³ /Hr)	93721.70			
Parameters	Method	Unit	Limit	Result
Total Particulate Matter (TPM)	EPA METHOD 17: 2017	mg/Nm ³	150	45.70
Sulphur Dioxide (SO ₂)	EPA METHOD 06: 2017	mg/Nm ³	-	12.95
		Kg/day	-	29.13
Remarks-				
➤ Maharashtra Pollution Control Board (MPCB) Limits: TPM: 150 mg/Nm ³ .				
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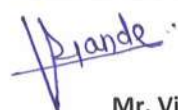
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TEST REPORT				
Test Report No: -	GESEC/PRO/ANLM/2024-25/12/1431		Report Date	02/01/2025
Sample ID: -	GESEC/PRO/ANLM/2024-25/12/1431			
Name & Address of the Customer	M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)			
Ambient Noise Sample Details				
Type	Ambient Noise			
Sampling done by	GESEC			
Standard method	As Per IS: 9989:2020			
Date of Sampling	Sample Receipt Date	Analysis Start Date		Analysis End Date
25/12/2024	25/12/2024	25/12/2024		25/12/2024
Name Of Instrument	Sound Level Meter	Date Of Calibration		16/02/2024
Calibration Certificate No.	GESEC/LAB/INST/29	Due Date of Calibration		15/02/2025
Test Location	Unit	Average Noise Level Readings		CPCB Standards dB(A)
		Day (07:00 P.M.)	Night (01:00 A.M.)	
Near Main Gate	dB(A)	60.4	54.2	During Day time = 75 dB (A) During Night time= 70 dB(A)
Near ETP	dB(A)	68.2	67.1	
Near Bagasse Section	dB(A)	62.6	59.8	
Near Sugar Godown	dB(A)	64.1	61.7	
Near Cane Yard	dB(A)	71.3	67.0	
Remark- ➤ Centre Pollution Control Board (CPCB) has prescribed 75 dB (A) as an upper limit of Noise Level during the Day Time & 70 dB (A) during the Night Time.				
				 Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By


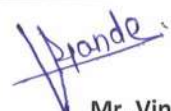
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TEST REPORT				
Test Report No: -	GESEC/PRO/WNLM/2024-25/12/1432	Report Date	02/01/2025	
Sample ID: -	GESEC/PRO/WNLM/2024-25/12/1432			
Name & Address of the Customer		M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		
Work Zone Noise Sample Details				
Type	Work Zone Noise			
Sampling done by	GESEC			
Standard method	As Per IS: 9989:2020			
Date of Sampling	Sample Receipt Date	Analysis Start Date		Analysis End Date
25/12/2024	25/12/2024	25/12/2024		25/12/2024
Name of Instrument	Sound Level Meter	Date Of Calibration		16/02/2024
Calibration Certificate No.	GH2482296/GESEC/LAB/INST/59	Due Date of Calibration		15/02/2025
Test Location	Unit	Average Noise Level Readings		The Factories Act 1948, standards
		Day (08:00 P.M.)	Night (01:40 A.M.)	
Centrifugal Section	dB(A)	68.5	66.2	≤ 90
Turbine Section	dB(A)	69.4	67.9	
Boiler Section	dB(A)	61.1	58.6	
Mill Section	dB(A)	64.7	60.5	
Pan Section	dB(A)	70.1	66.8	
Remark- ➤ The Factories Act, 1948, has prescribed 90 dB (A) as an upper limit of noise level for 8 hours exposure. ➤ All above results are within Factories Act 1948 Standards.				
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TEST REPORT			
Test Report No: GESEC/PRO/WW/2024-25/12/1433	Report Date	02/01/2025	
Sample ID : GESEC/PRO/WW/2024-25/12/1433	Sample Details	ETP Inlet	
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)	Type of Sample	Waste Water	
	Volume Of Sample	1 Lit plastic bottle	
	Sample Status	Sealed	
	Sample Collected By	GESEC	
	Date of Sample Collection	25/12/2024	
	Sample Receipt Date	26/12/2024	
	Analysis start Date	26/12/2024	
	Analysis End Date	02/01/2025	
Parameters	Results	Unit	Standard Method
pH	3.77	--	APHA 4500 H+ B 24 th Edition:2023
Suspended Solids (SS)	174.68	mg/lit	APHA 2540 D 24 th Edition:2023
Total Dissolved Solids (TDS)	4012.39	mg/lit	APHA 2540 C 24 th Edition:2023
Chemical Oxygen Demand (COD)	3851.47	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	1456.98	mg/lit	USEPA NERL 405.1
Chlorides as Cl-	721.04	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ²⁻	632.88	mg/lit	APHA 4500-SO ₄ E 24 th Edition:2023
Oil & Grease	16.00	mg/lit	APHA 5520 D 24 th Edition:2023
<div style="display: flex; justify-content: space-between; align-items: center;"> <div>  </div> <div>  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div> </div>			



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Sample ID : GESEC/PRO/WW/2024-25/12/1434		Sample Details		ETP Outlet																																													
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		Type of Sample		Waste Water																																													
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TEST REPORT																																							
Test Report No: GESEC/PRO/WW/2024-25/12/1435		Report Date	02/01/2025																																				
Sample ID : GESEC/PRO/WW/2024-25/12/1435		Sample Details	Factory STP Inlet 50 KLPD																																				
Name & Address of the Customer: M/s. Kallappanna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		Type of Sample	Waste Water																																				
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TEST REPORT				
Test Report No: GESEC/PRO/WW/2024-25/12/1436		Report Date		02/01/2025
Sample ID : GESEC/PRO/WW/2024-25/12/1436		Sample Details		Factory STP Outlet 50 KLPD
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		Type of Sample		Waste Water
		Volume Of Sample		1 Lit plastic bottle
		Sample Status		Sealed
		Sample Collected By		GESEC
		Date of Sample Collection		25/12/2024
		Sample Receipt Date		26/12/2024
		Analysis start Date		26/12/2024
		Analysis End Date		02/01/2025
Parameters	Results	MPCB LIMIT	Unit	Standard Method
pH	7.59	6.5-8.5	--	APHA 4500 H+ B 24 th Edition:2023
Suspended Solids (SS)	17.61	100	mg/lit	APHA 2540 D 24 th Edition:2023
Total Dissolved Solids (TDS)	685.20	2100	mg/lit	APHA 2540 C 24 th Edition:2023
Chemical Oxygen Demand (COD)	42.60	250	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	18.77	100	mg/lit	USEPA NERL 405.1
Chlorides as Cl ⁻	147.63	600	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ⁻	105.09	1000	mg/lit	APHA 4500-SO4 E 24 th Edition:2023
Oil & Grease	BDL	10	mg/lit	APHA 5520 D 24 th Edition:2023
Remark: ➤ BDL – Below Detectable Limit. ➤ All parameters are within the MPCB limit.				
<div style="display: flex; justify-content: space-between; align-items: center;"> <div>  </div> <div>  Mr. Vinod Hande (Technical Manager) Reviewed & Authorized By </div> </div>				



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TEST REPORT																																							
Test Report No: GESEC/PRO/WW/2024-25/12/1437		Report Date	02/01/2025																																				
Sample ID : GESEC/PRO/WW/2024-25/12/1437		Sample Details	Colony STP Inlet 100 KLPD																																				
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		Type of Sample	Waste Water																																				
		Volume Of Sample	1 Lit plastic bottle																																				
		Sample Status	Sealed																																				
		Sample Collected By	GESEC																																				
		Date of Sample Collection	25/12/2024																																				
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		Analysis start Date	26/12/2024																																				
		Analysis End Date	02/01/2025																																				
<table border="1"> <thead> <tr> <th>Parameters</th> <th>Results</th> <th>Unit</th> <th>Standard Method</th> </tr> </thead> <tbody> <tr> <td>pH</td> <td>6.42</td> <td>--</td> <td>APHA 4500 H+ B 24 th Edition:2023</td> </tr> <tr> <td>Suspended Solids (SS)</td> <td>159.63</td> <td>mg/lit</td> <td>APHA 2540 D 24 th Edition:2023</td> </tr> <tr> <td>Total Dissolved Solids (TDS)</td> <td>1320.57</td> <td>mg/lit</td> <td>APHA 2540 C 24 th Edition:2023</td> </tr> <tr> <td>Chemical Oxygen Demand (COD)</td> <td>163.20</td> <td>mg/lit</td> <td>USEPA 410.1</td> </tr> <tr> <td>Biochemical Oxygen Demand (BOD)</td> <td>95.78</td> <td>mg/lit</td> <td>USEPA NERL 405.1</td> </tr> <tr> <td>Chlorides as Cl⁻</td> <td>263.14</td> <td>mg/lit</td> <td>APHA 4500-Cl-B 24 th Edition:2023</td> </tr> <tr> <td>Sulphates as SO₄²⁻</td> <td>159.63</td> <td>mg/lit</td> <td>APHA 4500-SO₄ E 24 th Edition:2023</td> </tr> <tr> <td>Oil & Grease</td> <td>BDL</td> <td>mg/lit</td> <td>APHA 5520 D 24 th Edition:2023</td> </tr> </tbody> </table>				Parameters	Results	Unit	Standard Method	pH	6.42	--	APHA 4500 H+ B 24 th Edition:2023	Suspended Solids (SS)	159.63	mg/lit	APHA 2540 D 24 th Edition:2023	Total Dissolved Solids (TDS)	1320.57	mg/lit	APHA 2540 C 24 th Edition:2023	Chemical Oxygen Demand (COD)	163.20	mg/lit	USEPA 410.1	Biochemical Oxygen Demand (BOD)	95.78	mg/lit	USEPA NERL 405.1	Chlorides as Cl ⁻	263.14	mg/lit	APHA 4500-Cl-B 24 th Edition:2023	Sulphates as SO ₄ ²⁻	159.63	mg/lit	APHA 4500-SO ₄ E 24 th Edition:2023	Oil & Grease	BDL	mg/lit	APHA 5520 D 24 th Edition:2023
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TEST REPORT				
Test Report No: GESEC/PRO/WW/2024-25/12/1438		Report Date		02/01/2025
Sample ID : GESEC/PRO/WW/2024-25/12/1438		Sample Details		Colony STP Outlet 100 KLPD
Name & Address of the Customer: M/s. Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari-Yalgud, Tal: Hatkanangale, Dist: Kolhapur (Maharashtra)		Type of Sample		Waste Water
		Volume Of Sample		1 Lit plastic bottle
		Sample Status		Sealed
		Sample Collected By		GESEC
		Date of Sample Collection		25/12/2024
		Sample Receipt Date		26/12/2024
		Analysis start Date		26/12/2024
		Analysis End Date		02/01/2025
Parameters	Results	MPCB LIMIT	Unit	Standard Method
pH	7.72	6.5-8.5	--	APHA 4500 H+ B 24 th Edition:2023
Suspended Solids (SS)	18.69	100	mg/lit	APHA 2540 D 24 th Edition:2023
Total Dissolved Solids (TDS)	502.36	2100	mg/lit	APHA 2540 C 24 th Edition:2023
Chemical Oxygen Demand (COD)	37.40	250	mg/lit	USEPA 410.1
Biochemical Oxygen Demand (BOD)	13.95	100	mg/lit	USEPA NERL 405.1
Chlorides as Cl ⁻	95.20	600	mg/lit	APHA 4500-Cl-B 24 th Edition:2023
Sulphates as SO ₄ ²⁻	87.41	1000	mg/lit	APHA 4500-SO ₄ E 24 th Edition:2023
Oil & Grease	BDL	10	mg/lit	APHA 5520 D 24 th Edition:2023
Remark: ➤ BDL – Below Detectable Limit. ➤ All parameters are within the MPCB limit.				
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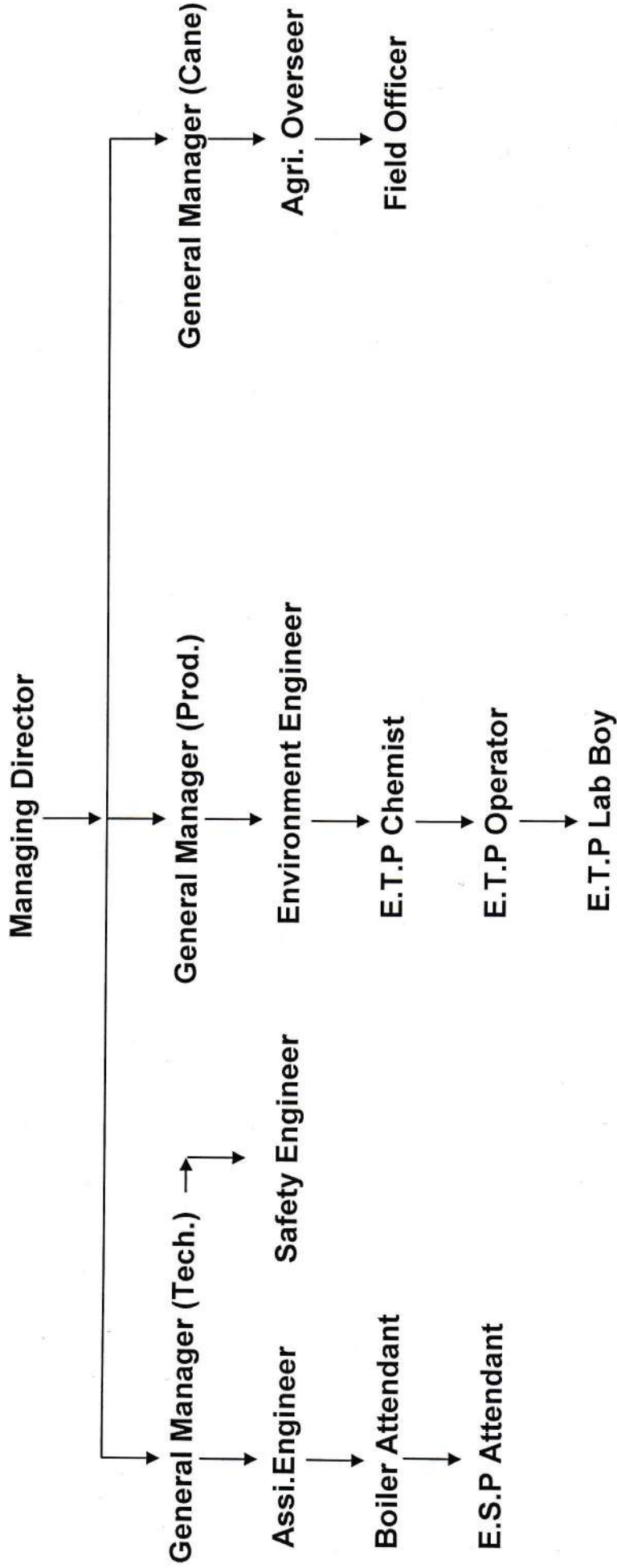
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Kallappa Anna Awade Jawahar Shetkari Sahakari Sakhar Karkhana Ltd., Hupari

Shri Kallappa Anna Awadenagar, Hupari-Yalgud 416 203,
Tal. Hatkanangale, Dist. Kolhapur (Maharashtra)

Environmental Management Cell



Existing Green Belt



Existing Green Belt



Existing Green Belt



Existing Green Belt



Existing Green Belt



KALLAPPANNA AWADE JAWAHAR SHETKARI SAHAKARI SAKHAR KARKHANA LTD
Hupari -Yalgud,416203, Tal-Hatkanangale, Dist- Kolhapur.(Maharastra)

Date: 09/10/2024

Karkhana site Tree Plantation Details

Sr.No	Particulars	Nos of Tree
A	Fruit Plant	
1.	Coconut	603
2.	Mango	350
3.	Chikku	156
	Total	1109
B	Forest Tree	
1.	Rain Tree	3700
2.	Cassia	1752
3.	Chinch	78
4.	Kadaumb	17
5.	Subabhul	830
6.	Badam	46
7.	Saptparni	32
8.	Chandan	45
9.	Sag	14
10.	Suru	1000
11.	Nimb & Others	3798
12.	Tubobia	12
13.	Palas	14
14.	Gorham Chinch	558
15.	Silver Oak	2000
16.	Spathodia	36
17.	Wad	70
18.	Pimpal	125
19.	Nile Mohar	42
20.	Bahawa	140
21.	Gulmohar	409
22.	Kanchan	133
23.	Nilgiri	3930
24.	Umber	62
25.	Phanas	15
26.	Bel	05
27.	Australian babul	300
30.	Gul bhendi	507
31.	Karanj	2839
32.	Jambhul	100
33.	Paletoforum	250
34.	Bambu	30634
35.	Katesawar	320
	Total	53813

Sr.No	Particulars	Nos of Plant
C	Decorative Tree	
1.	Bottal Palm	90
2.	Ashoka	703
3.	Thuja	10
4.	Ficus	82
5.	Boganwel	1440
6.	Exora	21
7.	Chapha	53
8.	Areka Palm	4316
	Total	6715
D	Flower Tree	
1.	Rose	200
2.	Other Flower Tree	4726
3.	Pots Tree	306
4.	Kaneri	2670
5.	Shankasur	340
	Total	8242

Total Summary of tree plantation-		
A	Fruit Tree	1109
B	Forest Tree	53813
C	Decorative Tree	6715
D	Flower Tree	8242
	Total Tree Plantation	69879

A Brief Report on

GREEN COVER ASSESSMENT

through

Canopy Mapping and Tree Census Study Of

Jawahar Shetakari Sahakari Sakhar Karkhana Ltd. (JSSSKL) ,
Shri Kallappa Anna Awadenagar, Hupari - Yalgud, Tal.: Hatkanangale, Dist.: Kolhapur, MS.



Prepared By



Equinox Environments (I) Pvt. Ltd.

Environmental, Civil & Chemical Engineers, Consultants and Analysts, Kolhapur (MS)
QCI- NABET & ISO 9001 : 2015 Accredited Organization
Email : eia@equinoxenvi.com, projects@equinoxenvi.com

August 2023

Preamble

Green Cover is nothing but the above ground biomass in the form of vegetation at any area. Trees are amongst the most significant element of any landscape, both due to biomass and diversity and are important sinks for atmospheric carbon i.e., carbon dioxide, since 50% of their standing biomass is carbon itself. Industrial advancement has resulted in the emission of carbon in the ecosystem and there is an urgent need to address environmental issues related to them. Therefore, green belts are recommended for containment of air pollution in human environment, especially in Industrial and urban areas. Green belt as a back-up to technological pollution abatement measures, could substantially reduce pollution hazard; where green plants form a surface capable of sorbing air pollutants and forming sinks for pollutants. Leaves with their vast area in a tree crown, sorbs pollutants on their surface and often incorporate in metabolic stream, thus effectively reduce their concentrations in the ambient air and the air gets purified. Plants grown in such a way as to function as pollutant sinks especially carbon sequesters, are collectively referred to as green belts.

Tree Crown or Canopy, is the proportion of the area covered by the vertical projection of the tree crowns. In biology, the canopy is the aboveground portion of a tree, plant or crop, formed by the collection of individual crowns. Canopy cover is the layer formed by the branches and crowns of plants or trees. The cover can be continuous, as in primary forests, or discontinuous; with gaps, as in orchards. Canopy cover is measured as the proportion of a fixed area of the ground covered by tree crowns. The canopy cover will be determined by the tree species, as they have different crown sizes, shapes, and heights.

Early observations of canopies were made from the ground using binoculars or by examining fallen material. In some cases, unconventional methods such as chairs suspended on vines or hot-air dirigibles were used. Further, adapted mountaineering gear, has made canopy observation significantly easier and more accurate, allowed for longer and more collaborative work, and broadened the scope of canopy study. Now, the modern technology and instruments has made the measurements in the field easy and are affordable, portable, and handheld. There are many methods to measure canopy cover and accurate mapping and monitoring canopy cover using Drone Survey data is the best alternative way for satellite data. Drone photography and digital analysis uses the fisheye lens approach and

produces the most accurate measurements. It is suitable for tree level measurements of crown architecture, dimensions and density. Canopy cover density classes maps are the area-based parameter where the percentage of canopy cover of trees were computed based on the crown area of trees within the industrial plot area.

In most cases, field measurements by 'Tree Census' are needed for testing and validating all remote sensing methods and it is the only way to define more accurate vertical projection of a tree. Tree Census technique includes individual count of a tree and documentation of the basal area through girth or diameter at breast level, tree height and canopy diameter along with the species name. Carbon sequestration estimation is the main purpose of the measurement of green cover. With the help of statistical models and respective ratios and conversion factors, one can derive the biomass of a tree, current sequestered carbon and future potential, which is the main purpose to develop a green belt around any industrial complex. A plant, by habit, having woody stem or trunk with minimum girth of 10 cm at chest level and has a height of 2 m above the ground level. For better preservation, protection and plantation of trees, a census of trees should be carried out once in every five years in urban areas and apparently it should be more frequent in case of industrial areas.

Green Cover Measurement through Canopy Mapping & Tree Census acts as an indicator of following factors for both natural as well as cultivated vegetation.

- The green cover is dependent on the health of a tree, vegetation diversity, nutrition, water access, soil characteristics, diseases, pest infestations and stress.
- The efficiency of fertilization, irrigation, and pruning methods affect the canopy cover and biomass of tree, so its measurement sheds light on these factors as well.
- Canopy cover is also used to study the effects of pollution hazards, fire & microclimate.

The present report is a brief summarisation of a 'Green Cover Assessment' of industrial campus of **M/s. Jawahar Shetakari Sahakari Sakhar Karkhana Ltd. (JSSSKL), Kolhapur**, through 'Canopy Mapping and Tree Census' study. The key purpose of this study is to estimate the current status of existing greenbelt, which will help to plan the proposed greenbelt development and its comprehensive management program.

Material & Methodology

Study Area: The project site of M/s Jawahar Shetkari Sahakari Sakhar Karkhana Limited (JSSSKL), is located at Shri Kallappa Anna Awade nagar, Hupari-Yalgud, Tal.-Hatkanangale, Dist.-Kolhapur, Maharashtra. It is around 30 km from Kolhapur city. It is an industrial complex of sugar factory with capacity 16,000 TPD, 28.5 MW Co-gen plant and proposed 100 KLPD Distillery. The total area of the industry is 99.57 Ha. Geographical location of the site is 74°24'14.27" E longitude and 16°36'15.45"N latitude and 587 M above MSL.

Fig 1 Location Map of the JSSSKL

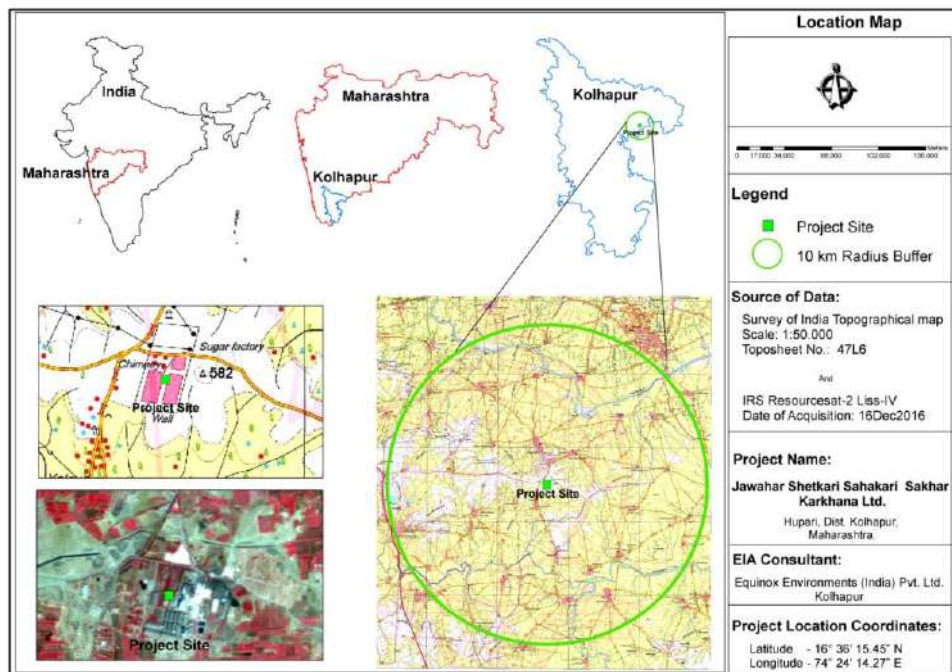
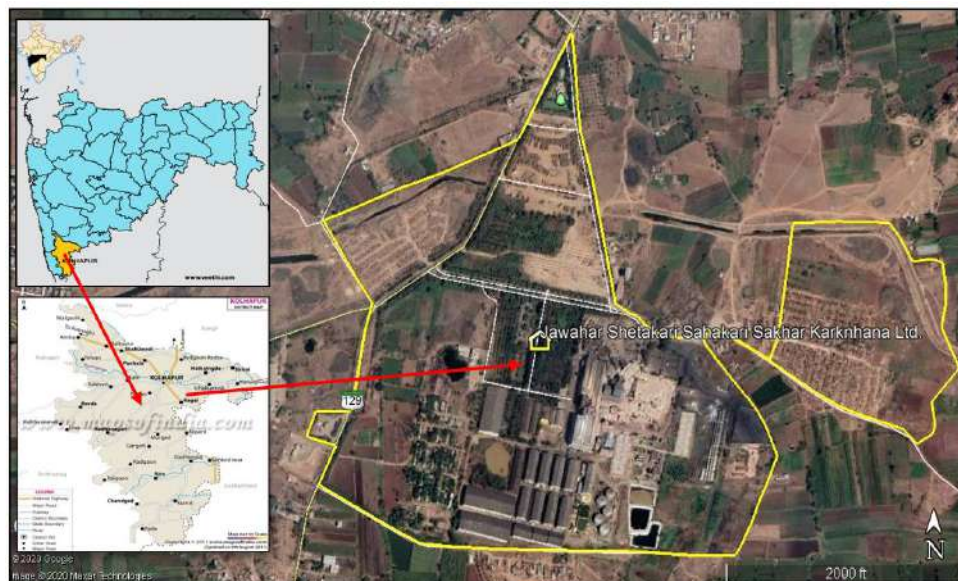


Fig 2 Google Earth Map of the JSSSKL



Methodology: Aerial imagery provides spectral (colour) information that allows trees to be distinguished from objects such as buildings and roads. Initially, a GIS base map and shapefile were prepared using the KML and plot layout of the industry. This map is used to set the Area of Interest (AOI) for the drone survey so it gives clarity and accuracy at the time of field work.

DJI's advanced technology Drone 'KAMBILL-DJI-INSPIRE-1 - Remotely Controlled Aircraft with X3 Camera' was used for the survey. The camera of the drone can take composite image with three bands along with digital elevation details and laser cloud points. Multispectral imaging sensors captures red, green, and blue (RGB) spectral information which is useful for image classification and to estimate vegetation canopy cover. The drone survey was carried out on 8th August 2023. The drone can fly at a constant level up to the height of 150 m. Since the chimney height is about 80 m, the drone survey was carried out at a constant level of 100 m above ground level. Differential GPS system 'KAM-DGPS Base Station' was fitted at centre of plot area and the geographical coordinates of the area was obtained. Coordinates of the DGPS point are - Latitude: 16° 36' 20.03" N, Longitude: 74° 24' 12.86" E and Ground level: 587.8 m w.r.t MSL.

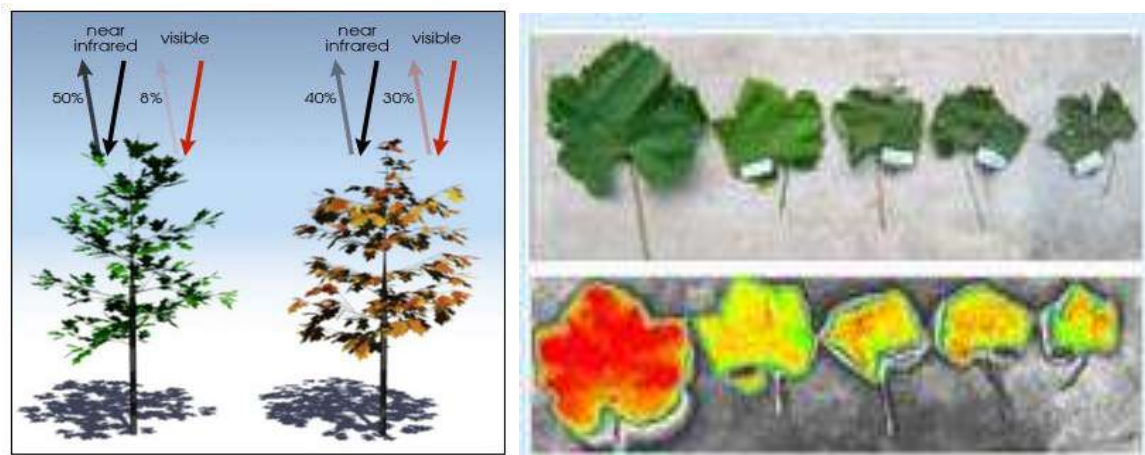
Fig 3 The Image of the Drone and DGPS used for the Canopy Survey



The data captured by the drone was downloaded, checked for clarity and accuracy and further processed using Pix4D software. An ortho-mosaic image was created using the drone data. A Digital Elevation Model was produced using ArcGIS software. ArcGIS generates Canopy map using the above processed data. Classification process and area computation of the canopy image was done using ERDAS software.

Standard 'Normalized Difference Vegetation Index (NDVI) technique' is used to measure the vegetation cover at study area. The difference between near-infrared (which vegetation strongly reflects) and red light (which vegetation absorbs) quantifies the vegetation cover. NDVI uses the NIR and red channels in its formulation. Normally, Healthy vegetation (chlorophyll) reflects more near-infrared (NIR) and green light compared to other wavelengths, but it absorbs more red and blue light. If you have low reflectance (or low values) in the red channel and high reflectance in the NIR channel, this will yield a high NDVI value and vice versa. When you have high NDVI values, you have healthier vegetation. When you have low NDVI, you have less or no vegetation.

Fig 4 High and Low Reflectance of NIR and VR Lights

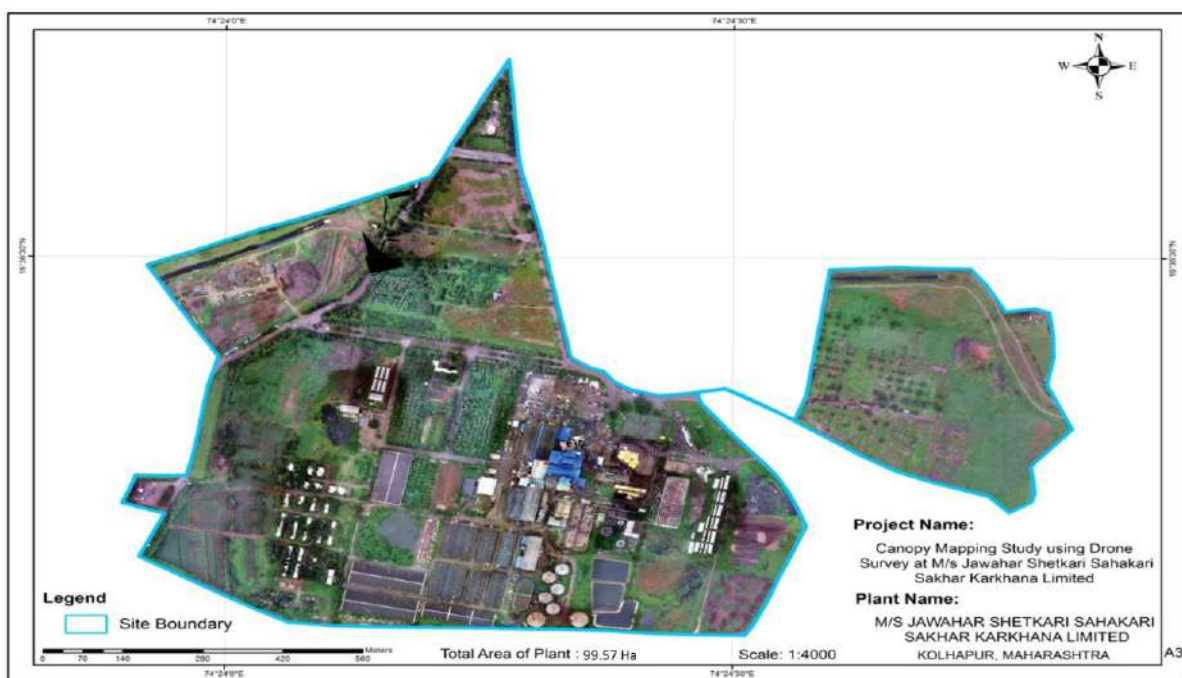


Since trees and shrubs can appear spectrally similar or be obscured by shadow, tree census was carried out to enhance the accuracy of tree mapping, providing more precise data including tree count, size, and species distribution. Attempt was made to count all the possible trees from the study area. Some inaccessible locations on project site were surveyed by using strategic representative belt transects and the data was extrapolated to the areas where it was not possible to reach. Most of the tree species encountered were identified on field on the basis of their morphological characters - shape, size, arrangement, texture, odour and colour of bark, leaves, flower and fruit. The Height and Girth of tree gives the volume of the tree. By using specific wood density and ratio factors for carbon and oxygen, total biomass, carbon stock, sequestered carbon and released oxygen by these trees were calculated.

Observations & Results

Ortho-Rectified Composite Image of industry plant area was created with three bands, i.e., Red, Blue and Green. The composite image shows very clear patterns of green belt area along with the industrial plant buildings, grass lands and open areas. When you receive an unrectified image, there is distortion across the image caused by distortions from the sensor and the earth's terrain. After imagery has been orthorectified, it can be used within a GIS software and can be accurately overlaid with other data layers.

Fig 5 Ortho-Rectified Composite Image of the JSSSKL

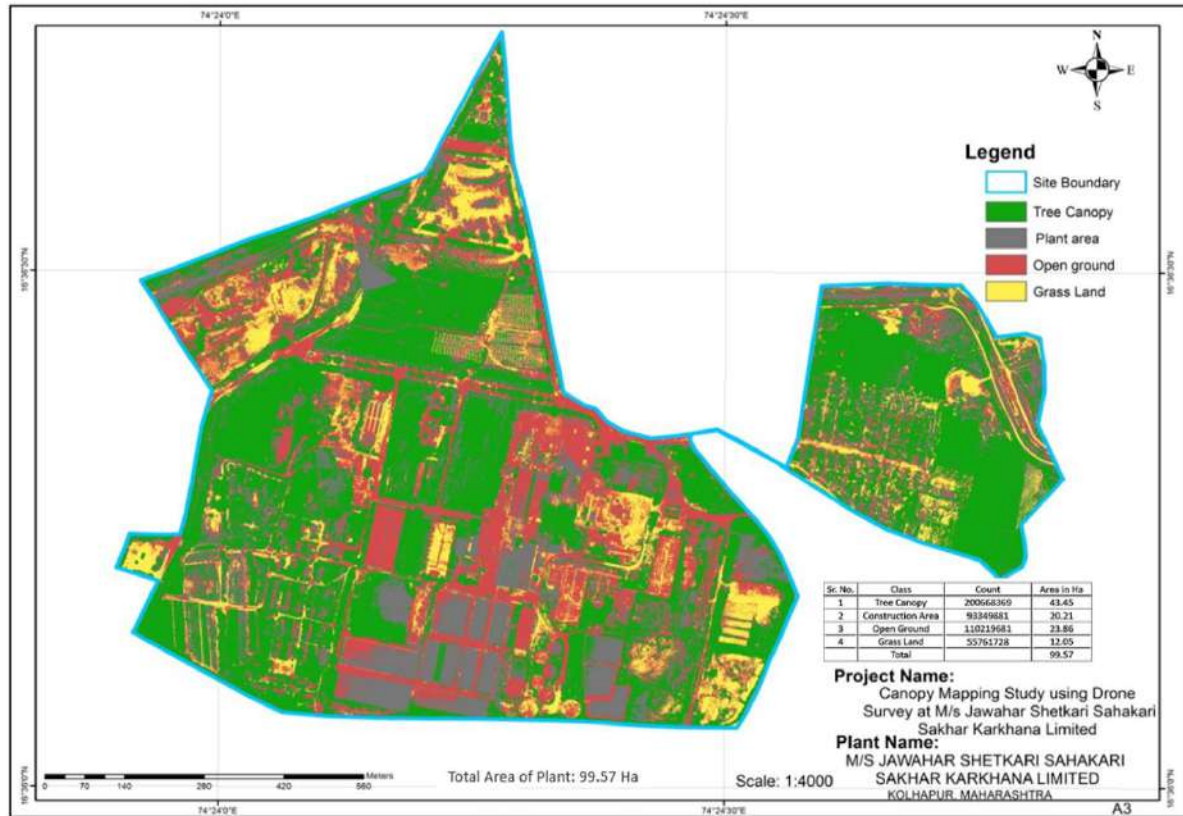


The image has been processed to apply corrections for optical distortions from the sensor system, and apparent changes in the position of ground objects caused by the perspective of the sensor view angle and ground terrain. This ortho-rectified composite image is accurately georeferenced and further used to generate the canopy map of the area. The NDVI technique was systematically adopted to create the vegetation canopy map from the ortho rectified composite image.

Although there are several vegetation indices, one of the most widely used is the Normalized Difference Vegetation Index (NDVI). Areas of barren rock, sand, or snow usually show very low NDVI values (for example, 0.1 or less). Sparse vegetation such as shrubs and

grasslands or senescing crops may result in moderate NDVI values (approximately 0.2 to 0.5). High NDVI values (approximately 0.6 to 0.9) correspond to dense vegetation.

Fig 6 Canopy Map with Classification Area details of the JSSSKL



The above canopy map shows four types of classes: 1) Tree canopy area, 2) Plant area, 3) Open Ground and 4) Grass land. The index count and area of each class were computed in GIS software.

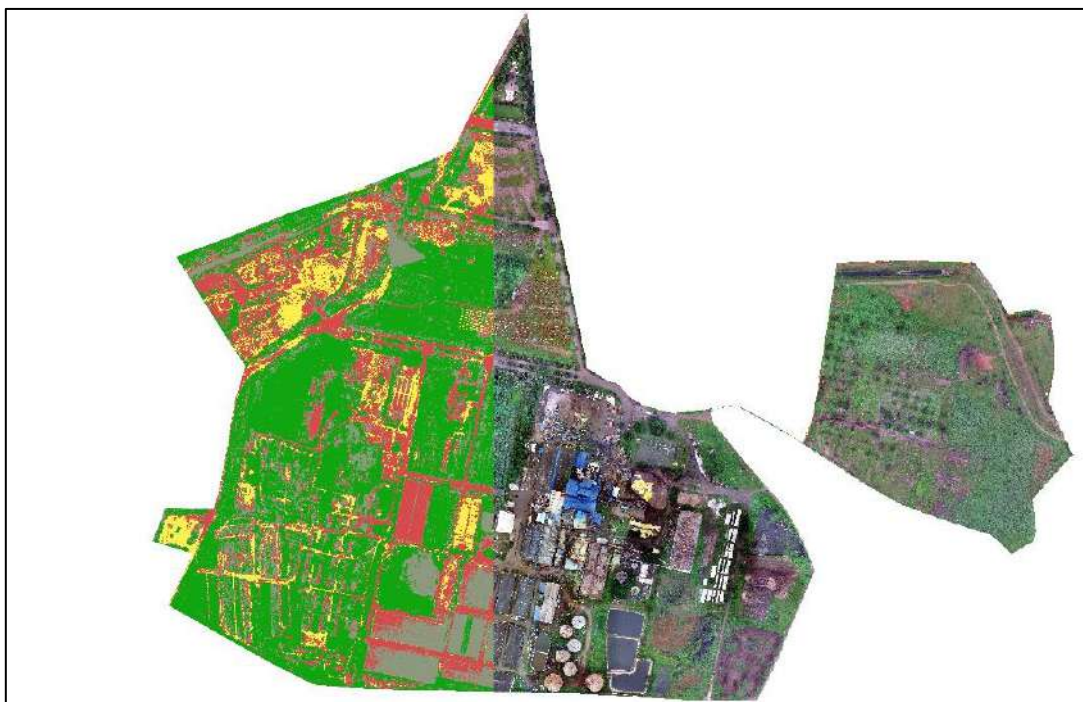
Table 1 Index Count and Area of the Four Classes by NDVI Technique

Sr. No.	Class	Count	Area in Ha
1	Tree Canopy	200668369	43.45
2	Construction Area	93349881	20.21
3	Open Ground	110219681	23.86
4	Grass Land	55761728	12.05
	Total		99.57

The table shows that out of the total area of 99.57 Ha of the four classes, tree canopy is 43.45 Ha, construction area is 20.21 Ha, open ground is 23.86 Ha and grass land is 12.05 Ha.

Therefore, the percentage of tree cover is 43.64%. The canopy map was validated with the composite image and found to be accurate as shown below.

Fig 7 The Image Validation of the Canopy Map of JSSSKL



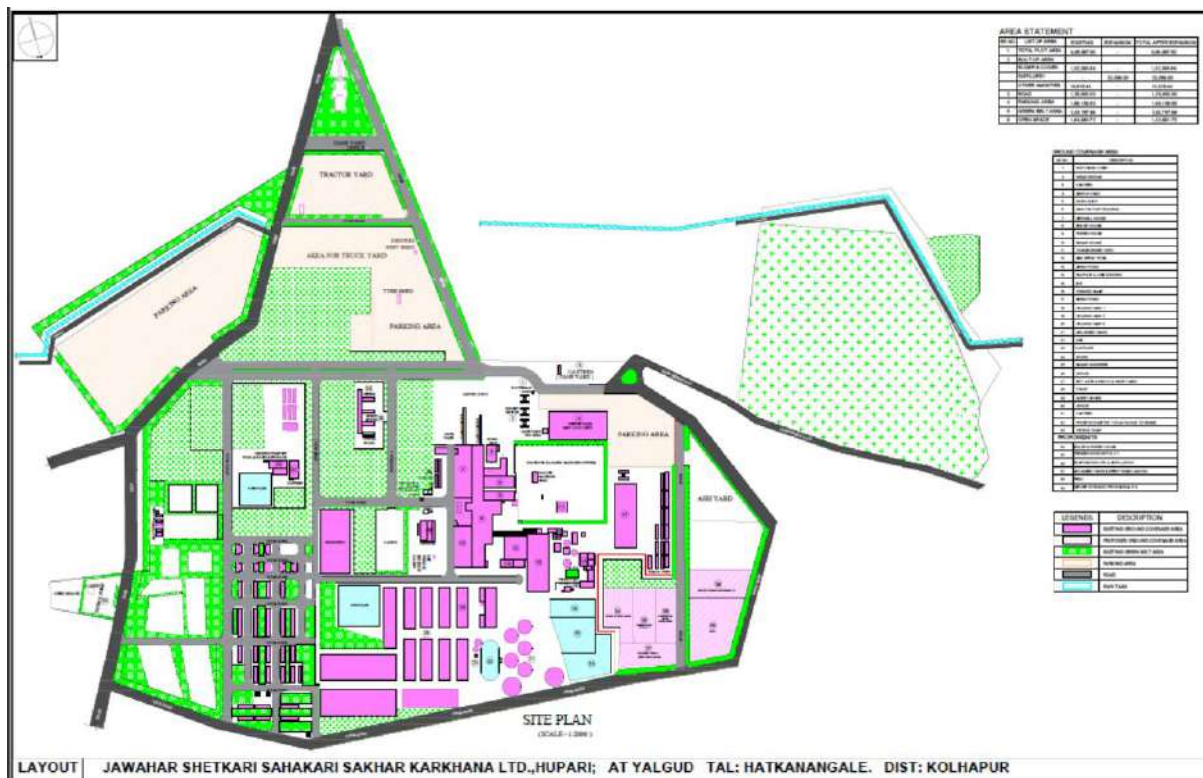
Grass lands are not included in the tree canopy area. The trees include in the above-mentioned canopy area are from height 1 m to 20 m. four groups were made as per the height of the trees and canopy area of each group is calculated.

Table 2 Height wise canopy area of the trees in JSSSKL

Height of Tree in M	Canopy Area of Trees in Sq. M	Proportion with Total Canopy Area
1 m to 5 m	44,890	10%
5 m to 10 m	79,299	18%
10 m to 15 m	1,63,800	38%
15 m to 20 m	1,46,461	34%
Total	4,34,450 Sqm	100%

The table shows that major proportion of the canopy area is of good height which indicates that the green belt developed at industry is in healthy condition. Here, some shrubs and bushes were also encompassed in the canopy cover. The tree census data further elaborates the status of the existing green belt at JSSSKL.

Fig 8 Plot Layout of the integrated complex of JSSSKL



The total plot area of 99.57 Ha was surveyed for the green cover inventory. Total 69,279 numbers of trees with more than 10 cm girth and height more than 4 ft have been enumerated. About 41 species have been identified during the census. It shows a rich diversity on the project complex.

Total biomass: Biomass, in ecology, is the mass of living biological organisms in a given area or ecosystem at a given time. Biomass can refer to species biomass, which is the mass of one or more species, or to community biomass, which is the mass of all species in the community. It can include microorganisms, plants or animals. The mass can be expressed as the average mass per unit area, or as the total mass in the community. 43,606.5 tons of total biomass of woody vegetation have been recorded, during the current tree census.

Carbon stock: Forests and trees act as natural carbon stores, but this carbon is released when the trees are felled and the area deforested. The amount of carbon stored within an area of land varies according to the type of vegetation cover. 747.74 tons of total carbon stock is present at the project complex.

Carbon Sequestration (C. S.): Carbon sequestration describes long-term storage of carbon dioxide or other forms of carbon to either mitigate or defer global warming and avoid dangerous

climate change. It has been proposed as a way to slow the atmospheric and marine accumulation of greenhouse gases, which are released by burning fossil fuels. Vegetation carbon pool having the potential of 560 Pg (Pg: Petagram= billion ton) of carbon storage globally. In the current study the focus is given on the assessment of existing carbon stock stored in JSSSKL in the form of woody vegetation by enumerating every tree species. Overall, 80017.80 tons of CO₂ has captured and stored by the woody plants present in the industry complex. A single tree consumes 0.0218 tons of CO₂ approximately annually consequently, as the campus possess 69,279 mature woody plants 1510.28 tons of CO₂ is consumed yearly by all woody vegetation on the industry complex.

Oxygen released: Woody vegetation in JSSSKL complex has released 2,13,647.53 tons of oxygen in their lifetime till date. Released oxygen is directly proportional to CO₂ sequester in the ratio of 32/12 thus it is supposed to release 5,70,438.90 kg of oxygen annually. It is assumed that a single tree supports oxygen demand of two people for their life. Thus, the 69,279-woody vegetation in college campus are supporting people around the campus.