



172  
उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड  
UTTAR PRADESH POLLUTION CONTROL BOARD



Ref No. : H10688/E-7/ विवेक-533/2024

Date : 13-2-24

To,

**The Registrar General,**  
Principal Bench,  
Hon'ble National Green Tribunal,  
Copernicus Marg, New Delhi.

**Sub.:** Regarding submission of Reply/Response with reference to Hon'ble NGT order dated 12-12-2023 in the matter of O.A. No. 324/2016 Shailesh Singh Vs State of U.P. & Ors.

Sir,

In compliance of the direction passed by Hon'ble National Green Tribunal during hearing on 12-12-2023 in the matter of O.A. No. 324/2016 Shailesh Singh Vs State of U.P. & Ors. as contained in paragraph 14 of the order dated 18-03-2021, Reply/Response of U.P. Pollution Control Board is enclosed herewith <sup>with</sup> request to put up before Hon'ble National Green Tribunal for kind perusal.

**Encl: As Above**

Yours Sincerely,

Chief Environment Officer  
Circle-7

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			Department of Civil Engineering, IIT, Roorkee which was prepared by Mr. Upendra Srivastava, Accredited Ground Water Professional, Lucknow.
2.	<b>M/s Damya (P) Foods, Pvt. Ltd.</b> Village- ChiknaShahbad Road, Rampur- 244901 (UP)	<ol style="list-style-type: none"> <li>1. Unit shall install flowmeters on the borewell in the industry premises and maintain logbook for each flowmeter and obtain CGWA NOC for ground water abstraction.</li> <li>2. Unit shall install flowmeter and maintain record for treated effluent reused in horticulture.</li> <li>3. Unit shall operate ETP properly to meet the discharge standard.</li> <li>4. Unit shall obtain adequacy report of ETP system from a reputed expert government institutes.</li> </ol>	<ol style="list-style-type: none"> <li>1. The unit has installed flow meter on the bore well and maintaining the log book. The unit has obtained NOC from UPGWD, valid till 14-12-2026.</li> <li>2. Complying. The unit has installed flow meter on the line taking treated effluent to be re-used in horticulture and maintaining the log book.</li> <li>3. Complying. Analysis reports of sample taken from inlet of ETP, outlet of ETP, Aeration tank annexed as <b>Annexure No. 2.</b></li> <li>4. The unit has obtained adequacy report of ETP system from Department of Civil Engineering, Faculty of Engineering &amp; Technology, Aligarh Muslim University, Aligarh. Report is attached herewith as <b>Annexure No. 3.</b></li> </ol>
3.	<b>M/s Usha Steel Process</b> D-22, 23 & 29 Ajeetpur Industrial Estate Ajeetpur, Rampur Uttar Pradesh	<ol style="list-style-type: none"> <li>1. Unit shall install flowmeters on the borewell and other points of effluent generations, reuse and discharge in the industry premises with logbook for each flowmeter and obtain CGWA-NOC for ground water abstraction.</li> <li>2. Unit shall install flowmeter and maintain record for treated effluent reused in process and amount of water discharged.</li> <li>3. Unit shall obtain adequacy report of ETP system from a reputed expert government institutes.</li> <li>4. Unit shall operate the ETP properly and ensure that treated effluent shall meet the discharge norms.</li> </ol>	<ol style="list-style-type: none"> <li>1. The unit has installed flow meter on the bore well and other points of effluent generation, reuse and discharge in the industry premises and maintaining the log book. The unit has obtained NOC from UPGWD, valid till 14-12-26.</li> <li>2. Complying. Unit has installed flowmeter and maintaining logbook.</li> <li>3. The unit has obtained adequacy report of ETP system from Department of Civil Engineering, Faculty of Engineering &amp; Technology, Aligarh Muslim University, Aligarh. Copy is attached herewith as <b>Annexure No. 4.</b></li> <li>4. Complying. The unit has installed RO System after the ETP and treated effluent is being reused in the process and maintaining zero liquid discharge.</li> </ol>

4.	<b>M/s Swati Menthol &amp; Allied Chemicals Ltd.</b> 4.5kms. Bareilly Road Rampur 244901 (U.P.)	<ol style="list-style-type: none"> <li>1. The unit shall obtain NOC from CGWA for withdrawal of ground water.</li> <li>2. The unit shall install flowmeter at outlet of ETP.</li> <li>3. The unit shall carry out feasibility study to explore possibility of reuse of treated effluent from ETP within industrial premises.</li> </ol>	<ol style="list-style-type: none"> <li>1. The unit has obtained NOC from UPGWD, valid till 28-10-2026.</li> <li>2. Complying. The unit has installed flowmeter at outlet of ETP</li> <li>3. The unit is reusing the maximum treated effluent in the process/cooling and maintaining zero liquid discharge. The unit has obtained adequacy report of ETP system from Department of Civil Engineering, Faculty of Engineering &amp; Technology, Aligarh Muslim University, Aligarh. Copy is attached herewith as <b>Annexure No. 5.</b></li> </ol>
5.	<b>M/s Rana Sugars Ltd.</b> Khasra No.318-320, Manpur, Belwara, Distt-Moradabad,Uttar Pradesh-244925	<ol style="list-style-type: none"> <li>1. The unit shall obtain NOC from CGWA for extraction of ground water.</li> <li>2. The unit shall provide a separate area for storage of ETP sludge and shall maintain record of the ETP sludge generation and disposal.</li> <li>3. The unit shall maintain record for fly ash generation and its disposal.</li> <li>4. The unit shall improve bio-mass concentration in the aeration tank of ETP.</li> <li>5. The unit shall prepare ETP dosing chemicals solutions; using ETP treated effluent, to save fresh water.</li> </ol>	<ol style="list-style-type: none"> <li>1. The unit has obtained the NOC from UPGWD, valid till 01-07-2026.</li> <li>2. Complying. The unit has provided a separate area for storage of ETP sludge and is maintaining the record of the ETP sludge generation and disposal.</li> <li>3. Complying. The unit is maintaining record of fly ash generation and its disposal.</li> <li>4. Complying. The analysis reports of ETP inlet, outlet, aeration tank and lagoon are annexed herewith as <b>Annexure No. 6.</b></li> <li>5. Complying. The unit is preparing ETP dosing chemicals solutions; using ETP treated effluent, to save fresh water.</li> </ol>
6.	<b>M/s Rana Sugars Ltd. (Distillery Unit)</b> Khasra No.318-320, Manpur, Belwara, Distt-Moradabad,Uttar Pradesh-244925	<ol style="list-style-type: none"> <li>1. The unit shall obtain renewal of NOC from CGWA for extraction of ground water.</li> <li>2. The unit shall maintain records of Boiler ash and its disposal / utilization.</li> <li>6. The unit shall install 2 nos piezo-wells near bio-compost yards; as per requirement of SOP for distilleries using molasses.</li> </ol>	<ol style="list-style-type: none"> <li>1. The unit has obtained the NOC from UPGWD, valid till 01-07-2026.</li> <li>2. Complying. The unit is maintaining record of boiler ash generation and its disposal/utilization. Copy of agreement is annexed as <b>Annexure No 7.</b></li> <li>3. The Unit has dismantled its Bio Compost Yard and established a slop fired boiler of 52 TPH.</li> </ol>

*gcp* 

## Status of Environmental Compensation Deposited by Industries

1. **M/s Radico Khaitan Limited, Bareilly Road, Rampur, Uttar Pradesh -244901**

- Unit has deposited EC amount of Rs 7.29 crores in CPCB in compliance to the CPCB direction dated 16.08.2019.

2. **M/s Damya (PJ) Foods, Pvt. Ltd. Village- ChiknaShahbad Road, Rampur- 244901 (U.P.)**

- Unit has deposited EC amount of Rs. 2.5 lacs in UPPCB in compliance to the UPPCB direction dated 19.07.2019.

3. **M/s Usha Steel Process, D-22, 23 and 29, Ajeetpur Industrial Estate, Ajeetpur, Rampur, Uttar Pradesh**

- Unit has deposited EC amount of Rs. 2.5 lacs in UPPCB in compliance to the UPPCB direction dated 19.07.2019.

4. **M/s Rana Sugars Ltd., (Distillery Division), Khasra No. 318, 319, 320, Village- Belwara, Post- Manpur, Tehsil & District- Moradabad, Uttar Pradesh**

- Unit has deposited EC amount of Rs 70.50 lacs in CPCB in compliance to the CPCB direction dated 08.03.2021.

5. **M/s Rana Sugars Ltd., (Sugar Division), Village- Belwara, Post- Manpur, Tehsil & District- Moradabad, Uttar Pradesh**

- Unit has deposited EC amount of Rs 11.70 lacs in CPCB in compliance to the CPCB direction dated 08.03.2021.

G.C.B.  
EE  
UPPCB

M



**REGIONAL LABORATORY MORADABAD**  
**UTTAR PRADESH POLLUTION CONTROL BOARD**  
 1-A/L.N.S.-1, Avas Vikas Colony, Buddha Vihar, Delhi Road, Moradabad

**TEST REPORT: WASTE WATER LABORATORY**

Ref No: 19503205/Moradabad/2023

Date: 23/01/2023

- 1- Name of Industry: Radico Khaitan Ltd, Rampur
- 2- Address of Industry: Radico Khaitan Ltd, Barcilly Road Rampur U.P.
- 3- District: Rampur
- 4- Description about sampling point: Spent wash from Lagoon, Hitachi
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: Jitendra Naik Tiwari AEE & Vinay Kumar JRF
- 7- Colour and Odour: Brownish Unpleasant
- 8- Quantity and Packing: 2 Liter
- 9- Date of Sample Collection: 17/01/2023
- 10- Analysis Indented by: RO Moradabad
- 11- Date of sample receipt in Lab: 17/01/2023

Parameter/Method Name	Unit	Results	Standard	Detection Range
MLSS, 2540D dried at 103-105°C as method prescribed by CPCB	mg/l	302910		10-20000
Total Solids, 2540 B Total Solids dried at 103-105 °C	mg/l	302910		10- 50000 mg/l

Reference- (1)General Standards for discharge of environment Pollutants are as per-A Effluent(Schedule-VI).The environment (Protection) Rules,1986 source: [www.cpcb.nic.in/GeneralStandards.pdf](http://www.cpcb.nic.in/GeneralStandards.pdf). Besides these standards, refer EPA standards for specific purpose

Remark: NA

Analysed by-  
[Atul Kumar(JRF)]

Authorized by  
Sunil Singh  
Chauhan  
Sunil Singh Chauhan (ASO)

VIKAS  
MISHRA  
Regional Officer



# EVERGREEN ENVIRO TESTING LLP

179

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Ph. : 01204959379, 7428487870, Mob. : +91-8010087998, 9643079162, 7982197942

Email ID : evergreenlab03@gmail.com, info@evergreenecolab.com, Website : www.evergreenecolab.com

## TEST REPORT

ISSUED TO	:	M/S RADICO KHAITAN LIMITED, RAMPUR, U.P. 244901
Sample Identification No.	:	EETR/E/161123/003
Test Report No & Date	:	EETR/E/161123/003, DATE: 18.11.2023
Sampling Method	:	EET/SOP/34/CHEM
Sample Description	:	Lagoon Effluent
Sample Collection Date	:	15.11.2023
Sample Collected by	:	EET Lab Representative
Sampling Location	:	Ajitpur Lagoon
Date of Sample Received	:	16.11.2023
Sample Condition	:	OK
Analysis Duration	:	16.11.2023 To 18.11.2023

## ANALYSIS RESULT

S. No.	Parameters	Results	Unit	Protocol
1.	Total Solids	30.1	%	IS 2720 (P-21)

Checked by  
SHIVANI PUNDIR



Evergreen Enviro Testing LLP

Issued By  
Authorised Signatory  
Chandan Kumar Singh

\*\*\*END OF REPORT\*\*\*

- Note :
1. The result listed refer only to be Tested samples and applicable parameters.
  2. Perishable samples will be destroyed after 15 days of sampling.
  3. This report cannot be used as evidence in the court of law and cannot be used in part or full in any media without prior permission.
  4. Subject to Gr. Noida Jurisdiction.



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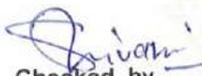
Email ID : evergreenlab03@gmail.com, info@evergreeneclab.com, Website : www.evergreeneclab.com

## TEST REPORT

ISSUED TO	:	M/S RADICO KHAITAN LIMITED, RAMPUR, U.P. 244901
Sample Identification No.	:	EETR/E/161123/004
Test Report No & Date	:	EETR/E/161123/004, DATE: 18.11.2023
Sampling Method	:	EET/SOP/34/CHEM
Sample Description	:	Lagoon Effluent
Sample Collection Date	:	15.11.2023
Sample Collected by	:	EET Lab Representative
Sampling Location	:	Hitachi Land Lagoon
Date of Sample Received	:	16.11.2023
Sample Condition	:	OK
Analysis Duration	:	16.11.2023 To 18.11.2023

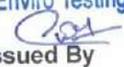
## ANALYSIS RESULT

S. No.	Parameters	Results	Unit	Protocol
1.	Total Solids	32.61	%	IS 2720 (P-21)

  
Checked by  
SHIVANI PUNDIR



Evergreen Enviro Testing LLP

  
Issued By

Authorised Signatory  
Chandan Kumar Singh

\*\*\*END OF REPORT\*\*\*

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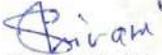
Ph. : 01204959379, 7428487870, Mob. : +91-8010087998, 9643079162, 7982197942  
Email ID : evergreenlab03@gmail.com, info@evergreeneclab.com, Website : www.evergreeneclab.com

## TEST REPORT

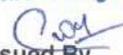
ISSUED TO	:	M/S RADICO KHAITAN LIMITED, RAMPUR, U.P. 244901
Sample Identification No.	:	EETR/E/170124/026
Test Report No & Date	:	EETR/E/170124/026, DATE: 19.01.2024
Sampling Method	:	EET/SOP/34/CHEM
Sample Description	:	Lagoon Effluent
Sample Collection Date	:	16.01.2024
Sample Collected by	:	EET Lab Representative
Sampling Location	:	Ajitpur Lagoon
Date of Sample Received	:	17.01.2024
Sample Condition	:	OK
Analysis Duration	:	17.01.2024 To 19.01.2024

## ANALYSIS RESULT

S. No.	Parameters	Results	Unit	Protocol
1.	Total Solids	32.8	%	IS 2720 (P-21)

  
Checked by  
SHIVANI PUNDIR



Evergreen Enviro Testing LLP  
  
Issued By  
Authorised Signatory  
Chandan Kumar Singh

\*\*\*END OF REPORT\*\*\*

Page 1 of 1

- Note :
1. The result listed refer only to be Tested samples and applicable parameters.
  2. Perishable samples will be destroyed after 15 days of sampling.
  3. This report cannot be used as evidence in the court of law and cannot be used in part or full in any media without prior permission.
  4. Subject to Gr. Noida Jurisdiction.



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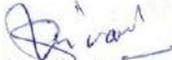
Email ID : evergreenlab03@gmail.com, info@evergreeneclab.com, Website : www.evergreeneclab.com

## TEST REPORT

ISSUED TO	:	M/S RADICO KHAITAN LIMITED, RAMPUR, U.P. 244901
Sample Identification No.	:	EETR/E/170124/027
Test Report No & Date	:	EETR/E/170124/027, DATE: 19.01.2024
Sampling Method	:	EET/SOP/34/CHEM
Sample Description	:	Lagoon Effluent
Sample Collection Date	:	16.01.2024
Sample Collected by	:	EET Lab Representative
Sampling Location	:	Hitachi Land Lagoon
Date of Sample Received	:	17.01.2024
Sample Condition	:	OK
Analysis Duration	:	17.01.2024 To 19.01.2024

## ANALYSIS RESULT

S. No.	Parameters	Results	Unit	Protocol
1.	Total Solids	33.26	%	IS 2720 (P-21)

  
Checked by  
SHIVANI PUNDIR



Evergreen Enviro Testing LLP  
  
Issued By  
Authorised Signatory  
Chandan Kumar Singh

\*\*\*END OF REPORT\*\*\*

- Note : 1. The result listed refer only to be Tested samples and applicable parameters.  
2. Perishable samples will be destroyed after 15 days of sampling.  
3. This report cannot be used as evidence in the court of law and cannot be used in part or full in any media without prior permission.  
4. Subject to Gr. Noida Jurisdiction.



**REGIONAL LABORATORY OFFICE MORADABAD  
UTTAR PRADESH POLLUTION CONTROL BOARD**

1-A/I.N.S.-1, Avas Vikas Colony, Buddha Vihar, Delhi Road, Moradabad

**TEST REPORT: WASTE WATER LABORATORY**

**Ref No: 15511574/Moradabad/2022**

**Date:21/03/2022**

- 1- Name of Industry:** DAMYAA (PJ) FOODS PRIVATE LIMITED
- 2- Address of Industry:** VILLAGE MILAK CHIKNA, SHAHBAD ROAD, TEHSIL RAMPUR DISTRICT RAMPUR U.P 244901, RAMPUR, 244901
- 3- District:** Rampur
- 4- Description about sampling point:** Inlet of ETP
- 5- Type of Sample (Grab/Composite/Integrated):** Grab
- 6- Sample Collected By:** Jitendra Nath Tiwari JE & Reena Satwan, CPCB Scientist D
- 7- Colour and Odour:** colourless Odourless
- 8- Quantity and Packing:** 2 Liter
- 9- Date of Sample Collection:** 08/03/2022
- 10- Analysis Indented by:** RO Moradabad
- 11- Date of sample receipt in Lab:** 10/03/2022

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH, 4500 H B Electronic method	-	7.2	-	02-12
Suspended Solids, 2540 D Total Suspended Solids dried at 103-105 0C	mg/l	204	-	10-20000 mg/l
Dissolved Solids, 2540 C Total Dissolved Solids dried at 180 0C	mg/l	480	-	10- 50000 mg/l
BOD, 3 day 27 0C IS 3025 ( Part 44): 1993 Bio	mg/l	210	-	1.0 -50000 mg/l
COD, 5220 B Open Reflux Method	mg/l	720	-	5.0 -100000 mg/l

Reference- (1)General Standards for discharge of environment Pollutants are as per-A Effluent(Schedule-VI).The environment (Protection) Rules,1986 source: [www.cpcb.nic.in/GeneralStandards.pdf](http://www.cpcb.nic.in/GeneralStandards.pdf). Besides these standards, refer EPA standards for specific purpose

**Remark:** NA

**Analysed by**

[Alok Sharma (JRF)]

**Authorized by**

Anil Vishwkarma SA

**Regional Officer**

Note: 1 The results in the Test Report relate only to the items tested: 2. The report shall not be reproduced-except in full, without the written permission of laboratory. 3. The test report pertains to the sample as received in Lab.

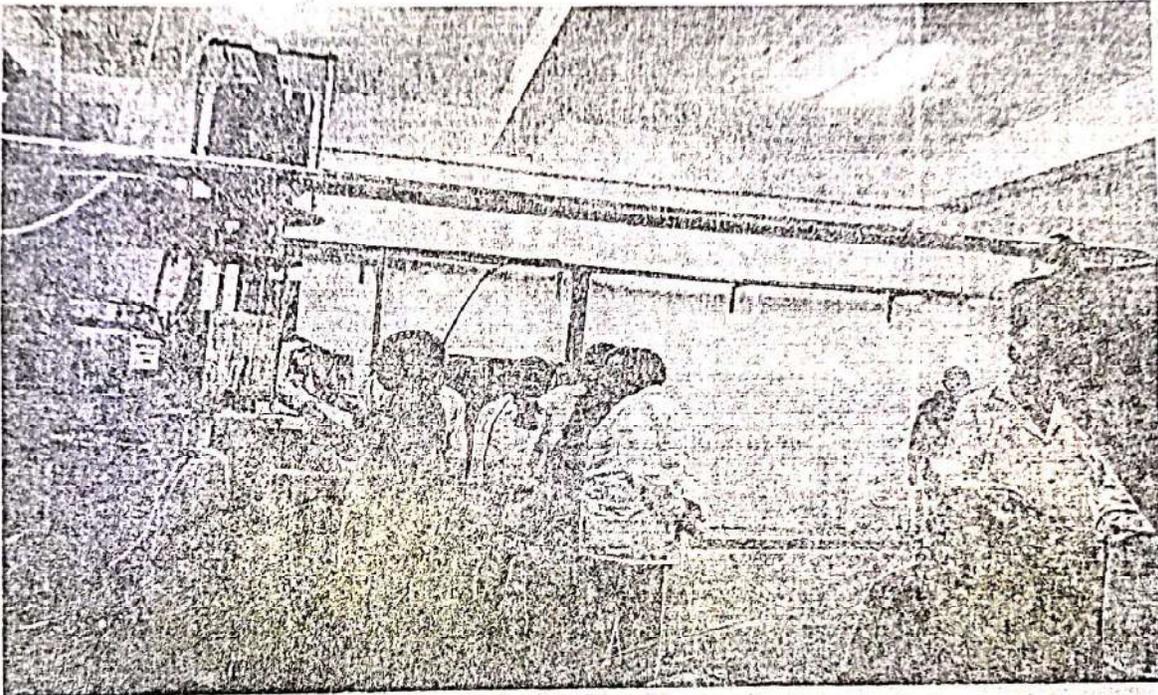
**General Standards for Discharge of Environmental Pollutants Part -A:Effluents (Schedule - VI) The Environment(Protection) Rules, 1986**

1	Parameter	Standards			
		Inland Surface water	Public Sewers	Land for Irrigation	Marine coastal areas
		a	b	c	d
1	Color and Odor	All efforts should be made to remove colour and unpleasant odour as far as practicable			
2	Suspended Solids mg/l, Max	100	600	200	(a) for process waste water- 100(b) For cooling water effluent 10 percent above total suspended matter of influent.
3	Particulate size of suspended solids	Shall pass 850 micron IS Sieve	-	-	(a) Floatable solids, max. 3 mm
4	2(***)	*	*	*	*
5	pH Value	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0	5.5 to 9.0
6	Temperature	Shall not exceed 5°C above receiving water temperature	-	-	Shall not exceed 5°C above receiving water temperature
7	Oil and Grease Mg/l Max.	10	20	10	20
8	Total residual chlorine mg/l Max	1	-	-	1
9	Ammonical Nitrogen(as N), mg/l Max	50	50	-	50
10	Total Kjeldahl Nitrogen(as NH <sub>3</sub> ) mg/l,Max	100	-	-	100
11	Free ammonia (as NH <sub>3</sub> )mg/l, Max	5	-	-	5
12	Biochemical Oxygen Demand [ 3 days at 27°C] mg/l, Max	30	350	100	100
13	chemical Oxygen Demand, mg/l, Max	250	-	-	250
13	chemical Oxygen Demand, mg/l, Max	250	-	-	250
14	Arsenic(as As), mg/l, max	0.2	0.2	0.2	0.2
15	Mercury(as Hg), mg/l, max	0.01	0.01	-	0.01
16	Lead (as Pb), mg/l, max	0.1	1	-	2
17	Cadmium (as Cd), mg/l, max	2	1	-	2
18	Hexavalentchromium (as Cr+6), mg/l, max	0.1	2	-	1
19	Total chromium (as Cr)mg/l, max	0.1	2	-	1
20	Copper(as Cu), mg/l, max	3	3	-	3
21	Zinc(as Zn), mg/l, max	5	15	-	5
22	Selenium (as Se) mg/l, max	0.05	0.05	-	0.05
23	Nickel (as Ni) mg/l, max	3	3	-	5
24	2(***)	*	*	*	*
25	2(***)	*	*	*	*
26	2(***)	*	*	*	*
27	Cyanide (as CN), mg/l, max	0.2	2	0.2	0.2
28	2(***)				
29	Fluoride (as F) mg/l, max	2	15	-	15
30	Dissolved Phosphates (as P), mg/l, max	5	-	0	-
31	2 (***)	*	*	*	*
32	Sulphide (as S), mg/l, max	2	-	-	5
33	Phenolic Compounds (as C <sub>6</sub> H <sub>5</sub> OH) mg/l, max	1	5	-	5
34	Radioactive materials: (a)Alpha emitter micro curie/ml (b)Beta emitter micro curie/ml	10 <sup>-7</sup> 10 <sup>-6</sup>	10 <sup>-7</sup> 10 <sup>-6</sup>	10 <sup>-8</sup> 10 <sup>-7</sup>	10 <sup>-7</sup> 10 <sup>-6</sup>
35	Radioactive materials: (a)Alpha emitter micro curie/ml (b)Beta emitter micro curie/ml	10 <sup>-7</sup> 10 <sup>-6</sup>	10 <sup>-7</sup> 10 <sup>-6</sup>	10 <sup>-8</sup> 10 <sup>-7</sup>	10 <sup>-7</sup> 10 <sup>-6</sup>
35	Bio-assay test	90% survival of fish after 96 hours in 100 % effluent	90% survival of fish after 96 hours in 100 % effluent	90% survival of fish after 96 hours in 100 % effluent	90% survival of fish after 96 hours in 100 % effluent

36	Manganese (as Mn)	2 mg/l	2 mg/l	-	2 mg/l
37	Iron (as Fe)	3 mg/l	3 mg/l	-	3 mg/l
38	Vanadium (as V)	0.2 mg/l	0.2 mg/l	-	0.2 mg/l
39	Nitrate Nitrogen	10 mg/l	-	-	20 mg/l
40	2 (***)	*	*	*	*

1. Schedule VI inserted by Rule 2 (d) of the Environment(Protection) Second Amendment Rules, 1993 notified vide G.S.R. 422 (E) dated 19.05.1993 published in the Gazette no. 174 dated 19.05.1993.
2. Omitted by Rule 2 (d)(i) of the Environment(Protection) Third Amendment Rules, 1993 vide Notification No. G.S.R. 801 (E), dated 31.12.1993.
3. Substituted by Rule 2 of the Environment(Protection) Amendment Rules, 1996 notified by G.S.R 176, dated 02.04.1996 may be read as BOD (3days at 270C) whenever BOD 05 days 200C occurred.
4. Besides these standards, refer EPA standards for specific industry Source (1):  
<https://cpcb.nic.in/displaypdf.php?id=R2VuZXJhbFN0YW5kYXJkcy5wZGY=>  
 (2) [cpcb.nic.in/Industry\\_Specific\\_Standards.php](http://cpcb.nic.in/Industry_Specific_Standards.php)

**ADEQUACY REPORT**  
**OF**  
**EFFLUENT TREATMENT PLANT**  
**OF**



**DAMYAA (P.J) FOODS PVT . LTD**

**RAMPUR, U.P**



**SUBMITTED**

**BY**

**DEPARTMENT OF CIVIL ENGINEERING**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**ALIGARH MUSLIM UNIVERSITY ALIGARH**  
**NOVEMBER-2021**

## 1.0 INTRODUCTION

Damyaa Pj Foods Pvt. Ltd. is a noted name in the food industry. They are noted manufacturer and supplier of 9 am food products. A wide array of food products like sauce, combo sauce, synthetic vinegar, mayonnaise, tomato puree, pickles, noodles, sharbat, and jam. All of these food items are prepared under stringent hygienic conditions. Moreover, they provide eatables of Creamooz brand as well at nominal rates. Their teams ensure that every food item manufactured and supplied has the highest quality. Hence, people trust their services.

Damyaa Pj Foods Pvt. Ltd. is managed by Mr. Parth Jain. He established the company back in the year 2011 in Rampur (Uttar Pradesh). The prime aim behind establishing the company was to simplify the provision of 9 am snacks to all their clients. The dedicated workforce that provides the optimal resolution. They have expert team, that checks the acquired raw material and finalized products on international parameters. They ensure that all products belong to superlative quality while being delivered to the client.

Plant has a capacity to produce snacks sauce -5TPD, Ketchup-2.5 TPD, Soya Sauce 1TPD, Chilli sauce 2.5 TPD, Noodles -2 TPD etc.

The units function on consents and directions given by the U.P. Pollution Control Board. As per the consent the effluent is allowed to discharge outside the premises and in surface water body after proper treatment as per the instruction given in the consent letter. Damyaa (PJ) Foods has installed exhaustive treatment system to treat the waste water and making it suitable for reuse in to process as well as for use in horticulture.

Damyaa (PJ) Foods private Ltd., Rampur, U.P has been visited on November 12, 2021. The presence of unit operations/processes of ETP have been physically verified (photographs attached – Annexure III). At the time of visit, various ETP were installed and found to be operational. The unit has been some minor modifications for efficient working/treatment of wastewater. It was informed that they have completed the modifications. The of the plant area was odor free at the time

## 2.0 Objective of the present study:

The aim of the present study is to assess adequacy of existing ETP schemes in M/s. Danyaa (PJ) Foods private Ltd., Rampur, U.P.

## 3.0 Manufacturing Process

### Production Process:

**Creating the emulsion:** A continuous blending system is employed to sustain the correct degree of emulsification. An emulsion (known technically as a colloid) occurs when the blending of two liquids, in this case vinegar and oil, causes one of the liquids to form small droplets that are dispersed throughout the other liquid. The blend of vinegar and oil moves continuously through a series of positive replacement pumps. These pumps feature a cavity or set of cavities fitted with rotary impellers. A regulated pumping action causes the cavities to fill and empty. The impellers move the blended fluid from one cavity to another.

**Adding ingredients:** Pre-measured ingredients are piped in through openings in the sides of the pumps or from spigots overhead.

**Bottling the mayonnaise:** The mayonnaise is moved through the pumping system to the bottling station. Pre-sterilized jars move along conveyer belts as premeasured amounts of mayonnaise are poured into the jars. The jars are sealed with metal screwcaps. They are not vacuum-sealed. **Quality Control :** All raw materials are checked for freshness when they arrive at the processing plant. Stored materials are tested periodically as well. Samples of the mayonnaise are drawn off and taste-tested during the manufacturing process as shown in (Annexure IV).

## 4.0 WATER AND WASTEWATER: GENERATION AND CHARACTERIZATION

### 4.1 QUANTIFICATION OF WASTEWATER

The sources of wastewater are water left after processing of food ingredients, washing of equipment, etc. The quantity of effluent generated from the plant is estimated considering 60% of the total water

consumption. The total effluent generated has been estimated for present scenario is run for Maximum 6.5 KLD as per consent. Whereas It can handle up to 25.0 KLD.

#### 4.2 CHARACTERIZATION OF WASTEWATER

The characteristics of effluent are source specific and differ from source to source. Therefore, the effluent generated is of interest from the standpoint of environmental impact in terms of both effluent volume and contaminant loading. Therefore, the characteristics of effluent include mainly pH, total suspended solids, biochemical oxygen demand, chemical oxygen demand and oil and grease. The current reports of influent and effluent are seen and attached (Annexure -I).

#### 4.3 QUANTIFICATION OF WATER

Two bore wells with capacity of 20 KLD are used to drawn water from underground. The average water consumption including from food processing, domestic as well as staff colony and horticulture purposes is 16KLD. The quantity of fresh water consumption from various sources of the unit has been estimated for present scenario found to be 16-20 KLD.

#### 4.4 CHARACTERIZATION OF WATER

The characteristics of raw water are source specific and differ from source to source. Therefore, the water consumption is of interest from the standpoint of environmental impact in terms of both influent volume and contaminant loading. Therefore, the characteristics of influent include mainly pH, total suspended solids, biochemical properties, oil and grease. The current reports are seen and attached (Annexure-I).

#### 5.0 TREATMENT PROCESS DESCRIPTION

It has provided effluent treatment plant (ETP) for the treatment of wastewater as per requirements of the pollution control board. The effluent is treated in a conventional wastewater treatment system. The effluent from the wastewater treatment plant units are collected through gravity to a

collection tank. Wastewater is pumped to flash mixing tank where coagulation and flocculation is added to settle down suspended particles. To settle material by gravity, removing floatable objects, and reducing the pollution to ease secondary treatment primary settlers are constructed. Ultimately reduces the Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) in the wastewater. Aeration provides oxygen to bacteria for treating and stabilizing the wastewater. Oxygen is needed by the bacteria to allow biodegradation to occur. The supplied oxygen is utilised by bacteria in the wastewater to break down the organic matter containing carbon to form carbon dioxide and water. Treated wastewater from aeration tank is moved to secondary settlers followed by activated sludge aeration tank. The treated wastewater from the secondary clarifier is pumped to multigame filter followed by activated carbon filter.

#### 6.0 TREATMENT PLANT: UNIT OPERATIONS/PROCESSES

- (i) Flash mixing tank
- (ii) Primary settler
- (iii) Collection cum Equalization Tank
- (iv) Aeration tank I & II
- (v) Secondary clarifier
- (vi) Sludge drying bed
- (vii) Dual Media Filter
- (viii) Activated carbon filter

#### 6.1 SPECIFICATION OF PROCESS UNITS

S. No.	ETP component	Nos.	Size/capacity	Material of Construction	Whether adequate, if not, give reasons
	Equalizing tank	03	Total Volume: 1000 kl	RCC	HRT 16 hrs Adequate
	Flash tank	01	10 m <sup>3</sup>	RCC	HRT 16 hrs Adequate
	Primary tank	01	10 m <sup>3</sup>	MS	HRT 30 min Adequate

(iv)	Primary settler	01	1.0 m x 2.3 m x 1.0 m	MS Sheets	HRT 130 mint Adequate
(v)	Aeration tank	01	14 m Depth 3.0 m	MS Sheets.	Adequate
(vi)	Secondary settler tank	01	1.0 m x 2.3 m x 1.8 m	MS	HRT 3.3 hrs Adequate
(vii)	Activated carbon filter	01	50 cubic meter capacity	MS	Adequate
(viii)	Dual Media Filter	01	50 cubic meter capacity	MS	Adequate

\*Information provided by the client

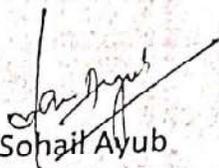
## 7.0 ANALYSIS OF INFLUENT AND EFFLUENT CHARACTERISTICS

The client has provided recent test report of influent and effluent characteristics. It can be seen from the report that quality of treated wastewater obtained after multi grade filter is good quality and suitable for discharge to drains as well as re use for cleaning / washing and gardening. Thus out of 6.5 KLD wastewater generated 3.5 KLD is used back to green zone and 3.0 KLD discharge in to the nearby drain. The values of characteristic parameters at the outlet of ETP have been found to be within the permissible limit (Annexure I).

## 8.0 CONCLUSIONS AND RECOMMENDATIONS

- (i) The capacity - wise all the unit operations and processes of ETP are seem to be adequate to cater the wastewater generated from the unit.
- (ii) The influent and effluent characteristics having case specific selected parameters complies the regulatory norms of discharge standards.
  - 42% of the treated effluent is used in the green zone and rest 42% is discharged as per CPCB guidelines.
  - Effluent out of the premises is well designed and working.

- (vi) It has been suggested to arrange the technical training programme for operating personnel on treatment plant operation and maintenance on regular bases to aware of the significance and principles of the operating system.
- (vii) It has been suggested to make regular maintenances of Multi grade and activated carbon filters

  
Name : Dr. Sohail Ayub  
Designation : Professor  
Name of organization/institute: Dept. of  
Civil Engg.  
Aligarh Muslim University Aligarh -  
202002

Dr. Sohail Ayub (Ph.D)  
Professor, Dept. of Civil Engg  
A.M.U., Aligarh

## SUMMARY SHEET OF ADEQUACY REPORT FOR ETP

OF

M/S Damyaa (PJ) Foods private Ltd., Rampur, U.P.

Adequacy Report No.: EPES/CED/169/2021

Date of Issue: 23.11.2021

S. No.	Description	Details
1	Name of unit	M/S Damyaa (PJ) Foods private Ltd., Rampur, U.P.
2	Address of unit	Village Milak Chikna, Shahbad road Rampur UP
3	Date of Commissioning/ Commencement of Production	2011
4	(a) Plot area (in sq feet ) (b) Built up area (in sq feet)	12393.0 SQM 4135.38 SQM RCC and 5102.22 Shed
5	Name, Designation & contact No(s) of the In- charge dealing with pollution control matters.	Mr.Pramod Kumar 975923085
6	Name, Designation of the person (s) contacted at the site during the visit.	Mr. Ajeet Singh
7	Activity/process	Manufacturer, Exporter , Wholesaler & Retailer
8	Production capacity	produce snacks sauce -5TPD, Ketchup-2.5 TPD, Soya Sauce 1TPD, Chilli sauce 2.5 TPD, Noodles -2 TPD etc.
9	Manufacturing process /Main Activities (in brief; Also Attach Process Flow Diagram))	As per process flow chart (Annexure- IV)
10	Main Raw Materials	as per requirement
11	Main Products	Snack sauces, Ketchup, noodles, soya souse, jam, pickles, Jeggre etc.
12	Source of water	Ground water (bore well)

**Part B: Water Consumption, Waste Water Generation and Treatment**

Water consumption, source and waste water generation (in KLD): (please Annex Water Mass Balance chart)				
Usage	Source	Water meter installed	Wastewater generation, KLD	Flow meter installed

(a)	Domestic (toilet/Bathroom/washroom & colony etc.	1.0 KLD	Ground Water	Yes	0.5 KLD	
(b)	Used in production as ingredient	15.0 KLD	Ground Water	yes	6.0 KLD	Yes
	Total	16.0 KLD	Ground Water	Yes	6.50KLD	

14 Basis of the quantity of water consumption and waste water generation mentioned above: **Estimation/Waste Water Meter Reading**

15 Wastewater treatment facilities: Effluent Treatment Plant (ETP)

S No.	Design capacity (in KLD)	Treatment facility	Design parameter (BOD etc.)	Treatment process (physico-chemical/Biological, mention technology used)	Batch/Continuous process	Sources of waste water leading to ETP	Present average waste water generation KLD	Flow meter at inlet & outlet (yes/no)	Disposal point
1	25.0	ETP	BOD-350 mg/l COD-1000 mg/l	Physico-Chemical	Continuous process	By Pump	6.5	Yes	Yes

16 Whether all the wastewater generated from the unit /establishment is treated: Yes

17 Mode and location of effluent discharge : (please attach location map of disposal clearly indicating the outlets for sampling/effluent discharge )

(a) **Treated effluent** : partially used for cleaning/ gardening and partially discharges outside after proper treatment as per the CPCB guidelines.

18	Details of the Constituent Units of ETP	Screening tanks, Collection cum Equalization tank, Flash mixing tank, primary settler, aeration tank, Treated Water Tank, Dual Media Filter, ACF
	Design Capacity of ETP (In KLD)	25.00
	Treatment process (physico-chemical /biological, mention technology used)	<ol style="list-style-type: none"> <li>1. Physico-Chemical Process Collection cum Equalization tank, Flash mixing tank, primary settler</li> <li>2. Biological Treatment Process NIL.</li> <li>3. Chemical Treatment Aeration</li> <li>4. Tertiary Treatment Dual Media Filter, ACF</li> </ol>

Date of commissioning of ETP Whether continuous or batch? If batch, no. of batches? (Enclose schematic diagram/ process flow sheet of treatment scheme & photograph of ETP	Commissioning Date: 2014  Type: Continuous process  Photo attached (Annexure II & III)
---	--

## ETP COMPONENTS DETAILS

S. No.	ETP component	Nos.	Size/capacity	Material of Construction	Whether adequate, If not, give reasons
(i)	Screening tank	03	Total volume 1000 kl	RCC.	HRT 16 hrs Adequate
(i)	Collection tank	01	Total volume 16 m <sup>3</sup>	M.S.	HRT 16 hrs Adequate
(ii)	Flash mixing tank	01	Total volume 0.5 m <sup>3</sup>	MS	HRT 30mint Adequate
(iii)	Primary settler	01	1.0 m x 2.3 m x 1.0 m	MS Sheets	HRT 130 mint Adequate
(iv)	Aeration tank	01	14 m Depth 3.0 m	MS Sheets	Adequate
(v)	Secondary settler tank	01	1.0 m x 2.3 m x 1.8 m	MS	HRT 3.3 hrs Adequate
(vi)	Activated carbon filter	01	50 cubic meter capacity	MS	Adequate
(vii)	Dual Media Filter	01	50 cubic meter capacity	MS	Adequate

19 Whether design aspects were taken in to account while evaluating the performance of ETP:  
Yes

20 • Whether any modification was suggested to rectify deficiencies improve /upgrade the ETP: Yes  
• Whether modifications are Incorporated: Yes

21 Whether ETP found operating and wastewater is treated : Yes

22 Whether wastewater measured : Yes, Electromagnetic Flowmeter (At inlet and outlet of ETP)  
(if yes please provide details of flow meters type /No locations etc.) photograph attached

23 Whether all effluent generated from the unit is treated? If not, how much % of is

disposed of? If not, what arrangement for discharge of untreated effluent from the

unit is being used? If yes, mention the quantity of reuse in various manner and use of falls, If not. How much is being used for irrigation purposes.

24 Whether there is any provision for disposal of sludge

27	Whether the unit is having adequate and qualified /skilled operators(a) for the proper operation and maintenance of the ETP: Yes (It was suggested to have one more)			
28	Whether proper log book is being maintained for the operation and maintenance of ETP? Yes			
29	Whether influent (untreated) and effluent (treated) characteristics have been monitored? If yes, then details in the table below)			
	Date and time of effluent sampling	Whether grab or composite sample	Name & designation of the person who collected sample	Name of the Empanelled laboratory which conducted monitoring /analysis
	28.07.2021 2:30 PM	Grab Sampling	Sunil Kumar	Green Lab Analysis & Research centre New Delhi
30	Whether the treated effluent is meeting the prescribed standards: Yes			
31	Date of visit /inspection of the unit /establishment		12-11-2021	
32	Name and designation of the person conducted visit/inspection of the unit /establishment		Dr. Sohail Ayub	
33	Whether existing ETP is adequate to treat the waste water up to its designed capacity (10.0KLD) to meet the prescribed standards: Yes			
34	Advice (if any) given to the unit for the proper operation & maintenance of ETP (separate sheet may be enclosed) Requested to adopt ZLD system and install RO unit and Multi evaporator.			
35	Suggestion for best available technology :Nil			
36	Remarks (if any): The sizes of the different treatment units were found adequate and as per the laboratory reports the ETP is treating wastewater satisfactorily and the effluent discharge limits of CPCB are achieved.			

Adequacy Report No.: EPES/CED/169/2021

Date of Issue: 23.11.2021

Name : Dr. Sohail Ayub

Designation : Professor

Name of organization/institute: Dept. of  
Civil Engg.Allgarh Muslim University, Allgarh -  
202002Dr. Sohail Ayub (Ph.D)  
Professor, Dept. of Civil Engg.  
A.M.U. Allgarh

Enclosure

ANNEXURE -I

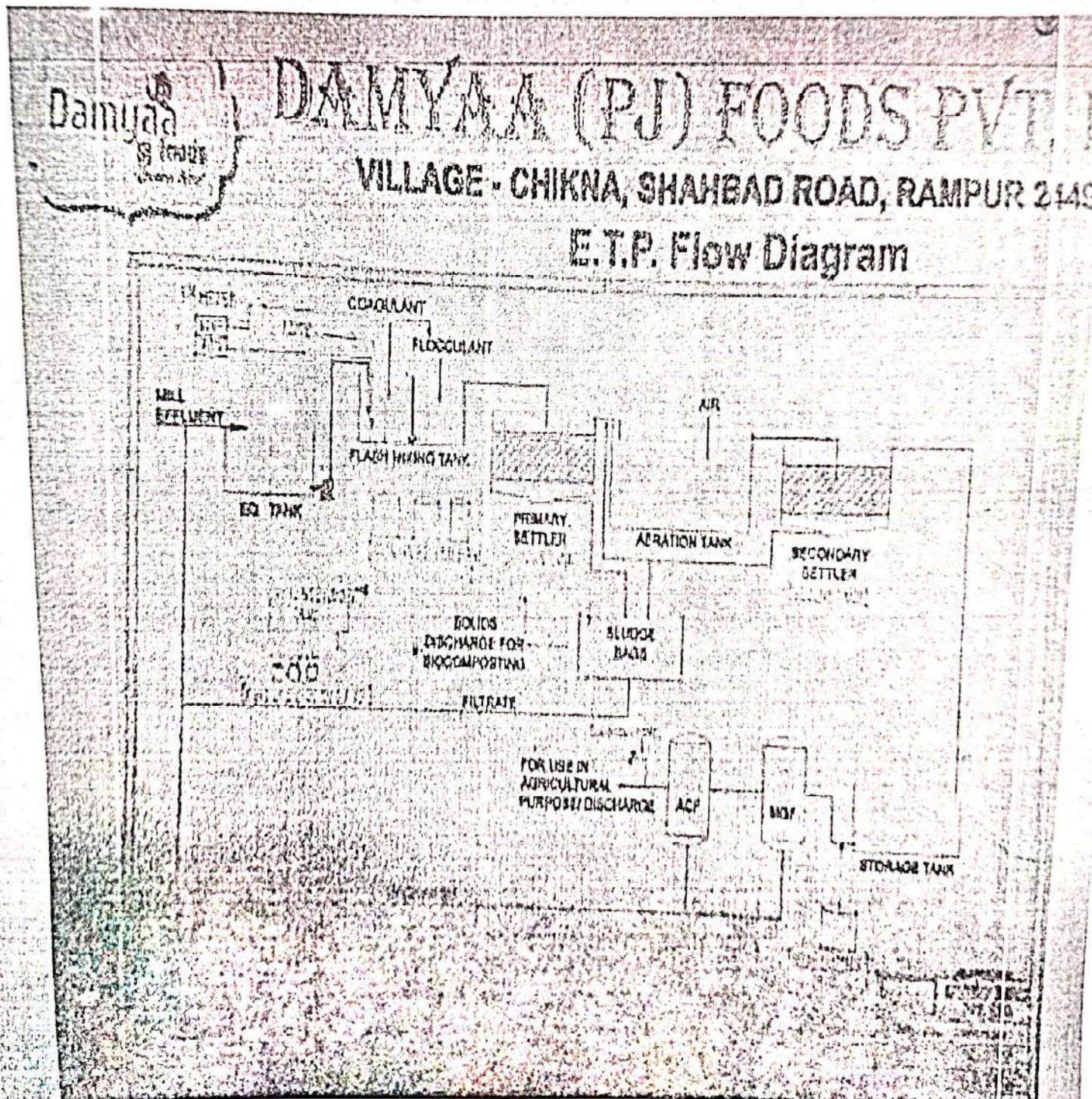
Analysis Reports:

1. Influent and Effluent Wastewater Quality.
2. Domestic Water Quality.
3. Ambient Noise Quality.
4. Air quality

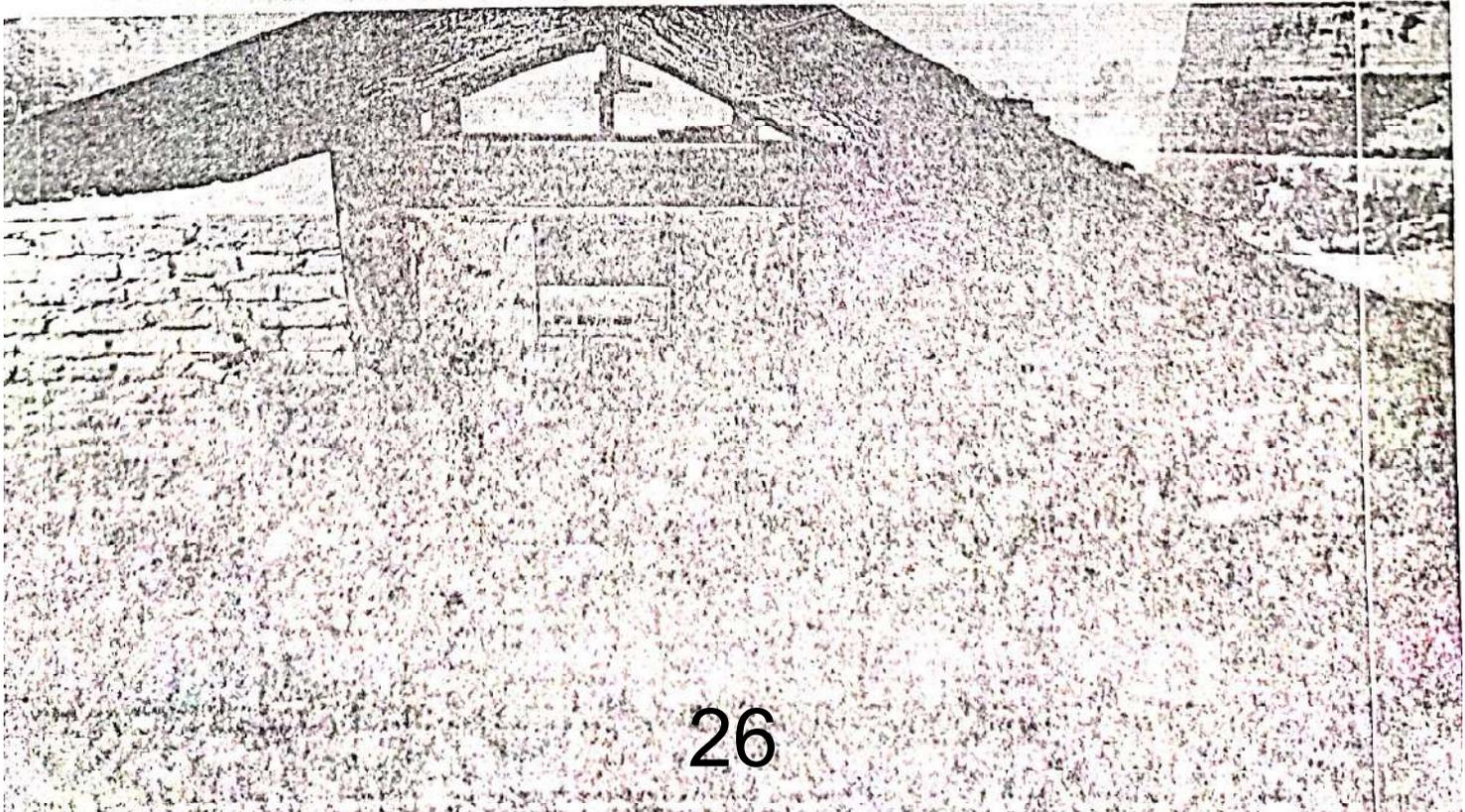
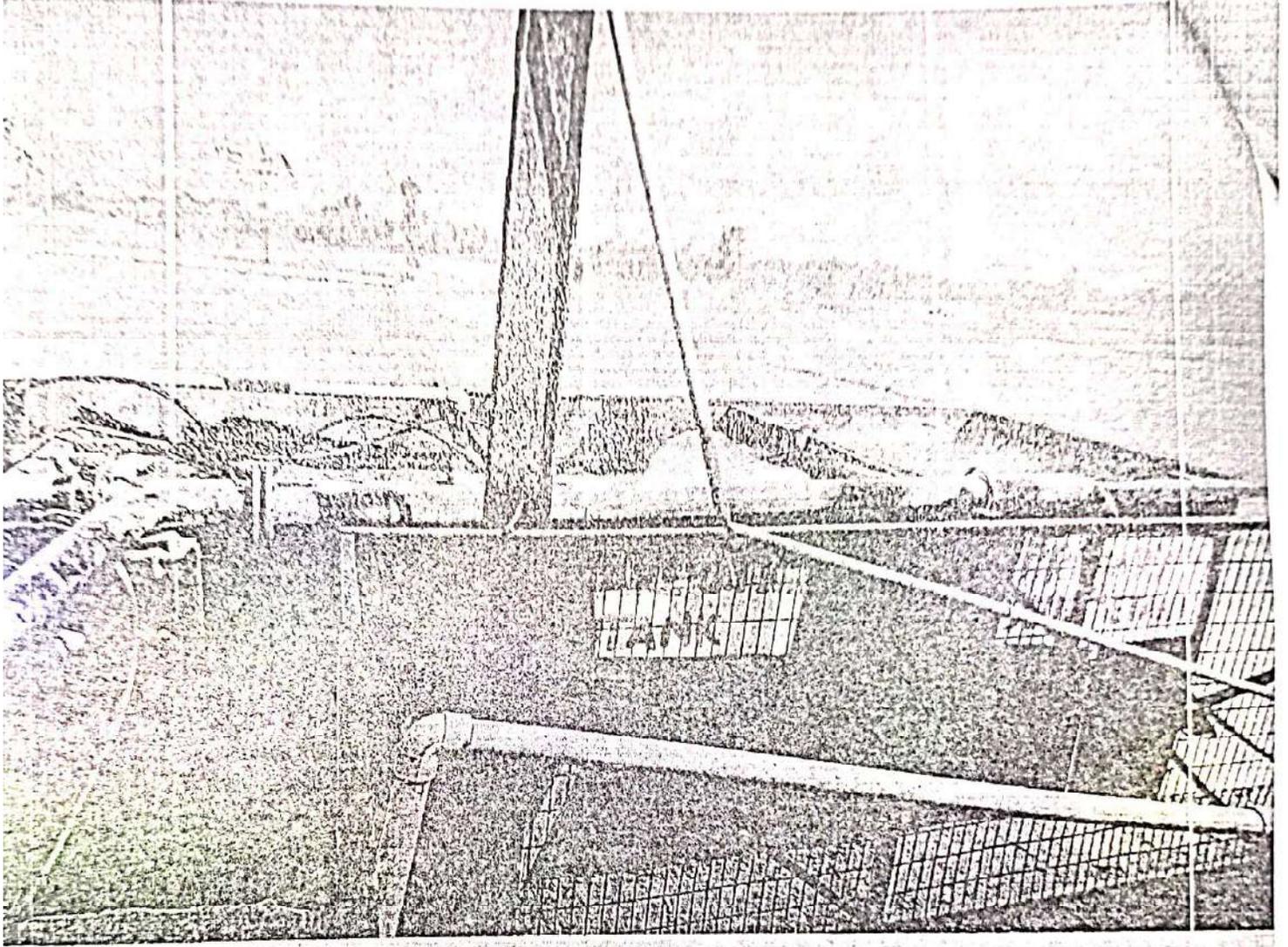
(Original reports attached)

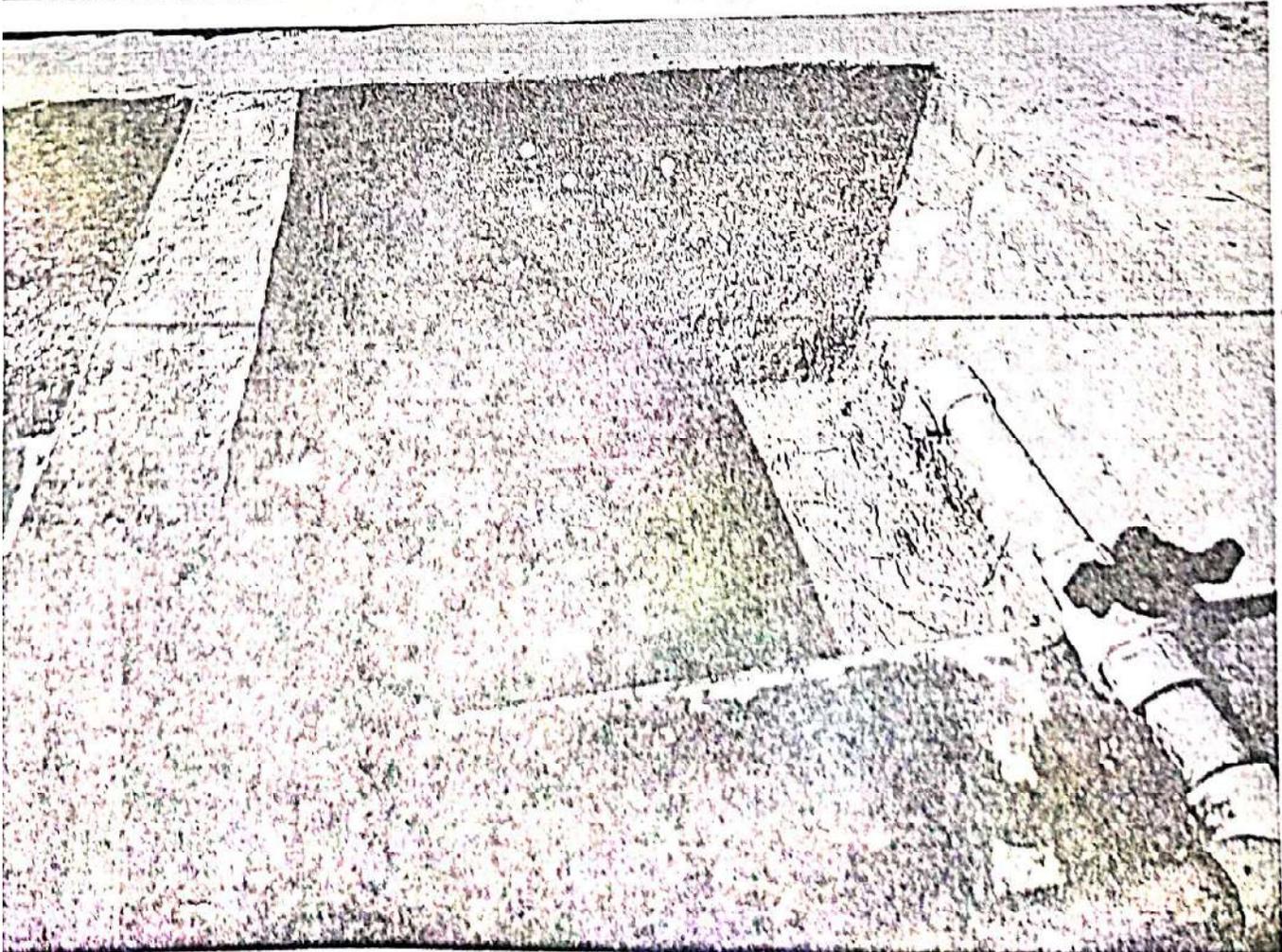
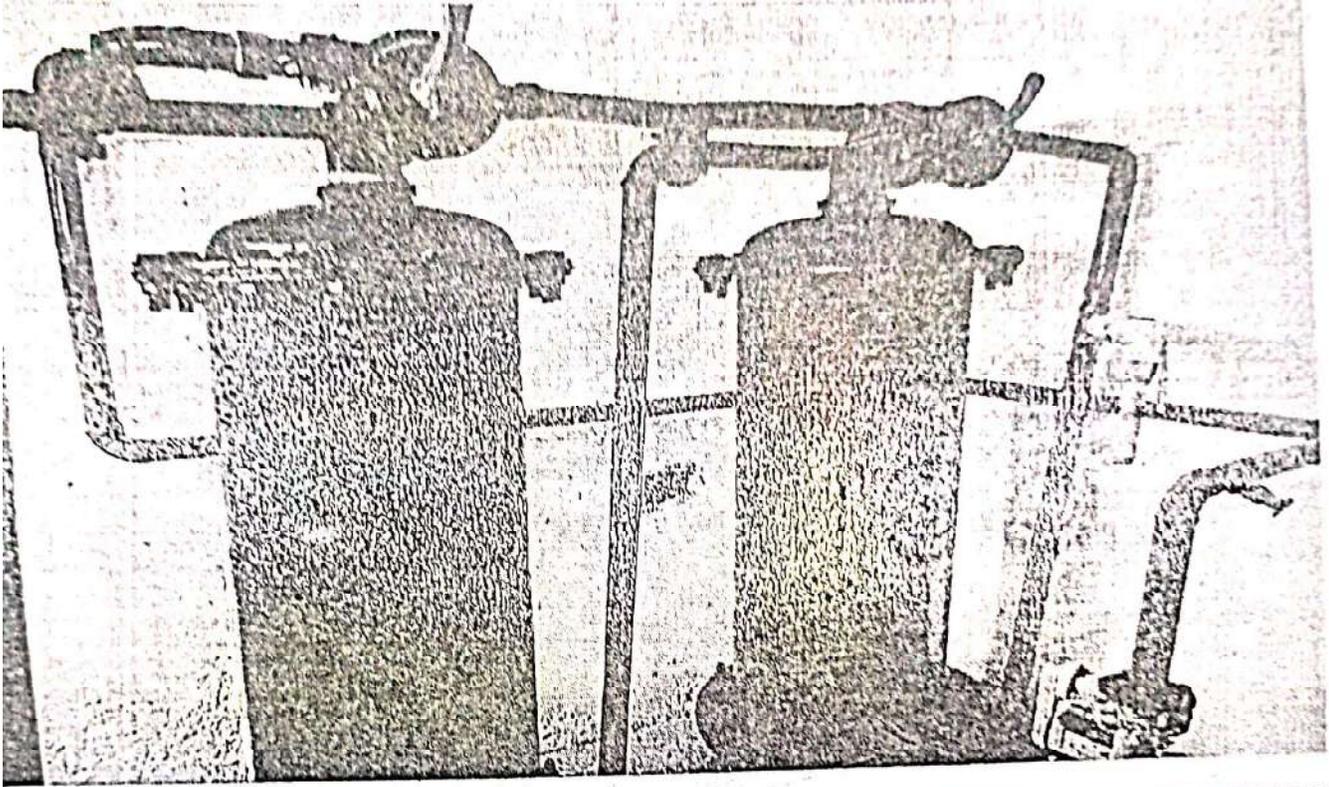
ANNEXURE-II

1. ETP Process Flow Scheme



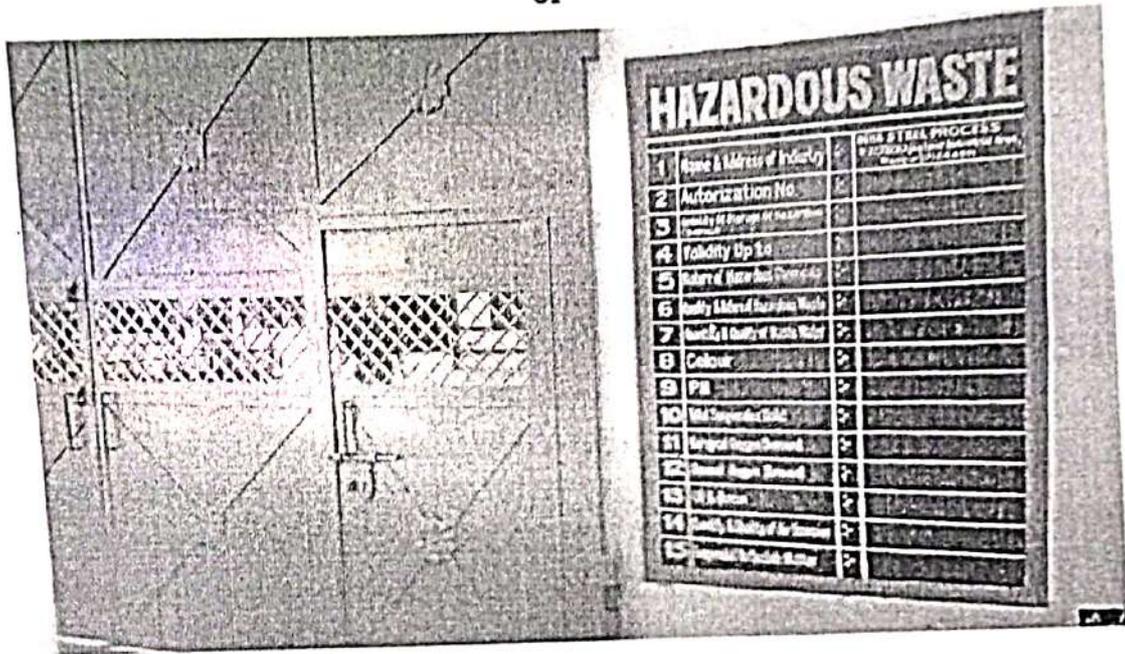
Current Photographs of the existing treatment plant:





**ADEQUACY REPORT OF  
EFFLUENT TREATMENT PLANT**

OF



**U/S USHA STEEL PROCESS**

**AJEETPUR, RAMPUR U.P**



SUBMITTED

BY

**DEPARTMENT OF CIVIL ENGINEERING  
FACULTY OF ENGINEERING & TECHNOLOGY  
ALIGARH MUSLIM UNIVERSITY ALIGARH  
NOVEMBER-2021**

Page 1 of 18

**U/S Usha Steel Process**  
*Prabhu Chandra*  
Proprietor

## 1.0 INTRODUCTION

M/s Usha Steel process Rampur, U.P. is in pickling business. Pickling is a metal treatment process that removes superficial impurities from metal. It's called "pickling" because it involves the use of an acidic solution known as pickle liquor. The exact composition of the pickle liquor varies depending on the type of metal on which it's used. For low-carbon steel, pickle liquor typically consists of hydrochloric or sulfuric acid. For high-carbon steel, on the other hand, pickle liquor typically contains additional acids like phosphoric and/or nitric acid.

**The Benefits of Pickling:** It's not uncommon for newly produced metal to have a layer of impurities on the surface. Hot-rolled steel, for example, develops an oxide layer when worked. The presence of this oxide prevents the steel from obtaining a smooth and clean surface. Although there are numerous ways to remove oxide from steel, manufacturing companies often prefer pickling because of its simplicity. When pickled, the acidic pickle liquor eats away at the oxide layer without harming or otherwise disturbing the underlying steel. Even if a piece of metal doesn't have oxide on its surface, it probably still contains some impurities. It's not uncommon for newly produced metal to contain inorganic compounds like trace metals. Depending on the application for which the metal is intended, these impurities may hinder its performance. Pickling, however, can remove most impurities thanks to the acidic properties of pickle liquor.

Pickling is performed by submerging metal in pickle liquor. After working a piece of metal, the manufacturing company will submerge it in the acid solution. The pickle liquor will then eat away at any oxide or other impurities lingering on the surface of the metal. In addition to pickling, there are other ways to descale and clean metal. Smooth clean surface is an alternative treatment process that offers similar benefits. With smooth clean surface, metal is exposed to an abrasive compound that physically removes surface imperfections and impurities. There's also abrasive blasting, which involves blasting metal with a pressurized stream of an abrasive solution to create a clean and smooth surface.

The unit was visited on November 12, 2021. The different unit operations/processes of ETP were physically verified (photographs attached – Annexure II). At the time of visit, the ETP was found in running condition with all the units operational. Certain instructions were given to the management as well as ETP operators regarding improving the working of the plant.

## 2.0 Objective of the present study:

The aim of the present study is to assess the feasibility to explore possibility of reuse of treated effluent from ETP within industrial process schemes in **M/s. Usha Steel Process**. The broad objectives of the work are

- To assess availability and efficacy of cleaner/ advance technology/state of the art technology for implementation of **Zero Liquid Discharge (ZLD) in Usha Steel Process**.
- To explore and carry out technical assessment of implementation of 'Zero Liquid Discharge' scheme (Annexure-III).

## 3.0 Methodology:

The two possible options for zero liquid discharge (ZLD) are:

- (i) Close up all process water loops by total recycling inside a process sequence or into a different process sequence within the industry.
- (ii) Treat the effluent in a stand-alone facility to render it suitable for process reuse.

The scope of the adequacy assessment of ZLD in the **M/s. Usha Steel Process** is to analyze the feasibility of steps taken by the industry under both the above options.

Following are the three major steps to achieve the above scope of work

- (i) Water audit of the unit and preparation of the Water Balance
- (ii) To assess water recycling arrangements
- (iii) Analysis of ZLD scheme.

Following check list is used as guideline for the work

- Complete process flow sheet showing material flow including water

balance of the production process.

- Scheme of Zero liquid discharge along with water and pollution load balance diagram.
- Balance of water and pollution load across various unit operations used for treating process water for recycling/treatment under ZLD scheme.
- Provision of flow meter and water sampling wherever recycled water is used in the process.
- Balance of water and contaminants across the section where fresh water or recycled water is used.
- Flow meters log records put across the various unit operations used for treating process water for recycling/treatment under ZLD scheme.
- Log book record of utility section including fuel consumption.
- Record of solid waste generation and disposal generated from ZLD scheme.
- Recovery and reject ratio of RO plant if exist
- Log record of RO plant
- Operation and maintenance record of unit operation used for treating process water for recycling/treatment under ZLD scheme (Annexure III).

**Water Audit:** Water audit includes collection and compilation of water consumption data, process details, and section wise water balance. Documents and information are necessary to implement an audit. Following are the steps for the water audit

- Meeting with Management
- Plant Visit.

Preparation of Process Flow Diagram and complete Water balance of the plant. Available information of the industry was tried to collect as much as possible. The information includes the process flow sheet of different sections of the industry, mass flow rate, and consistencies. Data and detailed flow diagrams provided by the industry helped in achieving the objective of the report.

**Water Recycling Arrangement:** Adequacy of water recycling arrangements is assessed through

- Adequacy of treatment scheme
- Recycling water quality analysis

**Analysis of ZLD scheme:**

- Flow sheet analysis
- Technical feasibility

#### 4.0 Manufacturing Process

No manufacturing is done at M/s Usha Steel Process

### 5.0 WATER AND WASTEWATER: GENERATION AND CHARACTERIZATION

#### 5.1 QUANTIFICATION OF WASTEWATER

The sources of effluent include cooling tower for chillers condensers (refrigeration) cooling towers for distillation condensers and floor washing section. The quantity of effluent generated from various sources of the unit has been estimated considering 100% of the total water consumption. The total effluent generated has been estimated for present scenario is run for Maximum 0.8 KLD. Whereas it can handle up to 4.0 KLD.

#### 5.2 CHARACTERIZATION OF WASTEWATER

The characteristics of effluent are source specific and differ from source to source. Therefore, the effluent generated is of interest from the standpoint of environmental impact in terms of both effluent volume and contaminant loading. Therefore, the characteristics of effluent include mainly pH, total suspended solids, biochemical oxygen demand, chemical oxygen demand and oil and grease. The current reports of influent and effluent are seen and attached (Annexure -I).

### 5.3 QUANTIFICATION OF WATER

One bore well with total capacity of 4.0 KLD are used to drawn water from underground. The quantity of fresh water consumption from various sources of the unit has been estimated for present scenario found to be 1.3KLD.

### 5.4 CHARACTERIZATION OF WATER

The characteristics of raw water are source specific and differ from source to source. Therefore, the water consumption is of interest from the standpoint of environmental impact in terms of both influent volume and contaminant loading. Therefore, the characteristics of influent include mainly pH, total suspended solids, biochemical properties, oil and grease. The current reports are seen and attached (Annexure-I).

### 6.0 TREATMENT PROCESS DESCRIPTION

The unit has provided effluent treatment plant (ETP) for the treatment of wastewater prior to discharge and to comply with the requirements of the pollution control board. The designed capacity of ETP to treat the wastewater is 4.0 KLD, However, the estimated effluent generated has been found to be 0.8KLD. The wastewater generated from process of rinsing after pickling will collect in an equalization tank where flow will equalise. The waste water from equalisation tank will pump to ETP. The waste water collected in equalization tank is being pumped to reaction cum settling tank, where pH boosting chemicals is being added to maintain pH between 9-10. After that coagulants agent is being added so that precipitation could start and then flocculating agent is being added to increase the weight of precipitate due to which solid and liquid get separated. The solid in form of sludge settled down at hopper i.e bottom of reaction cum settling chamber. The treated water is being pumped to multigrade filler and then activated carbon filter. The filtered water from activated carbon being pushed to reverse osmosis plant. The permeate water after osmosis plant is being collected in permeate water collection tank and is further pumped to rinsing water tanks for rinsing MS Sheets after process of pickling. The reject water will transfer in treated water tank for feeding in RO plant. When TDS increases more than 30,000 mg/l in that case RO reject water transfer to evaporator.

Vapour from evaporator is being recover in permeate water collection tank for recycling in process of rinsing. Online monitoring system is being installed as per the guidelines of CPCB

### 7.0 TREATMENT PLANT: UNIT OPERATIONS/PROCESSES

- (i) Equalization tank
- (ii) Reaction cum settling chamber
- (iii) Treated water collection tank
- (iv) Multi media filter
- (v) Activated carbon filter
- (vi) Filter press
- (vii) Reverse Osmosis plant
- (viii) RO treated water (permeate) collection tank
- (ix) RO reject water collection tank
- (x) Evaporator

### 7.1 SPECIFICATION OF PROCESS UNITS

S. No.	ETP component	Nos.	Size/capacity in feet	Material of Construction	Whether adequate, If not, give reasons
(i)	Equalization tank	01	Volume 4,500 lt	BW/RCC	Adequate
(ii)	Reaction cum settling tank	01	2 m high 2.0 m in dia	MS fabricated	Adequate
(iii)	Treated water collection tank	01	1.3 m high 1.50 m in dia	MS fabricated	3.50 hrs detention time Adequate
(iv)	Pressure sand filter	01	Dia 0.4m Height 0.60 m	PVC.	Adequate
(v)	Activated carbon filter	01	Dia 30.4 m Height 0.60 m	PVC.	Adequate

(vi)	Filtered water tank	01	2000 lit capacity	PVC.	Adequate
(vii)	Filter press	01	600mm x 600 mm x 24 plates	Steel	Adequate
(viii)	RO plant	01	Average permeate flow 300-500 lph		Adequate
(ix)	Evaporator	01	100 lph capacity 800 mm dia x 1500 mm	PVC	Adequate

\*Information provided by the client

## 8.0 ANALYSIS OF INFLUENT AND EFFLUENT CHARACTERISTICS

The client has provided recent test report of influent and effluent characteristics (issued on July 05, 2021) having case specific selected parameters. The parameters include pH, Total Suspended Solids, TDS, TS, odour, colour, heavy metals, BOD, COD, Oil, and Grease. These parameters have been analyzed by Research testing and calibration laboratory Moradabad UP (Annexure -I). The values of characteristic parameters at the outlet of ETP have been found to be within the permissible limit.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

- (i) The capacity - wise all the unit operations and processes of ETP are seem to be adequate to cater the wastewater generated from the unit.
- (ii) The influent and effluent characteristics (as provided by the client) comply with the regulatory norms of discharge standards.
- (iv) The treated water is used for rinsing of M.S Sheets after process of pickling. The reject water transfer to treated water chamber for feeding in RO plant.
- (v) Vapour from evaporator is being used to recover in permeate water collection tank for recycling in process of rinsing.
- (iv) 100 % wastewater after treatment used within the premises.

- (vi) M/s. Usha Steel Process is not discharging any effluent out of the premises.
- (vii) Wastewater treatment including zero level discharge schemes is adequately designed and working satisfactorily.
- (viii) It has been advise to check updates from CPCB website for compliance of pollution emerging from the industries.
- (ix) It has been suggested to arrange the technical training programme for operating personnel on treatment plant operation and maintenance on regular bases to aware of the significance and principles of the operating system.

Consultant

  
Name : Dr. Sohail Ayub  
Designation : Professor  
Name of organization/institute: Dept. of Civil Engg.  
Aligarh Muslim University, Aligarh

**Dr. Sohail Ayub (Ph.D.)**  
Professor, Dept. of Civil Engg.  
A.M.U., Aligarh

**SUMMARY SHEET OF FEASIBILITY REPORT FOR ETP**  
**OF**  
**M/S. USHA STEEL PROCESS, AJEETPUR INDUSTRIAL AREA**  
**RAMPUR, U.P.**

Adequacy Report No.: EPES/CED/167/2021

Date of Issue: 17.11.2021

S. No.	Description	Details				
1	Name of unit	M/s. Usha Steel Process				
2	Address of unit	Ajeetpur Industrial Area Dist Rampur, U P				
3	Date of Commissioning/ Commencement of Production	2011				
4	(a) Plot area (in sq meter) (b) Built up area (in sq meter)	1500.00 978.82				
5	Name, Designation & contact No(s) of the In-charge dealing with pollution control matters	Shri. Usha Gupta CEO Contact No.				
6	Name, Designation of the person (s) contacted at the site during the visit	Mr. Prakash Chandra ETP Manager Contact No. +91-9412717711				
7	Activity/process	Attached (Annexure - III)				
8	Production capacity	Picking of 1000 sheets per day				
9	Manufacturing process/Main Activities (in brief. Also Attach Process Flow Diagram)	Only processing (No manufacturing)				
10	Main Raw Materials	MS Plates				
11	Main Products	MS Plates process				
12	Source of water	Ground water (bore well)				
<b>Part B: Water Consumption, Waste Water Generation and Treatment</b>						
13	Water consumption, source and waste water generation (in KLD): (please Annex Water Mass Balance chart)					
	Usage	Quantity, KLD	Source	Water meter installed	Wastewater generation, KLD	Flow meter installed
	(a) Domestic (toilet/Bathroom/washroom etc.	0.5KLD	Ground Water	Yes	0.5KLD to septic tank	yes
	(b) RPO cleaning	0.8 KLD	Ground Water	Yes	0.8 KLD	

	Total	1.3 KLD	Ground Water	Yes	0.8 KLD	Yes
--	-------	---------	--------------	-----	---------	-----

14 Basis of the quantity of water consumption and waste water generation mentioned above: Estimation/Waste Water Meter Reading

15 Wastewater treatment facilities: Effluent Treatment Plant (ETP)

S No	Design capacity (in KLD)	Treatment facility	Design parameter (BOD etc.)	Treatment process (physio-chemical/Biologic al. mention technology used)	Batch/Continuous process	Sources of waste water leading to ETP	Present average waste water generation KLD	Flow meter at inlet & outlet (yes/No)	Disposal point
1	4.0	ETP	BOD-10 - 20 mg/l COD- 500-600 mg/l	Physical, Chemical as well as Biological with tertiary treatment	Continuous process	By Pump	0.8	Yes	Yes

16 Whether all the wastewater generated from the unit /establishment is treated: Yes

17 Mode and location of effluent discharge : (please attach location map of disposal clearly indicating the outlets for sampling/effluent discharge )

(a) Treated effluent : Partly for watering of streets and gardening purposes but majority of treated wastewater is taken for cooling tower re cycling

18	Details of the Constituent Units of ETP	Equalization tank ,Reaction cum settling chamber ,Treated water collection tank, Multi media filter, Activated carbon filter Filter press ,Reverse Osmosis plant RO treated water (permeate) collection tank ,RO reject water collection tank Evaporator, Air Blowers, Effluent Transfer Pump, Filter Feed Pump, Sludge Transfer Pump
	Design Capacity of ETP (in KLD)	04
	Treatment process (physic-chemical /biological, mention technology used)	1. <i>Physico-Chemical Process</i> Settling Chambers, Oil and Fat Removal, Equalization tank  2. <i>Biological Treatment Process</i> NIL

M/s Usha Steal Process  
*Pranav*  
 Proprietor

		4. <b>Tertiary Treatment</b> Multi Media Filter, Activated Carbon Filter Reverse osmosis and evaporator			
Date of commissioning of ETP Whether continuous or batch? if batch , no. of batches? (Enclose schematic diagram/ process flow sheet of treatment scheme & photograph of ETP		Commissioning Date: 2011  Type: Continuous process			
S. No.	ETP component	Nos.	Size/capacity in feet	Material of Construction	Whether adequate , if not , give reasons
(i)	Equalization tank	01	Volume 4,500 lt	BW/RCC	Adequate
(ii)	Reaction cum settling tank	01	2 m high 2.0 m in dia	MS fabricated	Adequate
(iii)	Treated water collection tank	01	1.3 m high 1.50 m in dia	MS fabricated	3.50 hrs detention time Adequate
(iv)	Pressure sand filter	01	Dia 0.4m Height 0.60 m	PVC.	Adequate
(v)	Activated carbon filter	01	Dia 30.4 m Height 0.60 m	PVC.	Adequate
(vi)	Filtered water tank	01	2000 lit capacity	PVC.	Adequate
(vii)	Filter press	01	600mm x 600 mm x 24 plates	Steel	Adequate
(viii)	RO plant	01	Average permeate flow 300-500 lph		Adequate
(ix)	Evaporator	01	100 lph capacity 800 mm dia x 1500 mm	PVC	Adequate

\*Information provided by the client

19	Whether design aspects were taken in to account while evaluating the performance of ETP. Yes
20	<ul style="list-style-type: none"> <li>Whether any modification was suggested to rectify deficiencies improve /upgrade the ETP: Yes</li> <li>Whether modifications are incorporated: Yes</li> </ul>
21	Whether ETP found operating and wastewater is treated : Yes

22	Whether wastewater measured of ETP) : Yes, Electromagnetic Flowmeter (At inlet and outlet (if yes please enclose details of flow meters type /No locations etc.) photograph attached		
23	Whether all the wastewater generated from the unit is treated? If not, how much % of is being treated. Yes 100% treated		
24	Whether unit is having any Bypass arrangement for discharge of untreated effluent from the premises : No		
25	Whether the entire treated effluent is being reused? If yes mention the quantity of reuse recycle of treated effluent in various in various usages and provide details. If not. How much % is being reused? 100% is used in re circulation and recycling purposes.		
26	Whether the unit has proper arrangement /system for handling and disposal of sludge generated from the ETP. Yes		
27	Whether the unit is having adequate and qualified /skilled operators(s) for the proper operation and maintenance of the ETP: Yes (It was suggested to have one more)		
28	Whether proper log book is being maintained for the operation and maintenance of ETP?: Yes		
29	Whether influent (untreated) and effluent (treated) characteristics have been monitored? If yes, then details in the table below)		
	Date and time of effluent sampling	Whether grab or composite sample	Name & designation of the person who collected sample
	15.11.2021 2:30 PM	Grab Sampling	P. Gupta
			Name of the Empanelled laboratory which conducted monitoring /analysis Research Testing and calibration Lab Moradabad.UP
30	Whether the treated effluent is meeting the prescribed standards: Yes		
31	Date of visit /inspection of the unit /establishment	12-11-2021	
32	Name and designation of the person conducted visit/inspection of the unit /establishment	Dr. Sohail Ayub	
33	Whether existing ETP is adequate to treat the waste water up to its designed capacity (4.0KLD) to meet the prescribed standards: Yes		
34	Advice (if any) given to the unit for the proper operation & maintenance of ETP (separate sheet may be enclosed) Already installed RO unit and Multi evaporator.		
35	Suggestion for best available technology Nil		
36	Remarks (if any): The sizes of the different treatment units were found adequate and as per the laboratory reports the ETP is treating wastewater satisfactorily and the effluent discharge limits of CPCB are achieved.		

Date of Issue: 17.11.2021

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M/s Usha Steel Process

Proprietor

  
Name : Dr. Sohail Ayub  
Designation : Professor  
Name of organization/institute: Dept. of Civil  
Engg.  
Aligarh Muslim University, Aligarh

Dr. Sohail Ayub (Ph.D.)  
Professor, Dept. of Civil Engg.  
A.M.U., Aligarh

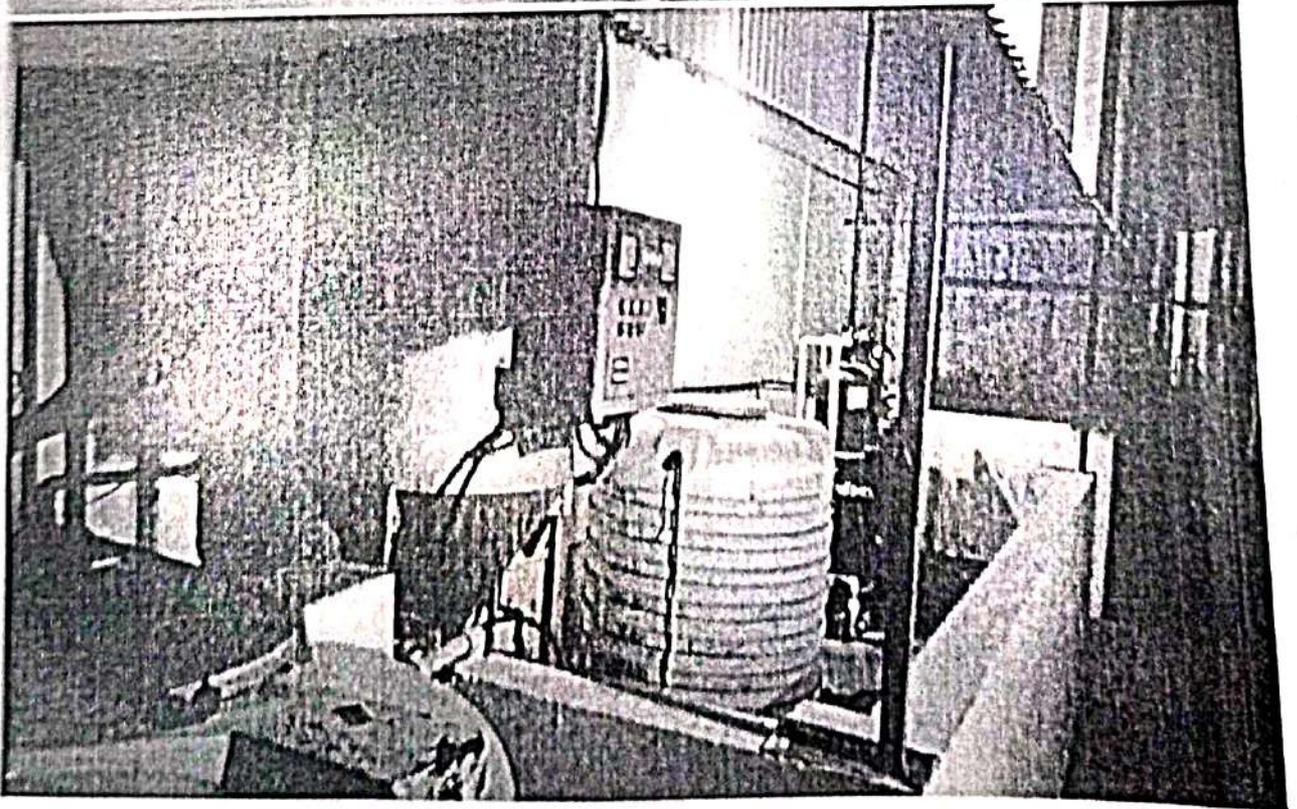
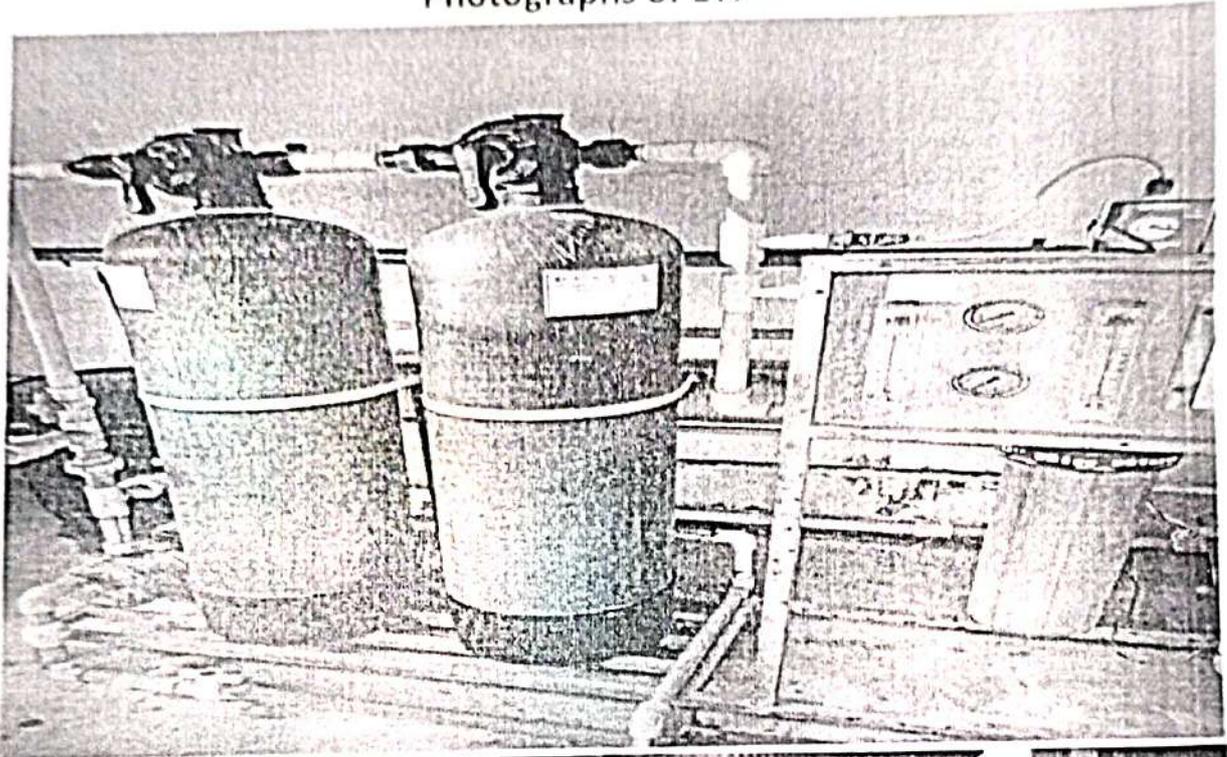
Annexure - I

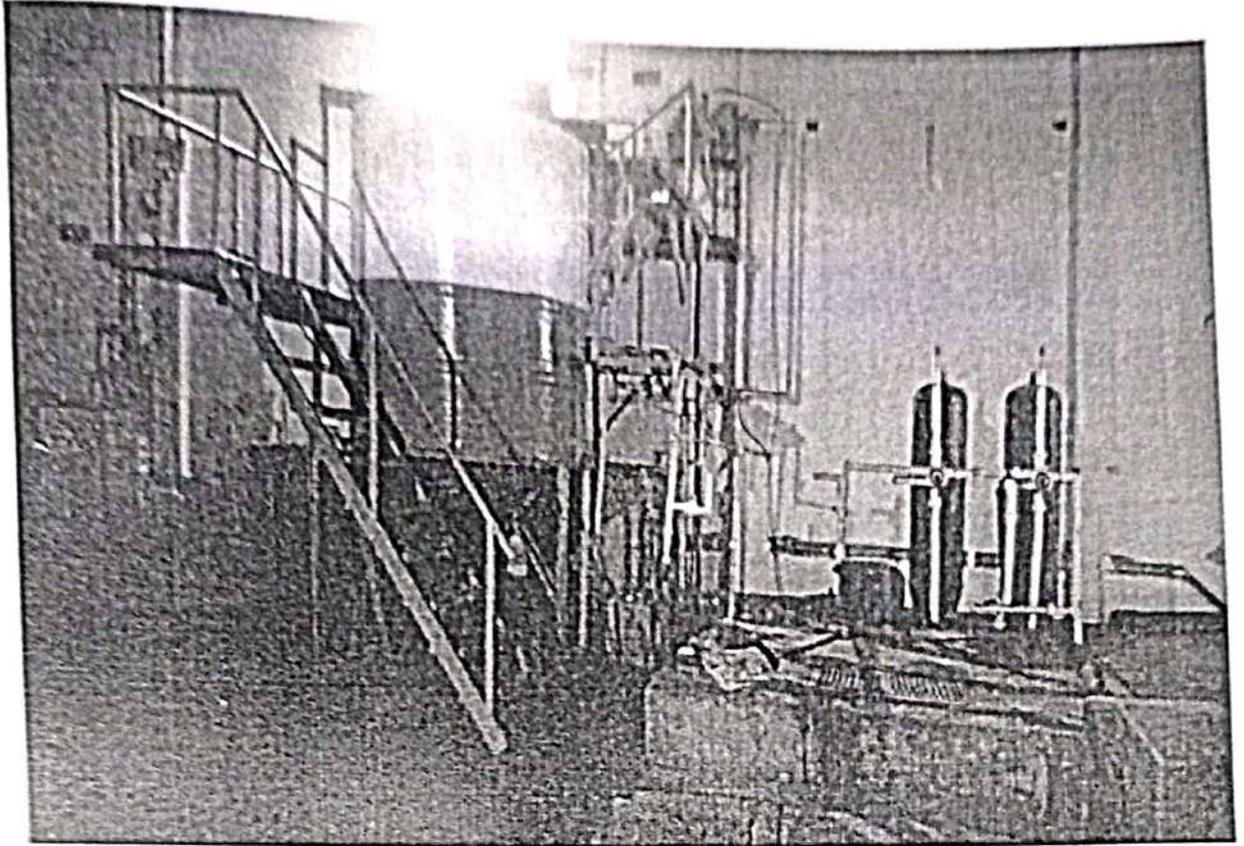
1-Testing Reports

2- Valid Consents

M/s Usha Steel Process  
*Pratibha*  
Proprietor

Annexure - II  
Photographs of ETP



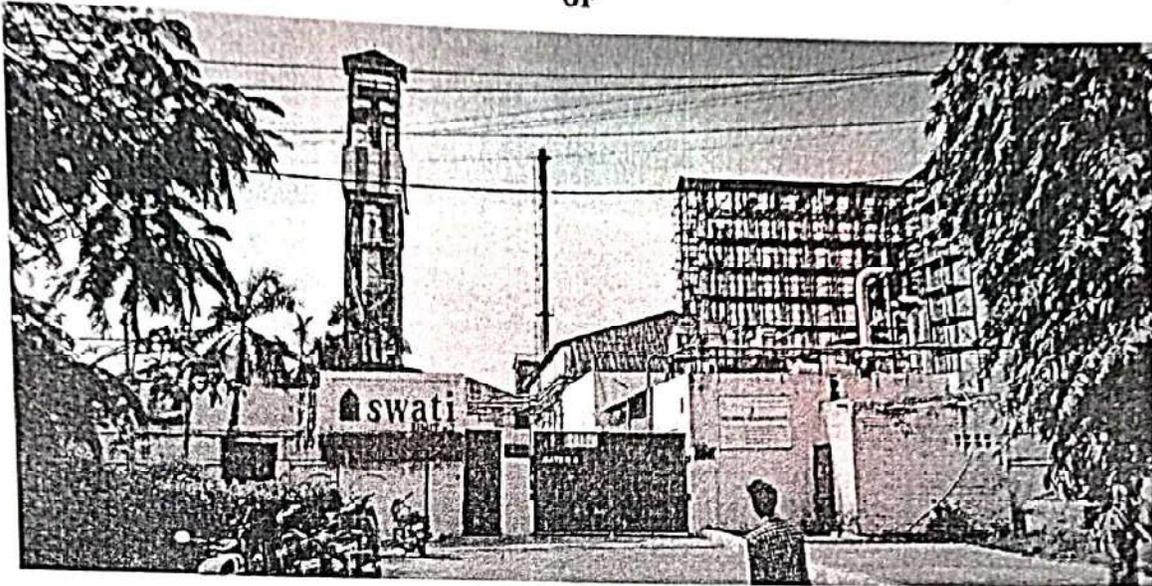


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M/s Usha Steat Process  
Pvt. Ltd.  
Proprietor

**ADEQUACY REPORT OF  
EFFLUENT TREATMENT PLANT**

**OF**



**SWATI MENTHOL & ALLIED CHEMICALS LTD UNIT-1**

**RAMPUR U.P**



**SUBMITTED**

**BY**

**DEPARTMENT OF CIVIL ENGINEERING  
FACULTY OF ENGINEERING & TECHNOLOGY  
ALIGARH MUSLIM UNIVERSITY ALIGARH  
NOVEMBER-2021**

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## 1.0 INTRODUCTION

M/s Swati Menthol & Allied Chemicals Ltd unit-1, Rampur, U.P. A ISO 9001:2008 certified company, they are one of the leading manufacturers and exporters of natural menthol, essential oil, peppermint oil, crude menthol oil, peppermint essential oil and terpene chemicals from India. They have reputation as a noteworthy supplier in global supply chain and can be credited to their technically advanced production facilities, international quality standards, extensive R&D and customer oriented approach.

Swati menthol working objective is to achieve total customer satisfaction. At the same time, they also strive to offer effective and reliable products at most competitive prices within scheduled time. The driving force behind this enthusiastic approach is their quest to serve clients with the most dedicated and professionally. In addition, the industry have a countrywide sales and marketing network in India with a vibrant team of trained and motivated professionals.

The company is promoted by Mr. S. K. Gupta, a Chemical Engineer, who has vast experience in the same industry. He started the first production division i.e. natural menthol manufacturing unit in the year 1977 at Rampur (UP, India). At Swati Menthol & Allied Chemicals Limited, they follow the principles of corporate citizen to grow and sustain its growth. It includes: Dedication for best client service ,Correct market information by avoiding speculation ,Flexibility and competitive pricing and Diligent working with highest ethical standards

### **Production Facilities**

They have state-of-the-art infrastructural set-up, which is equipped with modern production equipment. The company has three production divisions viz. Mint division, natural peppermint oil, pine division and essential oil division. They have integrated facilities for production, quality testing, product packaging and storage facilities, which assist them for the timely execution of entire business requirements.

They employ purification through distillation to provide extra shine, clarity and purity to crystals. The crystal size is graded by sieving machine into large, small, medium,

rice and fine before final packaging. Their manufacturing unit is located in Western Uttar Pradesh, which gives us an advantage regarding materials sourcing, business networking, etc.

With the burgeoning desire to achieve higher growth, they welcome technical collaborations, joint ventures and international trading through strategic alliances with MNC and global leaders. They are committed to follow global acceptable quality standards like IP, BP and USP. An ISO 9001:2008 certified company, they carry out all their production as per GMP guidelines. For quality testing, there is an ultra modern laboratory equipped with the latest testing equipment and instruments. To perform analytical research and quality control, following sophisticated instruments are being used: Gas liquid chromatography, Polarimeter, Melting range unit, DR range unit, Ash content unit, Viscometer and Other relevant testing equipment. They are engaged in intense R&D activities, with an aim to develop innovative and improvised products. With ultra-modern R&D center, they ensure constant research, analysis and development. The various aspects of R&D are carried out by highly skilled scientists and researchers.

The unit was visited on November 12, 2021. The different unit operations/processes of ETP were physically verified (photographs attached – Annexure II). At the time of visit, the ETP was found in running condition with all the units operational. Certain instructions were given to the management as well as ETP operators regarding improving the working of the plant.

#### 2.0 Objective of the present study:

The aim of the present study is to assess the feasibility to explore possibility of reuse of treated effluent from ETP within industrial process schemes in **M/s. Swati Menthol & Allied Chemicals Limited**. The broad objectives of the work are

- To assess availability and efficacy of cleaner/ advance technology/state of the art technology for implementation of **Zero Liquid Discharge (ZLD)** in **Swati Manthol**.
- To explore and carry out technical assessment of implementation of

**'Zero Liquid Discharge' scheme (Annexure-II).****3.0 Methodology:**

The two possible options for zero liquid discharge (ZLD) are:

- (i) Close up all process water loops by total recycling inside a process sequence or into a different process sequence within the industry.
- (ii) Treat the effluent in a stand-alone facility to render it suitable for process reuse.

The scope of the adequacy assessment of ZLD in the **M/s. Swati Menthol & Allied Chemicals Limited** is to analyze the feasibility of steps taken by the industry under both the above options. Following are the three major steps to achieve the above scope of work

- (i) Water audit of the unit and preparation of the Water Balance
- (ii) To assess water recycling arrangements
- (iii) Analysis of ZLD scheme.

Following check list is used as guideline for the work

- Complete process flow sheet showing material flow including water balance of the production process.
- Scheme of Zero liquid discharge along with water and pollution load balance diagram.
- Balance of water and pollution load across various unit operations used for treating process water for recycling/treatment under ZLD scheme.
- Provision of flow meter and water sampling wherever recycled water is used in the process.
- Balance of water and contaminants across the section where fresh water or recycled water is used.
- Flow meters log records put across the various unit operations used for treating process water for recycling/treatment under ZLD scheme.
- Log book record of utility section including fuel consumption.
- Record of solid waste generation and disposal generated from ZLD

scheme.

- Recovery and reject ratio of RO plant if exist
- Log record of RO plant.
- Operation and maintenance record of unit operation used for treating process water for recycling/treatment under ZLD scheme (Annexure II).

**Water Audit:** Water audit includes collection and compilation of water consumption data, process details, and section wise water balance. Documents and information are necessary to implement an audit. Following are the steps for the water audit

- Meeting with Management
- Plant Visit.

Preparation of Process Flow Diagram and complete Water balance of the plant. Available information of the industry was tried to collect as much as possible. The information includes the process flow sheet of different sections of the industry, mass flow rate, and consistencies. Data and detailed flow diagrams provided by the industry helped in achieving the objective of the report.

**Water Recycling Arrangement:** Adequacy of water recycling arrangements is assessed through

- Adequacy of treatment scheme
- Recycling water quality analysis

**Analysis of ZLD scheme:**

- Flow sheet analysis
- Technical feasibility

#### 4.0 Manufacturing Process

The different processes involved are mentioned in the process flow diagram (Annexure – III). Normal sequences unit operation include: dementholised oil,

dementholised oil storage, fractional distillation, blending, analysis, filtration and filling and weighting.

## **5.0 WATER AND WASTEWATER: GENERATION AND CHARACTERIZATION**

### **5.1 QUANTIFICATION OF WASTEWATER**

The sources of effluent include cooling tower for chillers condensers (refrigeration) cooling towers for distillation condensers and floor washing section. The quantity of effluent generated from various sources of the unit has been estimated considering 100% of the total water consumption. The total effluent generated has been estimated for present scenario is run for Maximum 9.0 KLD. Whereas it can handle up to 15.0 KLD.

### **5.2 CHARACTERIZATION OF WASTEWATER**

The characteristics of effluent are source specific and differ from source to source. Therefore, the effluent generated is of interest from the standpoint of environmental impact in terms of both effluent volume and contaminant loading. Therefore, the characteristics of effluent include mainly pH, total suspended solids, biochemical oxygen demand, chemical oxygen demand and oil and grease. The current reports of influent and effluent are seen and attached (Annexure -I).

### **5.3 QUANTIFICATION OF WATER**

Three bore wells with total capacity of 15 KLD are used to drawn water from underground. The quantity of fresh water consumption from various sources of the unit has been estimated for present scenario found to be 14.5KLD.

### **5.4 CHARACTERIZATION OF WATER**

The characteristics of raw water are source specific and differ from source to source. Therefore, the water consumption is of interest from the standpoint of environmental impact in terms of both influent volume and contaminant loading. Therefore, the

characteristics of influent include mainly pH, total suspended solids, biochemical properties, oil and grease. The current reports are seen and attached (Annexure-I).

## 6.0 TREATMENT PROCESS DESCRIPTION

The unit has provided effluent treatment plant (ETP) for the treatment of wastewater prior to discharge and to comply with the requirements of the pollution control board. The designed capacity of ETP to treat the wastewater is 15.0 KLD. However, the estimated effluent generated has been found to be 9.0KLD. The wastewater from different streams is passed through screens and then moved to oil & grease trap then further collected in a collection tank. The wastewater from collection tank is taken to chemical treatment unit. The wastewater from here is taken to Primary tube settler for the separation of suspended particles. From primary tube settler the effluent is pumped to MBBR tank I. The sludge from PTS is taken to D-Mech sludge. The effluent from MBBR is taken to secondary tube settler and further to MBBR Tank II and finally to final tube settler. The effluent from balance tank is further treated to pressure sand filter and activated carbon filter. The sludge from different units is taken to sludge drying beds. Part of the treated effluent is taken to agricultural field / horticulture purposes, cooling tower for re cycling and part is taken for street cleaning/ floor washing and watering of parks etc. Online monitoring system is being installed as per the guidelines of CPCB

## 7.0 TREATMENT PLANT: UNIT OPERATIONS/PROCESSES

- (i) Oil and Grease Trap
- (ii) Flash mixing tank
- (iii) Equalization tank
- (iv) Primary tube settler
- (v) MBBR tank I
- (vi) MBBR tank II
- (vii) Pressure sand filter
- (viii) Activated carbon filter

## 7.1 SPECIFICATION OF PROCESS UNITS

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S. No.	ETP component	Nos.	Size/capacity in feet	Material of Construction	Whether adequate, if not, give reasons
(i)	Collection tank	01	Length= 8.0 feet, diameter =5.0 feet	MS fabricated	Adequate
(ii)	Chemical treatment	01	6.5 x 2.0 x 10 feet	MS fabricated	Adequate
(iii)	Primary tube settler	02	6.5 x 2.5 x 10 feet	MS fabricated	Adequate
(iv)	MBBR Tank 1	01	6.5 x 4.5 x 10 feet	MS fabricated	Adequate
(v)	MBBR tank 2	01	6.5 x 4.5 x 10 feet	MS fabricated	Adequate
(vi)	Final Tube settler	01	6.5 x 2.5 x 10 feet	MS fabricated	Adequate
(vii)	Balance tank	01	4.0 x 4.0 x 4.0 feet	MS fabricated	Adequate
(viii)	Pressure sand filter	01	Dia 300 mm Height 1200 mm	PVC.	Adequate
(ix)	Activated carbon filter	01	Dia 300 mm Height 1200 mm	PVC.	Design Adequate
(x)	Treated water tank	01	Diameter 4.0 SWD = 5.0	R.C.C.	Design Adequate
(xi)	Sludge drying bed	01	5.0 x 3.5 x 1.0 feet	RB	Adequate

\*Information provided by the client

## 8.0 ANALYSIS OF INFLUENT AND EFFLUENT CHARACTERISTICS

The client has provided recent test report of influent and effluent characteristics (issued on August 05, 2021) having case specific selected parameters. The parameters include pH, Total Suspended Solids, TDS, TS, BOD<sub>5</sub>, COD, odour, colour, Oil, and Grease. These parameters have been analyzed by Envirochem Research & Tests Lab private limited Lucknow UP. (Annexure -I). The values of

characteristic parameters at the outlet of ETP have been found to be within the permissible limit.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

- (i) The capacity - wise all the unit operations and processes of ETP are seem to be adequate to cater the wastewater generated from the unit.
- (ii) The influent and effluent characteristics (as provided by the client) comply with the regulatory norms of discharge standards.
- (iii) The treated water is used for cooling tower recycling, Horticulture purposes/ gardening and flushing floor cleaning.
- (iv) 100 % wastewater after treatment used within the premises.
- (iv) **M/s. Swati Menthol & Allied Chemicals Limited** is not discharging any effluent out of the premises.
- (v) Wastewater treatment including zero level discharge schemes is adequately designed and working satisfactorily.
- (iv) It has been suggested to arrange the technical training programme for operating personnel on treatment plant operation and maintenance on regular bases to aware of the significance and principles of the operating system.

### Consultant

Name : Dr. Sohail Ayub  
 Designation : Professor  
 Name of organization/institute: Dept. of Civil Engg.  
 Aligarh Muslim University, Aligarh

Page 9 of 21

**Dr. Sohail Ayub (Ph.D.)**  
 Professor, Dept. of Civil Engg.  
 A.M.U., Aligarh

**SUMMARY SHEET OF FEASIBILITY REPORT FOR ETP**  
**OF**  
**MLS. SWATI MENTHOL & ALLIED CHEMICALS LIMITED UNIT-1**  
**RAMPUR, U.P.**

Adequacy Report No.: EPES/CED/166/2021

Date of Issue: 18.11.2021

S. No.	Description.	Details					
1	Name of unit	Mls. Swati Menthol & Allied Chemicals Limited Unit -1					
2	Address of unit	Bareilly road, Tehsil Sadar Dist.Rampur, U.P.					
3	Date of Commissioning/ Commencement of Production	March 1990					
4	(a) Plot area (in sq meter ) (b) Built up area (in sq meter )	12997.52 9078.82					
5	Name, Designation & contact No(s) of the In- charge dealing with pollution control matters.	Shri. Nitin Gupta CEO Contact No.: +91-9837055373					
6	Name, Designation of the person (s) contacted at the site during the visit.	Mr. Sumit Mittal ETP Manager Contact No.: +91-8923929371					
7	Activity/process	Attached (Annexure – III)					
8	Production capacity	4200 MTPA					
9	Manufacturing process /Main Activities (in brief, Also Attach Process Flow Diagram))	As per process flow chart					
10	Main Raw Materials	Mentha oil					
11	Main Products	Mother luquir for peppermint oil					
12	Source of water	Ground water (bore well)					
<b>Part B: Water Consumption, Waste Water Generation and Treatment</b>							
13	Water consumption, source and waste water generation (in KLD): (please Annex Water Mass Balance chart)						
	Usage	Quantity, KLD	Source	Water meter installed	Wastewater generation, KLD	Flow meter installed	
	(a) Domestic (toile/Bathroom/ washroom etc.	3 KLD	Ground Water	Yes	2KLD		

(b)	Cooling towers for distillation condensers	8 KLD	Ground Water	Yes	4.5 KLD	Yes				
(c)	Cooling towers for chillers condensers (refrigeration)	4 KLD	Ground Water	Yes	2.5 KLD					
	<b>Total</b>	<b>15 KLD</b>	<b>Ground Water</b>	<b>Yes</b>	<b>9 KLD</b>	<b>Yes</b>				
14	Basis of the quantity of water consumption and waste water generation mentioned above: Estimation/Waste Water Meter Reading									
15	Wastewater treatment facilities: Effluent Treatment Plant (ETP)									
	S No.	Design capacity (in KLD)	Treatment facility	Design parameter (BOD etc.)	Treatment process (physio-chemical/Biological, mention technology used)	Batch/Continuous process	Sources of waste water leading to ETP	Present average waste water generation KLD	Flow meter at inlet & outlet (yes/No)	Disposal point
	1	15	ETP	BOD-200 - 350 mg/l COD-400-600 mg/l	Physical, Chemical as well as Biological with tertiary treatment	Continuous process	By Pump	14.5	Yes	Yes
16	Whether all the wastewater generated from the unit /establishment is treated: Yes									
17	Mode and location of effluent discharge : (please attach location map of disposal clearly indicating the outlets for sampling/effluent discharge )  (a) <b>Treated effluent</b> : Partly for watering of streets and gardening purposes but majority of treated wastewater is taken for cooling tower re cycling									
18	Details of the Constituent Units of ETP				Oil and Grease Trap, Flash mixing tank Equalization tank, Primary tube settler MBBR tank I, MBBR tank II, Pressure sand filter, Activated carbon filter Filter feed tank, Sludge Drying Beds, Air Blowers, Effluent Transfer Pump, Filter Feed Pump, Sludge Transfer Pump					
	Design Capacity of ETP (in KLD)				15					
	Treatment process (physic-chemical /biological, mention technology used)				1. <i>Physico-Chemical Process</i> Screen Chambers, Oil and Fat Removal, Primary Clarifier					

	2. <i>Biological Treatment Process</i> Tube settlers and MBBR tanks
	4. <i>Tertiary Treatment</i> Media Filter, Carbon Filter
Date of commissioning of ETP Whether continuous or batch? if batch, no. of batches? (Enclose schematic diagram/ process flow sheet of treatment scheme & photograph of ETP)	Commissioning Date: 1990  Type: Continuous process

S. No.	ETP component	Nos.	Size/capacity in feet	Material of Construction	Whether adequate, If not, give reasons
(i)	Collection tank	01	Length= 8.0 feet, diameter =5.0 feet	MS fabricated	Adequate
(ii)	Chemical treatment	01	6.5 x 2.0 x 10 feet	MS fabricated	Adequate
(iii)	Primary tube settler	02	6.5 x 2.5 x 10 feet	MS fabricated	Adequate
(iv)	MBBR Tank 1	01	6.5 x 4.5 x 10 feet	MS fabricated	Adequate
(v)	MBBR tank 2	01	6.5 x 4.5 x 10 feet	MS fabricated	Adequate
(vi)	Final Tube settler	01	6.5 x 2.5 x 10 feet	MS fabricated	Adequate
(vii)	Balance tank	01	4.0 x 4.0 x 4.0 feet	MS fabricated	Adequate
(viii)	Pressure sand filter	01	Dia 300 mm Height 1200 mm	PVC.	Adequate
(ix)	Activated carbon filter	01	Dia 300 mm Height 1200 mm	PVC.	Design Adequate
(x)	Treated water tank	01	Diameter 4.0 SWD = 5.0	R.C.C.	Design Adequate
(xi)	Sludge drying bed	01	5.0 x 3.5 x 1.0 feet	RB	Adequate

\*Information provided by the client

19	Whether design aspects were taken in to account while evaluating the performance of ETP: Yes			
20	<ul style="list-style-type: none"> <li>• Whether any modification was suggested to rectify deficiencies improve /upgrade the ETP: Yes</li> <li>• Whether modifications are incorporated: Yes</li> </ul>			
21	Whether ETP found operating and wastewater is treated : Yes			
22	Whether wastewater measured of ETP : Yes, Electromagnetic Flowmeter (At inlet and outlet (if yes please enclose details of flow meters type /No locations etc.) photograph attached			
23	Whether all the wastewater generated from the unit is treated? If not , how much % of is being treated: Yes 100% treated			
24	Whether unit is having any Bypass arrangement for discharge of untreated effluent from the premises : No			
25	Whether the entire treated effluent is being reused? If yes mention the quantity of reuse /recycle of treated effluent in various in various usages and provide details. If not. How much % is being reused?: 100% is used in Plantation, floor cleaning and cooling tower.			
26	Whether the unit has proper arrangement /system for handling and disposal of sludge generated from the ETP: Yes			
27	Whether the unit is having adequate and qualified /skilled operators(s) for the proper operation and maintenance of the ETP: Yes (It was suggested to have one more)			
28	Whether proper log book is being maintained for the operation and maintenance of ETP?: Yes			
29	Whether influent (untreated) and effluent (treated) characteristics have been monitored? If yes, then details in the table below)			
	Date and time of effluent sampling	Whether grab or composite sample	Name & designation of the person who collected sample	Name of the Empanelled laboratory which conducted monitoring /analysis
	05.08.2021 1PM	Grab Sampling	Ashok kumar	Envirochem Research & Tests Lab private limited Lucknow UP
30	Whether the treated effluent is meeting the prescribed standards: Yes			
31	Date of visit /inspection of the unit /establishment	12-11-2021		
32	Name and designation of the person conducted visit/inspection of the unit /establishment	Dr. Sohail Ayub		
33	Whether existing ETP is adequate to treat the waste water up to its designed capacity (15KLD) to meet the prescribed standards: Yes			
34	Advice (if any) given to the unit for the proper operation & maintenance of ETP (separate sheet may be enclosed) It was advised to install RO unit and Multi evaporators.			

35	Suggestion for best available technology Nil
36	Remarks (if any): The sizes of the different treatment units were found adequate and as per the laboratory reports the ETP is treating wastewater satisfactorily and the effluent discharge limits of CPCB are achieved.

Date of Issue: 18.11.2021

Name : Dr. Sohail Ayub  
Designation : Professor  
Name of organization/institute: Dept. of Civil  
Engg.  
Aligarh Muslim University, Aligarh

**Dr. Sohail Ayub (Ph.D.)**  
Professor, Dept. of Civil Engg.  
A.M.U., Aligarh



**EKO TESTING LABS**  
**Eko Pro Engineers Pvt. Ltd.**  
 Environmental Consultants and Analytical Laboratory  
 (An ISO 9001:2015 Certified Company)



Office & Laboratory : 32/41, South Side of G. T. Road, UPSIDC Industrial Area, Ghaziabad - 201 009 (Delhi-NCR) INDIA  
 Contact No. 9711159210, 9810240837, 9810240678 E-mail: email@ekopro.in, ekoproengineers@gmail.com website: www.ekopro.in

TC-5063

**TEST REPORT**  
**Effluent Sample Analysis**

Test Report No. : EKO/E-573/141223

Issue Date : 20/12/2023

Issued To

: RANA SUGARS LIMITED.  
 Belwara  
 Distt. Moradabad (U.P.)

Sample Description : Effluent Sample (Anaerobic inlet)  
 Sample Drawn by : Given by client  
 Sample Received on : 14/12/2023  
 Sampling Location : NA  
 Sampling Plan & Procedure : NA  
 Sample Quantity : 3.0 Litre  
 Environmental Condition : Normal  
 Analysis Duration : 14/12/2023 To 19/12/2023  
 Remark (if any) : NA

**RESULTS**

S. No.	Parameters	Test Methods	Results	Units
1	pH	IS: 3025 (P-11)	6.25	-
2	Total Dissolved Solids	IS: 3025 (P-16)	1330.0	mg/L
3	Total Suspended Solids	IS: 3025 (P-17)	390.0	mg/L
4	Sulphate	IS: 3025 (P-24)	402.0	mg/L
5	COD (as O <sub>2</sub> )	IS: 3025 (P-58)	1620.0	mg/L
6	BOD (@27°C for 3 days)	IS: 3025 (P-44)	640.0	mg/L

**Notes :**

- The results given above are related to the tested sample, as received & mentioned parameters.  
The customer asked for the above tests only.
- This test report will not be generated again, either wholly or in part, without prior written permission of the Laboratory.
- The test report will not be used for any publicity/legal purpose.
- The test samples will be disposed off after 15 days from the date of issue of test report, unless until specified by the customer. Sample received for biological tests will be destroyed after 7 days from the date of issue of test report.
- Responsibility of the Laboratory is limited to the invoiced amount only.

**\*\*End of Report\*\***

For **EKO PRO ENGINEERS PVT. LTD.**  
**PURNIMA CHAUDHAN**  
 TECHNICAL MANAGER  
 Authorised Signatory  
 SAVE THE ENVIRONMENT



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# EKO TESTING LABS®

## Eko Pro Engineers Pvt. Ltd.

Environmental Consultants and Analytical Laboratory  
(An ISO 9001:2015 Certified Company)

Contact : +91 - 9810243870



Office & Laboratory : 32/41, South Side of G. T. Road, UPSIDC Industrial Area, Ghaziabad - 201 009 (Delhi-NCR) INDIA  
Contact No. : 9711159210, 9810240837, 9810240678 E-mail : email@ekopro.in, ekoproengineers@gmail.com website : www.ekopro.in

### TEST REPORT

#### Effluent Sample Analysis

Test Report No. : EKO/E-574/141223

Issue Date : 20/12/2023

Issued To : RANA SUGARS LIMITED.  
Belwara  
Distt. Moradabad (U.P.)

Sample Description : Effluent Sample (Anaerobic Outlet)  
Sample Drawn by : Given by client  
Sample Received on : 14/12/2023  
Sampling Location : NA  
Sampling Plan & Procedure : NA  
Sample Quantity : 3.0 Litre  
Environmental Condition : Normal  
Analysis Duration : 14/12/2023 To 19/12/2023  
Remark (if any) : NA

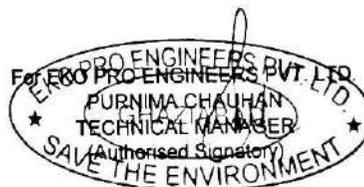
#### RESULTS

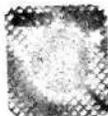
S. No.	Parameters	Test Methods	Results	Units
1	pH	IS: 3025 (P-11)	7.19	-
2	Total Dissolved Solids	IS: 3025 (P-16)	1216.0	mg/L
3	Total Suspended Solids	IS: 3025 (P-17)	182.0	mg/L
4	Sulphate	IS: 3025 (P-24)	224.5	mg/L
5	COD (as O <sub>2</sub> )	IS: 3025 (P-58)	524.0	mg/L
6	BOD (@27°C for 3 days)	IS: 3025 (P-44)	180.0	mg/L

**Notes :**

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The customer asked for the above tests only.
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- The test report will not be used for any publicity/legal purpose.
- The test samples will be disposed off after 15 days from the date of issue of test report, unless until specified by the customer. Sample received for biological tests will be destroyed after 7 days from the date of issue of test report.
- Responsibility of the Laboratory is limited to the invoiced amount only.

**\*\*End of Report\*\***





Office & Laboratory : 32/41, South Side of G T Road, UPSIDC Industrial Area, Ghaziabad - 201 009 (Delhi-NCR) INDIA  
 Contact No : 9711159210 9810240837 9810240678 E-mail : email@ekopro.in ekoproengineers@gmail.com website : www.ekopro.in

TC-5063

## TEST REPORT

### Effluent Sample Analysis

**Test Report No. : EKO/E-575/141223**

**Issue Date : 20/12/2023**

**Issued To**

**: RANA SUGARS LIMITED.**  
 Belwara  
 Distt. Moradabad (U.P.)

**Sample Description** : Effluent Sample (Spray Pound Over Flow)  
**Sample Drawn by** : Given by client  
**Sample Received on** : 14/12/2023  
**Sampling Location** : NA  
**Sampling Plan & Procedure** : NA  
**Sample Quantity** : 3.0 Litre  
**Environmental Condition** : Normal  
**Analysis Duration** : 14/12/2023 To 19/12/2023  
**Remark (if any)** : NA

### RESULTS

S. No.	Parameters	Test Methods	Results	Units
1	pH	IS: 3025 (P-11)	7.22	-
2	Total Dissolved Solids	IS: 3025 (P-16)	3680.0	mg/L
3	Total Suspended Solids	IS: 3025 (P-17)	230.0	mg/L
4	Sulphate	IS: 3025 (P-24)	702.0	mg/L
5	COD (as O <sub>2</sub> )	IS: 3025 (P-58)	1920.0	mg/L
6	BOD (@27°C for 3 days)	IS: 3025 (P-44)	760.0	mg/L

**Notes :**

- The results given above are related to the tested sample, as received & mentioned parameters.  
The customer asked for the above tests only.
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- The test report will not be used for any publicity/legal purpose.
- The test samples will be disposed off after 15 days from the date of issue of test report, unless until specified by the customer. Sample received for biological tests will be destroyed after 7 days from the date of issue of test report.
- Responsibility of the Laboratory is limited to the invoiced amount only.

**\*\*End of Report\*\***

For EKO PRO ENGINEERS PVT. LTD.  
 ★ PURNIMA CHAUHAN ★  
 TECHNICAL MANAGER  
 (Authorised Signatory)



Office & Laboratory : 32/41, South Side of G. T. Road, UPSIDC Industrial Area, Ghaziabad - 201 009 (Delhi-NCR) INDIA  
 Contact No.: 9711159210, 9810240837, 9810240678 E-mail : email@ekopro.in, ekoproengineers@gmail.com, website : www.ekopro.in

**TEST REPORT**

**Effluent Sample Analysis**

Test Report No. : EKO/E-576/141223

Issue Date : 20/12/2023

Issued To : RANA SUGARS LIMITED.  
 Belwara  
 Distt. Moradabad (U.P.)

Sample Description : Effluent Sample (ETP Outlet)  
 Sample Drawn by : Given by client  
 Sample Received on : 14/12/2023  
 Sampling Location : NA  
 Sampling Plan & Procedure : NA  
 Sample Quantity : 3.0 Litre  
 Environmental Condition : Normal  
 Analysis Duration : 14/12/2023 To 19/12/2023  
 Remark (if any) : NA

**RESULTS**

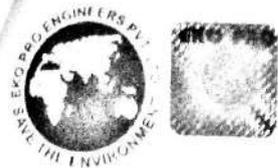
S. No.	Parameters	Test Methods	Results	Units	Limits as per CPCB (EPR-1986 Schedule-VI Part-A)
1	pH	IS: 3025 (P-11)	7.37	-	5.5-9.0
2	Total Dissolved Solids	IS: 3025 (P-16)	1056.0	mg/L	-
3	Total Suspended Solids	IS: 3025 (P-17)	28.0	mg/L	100.0
4	Sulphate	IS: 3025 (P-24)	236.5	mg/L	-
5	COD (as O <sub>2</sub> )	IS: 3025 (P-58)	142.8	mg/L	250.0
6	BOD (@27°C for 3 days)	IS: 3025 (P-44)	26.0	mg/L	30.0

**Notes :**

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 The customer asked for the above tests only.
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- The test samples will be disposed off after 15 days from the date of issue of test report, unless until specified by the customer. Sample received for biological tests will be destroyed after 7 days from the date of issue of test report.
- Responsibility of the Laboratory is limited to the invoiced amount only.

**\*\*End of Report\*\***

  
 EKO PRO ENGINEERS PVT. LTD.  
 PURNIMA CHAUHAN  
 TECHNICAL MANAGER  
 (Authorised Signatory)  
 SAVE THE ENVIRONMENT



Office & Laboratory : 32/41, South Side of G. T. Road, UPSIDC Industrial Area, Ghaziabad - 201 009 (Delhi-NCR) INDIA.  
 Contact No: 9711159210, 9810240837, 9810240678 E-mail: email@ekopro.in, ekoproengineers@gmail.com, website: www.ekopro.in

**TEST REPORT**  
**Effluent Sample Analysis**

**Test Report No. : EKO/E-577/141223**  
**Issued To**

**Issue Date : 20/12/2023**

**: RANA SUGARS LIMITED.**  
 Belwara  
 Distt. Moradabad (U.P.)

**Sample Description** : Effluent Sample (ETP Inlet)  
**Sample Drawn by** : Given by client  
**Sample Received on** : 14/12/2023  
**Sampling Location** : NA  
**Sampling Plan & Procedure** : NA  
**Sample Quantity** : 3.0 Litre  
**Environmental Condition** : Normal  
**Analysis Duration** : 14/12/2023 To 19/12/2023  
**Remark (if any)** : NA

**RESULTS**

S. No.	Parameters	Test Methods	Results	Units
1	pH	IS: 3025 (P-11)	5.59	-
2	Total Dissolved Solids	IS: 3025 (P-16)	490.0	mg/L
3	Total Suspended Solids	IS: 3025 (P-17)	164.0	mg/L
4	Sulphate	IS: 3025 (P-24)	182.8	mg/L
5	COD (as O <sub>2</sub> )	IS: 3025 (P-58)	790.2	mg/L
6	BOD (@27°C for 3 days)	IS: 3025 (P-44)	284.0	mg/L

**Notes :**

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The customer asked for the above tests only.
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**\*\*End of Report\*\***

For **EKO PRO ENGINEERS PVT. LTD.**  
**PURNIMA CHAUHAN**  
 TECHNICAL MANAGER  
 Authorised Signatory  
 SAVE THE ENVIRONMENT



Office & Laboratory : 32/41, South Side of G. T. Road, UPSIDC Industrial Area, Ghaziabad - 201 009 (Delhi-NCR) INDIA TC-5063  
 Contact No. 9711159210, 9810240837, 9810240678 E-mail: email@ekopro.in, ekoproengineers@gmail.com, website: www.ekopro.in

**TEST REPORT**  
**Effluent Sample Analysis**

**Test Report No. : EKO/E-578/141223**

**Issue Date : 20/12/2023**

**Issued To : RANA SUGARS LIMITED.**  
 Belwara  
 Distt. Moradabad (U.P.)

**Sample Description : Effluent Sample (Lagoon)**  
**Sample Drawn by : Given by client**  
**Sample Received on : 14/12/2023**  
**Sampling Location : NA**  
**Sampling Plan & Procedure : NA**  
**Sample Quantity : 3.0 Litre**  
**Environmental Condition : Normal**  
**Analysis Duration : 14/12/2023 To 19/12/2023**  
**Remark (if any) : NA**

**RESULTS**

S. No.	Parameters	Test Methods	Results	Units
1	pH	IS: 3025 (P-11)	7.41	-
2	Total Dissolved Solids	IS: 3025 (P-16)	1295.0	mg/L
3	Total Suspended Solids	IS: 3025 (P-17)	29.0	mg/L
4	Sulphate	IS: 3025 (P-24)	230.1	mg/L
5	COD (as O <sub>2</sub> )	IS: 3025 (P-58)	192.6	mg/L
6	BOD (@27°C for 3 days)	IS: 3025 (P-44)	28.0	mg/L

**Notes :**

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The customer asked for the above tests only.
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**\*\*End of Report\*\***

For EKO PRO ENGINEERS PVT. LTD.  
**PURNIMA CHAUHAN**  
 TECHNICAL MANAGER  
 (Authorized Signatory)

# Annexure No. 7



RSL: MBD: BEL: DD: 2023-24: 101  
Date: 10-05-2023

M/s NANDANI ORGANICS  
SECOND FLOOR, B-13, KUNJ VIHAR  
COLONY, SOMDUTT  
VIHAR ROAD, MEERUT, 250004  
Mob: +91 9761610004  
GSTIN- 09AATFN6021D1Z7  
Email: [Nandani.organics2022@gmail.com](mailto:Nandani.organics2022@gmail.com)

## RANA SUGARS LIMITED

Belwara, Post - Manpur  
Teh. & Distt. Moradabad 244925 (U. P.)  
Tele. Fax : 0591-2254039, 2254040, 2254045  
e-mail : [ranasugars@yahoo.co.in](mailto:ranasugars@yahoo.co.in)  
[belwarapa@ranasugars.com](mailto:belwarapa@ranasugars.com)

### Distillery Division

#### Sub.: Order for Sale of Potash Ash of 52 TPH Boiler

Dear Sir,

This has reference to your quotation & subsequent discussions held with you. We are pleased to place our sale order for following on terms & conditions mentioned here below:

#### SCOPE OF WORK WITH RATE

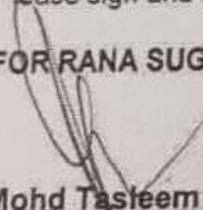
S.N	Description	UOM	Rate (Rs)	Quantity (Tons)
1.	Sale of Potash Ash of 52 TPH Boiler	Per Ton	1500/-	5000

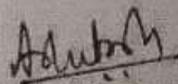
#### Terms & Conditions:

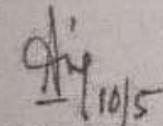
1	100% Payment Advance against delivery by fund transfer /RTGS/NEFT.
2	Delivery: On continuous lifting basis from chute
3	GST Extra as applicable.
4	Taxes- all duties/taxes/Govt. levies at actual as applicable.
5	Price Basis: Ex Boiler Silo Ash Discharge chute.
6	Loading from chute in Buyer's scope.
7	Ash removal from silo area will be sole responsibility of buyer after start of loading.
8	Buyer will ensure that in no case ash jamming in silo occurs due to improper lifting or any mismanagement from buyer side.
9	Other general terms of sale as per annexure which forms an integral part of the sale order

Please sign and return the duplicate copy of this work order as taken of your acceptance

FOR RANA SUGARS LIMITED

  
Mohd Tasleem  
Manager (Sales)

  
Ashutosh Tripathi  
Dy. G.M (Tech)

  
A.K. Singh  
Vice President (Tech.)

RSL: MBD: BEL: DD: 2022-23: 1555  
Date: 06-02-2023

M/S RAGHAV AGRO INDUSTRIES  
Khasra No. 840/54, Village Tikawara  
Kishangarah, Ajmer (RJ)  
Mob: 8948932138, 9414342189  
GSTIN- 08ABCFR8049M1ZL  
Email: [Raghavaagro@kishangarah@gmail.com](mailto:Raghavaagro@kishangarah@gmail.com)



## RANA SUGARS LIMITED

Belwara, Post - Manpur  
Teh. & Distt. Moradabad 244925 (U. P.)  
Tele. Fax : 0591-2254039, 2254040, 2254045  
e-mail : [ranasugars@yahoo.co.in](mailto:ranasugars@yahoo.co.in)  
[belwarapa@ranasugars.com](mailto:belwarapa@ranasugars.com)

### Distillery Division

Sub.: Order for Sale of Potash Ash of 52 TPH Boiler

Dear Sir,

This has reference to your quotation dated 04-02-2023 & subsequent discussions held with you. We are pleased to place our sale order for following on terms & conditions mentioned here below.

#### SCOPE OF WORK WITH RATE

S.N	Description	UOM	Rate (Rs)	Quantity (Tons)
1.	Sale of Potash Ash of 52 TPH Boiler	Per Ton	2500/-	1000

#### Terms & Conditions:

1	100% Payment Advance against delivery by fund transfer /RTGS/NEFT.
2	Delivery: On continuous lifting basis from chute
3	GST Extra as applicable.
4	Taxes- all duties/taxes/Govt. levies at actual as applicable.
5	Price Basis: Ex Boiler Silo Ash Discharge chute.
6	Loading from chute in Buyer's scope.
7	Security Deposit: Rs. 2.0 Lakh by fund transfer /RTGS/NEFT
8	Ash removal from silo / nearby area will be sole responsibility of buyer after start of loading.
9	Buyer will ensure that in no case ash jamming in silo / nearby area occurs due to improper lifting or any mismanagement from buyer side.
10	Other general terms of sale as per annexure which forms an integral part of the sale order

Please sign and return the duplicate copy of this work order as taken of your acceptance

FOR RANA SUGARS LIMITED

Mohd Tasleem  
Manager (Sales)

  
06/02/23  
A.K. Singh  
Vice President (Tech.)