

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH AT NEW DELHI
ORIGINAL APPLICATION NO. 152 OF 2022**

IN THE MATTER OF:

GHANSHYAM SINGH PASI

...APPLICANT

VERSUS

STATE OF U.P. & ORS.

...RESPONDENTS

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NEW DELHI
DATED: 22.01.2024

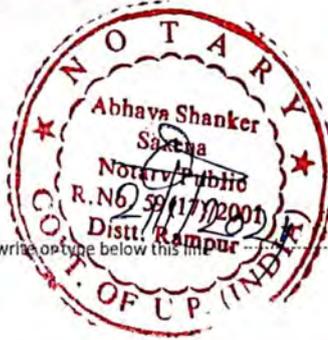
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e-Stamp

Certificate No. : IN-UP42331011810660W
 Certificate Issued Date : 21-Jan-2024 03:05 PM
 Account Reference : NEWIMPACC (SV)/ up14573004/ RAMPUR SADAR/ UP-RMP
 Unique Doc. Reference : SUBIN-UPUP1457300480693540245185W
 Purchased by : RADICO KHAITAN PVT LTD RAMPUR
 Description of Document : Article 4 Affidavit
 Property Description : Not Applicable
 Consideration Price (Rs.) :
 First Party : RADICO KHAITAN PVT LTD RAMPUR
 Second Party : Not Applicable
 Stamp Duty Paid By : RADICO KHAITAN PVT LTD RAMPUR
 Stamp Duty Amount(Rs.) : 10
 (Ten only)

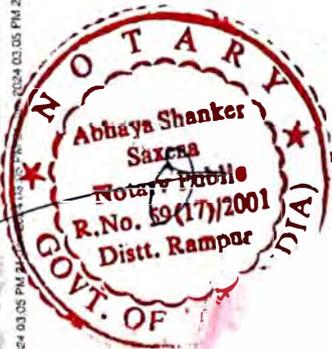


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IN THE MATTER OF:

GHANSHYAM SINGH PASI

...APPLICANT

VERSUS

STATE OF U.P. & ORS.

...RESPONDENTS

ADDITIONAL AFFIDAVIT ON BEHALF OF M/S RADICO KHAITAN LIMITED PURSUANT TO ORDER DATED 04.10.2023

I, Devendra Singh, son of Shri Mahendra Singh, aged about 64 years, working as Senior Vice President (Process) with Radico Khaitan Limited, r/o Radico Khaitan Colony, House No. 15, Bareilly Road, Rampur- 244901, do hereby solemnly state and affirm as under:

1. That I am duly authorized to swear and affirm the present affidavit on behalf of Radico Khaitan, the Project Proponent ("Answering Respondent") in the above- captioned matter.
2. The present affidavit is being filed in pursuance to and compliance of the directions of this Hon'ble Tribunal in its order dated 04.10.2023.
3. It is humbly submitted that the submissions made by way of the Affidavit dated 30.09.2023 filed by Answering Respondent ("Affidavit") are not repeated herein for the purpose of brevity and may be treated as part and parcel of the present Additional Affidavit. That it is pertinent to mention that no substance has been found in the allegations made in the complaint


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letter written by Shri Ghanshyam Pasi on which this Hon'ble Tribunal had initiated the present proceedings. As per the Reports filed in the present case, no truth or substance has been found in the complaint letter sent through email. This shows that allegations made in the complaint were baseless. The Complainant has grossly misused the judicial process by making baseless complaint and creating false impression against the Answering Respondent but has failed to support the allegations made in the complaint. He has not appeared even once before the Hon'ble Tribunal. Such conduct of the Complainant deserves to be noticed seriously by the Hon'ble Tribunal. The present additional affidavit is being filed in view of the observations made in para 20 and 22 of the order dated 4.10.2023.

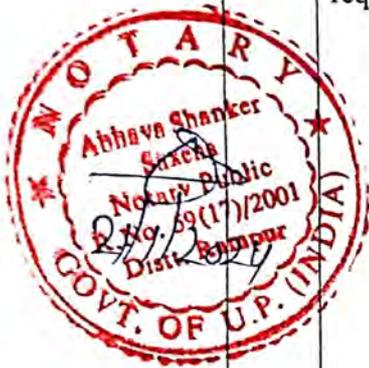
Tabulated details of compliance status of conditions in CCA dated 19.9.2022

Detailed tabulated compliance status of the conditions in CCA dated 19.9.2022 is as follows:

Compliance status of conditions stipulated in Water and Air Combined Dual Mode Consent of Molasses & Grain and Malt Spirit Plant dated 19.09.2022 issued by UPPCB with validity from 01.10.2022 to 31.12.2026.		
S.No.	Stipulation	Compliance status
1.	CCA has been granted for the period from 01.10.2022 to 31.12.2026: Product- ENA Quantity- 374 Unit- Kilo Litres/ Day	Complied. The production of the Answering Respondent is within the limit of 374 KLD mentioned in the Consent Order. Presently, daily total production is approximately 280 KLD.

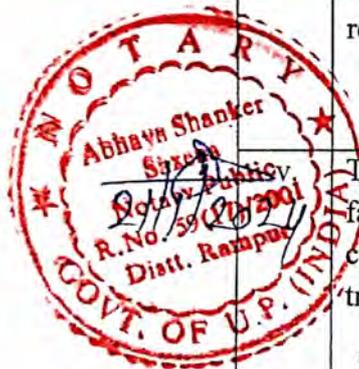
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2. Conditions under Water (Prevention and Control of Pollution) Act, 1974								
i.	Daily quantity of effluent discharge (KLD): a) Kind – domestic b) Quantity (KLD)-120 c) Treatment facility-STP d) Discharge Point- Ground	Average total quantity of domestic sewage treated by STP is less than 100 KLD as against the permitted quantity of 120 KLD. Domestic sewage is treated by STP installed in the Unit.						
ii.	Trade Effluent Treatment and Disposal: - The Effluent Treatment Plant consisting of primary/secondary and tertiary treatment as is required with reference to influent quantity and quality is being operated to maintain treatment requirement and zero effluent discharge.	Complied The Answering Respondent is maintaining Zero Liquid Discharge (“ZLD”) without discharging any industrial effluent outside its premises in any manner This is confirmed from the report of CPCB filed before the Hon’ble Tribunal (page 139 - 140 of the Court Record)						
iii.	The treated effluent is being recycled to the maximum extent and being reused within the premises for gardening etc. Quality of the treated effluent meets to the following general and specific standards as prescribed under Environment (Protection) Rules, 1986 and applicable to the unit from time- to-time: Industrial Effluent Quality Standard <table border="1"> <thead> <tr> <th>Sr. No.</th> <th>Parameter</th> <th>Standard</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Zero Liquid Discharge</td> <td>ZLD</td> </tr> </tbody> </table>	Sr. No.	Parameter	Standard	1	Zero Liquid Discharge	ZLD	Complied. For treating domestic effluents, STP has been installed and is being operated efficiently. Sizable quantity of the treated sewage waste water is being used for gardening purpose. Standards of Treated sewage mentioned in the Consent Order are
Sr. No.	Parameter	Standard						
1	Zero Liquid Discharge	ZLD						



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		<p>being maintained continuously.</p> <p>For trade/industrial effluents, the Answering Respondent is complying with the ZLD conditions. The above status also is confirmed from CPCB Report dated 21.07.2023.</p>
iv.	<p>Sewage Treatment and Disposal: -</p> <p>The comprehensive STP as is required with reference to influent quantity and quality has been installed and being operated efficiently. In case of stoppage of functioning of STP, production shall be stopped immediately and the Board shall be intimated by fax/phone/email with a report in this regard shall be dispatched immediately.</p>	<p>Complied</p> <p>STP has been installed and is being operated efficiently for treating domestic sewage before using the treated waste water for Horticulture and gardening.</p>
	<p>The treated sewage is being reused in gardening as far as possible. The STP is being maintained continuously so as to achieve the quality of the treated sewage to the following standards:</p> <p>a) pH: 5.5-9 b) BOD (mg/L): 30mg/l c) TSS (mg/L): 100mg/l</p>	<p>Complied</p> <p>Treated wastewater is used for horticulture and gardening purposes, and surplus domestic treated wastewater is discharged in municipal drain. STP treatment ensures the compliance with standards which is confirmed in the report of CPCB dated 21.07.2023 (page 140 and 282-285 of the Court Record)</p>



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3. Conditions under Air (Prevention and Control of Pollution) Act, 1981

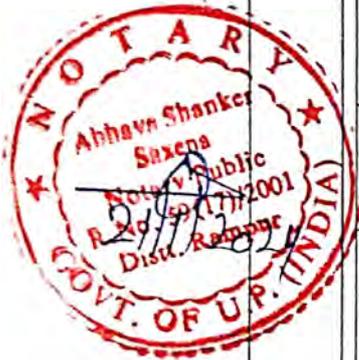
i. The applicant shall use following fuel and install a comprehensive control system consisting of control equipment as required with reference to generation of emissions and operate and maintain the same continuously so as to achieve the level of pollutants to the following standards:

Air Pollution source details:

No.	Air Pollution Source	Type of fuel	Stack	Control Device	Height of Stack
1	Boiler of 30 TPH	Rice husk wood chips	1	Particulate Matter	Electrostatic Precipitator as APCS along with stack height of 45 meter from ground level
2	Boiler of 26 TPH	Bio gas	2	Particulate Matter	stack height 45 meter from ground level
3	Boiler of 65 TPH	Rice husk, Coal, wood chips	3	Particulate Matter	Electrostatic Precipitator as APCS along with stack height of 65 meter from ground level
4.	DG set 1250 KVA, 1250 KVA, 750 KVA, 700 KVA, 625 KVA, 380 KVA, 1500	Diesel	4	Particulate Matter	12 meter 12 meter 12 meter 12 meter 12 meter 12 meter 30 meter and 30 meter from Ground level.

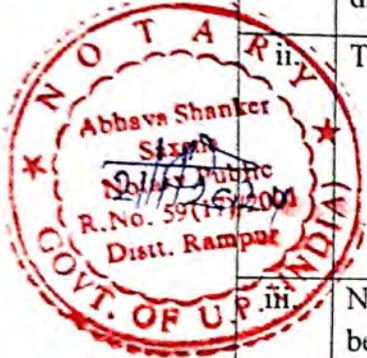
Complied.

The Answering Respondent has ensured installation of efficient air pollution control systems with reference to generation of emissions and is operating and maintaining the same to achieve the level of pollutant to the requisite standards. In this regard, Test Reports of Emission Samples taken from different equipments mentioned in para 3 of the Consent Order and tested by Global Enviro Laboratories, an agency recognized by UPPCB are already filed along with Affidavit filed by the Answering Respondent. (Page 360 to 378 of the Court Record)



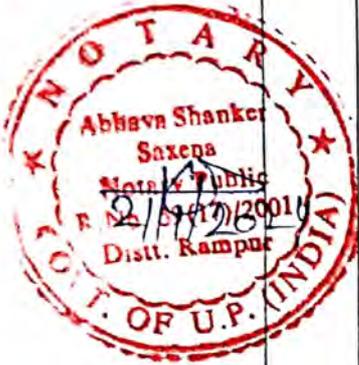
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	KVA, 1500 KVA						
5	Bio-Gas generat or 1200 KVA, 1200 KVA	Biogas	5	Particu late Matter	12 meters from ground level		
<p>Emission Quality Standards:</p> <p>In case of stoppage of functioning of air pollution control equipment, production shall be stopped immediately, and the Board shall be intimated by fax/phone/email with a report in this regard shall be dispatched immediately.</p>							
<p>The unit will not use any type of restricted fuel.</p>							<p>Complied.</p> <p>The Answering Respondent is not using any type of restricted fuel.</p>
<p>Noise from the D.G. Set and other source(s) should be controlled by providing an acoustic enclosure as is required for meeting the ambient noise standards for night and day time as prescribed for respective areas/zones (Industrial, Commercial, Residential, Silence) which are as follows:</p>							<p>Complied</p> <p>Test Reports regarding noise level at different locations of the Answering Respondent have been filed with the Affidavit filed by the Answering Respondent (Page 377 to 382 of the Court Record)</p>
Stand ards for Noise level in db(A) Leq	Industria l Area	Comme rcia l Area		Residen tial Area		Silence Zone	
	Day Time	Ni gh t	Day Time	Ni gh t	Day Time	Ni gh t	Day Time



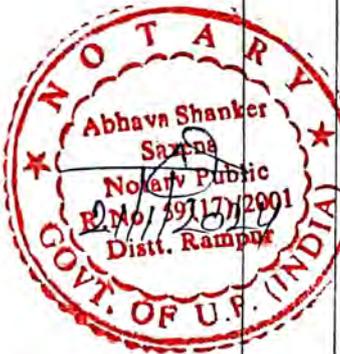
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		t T i m e	i m e	e i m e	e i m e	
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Day time: from 6.00 a.m. to 10.00 p.m., Night time: from 10.00 p.m. to 6.00 a.m.						
4. Essential Documents to be submitted						
i.	Environment Statement in Form-V of Environment (Protection) Rules, 1986 is to be submitted.	Complied Copy of Environment Statement filed as per Form-V of Environment (Protection) Rules 1986 has been annexed with the Affidavit filed by the Answering Respondent. (Page 383 to 386 of the Court Record)				
ii.	Quarterly compliance report of the CCA, photograph of ETP/APCs/Waste Storage Area is to be submitted.	Complied. Copy of the Quarterly Compliance Report of June 2023 submitted to UPPCB has been annexed to the Affidavit filed by the Answering Respondent (@ Pg. 351-434 of the Court Record) Photographs of ETP are annexed with the Affidavit filed by the Answering Respondent.				



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		(at Page 388 to 392 of the Court Record) Photographs of APCs / Waste Storage Area (being the lagoon) are annexed herewith and marked as <u>ANNEXURE AA- 1.</u> Pages ____ to ____ (Colly)
5. Unit has to comply with the following specific & general conditions.		
6.	In compliance to the G.O 1011/81-7-2021-09 (Writ)/2016 dated.13.10.2021 issued by Department of Environment, Forest and Climate Change, Uttar Pradesh. You are directed to develop Miyawaki Forest as per the SOP available at URL:- http://www.upecp.in/ TrainingSession.aspx for ensuring timely compliance of this direction, you are hereby directed to submit a bank guarantee with minimum validity of one year of the amount equivalent to the sum of initial consent fees (Air and Water) or Rs. 50,000/- (Rs. Fifty Thousand Only) whichever is more, within 30 days from the date of issuance of this certificate. In case of non-compliance of this direction, your consent will be revoked by the Board	Complied. Miyawaki Forest has been developed and the Answering Respondent has planted 2300 plants as a part of Miyawaki Forest. Copy of Bank Guarantee already filed with the Affidavit filed by the Answering Respondent (Page 405 to 406 of the Court Record) A copy of the photos of the Miyawaki Forest has been annexed herewith and marked as <u>ANNEXURE AA- 2.</u> (Pages ____ to ____)
7.	If the unit uses the ground water and requires permission from SGWA/CGWA for water abstraction, then the industry will have to obtain No objection certificate for abstraction of ground water. It will be the responsibility of the industry to comply with the various conditions of the NOC obtained from the competent authority and submit to the	Complied. Permission/NOC for abstraction of ground water from UPGWD has been obtained from UPGWD. Copy of UPGWD Ground

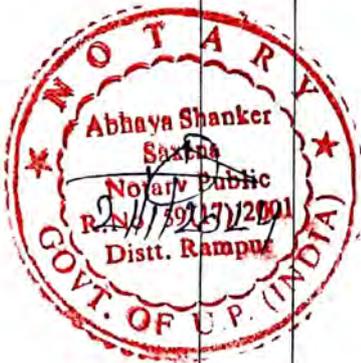


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Board, within 3 months' time failing which CTO will be revoked.

water NOC have been annexed with the Affidavit filed by the Answering Respondent. (Page 407 to 415 of the Court Record)

Answering Respondent submits periodical compliance reports with the U.P Ground water department. The quarterly compliance report dated 06.07.2023 was sent by the Answering Respondent to U.P. GWD showing compliance with the conditions of the NOC is annexed herewith and marked as **ANNEXURE AA-3**. (Pages _____ to _____)



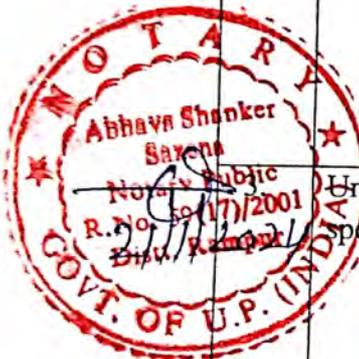
Specific Conditions

1.	This Consent to Operate is valid for production of 374 KLD ENA by using Molasses / Sugar Syrup / cane juice / Malti-Grain.	The Answering Respondent is operating within the production quantity permitted as stated above in the beginning of this tabulation.
2.	Unit shall dispose spent wash through MEE and the concentrated spent wash shall be disposed through Bio composting in 58 Acre bio-compost yard	The Answering Respondent is adhering with this condition and is disposing of spent wash through MEE

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and the concentrated spent wash is being disposed of through bio-composting exercise done in Bio-compost yard.

In this regard CPCB Report dated 21.07.2023 may be seen at page 136 to 138 of Court Record) Photographs of bio-compost yard and manure mixing machine etc. is annexed with the Affidavit filed by the Answering Respondent. (Pages 393-404 of the Court Record)



Unit shall restrict lined storage capacity to 15 days of spent wash generation

Complied.

The Answering Respondent is maintaining the prescribed storage capacity of spent wash in lagoons situated in bio-composting areas at Ajeetpur and Hitachi.

4. Unit shall operate in Zero Liquid Discharge and no effluent is allowed to discharge outside the premises.

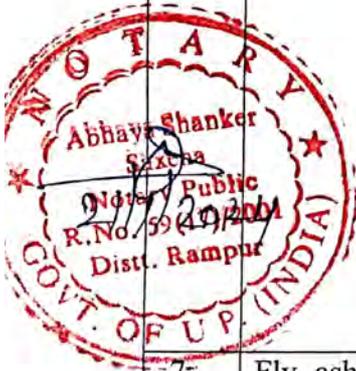
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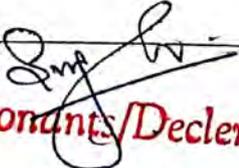
The Answering Respondent is operating on Zero Liquid Discharge mode and no industrial effluent is allowed to be discharged outside the premises.

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5.	Unit shall comply with the directions of Hon'ble Supreme Court, Hon'ble NGT passed by time to time.	Complied. The Answering Respondent is complying with directions of the Hon'ble Supreme Court and Hon'ble NGT passed from time to time.
6.	Unit shall install Electromagnetic Flow Meter at inlet and outlet of STP and shall maintain the records.	Complied. The Answering Respondent has installed flow meters (with totalizer) at inlet and outlet of STP Photographs of the Electromagnetic flow meters set up at the inlet and outlet of the STP Flow Meter is annexed herewith and marked as ANNEXURE AA-4. (Colly) (Pages _____ to _____)
7.	Fly ash shall be stored separately as per CPCB guidelines so that it should not adversely affect the air quality, becoming air borne by wind or water regime during rainy season by flowing along with storm water. Direct exposure of workers to fly ash & dust shall be avoided.	Complied. The Answering Respondent is storing fly ash in Ash Silo which is part of the boiler. From the Boiler's Silo, it is loaded into the trollies for sending to bio-compost yard areas by ensuring that it does not become airborne while being stored or transported. The mixing of fly ash and




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		unloading of trollies is done in a covered shed area in bio composting yard and a tarpaulin sheet is used to cover fly ash stack.
8.	<p>Unit shall identify recipient drains/ rivulets and their u/s & d/s location in consultation with UPPCB and shall carry out monthly monitoring of identified recipient drains at u/s & d/s location through lab recognized under Environment (Protection) Act,1986 and shall submit the analysis report on monthly basis by 10th of every month to CPCB and UPPCB.</p> <p>The unit must operate and maintain properly the installed flow meter and web camera and shall ensure online connectivity of flow meter and web camera with server of CPCB and UPPCB.</p>	<p>Complied</p> <p>For monitoring purpose, Answering Respondent submits the Analysis Report of the water of the identified Municipal Drain.</p> <p>It is pertinent to note that quantity of domestic sewage waste water generated within the unit is discharged only after treating the same through STP installed in the unit.</p> <p>Regarding industrial waste/effluent, the Answering Respondent is maintaining its status as ZLD Unit in terms of CPCB norms.</p> <p>Copy of the Analysis Report of the wastewater of municipal drain is attached herewith and marked as ANNEXURE AA-5. (Colly) (Pages ____ to ____)</p>



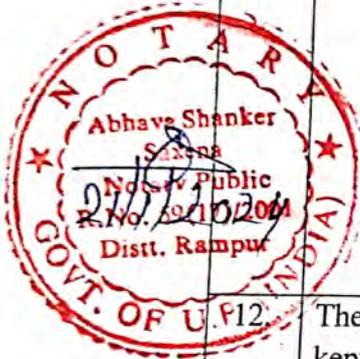
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9.	<p>Unit shall develop Green Belt in minimum 33 percent area of Industrial Premises as per the provisions laid down in office order no. H16405/220/2018/02 dated 16-02-2018 of U.P. Pollution Control Board. The copy of said office order is available on the website of U.P. Pollution Control Board www.uppcb.com</p>	<p>Complied.</p> <p>The Answering Respondent has developed Green Belt in minimum 33 percent area of Industrial Premises as per the provisions laid down in office order no. H16405/220/2018/02 dated 16-02-2018 of U.P. Pollution Control Board. The Answering Respondent planted different species of plants/trees such as the Peepul, Neem, Banyan, Mulberry, Teak etc. Additionally, the Answering Respondent has undertaken dense foresting, Miyawaki Forest and Plantation Area where the species includes Neem, Amrood, Peepul, Shatoot, Jamun etc.</p> <p>A copy of the photos of the Green Belt maintained by the Answering Respondent are annexed herewith and marked as <u>ANNEXURE AA-6</u>. (Pages ___ to ___)</p>
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10.	Process effluent / any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond	Complied. Process effluent / any wastewater is not being allowed to mix with storm water.
11.	Unit shall comply with the conditions of NOC issued by ground water department Govt. of Uttar Pradesh for abstraction of ground water, valid till 08.04.2024.	Complied The Answering Respondent is complying with the conditions of the NOC and sends periodical compliance reports to the U.P Ground Water Department. Compliance Report dated 06.07.2023 submitted by the Answering Respondent to U.P. GWD is referred to above.
	The overall noise levels in and around area is being kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc, on all sources of noise generation. The ambient noise level shall conform to the standards under the Environment (Protection) Act 1986.	Complied. The Answering Respondent is ensuring that overall noise levels in the Answering Respondent's Complex remain with the laid down standards. Copy of the Noise Test Report already filed along with the Affidavit filed by the Answering Respondent (Pg. 377-382 of the Court Record)



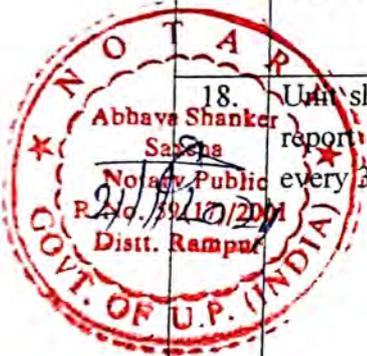
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13.	Unit shall dispose the Hazardous waste generated i.e. used oil through authorized recycler and send details in prescribed format (Form 10) to UPPCB.	<p>The Answering Respondent is maintaining the disposal of the Hazardous waste generated i.e. used oil through authorized recycler and sending details in prescribed format (Form 10) to UPPCB.</p> <p>A copy of the last Form 10 sent by the Answering Respondent to UPPCB is annexed herewith and marked as <u>ANNEXURE AA- 7.</u> (Pages _____ to _____)</p>
14.	Unit shall comply the provisions of Hazardous and Other Waste (Management and Transboundary Movement) Rules 2016.	The Answering Respondent is complying with the provisions of Hazardous and Other Waste (Management and Transboundary Movement) Rules 2016.
15.	Unit shall comply with the provisions of Rule 19 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and send copy of Form 10 regarding Manifest for Hazardous and Other Wastes.	The Answering Respondent is complying with the provisions of Rule 19 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and submitting copy of Form 10



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		regarding Manifest for Hazardous and Other Wastes.
16.	Unit shall comply with the provisions of Rule 20 of The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and submit Annual Returns to State Board in Form IV.	Hazardous waste submitted compliance copy has been annexed with the Affidavit filed by the Answering Respondent at (Pages 416 to 425 of the Court Record)
17.	Unit shall comply the provisions of Water (Prevention and Control of Pollution) Act 1974 as Amended and Environment (Protection) Act 1986, and direction issued by Hon'ble National Green Tribunal, New Delhi in Order dated 13.07.2017 in OA no. 200/2014, M.C. Mehta v/s Union of India.	Complied The Answering Respondent is operating as ZLD Unit and as per environmental norms.
18.	Unit shall submit ground water quality monitoring report done by MoEFCC approved laboratory in every 3 months	The Answering Respondent regularly submits ground water quality monitoring report done by MoEF & CC approved laboratory every 3 months. An Analysis Report has been attached with the Affidavit filed by the Answering Respondent (Pages 426 to 434 of the Court Record)
19.	Unit shall submit the ambient air quality report and stack report of the air pollution sources from laboratory authorized from MOEF & CC on quarterly basis.	The ambient air quality report and stack report of the air pollution sources from authorized laboratory on quarterly basis is



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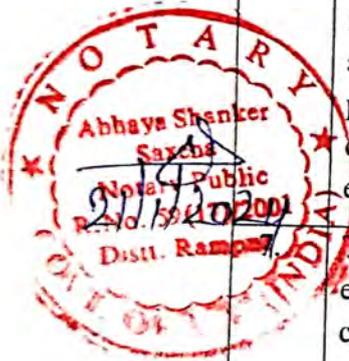
being submitted
Analysis Report has been annexed with the Affidavit filed by the Answering Respondent (Pages 371 to 376 of the Court Record)

General Conditions

1.	The applicant shall get analyzed the samples of effluent/emission/hazardous wastes at least once in a three month from the laboratory recognized by the MoEFCC and shall report to the UPPCB	Analysis report has been annexed with the Affidavit filed by the Answering Respondent (Pages 371 to 376 of the Court Record)
2.	Without the prior consent of the Board unit shall not bring into use any new or altered outlet for the discharge of effluent or gases emission or sewage waste from the unit.	Complied No new or altered outlet for the discharge of effluent or emission or sewage has been used.
3.	The applicant shall maintain good housekeeping. All valves/pipes/sewer/drains etc. must be leak-proof	Complied The Answering Respondent is maintaining good housekeeping. All valves / pipes / sewer / drains etc. are maintained leak-proof.
4.	The industry shall provide uninterrupted entry to the STP / ETP inlet and outlet points, Air Pollution Control equipment and stack for smooth sampling / monitoring of efficiency of pollution control systems.	The industry has provided uninterrupted entry for access to the STP/ETP inlet and outlet points, Air Pollution Control equipment and stack for smooth sampling /


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		monitoring of efficiency of pollution control systems.
5.	The industry shall provide Inspection Book at the time of inspection to the Board's officials	Complied It is being maintained. A copy of excerpt of the visitor inspection book logbook as on different dates is annexed herewith and marked as ANNEXURE AA- 8. (Pages _____ to _____)
6.	Whenever due to any accident or other unforeseen act or event, such emission occurs or is apprehended to occur in excess of standards laid down, such information shall be reported to the Board's offices and all other concerned offices. In case of failure of pollution control equipment, the production process connected to it shall be stopped with immediate effect.	Will ensure timely Reporting to UPPCB in case of any such happening.
	The industry shall operate in a manner so that all emissions be emitted through designated chimney/stack only.	Complied All emissions are being emitted through Chimney/stack. Photographs of the chimney, including chimneys evidencing installation of electrostatic precipitators, are annexed herewith and marked as ANNEXURE AA- 9 (Pages _____ to _____)

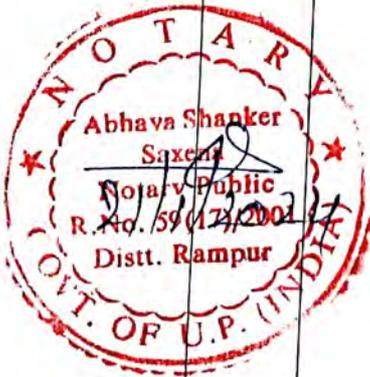


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Deponants/Declerent

II. Tabulated details of response to recommendations of CPCB in its Compliance Report dated 21.07.2023

5. The following is a tabulated response to recommendations of CPCB in its Compliance Report dated 21.07.2023:

Sr. No.	Recommendations of CPCB	Compliance Status
1.	The unit shall take remedial measures including good housekeeping in bio-compost yards, stoppage of spillage to control contamination of piezo wells.	<p>Complied</p> <p>The Answering Respondent is ensuring good housekeeping in bio-compost yards by ensuring there is no spillage to control contamination of piezo wells, etc. All valves / pipes / sewer / drains etc. are maintained leak-proof. In the bio composting yard, the Answering Respondent has ensured that Piezometric well pipes are fixed at an</p>

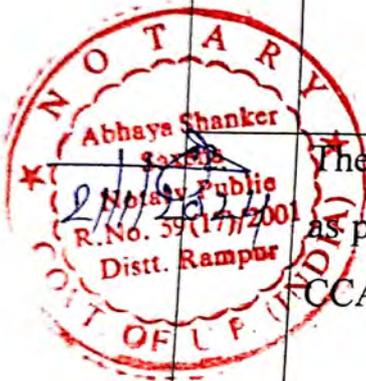


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Deponants/Declerent

adequate height of about 1.0 mtr. from ground level. Floor area measuring about 1.5 X 1.5 mtr. is covered by RCC work done. Such housekeeping steps have been taken to prevent seepage or discharge of waste water into Piezometric wells.

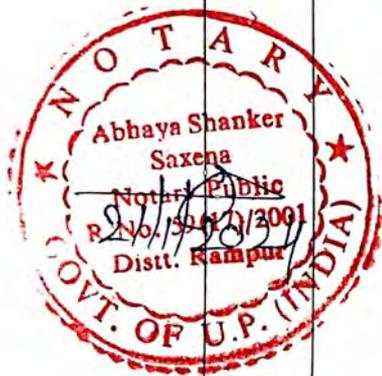
The unit shall develop adequate green belt as per the Specific condition no. 13 of the CCA issued by UPPCB dated 19.09.2022.

The Answering Respondent has developed Green Belt in minimum 33 percent area of Industrial Premises as per the provisions laid down in office order no. H16405/220/2018/02 dated 16-02-2018 of U.P. Pollution Control Board. The Answering



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		<p>Respondent has a grand total green belt of 53069 square meter with <i>inter alia</i>, species such as the Peepul, Neem, Banyan, Mulberry, Teak etc. Additionally, the Respondent has undertaken dense foresting, Miyawaki Forest and Plantation Area where the species includes Neem, Amrood, Peepul, Shatoot, Jamun etc. Photographs of the greenbelt are annexed hereinabove along with this Additional Affidavit.</p>
3.	The unit shall ensure connectivity of Online Continuous Emission Monitoring System (OCEMS) installed at Stack-3 (i.e.	Answering Respondent is complying with this recommendation.

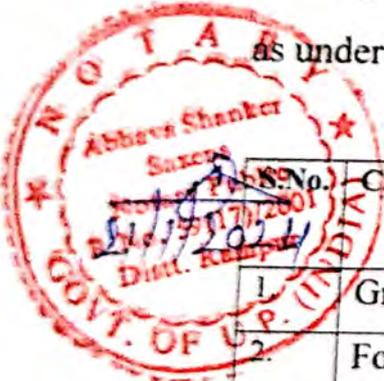


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	stack attached to 512 (PH boiler) with CPCB server.	Photograph evidencing the OCEMS installed and sharing data with the CPCB Server for all 3 stacks is annexed herewith and marked as ANNEXURE AA-10 . (Colly) (Pages ___ to ___)
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III. Details of CSR/ CER Activities undertaken by Project Proponent (Answering Respondent)

6. The Answering Respondent allocated/earmarked Rs. 640.62 Lacs for the FY 2022-23 towards CSR/CER activities mentioned details of which are given as under:

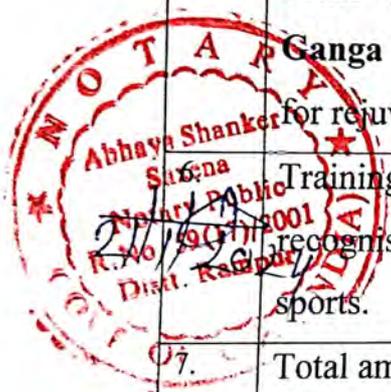


Sl. No.	CSR/CER Initiatives	Amount Spent (Lacs)	Total
1.	Gross amount allocated/earmarked		640.62
2.	For Eradicating hunger, poverty, and malnutrition, promoting health care including preventive health and sanitation [including contribution to the Swatch Bharat Kosh setup by the Central Government for the promotion of sanitation] and making available safe drinking water.	67.39	
3.	Promoting gender equality, empowering women, setting up homes and hostels for women and orphans; setting up old age homes, day care centers and such other facilities for senior citizens and	21.00	

Deponants/Declerent

513

	measures for reducing inequalities faced by socially and economically backward groups.		
4.	Promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly, and the differently abled and livelihood enhancement projects.	27.23	
5.	Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, conservation of natural resources and maintaining quality of soil, air and water [including contribution to the Clean Ganga Fund set-up by the Central Government for rejuvenation of river Ganga].	68.07	
	Training to promote rural sports, nationally recognised sports, paralympic sports and Olympic sports.	18.04	
7.	Total amount spent		201.73
8.	Unspent Amount of 2022-23 transferred in April 2023 in CSR Account maintained in a scheduled bank as per Section 135 (6) of Companies Act, 2013. For the above unspent amount, provision of Rs. 439.25 lakhs have been created for Ongoing Projects, such as Radico – Art of Living Bhujal Shakti Project, Sri Centre of Professional Excellence – Radico Skill Centre at Rampur and Sustainability Commitments at Sitapur. The Board has approved the unspent amount allocated		439.25



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Deponent/Declarant

towards Ongoing Project and same has been transferred to unspent CSR account within 30 days of FY 2023 to be utilized in the subsequent years.	514	27
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7. Various sustainability measures have been undertaken by the Answering Respondent, which *inter alia*, includes the following:

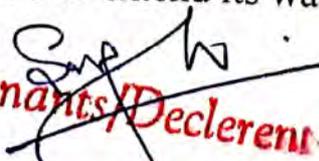
A. **Recycling of glass bottles:** Radico has progressively increased the usage of recycled glass bottles from 4.5% in FY2019 to 22.6% in FY2023 for its key large brands.

B. **Reducing Carbon Footprint:** In FY2023, of the total power consumption at the Rampur plant, the Answering Respondent generated 73% -through captive power plants using renewable energy/bio fuels. By the end of FY2023, the Rampur plant became 100% self-sufficient on power generated through its captive power plants.

C. **Plastic Waste:** During FY2023, the Answering Respondent recycled 7,202 MT of post-consumer used plastic waste.

D. **Tree Plantation:** The Answering Respondent undertook plantation of more than 15,000 trees at various locations in the Rampur district during FY2023.

E. **Radico – Art of Living’s Bhujal Shakti Project-** The Answering Respondent has partnered with ‘Vyakti Vikas Kendra India’ (Art of Living) and the Government to extend its water conservation initiative

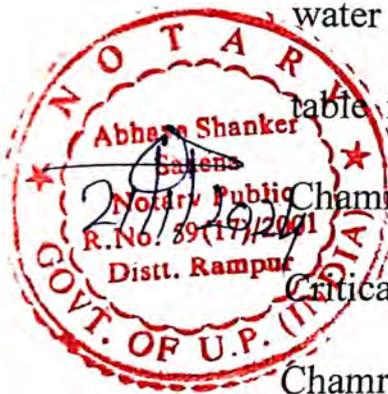

Deponent/Declarant

to other areas of Rampur. This project aims to cover three blocks of Rampur district, benefiting 451 villages of the total 1,163 villages. The Answering Respondent plans to cover 831 sq km area of the 2,298 sq km area of Rampur district. The project will benefit over 40% of the 23.3 lakh total population of Rampur district. The project is helping in the upliftment of the water level in the Rampur district and also generating employment for a large number of the local youth. During the year under review, 100 recharge shafts were completed. The impact of recharge shaft construction was also observed in the annual ground

water assessment by Central Ground Water Board. The groundwater table in Saidnagar has improved from Semi-Critical to Safe, while Chamraua and Shahabad have improved from Over-Exploited to Semi-Critical in just one monsoon season. With the encouraging results in Chamraua, Shahbad and Saidnagar blocks, the Answering Respondent has started the activities in the remaining three blocks of Rampur.

- F. About 1,000 M2 area is covered with green plants under Miyawaki Forest. Total 3,300 trees have been planted.
- G. About 3,000 to 3,500 M3/Day Bio-gas production (green energy) has increased with CPU upgradation with benefit of fresh water saving due to recycling of CPU treated water.


Deponants/Declerent



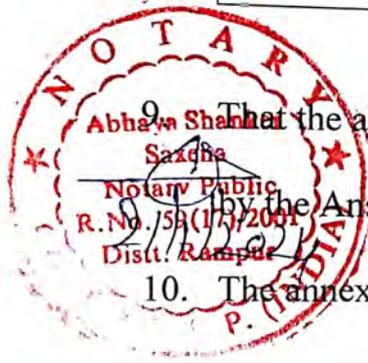
H. Reduction of Green House Gas emission by use of bio-fuel by way of 42% investment in specific technologies to improve the environmental and social impacts of product and processes.

8. Additionally, it is humbly submitted that for FY 2023-24, till December 2023, the Answering Respondent has already undertaken the following CSR/ CER activities wherein the total paid amounts as well as the total balance committed is as follows:

S. No.	Category	Total Paid	Total Balance Commitment
a)	Ensuring Environmental Sustainability (Sch. VII Point (iv))	55.10	277.00
b)	Scientific Study @ Rampur (Sch. VII Point (iv))	0.00	30.00
c)	Administrative Cost ** (Sch. VII Point (iv))	19.13	9.00
Sub Total CER		74.23	316.00
d)	Promoting education, including special education (Sch. VII Point (ii))	65.00	3.38
e)	Specific Project New initiative (AOL Skill Centre - P-2)	5.09	46.25
f)	Promoting health care including preventive health care and Sanitation (Sch. VII Point (i))	24.20	0.00
g)	Promoting gender equality, empowering women, setting up homes and hostels for women and orphans; setting up old age homes (Sch. VII Point (iii))	14.19	0.00

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h)	Animal Welfare (Sch. VII Point (iv))	6.08	0.00
i)	Protection of national heritage, art and culture and promotion and development of traditional art and handicrafts (Sch. VII Point (v))	30.00	0.00
j)	Training to promote rural sports, nationally recognised sports, paralympic sports and olympic sports (Sch. VII Point (vii))	13.20	0.00
Sub Total CSR		157.75	49.63
Grand Total CER + CSR		231.98	365.62



9. That the above statements are true and correct based on records maintained by the Answering Respondent in the regular course of its business.

10. The annexures are true copies of their respective originals.

[Signature]
 Deponents/Declarant
 DEPONENT

VERIFICATION

I, the Deponent abovenamed do hereby verify that the contents of the foregoing affidavit are true and correct to my knowledge, no part of it is false and nothing material has been concealed therefrom.



Verified at _____ on this _____ day of January 2024.

[Signature]
 Deponents/Declarant
 DEPONENT

[Signature]
 Identified (by)

9 Jan 21/1/2024
 RADICO KHAITAN PVT LTD
[Signature]
 Deponents/Declarant
 DEPONENT





ANNEXURE AA-2



**Radico**

RKL/Sr. VP (P)/458

Date :- 06.07.2023

To,
Executive Engineer,
U.P. Ground Water Department,
B-161/4, Jigar Vihar Colony,
Civil Lines, Moradabad – 244001 (U.P.)
Mob. No. - 9639927278

Subject:- Compliance of UPGWD NOC (Borewell Registration No.: 202108000378, Registration No.: 202108000274 and Registration No.: 202108000304) for ground water withdrawal to M/S Radico Khaitan Limited, Brailley Road, Rampur U.P.-244901

Dear Sir,

In reference of UPGWD valid NOC (Borewell Registration No.: 202108000378, Registration No.: 202108000274 and Registration No.: 202108000304) for ground water withdrawal to M/S Radico Khaitan Limited, Brailley Road, Rampur U.P.-244901 of dated 09th, 10th and 12th September, 2021, We are hereby submitting the compliance report from April.-2023 to June.-2023 along with report of piezometers data, borewell monitoring report and ground water quality report analysed by NABL Accredited laboratory. We are committed to comply with all the condition stipulated in the NOC issued to us.

With Regards,

For Radico Khaitan Limited, Rampur

Devendra Singh

Authorized Signatory

CC :- Regional Director, Central Ground Water Board, Northern Region, Bhujal Bhawan,
Sector- B, Sitapur Road Yojana, Lucknow – 226021 (U.P.)

Enclosed: -

1. Borewells 03 nos log sheet.
2. Piezometers 06 nos log sheet.
3. Ground water quality report.
4. Ground water audit report.
5. Borewell Flow Meters Calibration certificate.

Radico Khaitan Limited

ISO 9001 : 2015 & 22000 : 2018 Certified Company

Regd. Office : Bareilly Road, Rampur-244901 (U.P)

Tel. : EPABX (0595) 2350601, 2350602, Fax : (0595) 2350009

Head Office : Plot No. J-1, Block B-1, Mohan Co-op. Industrial Area,
Mathura Road, New Delhi-110044

Tel : (91-11) 40975400/444/500/555, Fax : (91-11) 41678841-42, 41676718 (Exports)

e-mail : info@radico.co.in

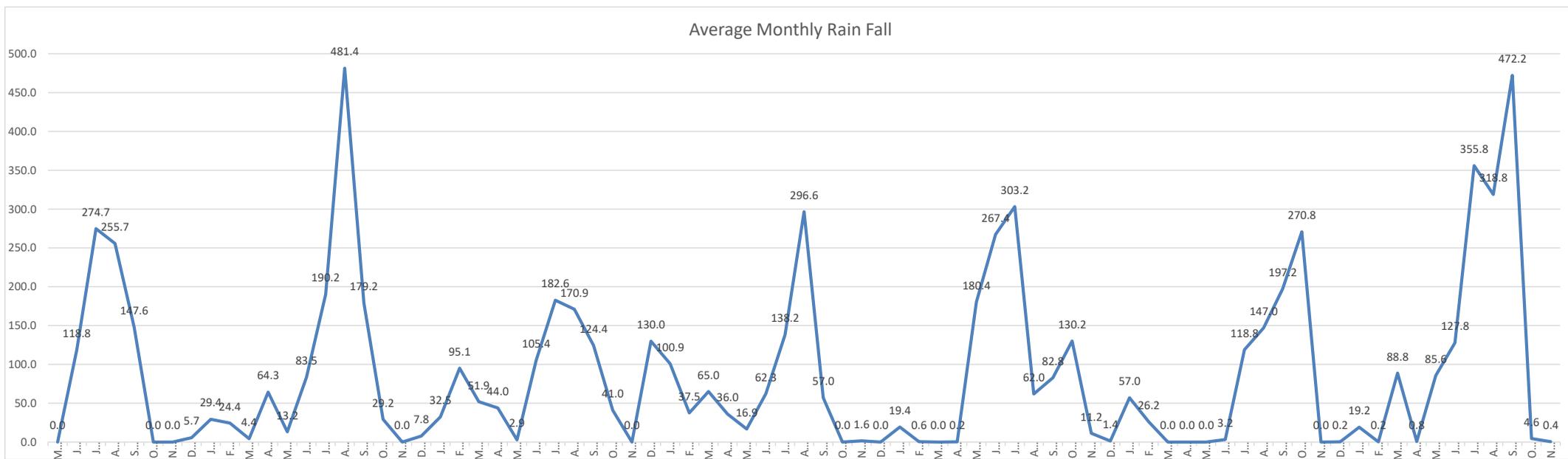
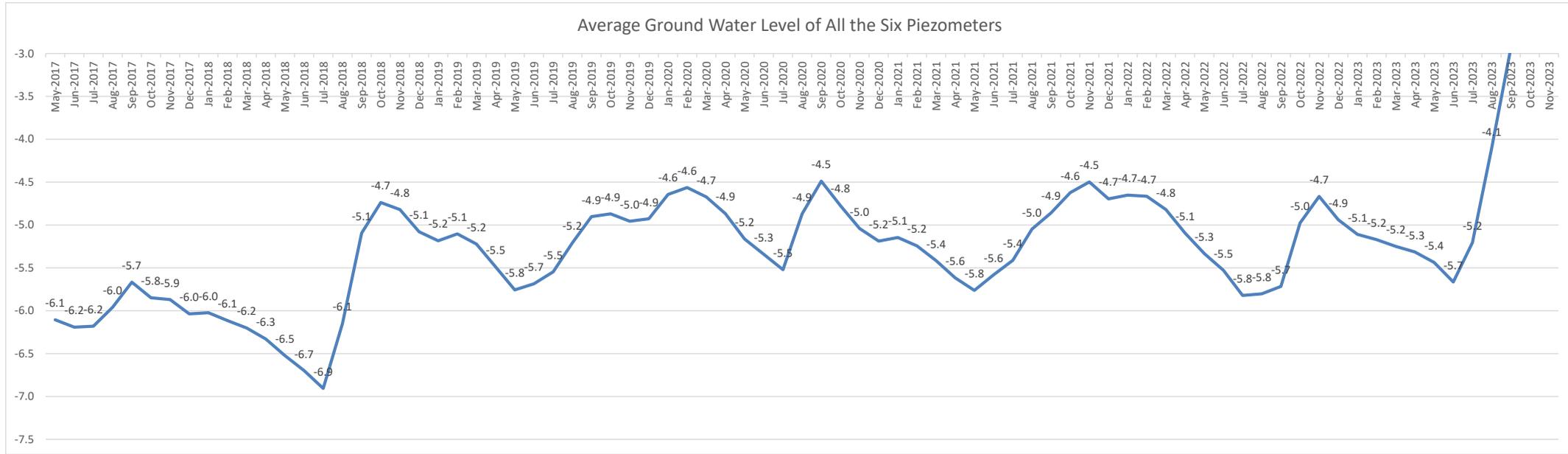
website : www.radicoKhaitan.com

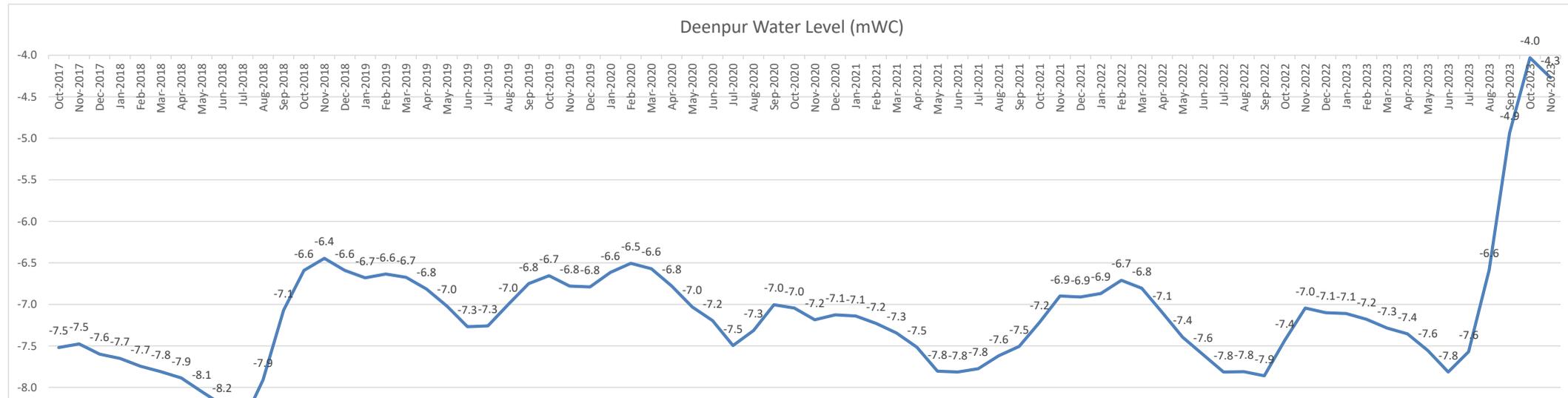
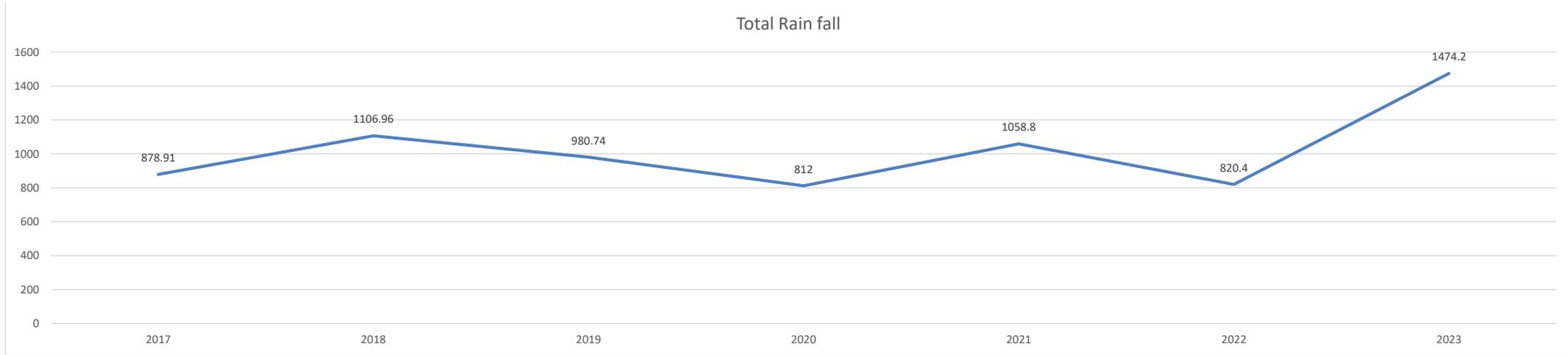
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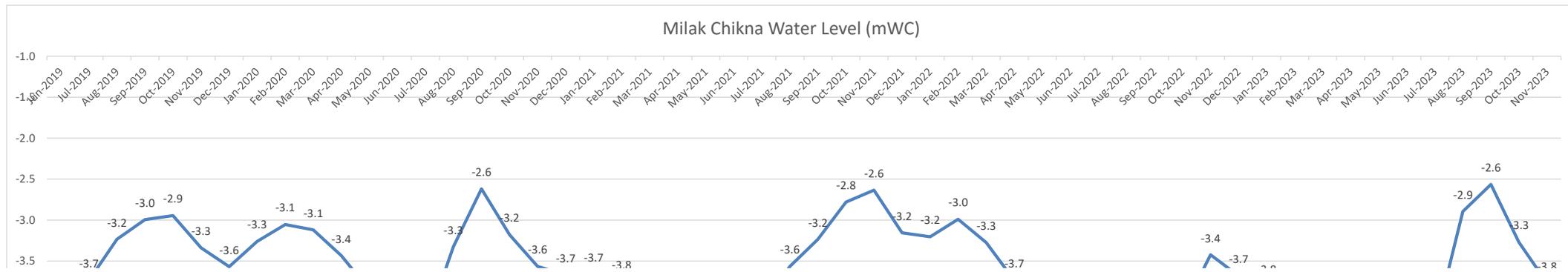
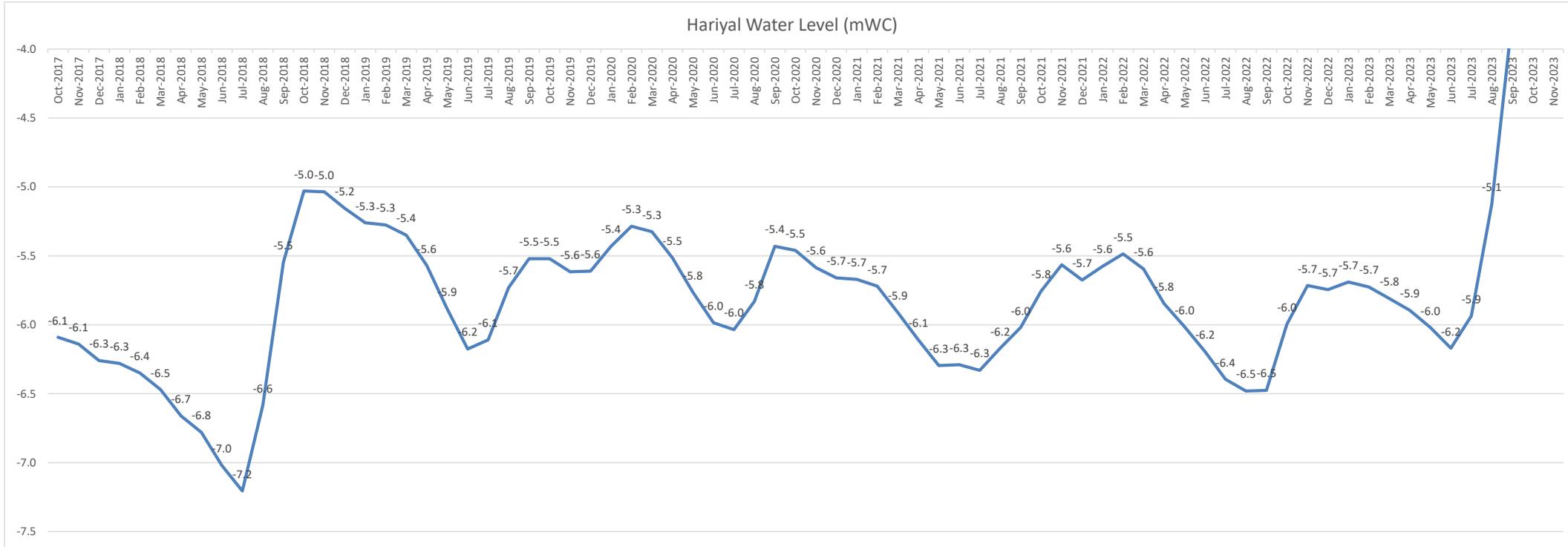
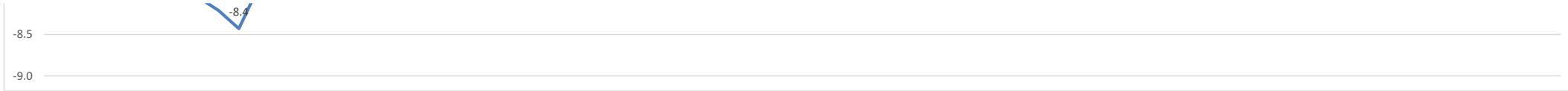
Borewells Log Book - Radico Khaitan Limited, Rampur						
BOREWELL NO.1 - 202108000304		BOREWELL NO.2 - 202108000274		BOREWELL NO.3 - 202108000378		Total Water Generation
Date	Water Generation (m3)	Date	Water Generation (m3)	Date	Water Generation (m3)	
1-Apr-23	0	1-Apr-23	621	1-Apr-23	1365	1986
2-Apr-23	0	2-Apr-23	794	2-Apr-23	1195	1989
3-Apr-23	0	3-Apr-23	681	3-Apr-23	1191	1872
4-Apr-23	0	4-Apr-23	817	4-Apr-23	1189	2006
5-Apr-23	0	5-Apr-23	821	5-Apr-23	1187	2008
6-Apr-23	0	6-Apr-23	582	6-Apr-23	1198	1780
7-Apr-23	0	7-Apr-23	548	7-Apr-23	1192	1740
8-Apr-23	0	8-Apr-23	649	8-Apr-23	1189	1838
9-Apr-23	0	9-Apr-23	691	9-Apr-23	1178	1869
10-Apr-23	0	10-Apr-23	602	10-Apr-23	1189	1791
11-Apr-23	0	11-Apr-23	612	11-Apr-23	1190	1802
12-Apr-23	0	12-Apr-23	792	12-Apr-23	1195	1987
13-Apr-23	0	13-Apr-23	519	13-Apr-23	1194	1713
14-Apr-23	200	14-Apr-23	558	14-Apr-23	1193	1951
15-Apr-23	0	15-Apr-23	751	15-Apr-23	1184	1935
16-Apr-23	0	16-Apr-23	1054	16-Apr-23	937	1991
17-Apr-23	0	17-Apr-23	803	17-Apr-23	1195	1998
18-Apr-23	0	18-Apr-23	1054	18-Apr-23	942	1996
19-Apr-23	0	19-Apr-23	885	19-Apr-23	1113	1998
20-Apr-23	0	20-Apr-23	1141	20-Apr-23	849	1990
21-Apr-23	0	21-Apr-23	1169	21-Apr-23	828	1997
22-Apr-23	204	22-Apr-23	687	22-Apr-23	1103	1994
23-Apr-23	0	23-Apr-23	1191	23-Apr-23	808	1999
24-Apr-23	0	24-Apr-23	1058	24-Apr-23	924	1982
25-Apr-23	0	25-Apr-23	1021	25-Apr-23	889	1910
26-Apr-23	0	26-Apr-23	1156	26-Apr-23	792	1948
27-Apr-23	0	27-Apr-23	864	27-Apr-23	1114	1978
28-Apr-23	0	28-Apr-23	787	28-Apr-23	1198	1985
29-Apr-23	0	29-Apr-23	828	29-Apr-23	1101	1929
30-Apr-23	0	30-Apr-23	1121	30-Apr-23	812	1933
Total	404		24857		32634	57895
					Daily Average in M3/Day	1930

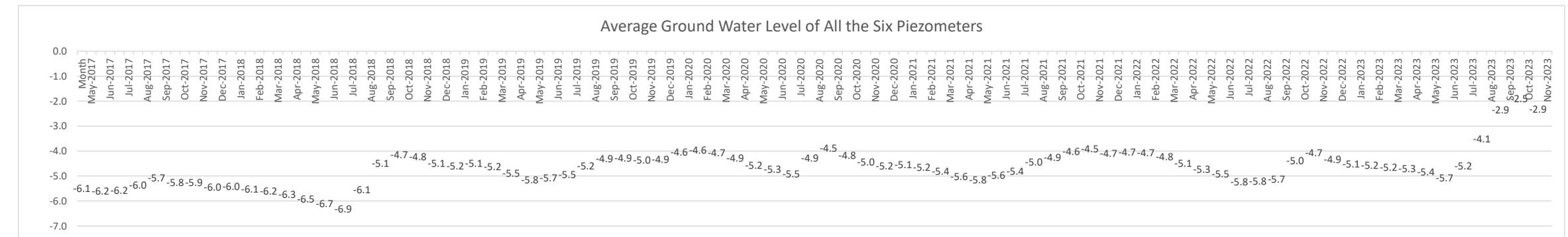
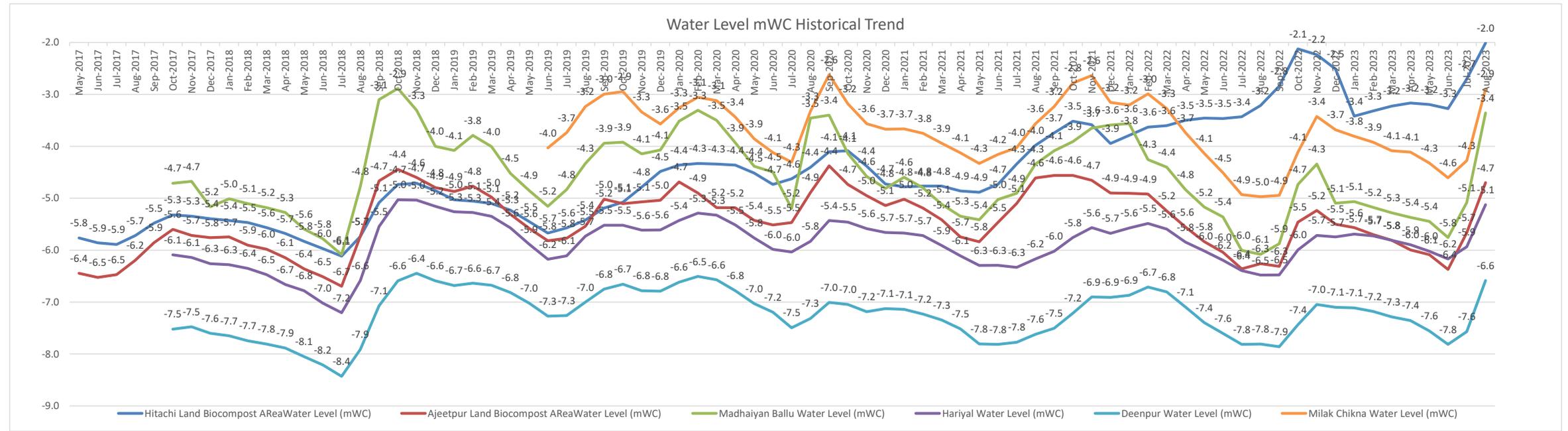
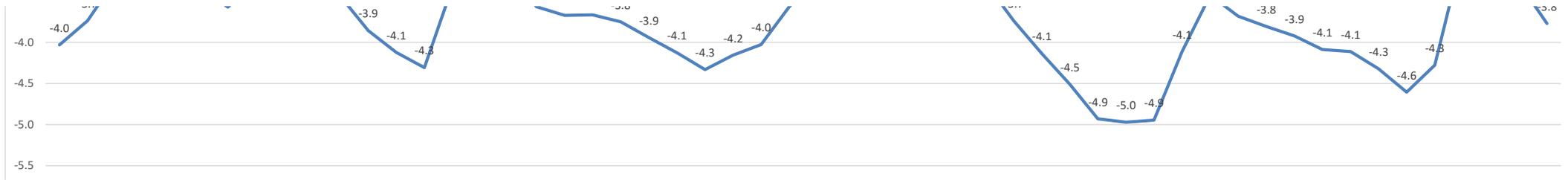
Borewells Log Book - Radico Khaitan Limited, Rampur						
BOREWELL NO.1 - 202108000304		BOREWELL NO.2 - 202108000274		BOREWELL NO.3 - 202108000378		Total Water Generation
Date	Water Generation (m3)	Date	Water Generation (m3)	Date	Water Generation (m3)	
1-May-23	705	1-May-23	1089	1-May-23	328	1430
2-May-23	418	2-May-23	1114	2-May-23	541	1406
3-May-23	247	3-May-23	1188	3-May-23	685	1404
4-May-23	358	4-May-23	1179	4-May-23	622	1792
5-May-23	0	5-May-23	1157	5-May-23	951	1435
6-May-23	469	6-May-23	1005	6-May-23	712	1414
7-May-23	514	7-May-23	1128	7-May-23	529	1396
8-May-23	0	8-May-23	1159	8-May-23	942	1446
9-May-23	0	9-May-23	1142	9-May-23	1048	1603
10-May-23	0	10-May-23	1015	10-May-23	1125	1483
11-May-23	0	11-May-23	1194	11-May-23	942	1677
12-May-23	0	12-May-23	1132	12-May-23	953	1607
13-May-23	0	13-May-23	1114	13-May-23	1002	1691
14-May-23	0	14-May-23	1161	14-May-23	948	1637
15-May-23	784	15-May-23	1124	15-May-23	269	1606
16-May-23	645	16-May-23	1185	16-May-23	367	1566
17-May-23	711	17-May-23	1050	17-May-23	429	1524
18-May-23	0	18-May-23	1192	18-May-23	1053	1652
19-May-23	0	19-May-23	1145	19-May-23	984	1691
20-May-23	0	20-May-23	1187	20-May-23	1024	1629
21-May-23	0	21-May-23	1169	21-May-23	989	1757
22-May-23	0	22-May-23	931	22-May-23	1192	1657
23-May-23	0	23-May-23	1142	23-May-23	1087	1731
24-May-23	0	24-May-23	1015	24-May-23	1158	1694
25-May-23	0	25-May-23	1032	25-May-23	1134	1778
26-May-23	0	26-May-23	1141	26-May-23	992	1732
27-May-23	0	27-May-23	1093	27-May-23	1054	1576
28-May-23	0	28-May-23	1014	28-May-23	1159	1695
29-May-23	0	29-May-23	1012	29-May-23	1092	1637
30-May-23	0	30-May-23	1188	30-May-23	985	1637
31-May-23	0	31-May-23	1124	31-May-23	1024	1602
Total	4851		34521		27320	66692
					Daily Average in M3/Day	2151

Borewells Log Book - Radico Khaitan Limited, Rampur						
BOREWELL NO.1 - 202108000304		BOREWELL NO.2 - 202108000274		BOREWELL NO.3 - 202108000378		Total Water Generation
Date	Water Generation (m3)	Date	Water Generation (m3)	Date	Water Generation (m3)	
1-Jun-23	0	1-Jun-23	602	1-Jun-23	160	762
2-Jun-23	0	2-Jun-23	575	2-Jun-23	328	903
3-Jun-23	0	3-Jun-23	462	3-Jun-23	482	944
4-Jun-23	0	4-Jun-23	598	4-Jun-23	312	910
5-Jun-23	0	5-Jun-23	602	5-Jun-23	349	951
6-Jun-23	0	6-Jun-23	363	6-Jun-23	547	910
7-Jun-23	0	7-Jun-23	329	7-Jun-23	602	931
8-Jun-23	0	8-Jun-23	430	8-Jun-23	565	995
9-Jun-23	0	9-Jun-23	472	9-Jun-23	487	959
10-Jun-23	527	10-Jun-23	323	10-Jun-23	125	975
11-Jun-23	612	11-Jun-23	202	11-Jun-23	102	916
12-Jun-23	347	12-Jun-23	106	12-Jun-23	85	538
13-Jun-23	519	13-Jun-23	339	13-Jun-23	0	858
14-Jun-23	248	14-Jun-23	425	14-Jun-23	0	673
15-Jun-23	312	15-Jun-23	645	15-Jun-23	0	957
16-Jun-23	329	16-Jun-23	724	16-Jun-23	0	1053
17-Jun-23	127	17-Jun-23	847	17-Jun-23	0	974
18-Jun-23	0	18-Jun-23	942	18-Jun-23	0	942
19-Jun-23	0	19-Jun-23	987	19-Jun-23	0	987
20-Jun-23	0	20-Jun-23	905	20-Jun-23	0	905
21-Jun-23	0	21-Jun-23	842	21-Jun-23	0	842
22-Jun-23	0	22-Jun-23	947	22-Jun-23	0	947
23-Jun-23	0	23-Jun-23	898	23-Jun-23	0	898
24-Jun-23	0	24-Jun-23	929	24-Jun-23	0	929
25-Jun-23	0	25-Jun-23	958	25-Jun-23	0	958
26-Jun-23	0	26-Jun-23	841	26-Jun-23	0	841
27-Jun-23	0	27-Jun-23	902	27-Jun-23	0	902
28-Jun-23	0	28-Jun-23	948	28-Jun-23	0	948
29-Jun-23	0	29-Jun-23	927	29-Jun-23	0	927
30-Jun-23	0	30-Jun-23	908	30-Jun-23	0	908
Total	3021		19978		4144	27143
					Daily Average in M3/Day	905



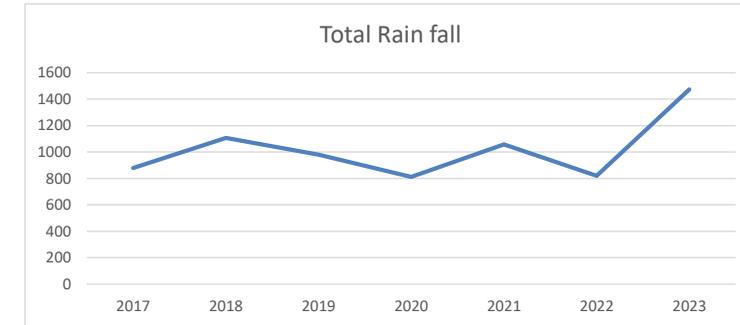






Rain fall data for the year 2017, 2018, 2019,2020, 2021, 2022 and 2023								
Month	Year - 2017	Year - 2018	Year - 2019	Year - 2020	Year - 2021	Year - 2022	Year - 2023	Remark
	Rain In mm	Rain In mm	Rain In mm	Rain In mm	Rain In mm	Rain In mm	Rain In mm	
Jan.	37.81	29.41	32.5	100.9	19.4	57	19.2	
Feb.	10.03	24.4	95.1	37.5	0.6	26.2	0.2	
March	28.62	4.41	51.9	65	0	0	88.8	
April	0	64.27	44	36	0.2	0	0.8	
May	0	13.16	2.9	16.9	180.4	0	85.6	
June	118.8	83.5	105.4	62.3	267.4	3.2	127.8	
July	274.7	190.23	182.6	138.2	303.2	118.8	355.8	
August	255.7	481.38	170.91	296.6	62	147	318.8	
Sep.	147.6	179.2	124.43	57	82.8	197.2	472.2	
Oct.	0	29.2	41	0	130.2	270.8	4.6	
Nov	0	0	0	1.6	11.2	0	0.4	
Dec	5.65	7.8	130	0	1.4	0.2		
Total	878.91	1106.96	980.74	812	1058.8	820.4	1474.2	

Year	2017	2018	2019	2020	2021	2022	2023
Total Rain fall	878.91	1106.96	980.74	812	1058.8	820.4	1474.2



Average Monthly Rain Fall	Month	Average Ground Water Level of All the Six Piezometers	Hitachi Land Biocompost AReaWater Level (mWC)	Ajeetpur Land Biocompost AReaWater Level (mWC)	Madhaiyan Ballu Water Level (mWC)	Hariyal Water Level (mWC)	Deenpur Water Level (mWC)	Milak Chikna Water Level (mWC)
0.0	May-2017	-6.1	-5.8	-6.4				
118.8	Jun-2017	-6.2	-5.9	-6.5				
274.7	Jul-2017	-6.2	-5.9	-6.5				
255.7	Aug-2017	-6.0	-5.7	-6.2				
147.6	Sep-2017	-5.7	-5.5	-5.9				
0.0	Oct-2017	-5.8	-5.3	-5.6	-4.7	-6.1	-7.5	
0.0	Nov-2017	-5.9	-5.3	-5.7	-4.7	-6.1	-7.5	
5.7	Dec-2017	-6.0	-5.4	-5.8	-5.2	-6.3	-7.6	
29.4	Jan-2018	-6.0	-5.4	-5.7	-5.0	-6.3	-7.7	
24.4	Feb-2018	-6.1	-5.5	-5.9	-5.1	-6.4	-7.7	
4.4	Mar-2018	-6.2	-5.6	-6.0	-5.2	-6.5	-7.8	
64.3	Apr-2018	-6.3	-5.7	-6.1	-5.3	-6.7	-7.9	
13.2	May-2018	-6.5	-5.8	-6.4	-5.6	-6.8	-8.1	
83.5	Jun-2018	-6.7	-6.0	-6.5	-5.8	-7.0	-8.2	
190.2	Jul-2018	-6.9	-6.1	-6.7	-6.1	-7.2	-8.4	
481.4	Aug-2018	-6.1	-5.7	-5.7	-4.8	-6.6	-7.9	

179.2	Sep-2018	-5.1	-5.1	-4.7	-3.1	-5.5	-7.1	
29.2	Oct-2018	-4.7	-4.7	-4.4	-2.9	-5.0	-6.6	
0.0	Nov-2018	-4.8	-4.7	-4.6	-3.3	-5.0	-6.4	
7.8	Dec-2018	-5.1	-4.9	-4.8	-4.0	-5.2	-6.6	
32.5	Jan-2019	-5.2	-5.0	-4.9	-4.1	-5.3	-6.7	
95.1	Feb-2019	-5.1	-5.1	-4.8	-3.8	-5.3	-6.6	
51.9	Mar-2019	-5.2	-5.1	-5.0	-4.0	-5.4	-6.7	
44.0	Apr-2019	-5.5	-5.2	-5.3	-4.5	-5.6	-6.8	
2.9	May-2019	-5.8	-5.5	-5.6	-4.9	-5.9	-7.0	
105.4	Jun-2019	-5.7	-5.7	-5.8	-5.2	-6.2	-7.3	-4.0
182.6	Jul-2019	-5.5	-5.6	-5.8	-4.8	-6.1	-7.3	-3.7
170.9	Aug-2019	-5.2	-5.4	-5.5	-4.3	-5.7	-7.0	-3.2
124.4	Sep-2019	-4.9	-5.2	-5.0	-3.9	-5.5	-6.8	-3.0
41.0	Oct-2019	-4.9	-5.1	-5.1	-3.9	-5.5	-6.7	-2.9
0.0	Nov-2019	-5.0	-4.8	-5.1	-4.1	-5.6	-6.8	-3.3
130.0	Dec-2019	-4.9	-4.5	-5.0	-4.1	-5.6	-6.8	-3.6
100.9	Jan-2020	-4.6	-4.4	-4.7	-3.5	-5.4	-6.6	-3.3
37.5	Feb-2020	-4.6	-4.3	-4.9	-3.3	-5.3	-6.5	-3.1
65.0	Mar-2020	-4.7	-4.3	-5.2	-3.5	-5.3	-6.6	-3.1
36.0	Apr-2020	-4.9	-4.4	-5.2	-3.9	-5.5	-6.8	-3.4
16.9	May-2020	-5.2	-4.5	-5.4	-4.4	-5.8	-7.0	-3.9
62.3	Jun-2020	-5.3	-4.7	-5.5	-4.5	-6.0	-7.2	-4.1
138.2	Jul-2020	-5.5	-4.6	-5.5	-5.2	-6.0	-7.5	-4.3

136.2	Jun-2020	-5.5	-4.6	-5.5	-5.2	-6.6	-7.5	-4.5
296.6	Aug-2020	-4.9	-4.4	-4.9	-3.5	-5.8	-7.3	-3.3
57.0	Sep-2020	-4.5	-4.1	-4.4	-3.4	-5.4	-7.0	-2.6
0.0	Oct-2020	-4.8	-4.1	-4.7	-4.1	-5.5	-7.0	-3.2
1.6	Nov-2020	-5.0	-4.4	-5.0	-4.6	-5.6	-7.2	-3.6
0.0	Dec-2020	-5.2	-4.7	-5.1	-4.8	-5.7	-7.1	-3.7
19.4	Jan-2021	-5.1	-4.8	-5.0	-4.6	-5.7	-7.1	-3.7
0.6	Feb-2021	-5.2	-4.8	-5.2	-4.8	-5.7	-7.2	-3.8
0.0	Mar-2021	-5.4	-4.8	-5.4	-5.1	-5.9	-7.3	-3.9
0.2	Apr-2021	-5.6	-4.9	-5.7	-5.3	-6.1	-7.5	-4.1
180.4	May-2021	-5.8	-4.9	-5.8	-5.4	-6.3	-7.8	-4.3
267.4	Jun-2021	-5.6	-4.7	-5.5	-5.0	-6.3	-7.8	-4.2
303.2	Jul-2021	-5.4	-4.3	-5.1	-4.9	-6.3	-7.8	-4.0
62.0	Aug-2021	-5.0	-4.0	-4.6	-4.3	-6.2	-7.6	-3.6
82.8	Sep-2021	-4.9	-3.7	-4.6	-4.1	-6.0	-7.5	-3.2
130.2	Oct-2021	-4.6	-3.5	-4.6	-3.9	-5.8	-7.2	-2.8
11.2	Nov-2021	-4.5	-3.6	-4.7	-3.7	-5.6	-6.9	-2.6
1.4	Dec-2021	-4.7	-3.9	-4.9	-3.6	-5.7	-6.9	-3.2
57.0	Jan-2022	-4.7	-3.8	-4.9	-3.6	-5.6	-6.9	-3.2
26.2	Feb-2022	-4.7	-3.6	-4.9	-4.3	-5.5	-6.7	-3.0
0.0	Mar-2022	-4.8	-3.6	-5.2	-4.4	-5.6	-6.8	-3.3
0.0	Apr-2022	-5.1	-3.5	-5.6	-4.8	-5.8	-7.1	-3.7
0.0	May-2022	-5.3	-3.5	-5.8	-5.2	-6.0	-7.4	-4.1

3.2	Jun-2022	-5.5	-3.5	-6.0	-5.4	-6.2	-7.6	-4.5
118.8	Jul-2022	-5.8	-3.4	-6.4	-6.0	-6.4	-7.8	-4.9
147.0	Aug-2022	-5.8	-3.2	-6.3	-6.1	-6.5	-7.8	-5.0
197.2	Sep-2022	-5.7	-2.8	-6.3	-5.9	-6.5	-7.9	-4.9
270.8	Oct-2022	-5.0	-2.1	-5.5	-4.7	-6.0	-7.4	-4.1
0.0	Nov-2022	-4.7	-2.2	-5.2	-4.3	-5.7	-7.0	-3.4
0.2	Dec-2022	-4.9	-2.5	-5.5	-5.1	-5.7	-7.1	-3.7
19.2	Jan-2023	-5.1	-3.4	-5.6	-5.1	-5.7	-7.1	-3.8
0.2	Feb-2023	-5.2	-3.3	-5.7	-5.2	-5.7	-7.2	-3.9
88.8	Mar-2023	-5.2	-3.2	-5.8	-5.3	-5.8	-7.3	-4.1
0.8	Apr-2023	-5.3	-3.2	-6.0	-5.4	-5.9	-7.4	-4.1
85.6	May-2023	-5.4	-3.2	-6.1	-5.4	-6.0	-7.6	-4.3
127.8	Jun-2023	-5.7	-3.3	-6.4	-5.8	-6.2	-7.8	-4.6
355.8	Jul-2023	-5.2	-2.7	-5.7	-5.1	-5.9	-7.6	-4.3
318.8	Aug-2023	-4.1	-2.0	-4.7	-3.4	-5.1	-6.6	-2.9
472.2	Sep-2023	-2.9	-1.5	-3.4	-1.5	-3.8	-4.9	-2.6
4.6	Oct-2023	-2.5	-0.7	-2.8	-1.4	-2.9	-4.0	-3.3
0.4	Nov-2023	-2.9	-1.1	-3.2	-2.0	-3.1	-4.3	-3.8

Month	Ajeetpur Land Biocompost AReaWater Level (mWC)	Level	Date/Time	Battery Voltage (V)	Water Level (mWC)	Temperature	Barometric (degC)	Instant Rain (mm)	Daily Rain (mm)
May-2017	-6.4	Upper	2017-05-25 06:00:00	7.32	-6.36	24.5	979.3	0	0
		Lower	2017-05-26 06:00:00	7.28	-6.53	24.5	977.4	0	0
Jun-2017	-6.5	Upper	2017-06-09 06:00:00	7.31	-6.42	24.5	980.4	0	0
		Lower	2017-06-29 06:00:00	7.3	-6.63	24.4	978.2	0	0
Jul-2017	-6.5	Upper	2017-07-31 18:00:00	7.29	-6.29	24.4	978.4	0	0
		Lower	2017-07-22 18:00:00	7.29	-6.65	24.4	975.6	0	0
Aug-2017	-6.2	Upper	2017-08-31 06:00:00	7.29	-6	24.3	981.4	0	0
		Lower	2017-08-22 18:00:00	7.29	-6.39	24.4	977.5	0	0
Sep-2017	-5.9	Upper	2017-09-30 06:00:00	7.3	-5.51	24.4	983.8	0	0
		Lower	2017-09-18 18:00:00	7.28	-6.2	24.4	979.6	0	0
Oct-2017	-5.6	Upper	2017-10-14 06:00:00	7.3	-5.45	24.4	982.3	0	0
		Lower	2017-10-27 18:00:00	7.31	-5.75	24.4	988.8	0	0
Nov-2017	-5.7	Upper	2017-11-17 06:00:00	7.32	-5.5	24.4	990.2	0	0
		Lower	2017-11-21 18:00:00	7.32	-5.93	24.4	990.2	0	0
Dec-2017	-5.8	Upper	2017-12-03 06:00:00	7.32	-5.61	24.5	992.8	0	0
		Lower	2017-12-01 18:00:00	7.33	-5.91	24.4	991	0	0
Jan-2018	-5.7	Upper	2018-01-14 06:00:00	7.31	-5.62	24.5	990.6	0	0
		Lower	2018-01-21 18:00:00	7.31	-5.87	24.5	990	0	0
Feb-2018	-5.9	Upper	2018-02-02 06:00:00	7.31	-5.7	24.5	987.6	0	0
		Lower	2018-02-21 18:00:00	7.31	-6.11	24.5	986.2	0	0
Mar-2018	-6.0	Upper	2018-03-07 06:00:00	7.31	-5.83	24.6	987.4	0	0
		Lower	2018-03-26 18:00:00	7.29	-6.13	24.5	986	0	0
Apr-2018	-6.1	Upper	2018-04-13 06:00:00	7.31	-5.95	24.6	985.1	0	0
		Lower	2018-04-27 18:00:00	7.28	-6.34	24.5	982.8	0	0
May-2018	-6.4	Upper	2018-05-05 06:00:00	7.31	-6.12	24.5	984.1	0	0
		Lower	2018-05-30 18:00:00	7.29	-6.6	24.5	976.1	0	0
Jun-2018	-6.5	Upper	2018-06-04 06:00:00	7.3	-6.36	24.5	979.4	0	0
		Lower	2018-06-05 18:00:00	7.28	-6.66	24.5	978.2	0	0
Jul-2018	-6.7	Upper	2018-07-31 18:00:00	7.31	-6.48	24.4	973.9	0	0
		Lower	2018-07-09 18:00:00	7.29	-6.91	24.4	974.2	0	0
Aug-2018	-5.7	Upper	2018-08-31 18:00:00	7.31	-4.98	24.4	977.7	0	0
		Lower	2018-08-01 18:00:00	7.31	-6.48	24.4	974.6	0	0

Sep-2018	-4.7	Upper	2018-09-30 06:00:00	7.31	-4.38	24.5	985.4	0	0
		Lower	2018-09-01 06:00:00	7.31	-4.95	24.4	979.6	0	0
Oct-2018	-4.4	Upper	2018-10-16 06:00:00	7.32	-4.36	24.5	989	0	0
		Lower	2018-10-29 18:00:00	7.32	-4.53	24.5	990.3	0	0
Nov-2018	-4.6	Upper	2018-11-02 06:00:00	7.32	-4.44	24.6	990.6	0	0
		Lower	2018-11-29 18:00:00	7.33	-4.76	24.6	994	0	0
Dec-2018	-4.8	Upper	2018-12-01 06:00:00	7.33	-4.62	24.6	991.2	0	0
		Lower	2018-12-10 18:00:00	7.32	-4.97	24.6	990.4	0	0
Jan-2019	-4.9	Upper	2019-01-31 06:00:00	7.32	-4.73	24.7	993.9	0	0
		Lower	2019-01-15 18:00:00	7.32	-5.01	24.6	992.5	0	0
Feb-2019	-4.8	Upper	2019-02-22 06:00:00	7.31	-4.7	24.7	990.6	0	0
		Lower	2019-02-25 18:00:00	7.31	-4.83	24.7	985.5	0	0
Mar-2019	-5.0	Upper	2019-03-05 06:00:00	7.32	-4.72	24.7	984.4	0	0
		Lower	2019-03-31 18:00:00	7.28	-5.24	24.7	982.8	0	0
Apr-2019	-5.3	Upper	2019-04-01 06:00:00	7.33	-5.06	24.7	983.1	0	0
		Lower	2019-04-29 18:00:00	7.27	-5.56	24.6	979.2	0	0
May-2019	-5.6	Upper	2019-05-01 06:00:00	7.32	-5.31	24.6	978.2	0	0
		Lower	2019-05-27 18:00:00	7.27	-5.85	24.5	978.5	0	0
Jun-2019	-5.8	Upper	2019-06-29 06:00:00	7.32	-5.64	24.4	973.4	0	0
		Lower	2019-06-15 18:00:00	7.27	-6	24.4	972.3	0	0
Jul-2019	-5.8	Upper	2019-07-27 06:00:00	7.32	-5.41	24.4	974.8	0	0
		Lower	2019-07-10 18:00:00	7.29	-6.13	24.3	970.4	0	0
Aug-2019	-5.5	Upper	2019-08-29 06:00:00	7.33	-5.19	24.3	982.3	0	0
		Lower	2019-08-05 18:00:00	7.29	-5.89	24.4	972.1	0	0
Sep-2019	-5.0	Upper	2019-09-16 06:00:00	7.33	-4.79	24.3	981.8	0	0
		Lower	2019-09-01 06:00:00	7.33	-5.25	24.3	981.5	0	0
Oct-2019	-5.1	Upper	2019-10-06 06:00:00	7.34	-4.85	24.4	988.1	0	0
		Lower	2019-10-31 18:00:00	7.33	-5.36	24.4	987	0	0
Nov-2019	-5.1	Upper	2019-11-08 06:00:00	7.35	-4.78	24.4	988.7	0	0
		Lower	2019-11-03 18:00:00	7.32	-5.36	24.4	989.7	0	0
Dec-2019	-5.0	Upper	2019-12-31 06:00:00	7.34	-4.68	24.4	996.3	0	0
		Lower	2019-12-07 18:00:00	7.34	-5.4	24.4	993.4	0	0
Jan-2020	-4.7	Upper	2020-01-26 06:00:00	7.33	-4.61	24.4	989.5	0	0
		Lower	2020-01-05 18:00:00	7.34	-4.76	24.4	992.8	0	0
Feb-2020	-4.9	Upper	2020-02-06 06:00:00	7.32	-4.58	24.5	990.1	0	0
		Lower	2020-02-15 18:00:00	7.31	-4.88	24.4	988.8	0	0
Mar-2020	-5.2	Upper	2020-03-02 06:00:00	7.33	-4.65	24.5	988.5	0	0

Mid-2020	-5.2	Lower	2020-03-30 18:00:00	7.3	-5.17	24.5	987.3	0	0
Apr-2020	-5.2	Upper	2020-04-02 06:00:00	7.32	-4.92	24.5	984.7	0	0
		Lower	2020-04-24 18:00:00	7.3	-5.45	24.4	981	0	0
May-2020	-5.4	Upper	2020-05-01 06:00:00	7.33	-5.04	24.4	984.3	0	0
		Lower	2020-05-26 18:00:00	7.29	-5.81	24.3	975.6	0	0
Jun-2020	-5.5	Upper	2020-06-02 06:00:00	7.33	-5.39	24.3	983.2	0	0
		Lower	2020-06-10 18:00:00	7.3	-5.64	24.2	975.6	0	0
Jul-2020	-5.5	Upper	2020-07-13 06:00:00	7.33	-4.88	24.2	982.3	0	0
		Lower	2020-07-02 18:00:00	7.31	-6.06	24.2	972.1	0	0
Aug-2020	-4.9	Upper	2020-08-24 06:00:00	7.33	-4.22	24.2	979.4	0	0
		Lower	2020-08-08 18:00:00	7.3	-5.56	24.1	972.6	0	0
Sep-2020	-4.4	Upper	2020-09-01 06:00:00	7.33	-4.21	24.2	981.6	0	0
		Lower	2020-09-08 18:00:00	7.31	-4.54	24.2	979.7	0	0
Oct-2020	-4.7	Upper	2020-10-02 06:00:00	7.34	-4.39	24.2	981.3	0	0
		Lower	2020-10-24 18:00:00	7.32	-5.08	24.2	984.7	0	0
Nov-2020	-5.0	Upper	2020-11-19 06:00:00	7.32	-4.81	24.2	989.2	0	0
		Lower	2020-11-28 18:00:00	7.31	-5.09	24.1	993.8	0	0
Dec-2020	-5.1	Upper	2020-12-21 06:00:00	7.28	-4.93	24.2	993.8	0	0
		Lower	2020-12-02 18:00:00	7.31	-5.35	24.1	989.3	0	0
Jan-2021	-5.0	Upper	2021-01-06 06:00:00	7.29	-4.92	24.2	990.4	0	0
		Lower	2021-01-02 18:00:00	7.3	-5.12	24.2	991.3	0	0
Feb-2021	-5.2	Upper	2021-02-02 06:00:00	7.29	-4.95	24.2	993	0	0
		Lower	2021-02-23 18:00:00	7.29	-5.43	24.2	987.4	0	0
Mar-2021	-5.4	Upper	2021-03-01 06:00:00	7.31	-5.22	24.2	987.9	0	0
		Lower	2021-03-26 18:00:00	7.3	-5.61	24.2	985.3	0	0
Apr-2021	-5.7	Upper	2021-04-01 06:00:00	7.32	-5.45	24.2	977	0	0
		Lower	2021-04-25 18:00:00	7.29	-6.04	24.1	984.2	0	0
May-2021	-5.8	Upper	2021-05-25 06:00:00	7.32	-5.63	24.1	978.7	0	0
		Lower	2021-05-09 18:00:00	7.29	-6.05	24.1	980.6	0	0
Jun-2021	-5.5	Upper	2021-06-26 06:00:00	7.31	-4.99	24	979.3	0	0
		Lower	2021-06-07 18:00:00	7.29	-5.94	24	975.3	0	0
Jul-2021	-5.1	Upper	2021-07-30 06:00:00	7.31	-4.37	24	975.5	0	0
		Lower	2021-07-17 18:00:00	7.3	-5.83	24	977	0	0
Aug-2021	-4.6	Upper	2021-08-01 06:00:00	7.3	-4.37	24	975.4	0	0
		Lower	2021-08-27 18:00:00	7.29	-4.85	24	978.3	0	0
Sep-2021	-4.6	Upper	2021-09-07 06:00:00	7.3	-4.4	24	984.2	0	0
		Lower	2021-09-29 18:00:00	7.27	-4.72	24	984.2	0	0

Oct-2021	-4.6	Upper	2021-10-25 06:00:00	7.28	-4.31	24	990	0	0
		Lower	2021-10-16 18:00:00	7.28	-4.81	24	981.5	0	0
Nov-2021	-4.7	Upper	2021-11-06 06:00:00	7.28	-4.34	24	988.6	0	0
		Lower	2021-11-29 18:00:00	7.32	-4.97	24.1	991	0	0
Dec-2021	-4.9	Upper	2021-12-04 06:00:00	7.31	-4.71	24.2	991	0	0
		Lower	2021-12-09 18:00:00	7.32	-5.09	24.2	995	0	0
Jan-2022	-4.9	Upper	2022-01-30 06:00:00	7.31	-4.71	24.3	985.9	0	0
		Lower	2022-01-04 18:00:00	7.33	-5.1	24.2	992.1	0	0
Feb-2022	-4.9	Upper	2022-02-01 06:00:00	7.31	-4.7	24.3	986.6	0	0
		Lower	2022-02-21 18:00:00	7.31	-5.14	24.3	983.8	0	0
Mar-2022	-5.2	Upper	2022-03-01 06:00:00	7.31	-4.86	24.3	990.6	0	0
		Lower	2022-03-28 18:00:00	7.29	-5.63	24.3	981.4	0	0
Apr-2022	-5.6	Upper	2022-04-01 06:00:00	7.32	-5.28	24.3	981.4	0	0
		Lower	2022-04-25 18:00:00	7.29	-5.83	24.2	979.5	0	0
May-2022	-5.8	Upper	2022-05-02 06:00:00	7.32	-5.65	24.2	979.7	0	0
		Lower	2022-05-18 18:00:00	7.3	-6.02	24.2	978.1	0	0
Jun-2022	-6.0	Upper	2022-06-01 06:00:00	7.31	-5.83	24.1	976.8	0	0
		Lower	2022-06-11 18:00:00	7.29	-6.25	24.1	973.4	0	0
Jul-2022	-6.4	Upper	2022-07-01 06:00:00	7.33	-6.05	24.1	977	0	0
		Lower	2022-07-16 18:00:00	7.31	-6.67	24.1	976.7	0	0
Aug-2022	-6.3	Upper	2022-08-12 06:00:00	7.32	-6.01	24	977.4	0	0
		Lower	2022-08-23 18:00:00	7.31	-6.51	24	978.2	0	0
Sep-2022	-6.3	Upper	2022-09-29 06:00:00	7.33	-5.97	24	982.7	0	0
		Lower	2022-09-07 18:00:00	7.3	-6.65	24	982.6	0	0
Oct-2022	-5.5	Upper	2022-10-24 06:00:00	7.34	-4.96	24.1	986.7	0	0
		Lower	2022-10-01 18:00:00	7.31	-5.96	24	979.7	0	0
Nov-2022	-5.2	Upper	2022-11-01 06:00:00	7.34	-5	24.1	989.7	0	0
		Lower	2022-11-28 18:00:00	7.33	-5.47	24.1	988.3	0	0
Dec-2022	-5.5	Upper	2022-12-03 06:00:00	7.33	-5.29	24.1	989.6	0	0
		Lower	2022-12-10 18:00:00	7.33	-5.71	24.1	989	0	0
Jan-2023	-5.6	Upper	2023-01-07 06:00:00	7.31	-5.4	24.2	995.9	0	0
		Lower	2023-01-22 18:00:00	7.31	-5.73	24.2	990.9	0	0
Feb-2023	-5.7	Upper	2023-02-02 06:00:00	7.32	-5.45	24.3	989.1	0	0
		Lower	2023-02-20 18:00:00	7.3	-5.95	24.3	986.5	0	0
Mar-2023	-5.8	Upper	2023-03-01 06:00:00	7.32	-5.7	24.3	992.6	0	0
		Lower	2023-03-17 18:00:00	7.31	-5.92	24.3	987.2	0	0
Apr-2023	-6.0	Upper	2023-04-02 06:00:00	7.31	-5.73	24.3	984.2	0	0

Apr-2023	-6.0	Lower	2023-04-27 18:00:00	7.3	-6.26	24.3	983.2	0	0
May-2023	-6.1	Upper	2023-05-09 06:00:00	7.32	-5.86	24.2	982.8	0	0
		Lower	2023-05-23 18:00:00	7.29	-6.31	24.2	979.6	0	0
Jun-2023	-6.4	Upper	2023-06-01 06:00:00	7.32	-6.17	24.2	983.1	0	0
		Lower	2023-06-16 18:00:00	7.3	-6.57	24.1	977.1	0	0
Jul-2023	-5.7	Upper	2023-07-19 06:00:00	7.32	-4.84	24.1	977.7	0	0
		Lower	2023-07-05 18:00:00	7.32	-6.49	24.1	975.2	0	0
Aug-2023	-4.7	Upper	2023-08-30 18:00:00	7.31	-4.14	24.1	980.3	0	0
		Lower	2023-08-01 18:00:00	7.31	-5.26	24.1	972.4	0	0
Sep-2023	-3.4	Upper	2023-09-24 06:00:00	7.33	-2.46	24.1	983.1	0	0
		Lower	2023-09-04 18:00:00	7.3	-4.25	24.1	977.7	0	0
Oct-2023	-2.8	Upper	2023-10-01 06:00:00	7.32	-2.56	24.1	983	0	0
		Lower	2023-10-30 18:00:00	7.32	-3.01	24.1	990	0	0
Nov-2023	-3.2	Upper	2023-11-01 06:00:00	7.33	-3.01	24.1	993.2	0	0
		Lower	2023-11-26 18:00:00	7.33	-3.41	24.2	993	0	0

Month	Deenpur Water Level (mWC)	Level	Date/Time	Battery Voltage (V)	Water Level (mWC)	Temperature	Barometric (degC)	Instant Rain (mm)	Daily Rain (mm)
Oct-2017	-7.5	Upper	2017-10-27 06:00:00	7.31	-7.44	24.9	991.4	0	0
		Lower	2017-10-27 18:00:00	7.08	-7.6	25	985.5	0	0
Nov-2017	-7.5	Upper	2017-11-18 06:00:00	7.31	-7.43	25	990	0	0
		Lower	2017-11-29 18:00:00	7.33	-7.52	25	992.4	0	0
Dec-2017	-7.6	Upper	2017-12-01 06:00:00	7.32	-7.51	25	992	0	0
		Lower	2017-12-19 18:00:00	7.32	-7.69	25	995.4	0	0
Jan-2018	-7.7	Upper	2018-01-12 06:00:00	7.31	-7.59	25	991	0	0
		Lower	2018-01-31 18:00:00	7.29	-7.71	25	988.9	0	0
Feb-2018	-7.7	Upper	2018-02-01 06:00:00	7.29	-7.69	25	990.8	0	0
		Lower	2018-02-11 18:00:00	7.3	-7.8	25	992.8	0	0
Mar-2018	-7.8	Upper	2018-03-03 06:00:00	7.28	-7.75	25	983.8	0	0
		Lower	2018-03-31 18:00:00	7.26	-7.87	25	985	0	0
Apr-2018	-7.9	Upper	2018-04-14 06:00:00	7.29	-7.83	25.1	984	0	0
		Lower	2018-04-30 18:00:00	7.26	-7.94	25.1	978	0	0
May-2018	-8.1	Upper	2018-05-01 06:00:00	7.28	-7.93	25.1	983	0	0
		Lower	2018-05-31 18:00:00	7.25	-8.17	25	978	0	0
Jun-2018	-8.2	Upper	2018-06-02 06:00:00	7.28	-8.14	25.1	981.2	0	0
		Lower	2018-06-30 18:00:00	7.27	-8.28	25	976.6	0	0
Jul-2018	-8.4	Upper	2018-07-01 06:00:00	7.27	-8.27	25	976.8	0	0
		Lower	2018-07-25 18:00:00	7.26	-8.59	25	974.6	0	0
Aug-2018	-7.9	Upper	2018-08-31 18:00:00	7.27	-7.45	25	978.2	0	0
		Lower	2018-08-01 18:00:00	7.27	-8.37	25	975.4	0	0
Sep-2018	-7.1	Upper	2018-09-30 06:00:00	7.27	-6.72	25	985.2	0	0
		Lower	2018-09-01 06:00:00	7.28	-7.42	25	980.1	0	0
Oct-2018	-6.6	Upper	2018-10-31 06:00:00	7.27	-6.47	25	993.3	0	0
		Lower	2018-10-01 18:00:00	7.26	-6.71	25	985	0	0
Nov-2018	-6.4	Upper	2018-11-23 06:00:00	7.28	-6.39	25	994.7	0	0
		Lower	2018-11-02 18:00:00	7.27	-6.5	25	989.5	0	0
Dec-2018	-6.6	Upper	2018-12-01 06:00:00	7.27	-6.42	25	991.9	0	0
		Lower	2018-12-15 18:00:00	7.27	-6.76	25	996.7	0	0
Jan-2019	-6.7	Upper	2019-01-09 06:00:00	7.26	-6.59	25	991.6	0	0
		Lower	2019-01-19 18:00:00	7.27	-6.77	25	992.9	0	0
Feb-2019	-6.6	Upper	2019-02-24 06:00:00	7.27	-6.57	25.1	988	0	0
		Lower	2019-02-05 18:00:00	7.26	-6.7	25	993.8	0	0
Mar-2019	-6.7	Upper	2019-03-04 06:00:00	7.27	-6.55	25.1	986.4	0	0

Mid-2019	-6.7	Lower	2019-03-27 18:00:00	7.26	-6.8	25.1	990.1	0	0
Apr-2019	-6.8	Upper	2019-04-01 06:00:00	7.28	-6.74	25.1	983	0	0
		Lower	2019-04-30 18:00:00	7.25	-6.89	25.1	979.4	0	0
May-2019	-7.0	Upper	2019-05-01 06:00:00	7.27	-6.88	25.1	977.5	0	0
		Lower	2019-05-31 18:00:00	7.24	-7.16	25.1	977.6	0	0
Jun-2019	-7.3	Upper	2019-06-01 06:00:00	7.25	-7.15	25.1	978.4	0	0
		Lower	2019-06-22 18:00:00	7.25	-7.39	25	978.7	0	0
Jul-2019	-7.3	Upper	2019-07-31 06:00:00	7.25	-7.11	25	978.6	0	0
		Lower	2019-07-10 18:00:00	7.24	-7.41	25	972.4	0	0
Aug-2019	-7.0	Upper	2019-08-27 06:00:00	7.24	-6.83	25	979.8	0	0
		Lower	2019-08-02 18:00:00	7.24	-7.17	25	975.5	0	0
Sep-2019	-6.8	Upper	2019-09-29 06:00:00	7.23	-6.59	25	988.5	0	0
		Lower	2019-09-01 06:00:00	7.24	-6.91	25	978.4	0	0
Oct-2019	-6.7	Upper	2019-10-16 06:00:00	7.24	-6.55	25	991.2	0	0
		Lower	2019-10-28 18:00:00	7.23	-6.76	25	990.6	0	0
Nov-2019	-6.8	Upper	2019-11-01 06:00:00	7.24	-6.71	25	989	0	0
		Lower	2019-11-13 18:00:00	7.24	-6.85	25	992.6	0	0
Dec-2019	-6.8	Upper	2019-12-30 06:00:00	7.21	-6.68	25.1	994.8	0	0
		Lower	2019-12-12 18:00:00	7.23	-6.9	25	991.2	0	0
Jan-2020	-6.6	Upper	2020-01-26 06:00:00	7.19	-6.54	25.1	991.7	0	0
		Lower	2020-01-01 18:00:00	7.22	-6.69	25.1	998.5	0	0
Feb-2020	-6.5	Upper	2020-02-27 06:00:00	7.2	-6.47	25.1	992.8	0	0
		Lower	2020-02-01 18:00:00	7.2	-6.54	25.1	996.1	0	0
Mar-2020	-6.6	Upper	2020-03-01 06:00:00	7.2	-6.47	25.1	992.3	0	0
		Lower	2020-03-31 18:00:00	7.19	-6.67	25.1	988.3	0	0
Apr-2020	-6.8	Upper	2020-04-01 06:00:00	7.2	-6.65	25.2	987.7	0	0
		Lower	2020-04-26 18:00:00	7.19	-6.91	25.2	991.6	0	0
May-2020	-7.0	Upper	2020-05-01 06:00:00	7.19	-6.81	25.2	985	0	0
		Lower	2020-05-25 18:00:00	7.16	-7.25	25.1	980	0	0
Jun-2020	-7.2	Upper	2020-06-01 06:00:00	7.17	-7.14	25.1	984.9	0	0
		Lower	2020-06-09 18:00:00	7.13	-7.25	25.1	979.8	0	0
Jul-2020	-7.5	Upper	2020-07-12 06:00:00	7.12	-7.32	25.1	976.2	0	0
		Lower	2020-07-27 18:00:00	7.17	-7.67	25.1	977.2	0	0
Aug-2020	-7.3	Upper	2020-08-30 18:00:00	7.29	-7.05	25.1	979.4	0	0
		Lower	2020-07-31 06:00:00	7.29	-7.58	25.1	980.6	0	0
Sep-2020	-7.0	Upper	2020-09-29 18:00:00	7.29	-6.91	25.1	981	0	0
		Lower	2020-09-08 18:00:00	7.27	-7.1	25.1	980.8	0	0

Oct-2020	-7.0	Upper	2020-10-03 06:00:00	7.31	-6.92	25.1	983.4	0	0
		Lower	2020-10-31 18:00:00	7.3	-7.17	25.1	988.1	0	0
Nov-2020	-7.2	Upper	2020-11-29 06:00:00	7.31	-7.13	25.2	994.8	0	0
		Lower	2020-11-08 18:00:00	7.32	-7.24	25.1	994.1	0	0
Dec-2020	-7.1	Upper	2020-12-16 06:00:00	7.3	-7	25.2	995.6	0	0
		Lower	2020-12-26 18:00:00	7.31	-7.25	25.2	991.9	0	0
Jan-2021	-7.1	Upper	2021-01-30 06:00:00	7.28	-7.08	25.2	992	0	0
		Lower	2021-01-01 18:00:00	7.32	-7.2	25.2	993.3	0	0
Feb-2021	-7.2	Upper	2021-02-01 06:00:00	7.3	-7.09	25.2	995.2	0	0
		Lower	2021-02-21 18:00:00	7.29	-7.37	25.2	991.3	0	0
Mar-2021	-7.3	Upper	2021-03-01 06:00:00	7.31	-7.27	25.2	987.8	0	0
		Lower	2021-03-28 18:00:00	7.28	-7.42	25.3	982.4	0	0
Apr-2021	-7.5	Upper	2021-04-06 18:00:00	7.27	-7.26	25.3	983	0	0
		Lower	2021-04-29 06:00:00	7.3	-7.77	25.3	983.9	0	0
May-2021	-7.8	Upper	2021-05-01 06:00:00	7.3	-7.71	25.3	985.4	0	0
		Lower	2021-05-18 18:00:00	7.31	-7.9	25.3	983.4	0	0
Jun-2021	-7.8	Upper	2021-06-28 06:00:00	7.3	-7.7	25.2	981.9	0	0
		Lower	2021-06-09 18:00:00	7.27	-7.93	25.2	974.4	0	0
Jul-2021	-7.8	Upper	2021-07-04 06:00:00	7.29	-7.6	25.2	978.7	0	0
		Lower	2021-07-18 18:00:00	7.3	-7.95	25.2	976.6	0	0
Aug-2021	-7.6	Upper	2021-08-11 06:00:00	7.31	-7.54	25.2	977.5	0	0
		Lower	2021-08-17 18:00:00	7.28	-7.7	25.2	978.6	0	0
Sep-2021	-7.5	Upper	2021-09-29 18:00:00	7.27	-7.36	25.2	984.1	0	0
		Lower	2021-09-01 18:00:00	7.28	-7.65	25.2	982.4	0	0
Oct-2021	-7.2	Upper	2021-10-30 06:00:00	7.33	-7.05	25.2	993	0	0
		Lower	2021-10-01 18:00:00	7.3	-7.38	25.2	984.3	0	0
Nov-2021	-6.9	Upper	2021-11-27 06:00:00	7.35	-6.76	25.2	992.2	0	0
		Lower	2021-11-02 18:00:00	7.31	-7.04	25.2	991.6	0	0
Dec-2021	-6.9	Upper	2021-12-03 18:00:00	7.34	-6.74	25.2	993.9	0	0
		Lower	2021-12-24 18:00:00	7.32	-7.08	25.3	990.5	0	0
Jan-2022	-6.9	Upper	2022-01-30 06:00:00	7.3	-6.75	25.3	987.4	0	0
		Lower	2022-01-04 18:00:00	7.33	-6.99	25.3	993.5	0	0
Feb-2022	-6.7	Upper	2022-02-20 06:00:00	7.32	-6.68	25.3	983.9	0	0
		Lower	2022-02-04 18:00:00	7.31	-6.74	25.3	987.5	0	0
Mar-2022	-6.8	Upper	2022-03-01 06:00:00	7.31	-6.68	25.3	991.7	0	0
		Lower	2022-03-30 18:00:00	7.29	-6.93	25.3	982.3	0	0
Apr-2022	-7.1	Upper	2022-04-01 06:00:00	7.33	-6.89	25.3	982.3	0	0

Apr-2022	-7.1	Lower	2022-04-29 18:00:00	7.28	-7.3	25.3	977.5	0	0
May-2022	-7.4	Upper	2022-05-01 06:00:00	7.31	-7.28	25.3	981.8	0	0
		Lower	2022-05-21 18:00:00	7.27	-7.51	25.3	971.4	0	0
Jun-2022	-7.6	Upper	2022-06-01 06:00:00	7.32	-7.45	25.3	977.4	0	0
		Lower	2022-06-28 18:00:00	7.29	-7.76	25.3	974.2	0	0
Jul-2022	-7.8	Upper	2022-07-02 06:00:00	7.31	-7.71	25.3	976.2	0	0
		Lower	2022-07-30 18:00:00	7.31	-7.92	25.3	979.3	0	0
Aug-2022	-7.8	Upper	2022-08-12 06:00:00	7.31	-7.69	25.3	977.7	0	0
		Lower	2022-08-02 18:00:00	7.29	-7.93	25.3	976.4	0	0
Sep-2022	-7.9	Upper	2022-09-29 06:00:00	7.28	-7.76	25.3	982.9	0	0
		Lower	2022-09-13 18:00:00	7.28	-7.96	25.3	979.8	0	0
Oct-2022	-7.4	Upper	2022-10-30 06:00:00	7.26	-7.13	25.3	990.5	0	0
		Lower	2022-10-02 18:00:00	7.27	-7.74	25.3	981	0	0
Nov-2022	-7.0	Upper	2022-11-26 06:00:00	7.23	-6.97	25.3	989.1	0	0
		Lower	2022-11-01 18:00:00	7.25	-7.12	25.3	990.5	0	0
Dec-2022	-7.1	Upper	2022-12-02 06:00:00	7.23	-6.96	25.3	990	0	0
		Lower	2022-12-24 18:00:00	7.21	-7.24	25.3	990.4	0	0
Jan-2023	-7.1	Upper	2023-01-16 06:00:00	7.2	-7.06	25.3	991.3	0	0
		Lower	2023-01-11 18:00:00	7.2	-7.16	25.3	990.8	0	0
Feb-2023	-7.2	Upper	2023-02-04 06:00:00	7.22	-7.07	25.3	988.7	0	0
		Lower	2023-02-25 18:00:00	7.23	-7.29	25.4	991.8	0	0
Mar-2023	-7.3	Upper	2023-03-29 06:00:00	7.23	-7.23	25.4	987	0	0
		Lower	2023-03-14 18:00:00	7.23	-7.34	25.4	984.7	0	0
Apr-2023	-7.4	Upper	2023-04-02 06:00:00	7.21	-7.22	25.4	985.2	0	0
		Lower	2023-04-22 18:00:00	7.24	-7.49	25.4	981.3	0	0
May-2023	-7.6	Upper	2023-05-06 18:00:00	7.23	-7.4	25.4	981.8	0	0
		Lower	2023-05-30 18:00:00	7.22	-7.71	25.3	983.2	0	0
Jun-2023	-7.8	Upper	2023-06-01 06:00:00	7.23	-7.7	25.4	983.6	0	0
		Lower	2023-06-23 18:00:00	7.23	-7.93	25.3	976.5	0	0
Jul-2023	-7.6	Upper	2023-07-29 18:00:00	7.22	-7.23	25.3	976.5	0	0
		Lower	2023-07-03 18:00:00	7.23	-7.91	25.3	976.1	0	0
Aug-2023	-6.6	Upper	2023-08-30 18:00:00	7.22	-5.89	25.3	981.4	0	0
		Lower	2023-08-01 18:00:00	7.23	-7.28	25.3	973.5	0	0
Sep-2023	-4.9	Upper	2023-09-29 18:00:00	7.21	-3.98	25.2	982.3	0	0
		Lower	2023-09-04 18:00:00	7.22	-5.89	25.2	978.6	0	0
Oct-2023	-4.0	Upper	2023-10-15 06:00:00	7.19	-3.92	25.2	986.7	0	0
		Lower	2023-10-30 18:00:00	7.21	-4.14	25.2	990.8	0	0

Nov-2023	-4.3	Upper	2023-11-01 06:00:00	7.17	-4.15	25.2	993.9	0	0
		Lower	2023-11-29 18:00:00	7.16	-4.39	25.2	991.7	0	0

Month	Hariyal Water Level (mWC)	Level	Date/Time	Battery Voltage (V)	Water Level (mWC)	Temperature	Barometric (degC)	Instant Rain (mm)	Daily Rain (mm)
Oct-2017	-6.1	Upper	2017-10-15 06:00:00	7.29	-6.01	24.3	983.6	0	0
		Lower	2017-10-05 15:41:15	6.9	-6.17	24.3	985.3	0	0
Nov-2017	-6.1	Upper	2017-11-13 06:00:00	7.32	-6.09	24.3	989.4	0	0
		Lower	2017-11-30 18:00:00	7.34	-6.19	24.3	991.7	0	0
Dec-2017	-6.3	Upper	2017-12-01 06:00:00	7.33	-6.19	24.4	992.3	0	0
		Lower	2017-12-31 18:00:00	7.34	-6.33	24.4	991.2	0	0
Jan-2018	-6.3	Upper	2018-01-04 18:00:00	7.34	-6.12	24.4	992	0	0
		Lower	2018-01-30 18:00:00	7.32	-6.44	24.5	988.3	0	0
Feb-2018	-6.4	Upper	2018-02-01 06:00:00	7.33	-6.3	24.5	991.4	0	0
		Lower	2018-02-28 18:00:00	7.3	-6.4	24.5	988.8	0	0
Mar-2018	-6.5	Upper	2018-03-01 06:00:00	7.33	-6.39	24.5	987.6	0	0
		Lower	2018-03-31 18:00:00	7.3	-6.55	24.5	985	0	0
Apr-2018	-6.7	Upper	2018-04-01 06:00:00	7.31	-6.55	24.6	986.8	0	0
		Lower	2018-04-08 18:00:00	7.3	-6.77	24.6	986.4	0	0
May-2018	-6.8	Upper	2018-05-10 06:00:00	7.3	-6.6	24.6	984.9	0	0
		Lower	2018-05-16 06:00:00	7.3	-6.96	24.6	983	0	0
Jun-2018	-7.0	Upper	2018-06-01 06:00:00	7.3	-6.93	24.6	981.7	0	0
		Lower	2018-06-30 18:00:00	7.3	-7.11	24.5	975.9	0	0
Jul-2018	-7.2	Upper	2018-07-01 06:00:00	7.3	-7.11	24.5	976.7	0	0
		Lower	2018-07-27 18:00:00	7.31	-7.3	24.5	974.6	0	0
Aug-2018	-6.6	Upper	2018-08-31 18:00:00	7.31	-6.03	24.5	979	0	0
		Lower	2018-08-01 06:00:00	7.32	-7.14	24.5	975.1	0	0
Sep-2018	-5.5	Upper	2018-09-30 18:00:00	7.31	-5.09	24.5	985.1	0	0
		Lower	2018-09-01 06:00:00	7.33	-6	24.5	980.8	0	0
Oct-2018	-5.0	Upper	2018-10-19 06:00:00	7.35	-4.98	24.5	988.5	0	0
		Lower	2018-10-02 06:00:00	7.34	-5.08	24.5	986.9	0	0
Nov-2018	-5.0	Upper	2018-11-01 06:00:00	7.34	-4.99	24.5	992.1	0	0
		Lower	2018-11-30 18:00:00	7.34	-5.08	24.5	993.4	0	0
Dec-2018	-5.2	Upper	2018-12-01 06:00:00	7.35	-5.07	24.5	991.6	0	0
		Lower	2018-12-31 18:00:00	7.35	-5.24	24.5	996	0	0
Jan-2019	-5.3	Upper	2019-01-01 06:00:00	7.35	-5.22	24.5	995.5	0	0
		Lower	2019-01-30 18:00:00	7.33	-5.3	24.6	995.2	0	0
Feb-2019	-5.3	Upper	2019-02-18 06:00:00	7.34	-5.25	24.6	987.2	0	0
		Lower	2019-02-10 18:00:00	7.33	-5.3	24.6	996	0	0
Mar-2019	-5.4	Upper	2019-03-05 06:00:00	7.33	-5.25	24.6	984.8	0	0

Mid-2019	-5.4	Lower	2019-03-31 18:00:00	7.29	-5.45	24.6	983.1	0	0
Apr-2019	-5.6	Upper	2019-04-01 06:00:00	7.33	-5.44	24.6	983.2	0	0
		Lower	2019-04-30 18:00:00	7.27	-5.7	24.6	977.8	0	0
May-2019	-5.9	Upper	2019-05-01 06:00:00	7.33	-5.7	24.7	978	0	0
		Lower	2019-05-31 18:00:00	7.28	-6.07	24.6	976	0	0
Jun-2019	-6.2	Upper	2019-06-01 06:00:00	7.32	-6.07	24.6	978.2	0	0
		Lower	2019-06-24 06:00:00	7.32	-6.28	24.6	980.4	0	0
Jul-2019	-6.1	Upper	2019-07-31 06:00:00	7.35	-5.91	24.3	977.9	0	0
		Lower	2019-07-11 18:00:00	7.35	-6.31	60.7	972.9	0	0
Aug-2019	-5.7	Upper	2019-08-26 18:00:00	7.32	-5.56	60.7	978.3	0	0
		Lower	2019-08-02 06:00:00	7.35	-5.9	24.3	975.8	0	0
Sep-2019	-5.5	Upper	2019-09-13 18:00:00	7.32	-5.41	60.6	979	0	0
		Lower	2019-09-01 06:00:00	7.34	-5.63	24.3	980.5	0	0
Oct-2019	-5.5	Upper	2019-10-01 06:00:00	7.33	-5.45	24.3	985.8	0	0
		Lower	2019-10-22 06:00:00	7.32	-5.59	24.3	986.2	0	0
Nov-2019	-5.6	Upper	2019-11-02 06:00:00	7.31	-5.56	24.3	988.8	0	0
		Lower	2019-11-29 18:00:00	7.32	-5.67	24.3	991.4	0	0
Dec-2019	-5.6	Upper	2019-12-30 06:00:00	7.27	-5.52	24.3	994.6	0	0
		Lower	2019-12-12 18:00:00	7.32	-5.7	24.3	989.1	0	0
Jan-2020	-5.4	Upper	2020-01-24 06:00:00	7.29	-5.34	24.3	990.2	0	0
		Lower	2020-01-02 06:00:00	7.28	-5.52	24.3	997.1	0	0
Feb-2020	-5.3	Upper	2020-02-28 06:00:00	7.31	-5.26	24.4	991	0	0
		Lower	2020-02-03 18:00:00	7.3	-5.31	24.3	992.9	0	0
Mar-2020	-5.3	Upper	2020-03-14 18:00:00	7.32	-5.24	60.9	988.8	0	0
		Lower	2020-03-31 18:00:00	7.32	-5.41	61	985.8	0	0
Apr-2020	-5.5	Upper	2020-04-02 06:00:00	7.33	-5.39	24.4	984.5	0	0
		Lower	2020-04-09 18:00:00	7.32	-5.64	61	985.8	0	0
May-2020	-5.8	Upper	2020-05-01 06:00:00	7.32	-5.62	24.4	984.4	0	0
		Lower	2020-05-31 18:00:00	7.33	-5.91	60.6	982.8	0	0
Jun-2020	-6.0	Upper	2020-06-01 06:00:00	7.33	-5.91	24.3	984.4	0	0
		Lower	2020-06-08 06:00:00	7.33	-6.06	24.3	979.3	0	0
Jul-2020	-6.0	Upper	2020-07-16 18:00:00	7.32	-5.97	24.3	974.5	0	0
		Lower	2020-07-29 18:00:00	7.33	-6.1	24.3	979.4	0	0
Aug-2020	-5.8	Upper	2020-08-30 18:00:00	7.31	-5.57	61	978.5	0	0
		Lower	2020-07-31 06:00:00	7.33	-6.09	24.4	979.8	0	0
Sep-2020	-5.4	Upper	2020-09-29 18:00:00	7.32	-5.31	24.3	980	0	0
		Lower	2020-08-31 06:00:00	7.31	-5.55	24.3	980.8	0	0

Oct-2020	-5.5	Upper	2020-10-03 18:00:00	7.31	-5.3	24.3	981	0	0
		Lower	2020-10-31 18:00:00	7.31	-5.62	24.3	987.4	0	0
Nov-2020	-5.6	Upper	2020-11-04 18:00:00	7.3	-5.5	24.2	987.1	0	0
		Lower	2020-11-04 06:00:00	7.27	-5.67	24.2	989	0	0
Dec-2020	-5.7	Upper	2020-12-01 06:00:00	7.27	-5.61	24.2	992.6	0	0
		Lower	2020-12-30 18:00:00	7.27	-5.71	24.2	994.1	0	0
Jan-2021	-5.7	Upper	2021-01-26 06:00:00	7.25	-5.64	24.2	993.4	0	0
		Lower	2021-01-03 18:00:00	7.27	-5.7	24.2	991	0	0
Feb-2021	-5.7	Upper	2021-02-01 06:00:00	7.25	-5.64	24.2	995.3	0	0
		Lower	2021-02-27 18:00:00	7.3	-5.8	60.4	982.4	0	0
Mar-2021	-5.9	Upper	2021-03-06 18:00:00	7.3	-5.78	60.4	984.7	0	0
		Lower	2021-03-11 06:00:00	7.29	-6.04	24.3	988.4	0	0
Apr-2021	-6.1	Upper	2021-04-01 06:00:00	7.29	-6	24.3	976.3	0	0
		Lower	2021-04-29 18:00:00	7.3	-6.22	60.4	981.3	0	0
May-2021	-6.3	Upper	2021-05-01 06:00:00	7.29	-6.23	24.3	985.2	0	0
		Lower	2021-05-21 18:00:00	7.29	-6.36	60.3	980.8	0	0
Jun-2021	-6.3	Upper	2021-06-28 18:00:00	7.3	-6.2	60.2	977.7	0	0
		Lower	2021-06-10 18:00:00	7.29	-6.38	60.3	974.8	0	0
Jul-2021	-6.3	Upper	2021-07-01 06:00:00	7.3	-6.2	60.2	972.1	0	0
		Lower	2021-07-19 06:00:00	7.29	-6.46	24.2	976.2	0	0
Aug-2021	-6.2	Upper	2021-08-25 18:00:00	7.29	-6.07	61.2	973.6	0	0
		Lower	2021-08-22 06:00:00	7.28	-6.27	61.1	983.2	0	0
Sep-2021	-6.0	Upper	2021-09-26 06:00:00	7.26	-5.86	61.2	982.5	0	0
		Lower	2021-09-04 18:00:00	7.28	-6.18	61.2	978	0	0
Oct-2021	-5.8	Upper	2021-10-30 18:00:00	7.27	-5.63	61.1	988.7	0	0
		Lower	2021-10-06 18:00:00	7.28	-5.88	61.2	981.6	0	0
Nov-2021	-5.6	Upper	2021-11-27 18:00:00	7.25	-5.5	24.2	991.8	0	0
		Lower	2021-11-01 06:00:00	7.24	-5.63	24.2	990.1	0	0
Dec-2021	-5.7	Upper	2021-12-01 06:00:00	7.22	-5.55	24.2	993.4	0	0
		Lower	2021-12-19 06:00:00	7.2	-5.8	24.2	994.5	0	0
Jan-2022	-5.6	Upper	2022-01-30 18:00:00	7.25	-5.42	24.2	985.7	0	0
		Lower	2022-01-04 18:00:00	7.24	-5.73	24.2	992.6	0	0
Feb-2022	-5.5	Upper	2022-02-14 06:00:00	7.31	-5.39	24.2	989.2	0	0
		Lower	2022-02-13 18:00:00	7.34	-5.58	24.2	988.8	0	0
Mar-2022	-5.6	Upper	2022-03-06 06:00:00	7.32	-5.4	24.3	988.7	0	0
		Lower	2022-03-30 06:00:00	7.34	-5.79	24.3	981.9	0	0
Apr-2022	-5.8	Upper	2022-04-01 18:00:00	7.33	-5.71	24.3	981	0	0

Apr-2022	-5.0	Lower	2022-04-24 06:00:00	7.35	-5.98	24.3	981.7	0	0
May-2022	-6.0	Upper	2022-05-01 06:00:00	7.34	-5.9	24.3	980.7	0	0
		Lower	2022-05-21 06:00:00	7.35	-6.13	24.3	975.1	0	0
Jun-2022	-6.2	Upper	2022-06-16 06:00:00	7.35	-6.03	24.3	975.6	0	0
		Lower	2022-06-25 18:00:00	7.34	-6.36	24.3	974.5	0	0
Jul-2022	-6.4	Upper	2022-07-01 06:00:00	7.36	-6.24	24.2	977.6	0	0
		Lower	2022-07-20 18:00:00	7.35	-6.55	24.2	976.4	0	0
Aug-2022	-6.5	Upper	2022-08-16 18:00:00	7.35	-6.35	61.1	979.1	0	0
		Lower	2022-08-03 18:00:00	7.35	-6.61	61.2	977.7	0	0
Sep-2022	-6.5	Upper	2022-09-29 18:00:00	7.34	-6.38	61.1	980.8	0	0
		Lower	2022-09-16 18:00:00	7.35	-6.57	24.1	975.1	0	0
Oct-2022	-6.0	Upper	2022-10-28 18:00:00	7.34	-5.62	24.9	988.8	0	0
		Lower	2022-10-01 06:00:00	7.35	-6.37	61.1	982.3	0	0
Nov-2022	-5.7	Upper	2022-11-08 18:00:00	7.34	-5.6	990.3	0	0	0
		Lower	2022-11-01 18:00:00	7.34	-5.83	990.2	0	0	0
Dec-2022	-5.7	Upper	2022-12-01 06:00:00	7.33	-5.68	24.2	990.8	0	0
		Lower	2022-12-14 06:00:00	7.33	-5.81	24.2	990.1	0	0
Jan-2023	-5.7	Upper	2023-01-12 06:00:00	7.3	-5.66	24.2	989.4	0	0
		Lower	2023-01-23 18:00:00	7.32	-5.72	24.2	989.2	0	0
Feb-2023	-5.7	Upper	2023-02-02 06:00:00	7.3	-5.67	24.2	990	0	0
		Lower	2023-02-26 18:00:00	7.33	-5.78	60.3	992.7	0	0
Mar-2023	-5.8	Upper	2023-03-01 06:00:00	7.32	-5.77	24.2	993.5	0	0
		Lower	2023-03-24 18:00:00	7.33	-5.85	24.2	984.9	0	0
Apr-2023	-5.9	Upper	2023-04-05 06:00:00	7.33	-5.81	24.2	985.4	0	0
		Lower	2023-04-29 18:00:00	7.33	-5.98	60.3	982.8	0	0
May-2023	-6.0	Upper	2023-05-06 18:00:00	7.33	-5.96	60.3	980.8	0	0
		Lower	2023-05-30 18:00:00	7.33	-6.08	60.3	982.6	0	0
Jun-2023	-6.2	Upper	2023-06-01 06:00:00	7.34	-6.08	24.2	983.7	0	0
		Lower	2023-06-29 18:00:00	7.34	-6.26	61.2	975.7	0	0
Jul-2023	-5.9	Upper	2023-07-30 18:00:00	7.33	-5.6	61.2	973.9	0	0
		Lower	2023-07-05 18:00:00	7.34	-6.27	61.2	975.7	0	0
Aug-2023	-5.1	Upper	2023-08-30 18:00:00	7.33	-4.66	61.2	980.8	0	0
		Lower	2023-08-02 06:00:00	7.34	-5.59	61.1	974.9	0	0
Sep-2023	-3.8	Upper	2023-09-29 18:00:00	7.33	-2.93	61.1	981.6	0	0
		Lower	2023-09-01 06:00:00	7.33	-4.62	61.2	982.4	0	0
Oct-2023	-2.9	Upper	2023-10-04 18:00:00	7.32	-2.76	61.1	982.4	0	0
		Lower	2023-10-24 18:00:00	7.32	-3	61.1	989.4	0	0

Nov-2023	-3.1	Upper	2023-11-01 06:00:00	7.3	-2.99	24.1	993.7	0	0
		Lower	2023-11-29 18:00:00	7.3	-3.21	24.1	991.1	0	0

Month	Hitachi Land Biocompost AReaWater Level (mWC)	Level	Date/Time	Battery Voltage (V)	Water Level (mWC)	Temperature	Barometric (degC)	Instant Rain (mm)	Daily Rain (mm)
May-2017	-5.8	Upper	2017-05-31 06:00:00	7.32	-5.79	25.2	977.9	0	0
		Lower	2017-05-24 18:00:00	7.28	-5.74	25.2	976.4	0	0
Jun-2017	-5.9	Upper	2017-06-01 18:00:00	7.31	-5.79	25.2	975.5	0	0
		Lower	2017-06-28 06:00:00	7.3	-5.93	25.3	977.1	0	0
Jul-2017	-5.9	Upper	2017-07-26 18:00:00	7.29	-5.85	25.4	975.4	0	0
		Lower	2017-07-01 06:00:00	7.29	-5.93	25.3	973.6	0	0
Aug-2017	-5.7	Upper	2017-08-31 18:00:00	7.29	-5.6	25.5	979.4	0	0
		Lower	2017-08-01 06:00:00	7.29	-5.84	25.4	978.2	0	0
Sep-2017	-5.5	Upper	2017-09-30 18:00:00	7.3	-5.37	25.7	982.2	0	0
		Lower	2017-09-01 06:00:00	7.28	-5.59	25.5	979.9	0	0
Oct-2017	-5.3	Upper	2017-10-22 06:00:00	7.3	-5.27	25.8	982.2	0	0
		Lower	2017-10-01 06:00:00	7.31	-5.37	25.7	984.8	0	0
Nov-2017	-5.3	Upper	2017-11-30 06:00:00	7.32	-5.31	26	991.4	0	0
		Lower	2017-11-05 18:00:00	7.32	-5.38	25.9	990.4	0	0
Dec-2017	-5.4	Upper	2017-12-01 06:00:00	7.32	-5.32	26	991.4	0	0
		Lower	2017-12-30 18:00:00	7.33	-5.47	26.1	991.4	0	0
Jan-2018	-5.4	Upper	2018-01-31 06:00:00	7.31	-5.4	26	986.5	0	0
		Lower	2018-01-21 18:00:00	7.31	-5.46	26	989.8	0	0
Feb-2018	-5.5	Upper	2018-02-03 06:00:00	7.31	-5.42	26	989.6	0	0
		Lower	2018-02-28 18:00:00	7.31	-5.52	25.8	987.2	0	0
Mar-2018	-5.6	Upper	2018-03-01 06:00:00	7.31	-5.51	25.8	986.6	0	0
		Lower	2018-03-31 06:00:00	7.29	-5.62	25.6	985.3	0	0
Apr-2018	-5.7	Upper	2018-04-01 06:00:00	7.31	-5.62	25.6	986.8	0	0
		Lower	2018-04-29 06:00:00	7.28	-5.74	25.4	981.1	0	0
May-2018	-5.8	Upper	2018-05-03 06:00:00	7.31	-5.74	25.4	982.8	0	0
		Lower	2018-05-31 06:00:00	7.29	-5.92	25.3	978.9	0	0
Jun-2018	-6.0	Upper	2018-06-03 18:00:00	7.3	-5.89	25.3	975	0	0
		Lower	2018-06-30 06:00:00	7.28	-6.05	25.3	978.4	0	0
Jul-2018	-6.1	Upper	2018-07-03 18:00:00	7.31	-6.04	25.3	972.1	0	0
		Lower	2018-07-24 18:00:00	7.29	-6.19	25.4	972.9	0	0
Aug-2018	-5.7	Upper	2018-08-31 18:00:00	7.31	-5.38	25.5	977.2	0	0
		Lower	2018-08-01 18:00:00	7.31	-6.09	25.4	974.2	0	0

Sep-2018	-5.1	Upper	2018-09-30 18:00:00	7.31	-4.81	25.6	983.5	0	0
		Lower	2018-09-01 06:00:00	7.31	-5.36	25.5	979	0	0
Oct-2018	-4.7	Upper	2018-10-30 06:00:00	7.32	-4.67	25.7	991.7	0	0
		Lower	2018-10-01 06:00:00	7.32	-4.8	25.6	984.1	0	0
Nov-2018	-4.7	Upper	2018-11-18 06:00:00	7.32	-4.67	25.8	989.2	0	0
		Lower	2018-11-07 18:00:00	7.33	-4.75	25.7	990.5	0	0
Dec-2018	-4.9	Upper		7.33	-4.82				
		Lower		7.32	-4.89				
Jan-2019	-5.0	Upper	2019-01-23 06:00:00	7.32	-5.01	25.7	991.4	0	0
		Lower	2019-01-31 18:00:00	7.32	-5.05	25.6	993	0	0
Feb-2019	-5.1	Upper	2019-02-24 06:00:00	7.31	-5.04	25.4	986	0	0
		Lower	2019-02-13 06:00:00	7.31	-5.07	25.5	996.3	0	0
Mar-2019	-5.1	Upper	2019-03-05 06:00:00	7.32	-5.04	25.4	983.9	0	0
		Lower	2019-03-20 18:00:00	7.28	-5.16	25.2	985.1	0	0
Apr-2019	-5.2	Upper	2019-04-01 06:00:00	7.33	-5.14	25.1	982.5	0	0
		Lower	2019-04-27 06:00:00	7.27	-5.32	24.9	981.3	0	0
May-2019	-5.5	Upper	2019-05-03 18:00:00	7.32	-5.3	24.9	980	0	0
		Lower	2019-05-31 18:00:00	7.27	-5.6	24.8	974.9	0	0
Jun-2019	-5.7	Upper	2019-06-01 18:00:00	7.32	-5.6	24.8	974.9	0	0
		Lower	2019-06-22 18:00:00	7.27	-5.74	24.8	975.8	0	0
Jul-2019	-5.6	Upper	2019-07-28 18:00:00	7.32	-5.44	24.9	975.1	0	0
		Lower	2019-07-10 18:00:00	7.29	-5.7	24.8	969.7	0	0
Aug-2019	-5.4	Upper	2019-08-31 06:00:00	7.33	-5.33	25	976.9	0	0
		Lower	2019-08-01 06:00:00	7.29	-5.51	24.9	976.9	0	0
Sep-2019	-5.2	Upper	2019-09-30 18:00:00	7.33	-5.06	25.2	984.3	0	0
		Lower	2019-09-01 06:00:00	7.33	-5.32	25	979.9	0	0
Oct-2019	-5.1	Upper	2019-10-11 06:00:00	7.34	-5.03	25.2	987.1	0	0
		Lower	2019-10-15 18:00:00	7.33	-5.12	25.2	989.3	0	0
Nov-2019	-4.8	Upper	2019-11-07 06:00:00	7.35	-4.42	25.4	986.3	0	0
		Lower	2019-11-02 06:00:00	7.32	-5.15	25.4	988.5	0	0
Dec-2019	-4.5	Upper	2019-12-31 18:00:00	7.34	-4.4	25.5	995	0	0
		Lower	2019-12-12 06:00:00	7.34	-4.57	25.5	989.6	0	0
Jan-2020	-4.4	Upper	2020-01-25 06:00:00	7.33	-4.32	25.5	992.5	0	0
		Lower	2020-01-01 18:00:00	7.34	-4.4	25.5	996.3	0	0
Feb-2020	-4.3	Upper	2020-02-01 06:00:00	7.32	-4.3	25.4	991.4	0	0
		Lower	2020-02-22 06:00:00	7.31	-4.36	25.2	996.3	0	0
Mar-2020	-4.2	Upper	2020-03-09 06:00:00	7.33	-4.31	25.1	987.2	0	0

Mid-2020	-4.3	Lower	2020-03-31 18:00:00	7.3	-4.37	24.8	985.5	0	0
Apr-2020	-4.4	Upper	2020-04-01 06:00:00	7.32	-4.35	24.8	985.1	0	0
		Lower	2020-04-07 18:00:00	7.3	-4.37	24.8	983	0	0
May-2020	-4.5	Upper	2020-05-07 06:00:00	7.33	-4.38	24.9	979.4	0	0
		Lower	2020-05-30 06:00:00	7.29	-4.65	24.9	976.8	0	0
Jun-2020	-4.7	Upper	2020-06-26 18:00:00	7.33	-4.71	24.4	973.1	0	0
		Lower	2020-06-24 18:00:00	7.3	-4.76	24.4	978.1	0	0
Jul-2020	-4.6	Upper	2020-07-14 06:00:00	7.33	-4.5	24.5	986.3	0	0
		Lower	2020-07-03 06:00:00	7.31	-4.75	24.4	988.5	0	0
Aug-2020	-4.4	Upper	2020-08-29 18:00:00	7.33	-4.2	24.6	976.5	0	0
		Lower	2020-08-09 06:00:00	7.3	-4.61	24.5	975.9	0	0
Sep-2020	-4.1	Upper	2020-09-28 18:00:00	7.33	-4.03	24.7	980.8	0	0
		Lower	2020-09-03 06:00:00	7.31	-4.18	24.6	985	0	0
Oct-2020	-4.1	Upper	2020-10-04 18:00:00	7.34	-4.03	24.7	980.9	0	0
		Lower	2020-10-31 18:00:00	7.32	-4.14	24.8	987.4	0	0
Nov-2020	-4.4	Upper	2020-11-01 06:00:00	7.32	-4.14	24.8	989.1	0	0
		Lower	2020-11-29 18:00:00	7.31	-4.62	25	991.9	0	0
Dec-2020	-4.7	Upper	2020-12-01 06:00:00	7.28	-4.64	24.2	992.6	0	0
		Lower	2020-12-30 18:00:00	7.31	-4.81	24.1	993.9	0	0
Jan-2021	-4.8	Upper	2021-01-19 06:00:00	7.29	-4.75	25.1	987.9	0	0
		Lower	2021-01-02 18:00:00	7.3	-4.81	25.1	991.3	0	0
Feb-2021	-4.8	Upper	2021-02-25 06:00:00	7.33	-4.73	24.8	984.9	0	0
		Lower	2021-02-20 18:00:00	7.32	-4.8	24.8	993.3	0	0
Mar-2021	-4.8	Upper	2021-03-01 06:00:00	7.34	-4.74	24.8	987.4	0	0
		Lower	2021-03-24 06:00:00	7.33	-4.79	24.6	990.3	0	0
Apr-2021	-4.9	Upper	2021-04-01 06:00:00	7.33	-4.78	24.6	976.1	0	0
		Lower	2021-04-29 06:00:00	7.3	-4.94	24.4	984	0	0
May-2021	-4.9	Upper	2021-05-14 18:00:00	7.31	-4.77	24.6	977.7	0	0
		Lower	2021-05-13 06:00:00	7.25	-5	24.3	982.1	0	0
Jun-2021	-4.7	Upper	2021-06-29 18:00:00	7.38	-4.51	24.3	972.9	0	0
		Lower	2021-06-17 06:00:00	7.29	-4.95	24.4	986	0	0
Jul-2021	-4.3	Upper	2021-07-30 18:00:00	7.39	-4.1	24.4	973.5	0	0
		Lower	2021-07-17 06:00:00	7.41	-4.58	24.4	980.2	0	0
Aug-2021	-4.0	Upper	2021-08-19 06:00:00	7.41	-3.88	24.5	978.6	0	0
		Lower	2021-08-01 06:00:00	7.41	-4.08	24.4	975	0	0
Sep-2021	-3.7	Upper	2021-09-26 18:00:00	7.4	-3.61	24.6	981.4	0	0
		Lower	2021-09-01 06:00:00	7.42	-3.87	24.5	984.7	0	0

Oct-2021	-3.5	Upper	2021-10-30 18:00:00	7.42	-3.4	24.7	989.4	0	0
		Lower	2021-10-02 18:00:00	7.4	-3.63	24.6	981.9	0	0
Nov-2021	-3.6	Upper	2021-11-20 06:00:00	7.44	-3.25	24.7	986.7	0	0
		Lower	2021-11-29 18:00:00	7.41	-3.92	24.8	991.2	0	0
Dec-2021	-3.9	Upper	2021-12-28 06:00:00	7.44	-3.9	24.8	993.3	0	0
		Lower	2021-12-12 18:00:00	7.43	-3.99	24.8	994.5	0	0
Jan-2022	-3.8	Upper	2022-01-30 06:00:00	7.43	-3.67	24.6	986.5	0	0
		Lower	2022-01-05 18:00:00	7.44	-3.91	24.7	993	0	0
Feb-2022	-3.6	Upper	2022-02-20 06:00:00	7.44	-3.59	24.4	983.1	0	0
		Lower	2022-02-02 18:00:00	7.43	-3.67	24.5	987.9	0	0
Mar-2022	-3.6	Upper	2022-03-24 06:00:00	7.42	-3.57	24.1	981.7	0	0
		Lower	2022-03-05 18:00:00	7.4	-3.63	24.2	987.5	0	0
Apr-2022	-3.5	Upper	2022-04-24 06:00:00	7.43	-3.43	23.7	981.2	0	0
		Lower	2022-04-01 06:00:00	7.42	-3.57	23.9	981.7	0	0
May-2022	-3.5	Upper	2022-05-27 18:00:00	7.38	-3.4	23.5	974	0	0
		Lower	2022-05-15 06:00:00	7.4	-3.51	23.6	976.7	0	0
Jun-2022	-3.5	Upper	2022-06-03 18:00:00	7.36	-3.41	23.5	973.4	0	0
		Lower	2022-06-29 18:00:00	7.4	-3.52	23.5	972.5	0	0
Jul-2022	-3.4	Upper	2022-07-17 06:00:00	7.4	-3.33	23.6	979.5	0	0
		Lower	2022-07-02 18:00:00	7.39	-3.53	23.5	973.2	0	0
Aug-2022	-3.2	Upper	2022-08-28 18:00:00	7.38	-3.1	23.7	977.8	0	0
		Lower	2022-08-04 06:00:00	7.42	-3.33	23.6	980.9	0	0
Sep-2022	-2.8	Upper	2022-09-29 18:00:00	7.4	-2.57	23.9	980.2	0	0
		Lower	2022-09-01 18:00:00	7.41	-3.11	23.8	980.2	0	0
Oct-2022	-2.1	Upper	2022-10-30 06:00:00	7.44	-1.7	23.8	990.3	0	0
		Lower	2022-10-01 06:00:00	7.42	-2.55	23.8	981.9	0	0
Nov-2022	-2.2	Upper	2022-11-28 06:00:00	7.44	-1.81	23.9	987.5	0	0
		Lower	2022-11-01 06:00:00	7.44	-2.66	23.8	990.1	0	0
Dec-2022	-2.5	Upper	2022-12-01 06:00:00	7.44	-1.45	24	990.3	0	0
		Lower	2022-12-17 18:00:00	7.44	-3.57	24	990.9	0	0
Jan-2023	-3.4	Upper	2023-01-29 06:00:00	7.44	-3.37	23.7	989.7	0	0
		Lower	2023-01-03 06:00:00	7.44	-3.47	23.9	997.1	0	0
Feb-2023	-3.3	Upper	2023-02-09 06:00:00	7.44	-3.29	23.6	987.3	0	0
		Lower	2023-02-02 18:00:00	7.43	-3.35	23.7	991	0	0
Mar-2023	-3.2	Upper	2023-03-28 06:00:00	7.44	-3.13	23.3	984.2	0	0
		Lower	2023-03-01 18:00:00	7.4	-3.32	23.5	993	0	0
Apr-2023	-3.2	Upper	2023-04-03 06:00:00	7.42	-3.11	23.2	982.1	0	0

Apr-2023	-3.4	Lower	2023-04-29 18:00:00	7.4	-3.22	23	982.1	0	0
May-2023	-3.2	Upper	2023-05-07 18:00:00	7.39	-3.13	23	980.4	0	0
		Lower	2023-05-25 18:00:00	7.39	-3.26	22.9	980.6	0	0
Jun-2023	-3.3	Upper	2023-06-01 06:00:00	7.43	-3.21	22.9	983.3	0	0
		Lower	2023-06-24 06:00:00	7.4	-3.34	22.9	977.1	0	0
Jul-2023	-2.7	Upper	2023-07-19 06:00:00	7.41	-2.1	23.2	977.9	0	0
		Lower	2023-07-04 18:00:00	7.39	-3.31	22.9	974.8	0	0
Aug-2023	-2.0	Upper	2023-08-30 18:00:00	7.39	-1.79	23.2	980	0	0
		Lower	2023-08-02 18:00:00	7.4	-2.23	23.2	974.2	0	0
Sep-2023	-1.5	Upper	2023-09-28 18:00:00	7.4	-0.48	25.1	981.1	0	0
		Lower	2023-09-09 11:37:00	7.26	-2.52	23	982.5	0	0
Oct-2023	-0.7	Upper	2023-10-01 06:00:00	7.42	-0.48	25	983.1	0	0
		Lower	2023-10-30 18:00:00	7.41	-0.95	24	990.2	0	0
Nov-2023	-1.1	Upper	2023-11-01 06:00:00	7.44	-0.97	24	993.5	0	0
		Lower	2023-11-29 18:00:00	7.42	-1.3	23.7	991	0	0

Month	Milak Chikna Water Level (mWC)	Level	Date/Time	Battery Voltage (V)	Water Level (mWC)	Temperature	Barometric (degC)	Instant Rain (mm)	Daily Rain (mm)
Jun-2019	-4.0	Upper	2019-06-30 06:00:00	7.29	-3.83	24.7	973.2	0	0
		Lower	2019-06-26 12:19:59	7.18	-4.23	24.9	978.6	0	0
Jul-2019	-3.7	Upper	2019-07-31 06:00:00	7.31	-3.45	24.7	974.8	0	0
		Lower	2019-07-07 06:00:00	7.31	-4.02	24.7	972.1	0	0
Aug-2019	-3.2	Upper	2019-08-27 06:00:00	7.32	-3.01	24.7	976.4	0	0
		Lower	2019-08-01 18:00:00	7.3	-3.46	24.7	972	0	0
Sep-2019	-3.0	Upper	2019-09-30 18:00:00	7.31	-2.76	24.6	981.3	0	0
		Lower	2019-09-06 18:00:00	7.3	-3.23	24.6	972.8	0	0
Oct-2019	-2.9	Upper	2019-10-20 06:00:00	7.33	-2.73	24.6	987.7	0	0
		Lower	2019-10-29 18:00:00	7.33	-3.16	24.6	986.4	0	0
Nov-2019	-3.3	Upper	2019-11-01 06:00:00	7.34	-3	24.6	985.6	0	0
		Lower	2019-11-06 18:00:00	7.33	-3.68	24.6	981.8	0	0
Dec-2019	-3.6	Upper	2019-12-31 18:00:00	7.35	-3.39	24.6	991.2	0	0
		Lower	2019-12-11 18:00:00	7.34	-3.75	24.6	986.1	0	0
Jan-2020	-3.3	Upper	2020-01-27 06:00:00	7.34	-3.14	24.6	985	0	0
		Lower	2020-01-01 06:00:00	7.34	-3.38	24.6	992.8	0	0
Feb-2020	-3.1	Upper	2020-02-19 18:00:00	7.32	-3.1	24.6	987.4	0	0
		Lower	2020-02-29 06:00:00	7.34	-3.01	24.6	985.3	0	0
Mar-2020	-3.1	Upper	2020-03-09 06:00:00	7.33	-2.99	24.6	983.9	0	0
		Lower	2020-03-31 18:00:00	7.31	-3.25	24.6	982.5	0	0
Apr-2020	-3.4	Upper	2020-04-01 06:00:00	7.33	-3.24	24.6	982	0	0
		Lower	2020-04-30 06:00:00	7.32	-3.63	24.6	983.3	0	0
May-2020	-3.9	Upper	2020-05-01 06:00:00	7.32	-3.62	24.6	980.8	0	0
		Lower	2020-05-25 18:00:00	7.28	-4.09	24.6	973.5	0	0
Jun-2020	-4.1	Upper	2020-06-01 06:00:00	7.31	-4.02	24.6	980.9	0	0
		Lower	2020-06-11 18:00:00	7.29	-4.22	24.6	971.3	0	0
Jul-2020	-4.3	Upper	2020-07-14 06:00:00	7.32	-4.14	24.6	987.7	0	0
		Lower	2020-07-02 18:00:00	7.29	-4.47	24.6	986.4	0	0
Aug-2020	-3.3	Upper	2020-08-30 18:00:00	7.31	-2.52	24.5	976.2	0	0
		Lower	2020-07-31 06:00:00	7.32	-4.13	24.6	976.4	0	0
Sep-2020	-2.6	Upper	2020-09-01 18:00:00	7.3	-2.46	24.6	979	0	0
		Lower	2020-09-11 18:00:00	7.3	-2.78	24.5	975.8	0	0
Oct-2020	-2.2	Upper	2020-10-01 06:00:00	7.33	-2.7	24.5	978.1	0	0

Oct-2020	-3.4	Lower	2020-10-31 18:00:00	7.31	-3.66	24.5	984.8	0	0
Nov-2020	-3.6	Upper	2020-11-20 06:00:00	7.31	-3.47	24.5	987.2	0	0
		Lower	2020-11-29 06:00:00	7.29	-3.66	24.5	991.3	0	0
Dec-2020	-3.7	Upper	2020-12-01 06:00:00	7.3	-3.56	24.5	989.7	0	0
		Lower	2020-12-26 18:00:00	7.3	-3.78	24.5	988.3	0	0
Jan-2021	-3.7	Upper	2021-01-29 06:00:00	7.27	-3.58	24.5	990.6	0	0
		Lower	2021-01-02 18:00:00	7.29	-3.75	24.5	988.2	0	0
Feb-2021	-3.8	Upper	2021-02-03 06:00:00	7.28	-3.57	24.5	990.1	0	0
		Lower	2021-02-27 18:00:00	7.28	-3.93	24.5	980.2	0	0
Mar-2021	-3.9	Upper	2021-03-01 06:00:00	7.3	-3.88	24.5	984.7	0	0
		Lower	2021-03-28 18:00:00	7.28	-4	24.5	978.9	0	0
Apr-2021	-4.1	Upper	2021-04-01 06:00:00	7.31	-3.99	24.5	973.4	0	0
		Lower	2021-04-29 18:00:00	7.27	-4.26	24.5	979	0	0
May-2021	-4.3	Upper	2021-05-30 06:00:00	7.3	-4.2	24.5	979.5	0	0
		Lower	2021-05-15 18:00:00	7.27	-4.46	24.5	977.7	0	0
Jun-2021	-4.2	Upper	2021-06-26 06:00:00	7.3	-3.9	24.5	975.5	0	0
		Lower	2021-06-08 18:00:00	7.27	-4.41	24.5	970.2	0	0
Jul-2021	-4.0	Upper	2021-07-30 18:00:00	7.28	-3.54	24.5	971.2	0	0
		Lower	2021-07-14 18:00:00	7.29	-4.51	24.5	975	0	0
Aug-2021	-3.6	Upper	2021-08-14 06:00:00	7.29	-3.33	24.5	972.9	0	0
		Lower	2021-08-27 18:00:00	7.29	-3.8	24.5	975.6	0	0
Sep-2021	-3.2	Upper	2021-09-16 06:00:00	7.29	-3.02	24.5	977.5	0	0
		Lower	2021-09-01 06:00:00	7.29	-3.45	24.5	982.3	0	0
Oct-2021	-2.8	Upper	2021-10-30 18:00:00	7.27	-2.47	24.5	986.9	0	0
		Lower	2021-10-01 18:00:00	7.28	-3.09	24.5	980.6	0	0
Nov-2021	-2.6	Upper	2021-11-06 18:00:00	7.27	-2.42	24.5	983.4	0	0
		Lower	2021-11-29 18:00:00	7.25	-2.85	24.5	988.6	0	0
Dec-2021	-3.2	Upper	2021-12-01 06:00:00	7.23	-2.87	24.5	990.3	0	0
		Lower	2021-12-26 18:00:00	7.23	-3.44	24.5	992	0	0
Jan-2022	-3.2	Upper	2022-01-30 06:00:00	7.15	-3.01	24.5	983.9	0	0
		Lower	2022-01-02 18:00:00	7.24	-3.4	24.5	991	0	0
Feb-2022	-3.0	Upper	2022-02-20 06:00:00	7.17	-2.93	24.5	980.6	0	0
		Lower	2022-02-26 06:00:00	7.18	-3.05	24.5	993	0	0
Mar-2022	-3.3	Upper	2022-03-01 06:00:00	7.18	-3.02	24.5	988.2	0	0
		Lower	2022-03-29 18:00:00	7.29	-3.53	24.5	977.4	0	0
Apr-2022	-3.7	Upper	2022-04-01 06:00:00	7.31	-3.49	24.5	979.2	0	0
		Lower	2022-04-29 18:00:00	7.29	-3.98	24.5	973.7	0	0

May-2022	-4.1	Upper	2022-05-01 06:00:00	7.32	-3.98	24.5	977.8	0	0
		Lower	2022-05-30 18:00:00	7.29	-4.29	24.5	972.6	0	0
Jun-2022	-4.5	Upper	2022-06-01 06:00:00	7.31	-4.29	24.5	974.2	0	0
		Lower	2022-06-29 18:00:00	7.31	-4.73	24.5	970.3	0	0
Jul-2022	-4.9	Upper	2022-07-01 06:00:00	7.32	-4.61	24.5	974.4	0	0
		Lower	2022-07-24 18:00:00	7.31	-5.25	24.5	975.1	0	0
Aug-2022	-5.0	Upper	2022-08-12 06:00:00	7.32	-4.82	24.5	974.7	0	0
		Lower	2022-08-01 06:00:00	7.32	-5.12	24.5	975.3	0	0
Sep-2022	-4.9	Upper	2022-09-29 18:00:00	7.31	-4.75	24.5	977.8	0	0
		Lower	2022-09-09 18:00:00	7.31	-5.14	24.5	979.4	0	0
Oct-2022	-4.1	Upper	2022-10-30 06:00:00	7.34	-3.51	24.5	987.6	0	0
		Lower	2022-10-01 06:00:00	7.32	-4.71	24.5	979.3	0	0
Nov-2022	-3.4	Upper	2022-11-17 06:00:00	7.34	-3.37	24.5	986	0	0
		Lower	2022-11-02 18:00:00	7.33	-3.48	24.5	983.6	0	0
Dec-2022	-3.7	Upper	2022-12-01 06:00:00	7.34	-3.47	24.5	987.8	0	0
		Lower	2022-12-18 18:00:00	7.33	-3.89	24.5	987.2	0	0
Jan-2023	-3.8	Upper	2023-01-12 06:00:00	7.31	-3.75	24.5	986.2	0	0
		Lower	2023-01-24 06:00:00	7.29	-3.86	24.5	988.6	0	0
Feb-2023	-3.9	Upper	2023-02-05 06:00:00	7.31	-3.77	24.5	983.9	0	0
		Lower	2023-02-27 18:00:00	7.3	-4.07	24.5	989.1	0	0
Mar-2023	-4.1	Upper	2023-03-28 06:00:00	7.33	-3.96	24.5	981.6	0	0
		Lower	2023-03-19 18:00:00	7.31	-4.21	24.5	980.4	0	0
Apr-2023	-4.1	Upper	2023-04-01 06:00:00	7.33	-3.95	24.5	983.1	0	0
		Lower	2023-04-29 18:00:00	7.31	-4.27	24.5	979.7	0	0
May-2023	-4.3	Upper	2023-05-05 06:00:00	7.33	-4.21	24.5	982.6	0	0
		Lower	2023-05-30 18:00:00	7.29	-4.43	24.5	979.6	0	0
Jun-2023	-4.6	Upper	2023-06-01 06:00:00	7.33	-4.43	24.5	980.3	0	0
		Lower	2023-06-29 18:00:00	7.31	-4.78	24.5	972.6	0	0
Jul-2023	-4.3	Upper	2023-07-20 06:00:00	7.32	-3.68	24.5	974.8	0	0
		Lower	2023-07-06 06:00:00	7.33	-4.87	24.5	975	0	0
Aug-2023	-2.9	Upper	2023-08-27 06:00:00	7.32	-1.86	24.5	974.5	0	0
		Lower	2023-08-01 18:00:00	7.3	-3.93	24.5	969.9	0	0
Sep-2023	-2.6	Upper	2023-09-07 06:00:00	7.32	-1.76	24.5	979.3	0	0
		Lower	2023-09-09 10:56:00	7.21	-3.37	24.5	980	0	0
Oct-2023	-3.3	Upper	2023-10-01 06:00:00	7.33	-2.95	24.5	980.8	0	0
		Lower	2023-10-30 18:00:00	7.31	-3.59	24.5	987.7	0	0
Nov-2023	-3.8	Upper	2023-11-03 06:00:00	7.33	-3.59	24.5	986.2	0	0

NOV-2023	-3.0	Lower	2023-11-29 18:00:00	7.32	-3.95	24.5	988.3	0	0
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Month	Madhaiyan Ballu Water Level (mWC)	Level	Date/Time	Battery Voltage (V)	Water Level (mWC)	Temperature	Barometric (degC)	Instant Rain (mm)	Daily Rain (mm)
Oct-2017	-4.7	Upper	2017-10-11 06:00:00	7.31	-4.54	24.3	985.5	0	0
		Lower	2017-10-29 18:00:00	7.32	-4.88	24.4	992.7	0	0
Nov-2017	-4.7	Upper	2017-11-12 06:00:00	7.33	-4.4	24.5	990	0	0
		Lower	2017-11-29 18:00:00	7.33	-4.95	24.5	992.7	0	0
Dec-2017	-5.2	Upper	2017-12-01 06:00:00	7.34	-4.8	24.5	991.8	0	0
		Lower	2017-12-14 18:00:00	7.34	-5.53	24.6	995.3	0	0
Jan-2018	-5.0	Upper	2018-01-13 06:00:00	7.34	-4.78	24.7	992.2	0	0
		Lower	2018-01-23 18:00:00	7.34	-5.24	24.7	988.7	0	0
Feb-2018	-5.1	Upper	2018-02-12 06:00:00	7.34	-4.81	24.7	993.3	0	0
		Lower	2018-02-11 18:00:00	7.32	-5.4	24.7	993	0	0
Mar-2018	-5.2	Upper	2018-03-10 18:00:00	7.3	-4.83	24.5	988.7	0	0
		Lower	2018-03-27 18:00:00	7.3	-5.53	24.4	985.4	0	0
Apr-2018	-5.3	Upper	2018-04-11 06:00:00	7.32	-5.05	24.3	985.7	0	0
		Lower	2018-04-25 18:00:00	7.29	-5.5	24.3	981.2	0	0
May-2018	-5.6	Upper	2018-05-05 06:00:00	7.32	-5.26	24.2	983.9	0	0
		Lower	2018-05-29 18:00:00	7.28	-5.93	24.2	977.4	0	0
Jun-2018	-5.8	Upper	2018-06-11 06:00:00	7.31	-5.49	24.1	973.3	0	0
		Lower	2018-06-29 18:00:00	7.29	-6.07	24.1	978.7	0	0
Jul-2018	-6.1	Upper	2018-07-03 06:00:00	7.3	-5.72	24.1	974.5	0	0
		Lower	2018-07-22 18:00:00	7.31	-6.45	24.1	978	0	0
Aug-2018	-4.8	Upper	2018-08-31 06:00:00	7.31	-3.71	24.2	979	0	0
		Lower	2018-08-01 18:00:00	7.31	-5.84	24.1	977.3	0	0
Sep-2018	-3.1	Upper	2018-09-27 06:00:00	7.33	-2.55	24.2	986.1	0	0
		Lower	2018-09-01 18:00:00	7.31	-3.65	24.2	981.8	0	0
Oct-2018	-2.9	Upper	2018-10-01 06:00:00	7.33	-2.61	24.2	985.6	0	0
		Lower	2018-10-31 18:00:00	7.29	-3.16	24.3	995	0	0
Nov-2018	-3.3	Upper	2018-11-01 06:00:00	7.34	-3.08	24.3	992.3	0	0
		Lower	2018-11-30 18:00:00	7.31	-3.53	24.4	997	0	0
Dec-2018	-4.0	Upper	2018-12-01 06:00:00	7.35	-3.45	24.4	993.6	0	0
		Lower	2018-12-17 18:00:00	7.34	-4.55	24.5	998.2	0	0
Jan-2019	-4.1	Upper	2019-01-09 06:00:00	7.35	-3.76	24.5	992.4	0	0
		Lower	2019-01-20 18:00:00	7.32	-4.4	24.5	996.3	0	0
Feb-2019	-3.8	Upper	2019-02-22 06:00:00	7.33	-3.67	24.2	993.7	0	0

Feb-2019	-3.0	Lower	2019-02-18 18:00:00	7.32	-3.91	24.2	989.5	0	0
Mar-2019	-4.0	Upper	2019-03-04 06:00:00	7.34	-3.68	24.1	989.3	0	0
		Lower	2019-03-30 18:00:00	7.29	-4.33	24	989	0	0
Apr-2019	-4.5	Upper	2019-04-01 06:00:00	7.33	-4.12	24	985.2	0	0
		Lower	2019-04-14 18:00:00	7.3	-4.92	23.9	988	0	0
May-2019	-4.9	Upper	2019-05-02 06:00:00	7.31	-4.47	23.9	980	0	0
		Lower	2019-05-29 18:00:00	7.31	-5.23	23.8	981	0	0
Jun-2019	-5.2	Upper	2019-06-28 06:00:00	7.32	-4.8	23.8	974.8	0	0
		Lower	2019-06-21 18:00:00	7.32	-5.51	23.8	982.6	0	0
Jul-2019	-4.8	Upper	2019-07-28 18:00:00	7.32	-4.26	23.9	980.4	0	0
		Lower	2019-07-11 18:00:00	7.32	-5.4	23.9	976	0	0
Aug-2019	-4.3	Upper	2019-08-21 18:00:00	7.33	-3.89	24	981.7	0	0
		Lower	2019-08-06 06:00:00	7.31	-4.77	23.9	974.7	0	0
Sep-2019	-3.9	Upper	2019-09-11 06:00:00	7.31	-3.62	24	979.4	0	0
		Lower	2019-09-01 06:00:00	7.32	-4.26	24	978.7	0	0
Oct-2019	-3.9	Upper	2019-10-02 06:00:00	7.33	-3.66	24.1	986.7	0	0
		Lower	2019-10-28 18:00:00	7.34	-4.18	24.1	992.2	0	0
Nov-2019	-4.1	Upper	2019-11-30 06:00:00	7.25	-3.89	24.3	993.8	0	0
		Lower	2019-11-05 06:00:00	7.34	-4.4	24.2	990.6	0	0
Dec-2019	-4.1	Upper	2019-12-30 06:00:00	7.25	-3.65	24.4	996.1	0	0
		Lower	2019-12-08 18:00:00	7.29	-4.49	24.4	994.3	0	0
Jan-2020	-3.5	Upper	2020-01-26 06:00:00	7.26	-3.37	24.5	991.7	0	0
		Lower	2020-01-04 06:00:00	7.26	-3.66	24.5	995.3	0	0
Feb-2020	-3.3	Upper	2020-02-10 06:00:00	7.25	-3.19	24.3	995.4	0	0
		Lower	2020-02-17 18:00:00	7.29	-3.42	24.3	993.1	0	0
Mar-2020	-3.5	Upper	2020-03-09 06:00:00	7.27	-3.18	24.1	988.9	0	0
		Lower	2020-03-30 18:00:00	7.29	-3.82	24	988.4	0	0
Apr-2020	-3.9	Upper	2020-04-02 06:00:00	7.28	-3.63	24	986.3	0	0
		Lower	2020-04-22 18:00:00	7.29	-4.23	23.9	985	0	0
May-2020	-4.4	Upper	2020-05-01 06:00:00	7.28	-3.92	23.9	986.2	0	0
		Lower	2020-05-21 18:00:00	7.3	-4.85	23.9	976.7	0	0
Jun-2020	-4.5	Upper	2020-06-15 06:00:00	7.29	-4.31	23.9	979.9	0	0
		Lower	2020-06-02 18:00:00	7.29	-4.68	23.9	981.8	0	0
Jul-2020	-5.2	Upper	2020-07-12 06:00:00	7.28	-4.43	23.9	974.8	0	0
		Lower	2020-07-01 06:00:00	7.29	-5.96	23.9	976.7	0	0
Aug-2020	-3.5	Upper	2020-08-09 06:00:00	7.29	-1.76	24	978.2	0	0
		Lower	2020-08-08 18:00:00	7.28	-5.15	23.9	975.4	0	0

Sep-2020	-3.4	Upper	2020-09-01 06:00:00	7.29	-3.02	24	983.5	0	0
		Lower	2020-09-11 18:00:00	7.29	-3.78	24	980.7	0	0
Oct-2020	-4.1	Upper	2020-10-01 06:00:00	7.29	-3.59	24.1	982.7	0	0
		Lower	2020-10-26 18:00:00	7.29	-4.68	24.1	988.4	0	0
Nov-2020	-4.6	Upper	2020-11-18 06:00:00	7.28	-4.33	24.2	990.5	0	0
		Lower	2020-11-29 18:00:00	7.3	-4.83	24.3	993.7	0	0
Dec-2020	-4.8	Upper	2020-12-01 06:00:00	7.28	-4.56	24.3	994.1	0	0
		Lower	2020-12-06 18:00:00	7.29	-5.06	24.3	992.1	0	0
Jan-2021	-4.6	Upper	2021-01-29 06:00:00	7.26	-4.47	24.5	995.3	0	0
		Lower	2021-01-02 18:00:00	7.29	-4.72	24.5	992.7	0	0
Feb-2021	-4.8	Upper	2021-02-02 06:00:00	7.26	-4.48	24.5	995.1	0	0
		Lower	2021-02-19 18:00:00	7.29	-5.12	24.4	995.6	0	0
Mar-2021	-5.1	Upper	2021-03-03 06:00:00	7.27	-4.86	24.4	989.2	0	0
		Lower	2021-03-21 18:00:00	7.29	-5.37	24.2	985.3	0	0
Apr-2021	-5.3	Upper	2021-04-02 06:00:00	7.29	-5.06	24.2	982.1	0	0
		Lower	2021-04-18 18:00:00	7.29	-5.63	24.1	986.4	0	0
May-2021	-5.4	Upper	2021-05-30 06:00:00	7.3	-5.16	24	984.2	0	0
		Lower	2021-05-16 18:00:00	7.29	-5.67	24	981.7	0	0
Jun-2021	-5.0	Upper	2021-06-24 06:00:00	7.3	-4.62	24	981.6	0	0
		Lower	2021-06-09 18:00:00	7.29	-5.43	24	975.1	0	0
Jul-2021	-4.9	Upper	2021-07-30 18:00:00	7.29	-3.83	24	976.1	0	0
		Lower	2021-07-16 18:00:00	7.29	-5.98	24	982	0	0
Aug-2021	-4.3	Upper	2021-08-11 06:00:00	7.29	-3.77	24	979.8	0	0
		Lower	2021-08-26 18:00:00	7.29	-4.91	24.1	976.7	0	0
Sep-2021	-4.1	Upper	2021-09-04 18:00:00	7.29	-3.9	24.1	980.1	0	0
		Lower	2021-09-01 06:00:00	7.29	-4.27	24.1	987.2	0	0
Oct-2021	-3.9	Upper	2021-10-30 18:00:00	7.29	-3.63	24.3	991.7	0	0
		Lower	2021-10-15 06:00:00	7.29	-4.19	24.2	983.7	0	0
Nov-2021	-3.7	Upper	2021-11-04 18:00:00	7.29	-3.31	23.4	990.7	0	0
		Lower	2021-11-28 18:00:00	7.26	-3.99	24.7	992.6	0	0
Dec-2021	-3.6	Upper	2021-12-31 06:00:00	7.2	-3.18	24.7	992.2	0	0
		Lower	2021-12-29 06:00:00	7.2	-4	24.7	991.4	0	0
Jan-2022	-3.6	Upper	2022-01-07 06:00:00	7.2	-3.12	24.7	996.4	0	0
		Lower	2022-01-09 18:00:00	7.2	-4	24.7	995.2	0	0
Feb-2022	-4.3	Upper	2022-02-02 18:00:00	7.2	-3.9	24.7	999.8	0	0
		Lower	2022-02-25 18:00:00	7.28	-4.61	24.6	993.1	0	0
Mar-2022	-4.4	Upper	2022-03-08 06:00:00	7.27	-4.06	24.5	991.3	0	0

Mid-2022	-4.4	Lower	2022-03-05 18:00:00	7.27	-4.74	24.5	989.7	0	0
Apr-2022	-4.8	Upper	2022-04-01 06:00:00	7.32	-4.43	24.4	983.5	0	0
		Lower	2022-04-25 18:00:00	7.3	-5.24	24.3	980.1	0	0
May-2022	-5.2	Upper	2022-05-26 06:00:00	7.32	-4.91	24.2	982.5	0	0
		Lower	2022-05-19 18:00:00	7.3	-5.43	24.2	977.3	0	0
Jun-2022	-5.4	Upper	2022-06-01 06:00:00	7.32	-5.08	24.2	978.2	0	0
		Lower	2022-06-23 18:00:00	7.3	-5.64	24.2	978.7	0	0
Jul-2022	-6.0	Upper	2022-07-03 06:00:00	7.32	-5.42	24.2	977.9	0	0
		Lower	2022-07-25 18:00:00	7.31	-6.59	24.2	981.2	0	0
Aug-2022	-6.1	Upper	2022-08-01 06:00:00	7.33	-5.91	24.2	979.2	0	0
		Lower	2022-08-30 18:00:00	7.31	-6.25	24.3	984	0	0
Sep-2022	-5.9	Upper	2022-09-29 06:00:00	7.33	-5.37	24.5	984.3	0	0
		Lower	2022-09-07 18:00:00	7.31	-6.38	24.4	984.2	0	0
Oct-2022	-4.7	Upper	2022-10-15 18:00:00	7.33	-4.09	24.6	988.3	0	0
		Lower	2022-10-02 06:00:00	7.34	-5.38	24.5	983.5	0	0
Nov-2022	-4.3	Upper	2022-11-13 06:00:00	7.34	-4.1	24.8	990.7	0	0
		Lower	2022-11-29 18:00:00	7.34	-4.58	25	991.5	0	0
Dec-2022	-5.1	Upper	2022-12-01 06:00:00	7.34	-4.4	24.9	991.5	0	0
		Lower	2022-12-14 13:59:10	7.18	-5.79	24.9	991.8	0	0
Jan-2023	-5.1	Upper	2023-01-10 18:00:00	7.33	-4.88	24.8	994.3	0	0
		Lower	2023-01-23 18:00:00	7.33	-5.25	24.8	990.2	0	0
Feb-2023	-5.2	Upper	2023-02-03 18:00:00	7.33	-4.83	24.8	991.5	0	0
		Lower	2023-02-19 18:00:00	7.32	-5.52	24.9	990.6	0	0
Mar-2023	-5.3	Upper	2023-03-28 06:00:00	7.34	-5.1	24.8	985.9	0	0
		Lower	2023-03-08 18:00:00	7.33	-5.46	24.9	993.1	0	0
Apr-2023	-5.4	Upper	2023-04-01 06:00:00	7.33	-5.09	24.8	987.6	0	0
		Lower	2023-04-26 18:00:00	7.32	-5.65	24.6	984.2	0	0
May-2023	-5.4	Upper	2023-05-12 18:00:00	7.31	-5.23	24.5	982.7	0	0
		Lower	2023-05-25 18:00:00	7.32	-5.66	24.5	982.8	0	0
Jun-2023	-5.8	Upper	2023-06-01 06:00:00	7.34	-5.49	24.4	984.8	0	0
		Lower	2023-06-15 18:00:00	7.31	-6.02	24.4	977.7	0	0
Jul-2023	-5.1	Upper	2023-07-19 06:00:00	7.32	-3.9	24.3	980.4	0	0
		Lower	2023-07-04 18:00:00	7.32	-6.27	24.4	977	0	0
Aug-2023	-3.4	Upper	2023-08-30 18:00:00	7.26	-1.73	24.4	983.3	0	0
		Lower	2023-08-01 18:00:00	7.29	-4.98	24.3	975.2	0	0
Sep-2023	-1.5	Upper	2023-09-19 18:00:00	7.27	-0.67	24.4	983.9	0	0
		Lower	2023-09-09 10:17:00	7.16	-2.41	24.4	985.4	0	0

Oct-2023	-1.4	Upper	2023-10-01 18:00:00	7.27	-0.98	24.4	982.6	0	0
		Lower	2023-10-30 06:00:00	7.23	-1.75	24.5	992.9	0	0
Nov-2023	-2.0	Upper	2023-11-02 06:00:00	7.23	-1.73	24.5	993.3	0	0
		Lower	2023-11-29 18:00:00	7.23	-2.34	24.6	992.9	0	0



TC-7186

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PLOT NO. 4, KHASRA NO. 45, OPPOSITE SHREE MANAN DHAM TEMPLE,
8TH K.M. MILE STONE, INDUSTRIAL AREA, MEERUT ROAD, GHAZIABAD -201003 (U.P.)
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TEST REPORT

ISSUED TO	:	M/S. RADICO KHAITAN LTD. BAREILLY ROAD, RAMPUR (U.P.).
Sample Identification No.	:	GW-230611/003
Test Report No.	:	GEL-2306/2893
ULR Number	:	TC-718623000004017F
Date of Issue	:	16.06.2023
Testing Location	:	PERMANENT FACILITY
Sampling Method	:	-
Type of Sample	:	GROUND WATER
Sample Collection Date	:	11.06.2023
Sample Collected by	:	PARTY
Sample Quantity	:	2.0 LTR + 500 ML
Sample Description	:	LIQUID
Sampling Location	:	FROM BOREWELL NO - 01
Date of Sample Receipt	:	11.06.2023
Sample Condition	:	SEALED
Analysis Duration	:	12.06.2023 To 16.06.2023

ANALYSIS RESULT

Organoleptic & Physical PARAMETER /						
S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS: 10500:2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
1	Colour	HZN	IS:3025(Part 4): 2021	<5	5 (max.)	15 (max.)
2	Odour	---	IS:3025 (Part 5): 2018	Agreeable	Agreeable	No relaxation
3	pH	---	IS:3025 (Part 11): (RA 2022)	7.36	6.5-8.5	No relaxation
4	Turbidity	NTU	IS:3025 (Part 10): 1984 (RA 2022)	<1	1(max.)	5(max.)
5	Total Dissolved Solids (TDS)	mg/L	IS:3025 (Part 16): 2023	412	500 (max.)	2000 (max.)
General PARAMETER						
S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS:10500: 2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
6	Calcium	mg/L	IS 3025 (Part 40): 1991 (RA 2019)	24.8	75(max.)	200(max.)
7	Chloride	mg/L	IS 3025 (Part 32):1988 (RA 2019)	56.4	250(max.)	1000(max.)
8	Fluoride (F)	mg/L	IS 3025 (Part 6): SEC 3:2022	0.12	1.0 (max.)	1.5 (max.)
9	Residual, Free Chlorine(RFC)	mg/L	IS 3025 (Part 26): 2021	N.D.	0.2 (min.)	1.0(min.)
10	Magnesium (Mg)	mg/L	IS 3025 (Part 46):1994 (RA 2019)	14.9	30(max.)	100(max.)

N.D. - Not Detected.

NOTE: Approx 2.5 ltr of sample received, name, address, location and sample description mentioned above is provided by party.

(Checked By)
INTEKHAB KHAN (Technical Manager)

ARVIND KUMAR
(Authorized Signatory)



567 GLOBAL ENVIRO Laboratories

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PLOT NO. 4, KHASRA NO. 45, OPPOSITE SHREE MANAN DHAM TEMPLE,
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E-mail : global_enviro@rediffmail.com, globalenvirolab@gmail.com

Test Report No.: GEL-2306/2893
ULR Number : TC-718623000004017F

Organoleptic & Physical PARAMETER

S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS: 10500:2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
11	Sulphate (SO ₄)	mg/L	IS 3025 (Part 24): SEC 1:2022	18.7	200 (max.)	400 (max.)
12	Total Hardness	mg/L	IS 3025 Part 21:2009 (RA:2019)	124	200 (max.)	600 (max.)

Residue in Water (Heavy Metal)

S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS:10500:2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
13	Iron (Fe)	mg/L	IS 3025 (Part 53):2003 (RA:2019)	0.16	1.0(max.)	No Relaxation

NOTE: Approx 2.5 ltr of sample received, name, address, location and sample description mentioned above is provided by party.


(Checked By)
INTEKHAB KHAN (Technical Manager)


ARVIND KUMAR
(Authorized Signatory)



568 GLOBAL ENVIRO Laboratories 81

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E-mail : global_enviro@rediffmail.com, globalenvirolab@gmail.com

Test Report No.: GEL-2306/2893
ULR Number : TC-718623000004017F

Bacteriological PARAMETER					
S. No.	Parameter	Unit	Protocol	Result	REQUIREMENTS (IS: 10500:2012) (RA 2018)
1	E.coli	Per100ml	IS:15185:2016 (RA 2021)	Absent	Shall not be detectable in 100ml sample
2	Total Coliform	Per100ml	IS:15185:2016 (RA 2021)	Absent	Shall not be detectable in 100ml sample

NOTE: Approx 2.5 ltr of sample received, name, address, location and sample description mentioned above is provided by party.

(Checked By) Tanu
TANU CHAUDHARY (Microbiologist)


MONICA SINGH
(Authorized Signatory)

- Note:
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 2. The samples will be destroyed after 15 days of sampling.
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E-mail : global_enviro@rediffmail.com, globalenvirolab@gmail.com

TC-7186

TEST REPORT

ISSUED TO	:	M/S. RADICO KHAITAN LTD. BAREILLY ROAD, RAMPUR (U.P.).
Sample Identification No.	:	GW-230611/004
Test Report No.	:	GEL-2306/2894
ULR Number	:	TC-718623000004018F
Date of Issue	:	16.06.2023
Testing Location	:	PERMANENT FACILITY
Sampling Method	:	-
Type of Sample	:	GROUND WATER
Sample Collection Date	:	11.06.2023
Sample Collected by	:	PARTY
Sample Quantity	:	2.0 LTR + 500 ML
Sample Description	:	LIQUID
Sampling Location	:	FROM BOREWELL NO - 02
Date of Sample Receipt	:	11.06.2023
Sample Condition	:	SEALED
Analysis Duration	:	12.06.2023 To 16.06.2023

ANALYSIS RESULT

Organoleptic & Physical PARAMETER						
S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS: 10500:2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
1	Colour	HZN	IS:3025(Part 4): 2021	<5	5 (max.)	15 (max.)
2	Odour	---	IS:3025 (Part 5): 2018	Agreeable	Agreeable	No relaxation
3	pH	---	IS:3025 (Part 11): (RA 2022)	7.14	6.5-8.5	No relaxation
4	Turbidity	NTU	IS:3025 (Part 10): 1984 (RA 2022)	<1	1(max.)	5(max.)
5	Total Dissolved Solids (TDS)	mg/L	IS:3025 (Part 16): 2023	396	500 (max.)	2000 (max.)
General PARAMETER						
S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS:10500: 2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
6	Calcium	mg/L	IS 3025 (Part 40): 1991 (RA 2019)	27.6	75(max.)	200(max.)
7	Chloride	mg/L	IS 3025 (Part 32):1988 (RA 2019)	52.4	250(max.)	1000(max.)
8	Fluoride (F)	mg/L	IS 3025 (Part 60): SEC 3:2022	0.11	1.0 (max.)	1.5 (max.)
9	Residual, Free Chlorine(RFC)	mg/L	IS 3025 (Part 26): 2021	N.D.	0.2 (min.)	1.0(min.)
10	Magnesium (Mg)	mg/L	IS 3025 (Part 46):1994 (RA 2019)	15.5	30(max.)	100(max.)

N.D. - Not Detected.

NOTE: Approx 2.5 ltr of sample received, name, address, location and sample description mentioned above is provided by party.


(Checked By)
INTEKHAB KHAN (Technical Manager)


ARVIND KUMAR
(Authorized Signatory)



570 GLOBAL ENVIRO Laboratories 83

PLOT NO. 4, KHASRA NO. 45, OPPOSITE SHREE MANAN, DHAM TEMPLE,
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E-mail : global_enviro@rediffmail.com, globalenvirolab@gmail.com

Test Report No.: GEL-2306/2894

ULR Number : TC-718623000004018F

Organoleptic & Physical PARAMETER

S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS: 10500:2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
11	Sulphate (SO ₄)	mg/L	IS 3025 (Part 24): SEC 1:2022	19.2	200 (max.)	400 (max.)
12	Total Hardness	mg/L	IS 3025 Part 21:2009 (RA:2019)	138	200 (max.)	600 (max.)

Residue in Water (Heavy Metal)

S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS:10500:2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
13	Iron (Fe)	mg/L	IS 3025 (Part 53):2003 (RA:2019)	0.18	1.0(max.)	No Relaxation

NOTE: Approx 2.5 ltr of sample received, name, address, location, and sample description mentioned above is provided by party.


(Checked By)

INTEKHAB KHAN (Technical Manager)


ARVIND KUMAR
(Authorized Signatory)



571 GLOBAL ENVIRO Laboratories 84

PLOT NO. 4, KHASRA NO. 45, OPPOSITE SHREE MANAN DHAM TEMPLE, 8TH K.M. MILE STONE, INDUSTRIAL AREA, MEERUT ROAD, GHAZIABAD -201003 (U.P.)
MOBILE : +91-9810317145, +91-8826028116
E-mail : global_enviro@rediffmail.com, globalenvirolab@gmail.com

Test Report No.: GEL-2306/2894
ULR Number : TC-718623000004018F

Bacteriological PARAMETER					
S. No.	Parameter	Unit	Protocol	Result	REQUIREMENTS (IS: 10500:2012) (RA 2018)
1	E.coli	Per100ml	IS:15185:2016 (RA 2021)	Absent	Shall not be detectable in 100ml sample
2	Total Coliform	Per100ml	IS:15185:2016 (RA 2021)	Absent	Shall not be detectable in 100ml sample

NOTE: Approx 2.5 ltr of sample received, name, address, location and sample description mentioned above is provided by party.

(Checked By) *Tanu*
TANU CHAUDHARY (Microbiologist)

Monica Singh
MONICA SINGH
(Authorized Signatory)

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E-mail : global_enviro@rediffmail.com, globalenvirolab@gmail.com

TEST REPORT

ISSUED TO	:	M/S. RADICO KHAITAN LTD. BAREILLY ROAD, RAMPUR (U.P.).
Sample Identification No.	:	GW-230617/005
Test Report No.	:	GEL-2306/2895
ULR Number	:	TC-718623000004019F
Date of Issue	:	16.06.2023
Testing Location	:	PERMANENT FACILITY
Sampling Method	:	-
Type of Sample	:	GROUND WATER
Sample Collection Date	:	11.06.2023
Sample Collected by	:	PARTY
Sample Quantity	:	2.0 LTR + 500 ML
Sample Description	:	LIQUID
Sampling Location	:	FROM BOREWELL NO - 03
Date of Sample Receipt	:	11.06.2023
Sample Condition	:	SEALED
Analysis Duration	:	12.06.2023 To 16.06.2023

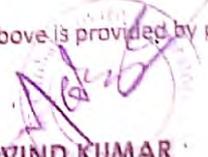
ANALYSIS RESULT

Organoleptic & Physical PARAMETER						
S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS: 10500:2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
1	Colour	HZN	IS:3025(Part 4): 2021	<5	5 (max.)	15 (max.)
2	Odour	---	IS:3025 (Part 5): 2018	Agreeable	Agreeable	No relaxation
3	pH	---	IS:3025 (Part 11): (RA 2022)	7.26	6.5-8.5	No relaxation
4	Turbidity	NTU	IS:3025 (Part 10): 1984 (RA 2022)	<1	1(max.)	5(max.)
5	Total Dissolved Solids (TDS)	mg/L	IS:3025 (Part 16): 2023	388	500 (max.)	2000 (max.)
General PARAMETER						
S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS:10500: 2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
6	Calcium	mg/L	IS 3025 (Part 40): 1991 (RA 2019)	24.4	75(max.)	200(max.)
7	Chloride	mg/L	IS 3025 (Part 32):1988 (RA 2019) "	57.1	250(max.)	1000(max.)
8	Fluoride (F)	mg/L	IS 3025 (Part 60): SEC 3:2022	0.13	1.0 (max.)	1.5 (max.)
9	Residual, Free Chlorine(RFC)	mg/L	IS 3025 (Part 26): 2021	N.D.	0.2 (min.)	1.0(min.)
10	Magnesium (Mg)	mg/L	IS 3025 (Part 46):1994 (RA 2019)	14.1	30(max.)	100(max.)

- N.D. - Not Detected.

NOTE: Approx 2.5 ltr of sample received, name, address, location and sample description mentioned above is provided by party.


(Checked By)
INTEKHAB KHAN (Technical Manager)


ARVIND KUMAR
(Authorized Signatory)



573 GLOBAL ENVIRO Laboratories

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PLOT NO. 4, KHASRA NO. 45, OPPOSITE SHREE MANAN DHAM TEMPLE,
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E-mail : global_enviro@rediffmail.com, globalenvirolab@gmail.com

Test Report No.: GEL-2306/2895

ULR Number : TC-718623000004019F

Organoleptic & Physical PARAMETER						
S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS: 10500:2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
11	Sulphate (SO ₄)	mg/L	IS 3025 (Part 24): SEC 1:2022	16.9	200 (max.)	400 (max.)
12	Total Hardness	mg/L	IS 3025 Part 21:2009 (RA:2019)	122	200 (max.)	600 (max.)
Residue in Water (Heavy Metal)						
S. NO.	PARAMETER	UNIT	PROTOCOL	RESULT	DRINKING WATER STANDARDS/LIMIT (IS:10500:2012)	
					ACCEPTABLE LIMIT	PERMISSIBLE LIMIT
13	Iron (Fe)	mg/L	IS 3025 (Part 53):2003 (RA:2019)	0.15	1.0(max.)	No Relaxation

NOTE: Approx. 2.5 ltr of sample received, name, address, location and sample description mentioned above is provided by party.


(Checked By)

INTEKHAB KHAN (Technical Manager)


ARVIND KUMAR
(Authorized Signatory)



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PLOT NO. 4, KHASRA NO. 45, OPPOSITE SHREE MANAN DHAM TEMPLE,
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E-mail : global_enviro@rediffmail.com, globalenvirolab@gmail.com

Test Report No.: GEL-2306/2895

ULR Number : TC-718623000004019F

Bacteriological PARAMETER					
S. No.	Parameter	Unit	Protocol	Result	REQUIREMENTS (IS: 10500:2012) (RA 2018)
1	E.coli	Per100ml	IS:15185:2016 (RA 2021)	Absent	Shall not be detectable in 100ml sample
2	Total Coliform	Per100ml	IS:15185:2016 (RA 2021)	Absent	Shall not be detectable in 100ml sample

NOTE: Approx 2.5 ltr of sample received, name, address, location and sample description mentioned above is provided by party.

(Checked By) *Tanu*
TANU CHAUDHARY (Microbiologist)

Monica Singh
MONICA SINGH
(Authorized Signatory)

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 4. Subject to Ghaziabad Jurisdiction only.

END OF REPORT

WATER AUDIT REPORT
AS PER THE GUIDELINES OF CGWA
MINISTRY OF JAL SHAKTI

AT
M/S RAMPUR DISTILLERY
(A UNIT OF RADICO KHAITAN LIMITED)
BAREILLY ROAD, RAMPUR, DISTT MORADABAD UTTAR PRADESH 244901



BY

PHD Chamber of Commerce and Industry
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September-2022



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ACKNOWLEDGMENT

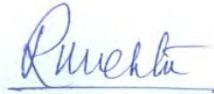
PHDCCI places on record its sincere thanks to the Management of Radico Khaitan Ltd, Rampur (A Unit of Radico Khaitan Ltd) for entrusting the task of conducting Water Audit assignment at Radico Khaitan Ltd, Rampur in line with CGWA Notification dated 24/09/2020.

We are grateful to Dr. Lalit Khaitan- CMD, Mr. Abhishek Khaitan-MD & Mr. K. P. Singh – Director Operations, for giving us the valuable opportunity to conduct water audit in Radico Khaitan Ltd. We also extend our sincere thanks to Mr. Devendra Singh – Sr. V. P. (Process), Mr. Vikas Saxena- AVP (Engg & Projects), Mr. G. B. Singh-AVP (Bottling), Mr. Satish Tomar-J.G.M.(Process), Mr. Amrit Raj Tomar-A.G.M.(Environment), Mr. Neeraj Dhama-Sr. Manager (Process), Mr. Amar Singh- Unit Head, Mr. Sanjay Shukla-Sr. Manager (Instrumentation) for their continuous support and guidance during the execution of the assignment.

PHDCCI Audit Team is indebted to the EHS department team of Radico Khaitan Ltd, Rampur for showing keen interest in the water audit and the wholehearted support and cooperation during the conduct of the field study, without which the study would not have steered to its successful completion.

It is well worthy to mention that the efforts being taken and the enthusiasm shown by all the personnel towards water and energy conservation are really admirable.

PHD Chamber of Commerce and Industry



**Mr. Ranjeet Mehta,
Secretary General, PHDCCI**



CERTIFICATE

We certify the following

- The report is based on the data collected at site during Audit and information provided by Radico Khaitan Ltd, Rampur.
- The data collection has been carried out diligently and truthfully.
- All data measuring devices used by the team are in good working condition, have been calibrated and have valid calibration certificate from the authorized approved agencies and tampering of such devices has not occurred.
- All reasonable professional skill, care and diligence have been taken in preparing the water audit report and the contents thereof are a true representation of the facts and figures.

ABBREVIATIONS

A	Ampere
AC	Alternating Current
Avg.	Average
CGWA	Central Ground Water Authority
CGWB	Central Ground Water Board
CWC	Central Water Commission
KL	Kilo Litre
KV	Kilo Volt
kVA	Kilo Volt Ampere
KVAr	Kilo Volt Ampere Reactive
kW	Kilo Watts
kWh	Kilo Watt Hour
Lit	Litres
LPCD	Litre Per Capita per Day
M or m	Meter
Max.	Maximum
mbgl	meters below ground level
Min.	Minimum
MT	Metric Ton
No.	Number
PF	Power Factor
RO	Reverse Osmosis
LPS	Low Pressure Switch
HPS	High Pressure Switch
ETP	Effluent Treatment Plant
V	Voltage
WDS	Water distribution station.
WTP	Water Treatment Plant
CETP	Common Effluent Treatment Plant
CWP	Cooling Water Pump



EXECUTIVE SUMMARY

Given the above scenario of prevailing resource challenge, accelerating over time Progressive management of Radico Khaitan Ltd, Rampur is very keen to do water audit of their premises. To get benefit of water saving projects, management of Radico Khaitan Ltd, Rampur awarded the task of water audit of its premises to PHDCCI.

This report is an attempt of PHDCCI to provide an overview of the water distribution system and water usage at Radico Khaitan Ltd, Rampur. The report also highlights the major water sources, consumption area, wastewater treatment facilities and available water saving opportunities in the plant. A set of recommendations which will assist in improving water efficiency has also been highlighted in this report. This report has emerged after a detailed water audit conducted by PHDCCI in plant from 14/09/2022 to 15/09/2022.

Project Title:		PHDCCI Report Number:	
Water Audit at Radico Khaitan Ltd, Rampur (UTTAR PRADESH)		2022/WA/PHDCCI/193	
Client:			
Radico Khaitan Ltd, Rampur			
Contact Person:			
Mr. Vikas Saxena - AVP (Engg & Projects)			
Date of Audit:		Source of Water:	
14/09/2022 – 15/09/2022		Ground Water	
Date of this Report:		Date of Approval:	
25/01/2023			
Work Carried out by: (Team Composition)	Rohit Dutt Vivek Zaveri Vipul Garg	Team Leader Team Member Team Member	No Distribution without permission from the client or responsible organization or unit
Final Report Approved:			
	Mr. Ranjeet Mehta Secretary General, PHDCCI Rohit Dutt Paliwal, Lead Assessor – Water Audit		Date: 27-01-2023

- Radico Khaitan Ltd, Rampur plant is an agro based distillery engaged in the manufacturing of producing ENA, situated in Rampur, Moradabad district of Uttar Pradesh. Currently, the plant has consent to withdraw **2600 KL/day** of water from bore wells available in the plant. At present, approximately **1930 KL/day** of water is used for the plant operations, of which all water is met from the bore wells. The stage of groundwater in Rampur , UP block as reported by CGWB (assessment year: 2005) is **133.155 %** and Block wise Ground Water Resource Assessment – 2017 by CGWB puts Rampur block in the category of semi critical.
- Radico Khaitan Ltd, Rampur has multiple product portfolios, ranging from Rampur whisky, 8PM whisky, Magic Moments Vodka, IMFL, Contessa Rum, & Old Admiral Brandy, & country Liquor.
- Rampur Distillery is one of the largest and the most efficiently-run distilleries in India. It is spread over 100 acres of lush green campus with a high level of security systems. The distillery produces high-grade Extra Neutral Alcohol (“ENA”) from molasses, grains and Scottish design malt spirit from barley malt. The unit is self-sufficient in meeting the fuel and power requirements by the way of backward integration.
- The unit is consuming the maximum amount of water for different processes. The water is used for manufacturing process, Domestic Purpose, and Utility. Currently, the plant has consent to withdraw 2600 KL/day (and not exceeding 949000 KL/year) of ground water, through proposed three (3) tube wells only.
- The audit team has collected the detail of Ground Water abstracted by the plant in year 2021-22. As per data provided by the plant, the total ground water abstraction in FY 2021-22 is **704,440 KL/year which is less than the CGWA NOC of 949,000 KL/year, issued to plant on 17/10/2016 vide NOC letter CGWA\NOC\IND\ORIG\2016\2308.**
- It is evident from the above water balance diagram is that major water consuming area is account for **39% fresh water consumption & 61% as recycled soft water. Process accounts for 22%, Utility accounts for 11%, 13% accounts for DM water, 52% accounts for soft water, 2% for gardening and domestic accounts.** About **1086060 KL/year** wastewater is generated in the plant and is transferred to Condensing Polishing Unit (CPU) & ETP from which a part of treated water is being mixed with water from bore wells and passed through DM water treatment & softener so that recycled soft water can be used as make up water for Cooling tower, Boiler, cleaning and washing. Remaining part of treated waste water from ETP is used for horticulture in green belt.
- PHD CCI team measures the flow for all the flow meters installed in the plant with the help of ultrasonic flow meter to check any variation in flow meter reading. All flow meters were giving accurate results.
- The Audit team calculated the Per KL cost of Raw Water. The Rs. /KL cost of Raw water is 3.4 for year 2021. The expenses towards energy consumption at bore well, Manpower cost, and maintenance costs are considered for calculating raw water cost.



- Total two bore well are installed at Rampur Distillery, Rampur, UP. All bore wells are used to transfer the water to Raw Water Storage Tank. During audit, we measured Terminal Voltage, Load Current, Power Consumption and P.F. for all the pumps. We have also checked throttling, Flow, measured Suction and Discharge Pressure. The evaluated overall pump efficiency of **BW-1 & 3 is 59.6% and 55.8% respectively. The results are found satisfactory.**
- In most of the location, flow meters are installed and the plant is maintaining the data for bore wells & other process such as Soft water, DM water, Cooling tower section, Boiler make-up etc but not drinking and gardening. The locations where flow meter should be installed are mentioned below:
 - a) Line going to STP treated water
 - b) Line going to Residential Colony
- As the efficiency of bore well #2 is very low. We recommend replacing this in-efficient pump with energy efficient pump. The resultant benefit in terms of energy savings workout for replacing it with energy efficient pump is Rs. 4.5 Lac per annum with an estimated investment of Rs. 3.2 Lac with the simple payback period of 9 months.
- The audit team has checked and verified all the water quality test reports such as Raw Water and Treated Water from Effluent Treatment Plant. All of the reports comply with the environmental factors related to water uses and discharge. (Attached separately in annexure).
- As per CGWA guidelines, all the tube wells to be fitted with digital water meter by the firm and monitoring of ground water abstraction to be undertaken accordingly on regular basis, at least once a month and Radico Khaitan Ltd, Rampur has installed digital flow meters on all the bore well and are maintaining the data on daily basis. All the raw water extraction data is submitted to CGWA on yearly basis.
- As per CGWA notice dated 01/02/2019, In case the ground water abstraction is more than 10 KL/day, monthly water level monitoring data shall be maintained and submitted annually to the Regional Office of CGWB. Therefore, the Radico Khaitan Ltd, Rampur Plant, has installed Six Piezometers inside the plant to record the monthly water level in and around the plant. All the piezometers are fitted with telemetric automatic water level recorder.
- The total resultant benefit in terms of water savings workout by installing automatic timer based sprinkler for gardening is **6051 KL** per annum with an estimated investment of **Rs. 0.5 Lac** with the simple payback period of **29 months**. Water saving potential after installing timer based sprinkler is shown below:

Sr. No.	Particulars	Unit	Values
1	Water Used in Gardening	KL/year	30255
2	Water saving Potential	%	20
3	Total Water Saving Potential	KL/year	6051
4	Average Cost of Water	Rs./KL	3.4

5	Monetary Saving Potential (3.4x 6051 = 20753)	Rs.	20753
6	Cost of Investment	Rs	50000
7	Payback Period	months	29

- The total resultant benefit in terms of water savings workout by installing flow regulator is 6658 KL per annum with an estimated investment of Rs. 32000 with the simple payback period of 17 months.

Sr. No	Particulars	Unit	Value
1	Total no. of wash basin	-	40
2	Total no. of employee	-	1500
3	Water used in wash basin for one Wash	Litre	0.076
4	Total Daily Water Consumption in Wash Basin	KL/day	36.48
5	Total Annual Water Consumption (considering 365 days) (36.48x 365 = 13315.2)	KL/year	13315.2
6	Total Annual Water Consumption by Reducing flow to 50% (13315/2 = 6657.6)	KL/year	6658
7	Annual Water Saving by Reducing Flow to 50%	KL/year	6658
8	Average Cost of Water	Rs. /KL	3.4
9	Total Annual Monetary Saving	Rs.	22636
10	Investment	Rs	32000
11	Payback Period	months	17

- As the efficiency of bore well #2 is very low. We recommend replacing this in-efficient pump with energy efficient pump. The resultant benefit in terms of energy savings workout for replacing it with energy efficient pump is Rs. 4.5 Lac per annum with an estimated investment of Rs. 3.2 Lac with the simple payback period of 9 months. The suggestion has been implemented and the efficiency has been improved.

Sr. No	Particulars	Unit	Bore well # 2
1	Running Status		Running
2	Rated Flow	m ³ /hr	150
3	Rated Head	M	45
4	Rated Power	KW	30
5	Measured Flow	m ³ /hr	70
6	Discharge Pressure (A)	Kg/cm ²	2.7
7	Depth of Water from Ground (B)	Meter	7
8	Total Head (=B+(AX10))	Meter	34
9	Input power	kW	27.88
10	Hydraulic Power	KW	6.49
11	Motor Efficiency	%	90
12	Overall (Pump Set) Efficiency	%	23.3%
13	Overall Energy Efficient Pump Efficiency	%	55.0%

14	Energy consumed for same hydraulic power@50%	kW	5.9
15	Overall Energy Savings	kWh	47167
16	Cost of Electricity	Rs./unit	9.5
17	Annual Monetary Savings	Rs	448089
19	Investment	Rs	320000
20	Simple Payback	month	9

- Recovery of DM, regeneration waste water, implementation of rinse recycling in the DM plant, Recovery of backwash effluent from pretreatment filtration plant & Recovery of back wash water of Pressure Sand Filters (PSF) and Sand Filters (SF) will reduce the fresh water consumption by 1-2% in water treatment plant.

Sr. No.	Particulars	Unit	Values
1	Backwash generation	KLD	143
2	No of working days in a year	days	365
3	Annual Backwash water recovery @50%	KL	26183
4	Total Make up Water Saving Potential	KL/year	26183
5	Average Cost of Water	Rs./KL	3.4
6	Monetary Saving Potential After Implementing New Condensate Recovery System (3.4*26183= 89021)	Rs.	89,021
7	Investment	Rs	300000
8	Payback Period	months	40

- The audit team observed that the cooling water required for utilities such as Boiler, Compressor, DGs etc., are being provided with the help of Open type cooling tower of respective size. However, open type cooling tower has lower COC (recommended by OEMs) in comparison to Closed Circuit Cooling Tower (CCCT).

Sr. No.	Particulars	Unit	Values
1	Approximate water saving per day	KLD	71
2	Total No. of Running Days	Days	365
3	Annual Water Saving in Cooling Tower	KL	25828
4	Approximate Energy Saving	kWh	175200
5	Unit Cost of Electricity	Rs./Unit	9.5
6	Cost of Soft water	Rs./KL	11
7	Annual Monetary Saving in reducing water losses in Cooling Tower	Rs	271,194
8	Annual Monetary Saving in Energy reduction	Rs.	1664400
9	Total Annual Monetary Saving	Rs.	1,935,594
10	Investment	Rs.	18375000
11	Payback Period	months	114

Sr. No.	Type	Key Observations	Recommendations	Annual Water Savings (KL/year)	Annual Monetary Savings (Rs.)	Investment (Rs.)	Payback Period (Months)	Estimated Time Frame for Implementation (Months)
I	Total Bore well Water Intake			704,440				
II	Bore well Water Saving Achievable			64,720				
Option 1: Immediate/Short term benefits								
1	Domestic	Total 44 wash basins were found with flow of existing tap/faucets is 4 Litres Per Minute (LPM).	It is recommended to throttle 50% of the present condition in wash basin faucets to reduce the flow from 4LPM to 2LPM. Faucets flows can easily be reduced without affecting the comfort of the water user.	6658	22636	32000	17	6
2	Gardening	Gardening is done with the help flexible hose of 1" dia that can use 40 LPM of water.	It is recommend installing either nozzles install sprinkler in the hose or with timer-based system	6051	20573	40000	23	12
Option 2: Long-term benefits								
3	Cooling Tower	Plant has installed open type cooling tower for utility requirement which requires normal cooling water temperature for cooling. It has high COC and drift losses	It is recommended to install the Closed-circuit cooling tower which reduces losses and result into huge water savings.	25,828	1935594	18375000	114	Under review
4	Process	Currently backwash and regeneration water is being directly sent to CETP	Recovery of back wash water of Pressure Sand Filters (PSF) and Sand Filters (SF) will reduce the fresh water consumption by 1-2% in water treatment plant.	26183	89021	300000	40	Under review
TOTAL				64,720	2,067,824	18,747,000	109	-

- Water balance across the plant has been successfully achieved. Total water consumption –4905 KLD out of which bore well water consumption inside the plant is 1930 KLD only.
- Source Water savings of **64,720 KL/year (9.2 %)** is achievable in the short term. Water savings of **12,709 KL/year (1.8%)** is achievable in the short-term benefit, and **52011 KL/year (7.4 %)** is achievable in the long-term benefit.
- Strategies identified for reduction, reuse and recycle shows around **9%** saving can be achieved in bore well water
- In monetary terms ~ **Rs. 20.67 Lakh/annum** savings can be achieved.



CHAPTER 1

Introduction

1. INTRODUCTION

Human activities consume and pollute lot of water. At a global scale, most of the water use occurs in agricultural production, but there are also substantial water volumes consumed and polluted in the industrial and domestic sectors (WWAP, 2009).

Global changes like population growth, climate variability, ever-expanding industrialization and urbanization – often combined with pollution – severely affect water availability and lead to chronic water shortages in a growing number of regions. India has been successful in the past to meet such water requirements for different usages with a phenomenal development of water resources. However, preserving the quality and availability of fresh water resources has now become a pressing environment challenge.

Water is an essential precondition for life, and according to the UN it is a human right to have access to clean water. However, in India millions of people are living without direct access to safe water and based on the rapid population growth coupled with the fact that the water reserve is finite, it will be a very valuable and scarce resource within only a few years. In this light, there is an urgent need for decision makers to act in order to improve the conditions for effective use and supply of water to the Indian people now and in the future.

Under the Indian Constitution and in our federal democratic set up drinking water comes within the domain of the State Governments (Provincial Governments). In fact, the 73rd Constitutional Amendment has gone a step forward. It mandates that responsibility for drinking water and sanitation services should be with Local Governments. Various States in India are at different stages of giving effect to this Constitutional mandate.

The Ministry of Urban Development has formulated Service Level Benchmarks (SLBs) in 2008 and circulated the same to the States for adoption. The SLBs include water conservation and management practices such as continuous water supply, 100% metering of water supply, sustainable tariffs and reduction in leakages to a level of 15% to 20%.

The National Water Policy – 2012 focuses on the need for publishing water accounts and water audit reports indicating leakages and pilferages. The policy recommends systems to evolve benchmarks for water uses for different purposes, i.e., water footprints, and water auditing to ensure efficient use of water.

National Water Mission (NWM) has been established by the Government of India with the objective of “conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources development and management”.

The Government of India has also launched a Centrally Sponsored Scheme for Repair, Renovation and Restoration (RRR) of water bodies, which has multiple objectives like comprehensive improvement

and restoration of water bodies thereby increasing tank storage capacity, improved water use efficiency and increased availability of drinking water.

With its continuously declining per capita water availability (from about 5,177 m³ in 1951 to 1,654 m³ in 2007), India stands water stressed and is close to being categorized 'water scarce'. Water demand in India is expected to grow annually by 2.8 per cent to reach 1,500 bcm (by 2030) while the current supply is only about half (viz., 744 bcm). The Government of India, in its Intended Nationally Determined Contribution (INDC) submitted to UN Framework Convention on Climate Change (UNFCCC) in October, 2015, has committed to improve the water use efficiency by 20%, through regulatory mechanisms with differential entitlements and pricing. It further emphasizes the need to focus on integrated water resource management through water conservation, wastewater minimization, etc.

The notification dated 24/09/2020 from CGWA, all industries abstracting ground water in excess of 100KL/day shall be required to undertake annual water audit through CII/FICCI/NPC/PHDCCI certified auditors and submit water audit reports within three months of completion of the same to CGWA.

Water audit is an effective management tool for minimizing losses, optimizing various uses and thus enabling considerable conservation of water. Thus, RADICO KHAITAN LTD, RAMPUR has entrusted PHDCCI for conducting water audit in their plant premises.

This report discusses the existing water scenario at RADICO KHAITAN LTD, RAMPUR and its potential water savings and how the basic water audit approach has been applied to water conservation in line with the guidelines of CGWA

1.1 RATIONALE FOR WATER AUDIT

Water audit determines the amount of water lost from the water network/distribution system due to seepage, evaporation/leakage and other reasons such as theft, unauthorized or illegal withdrawals from the systems. Water audit improves the knowledge and documentation of the distribution system, and better understanding of what is happening to the water after it leaves the source point. Comprehensive water audit gives a detailed profile of the distribution system and water users, thereby facilitating easier and effective management of the resources with improved reliability. It helps in correct diagnosis of the problems faced in order to suggest optimum solutions. This leads to reduced water losses; improved financial performance; improved reliability of supply system; enhanced knowledge of the distribution; efficient use of existing supplies; better safeguard to public health and property; improved public relations; reduced legal liability and reduced disruption etc. thereby improving level of service to customers. It is thus an effective tool for realistic understanding and assessment of the present performance level and efficiency of the service and the adaptability of the system for future expansion & rectification of faults during modernization.

1.1.1 Steps of Water Audit

Water Audit includes water supply and usage study, process study, system audit, discharge analysis and preparation of water audit report.

1.1.2 Water Supply and Usage Study

Water audit comprises preparation of layout of water sources, distribution network, and service/delivery points to water users and return flow of waste or excess water. The layout should contain locations and capacities of flow measurement devices installed at key points, sizes of different channels, and fittings in the water supply system, locations and particulars of flow control devices and history sheets of all measuring and control devices including pipes and fittings etc.

PHDCCI has carried out the water supply and usage study at RADICO KHAITAN LTD, RAMPUR to understand the present water utilization pattern and projecting future requirement. PHDCCI also carried out a review of sustainable sources of water through rainwater harvesting and possible wastewater recycling at RADICO KHAITAN LTD, RAMPUR.

1.1.3 Process Study

Flow measurement devices were installed at all strategic points to calculate the water consumption at RADICO KHAITAN LTD, RAMPUR in various activities such as supply to the processing units, Process, Domestic, & STP.

Water quality of the distribution system needs to be monitored regularly at strategic points to find out the level and nature of contaminants present in the supplied water. RADICO KHAITAN LTD, RAMPUR has conducted the water quality test reports for raw water, waste water and treated waste water from CETP & STP outlet. Audit team reviewed all test reports and found acceptable as the results are in compliance to various standards as required by SPCB.

PHDCCI has carried out flow, pressure and power measurement of all bore well, cooling towers, CETP & STP Outlet to calculate the total water supplied to the different areas of the plant to understand the quantity of water received from ground and feed to the plant area. Accordingly, discharge from various processing units and estimation of losses was also assessed.

1.1.4 System Audit

The current water usages and systems for water use under various sections such as food & beverage preparation and domestic water supply need to be studied to check their operational efficiency and level of maintenance. The scope for any modification or up-gradation will depend on the status of existing systems. Measurement methodology from the intake point of the system through various sub-systems to the ultimate user points needs to be verified periodically for its suitability, efficiency and accuracy. Bulk metering should be done at the source, process area, water discharge etc. This will help

in identifying the reaches of undue water wastage. The domestic wastewater returns flows need to be studied for conformity to environment standards and the opportunity for recycling of waste water.

PHDCCI has carried out physical inspection of water distribution network/system of pump house, supply to various areas of the Plant, Drinking, Domestic & Gardening, to get their per day water consumption & to arrive at per capita water consumption in RADICO KHAITAN LTD, RAMPUR.

1.1.5 Discharge Analysis

The wastewater generated from the plant premises to CETP & residential colony to STP, return flows of treated water from the CETP, need to be studied for conformity to environment standards and the opportunity for recycling of waste water. The RADICO KHAITAN LTD, RAMPUR has installed one STP of 150 KLD for residential waste water & ETP with CPU unit respectively to treat the wastewater generated from domestic as well as industrial process.

1.1.6 Water Audit Report

A water audit can be accomplished on the basis of water allotted for a service and water actually utilized for that service. After assessing the loss of water and the efficiency of the system, steps needed for utilization of recoverable water loss and reuse may be listed.

An effective water audit report may be purposeful in detection of water losses and improve efficiency of the system. Water audit of the system should be undertaken at regular intervals, at least on an annual basis.

PHDCCI water audit explains the losses of water in system and various management approaches for RADICO KHAITAN LTD, RAMPUR.

1.2 BRIEF DESCRIPTION ABOUT THE PLANT

Rampur Distillery, Rampur, UP has multiple product portfolios, ranging from Rampur whisky, 8PM whisky, Magic Moments Vodka, IMFL, Contessa Rum, & Old Admiral Brandy, & country Liquor. Under his able leadership, Rampur Distillery is one of the largest and the most efficiently-run distilleries in India. It is spread over 100 acres of lush green campus with a high level of security systems. The distillery produces high-grade Extra Neutral Alcohol ("ENA") from molasses, grains and Scottish design malt spirit from barley malt. The unit is self-sufficient in meeting the fuel and power requirements by the way of backward integration. M/s Radico Khaitan Ltd, Rampur is an existing company located at Bareilly Road, Rampur in Distt Moradabad in Uttar Pradesh State.

1.2.1 Process Description

At Radico Khaitan Ltd, Rampur produces high-grade Extra Neutral Alcohol ("ENA") from molasses, grains and Scottish design malt spirit from Barley malt. The manufacturing plant having three separate

unit based extraction raw material, i.e., Molasses, Grains, Scottish Barley Malt for producing ENA unit with combined configured modernized ETP.

The Manufacturing process of ENA is as follows:

- 1) **Molasses:** Molasses from sugar cane is purchased as raw material from sugar industry. In this process **molasses** is diluted with water and enzymes are added for the conversion of molasses into fermentable **sugar**. In Fermentation process the mash is fermented using yeast, whereby the sugar is converted into ethanol and carbon dioxide.
- 2) **Grain:** **Grain alcohol** is a purified form of ethyl **alcohol** (ethanol) **made** from the distillation of fermented **grain**. The ethanol is **produced** via fermentation of sugars in the **grain** by yeast prior to repeated distillation or rectification.
- 3) **Barley Malt:** Generally, **malt** is made with **barley**. This is the same process as beer (at least at first), **malt** is mixed with water, the starches are broken into sugar, the sugars are fed to yeast, and the yeast produces **alcohol**.
- 4) **Country Liquor:** It is the primary and most popular alcoholic beverage in India's villages and it is fermented and distilled from molasses which is a byproduct of sugarcane.
- 5) **IMFL:** The ENA manufactured is mixed with de-mineralized water to form the base liquor which contains about 42% alcohol by volume. To **manufacture** whisky, special malts, flavors and colorings agents are blended in the base liquor. A good whisky is obtained based on the length of maturing the blended mix is kept for ageing. Rum, Whisky, Vodka & Gin are the products from IMFL.



CHAPTER 2

Scope of Work

2. SCOPE OF WORK

The main objective of the study was to identify the water uses & water saving opportunities and to demonstrate water conservation at Radico Khaitan Ltd, Rampur. Scope of work of the study includes the following:

2.1 Water system analysis

2.2 Quantification of baseline water map

2.3 Monitoring and measurements using pressure, flow meters and other devices

2.4 Quantification of inefficiencies and leaks

2.5 Quantification of water quality loads and discharges

2.6 Quantification of variability in flows and quality parameters

2.7 Strategies for water treatment and reuse or direct use

2.8 Water balance of the whole System

2.9 Mapping of Water quality requirement at various user areas

The detailed water audit report contains the following:

- Water consumption and wastewater generation pattern
- Specific water use and conservation
- Complete water balance of the facility
- Water saving opportunities
- Method of implementing the proposals
- Full description and figures
- Investment required
- Assessment of existing water sources and actual water consumption of the Plant.
- Identify the loss of water if any during transit and water distribution network and provide suggestion to eliminate these water losses.
- Identify the opportunities to reduce the water consumption by various activities and to establish specific water consumption in the premises.
- To study the performance of existing water circulating pumps/motors and recommends energy and water fixtures. This report aims at portraying the water audit details and the outcome along with recommendations for Radico Khaitan Ltd, Rampur.
- Assessment of adequacy and efficacy of existing treatment system and recommend feasible technological option for treatment of water and waste water.
- Identify the loss of water if any during transit and to provide suggestions to eliminate the losses.
- To analyse areas of water conservation, waste water generation and recycle.
- Preparation of detailed water balance schematic diagram.
- Evolve techno-economic feasible solutions for recommended measure for implementation along with annual financial savings/payback periods.

APPROACH & **M**METHODOLOGY

CHAPTER 3

Methodology of the Study



3. METHODOLOGY OF THE STUDY

PHDCCI has been entrusted to conduct Water Audit of Radico Khaitan Ltd, Rampur. In determining the water audit scope, PHDCCI has considered the extent and boundaries of the Installations.

The following step by step methodology and approach were adopted while carrying out the Water Audit at Radico Khaitan Ltd, Rampur. PHDCCI team visited Radico Khaitan Ltd, Rampur from 14/09/2022 to 15/09/2022 for the field measurement and conducting the audit. The broad methodology adopted for the Water Audit at Radico Khaitan Ltd, Rampur is furnished below.

- Preliminary discussions with plant personnel and observations in all water consuming areas.
- Data collection through discussions, past records, specifications.
- Field studies in each of the areas involving:
 - ✓ Performance trials.
 - ✓ Measurement of flow parameters, pressure, power wherever possible using portable instruments such as ultrasonic flowmeter, pressure gauge and power analyser.
- Identification of water conservation options on short, medium & long terms.
- Identification of Investment grade projects in the plant for detailed analysis towards implementation
- Preparation, discussion and submission of report to the management.

The study focused on improving water use efficiency and identifying water saving opportunities. The analysis included simple payback calculations where investments are required to be made to implement recommendations, to establish their economic viability.

The audit study made use of various portable instruments for carrying out various measurements and analyses. PHDCCI has a wide array of latest, sophisticated, portable, diagnostic and measuring instruments to support our energy audit investigations and analyses. The specialized instruments that were used during the water audit include:

- Ultrasonic water flow meter
- Thermo couples & Indicators
- Pressure Gauge
- Load Manager

During the audit, there was continuous interaction between the audit team and facility personnel, to ensure that the suggestions made are realistic, practical and implementable to allow for possible concurrent implementation.

The broad methodology adopted for the Water Audit at Radico Khaitan Ltd, Rampur is furnished below.

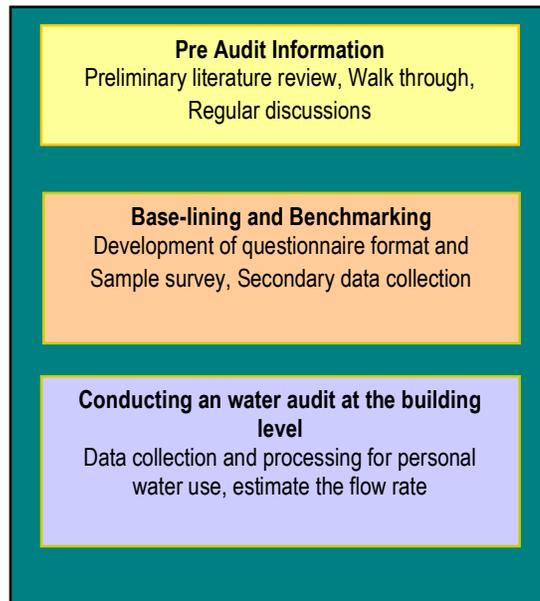
3.1 Pre Audit Information

- Preliminary literature -review of concepts and methodologies related to water audit for utility, facilities and households.
- Walk through the entire Plant, water receiving pump stations, building to understand the nature of water uses and the systems installed in the building.
- Discussion with the administrative officers, pump operators, EHS staff, housekeeping and kitchen employees on the various water uses during the day and the source of water.

3.2 Base-lining and benchmarking

The water audit for Radico Khaitan Ltd, Rampur included both primary and secondary data collection for various identified water uses. Primary data collection included the following components:

- Development of questionnaire format for individual water use, process area, gardening etc.
- Sample Survey of Radico Khaitan Ltd, Rampur office staff to estimate individual water consumption on sanitary and drinking purposes based on questionnaire format.
- Flow rate calculation from the taps flow rates and number of all water using fixtures/ equipment was also undertaken.
- Secondary data collection included compilation of number of staff along with their duration of stay.
- Collecting records of water pumped to the overhead and underground tanks and average running hours of all pumps etc. to estimate actual supply.



3.3 Conducting a water audit at the Plant Level

- The data collection including raw water, process water, waste & reject water, etc. was done on the basis of actual consumption.
- As part of the survey, treated waste water from STP & CETP was also carried out.
- The data for all the above uses was calculated for varying time period for Radico Khaitan Ltd, Rampur to calculate per capita use.



**WATI
USE
WICP**

CHAPTER 4

Assessment of Water Usage

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4. ASSESMENT OF PRESENT WATER USAGE

4.1 Plant Water Consumption Trends (last 3 years)

The source of water to the plant is through Ground Water supplied from three (3) Bore Wells which are being operating continuously to meet the demand of the plant. Each source and bore well is fitted with individual meter.

Groundwater after extraction is supplied to various areas such as WTP for treatment, Softener plant for process, utility, and domestic consumption such as hand wash, toilets and canteen. The water consumption patterns for last year at all the consumption areas are shown below:

Table 1 Water Consumption Trend FY 21-22

Year	Month	Bore well No.1	Bore well No.2	Bore well No.3	Total
2021-22	Apr-21	18936	19286	20248	58470
	May-21	20888	15782	25573	62243
	Jun-21	22199	10920	24953	58072
	Jul-21	18413	12706	22423	53542
	Aug-21	22374	14614	24803	61791
	Sep-21	17035	17190	25045	59270
	Oct-21	15750	14909	24522	55181
	Nov-21	16853	14272	23309	54434
	Dec-21	36357	7618	29997	73971
	Jan-22	18088	18133	24532	60753
	Feb-22	19038	10109	22386	51533
	Mar-22	22317	9503	23359	55179
Total		248249	165043	291148	704440

Ground Water Consumption (KL/Annum) FY 21-22

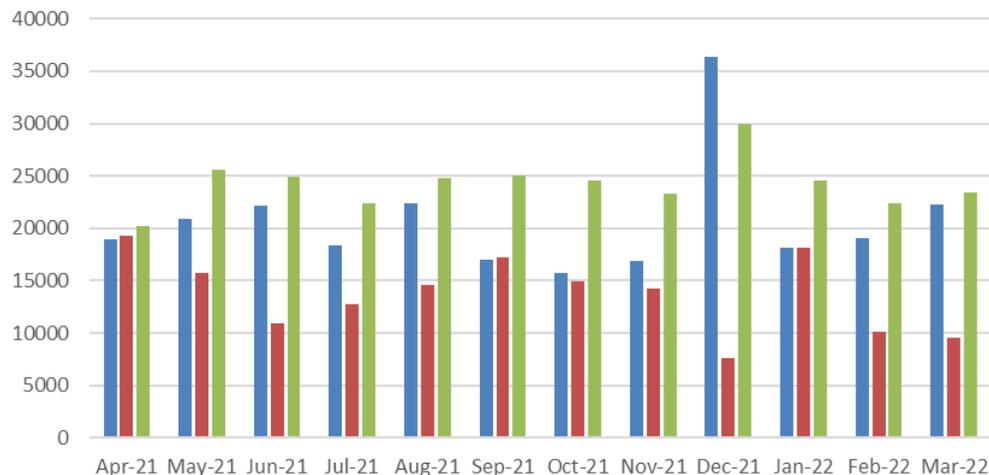


Table 2 Water Consumption Trend FY 20-21

Year	Month	Bore well No.1	Bore well No.2	Bore well No.3	Total
2020-21	Apr-20	16780	13218	0	29998
	May-20	22375	26792	12792	61959
	Jun-20	25497	23586	24659	73742
	Jul-20	18384	24947	31040	74371
	Aug-20	22779	22119	29994	74892
	Sep-20	29526	11808	29793	71127
	Oct-20	19727	21826	27996	69549
	Nov-20	20261	25071	25169	70501
	Dec-20	25340	23108	28288	76736
	Jan-21	29685	4151	38022	71858
	Feb-21	14659	26737	23052	64448
	Mar-21	28404	15897	27955	72256
Total		273417	239260	298760	811437

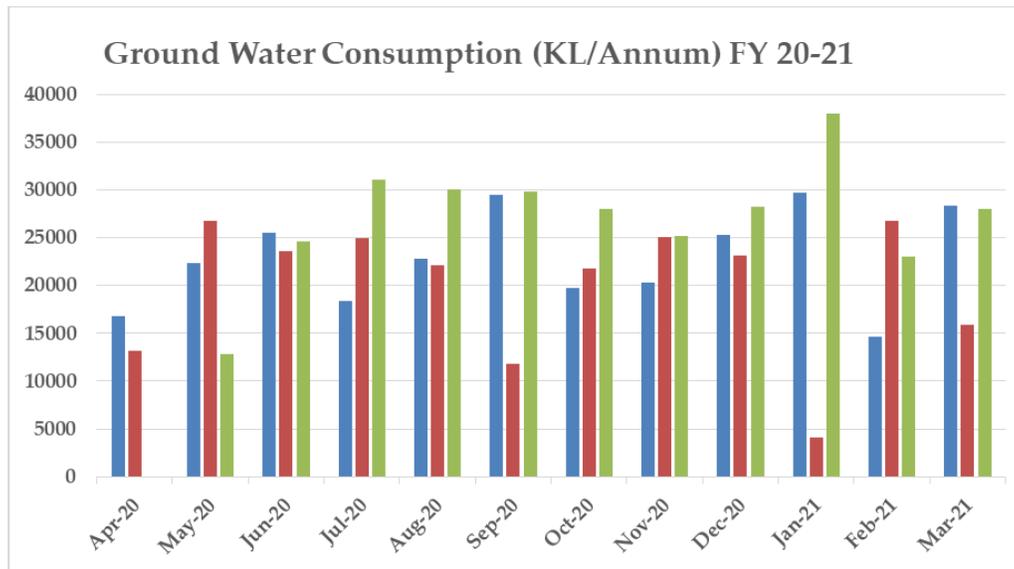
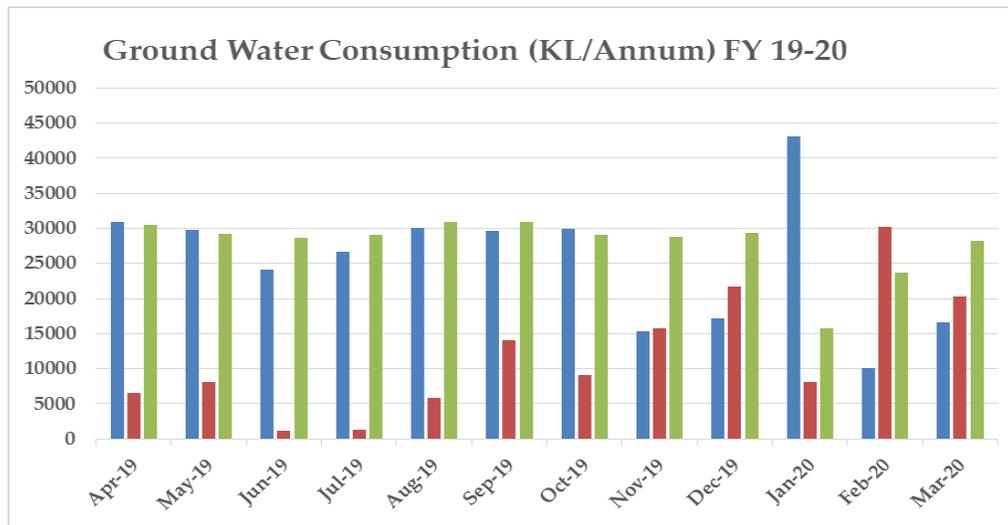


Table 3 Water Consumption Trend FY 19-20

Year	Month	Bore well No.1	Bore well No.2	Bore well No.3	Total
2019-20	Apr-19	30882	6544	30471	67897
	May-19	29835	8071	29142	67048
	Jun-19	24164	1174	28614	53952
	Jul-19	26727	1339	29075	57141
	Aug-19	30029	5830	30880	66739
	Sep-19	29583	14010	30898	74491
	Oct-19	29954	9150	29105	68209
	Nov-19	15276	15736	28715	59727
	Dec-19	17237	21662	29303	68202
	Jan-20	43085	8047	15734	66866
	Feb-20	10158	30132	23735	64025

	Mar-20	16552	20258	28254	65064
Total		303482	141953	333926	779361



4.2 Water Sources, which should include rain water, ground water & other sources

The main source of drinking and other water usage at Radico Khaitan Ltd, Rampur is water received from ground water through 3 bore wells located in plant area. The details of pumps and their location are mentioned below:

Table 4 Rated Details and Location of Bore well Pumps

Sr. No.	Type of Structure/ Year of Construction	Bore well Depth (meter)	Location	Mode of lift	HP of Pump
1	Bore Well/1994(BW1)	110	GSP DM plant	Submersible Pump	40
2	Bore Well/1995 (BW2)	110	GSP Weigh Bridge	Submersible Pump	40
3	Bore Well/2005 (BW3)	90	MRP (Near CPU)	Submersible Pump	60

4.3 Water Supply & Distribution Details

A water distribution network diagram provides a schematic (simplified) representation of facility's water distribution system from the source or point of entry (to the facility) to points of water consumption.

Bore well to Supply: Radico Khaitan Ltd, Rampur has 3 bore wells each located at different locations inside the plant. Water is being passed through filters, softener and DM plant for respective sections in plant. Treated water received from CPU and bore wells is used for preparing soft water and to be used in cleaning, washing and other utilities. The Radico Khaitan Ltd, Rampur has installed one STP of 150 KLD for residential waste water & ETP with CPU unit respectively to treat the wastewater generated from domestic as well as industrial process. Treated water from STP is partially used for gardening & remaining is discharged outside. Treated water from ETP is used for gardening and for supplying to softener to generate soft water which is again utilized in cooling tower, boiler etc.

Process and Utility: Major water consumption in process is for cleaning, washing & process. Water is also required in Soft water & DM water preparation to be used in the product. Water is recycled in the process but the make-up is required to compensate water absorbed by the products, treated waste water is being discharged for gardening inside the plant. In utility section, all the water is used for cooling tower (Evaporation and Blow down loss) & boiler make up.

For all the waste water, plant has installed STP & CETP all the waste water generated from domestic & utility is transferred to it for treatment. After treatment the water is being used for either in utilities or gardening purpose. & none of the water is discharge outside the plant.

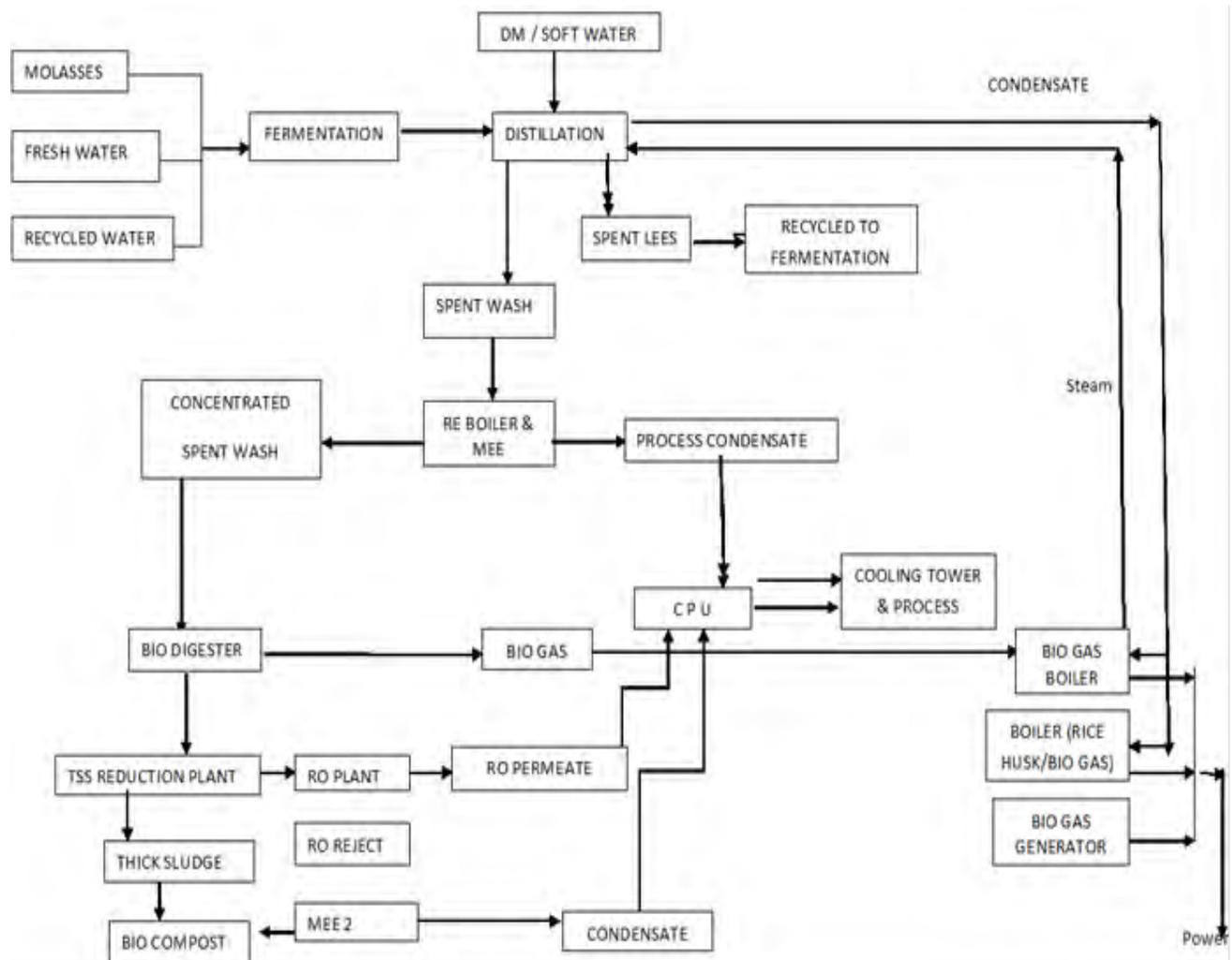


Figure 1 Water Distribution Network of Radico Khaitan Ltd, Rampur

4.4 Water Balance

The assessment team has reviewed the water supply and consumption as well as the losses in the water distribution network at plant. The water balance diagram of the system is given in below table and figure.

Table 5 Water Balance of Radico Khaitan Ltd, Rampur

Water Balance		KL/ANNUM	KLD
Sr. No.	Source		
1	Bore well	704440	1930
2	Recycled Water	1086060	2976
3	Total Source	1790500	4905
A Consumption			
For Molasses			
4	Soft water used for plant & Cooling towers	103970	285
5	Spent Lees/Sealing water of Molasses/GSP Plant to molasses fermentation	213431	585
6	Dm water	89893	246
7	CPU treated water	569084	1559
8	Process	48453	133
	Consumption (I)	1024831	2808
B For Grain			
9	Spent Lees/Sealing water of GSP to grain liquefaction / fermentation	91290	250
10	CO ₂ Scrubber water (fermentation house)	4320	12
11	DM water	23512	64
12	Soft water	74367	204
13	Process	40380	111
14	Consumption (II)	233869	641
C Utilities			
15	Boiler	119452	327
16	All Cooling Tower	178338	489
17	Raw water used for DM & Soft water charging	41739	114
18	Domestic	10800	30
19	Gardening, Horticulture etc	29598	81
20	Bottling	151873	416
21	Consumption (III)	531800	1457
D	Total Consumption	1790500	4905

Total Water Consumption = 1024831+233869+531800 = 1790500 KL

Bore well Source = 704440 KL

Recycling CPU Treated Water = 1086060 KL

Total Water Source= 1790500 KL

Water Balance= 4905 KLD

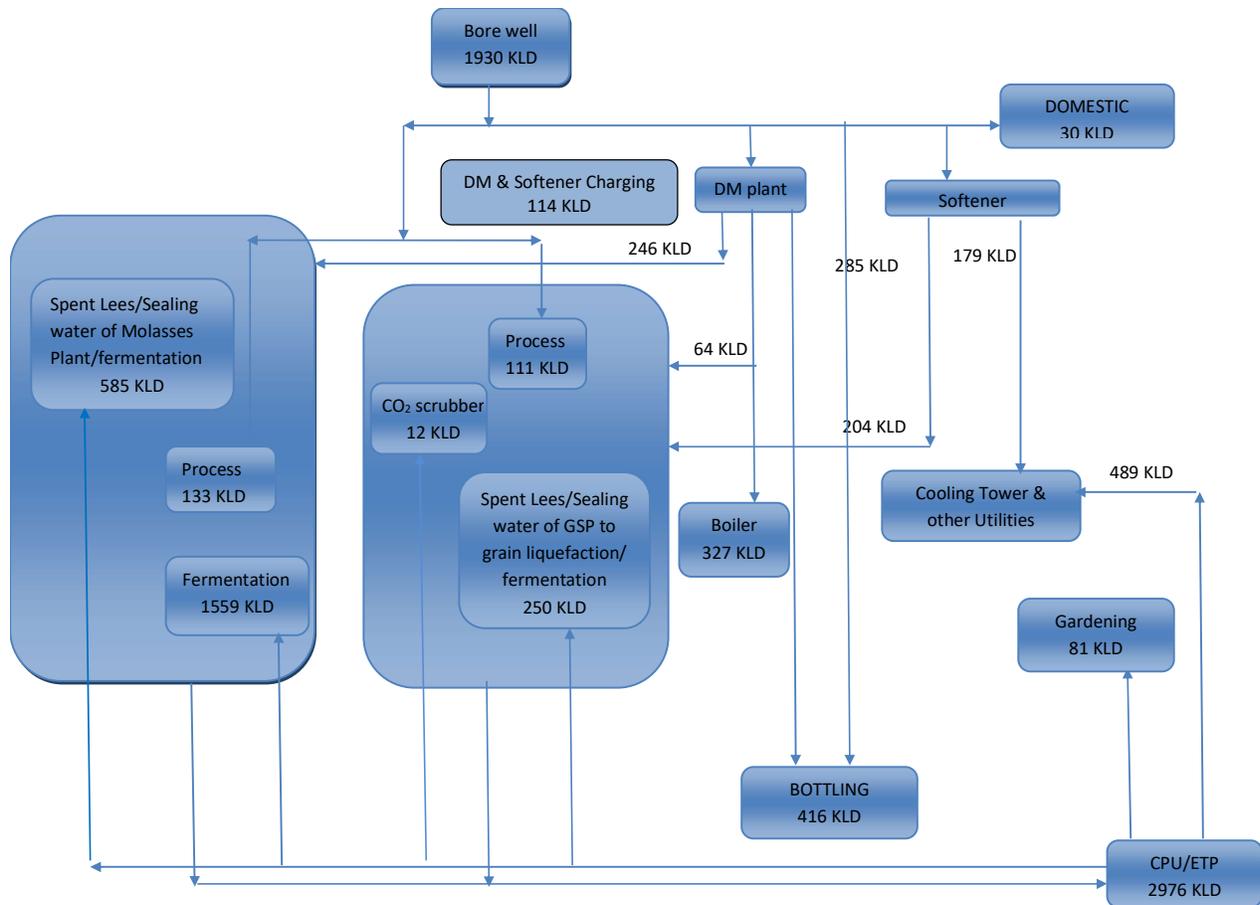


Figure 2 Water Balance Diagram

- It is evident from the above water balance diagram is that major water consuming area is account 39% fresh water consumption & 61% as recycled soft water. Process accounts for 22%, Utility accounts for 11%, 13% accounts for DM water, 52% accounts for soft water, 2% for gardening and domestic accounts. About 1086060 KL/year wastewater is generated in the plant and is transferred to Condensing Polishing Unit (CPU) & ETP from which a part of treated water is being mixed with water from bore wells and passed through DM water treatment & softener so that recycled soft water can be used as make up water for Cooling tower, Boiler, cleaning and washing. Remaining part of treated waste water from ETP is used for horticulture in green belt.
- The audit team has collected the detail of Ground Water abstracted by the plant in year 2021-22. As per data provided by the plant, the total ground water abstraction in FY 2020-21 is 704,440 KL/year which is less than the CGWA NOC of 949,000 KL/year, issued to plant on 17/10/2016 vide NOC letter CGWA\NOC\IND\ORIG\2016\2308.

4.5 Water Metering & Monitoring System

Monitoring is the most important prerequisite for efficient water management. Thus, in the water supply network, it is necessary to have a robust system of monitoring. During the audit, the available flow meters were identified, and their working conditions were checked.

4.5.1 Measurement at different locations through Ultrasonic Flow meter

PHDCCI team measures the flow for all the flow meters installed in the plant with the help of ultrasonic flow meter to check any variation in flow meter reading. All flow meters were giving accurate results. Data captured with Ultrasonic Flow meter and Meter installed at the plant is shown in below table.

Table 6 Measurement at Different Location through Ultrasonic Flow Meter

Sr. No.	Location	Flow Measurement by PHDCCI Flow Meter (KL/hr)
1	Bore well # 1	141
3	Bore well # 3	138

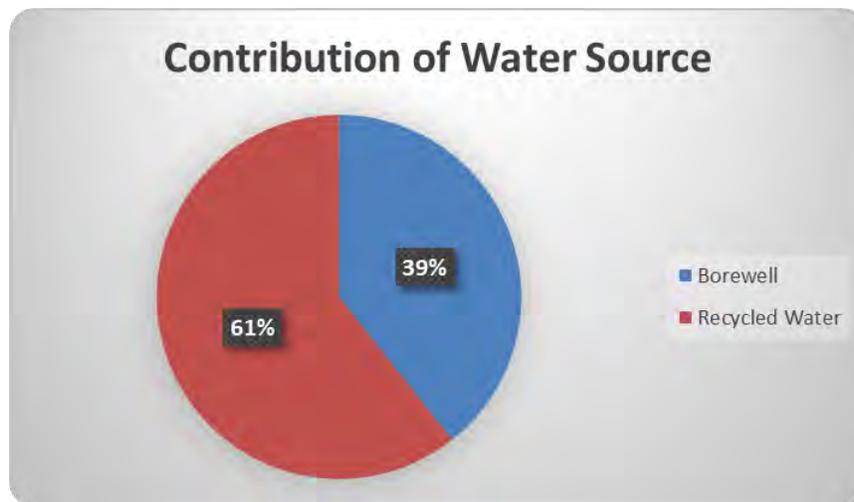


Figure 3 Contribution of Water Sources

4.5.2 Area Wise Water Consumption in Plant

The break up for water consumption in different area is provided in below tables and bar charts:

Table 7 Area Wise Water Consumption in the Plant

AREA WISE WATER CONSUMPTION			
1	Process water	1090	22%
2	DM water	638	13%
3	Soft water	2536	52%
4	Utilities	530	11%
5	Domestic	30	1%
6	Gardening	81	2%

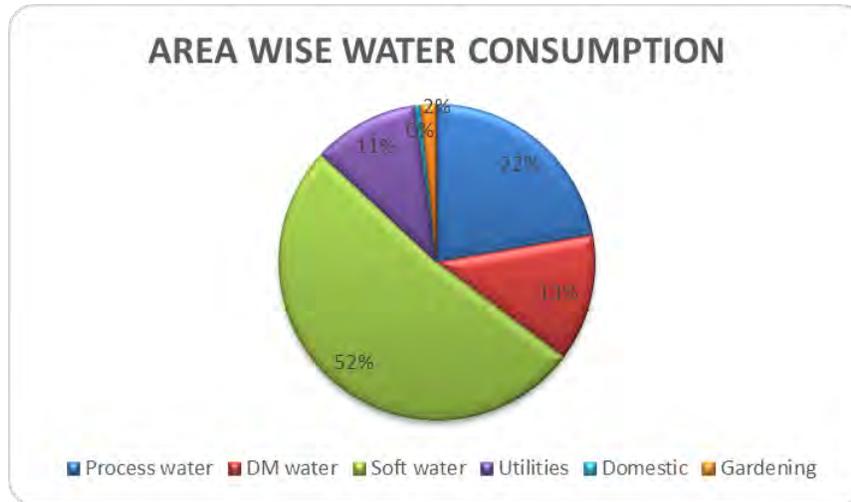


Figure 4 Area wise consumption in the Plant

As evident from the area wise water consumption table and graph, the major water consumption area in the plant is process and utilities.

Raw Water Distribution

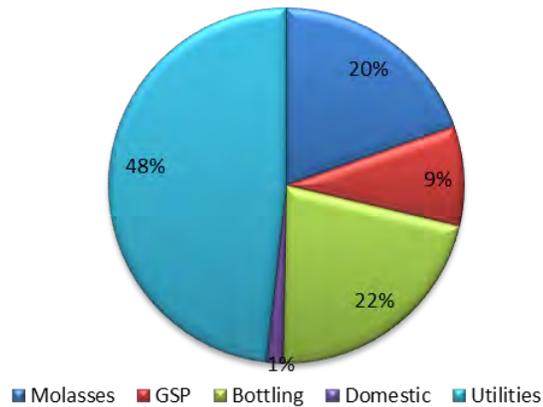


Figure 5 Raw Water Distribution

Recycled Water Distribution

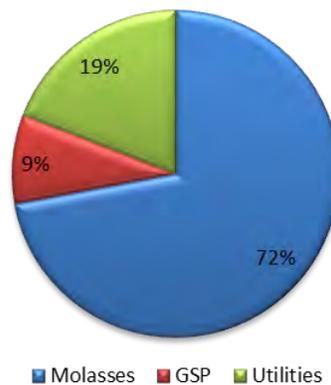


Figure 6 Recycled Water Distribution

4.5.3 Total Raw Water Withdrawal for Last Three Years

Total Raw Water Withdrawal for last three years (2021, 2020 and 2019) is shown in below table

Table 8 Total Raw Water Withdrawal for (2019, 2020 and 2021)

Year	Month	Total Water Withdrawal from Bore well Source (KL)
2021-22	Apr-21	58470
	May-21	62243
	Jun-21	58072
	Jul-21	53542
	Aug-21	61791
	Sep-21	59270
	Oct-21	55181
	Nov-21	54434
	Dec-21	73971
	Jan-22	60753
	Feb-22	51533
	Mar-22	55179
2020-21	Apr-20	29998
	May-20	61959
	Jun-20	73742
	Jul-20	74371
	Aug-20	74892
	Sep-20	71127
	Oct-20	69549
	Nov-20	70501
	Dec-20	76736
	Jan-21	71858
	Feb-21	64448
	Apr-20	29998
Total		811437
2019-20	Apr-19	67897
	May-19	67048
	Jun-19	53952
	Jul-19	57141
	Aug-19	66739
	Sep-19	74491
	Oct-19	68209
	Nov-19	59727
	Dec-19	68202
	Jan-20	66866
	Feb-20	64025
	Mar-20	65064
Total		779361

From above table, it is clear that normal water requirement of ground water extraction is around 8,00,000 KL /annum when the plant is running on full/peak load.

Table 9 Break-Up of Sources Withdrawal Pattern

Source	Total Raw water Withdrawal in KL (FY 2019-20)	Total
Bore well No. 1	2,48,249	35%
Bore well No. 2	1,65,043	24%
Bore well No. 3	2,91,148	41%
Total	7,04,440	100%

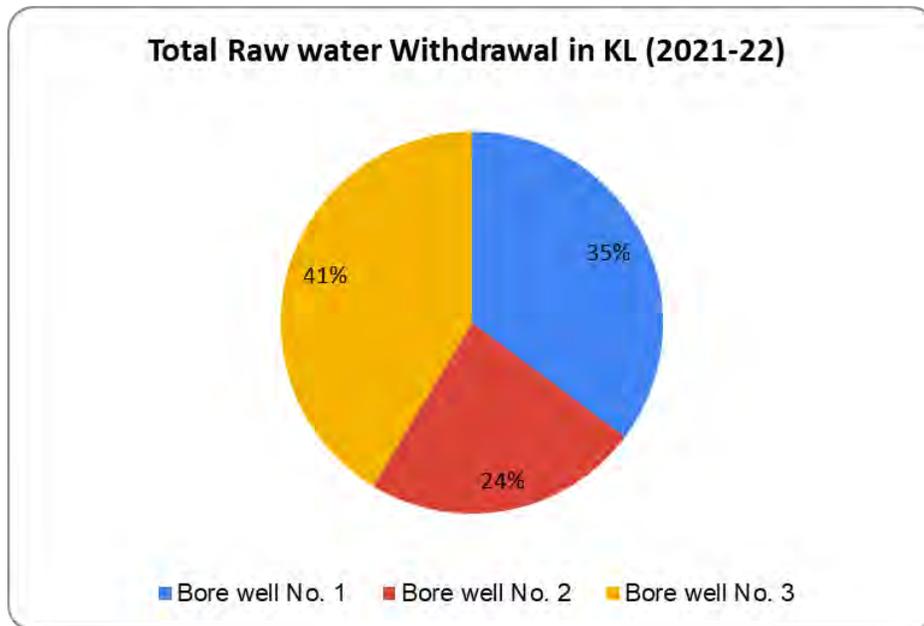


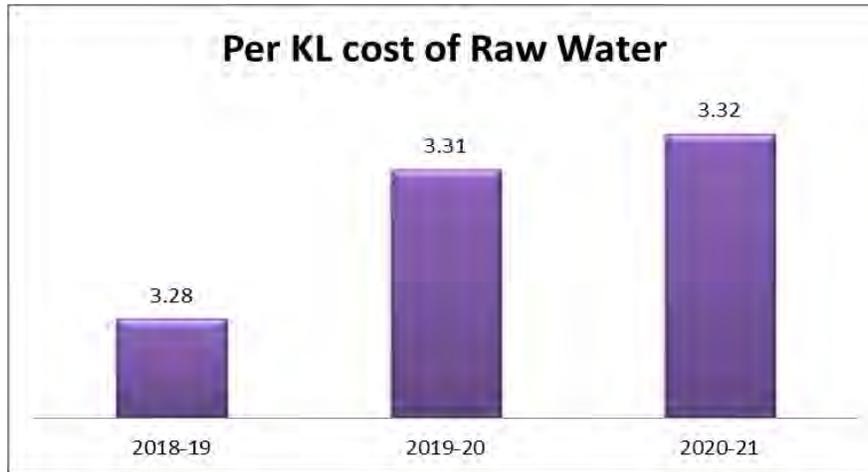
Figure 7 Total Raw water withdrawal

4.6 WATER COSTING

The Audit team calculated the Per KL cost of Raw Water. The Rs. /KL cost of Raw water is Rs. 3.3 for year 2022. The expenses towards energy consumption at bore well, Manpower cost, and maintenance costs are considered for calculating raw water cost. The detail of Raw Water Rs. /KL cost is provided in below table.

Table 10 Rs. /KL cost of Raw Water withdrawal

Year	Total Water Withdrawal (KL)	Man Power Cost (Rs.)	Maintenance Cost (Rs.)	Energy Cost (Rs.)	INR/KL
2018-19	822492	20,000	255,000	2,424,278	3.28
2019-20	779361	20,000	268,500	2,294,886	3.31
2020-21	811437	20,000	285,000	2,391,113	3.32



4.7 BOREWELL PUMP PERFORMANCE EVALUATION

Total three (3) bore well are installed at Radico Khaitan Ltd, Rampur. During audit, we measured Terminal Voltage, Load Current, Power Consumption and P.F. for all the pumps. We have also checked throttling, Flow, measured Suction and Discharge Pressure. All the measured data is tabulated below.

Table 11 Performance Evaluation of Bore Well Pumps

Particulars	Unit	Bore well # 1	Bore well # 2	Bore well # 3
Running Status		Running	Standby	Running
Rated Flow	m ³ /hr	Running	Standby	Running
Rated Head	M	150	150	190
Rated Power	KW	45	45	50
Measured Flow	m ³ /hr	30	30	45
Velocity	m/s	141	-	138
Discharge Pressure (A)	Kg/cm ²	1.21	-	1.94
Depth of Water from Ground (B)	Meter	2.9	-	3.8
Total Head (=B+(AX10))	Meter	7	-	7
Head Utilization	%	36	-	45
Flow Utilization	%	80%	-	90%
Input power	kW	94%	-	73%
Hydraulic Power	KW	23.21	-	30.35
Motor Efficiency	%	13.83	-	16.92
Rated Efficiency		90	-	90
Pump Efficiency	%	61.3%	-	57.5%
Overall (Pump Set) Efficiency	%	59.6%	-	55.8%

OBSERVATION

- The evaluated pump efficiency of bore wells and other transferring pump are 59.6% & 55.8%, respectively. The results are found satisfactory.

4.8 CALIBRATION CERTIFICATES

All of the meters have been regularly calibrated by Radico Khaitan Limited, Rampur & the calibration details have been shown below.

Table 12 Flow Meter Calibration Details

Meter Sr. No.	Certificate Number	Location of Meter	Date of Calibration	Due date of Calibration
1	CC66122000001324	Borewell 1	23-09-2021	22-03-2023
2	CC66122000001325	Borewell 2	23-09-2021	22-03-2023
3	CC66122000001326	Borewell 3	23-09-2021	22-03-2023

RECOMMENDATIONS

In most of the location, flow meters are installed and the plant is maintaining the data for bore wells & other process such as Soft water, DM water, Cooling tower section, Boiler make-up etc. but not drinking and gardening. The locations where flow meter should be installed are mentioned below:

- a) Line going to STP treated water
- b) Line going to Residential Colony

Secondary
Treatment

Aeration Tank

Pri
Se

Chlorine
Tank



CHAPTER 5

Water Treatment Practices

5. WATER & WASTE WATER TREATMENT PRACTICES (OR) WATER TREATMENT & RECYCLING PRACTICES (OR) JUST WATER TREATMENT PRACTICES

The water treatment & Waste Water Treatment Practices in Radico Khaitan Ltd, Rampur includes borewell water, and 1 x 150 KLD STP for domestic sewage generation in the plant & ETP which collects waste water and provide treated water to be used in gardening and in utility as soft water.

5.1 Raw / Fresh Water Treatment

Radico Khaitan Ltd, Rampur receives fresh water from bore well which is already drinking quality however it is pass through filters, Softener plant & DM plant before supply to process & residential/domestic use. Fresh water is supplied to process. DM plant operates to provide DM water to be used in product & softener plant to provide soft water for utilities. The DM Plant & softener plant act as WTP of the plant. Process diagram of DM Plant and Softener plant at Radico Khaitan Ltd, Rampur is shown below.

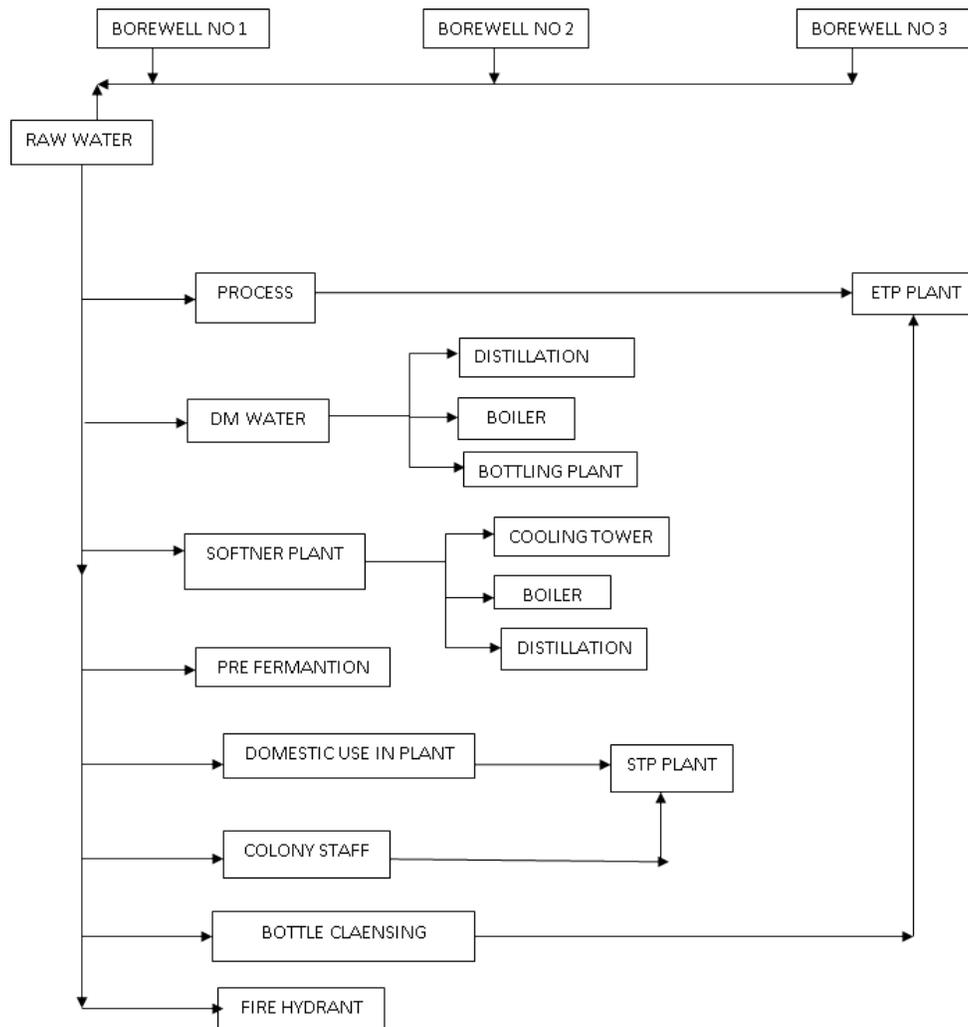


Figure 8 WTP Layout of Rampur Distillery, Rampur

5.2 WASTE WATER TREATMENT & DISPOSAL

Distillery have adopted the process of reduce and recycle process to manage effluent. All the waste water generated in the plant (except from residential colony) is being transferred to CPU. There is waste water collection tank (can be called as pre-ETP treatment) in which water is stored & pass through TSS reduction system, MEE, Bio-digesters before pumping into ETP. In ETP, there is set of ROs, collection tanks and aeration tanks in which Effluent water is treated and treated water is used for horticulture.

Waste stream is comprises of

A) Process Waste Streams

- Spent wash from Analyzer Column
- Fermenter Sludge
- Spent lees from Rectifier Column /PRC column/MSDH column
- Condensate from Spent wash Volume Reduction Unit
- Boiler Ash
- Boiler blow Down

B) Non – Process Waste Streams

- Cooling Tower Blow down
- Back wash water
- Water Treatment Plant Maintenance Water.



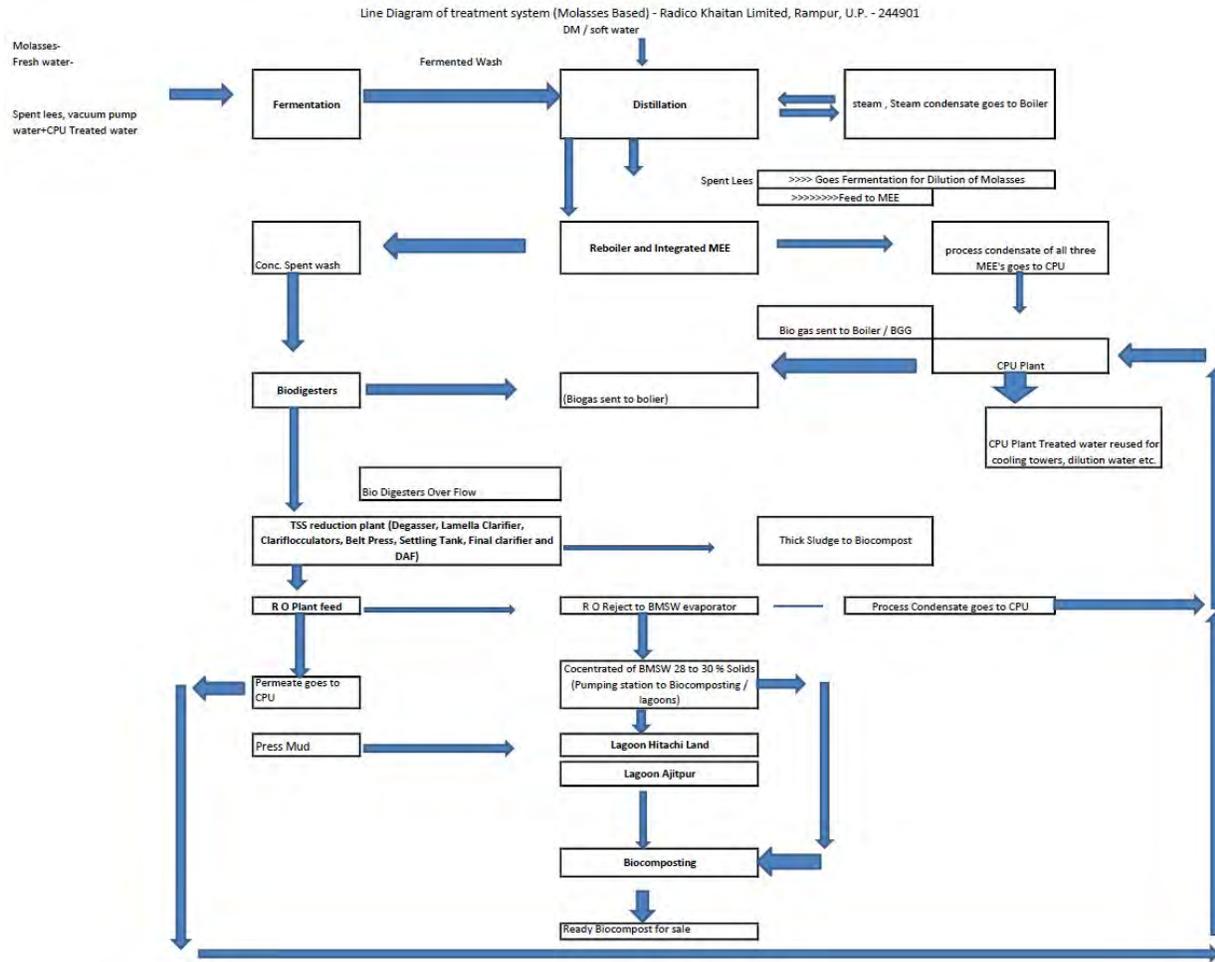
5.2.1 ETP

Reduction of volume to 25%, the concentration of solids is less than 30% in the effluent being used in Bio-composting. It is because of a different process which involves feeding of concentrated SpentWash of 24 % solids in digesters wherein the Solid Concentration is reduced again by ~60% leaving only 8-9% at the outlet of Digesters from 24-25% after MEE, which is again concentrated through RO Plant and BMSW MEE to 26-27% but due to settling of suspended solids and de-composition of organic matters in the storage lagoon at an average it remain 14~15% solids only for Bio-composting.

- a. Molasses based distillation plant's Weak Spent Wash as a feed to Evaporator.
- b. Molasses based distillation plant's Strong (Concentrate) Spent Wash as output of Evaporator.
- c. Grain based distillation plant's Weak SpentWash as a feed to Evaporator.
- d. Grain based distillation plant's Strong (Concentrate) SpentWash as output of Evaporator.

Volume reduction is achieved through re-boilers, integrated multi-effect evaporators (MEE) before Bio-Digesters.

In 2005, Radico has installed our First RO Plant of 1000 m³ / day. In 2007, another RO plant of 1250 m³ / day was installed. Radico has modified both the RO plants in 2013 to take load of higher TDS, after installation of MEE on distillation plants. In the year 2002, we started Bio-Composting and at present we have about 52 Acres of Bio-composting. At present, it has 14 Acres of covered Bio- Composting for composting in rainy season.



Radico, Rampur has installed Sophisticated TSS removal system (To bring down Digester outlet TSS 20,000 PPM to 2000 PPM at RO Inlet) comprising of Lamella Clarifiers, Series of Clarifloculators, filter press. Clarifier and Dissolved air floatation for further volume reduction through R.O. plants.



- 1) Reduced Effluent Generation through Multi Effect Evaporators and High Pressure RO Plants of 1000 m³/day and 1250 m³/day followed by permeate polishing unit.
- 2) Improved efficiency of RO Plant by increasing RO pressure from 60 Bar to 75 Bar and improved TSS reduction system through following additional equipment in now added one more stage of 90 Bar to improve recovery.
- 3) Installed 2nd stage RO as RO III plant for ultra-filtration of First stage Permeate in order to recycle it in fermentation and cooling tower.
- 4) Degasser to de-gasify the effluent for better settling of suspended solids.
- 4) Settlers (3 nos.) for better sludge separation.
- 5) Lamella Clarifier for better sludge separation.
- 6) Filter Press- for thickening of separated sludge.
- 7) Dissolved Air Flotation (DAF) Mechanism with the help of Special Polyelectrolyte for settling of fine sludge particles.
- 8) Lamella Degasser Filter Press

H.P.R.O. - 1 PLANT OF RADICO



H.P.R.O. - 2 PLANT OF RADICO



Radico is one of the pioneers to accept and introduce the new Technologies. For the First Time in India we have installed the DAF System on Distillery Effluent. TSS Reduction thru DAF is from 3200 PPM to 2000 PPM i.e. about 38%.



It has achieved 70% reduction in overall effluent volume and targeted to have 80% reduction after stabilization of currently installed systems.

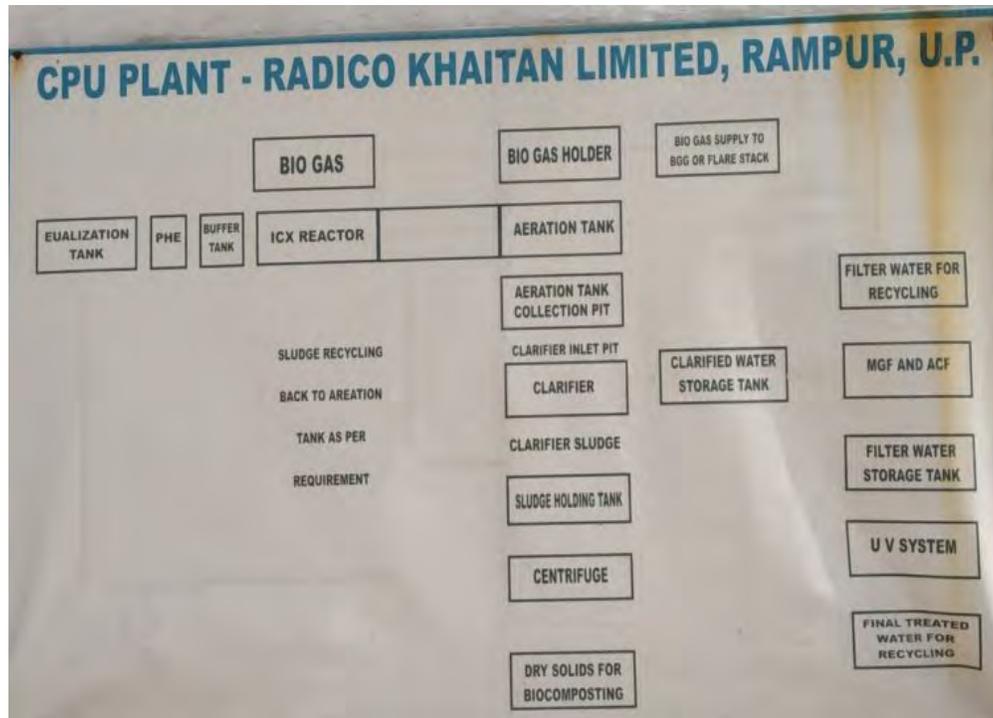
In order to reduce effluent volume to less than 1: 2 ratio, Radico has install evaporator for its effluent from RO reject. Radico is installing five falling film and one force flow evaporator along with one stand by (FF) for all the five evaporators. It will be having auto CIP / change over through DCS control system. Concentration of effluent shall be increased up to 28-30% from % of RO reject.

Plant has installed Permeate polishing unit in RO plant for recycling of Permeate in Process. Recycling of lees, process condensate and Permeate in fermentation for Molasses dilution. Radico has been able to cut their fresh water consumption by about 60% through recycling of steam Condensate to Boilers, Using MEE condensate for dilution of Molasses and recycling R O. permeate to cooling towers and for gardening.

Stream recycles to

1. Rectification, Pre-rectifier column Lees Recycle Fermentation Recycled

2. Vacuum Pump water Recycle Fermentation 95% recovery
 3. Steam Condensate Recycle Boiler 98% recovery
 4. Process Condensate re-cycle Fermentation 95% recovery
 5. CO2 Scrubber Water re-cycle Fermentation 98% recovery
 6. RO Permeate recycle Cooling tower, Fermenters and Gardening 100% recovery
- Water Consumption / BL of Alcohol Before adopting recycling Systems 12 Liter / BL
 Water Consumption / BL of Alcohol after adopting recycling system 8 Liter / BL



After volume reduction through MEE & R.O. remaining effluent is sent for Bio-Composting using sugar mill press mud and manufacturing highly valuable and micro-nutrient rich organic manure Bio-compost. The Bio-compost manufactured in the Distillery is being packed in sealed bags and no Bio-Compost sale is done through tractor trolleys now.

Radico has adopted very innovative and effective way of Bio-composting in Rainy season by covering Bio-composting yards. These poly sheds are very useful in the rainy season and protect the press mud from rain water in order to continue the process of Sp. Wash consumption in the press mud in the rainy season as well. By adopting covered Bio-composting, Radico is able to achieve ZSD in the rainy season and thereby facilitate operation of distillery throughout the year including rainy season.

Radico Khaitan Ltd has achieved remarkable landmarks in the field of effluent management, achieving Zero Spent Wash Discharge through various means and reduction in fresh water consumption per litre of alcohol production.

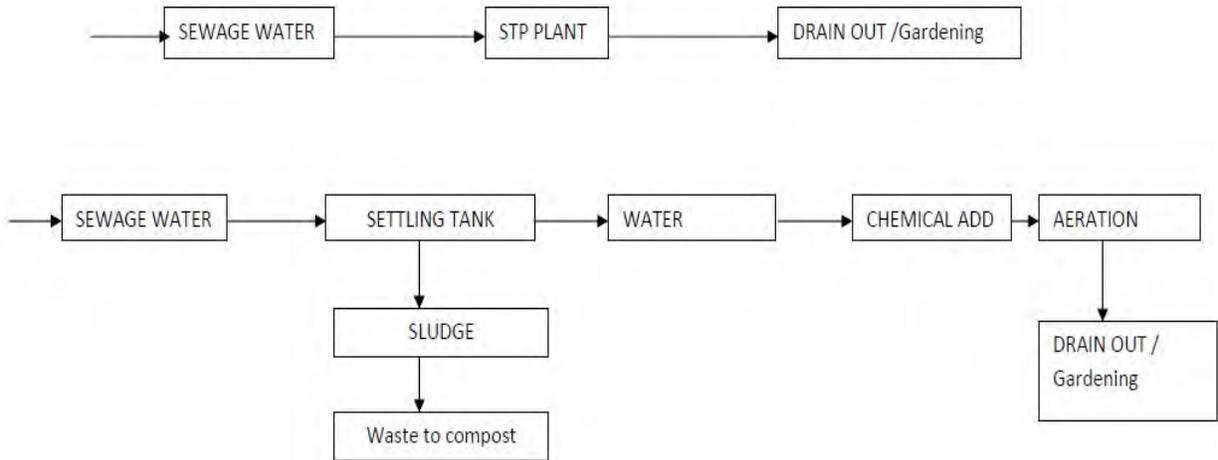
Table 13 Details of Bio-Compsting

1	Total Area for Bio Composting (acres)	acres	58
2	Break up of total area	acres	
	Active area of Bio-composting	acres	48
	Covered active area	acres	25
	Uncovered active area	acres	33
	Storage Area	acres	
	Area for press mud storage(excluding active area)	acres	5
	Area for press mud storage having facility to cover press mud storage with tarpaulin plastic (covered/uncovered)	acres	5
	Area for ready Bio-compost storage (excluding active area)	acres	5
	Area for ready Bio-compost storage having facility to cover press mud storage with tarpaulin plastic(covered/uncovered)	acres	5



5.2.2 SEWAGE TREATMENT PLANT

All residential waste water is sent to 150 KLD STP installed in the plant for treatment of sewage water and treated water is utilized in gardening of cricket ground and nearby areas for vegetation and plantation. A typical layout is shown below.



5.2.4 ENVIRONMENTAL COMPLIANCE (RELATED TO WATER)

1. Radico Khaitan Ltd, Rampur does comply with the NOC for ground water withdrawal of **2600 KL/day (and not exceeding 949,000 KL/year)** of ground water; through proposed three bore wells only. The audit team has collected the detail of Ground Water abstracted by the plant in year 2020. As per data provided by the plant, the total ground water abstraction in FY 2021-22 is **704,440 KL/year which is less than the CGWA NOC of 949,000 KL/year, issued to plant on 17/10/2016.**
2. As per CGWA guidelines, all the bore wells to be fitted with water meter by the firm and monitoring of ground water abstraction to be undertaken accordingly on regular basis, at least once a month and Radico Khaitan Ltd, Rampur has installed flow meters on all the bore well and are maintaining the data on monthly basis. All the raw water extraction data is submitted to CGWA on yearly basis.
3. As per the water quality reports, all the parameters are well within the prescribed limits. However, it was brought into notice that in some CPCB reports of hand pump, piezometer wells and bore wells that the Fe & Mn contents are marginally above the limits. These are may be due to the fact that there could be leaching & corrosion of pipe material. Similarly, in use of galvanize iron pipe can show little increase in Zinc & Lead content in water sampling. In such case pipe material can be replace with PVC material. In some cases, if water sampling is done at locations near to bio composting area, it may lead to showing contamination of water but that may be not the case in actual.



4. The audit team has checked and verified all the water quality test reports such as Raw Water and Treated Water from Effluent Treatment Plant. All of the reports comply with the environmental factors related to water uses and discharge. (Attached separately in annexure).

Radico Khaitan Ltd has taken various innovative initiatives for Upliftment of ground water level of Chamraua Block and developed various ponds in various villages of Rampur in order to recharge optimum rainwater through pond of respective villages. Although the ground water level is majorly depends on rain water fall quantum in respective area, but development of pond is also very important to recharge the rain water through ponds. In development of ponds for making them suitable for rain water recharging following activities are being carried out:

1. Pond's leveling activity:

With surface leveling activity, the bottom of the pond is being leveled for equal water filling all across the pond area. It helps in uniform distribution of water pressure arisen from total catchment area. Radico is doing this activity in ponds, wherever it is needed.

2. Drilling of Water Recharging Shaft inside the Ponds:

It is being carried out for providing the easy path to pond water to get recharged in underground water regime. This activity is required during new construction of Rain Water Recharging system.

3. Pond's Desilting activity:

Whenever rain carryover water of the pond get settles, the available silt also gets settled at the bottom of the pond and on filter material of water recharging shaft. This silt layer slowdown the water recharging process. To reactivate the water recharging process, removal of silt during pre-monsoon period is required. Radico is doing Desilting activity during pre-monsoon period.

4. Pre monsoon maintenance activity:

With this activity the filter material like gravels & plastic screen are being cleaned /replaced. Brick structure of water recharging shaft is being repaired wherever needed.

Till the end of monsoon period 2020, Radico has developed 129 nos of rainwater recharging shafts in 38 nos of villages (list is being attached as Annexure - D) where proper development of pond has been done along with the above-mentioned activities.

Table 14 Total Runoff Available for Recharge

Type of area	No. of recharging pits	Total Recharge Volume (m ³)
Inside the plant	27	173093
**In nearby villages	129	2623194
TOTAL	156	2796287

The total water recharged through rain water harvesting is shown in below table:

Table 15 Ground Water Recharged Through RWH Pits (Jan-2021 to Dec-2021)

Type of area	Avg. Rainfall in mtr	Total Recharge Capacity (m ³)	Total Recharge Volume (m ³)
Inside the plant	1219.9	173093	265605
In nearby villages	1219.9	2623194	4025200
TOTAL		2796287	4290806

As evident, 27 artificial rain water harvesting structure within the Radico Khaitan Ltd, Rampur & 129 artificial rain water harvesting structure within the Radico Khaitan Ltd, Rampur in nearby villages of project area are sufficient for the adequate quantity of artificial recharge. Radico Khaitan Ltd, Rampur has recharged more water than the compliance of 200% of withdrawal limit, i.e., 18,84,000 kL.



Guest House Building (Above)
Plant Shed (Below)
Roof water collection and
Water Recharging system



Biocompost Yards (Above)
Roof water collection and
Water Recharging system
Actual snap of bore (Below)





Water Recharging Shaft Constructed By: Radico Khaitan Ltd,

Village : Kakraua, Block Chamrawa, Distt. Rampur, U.P. Total Water Recharging Sh.



Water Recharging Shaft Constructed By: Radico Khaitan Ltd,

Village : Ladaura, Block Chamrawa, Distt. Rampur, U.P. Total Water Recharging Shafts in Village = 3



As per CGWA notice dated 01/02/2019, In case the ground water abstraction is more than 10 KL/day, monthly water level monitoring data shall be maintained and submitted annually to the Regional Office of CGWB. Therefore, the Radico Khaitan Ltd, Rampur, has installed six Piezometers inside the plant near the bore wells, record the monthly water level in and around the plant. Radico Khaitan Ltd, Rampur is maintaining all the data of all the piezometer and is submitting the data to CGWB on yearly basis. For monitoring the impact of water recharging system, Radico has also installed 6 Nos Piezometers, which are direct online indicators for ground water level measurement. With the impact of rainwater recharging through recharging shafts, the ground water level is indicating a stable and improving trend in recent years. From 2017 onwards, the average ground water level of Chamraua has improved by approx. 1.5 mtr. Average ground water level through all the piezometers is being attached as Annexure – E.





CHAPTER 6

Data Analysis and Results

6. DATA ANALYSIS & RESULTS

6.1 SEASON WISE WITHDRAWAL AND CONSUMPTION DETAILS

Season wise water extraction, consumption and discharge for Radico Khaitan Ltd, Rampur has been analyzed. The below table shows the analyzed data.

Table 16 Season Wise Extraction and Consumption Details

Description (For the year 20121-22)	Summers (KLD) (Mar-June)	Monsoons (KLD) (Jul-Oct)	Winters (KLD) (Nov- Feb)
Groundwater source, Borewell-1	767	598	734
Groundwater source, Borewell-2	451	483	408
Groundwater source, Borewell-3	765	787	815
Total Fresh Water Inlet	1983	1868	1957
Recycled water from ETP/STP	3417	2636	2841
Rain Water Harvested	NA	NA	NA
Total Water Available for Utilization	5401	4505	4798
Total Consumption	5401	4505	4798
Utility	973	1106	1260
Domestic	35	30	33
Process	4392	3369	3504

Observations:

- From the above table, it is seen that the major water extraction and consumption is in the almost same in whole year.

6.2 TOTAL RAW WATER WITHDRAWAL, CONSUMPTION AND DISCHARGE DETAILS (LAST THREE YEARS)

Audit team analysed the monthly data for Source, consumption and discharge for last three years. Details provided in below table:

Table 17 Total Source, Consumption and Discharge Data

Year	Month	Source (KL)	Consumption (KL)	Discharge (KL)
2021-22	April	58470	58470	0
	May	62243	62243	0
	June	58072	58072	0
	July	53542	53542	0
	August	61791	61791	0
	September	59270	59270	0
	October	55181	55181	0
	November	54434	54434	0
	December	73971	73971	0
	January	60753	60753	0

	February	51533	51533	0
	March	55179	55179	0
	Total	704440	704440	0
2020-21	April	29998	29998	0
	May	61959	61959	0
	June	73742	73742	0
	July	74371	74371	0
	August	74892	74892	0
	September	71127	71127	0
	October	69549	69549	0
	November	70501	70501	0
	December	76736	76736	0
	January	71858	71858	0
	February	64448	64448	0
	March	72256	72256	0
		Total	811437	811437
2019-20	April	67897	67897	0
	May	67048	67048	0
	June	53952	53952	0
	July	57141	57141	0
	August	66739	66739	0
	September	74491	74491	0
	October	68209	68209	0
	November	59727	59727	0
	December	68202	68202	0
	January	66866	66866	0
	February	64025	64025	0
	March	65064	65064	0
		Total	779361	779361

SAVE
WATER



CHAPTER 7

Water Conservation Opportunities

7. WATER CONSERVATION OPPURTUNITIES

Best management practices (BMPs) are a set of hands-on recommendations that help to identify opportunities and implement programs to save water in the plant. BMPs are developed for the various water-use categories in the office buildings and for monitoring and operational procedures. They are grouped according to indoor water use, outdoor water use, and monitoring and operational procedures. We can tailor water-saving program by using part or all the BMPs depending on budget and environmental requirements. Tips and information are provided on water-saving amounts and cost recovery to help in prioritizing measures and make the most knock for buck.

Based on the information collected and observations, the following can be recommended to reduce water use and increase its efficiency.

7.1 INSTALLING AUTOMATIC NOZZLES OR SPRINKLER FOR GARDENING

Present Scenario

Currently, Gardening is done with the help flexible hose that can use 40 litres of water per minute.

Recommendation

Here, we recommend installing either nozzles install sprinkler in the hose or with timer based system. The treated water saved can be utilized in domestic uses such as flushing in toilets and for cleaning of auditorium etc., which in turn reduces fresh water in domestic and residential.

Water Savings Potential

The total resultant benefit in terms of water savings workout by installing automatic timer based sprinkler for gardening is **6051 KL** per annum with an estimated investment of **Rs. 0.5 Lac** with the simple payback period of **29 months**. Water saving potential after installing timer based sprinkler is shown below:

Table 18 Saving Potential for Gardening

Sr. No.	Particulars	Unit	Values
1	Water Used in Gardening	KL/year	30255
2	Water saving Potential	%	20
3	Total Water Saving Potential	KL/year	6051
4	Average Cost of Water	Rs./KL	3.4
5	Monetary Saving Potential (3.4x 6051 = 20753)	Rs.	20573
6	Cost of Investment	Rs	50000
7	Payback Period	months	29

7.2 INSTALLING FLOW REGULATORS IN FAUCETS OF WASH BASIN

Present Scenario

Total 44 wash basins were found with flow of existing tap/faucets is 4 Litres per Minute (LPM).

Recommended

It is recommended to throttle 50% of the present condition in wash basin faucets to reduce the flow from 4LPM to 2LPM. Faucets flows can easily be reduced without affecting the comfort of the water user.

Water Savings Potential

The total resultant benefit in terms of water savings workout by installing flow regulator is **6658 KL** per annum with an estimated investment of **Rs. 32000** with the simple payback period of **17 months**.

Table 19 Saving Potential for wash basin

Sr. No	Particulars	Unit	Value
1	Total no. of wash basin	-	40
2	Total no. of employee	-	1500
3	Water used in wash basin for one Wash	Litre	0.076
4	Total Daily Water Consumption in Wash Basin	KL/day	36.48
5	Total Annual Water Consumption (considering 365 days) (36.48x 365 = 13315.2)	KL/year	13315.2
6	Total Annual Water Consumption by Reducing flow to 50% (13315/2 = 6657.6)	KL/year	6658
7	Annual Water Saving by Reducing Flow to 50%	KL/year	6658
8	Average Cost of Water	Rs. /KL	3.4
9	Total Annual Monetary Saving	Rs.	22636
10	Investment	Rs	32000
11	Payback Period	months	17

7.3 REPLACEMENTS OF INEFFICIENT PUMPS WITH NEW ENERGY EFFICIENT PUMPS

As the efficiency of bore well #1 is very low. We recommend replacing this in-efficient pump with energy efficient pump. The resultant benefit in terms of energy savings workout for replacing it with energy efficient pump is Rs. 4.5 Lac per annum with an estimated investment of Rs. 3.2 Lac with the simple payback period of 9 months.

Table 20 Saving Potential for Inefficient Pumps with New Energy Efficient Pumps

Sr. No	Particulars	Unit	Bore well # 1
1	Running Status		Running
2	Rated Flow	m ³ /hr	150
3	Rated Head	M	45
4	Rated Power	KW	30
5	Measured Flow	m ³ /hr	70
6	Discharge Pressure (A)	Kg/cm ²	2.7
7	Depth of Water from Ground (B)	Meter	7
8	Total Head (=B+(AX10))	Meter	34
9	Input power	kW	27.88

10	Hydraulic Power	KW	6.49
11	Motor Efficiency	%	90
12	Overall (Pump Set) Efficiency	%	23.3%
13	Overall Energy Efficient Pump Efficiency	%	55.0%
14	Energy consumed for same hydraulic power@50%	kW	5.9
15	Overall Energy Savings	kWh	47167
16	Cost of Electricity	Rs./unit	9.5
17	Annual Monetary Savings	Rs	448089
19	Investment	Rs	320000
20	Simple Payback	month	9

7.4 RECOVERY OF BACKWASH WATER OF SOFTENER AND DM PLANT

Recovery of DM, regeneration waste water, implementation of rinse recycling in the DM plant, Recovery of backwash effluent from pretreatment filtration plant & Recovery of back wash water of Pressure Sand Filters (PSF) and Sand Filters (SF) will reduce the fresh water consumption by 1-2% in water treatment plant.

Table 21 Saving Potential of Backwash of SOFTENER AND DM

Sr. No.	Particulars	Unit	Values
1	Backwash generation	KLD	143
2	No of working days in a year	days	365
3	Annual Backwash water recovery @50%	KL	26183
4	Total Make up Water Saving Potential	KL/year	26183
5	Average Cost of Water	Rs./KL	3.4
6	Monetary Saving Potential After Implementing New Condensate Recovery System (3.4*26183= 89021)	Rs.	89,021
7	Investment	Rs	300000
8	Payback Period	months	40

7.5 REPLACEMENT OF OPEN TYPE COOLING TOWER WITH CLOSED CIRCUIT COOLING TOWER (CCCT)

The audit team observed that the cooling water required for utilities such as Boiler, Compressor, DGs etc., are being provided with the help of Open type cooling tower of respective size. However, open type cooling tower has lower COC (recommended by OEMs) in comparison to Closed Circuit Cooling Tower (CCCT).

Closed circuit cooling towers or fluid coolers operate just like the open type, but dissipate the process fluid heat load into the ambient air via a heat exchange coil. Closed circuit cooling towers are used in the following applications: water source heat pumps, industrial processes, air compressors, weld machine cooling, mold water cooling, power plant auxiliary cooling, furnace cooling, transformer cooling, closed condenser loops, critical systems, and systems requiring plume elimination.

The key benefits of CCCT are:

1. LOWEST OPERATING COST:

- Clean process fluids sustain the performance of high efficiency components
- Save on energy consumption by operating in “Free Cooling Mode” during the winter

2. LOWEST MAINTENANCE COSTS:

- Reduces or eliminates cleaning the heat exchanger
- Extends the life of the equipment

3. OPERATIONAL FLEXIBILITY:

- Free cooling without an intermediate heat exchanger
- Dry operation during winter months
- Variable speed pumping to conserve energy without the potential of scaling the unit

4. LOWEST WATER COSTS:

- Lower volume of recirculating water reduce water treatment cost
- Dry operation and adiabatic modes reduce or eliminate water consumption

5. MINIMAL INSTALLATION COSTS:

- Compact single piece of equipment conserves space replaces three components (cooling tower, heat exchanger, and pump arrangement)

Table 23 Water Saving Potential by installing CCCT

Sr. No.	Particulars	Unit	Values
1	Approximate water saving per day	KLD	71
2	Total No. of Running Days	Days	365
3	Annual Water Saving in Cooling Tower	KL	25828
4	Approximate Energy Saving	kWh	175200
5	Unit Cost of Electricity	Rs./Unit	9.5
6	Cost of Soft water	Rs./KL	11
7	Annual Monetary Saving in reducing water losses in Cooling Tower	Rs	271,194
8	Annual Monetary Saving in Energy reduction	Rs.	1664400
9	Total Annual Monetary Saving	Rs.	1,935,594
10	Investment	Rs.	18375000
11	Payback Period	months	114

7.6 GENERAL TIPS FOR WATER CONSERVATION

A) TOILET TANK BANK

With economical, maintenance free ‘Green Toilet Bank’ it is very easy to save water on toilet flushing, it helps to save 3 litres water on every flushing, with no sacrifice on performance. Toilet Bank filled with water is hanged inside the toilet flushing tank or reservoir. It will displace an amount of water equivalent to 3 Litres in the tank, which means every flush we will save water, thus saving you money. Less the water you use, the less you need to recycle.



B) SAVING WATER THROUGH MONITORING AND OPERATIONAL PROCEDURES

a) Identifying and Fixing Leaks

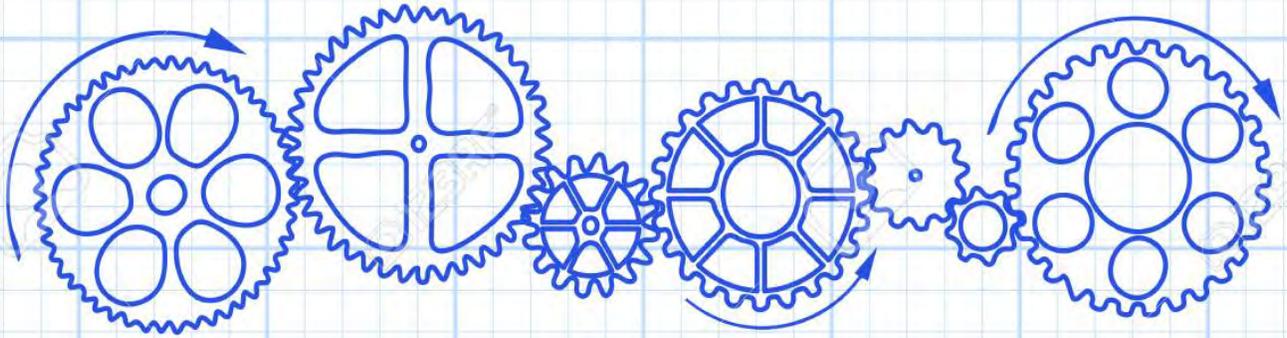
The hidden water leaks can cause loss of considerable water and energy without anyone being aware of it. A small leak can amount to large volumes of water loss. Leaks become larger with time, and they can lead to other equipment failure. Fix that leaky pipe, toilet, faucet, or roof top tank to save considerable amount of money and water. The establishment of a leak detection and repair program would be a most cost-effective way to save money and water in the Plant premises. Following are some best practices to identify and fixing leaks:

The Management must be committed for providing the staff and resources needed to maintain plumbing fixtures and equipment on a regular basis and assuring prompt identification and repair of leaks.

- Repair staff is given the tools needed and is trained to make leak repair a priority activity.
- Staffs are taught to report leaks and other water-using equipment malfunctions promptly.
- Staffs are rewarded for success.
- Rooftop tank overflow or leakage water should flow to rainwater gutter system not to sewage system to allow detection of rooftop water loss.
- Records of the type, location, number, and repair of leaks are kept in a central location.

b) Water Metering and Sub-metering

The metering and sub-metering of the Plant's water use is essential to understand the water consumption pattern inside the Plant. The accurate measurements enable management to understand maximum and minimum consumption area in the Plant and improve water efficiency in the Plant. Monitoring the water use allows management to know where and when water is being used and where the best opportunities for water savings exist.



IMPLEMENTATION

CHAPTER 8

Implementation Plan

8. IMPLEMENTATION PLAN

The Audit team has conducted detail audit of Water Sources, Consumption Area and Discharge side of Radico Khaitan Limited, Rampur and noticed that the plant officials has maintained water sources and water treatment plant properly. There are few recommendations provided by the audit team. The recommendation/implementation plans are provided below:

8.1 Installing automatic nozzles or sprinkler for gardening

The total resultant benefit in terms of water savings workout by installing automatic timer based sprinkler for gardening is **6051 KL** per annum with an estimated investment of **Rs. 0.5 Lac** with the simple payback period of **29 months**.

8.2 Replacements of Inefficient Pump with New Energy Efficient Pump

As the efficiency of bore well #1 is very low. We recommend replacing this in-efficient pump with energy efficient pump. The resultant benefit in terms of energy savings workout for replacing it with energy efficient pump is **Rs. 4.5 Lac per annum** with an estimated investment of **Rs. 3.2 Lac** with the simple payback period of 9 months.

8.3 Installing The flow regulators in Faucets of wash basin

The total resultant benefit in terms of water savings workout by installing flow regulator is **6658 KL** per annum with an estimated investment of **Rs. 32000** with the simple payback period of **17 months**.

8.4 Recovery of backwash water of Softener and DM plant

Recovery of DM, regeneration waste water, implementation of rinse recycling in the DM plant, Recovery of backwash effluent from pretreatment filtration plant & Recovery of back wash water of Pressure Sand Filters (PSF) and Sand Filters (SF) will reduce the fresh water consumption by 1-2% in water treatment plant. The total resultant benefit in terms of water savings workout by recovery of backwash water is **26183 KL** per annum with an estimated investment of **Rs. 3.0 lac** & simple payback of **40 months**.

8.5 Replacement of open type cooling tower with Closed Circuit Cooling Tower (CCCT)

Open type cooling tower has lower COC (recommended by OEMs) in comparison to Closed Circuit Cooling Tower (CCCT). The total resultants benefit in terms of water savings workout by installing CCCT is **25828 KL** per annum with an estimated an investment of approx. **Rs. 1.8 Cr** & simple payback of **95 months**.



Table 22 Summary of Implementation Plan

Sr. No.	Section/ Area	Key Observations	Recommendations	Annual Water Savings (KL/year)	Annual Monetary Savings (Rs.)	Investment (Rs.)	Payback Period (Months)	Estimated Time Frame for Implementation (Months)
I	Total Bore well Water Intake			704,440				
II	Bore well Water Saving Achievable			64,720				
Option 1: Immediate benefits								
1	Domestic	Total 44 wash basins were found with flow of existing tap/faucets is 4 Litres Per Minute (LPM).	It is recommended to throttle 50% of the present condition in wash basin faucets to reduce the flow from 4LPM to 2LPM. Faucets flows can easily be reduced without affecting the comfort of the water user.	6658	22636	32000	17	6
2	Gardening	Gardening is done with the help flexible hose of 1" dia that can use 40 LPM of water.	It is recommend installing either nozzles install sprinkler in the hose or with timer based system	6051	20573	40000	23	12
Option 2: Long-term benefits								
3	Cooling Tower	Plant has installed open type cooling tower for utility requirement which requires normal cooling water temperature for cooling. It has high COC and drift losses	It is recommended to install the Closed circuit cooling tower which reduces losses and result into huge water savings.	25,828	1935594	18375000	114	Under review

Project Name: Water Audit at Radico Khaitan Limited, Rampur



Sr. No.	Section/ Area	Key Observations	Recommendations	Annual Water Savings (KL/year)	Annual Monetary Savings (Rs.)	Investment (Rs.)	Payback Period (Months)	Estimated Time Frame for Implementation (Months)
4	Process	Currently backwash and regeneration water is being directly sent to CETP	Recovery of back wash water of Pressure Sand Filters (PSF) and Sand Filters (SF) will reduce the fresh water consumption by 1-2% in water treatment plant.	26183	89021	300000	40	Under review
TOTAL				64,720	2,067,824	18,747,000	109	-

9. CONCLUSION

Radico Khaitan Limited, Rampur district, Uttar Pradesh- is a distillery located east of Rampur town, covering an area of 44.392 Ha and occupies western parts of Chamraua block of Rampur district. The distillery produces high-grade Extra Neutral Alcohol (“ENA”) from molasses, grains and Scottish design malt spirit from barley malt.

1. The plant has consent to withdraw **2600 KL/day** of water from bore wells available in the plant. At present, approximately **2200 KL/day** of water is being used for the plant operations from the bore wells.
2. As per data provided by the plant, the total ground water abstraction in FY 2021-22 is **704,440 KL/year which is less than the CGWA NOC of 949,000 KL/year, issued to plant on 17/10/2016 vide NOC letter CGWA\NOC\IND\ORIG\2016\2308.**
3. All the water quality test reports such as Raw Water and Treated Water from Effluent Treatment Plant. All of the reports comply with the environmental factors related to water uses and discharge.
4. Radico Khaitan Limited, Rampur adopted ponds in 41 villages of Chamraua block of district Rampur and this will lead to **ground water recharge to the tune 295% of required quantity of water against 200% requirement of NOC.**
5. Plant has already **reduced its water consumption by 11000 KLD w.r.t 2019 water consumption.**
6. Ground water regime which was showing deteriorating tendency since 2008, has improved after the recharge measures adopted by Radico Khaitan Ltd within the premises. The piezometers constructed Radico Khaitan Limited, Rampur at Ajitpur and Hitachi land (both within the premises) also show a rising trend of 0.548 m/year (54.8 cm/year) and 0.365 m/year (36.5 cm/year) in the ground water level respectively since 2017.
7. Radico Khaitan Limited, Rampur has installed **TSS reduction system & 2nd stage RO with ultrafiltration** to increase the recycling the water & thus decreasing the water consumption.
8. Radico Khaitan Limited, Rampur has installed **Condensate Polishing Unit (CPU)** to recycle the water and utilize in it fermentation & cooling towers.
9. Water balance across the plant has been successfully achieved. Total water consumption is 4905 KLD out of which bore well water consumption inside the plant is 1930 KLD only.
10. Source Water savings of 64,720 KL/year (9.2 %) is achievable in the short term. Water savings of 12,709 KL/year (1.8%) is achievable in the short-term benefit, and 52011 KL/year (7.4 %) is achievable in the long term benefit.
11. Strategies identified (provided in Chapter 8) for reduction, reuse and recycle shows around **9%** saving can be achieved in ground water consumption.

10. ANNEXURES MEASURED DATA

FLOW, POWER AND PRESSURE MEASUREMENT OF PUMPS

Particulars	Unit	Bore well # 1	Bore well # 2	Bore well #3
Running Status		Running	Standby	Running
Rated Flow	m ³ /hr	Running	Standby	Running
Rated Head	M	150	150	190
Rated Power	KW	45	45	50
Measured Flow	m ³ /hr	30	30	45
Velocity	m/s	141	-	138
Discharge Pressure (A)	Kg/cm ²	1.21	-	1.94
Depth of Water from Ground (B)	Meter	2.9	-	3.8
Total Head (=B+(AX10))	Meter	7	-	7
Head Utilization	%	36	-	45
Flow Utilization	%	80%	-	90%
Input power	kW	94%	-	73%
Hydraulic Power	KW	23.21	-	30.35
Motor Efficiency	%	13.83	-	16.92
Rated Efficiency		90	-	90
Pump Efficiency	%	61.3%	-	57.5%
Overall (Pump Set) Efficiency	%	59.6%	-	55.8%

11. ANNEXURES (DATA PROVIDED BY PLANT)

ANNEXURE-A (CGWA NOC)

MEMBER SECRETARY



भारत सरकार
केन्द्रीय भूमि जल प्राधिकरण
जल संसाधन, नदी विकास
और गंगा संरक्षण मंत्रालय
Government of India
Central Ground Water Authority
Ministry of Water Resources,
River Development & Ganga Rejuvenation

File No:- 21-4/1054/UP/IND/2016 - 2280

NOC No:- CGWA/NOC/IND/ORIG/2016/2308

Dated :- 17 OCT 2016

To,
M/s Radico Khaitan Limited,
Bareilly Road, Rampur,
Uttar Pradesh - 244901

Sub:- NOC for ground water withdrawal to M/s Radico Khaitan Ltd in respect of their Distillery unit located at Bareilly Road, Rampur, Block Chamraon, District Rampur, Uttar Pradesh - reg.

Refer to your application on the above cited subject. Based on recommendations of Regional Director, Central Ground Water Board, Northern Region, Lucknow vide their recommendations dated 02/08/2016 and further deliberations on the subject, the NOC of Central Ground Water Authority is hereby accorded to M/s Radico Khaitan Ltd in respect of their Distillery unit located at Bareilly Road, Rampur, Block Chamraon, District Rampur, Uttar Pradesh. The NOC is, however subject to the following conditions:-

1. The firm may abstract 2600 cu.m/day (and not exceeding 9,49,000 cu.m/year) of ground water, through existing three (3) tubewells only. No additional ground water abstraction structures to be constructed for this purpose without prior approval of the CGWA.
2. All the wells to be fitted with water meter by the firm at its own cost and monitoring of ground water abstraction to be undertaken accordingly on regular basis, atleast once in a month. The ground water quality to be monitored twice in a year during pre- monsoon and post- monsoon periods.
3. M/s Radico Khaitan Ltd., shall, in consultation with the Regional Director, Central Ground Water Board Northern Region, Lucknow implement ground water recharge measures atleast to the tune of 18,84,000 cu.m/year as proposed, for augmenting the ground water resources of the area within six months from the date of issue of this letter. In addition, the firm shall adopt 2 to 3 nos. villages for Water Security Plan in District Rampur, Uttar Pradesh. The necessary guideline for the Water Security Plan is available on website of Ministry of Water Resources, RD & GR (www.mowr.gov.in). Both, the Demand Side Management /Supply Side Management with maintenance of structures in the said villages to be ensured and a comprehensive plan to be submitted to Regional Director, CGWB. Firm shall also undertake periodic maintenance of

West Block - 2, Wing - 3, Sector - 1, R.K. Puram, New Delhi - 110066

Tel : 011-26175362, 26175373, 26175379 • Fax : 011-26175369

Website : www.cgwa-noc.gov.in

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सत्यमेव जयते - सुन्दर सुवासाय कल्प

CONSERVE WATER - SAVE LIFE

recharge structures at its own cost. Firm to take up area specific plantation to enhance the recharge measures.

4. The photographs of the recharge structures after completion of the same are to be furnished immediately to the Regional Director, Central Ground Water Board, Northern Region, Lucknow for verification and under intimation to this office. Firm to take up area specific plantation to enhance recharge measures.

5. The firm at its own cost shall install 6-7 piezometers fitted with automatic water level recorders having telemetry systems at suitable locations and execute ground water regime monitoring programme in and around the project area on regular basis in consultation with the Central Ground Water Board, Northern Region, Lucknow.

6. The ground water monitoring data in respect of S. No. 2 & 5 to be submitted to Central Ground Water Board, Northern Region, Lucknow on regular basis at least once in a year.

7. The firm shall ensure proper recycling and reuse of waste water after adequate treatment.

8. Action taken report in respect of S. No. 1 to 7 may be submitted to CGWA within one year period.

9. The permission is liable to be cancelled in case of non-compliance of any of the conditions as mentioned in S. No. 1 to 8.

10. This NOC is subject to prevailing Central/State Government rules/laws or Courts orders related to construction of tubewell/ground water withdrawal/construction of recharge or conservation structure/discharge of effluents or any such matter as applicable.

11. This NOC does not absolve the applicant / proponent of this obligation / requirement to obtain other statutory and administrative clearances from other statutory and administrative authorities.

12. The NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and be taking decisions independently of the NOC.

13. This NOC is valid from 03/10/2016 till 02/10/2018.


Member Secretary

Copy to:

1. The Member Secretary, Uttar Pradesh Pollution Control Board, PICUP Bhawan, Third Floor, B-Block, Vibhuti Khand, Gomti Nagar, Lucknow, Uttar Pradesh with a request to ensure that the conditions mentioned in the NOC are complied by the firm.

2. The District Magistrate, District Rampur, Uttar Pradesh.

3. The Regional Director, Central Ground Water Board, Northern Region, Lucknow.

This has reference to your recommendation dated 02/08/2016.

4. TS to the Chairman, Central Ground Water Board, Bhujal Bhawan, Faridabad.

5. Guard File 2016-17.


Member Secretary

ANNEXURE-B (CALIBRATION CERTIFICATES)



MICRO CALIBRATION LAB

F.C.A. 2980, GALI NO. 2, S.G.M. NAGAR, N.I.T. FARIDABAD - 121 001 (HARYANA)
 Mobile : 9212566694, E-mail : microcallab@gmail.com

Calibration Certificate

1. Service Request No. & Date : 2022/172 & 21/09/2022	2. Certificate No. : CC
3. Name & Address of The Customer : M/S RADICO KHAITAN LTD BAREILLY ROAD, RAMPUR- 244901 UP	4. Calibration Date : 23
	5. Valid Up to : 22
	6. Issue Date : 25
	7. Calibration Location : At
	8. Page No. : 10

9. Condition Of Item & Date of Receipt : Ok & 23/09/2022

10. Description of Item :

Name : Water Flow Meter GSP	Make : Sci
Sr. No. : 16091506	ID. No. : GSE
Range : 0 to 100 m ³ /hr	Resolution : 0.1
Location : Borewell No-01	Model No. : -----

11. Details of Calibration Standard Used :

S.N.	Nomenclature	Make & Sr. No.	Certificate No.	Certified By
1	Ultrasonic Flow Meter	WFS/MCL/FF/01	M/FC/220811001	Micro Precisi

12. Environment Condition :

Ambient Temperature : (25±10) °C
 Relative Humidity :: (50±20) %RH

13. Calibration Procedure No. : WI(FF)/01

14. Reference IS Standard : ISO 5167-1

15. Mechanical Calibration

(i) Flow

16. Results :

S. No.	UUC Reading in (m ³ /hr)	STD Average Measured Reading in (m ³ /hr)	Deviation in (m ³ /hr)
1	74.6	74.825	-0.225
2	75.8	76.075	-0.275
3	79.4	79.679	-0.279
4	84.6	84.864	-0.264
5	92.3	92.712	-0.412

Remark:-OK

The reported uncertainty is the expanded uncertainty in measurement obtained by multiplying the standard uncertainty by the coverage factor $k=2$, which corresponds to a coverage probability of approximately 95.45% for a normal distribution.

NOTE: (1) The certificate shall not be reproduced except in full without the written permission of higher authority.

(2) Standard(s) are traceable to National/International Standard

(3) Recommended due date is suggested by the customer.

(4) Result is the average of five readings.

(5) This report refers only to the particular item calibrated at lab/site.

(6) The calibration results reported are valid at the time of and under the stated conditions of measurements.



MICRO CALIBRATION LAB

F.C.A. 2980, GALI NO. 2, S.G.M. NAGAR, N.I.T. FARIDABAD - 121 001 (HARYANA)
 Mobile : 9212566694, E-mail : microcallab@gmail.com

Calibration Certificate

1. Service Request No. & Date : 2022/172 & 21/09/2022	2. Certificate No. : CC
3. Name & Address of The Customer : M/S RADICO KHAITAN LTD BAREILLY ROAD, RAMPUR- 244901 UP	4. Calibration Date : 23/09/2022
	5. Valid Up to : 22/09/2023
	6. Issue Date : 25/09/2022
	7. Calibration Location : At
	8. Page No. : 10

9. Condition Of Item & Date of Receipt : Ok & 23/09/2022

10. Description of Item :

Name : Water Flow Meter GSP	Make : Roc
Sr. No. : 182072	ID. No. : GSP
Range : Up to 100 m ³ /hr	Resolution : 0.00
Location : Borewell No-02	Model No. : ----

11. Details of Calibration Standard Used :

S.N.	Nomenclature	Make & Sr. No.	Certificate No.	Certified By
1	Ultrasonic Flow Meter	WFS/MCL/FF/01	M/FC/220811001	Micro Precisi

12. Environment Condition :

Ambient Temperature : (25±10) °C
 Relative Humidity : (50±20) %RH

13. Calibration Procedure No. : WI(FF)/01

14. Reference IS Standard : ISO 5167-1

15 Mechanical Calibration

(i) Flow

16. Results :

S. No.	UUC Reading in (m ³ /hr)	STD Average Measured Reading in (m ³ /hr)	Deviation in (m ³ /hr)
1	68.2	68.076	0.124
2	71.5	71.334	0.166
3	77.3	76.952	0.348
4	85.4	85.001	0.399
5	89.4	89.093	0.307

Remark:-OK

The reported uncertainty is the expanded uncertainty in measurement obtained by multiplying the standard uncertainty by the coverage factor, $k=2$, which corresponds to a coverage probability of approximately 95.45% for a normal distribution.

- NOTE: (1) The certificate shall not be reproduced except in full without the written permission of higher authority.
 (2) Standard(s) are traceable to National/International Standard
 (3) Recommended due date is suggested by the customer.
 (4) Result is the average of five readings.
 (5) This report refers only to the particular item calibrated at lab/site.
 (6) The calibration results reported are valid at the time of and under the stated conditions of measurements.



MICRO CALIBRATION LAB

F.C.A. 2980, GALI NO. 2, S.G.M. NAGAR, N.I.T. FARIDABAD - 121 001 (HARYANA)
 Mobile : 9212566694, E-mail : microcallab@gmail.com



Calibration Certificate

1. Service Request No. & Date : 2022/172 & 21/09/2022	2. Certificate No. : CC26
3. Name & Address of The Customer : M/S RADICO KHAITAN LTD BAREILLY ROAD, RAMPUR- 244901 UP	4. Calibration Date : 23/09/2022
	5. Valid Up to : 22/09/2023
	6. Issue Date : 25/09/2022
	7. Calibration Location : At Site
	8. Page No. : 1 Of 1

9. Condition Of Item & Date of Receipt : Ok & 23/09/2022

10. Description of Item :

Name : Water Flow Meter MRP	Make : Rocky
Sr. No. : 182073	ID. No. : MRP
Range : Up to 100 m ³ /hr	Resolution : 0.001
Location : Borewell No-03	Model No. : -----

11. Details of Calibration Standard Used :

S.N.	Nomenclature	Make & Sr. No.	Certificate No.	Certified By
1	Ultrasonic Flow Meter	WFS/MCL/FF/01	M/FC/220811001	Micro Precision

12. Environment Condition :

Ambient Temperature : (25±10) °C
 Relative Humidity : (50±20) %RH

13. Calibration Procedure No. : WI(FF)/01

14. Reference IS Standard : ISO 5167-1

15 Mechanical Calibration

(I) Flow

16. Results :

S. No.	UUC Reading in (m ³ /hr)	STD Average Measured Reading in (m ³ /hr)	Deviation in (m ³ /hr)	U
1	67.2	66.966	0.234	
2	73.7	73.444	0.256	
3	78.9	78.632	0.268	
4	83.3	83.005	0.295	
5	92.1	91.752	0.348	

Remark-OK

The reported uncertainty is the expanded uncertainty in measurement obtained by multiplying the standard uncertainty by the coverage factor

k=2, which corresponds to a coverage probability of approximately 95.45% for a normal distribution.

NOTE: (1) The certificate shall not be reproduced except in full without the written permission of higher authority.

(2) Standard(s) are traceable to National/International Standard

(3) Recommended due date is suggested by the customer.

(4) Result is the average of five readings.

(5) This report refers only to the particular item calibrated at lab/site.

(6) The calibration results reported are valid at the time of and under the stated conditions of measurements.

ANNEXURE-C (LISTR OF DEVDELOP PONDS & RECHARGING POINTS)

List of developed ponds in villages

Water Recharging Pit Arrangements in Village Ponds			
S. No.	Name of Village	No. of Shaft	Year of Construction
1	Agapur	4	2017-2018-2019
2	Ballu Ki Madhaiya	3	2017-2018-2019
3	Beesri	4	2017-2018-2019
4	Bhamraua	2	2017-2018-2019
5	Bhandpura	3	2017-2018-2019
6	Chamraua	3	2017-2018-2019
7	Chittiramnagar	9	2017-2018-2019
8	Dabka	2	2017-2018-2019
9	Daniapur	2	2017-2018-2019
10	Dinpur	4	2017-2018-2019
11	Hajinagar	3	2017-2018-2019
12	Hariyal	3	2017-2018-2019
13	Jasmauli	3	2017-2018-2019
14	Kakraua	3	2017-2018-2019
15	Kalrakh	5	2017-2018-2019
16	Khajuria	2	2017-2018-2019
17	Ladora	4	2017-2018-2019
18	Madhauri	3	2017-2018-2019
19	Mahmoodpur	4	2017-2018-2019
20	Meghanagla	5	2017-2018-2019
21	Milak Chikna	5	2017-2018-2019
22	Nasratnagar	2	2017-2018-2019
23	Naugama	6	2017-2018-2019
24	Raipur	3	2017-2018-2019
25	Raja rampur	2	2017-2018-2019
26	Ramu Ki Madhaiya	2	2017-2018-2019
27	Shankarpur	2	2017-2018-2019
28	Sikrol	3	2017-2018-2019
29	Baasnagli	1	2019-2020
30	Bijaiya	5	2019-2020
31	Dundai	3	2019-2020
32	Indra	2	2019-2020
33	Koyla	1	2019-2020
34	Koyli	5	2019-2020
35	Madhaiya Udairaj	3	2019-2020
36	Milak Nibbi Singh	3	2019-2020
37	Mominpur Ahmedabad	5	2019-2020
38	Tumaria	5	2019-2020
Total No of Shafts		129	

ANNEXURE-E (GROUND WATER LEVEL)

Latest Data TimeStamp: 2022-09-14 06:00:00 Scale: 1 Week

Radico_Khaitan_GSP_1_Rampur:Groundwater Table and Barometric Pressure

DateTime	WATER LEVEL (mWC)	TEMPERATURE (degC)
2022-09-14 06:00:00	-7.17	25.80
2022-09-13 18:00:00	-7.15	25.80
2022-09-13 06:00:00	-7.17	25.80
2022-09-12 18:00:00	-7.14	25.80
2022-09-12 06:00:00	-7.17	25.80
2022-09-11 18:00:00	-7.15	25.80
2022-09-11 06:00:00	-7.19	25.80
2022-09-10 18:00:00	-7.18	25.80
2022-09-10 06:00:00	-7.00	25.80
2022-09-09 18:00:00	-7.19	25.80
2022-09-09 06:00:00	-7.01	25.80
2022-09-08 18:00:00	-7.20	25.80
2022-09-08 06:00:00	-7.00	25.80
2022-09-07 18:00:00	-7.20	25.80
2022-09-07 06:00:00	-6.98	25.80

2022/9/14 18:05

Latest Data TimeStamp: 2022-09-14 06:00:00 Scale: 1 Week

Radico_Khaitan_Cogon2_1_Rampur:Ground Water Table and Barometric Pressure

DateTime	WATER LEVEL (mWC)	TEMPERATURE (degC)
2022-09-14 06:00:00	-7.52	24.60
2022-09-13 18:00:00	-7.53	24.60
2022-09-13 06:00:00	-7.52	24.60
2022-09-12 18:00:00	-7.52	24.60
2022-09-12 06:00:00	-7.51	24.60
2022-09-11 18:00:00	-7.50	24.60
2022-09-10 18:00:00	-7.52	24.60
2022-09-10 06:00:00	-7.53	24.60
2022-09-09 18:00:00	-7.54	24.60
2022-09-09 06:00:00	-7.54	24.60
2022-09-08 18:00:00	-7.53	24.60
2022-09-08 06:00:00	-7.53	24.60
2022-09-07 18:00:00	-7.52	24.60
2022-09-07 06:00:00	-7.52	24.60

2022/9/14 18:04

Latest Data TimeStamp: 2022-09-14 06:00:00 Scale: 1 Week

Radico_Khaitan_MRP_1_Rampur:Ground Water Table and Barometric Pressure

DateTime	WATER LEVEL (mWC)	TEMPERATURE (degC)
2022-09-14 06:00:00	-7.87	27.20
2022-09-13 18:00:00	-7.91	27.20
2022-09-13 06:00:00	-7.86	27.20
2022-09-12 18:00:00	-7.84	27.20
2022-09-12 06:00:00	-7.85	27.20
2022-09-11 18:00:00	-7.85	27.20
2022-09-11 06:00:00	-7.87	27.20
2022-09-10 18:00:00	-7.87	27.20
2022-09-10 06:00:00	-7.89	27.20
2022-09-09 18:00:00	-7.89	27.20
2022-09-09 06:00:00	-7.89	27.20
2022-09-08 18:00:00	-7.88	27.20
2022-09-08 06:00:00	-7.88	27.20
2022-09-07 18:00:00	-7.88	27.20
2022-09-07 06:00:00	-7.87	27.20

2022/9/14 18:03



MICRO CALIBRATION LAB

F.C.A. 2980, GALI NO. 2, S.G.M. NAGAR, N.I.T. FARIDABAD - 121 001 (HARYANA)

Mobile : 9212566694, E-mail : microcallab@gmail.com

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CC-2661

Calibration Certificate

1. Service Request No. & Date : 2023/32 & 18/03/2023	2. Certificate No. : CC266123000000264F
3. Name & Address of The Customer : M/S RADICO KHAITAN LTD BAREILLY ROAD, RAMPUR- 244901 UP	4. Calibration Date : 20/03/2023
	5. Due Date : 19/09/2023
	6. Issue Date : 20/03/2023
	7. Calibration Location : At Site
8. Page No. : 1 Of 1	

9. Condition Of Item & Date of Receipt :

Ok & 20/03/2023

10. Description of Item :

Name : Water Flow Meter GSP	Make : Scientific Device
Sr. No. : 16091506	ID. No. : GSP
Range : 0 to 100 m ³ /hr	Resolution : 0.1 m ³ /hr
Location : Borewell No-01	Model No. : -----

11. Details of Calibration Standard Used :

S.N.	Nomenclature	Make & Sr. No.	Certificate No.	Certified By	Valid Upto
1	Ultrasonic Flow Meter	WFS/MCL/FF/01	M/FC/220811001	Micro Precision	10.08.2023

12. Environment Condition :

Ambient Temperature : (25±10) °C

Relative Humidity : (50±20) %RH

13. Calibration Procedure No. : WI(FF)/01

14. Reference IS Standard : ISO 5167-1

15 Mechanical Calibration

(i) Flow

16. Results :

S. No.	UUC Reading in (m ³ /hr)	STD Average Measured Reading in (m ³ /hr)	Deviation in (m ³ /hr)	Uncertainty (±)
1	70.6	70.709	0.109	2.8%
2	72.4	72.527	0.127	
3	77.8	77.922	0.122	
4	82.1	82.268	0.168	
5	91.7	91.905	0.205	

Remarks/Decision:-

The reported uncertainty is the expanded uncertainty in measurement obtained by multiplying the standard uncertainty by the coverage factor = 2, which corresponds to a coverage probability of approximately 95.45% for a normal distribution.

NOTE : (1) The certificate shall not be reproduced except in full without the written permission of higher authority.

(2) Standard(s) are traceable to National/International Standard

(3) Recommended due date is suggested by the customer.

(4) Result is the average of five readings.

(5) This report refers only to the particular item calibrated at lab/site.

(6) The calibration results reported are valid at the time of and under the stated conditions of measurements.

Calibrated By
Calibration Engineer
(Ajmer Singh)
MF25/3



Approved By
Quality Manager
(Rajesh Bhatia)



MICRO CALIBRATION LAB

F.C.A. 2980, GALI NO. 2, S.G.M. NAGAR, N.I.T. FARIDABAD - 121 001 (HARYANA)
Mobile : 9212566694, E-mail : microcallab@gmail.com



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CC-2661

Calibration Certificate

1. Service Request No. & Date : 2023/32 & 18/03/2023	2. Certificate No. : CC266123000000265F
3. Name & Address of The Customer : M/S RADICO KHAITAN LTD BAREILLY ROAD, RAMPUR- 244901 UP	4. Calibration Date : 20/03/2023
	5. Due Date : 19/09/2023
	6. Issue Date : 20/03/2023
	7. Calibration Location : At Site
	8. Page No. : 1 Of 1

9. Condition Of Item & Date of Receipt : Ok & 20/03/2023

10. Description of Item :

Name : Water Flow Meter GSP	Make : Rockwin
Sr. No. : 182072	ID. No. : GSP
Range : Up to 100 m ³ /hr	Resolution : 0.001 m ³ /hr
Location : Borewell No-02	Model No. : -----

11. Details of Calibration Standard Used :

S.N.	Nomenclature	Make & Sr. No.	Certificate No.	Certified By	Valid Upto
1	Ultrasonic Flow Meter	WFS/MCL/FF/01	M/FC/220811001	Micro Precision	10.08.2023

12. Environment Condition :

Ambient Temperature : (25±10) °C
Relative Humidity : (50±20) %RH

13. Calibration Procedure No. : WI(FF)/01

14. Reference IS Standard : ISO 5167-1

15. Mechanical Calibration

(i) Flow

16. Results :

S. No.	UUC Reading in (m ³ /hr)	STD Average Measured Reading in (m ³ /hr)	Deviation in (m ³ /hr)	Uncertainty (±)
1	67.2	67.086	-0.114	2.7%
2	72.4	72.282	-0.118	
3	78.6	78.406	-0.194	
4	84.7	84.474	-0.226	
5	88.6	88.319	-0.281	

Remarks/Decision:-

The reported uncertainty is the expanded uncertainty in measurement obtained by multiplying the standard uncertainty by the coverage factor = 2, which corresponds to a coverage probability of approximately 95.45% for a normal distribution.

NOTE : (1) The certificate shall not be reproduced except in full without the written permission of higher authority.

(2) Standard(s) are traceable to National/International Standard

(3) Recommended due date is suggested by the customer.

(4) Result is the average of five readings.

(5) This report refers only to the particular item calibrated at lab/site.

(6) The calibration results reported are valid at the time of and under the stated conditions of measurements.

Calibrated By
Calibration Engineer
(Ajmer Singh)

MF25/3



Approved By
Quality Manager
(Rajesh Bhatia)

End Of Certificate



MICRO CALIBRATION LAB

F.C.A. 2980, GALI NO. 2, S.G.M. NAGAR, N.I.T. FARIDABAD - 121 001 (HARYANA)

Mobile : 9212566694, E-mail : microcallab@gmail.com



Calibration Certificate

1. Service Request No. & Date : 2023/32 & 18/03/2023	2. Certificate No. : CC266123000000266F
3. Name & Address of The Customer : M/S RADICO KHAITAN LTD BAREILLY ROAD, RAMPUR- 244901 UP	4. Calibration Date : 20/03/2023
	5. Due Date : 19/09/2023
	6. Issue Date : 20/03/2023
	7. Calibration Location : At Site
8. Page No. : 1 Of 1	

9. Condition Of Item & Date of Receipt : Ok & 20/03/2023

10. Description of Item :

Name : Water Flow Meter MRP	Make : Rockwin
Sr. No. : 182073	ID. No. : MRP
Range : Up to 100 m ³ /hr	Resolution : 0.001 m ³ /hr
Location : Borewell No-03	Model No. : -----

11. Details of Calibration Standard Used :

S.N.	Nomenclature	Make & Sr. No.	Certificate No.	Certified By	Valid Upto
1	Ultrasonic Flow Meter	WFS/MCL/FF/01	M/FC/220811001	Micro Precision	10.08.2023

12. Environment Condition :

Ambient Temperature : (25±10) °C
Relative Humidity : (50±20) %RH

13. Calibration Procedure No. : WI(FF)/01

14. Reference IS Standard : ISO 5167-1

15 Mechanical Calibration

(i) Flow

16. Results :

S. No.	UUC Reading in (m ³ /hr)	STD Average Measured Reading in (m ³ /hr)	Deviation in (m ³ /hr)	Uncertainty (±)
1	69.3	69.184	-0.116	2.7%
2	71.2	71.010	-0.190	
3	77.4	77.205	-0.195	
4	82.6	82.345	-0.255	
5	90.4	90.136	-0.264	

Remarks/Decision:-

The reported uncertainty is the expanded uncertainty in measurement obtained by multiplying the standard uncertainty by the coverage factor $k=2$, which corresponds to a coverage probability of approximately 95.45% for a normal distribution.

NOTE : (1) The certificate shall not be reproduced except in full without the written permission of higher authority.

(2) Standard(s) are traceable to National/International Standard

(3) Recommended due date is suggested by the customer.

(4) Result is the average of five readings.

(5) This report refers only to the particular item calibrated at lab/site.

(6) The calibration results reported are valid at the time of and under the stated conditions of measurements.

Calibrated By
Calibration Engineer

(Ajmer Singh)

MF25/3



End Of Certificate

Approved By
Quality Manager
(Rajesh Bhatia)

ANNEXURE AA-4 (COLLY)

0.000

FLOW RATE

20005574

TOTAL





0000
20208104

RATE

BATCH

FLOW RATE

FLOW TOTAL



masibon

TEST REPORT

ISSUED TO	: M/S. RADICO KHAITAN LTD. BAREILLY ROAD, RAMPUR, UTTAR PRADESH, INDIA
Sample Identification No.	: WW- 230616/0012
Test Report No.	: GEL-2306/2859
ULR Number	: TC-718623000003084F
Date of Issue of the Report	: 20.06.2023
Sampling Method	: IS:17614:2021
Testing Location	: PERMANENT FACILITY
Type of Sample	: WASTE WATER
Sample Collection Date	: 15.06.2023
Sample Collected by	: GEL STAFF
Sampling Location	: M/S RADICO KHAITAN LIMITED, RAMPUR DRAIN (BEFORE CONFLUENCE MUNICIPAL DRAIN) AJIT PUR
Sample Quantity	: 2.0 LTR + 500 ML
Sample Description	: LIQUID
Date of Sample Receipt	: 16.06.2023
Sample Condition	: SEALED
Analysis Duration	: 16.06.2023 TO 20.06.2023

ANALYSIS RESULTS

S No.	Parameters	Results	Unit	TEST METHOD	Standards (CPCB)MAX	
					INLAND SURFACE WATER	PUBLIC SEWER
1.	Odour	Odoured	---	IS:3025(part-5)	Odourless	---
2.	pH	7.42	---	IS:3025(part-11): (RA:2022)	5-5-9.0	5-5-9.0
3.	Biochemical Oxygen Demand (at 27°C for 3 days)	17	mg/L	IS:3025(part-44):1993 (RA:2019)	30	350
4.	Chemical Oxygen Demand	40	mg/L	IS:3025(part-58):2006 (RA:2022)	250	Not Specified
5.	Colour	Colorless	---	IS:3025(part-4):2021	Not Specified	Not Specified

*CPCB General standard for discharge of Environmental Pollution.


 (Checked By)
INTEKHAB KHAN (Technical Manager)


SHIKHA BHATIYA
 (Authorized Signatory)


Note: 1. The results listed refer only to the tested samples and applicable parameters.
 2. The 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 Ghaziabad Jurisdiction only.

END OF REPORT



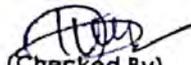
TEST REPORT

ISSUED TO	:	M/S. RADICO KHAITAN LTD. BAREILLY ROAD, RAMPUR, UTTAR PRADESH, INDIA
Sample Identification No.	:	WW- 230616/0011
Test Report No.	:	GEL-2306/2858
ULR Number	:	TC-718623000003083F
Date of Issue of the Report	:	20.06.2023
Sampling Method	:	IS:17614:2021
Testing Location	:	PERMANENT FACILITY
Type of Sample	:	WASTE WATER
Sample Collection Date	:	15.06.2023
Sample Collected by	:	GEL STAFF
Sampling Location	:	MUNICIPAL DRAIN (AFTER CONFLUENCE RKL, RAMPUR DRAIN) NAI BASTI AJITPUR, RAMPUR
Sample Quantity	:	2.0 LTR + 500 ML
Sample Description	:	LIQUID
Date of Sample Receipt	:	16.06.2023
Sample Condition	:	SEALED
Analysis Duration	:	16.06.2023 TO 20.06.2023

ANALYSIS RESULTS

S No.	Parameters	Results	Unit	TEST METHOD	Standards (CPCB)MAX	
					INLAND SURFACE WATER	PUBLIC SEWER
1.	Odour	Odoured	---	IS:3025(part-5)	Odourless	---
2.	pH	7.21	---	IS:3025(part-11): (RA:2022)	5-5-9.0	5-5-9.0
3.	Biochemical Oxygen Demand (at 27°C for 3 days)	70	mg/L	IS:3025(part-44):1993 (RA:2019)	30	350
4.	Chemical Oxygen Demand	254	mg/L	IS:3025(part-58):2006 (RA:2022)	250	Not Specified
5.	Colour	Blackish grey	---	IS:3025(part-4):2021	Not Specified	Not Specified

*CPCB General standard for discharge of Environmental Pollution.


 (Checked By)
INTEKHAB KHAN (Technical Manager)


SHIKHA BHATIYA
 (Authorized Signatory)

- Note: 1. The results listed refer only to the tested samples and applicable parameters.
 2. The 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 Ghaziabad Jurisdiction only.

END OF REPORT













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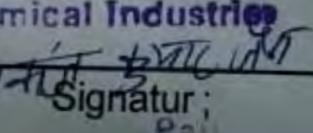
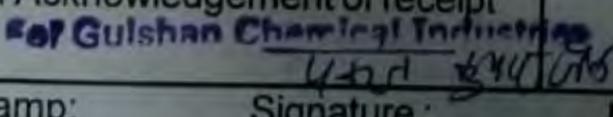
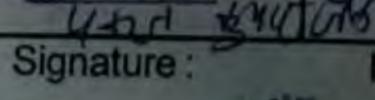
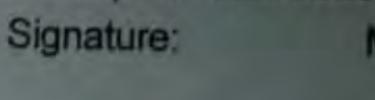


Form 10

ANNEXURE AA-7

{See rule 19 (1)}

MANIFEST FOR HAZARDOUS AND OTHER WASTE

1.	sender's Name & Mailing Address (including phone No. and e-mail)	Radico Khaitan Ltd. Basailly Road, Rampur (U.P.)
2.	Sender's authorisation No.	09AAACA 2513 K1ZX
3.	Manifest Document No.	
4.	Transporter's Name & Address (including Phone No. and e-mail)	Shamli Golden, Shamli (U.P.)
5.	Type of Vehicle	(Truck/Tanker/Special Vehicle)
6.	Transporter's Registration No.	UP 197 - 1387
7.	Vehicle Registration No.	
8.	Reciever's name and mailing address (including phone No. and e-mail)	Gulshan Chemical Industries MUZAFFARNAGAR ROAD, Shamli
9.	Reciever's authorisation no.	
10.	Waste description	
11.	Total Quantity	3150 Ltr. m3 or MT
	No. of Containers	15 Drums Nos.
12.	Physical form	(Solid/Semi-Solid/Sludge/Qily/Tarry/Siurry/Liquid)
13.	Special handling instructions and additional information	
14.	Sender's Certificate	I hereby declare that the contents of the consignmen are fully and accurately described above by proper shipping name and are categorised, packed, marked, and labeled, and are in all respects in proper conditions for transport by road according applicable national government regulations.
	Name & Stamp :  Signature: 	Month Day Year 29 03 2023
15.	Transporter Acknowledgement of receipt of wastes 	
	Name & Stamp: 	Month Day Year 29 03 2023
16.	Receiver's Certification for receipt of hazardous and other waste	
	Name & Stmp: 	Month Day Year 29 03 2023

BOOK:->

Date: 12/7/2022

Page No. 01

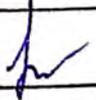
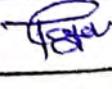
ANNEXURE AA-8

Date	Visitor Name/Department	Signi
12/07/2022	CPCB & UPPCB Joint Inspection:->	
	CPCB Team:-> (Delhi):->	
	1. Ms. Reena Satavan.	
	2. Mr. Anshul.	
	3. Mr. Sumit Kumar.	
	4. Mr. Ashwani.	
	U.P.C.B. Regional Office Moradabad Team:->	
	1. Mr. J.N. Tiwari	
	2. Mr. Rajinder	
	3. Mr. Vinay Kumar.	
	4. Mr. Virhal Bhardi.	
15/11/2022	CPCB & UPPCB Joint Inspection:->	
	CPCB Team:-> (Delhi):->	
	1. Ms. Medha Sharma.	
	2. Ms. Swati Gauram.	
	3. Mr. Sumit Kumar.	
	U.P.C.B. Regional Office Moradabad Team:->	
	1. Mr. J.N. Tiwari	
	2. Mr. Anil Kumar	
	3. Mr. Anjani Sarda	
	4. Mr. Rajinder	
	5. Mr. Arif Ali	
	6. Mr. Vinay Kumar	

Pollution Control Board Varanasi

Date: 18/01/2023
Page No. 02

Log Book :->

Date	Visitor's Name / Department	Origin
18/01/2023	Ag. Department + UPPCB Joint Inspection :->	
	Agriculture Department Team :-> (Moradabad):	
	1. Mr. S. P. Chaudhary.	
	2. Mr. Narendra Paul.	
	4. Mr. Manoj Kamboj.	
	5. Mr. Rajiv.	
	6. Mr. Ved Prakash Mishra.	
	7. Mr. Devendra Kumar	
	8. Mr. Arun Kumar.	
	9. Mr. Nageshwar Prishnoi.	
	U.P.C.B. Moradabad Regional Office Team:-	
	1. Mr. J. N. Tiwari.	
	2. Mr. Angani Sarda.	
	3. Mr. Rajender	
	4. Mr. Nishal Bharti.	1/2
	5. Mr. Vinay Kumar.	
	6. Mr. Aft Aft.	
	7. Mr. Pushkar.	

Date	Visitor's Name/ Department	Sign.
27/02/2023	V.S.I. Third Party Inspection, → (Pune) →	
	1. Mr. Shivraj Patil.	
	2. Mr. Avinash Deshmukh.	
7/04/2023	C.P.C'13. Inspection → CPC13 Team → (Delhi) →	
	1. Mr. Reema Satavari (Se.-E)	Reema
	2. Dr. R.K. Singh (Se.-D)	R.K. Singh
	3. Mr. Anil Kamari (RA-3)	Anil
	4. Mr. Amit Sharda (SRF)	Amit
	5. Mr. P. Krishnamurthy (SC.-E)	
	6. Mr. Manoj Pant	Manoj
	7. Mr. Deepak Kumar (SC-B)	
	8. Mr. Subash Chand (ST-S)	
	9. Mr. KP Rathi (SS-A)	
	10. Mrs. Shikha Tiwari (TS)	
	11. Mr. CP Singh (JL-A)	CP Singh
	1.	
01/11/2023	U.P.P.C13 (Moradabad) →	
	1. Mr. Anil Kamari	
	2. Mr. Asif Ali	
	3. Mr. Rajendra	
	4. Mr. Pushkar	

01/2023
02Pollution Control Board
Visitor's Log Book :->Date: 22/01/2023
Page No. 03

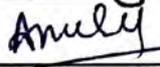
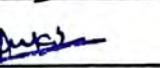
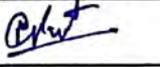
Sl. No.	Date	Visitor's Name / Department	Sign.
	22/01/2023	V.S.I. Third Party Inspection :-> (Pune) :->	
		1. Mr. Shivraj Patil.	
		2. Mr. Avinash Deshmukh.	
	17/04/2023	C.P.C.B. Inspection :-> (Delhi) :->	
		1. Mr. Reena Satavani (Se.-E)	
		2. Dr. R.K. Singh (Se.-D)	
		3. Mr. Ansal Icmori (RA-3)	
		4. Mr. Amit Baula (SFF)	
		5. Mr. P. Krishnamurthy (SC-E)	
		6. Mr. Manoj Pant	
		7. Mr. Deepak Kumar (SC-B)	
		8. Mr. Subash Chand (ST-S)	
		9. Mr. KP Rathi (SS-A)	
		10. Mrs. Shikha Tiwari (TS)	
		11. Mr. CP Singh (JL-A)	
		1.	
	30/11/2023	U.P.P.C.B (Moradabad) :->	
		1. Mr. Anil Kumar	
		2. Mr. Anit Ali	
		3. Mr. Rajendra	
		4. Mr. Pushkar.	

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Date 27/02/2023

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Visitor's Log Book, →

Date	Visitor's Name/ Department	Sign.
27/02/2023	V.S.I. Third Party Inspection, → (Pune) :->	
	1. Mr. Shivraj Patil.	
	2. Mr. Avinash Deshmukh.	
17/04/2023	C.P.C'13 Inspection, → CPC13 Team, → (Delhi) :->	
	1. Mr. Reena Satavari (Se.-E)	
	2. Dr. R.K. Singh (Se.-D)	
	3. Mr. Anil Kamari (RA-3)	
	4. Mr. Ankit Shukla (SRF)	
	5. Mr. P. Krishnamurthy (Sc.-E)	
	6. Mr. Manoj Pant	
	7. Mr. Deepak Kumar (Sc.-B)	
	8. Mr. Subash Chand (ST-S)	
	9. Mr. KP Rathi (SS-A)	
	10. Mrs. Shikha Tiwari (TS)	
	11. Mr. CP Singh (JL-A)	
	1.	
30/11/2023	U.P.P.C13 (Moradabad) :->	
	1. Mr. Anil Kamari	
	2. Mr. Ankit Ali	
	3. Mr. Ravindra	
	4. Mr. Pushkar.	

Pollution Control Board
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Visitors Log Book

Date: | |
Page No.

Date	Visitor Name & Department
28/12/2023	<u>UPPER (Moradabad):</u> Mr. J. N. Tiwari
	1. Mr. Rajendra
	3. Mr. Vishal.
	4. Mr. Pushkar.
10/01/2024	m. Raveer Gupta
12/01/2024	<u>CPCB (Delhi):</u> Reena Satavan mam.
	1. Anshul
	3. Sharda.
	4. Gaurav Gahlot.
	5. Sourav Sharma.

ANNEXURE AA-9





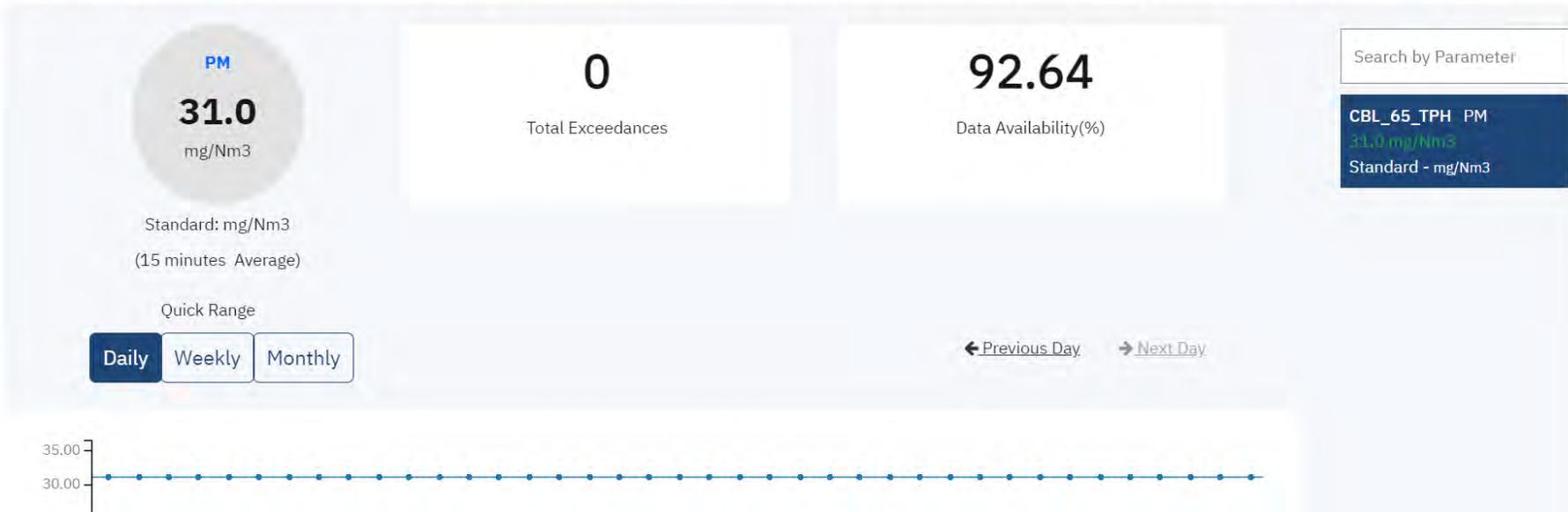


ANNEXURE AA-10 (COLLY)



RADICO KHAITAN LIMITED

CBL_65_TPH Rampur Uttar Pradesh DISTILLERY Data fetched at: 2023-10-04T13:47:37Z Monitoring Stations 1 Total Parameters Monitored 1



EnviroConnect		FORBES MARSHALL					
Environmental Monitoring							
Radico Khaitan Ltd. , Distillery Industry , CO GEN-1 - (Under Ganga Basin)							
Current Data							
Sr. No	Parameter	Instantaneous as of	Instantaneous Value	Average as of	Average	Flag	Permissible Range
Stack 1							
1	PM	04-10-2023 17:02:07	0 mg/Nm3	04-10-2023 16:50:00	0.00	P	0 - 150 mg/Nm3
MOLASSES_STRONG SPENTWASH_MASSFLOW							
2	mass flow	04-10-2023 17:01:45	0 Kg/Hr	04-10-2023 17:00:00	0.0000		
MOLASSES_WEAK_SPENTWASH_MASSFLOW							
3	mass flow	04-10-2023 17:01:43	740.1600 Kg/Hr	04-10-2023 17:00:00	732.3120		
Grain Distillation Evaporator Outlet_MassFlow							
4	mass flow	04-10-2023 17:01:49	0 Kg/Hr	04-10-2023 17:00:00	0.00		
Grain Distillation Feed Inlet Evaporator_MassFlow							
5	mass flow	04-10-2023 17:01:47	200.00 Kg/Hr	04-10-2023 17:00:00	200.00	P	0 - 1000 Kg/Hr
Molasses Distillation Evaporator outlet_Massflow							
6	mass flow	04-10-2023 17:01:45	0 Kg/Hr	04-10-2023 17:00:00	0.00		
Molasses Distillationfeed InletEvaporator_Massflow							
7	mass flow	04-10-2023 17:01:47	0 Kg/Hr	04-10-2023 17:00:00	0.00		
Strong Spent wash dual Mode Grain							
8	mass flow	04-10-2023 17:01:55	0 Kg/Hr	04-10-2023 17:00:00	0.0000		
Weak Spent wash dual M							
9	mass flow	04-10-2023 17:01:53	1761.00 Kg/Hr	04-10-2023 17:00:00	1763.07		