

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
PRINCIPAL BENCH, NEW DELHI

I.A. 575 of 2024

IN

ORIGINAL APPLICATION NO. 234 OF 2020

IN THE MATTER OF:

ANURADHA

...APPLICANT

VERSUS

STATE OF UTTAR PRADESH &

ORS.

...RESPONDENTS

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ANUNAYA MEHTA

ADVOCATE FOR DECREE HOLDER

CHAMBER NO. 388, BLOCK - 2

DELHI HIGH COURT

NEW DELHI

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DATED: 05.05.2025

NEW DELHI

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**REJOINDER ON BEHALF OF M/S. TRIVENI ENGINEERING &
INDUSTRIES LTD. TO THE REPLY FILED BY THE APPLICANT
DATED 24.01.2025**

MOST RESPECTFULLY SHOWETH:

1. The Applicant has filed a reply dated 24.01.2025 to the additional documents filed by the answering Respondent vide IA No 575/2024 to address certain queries / clarifications raised/sought by the Hon'ble Tribunal during course of the Arguments dated 24.04.2024 regarding the answering Respondent's unit and the inspection report filed by the Authorities. The rejoinder of the answering Respondent to the aforesaid reply dated 24.01.2025 of the Applicant is as follows.

2. **The contents of Paragraphs 1 to 3** of the Reply are completely false, baseless, and deliberately misleading, and are hereby denied. It is abundantly clear that the Original Application is maliciously motivated and filed at the instigation of individuals

with a clear and vested interest against the answering Respondent. The answering Respondent has categorically not violated any environmental norms, and absolutely no polluted water or effluents have been discharged by the Unit onto the land. The answering respondent does not accept any responsibility for the alleged pollution of drinking water in the area. In the latest round of inspections done at the behest of the office of the Regional Officer pursuant to which report dtd 20.06.2023 was generated, the UPPCB has found the ETP installed at the subject Sugar Unit working satisfactorily. A true copy of the Report dated 20.06.2023 has already been filed by the Answering respondent as Annexure R-1 along with the objection dated 12.12.2023 to the report of the Joint Committee report dated 23.12.2020.

3. Further inspection conducted by UPPCB in the month of January and February 2023 shows that the samples of waste water collected from the subject Sugar Mill have been found within permissible limits. A true copy of the Report dtd 19.01.2023 and 18.02.2023 prepared by the Regional Lab of UPPCB has already been filed by the answering respondent along with objection as Annexure R-2.
4. The answering respondents are also filing the latest test reports of the samples collected from the tube wells located in the Unit dated 01.08.2024, 18.03.02024 and 30.05.2024 and test reports of the samples collected of waste water dated 03.03.2022, 19.12.2022 and 18.02.2023 generated by Regional Lab UPPCB all were found with the permissible limits. The test reports from UPPCB Regional Laboratory are annexed herewith and marked and collectively marked as **Annexure 1- (Colly)**

5. It is submitted that the paras under reply proceed on the premises that sample no. 3 has been collected from a handpump at residence of “Satyapal” whereas no affidavit of the said person has been filed which can confirm that the samples have been collected from within the house of Satyapal. Even otherwise, a bare perusal of report dated 23.12.2020 of the Joint committee would show that sample No 3 has been collected from the residence of ‘Satyapal Singh’ and not ‘Satyapal’. More importantly the said report dated 23.12.2020 depicts that sample No. 3 seems to have been collected from a hand pump located **inside** the residence of Satypal Singh whereas none of the photographs that the Applicant has appended as Annexure A from page 7 to page 11 of the reply dated 24.01.2025 shows any handpump inside the residence. The hand pump which is barely visible in photographs on page 7 & 8 of Annexure A is certainly not inside the residence of any person but very much in open, outside the residence of another villagers named Subhash and Virender both S/o Jaiprakash. Accordingly, the applicant has without caring to check and verify the facts, very casually just to sensationalize the issue, made bald and bogus allegations against the answering Respondent in para under reply.
6. It is made clear by the answering Respondent that when sample No. 3 was collected by the Joint committee from the house of Satyapal Singh, no representative of the answering Respondent was present at the spot and the answering Respondent came to know of such sampling only from the joint committee report.
7. It is submitted that the joint committee’s report only mentions the name “Satyapal Singh” and does not include any details such as house number, address, geo coordinates, landmarks, or the

person's father's name etc. Upon receiving the joint committee's report, the representatives of answering Respondent in absence of any uniquely identifiable details about satyapal singh in the committee report visited the village mahmadpur piplinayak road and inquired about the whereabouts of a person named Satya Pal Singh from the villagers. The answering Respondent were directed to the house of Satyapal Singh S/o Kailash Singh House in the village. Based on this information, the Respondent proceeded with collection of samples from said Satyapal Singh S/o Kailash Singh`s hand pump. It cannot be disputed that the sample relied upon by the answering Respondent pertains to a handpump that also belong to Satyapal Singh only of same village mahmadpur.

8. The answering Respondent, under the bonafide belief that the sample was collected from the residence of Satyapal Singh identified by the locals, conducted an inspection of the area surrounding that house and submitted photographs along with an explanation for the elevated levels of COD, BOD, and sulphates in I.A. No. 575 of 2024.
9. On reading the reply dated 24.01.2025 furnished by the Applicant, the answering Respondent was surprised, however, it was also felt that in absence of uniquely identifiable details in the report dated 23.12.2020 about Satyapal Singh it needs to be checked if at all there is a possibility of a *bona fide* mistaken identity. It is possible that there may be more than one person by the same name in the same village. Accordingly in all earnestness the answering Respondent probed in the village and found another person but by the name of Satyapal s/o Sohan residing very close to the house of Satypal Singh S/o Kailash Singh. UPPCB may be in a better position to confirm the said facts whether they collected samples from the house of Satyapal s/o

Sohan or Satyapal Singh s/o Kailash. In case UPPCB confirms there has been an error on part of the answering Respondent in correctly identifying the house of Satyapal Singh from where groundwater was tested in the report dtd 23.12.2020, the same is certainly a *bona fide* and inadvertent mistake. Be that as it may, regardless of who is Satyapal from whose residence samples were collected, residences of Satyapal Siingh S/o Kailash Singh and Satapal S/o Sohan are separated by barely 120 meters, making no difference to the submission made by the answering Respondent in respect of the samples collected and filed from Satypal Singh S/o Kailash Singh in its IA No 575/2024.

- 10.** Nevertheless, the answering Respondent considering that though it bonafidely believes that the samples it has so far relied are of Satyapal Singh S/o Kailash Singh but if at all the joint Committee has collected actually assuming without admitting the samples from the handpump inside residence of Satyapal S/o Sohan, the answering respondent promptly visited house of Satyapal s/o Sohan also to conduct a fresh inspection. It was found that the house of the Satyapal Singh s/o Kailash Singh that the answering Respondent had originally visited and the house of Satapal S/o Sohan which is being asserted by the Applicant to be the house where testing was conducted, are situated 120 meters apart, both are near the highly contaminated pond referred by Answering respondent in its IA no 575/2024. The distance from the pond to the house of Satapal S/o Sohan is barely 150 meters, whereas the house the Satypal Singh S/o Kailash Singh which according to the answering Respondent was sampled by the joint Committee is 50 meters from the pond. Furthermore, the house of Satapal S/o Sohan is located 460 meters from the Respondent's factory, while the house the Satyapal Singh S/o Kailash is 570 meters away from the factory. Both houses are positioned at a significant distance from the factory, making it unlikely that the industrial

discharge is affecting the water quality. However, both houses are situated in the vicinity of the village pond within 150 meter radius. The village pond is heavily polluted, with piles of cow dung, animal waste dumped on the sides.

A chart prepared by the answering Respondent to demonstrate the distance of each of these houses and their respective coordinates is annexed herewith and marked as **ANNEXURE-2**. This is also shown in a Google Earth image showing coordinates of the Factory as well as the two houses in question. The said Google Earth image is marked **ANNEXURE-3**. Further, the answering Respondent is placing on record photographs with geo-coordinates of the houses of the two persons with the name Satyapal in question as well as of the pond in question. The said Photographs are annexed as **ANNEXURE 4**.

11. On making inquiries, the answering Respondent has discovered that the handpumps at both houses, from which water is drawn, are shallow and are approximately 30 to 40 feet deep. Additionally, there is a septic tank and a village drain near each of the two houses, further contributing to groundwater contamination. Copy of the UPPCB testing report of the drain water in the drain next to the houses of the two persons with the name Satyapal are annexed herewith and marked as **ANNEXURE 5**. Therefore, it is clear that the groundwater contamination is due to the pollution in the nearby pond and the drain rather than the distantly located answering Respondent. This argument is further strengthened by the joint committee's report, which states that the handpump located near the factory, close to the temple, meets all the parameters of drinking water standards. In fact, in support of its submission, the Respondent has also gotten a Source Apportionment Study Report on Groundwater Contamination in Village mahmadpur through an expert in the

field Mr. Santosh Kumar Srivastava, who is a Sr. Geologist and CGWA Ground Water Consultant. The said report considers all relevant facts as well as possible sources of contamination of ground water in Village mahmadpur, based on sampling data collected by joint inspection committee in the year 2020. On the basis of the said data, the expert own physical / visual inspection of the area, as well as other factors which have been determined to be relevant, the expert has come to the conclusion that natural geological factors, the village pond and unlined drains in the village, as also seepage from septic tanks in the village as also excessive fertilizer use are the main sources of contamination of ground water in the area whereas industrial influence is not likely to have caused ground water contamination in the area, *inter alia*, in view of the fact that there is no industrial drain which carries pollutants to the area in question, the surface flow of water is in a direction opposite to the Industry heavy metals are largely absent. A copy of the Source Apportionment Study for Groundwater contamination conducted at Village mahmadpur is annexed herewith and marked **ANNEXURE 6**. In view of the foregoing, it is the submission of the answering Respondent that the parameters of groundwater at sampling site No. 3 cannot be attributed to the answering Respondent.

- 12.** That the **contents of para 4** are also incorrect and misconceived and not accepted. It is submitted that as far as high COD and BOD are concern answering respondent has not only relied upon cow dung but also drains, septic tanks and highly polluted ponds nearby these handpumps. So far as the high Sulphates is concerned the answering respondent has already explained that the groundwater assessment report by Raza College, Rampur which is appended as Annexure R-13 to the objection filed by the answering respondent dated 12.12.2023) clearly concluded that all four blocks of Rampur district exhibit high concentrations of

Sulphates (SO₄) in the groundwater, with levels ranging from 170 mg/l to 1000 mg/l, particularly in the Suar block. Therefore, Sulphates are geologically likely to be high in the whole area and the same can in no way be traced to the answering Respondent. The applicant clearly has been making frivolous allegations without any scientific or substantial basis. Be that as it may, even bare perusal of the photographs filed by the Applicant along with her application under response which are Annexed as Annexure A - all of them invariably show a drain on both sides of the road seemingly running across the entire village which even doesn't seem to be lined and impermeable. Conspicuously, also each of the houses appearing in the said photographs have a domestic waste water drain which is coming out into the said drain running alongside the road. It cannot further be disputed that the drain coming out of each house would not be bringing fresh water and rather be adding up the water containing contaminants like detergents etc which are the result of usage of detergent for washing and bathing and for cleaning utensils. Further absence of sewage disposal arrangements and existence of septic tanks events contributes to ground water contamination.

13. That the contents of **paras 5 to 7** are completely misleading and incorrect and are vehemently denied. The applicant has distorted facts and has extracted incomplete sentences from previous inspection reports to mislead the Hon`ble Tribunal and present a false narrative before this Hon`ble Tribunal. It is submitted that once an issue has been closed after due compliance by the Unit the same cannot be used in perpetuity by the applicant to show default of the Unit or to seek action against the Unit once again. The Applicant has relied on certain directions from CPCB dated 04.11.2019 which were also relied by the Applicant in IA No 351/2024 where certain defaults were pointed out by the Unit. In

this regard it may be noted that in view of the defaults which were noted, environmental compensation was levied upon the Unit. The Answering respondent has already dealt with the allegation levelled by the Applicant in para 4-6 of the Response dated 12.11.2024 which the answering respondent craves leave to adopt and are not repeated to avoid repetition. So far as allegation regarding the statement made in the CPCB Report dated 06.03.2018 *qua* treatment of spray pond overflow is concerned, it is submitted that the requirement for installation of a separate treatment mechanism for spray pond overflow through a Sulphur Recovery system was introduced only by the Charter for Sugar Industries published by the CPCB which was circulated to all Sugar units by the Uttar Pradesh Sugar Mills Association under its letter dated 09.07.2018. Prior thereto, there was no requirement for installation of a separate SRS system to deal with spray pond overflow. The overflow from the spray pond was also being treated through the conventional ETP itself. The removal of sulphates was being done with chemical precipitation by adding unslaked white lime in the form of calcium hydroxide, which was removed from the bottom of the primary clarifier after flocs settled. Further the combined effluent was sent to the aeration tank (activated sludge process) conventional treatment system. The prescribed norms for effluent discharge were being fulfilled through treatment of effluent by the ETP. Be that as it may, upon being notified under letter dated 09.07.2018 regarding the charter for sugar industries, and in immediate compliance of the said recommendations, a purchase order dated 12.09.2018 was placed by the answering Respondent upon M/s Membrane India for installation of a comprehensive system to treat the cooling tower overflow with a sulphur recovery system. The Unit installed & commissioned the SRS plant in July 2019 and requested the

National sugar institute Kanpur through its letter for SRS system validation on 17.12.019. The National sugar institute Kanpur officials visited the unit on 8-9th January 2020 and released the validation report on 05.02.2020. This validation report was submitted to CPCB on 14.02.2020. This system has been active since its installation and has been used continuously. In this background, the statement of the Applicant that the answering Respondent is continuing to discharge sulphur effluents into the groundwater, is completely false and incorrect.

14. That the contents of **para 8** are misconceived and incorrect. The answering Respondent submits that cow dung has a significant potential to increase the COD and BOD levels in water streams. In this context, the findings of the article/research paper dated August 2016, titled “Comparison of the Output Voltage Characteristics Pattern of Sewage Sludge, Kitchen Waste, and Cow Dung in Single Chamber Single Electrode Microbial Fuel Cells,” should be noted. The research clearly shows that the COD level of cow dung is 32,000 mg/l, demonstrating its substantial potential to raise COD levels. While the paper’s objective was to investigate whether cow dung could serve as an electric substrate in microbial fuel cells, it also analyzed the composition of cow dung, which directly led to the conclusion regarding its high COD content. The answering Respondent has relied on this analysis to illustrate the effect of cow dung on increased COD levels. This submission is well-supported by the research paper, irrespective of the primary objective or conclusions of the study. The paper’s focus does not alter or diminish the significance of the cow dung composition findings. Apart from the above, a study conducted by MDU Rohtak in January 2020 on the water quality of village ponds includes a comprehensive analysis of physical and

chemical parameters (such as sulphates, chlorides, calcium, magnesium, potassium, sodium, carbonates, and bicarbonates) and highlights cow dung as one of the primary contributors of contamination. A copy of the paper dated January 2020 titled 'Water Quality Assessment of Pond Water of Kalanaur Block, Rohtak Haryana' is annexed herewith as **ANNEXURE 7**.

- 15.** The contents of **paragraph 9** are vehemently denied as being wholly misconceived, factually incorrect, and legally untenable. The answering respondent have not undertaken any private sampling and rather the subject matter expert has examined the report given by the joint Committee and after visiting the location has given his opinion on the basis of his assessment. The Applicant has deliberately failed to point out any specific infirmity or flaw in the detailed and reasoned findings of the subject matter expert report relied upon by the Respondent. The Applicant's bald and baseless assertion are nothing but an attempt to undermine a neutral and credible assessment without any substantive rebuttal.
- 16.** With respect to **para No. 10**, the answering Respondent submits that this is a completely baseless and unfounded claim made by the applicant. The answering Respondent has filed various reports, research papers to show that the factory is in no way responsible for contamination of water sources and has complied with all requirements under law with respect to discharge of waste and management and treatment of its effluent. On the contrary the applicant has just made allegations without placing any substance to support the allegation that after establishment of the factory the quality of water have been seriously worsened and impaired. No report or other scientific data has been filed by

the applicant for the period prior to establishment of factory. Besides that, the factory was set up in the year 2005-2006 and a good number of inspections have happened in the past by UPPCB and none of them support Applicant's contention.

Additional Submissions

17. That it is noteworthy to mention that in view of the observation conclusions and recommendations made by the Joint Inspection committee vide its report 23.12.2020, the Unit was further issued a show cause notice by UPPCB dated 05.04.2021 under sec 33(A) read with Sec 27(2) of The Water (Prevention and Control of Pollution) Act, 1974 referred in rejoinder para 8.1. The Unit was thereafter inspected on two dates 24.12.2022 and 27.12.2022 by a committee of UPPCB officials consisting of Assistant Environment Engineer, Junior Environment Engineer and Executive Engineer. After due inspection the committee found that the Unit is complying with the environmental norms. A copy of letter dated 29.12.2023 is enclosed herewith and is marked as **ANNEXURE-8**.

18. To align with modern refining standards and support its commitment to sustainable and environmentally responsible operations, the Unit has installed an anaerobic filter with a total capacity of 1600 m³ (comprising two units of 800 m³ each) at the Effluent Treatment Plant (ETP), incurring a cost of ₹ 1.73 Cr. This installation enhances the efficiency of wastewater treatment and further cements answering respondent commitment to constantly maintain adequate compliance with environmental regulations set forth by the Pollution Control Board. The anaerobic filter became operational from the sugar season 2024–

25. It is noteworthy that the anaerobic filter is specifically designed to significantly reduce the organic load in wastewater and improve the overall quality of treated effluents, thereby contributing to the Unit's sustainability goals. The Unit has also informed the Uttar Pradesh Pollution Control Board (UPPCB) regarding the installation of the anaerobic filter and the effluent treatment plant via a letter dated 15.10.2024. A copy of the letter dated 15.10.2024, intimating the UPPCB about the installation of the anaerobic filter at the ETP, is annexed as **ANNEXURE-9**.

- 19.** Further in its continued endeavour to ensure compliance with environmental norms and promote sustainable practices, the Unit has successfully implemented a major process upgrade in 2023. This upgrade involved the transition from the conventional Double Sulphitation (D.S.) clarification process to the advanced Defco-Melt Phospho-Floatation (DMP) process for refined sugar production. The DMP process is entirely free from sulphur-based clarificants, and lime consumption has been reduced by approximately 50% compared to the D.S. process. This significant reduction in sulphur and lime usage has led to a notable decrease in the pollutant load of the generated effluent, thereby enhancing the efficiency of downstream treatment systems. The total capital expenditure for this comprehensive refinery upgrade was Rs. 16.37 Crore. The upgraded system has been fully operational since the 2023-24 crushing season. This transition not only aligns with modern refining standards but also reinforces the Unit's commitment to sustainable and environmentally responsible operations. A copy of letter intimating UPPCB regarding the process conversion from the conventional Double Sulphitation (D.S.) clarification process to the advanced Defco-Melt Phospho-Floatation (DMP)

process for refined sugar production dtd 12.10.2023 is annexed as **Annexure-10.**

In view of the foregoing, it is the submission of the answering respondent that the present proceedings against the answering respondent deserves to be closed.

Ans. inif
RESPONDENT

THROUGH

Anunaya Mehta
ANUNAYA MEHTA

ADVOCATE FOR THE RESPONDENT

CHAMBER NO. 388, BLOCK - 2

DELHI HIGH COURT

NEW DELHI

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NEW DELHI

DATED: 05.05.2025

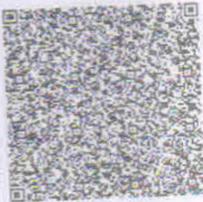


Government of Uttar Pradesh

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 PRINCIPAL BENCH, NEW DELHI
 ORIGINAL APPLICATION NO. 234 OF 2020

IN THE MATTER OF: ANURADHA ...APPLICANT
 VERSUS
 STATE OF UTTAR PRADESH & ORS. ...RESPONDENTS

AFFIDAVIT

I, Bhoopender Singh, aged about 57 years, s/o Shri Amar Singh, R/o House No. I-4, Prakash City, Kashipur, District Udham Singh Nagar Uttarakhand, presently in District Shamli, do hereby solemnly affirm and declare as under:

1. That I am working as General Manager of of M/s Triveni Engineering and Industries Ltd. in the above-mentioned matter and am well conversant with the facts and circumstances of the case and as such I am competent to swear this affidavit.



B Singh

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2. That I state that I have read and understood the contents of the accompanying response. The same has been drafted by counsel under my instructions. I state that the contents are true and correct to my knowledge, and on the basis of legal advice received and believed to be true. Nothing material has been concealed.



NOTARY
[Signature]
DEPONENT

VERIFICATION:-

Verified at Shamli on this 5th day of May 2025 that the contents of my above affidavit are true and correct to my knowledge and no part thereof is false and nothing material has been concealed therefrom.

[Signature]
DEPONENT

RIT/LTI SIGNATURE OF DEPONENT

[Signature]

ATTESTED
[Signature]
FARZANA NOTARI
R.No:-1333317,SHAMLI

[Signature]
श्री श्रीवर्णा करता हूँ कि, शपथ कर्ता को
जानता हूँ उसने इस शपथ पत्र पर
आज मेरे *[Signature]* के सामने अर्थात्
इस्ताबत/अंगुला निशानी किया है





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

TEST REPORT: WASTE WATER LABORATORY

Ref No: 15323147/Moradabad/2022/paybasis

Date: 03/03/2022

- 1- Name of Industry: Triveni Engineering & Industries Limited, Milak Narayanpur
- 2- Address of Industry: Sugar Unit-Milak Narayanpur
- 3- District: Rampur
- 4- Description about sampling point: Storage Lagoon
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: Alok Sharma JRF & Rajendra Lal JLA
- 7- Colour and Odour: colourless Odourless
- 8- Quantity and Packing: 2 Liter
- 9- Date of Sample Collection: 22/02/2022
- 10- Analysis Indented by: RO Moradabad
- 11- Date of sample receipt in Lab: 23/02/2022

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH, 4500 H B Electronic method	-	7.5	-	02-12
Oil Grease	-	3.2	-	02-12
Suspended Solids, 2540 D Total Suspended Solids dried at 103-105 0C	mg/l	21.0	-	10-20000 mg/l
Dissolved Solids, 2540 C Total Dissolved Solids dried at 180 0C	mg/l	620	-	10- 50000 mg/l
BOD, 3 day 27 0C IS 3025 (Part 44): 1993 Bio	mg/l	20.0	-	1.0 -50000 mg/l
COD, 5220 B Open Reflux Method	mg/l	148	-	5.0 -100000 mg/l

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

Remark: NA

Analysed by

[Alok Sharma (JRF)]

Authorized by

ANIL KUMAR / Vishwakarma
 VISHWAKARMA / Vishwakarma
 Date: 2022.03.03
 15:42:57 +05:30

Anil Vishwkarma SA

Regional Officer

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





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

TEST REPORT: WASTE WATER LABORATORY

Ref No: 18565936/Moradabad/2022/paybasis

Date: 19/12/2022

- 1- Name of Industry: Tiiveni Engineering & Industries Limited
- 2- Address of Industry: Sugar Unit-Milak Narayanpur
- 3- District: Rampur
- 4- Description about sampling point: Storage of Lagoon
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: Anil Vishwkarma SA & --
- 7- Colour and Odour: Colourless Odourless
- 8- Quantity and Packing: 2 liter
- 9- Date of Sample Collection: 01/12/2022
- 10- Analysis Indented by: RO Moradabad
- 11- Date of sample receipt in Lab: 01/12/2022

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH-4500 H B Electronic method	-	7.63		02-12
Oil Grease	mg/l	2.0		02-12
Suspended Solids, 2540 D Total Suspended Solids dried at 103-105 OC	mg/l	23.0		10-20000 mg/l
Dissolved Solids, 2540 C Total Dissolved Solids dried at 180 OC	mg/l	480.0		10-50000 mg/l
Total Solids, 2540 B Total Solids dried at 103-105 OC	mg/l	503.0		10-50000 mg/l
BOD, 3 day 20 OC IS 3025 (Part 44): 1993 Bio	mg/l	16.0		1.0-50000 mg/l
COD-5220 B Open Reflux Method	mg/l	180.0		5.0-100000 mg/l

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

Remarks: Nil

Analysed by

[Vinay Kumar (JRF)]

Authorized by

Sund Singh
Sund Singh Chaudhan
Chaudhan
Sund Singh Chaudhan ASO

VIKAS
MISHRA

Regionl Officer

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



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

TEST REPORT: WASTE WATER LABORATORY

Date: 18/02/2023

Ref No: 19541477/Moradabad/2023/paybasls

- 1- Name of Industry: Triveni Engineering & Industries Limited
- 2- Address of Industry: Sugar Unit-Milak Naryanpur
- 3- District: Rampur
- 4- Description about sampling point: Storage Lagoon
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: Rajendra Lal JLA & Vishal Bharti LA
- 7- Colour and Odour: Colourless Odourless
- 8- Quantity and Packing: 2 Liter
- 9- Date of Sample Collection: 27/01/2023
- 10- Analysis Indented by: RO Moradabad
- 11- Date of sample receipt in Lab: 27/01/2023

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH, 4500 H B Electronic method	-	7.52		02-12
Oil Grease	mg/l	2.0		02-12
Suspended Solids, 2540 D Total Suspended Solids dried at 103-105 0C	mg/l	29.0		10-20000 mg/l
Dissolved Solids, 2540 C Total Dissolved Solids dried at 180 0C	mg/l	390.0		10- 50000 mg/l
BOD, 3 day 27 0C IS 3025 (Part 44): 1993 Bio	mg/l	24.0		1.0 -50000 mg/l
COD, 5220 B Open Reflux Method	mg/l	152.0		5.0 -100000 mg/l

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

Remark: NA

Analysed by-
[Atul Kumar(JRF)]

Authorized by
Sunil Singh Chauhan
Date: 2023.02.20
11:21:44 +0530
Sunil Singh Chauhan (ASO)

VIKAS
MISHRA
Regionl Officer



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

TEST REPORT: WASTE WATER LABORATORY

Ref No: 20005622/Moradabad/2023/paybasis

Date: 05/04/2023

- 1- Name of Industry: Triveni Engineering & Industries Limited
- 2- Address of Industry: Sugar Unit-Milak Narayanpur
- 3- District: Rampur
- 4- Description about sampling point: Storage Lagoon
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: Rajendra Lal JLA & Vishal Bharti LA
- 7- Colour and Odour: Colourless Odourless
- 8- Quantity and Packing: 2 Liter
- 9- Date of Sample Collection: 02/03/2023
- 10- Analysis Indented by: RO Moradabad
- 11- Date of sample receipt in Lab: 02/03/2023

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH, 4500 H B Electronic method	-	7.73		02-12
Oil Grease	mg/l	2.8		02-12
Suspended Solids, 2540 D Total Suspended Solids dried at 103-105 0C	mg/l	29.0		10-20000 mg/l
Dissolved Solids, 2540 C Total Dissolved Solids dried at 180 0C	mg/l	380.0		10- 50000 mg/l
BOD, 3 day 27 0C IS 3025 (Part 44): 1993 Bio	mg/l	24.0		1.0 -50000 mg/l
COD, 5220 B Open Reflux Method	mg/l	168		5.0 -100000 mg/l

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

Remark: NA

Analysed by-
[Atul Kumar(JRF)]

Authorized by
Sunil Singh
Chauhan
Sunil Singh Chauhan (ASO)

Digitally signed by Sunil Singh
Chauhan
Date: 2023.04.05 16:48:27 +05'30'

VIKAS
MISHRA
Regional Officer

Digitally signed by
VIKAS MISHRA
Date: 2023.04.05
16:48:40 +05'30'



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

TEST REPORT: WASTE WATER LABORATORY

Date: 19/12/2023

Ref No: 23677836/Moradabad/2023/paybasis

- 1- Name of Industry: Triveni Engineering & Industries Limited
- 2- Address of Industry: Sugar Unit-Milak Narayanpur
- 3- District: Rampur
- 4- Description about sampling point: Storage Lagoon
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: Anil Kumar SA & Rajendra Lal JLA
- 7- Colour and Odour: Colourless Odourless
- 8- Quantity and Packing: 2 Liter Plastic Can
- 9- Date of Sample Collection: 08/12/2023
- 10- Analysis Indented by: RO Moradabad
- 11- Date of sample receipt in Lab: 08/12/2023

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH, 4500 H B Electronic method	-	7.42		02-12
Oil Grease	mg/l	4.8		02-12
Suspended Solids, 2540 D Total Suspended Solids dried at 103-105 0C	mg/l	28		10-20000 mg/l
Dissolved Solids, 2540 C Total Dissolved Solids dried at 180 0C	mg/l	860		10- 50000 mg/l
BOD, 3 day 27 0C IS 3025 (Part 44): 1993 Bio	mg/l	18		1.0 -50000 mg/l
COD, 5220 B Open Reflux Method	mg/l	128		5.0 -100000 mg/l

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

Remark: NA

Analysed by-
[Rajni Raj(JRF)]

Authorized by
 Anil Kumar Digitally signed by Anil Kumar Vishwakarma
 Vishwakarma Date: 2023.12.19 14:46:44 +05:30
 Anil Vishwakarma (SA)

Ashutosh Digitally signed by Ashutosh Chauhan
 Chauhan Date: 2023.12.19 14:49:05 +05:30

Regional Officer





REGIONAL LABORATORY MORADABAD
UTTAR PRADESH POLLUTION CONTROL BOARD
 1-A/L.N.S.-4, Avas Vikas Colony, Buddha Vihar, Delhi Road, Moradabad

TEST REPORT: WASTE WATER LABORATORY

Date: 11/01/2024

Ref No: 23962430/Moradabad/2024/paybasis

- 1- Name of Industry: Triveni Engineering & Industries Limited, Sugar Unit-Milak Narayanpur
- 2- Address of Industry: Sugar Unit-Milak Narayanpur
- 3- District: Rampur
- 4- Description about sampling point: Storage Lagoon
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: Mr. Anil Vishwkarma SA & Mr. Rajendra Lal JLA
- 7- Colour and Odour: Colourless Odourless
- 8- Quantity and Packing: 2 Liter Plastic Can
- 9- Date of Sample Collection: 27/12/2023
- 10- Analysis Indented by: RO Moradabad
- 11- Date of sample receipt in Lab: 27/12/2023

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH, APHA 24th Ed. 4500B: 2023	-	7.38		02-12
*Oil Grease	mg/l	5.2		-
Suspended Solids, APHA 24th Ed. 2540 D Total Suspended Solids dried at 103-105 °C 2023	mg/l	24		10-20000 mg/l
Dissolved Solids, APHA 24th Ed. 2540 C Total Dissolved Solids dried at 180 °C 2023	mg/l	790		10- 50000 mg/l
Total Solids, APHA 24th Ed. 2540 B: 2023	mg/l	814		10- 50000 mg/l
BOD, APHA 24th Ed. 3 day 27 °C IS 3025 (Part 44): 1993 Bio 2023	mg/l	16		1.0 -50000 mg/l
COD, APHA 24th Ed. 5220 B Open Reflux Method 2023	mg/l	132		5.0 -100000 mg/l

Reference- (1) General Standards for discharge of environmental pollutants are as part-A Effluent (Schedule-VI). The Environment (Protection) Rules, 1986 source: www.cpcb.nic.in/GeneralStandards.pdf. Besides these standards, refer EPA standards for specific purpose

*Non-NABL Parameters.

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

Remark: NA

Analysed by-
[Vinay Kumar (JRF)]

Authorized by
Anil Kumar
Vishwakarma
Anil Vishwkarma (SA)

Digitally signed by Anil Kumar Vishwakarma
Date: 2024.01.11 17:14:55 +05:30'

Ashutosh Chauhan
Regional Officer

Digitally signed by Ashutosh Chauhan
Date: 2024.01.11 17:17:24 +05:30'



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

23

TEST REPORT: WASTE WATER LABORATORY

Ref No: 24689379/Moradabad/2024/paybasis

Date: 28/02/2024

- 1- Name of Industry: Triveni Engineering & Industries Limited, Sugar Unit-Milak Narayanpur
- 2- Address of Industry: Sugar Unit-Milak Narayanpur
- 3- District: Rampur
- 4- Description about sampling point: Storage Lagoon
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: Rajeev Kumar MA & Rajendra Lal JLA
- 7- Colour and Odour: Colourless Odourless
- 8- Quantity and Packing: 2 Lit.
- 9- Date of Sample Collection: 06/02/2024
- 10- Analysis Indented by: RO Moradabad
- 11- Date of sample receipt in Lab: 06/02/2024

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH, APHA 24th Ed. 4500B: 2023	-	7.86		02-12
*Oil_Grease	mg/l	4.4		-
Suspended Solids , APHA 24th Ed. 2540 D Total Suspended Solids dried at 103-105 °C 2023	mg/l	22		10-20000 mg/l
Dissolved Solids, APHA 24th Ed. 2540 C Total Dissolved Solids dried at 180 °C 2023	mg/l	480		10- 50000 mg/l
BOD, APHA 24th Ed. 3 day 27 °C IS 3025 (Part 44): 1993 Bio 2023	mg/l	16		1.0 -50000 mg/l
COD, APHA 24th Ed. 5220 B Open Reflux Method 2023	mg/l	116		5.0 -100000 mg/l

Reference- (1) General Standards for discharge of environmental pollutants are as part-A Effluent (Schedule-VI). The Environment (Protection) Rules, 1986 source: www.cpcb.nic.in/GeneralStandards.pdf. Besides these standards, refer EPA standards for specific purpose

*Non-NABL Parameters.

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

Remark: NA

Analysed by-
[Rajni Raj(JRF)]

Authorized by
Anil Kumar
Vishwakarma
Anil Vishwakarma (SA)

Digitally signed by Anil Kumar
Vishwakarma
Date: 2024.02.28 12:58:23 +05'30'

Ashutosh
Chauhan
Regional Officer

Digitally signed by Ashutosh
Chauhan
Date: 2024.02.28 12:58:18 +05'30'





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

TEST REPORT: WASTE WATER LABORATORY

Ref No: 29198814/Moradabad/2024/paybasis

Date: 26/12/2024

- 1- Name of Industry: Triveni Engineering & Industries Limited, Sugar Unit-Milak Narayanpur
- 2- Address of Industry: Sugar Unit-Milak Narayanpur
- 3- District: Rampur
- 4- Description about sampling point: Lagoon
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: Anil Vishwkarma SA & Amit Kumar Yadav JE
- 7- Colour and Odour: Colourless Odourless
- 8- Quantity and Packing: 2 Ltr
- 9- Date of Sample Collection: 07/12/2024
- 10- Analysis Indented by: RO Moradabad
- 11- Date of sample receipt in Lab: 07/12/2024

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH, APHA 24th Ed. 4500B: 2023	-	7.72		02-12
*Oil Grease	mg/l	2.8		-
Suspended Solids, APHA 24th Ed. 2540 D Total Suspended Solids dried at 103-105 °C 2023	mg/l	24.0		10-20000 mg/l
Dissolved Solids, APHA 24th Ed. 2540 C Total Dissolved Solids dried at 180 °C 2023	mg/l	520		10- 50000 mg/l
BOD, APHA 24th Ed. 3 day 27 °C IS 3025 (Part 44): 1993 Bio 2023	mg/l	15.0		1.0 -50000 mg/l
COD, APHA 24th Ed. 5220 B Open Reflux Method 2023	mg/l	120		5.0 -100000 mg/l

Reference- (1) General Standards for discharge of environmental pollutants are as part-A Effluent (Schedule-VI), The Environment (Protection) Rules, 1986 source: www.epcb.nic.in/GeneralStandards.pdf. Besides these standards, refer EPA standards for specific purpose

*Non-NABL Parameters.

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

Remark: NA

Analysed by-
[Rajni Raj(JRF)]

Authorized by
Anil Kumar
Digitally signed by Anil Kumar Vishwakarma
Date: 2024.12.26
13:25:26 +05'30'
Vishwakarma
Anil Vishwkarma (SA)

Ashutosh Chauhan
Digitally signed by Ashutosh Chauhan
Date: 2024.12.26
13:26:44 +05'30'
Regional Officer



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

TEST REPORT: WASTE WATER LABORATORY

Ref No: 30312857/Moradabad/2025/paybasis

Date: 18/02/2025

- 1- Name of Industry: Triveni Engineering & Industries Limited, Sugar Unit-Milak Narayanpur
- 2- Address of Industry: Sugar Unit-Milak Narayanpur
- 3- District: Rampur
- 4- Description about sampling point: From Storage Lagoon
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: Anil Vishwkarma SA & Asif Ali JLA
- 7- Colour and Odour: Colourless Odourless
- 8- Quantity and Packing: 2 Ltr
- 9- Date of Sample Collection: 07/02/2025
- 10- Analysis Indented by: RO Moradabad
- 11- Date of sample receipt in Lab: 07/02/2025
- 12- Period of Analysis: 07/02/2025 to 11/02/2025
- 13- ULR Number: TC1167625000000086F
- 14- Sampling Plan/Ref. No.: 30312857
- 15- Sampling Method Ref.: APHA 24th Edition 2023- 1060 A, B, C, Page No.- 42- 52, Collection & Preservation of Samples

S. N.	Parameter/Method Name	Unit	Results	Standard	Detection Range
1	pH, APHA 24th Ed. 4500B: 2023	-	7.63		02-12
2	Suspended Solids, APHA 24th Ed. 2540 D Total Suspended Solids dried at 103-105 °C 2023	mg/l	22.0		10-20000 mg/l
3	Dissolved Solids, APHA 24th Ed. 2540 C Total Dissolved Solids dried at 180 °C 2023	mg/l	680.0		10- 50000 mg/l
4	BOD, APHA 24th Ed. 3 day 27 °C IS 3025 (Part 44): 1993 Bio 2023	mg/l	16.0		1.0 -50000 mg/l
5	COD, APHA 24th Ed. 5220 B Open Reflux Method 2023	mg/l	136.0		5.0 -100000 mg/l

Reference- (1) General Standards for discharge of environmental pollutants are as part-A Effluent (Schedule-VI). The Environment (Protection) Rules, 1986 source: www.cpcb.nic.in/GeneralStandards.pdf. Besides these standards, refer EPA standards for specific purpose

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

Remark: NA

Analysed by-
[Rajni Raj(JRF)]

Authorized by
Anil Kumar
Vishwakarma
Anil Vishwkarma (SA)

Digitally signed by Anil
Kumar Vishwakarma
Date: 2025.02.18
14:43:27 +05'30'

Digitally signed
by Ashutosh
Chauhan
Date: 2025.02.18
14:44:45 +05'30'

Regional Officer

UPPCB/CL/7.8.2	Issue No.: 05	Issue Date: 15.08.2022	Page No.: Page 1 of 2
Amendment No.: 01	Amendment Date.: 01.02.2025	Approved by: TM	Issued by: QM





508
REGIONAL LABORATORY MORADABAD
UTTAR PRADESH POLLUTION CONTROL BOARD
1-A/I.N.S.-1, Avas Vikas Colony, Buddha Vihar, Delhi Road, Moradabad

TEST REPORT: WATER LABORATORY(GROUND WATER)

Ref No: 25052508/Moradabad/2024

Date:18/03/2024

- 1- **Sample Location:** Triveni Engineering & Industries Limited, TubeWell-1
- 2- **Address:** Sugar Unit-Milak Narayanpur
- 3- **Distirct:** Rampur
- 4- **Sample Source:** TubeWell
- 5- **Type of sample :** Ground Water
- 6- **Sample Collected By :** Anil Vishwkarma , SA, Vishal Bharti, LA
- 7- **Odour :** None
- 8- **Quantity and Packing :** 2 Litr.
- 9- **Date of Sample Collection :** 11/03/2024
- 10- **Analyis Indented by :** RO Moradabad
- 11- **Date of sample receipt in Lab :** 11/03/2024

Parameter	Unit	Standards Source: IS 10500:2012(2nd Rev.) Required Acceptable Limit	Results	Detection Range
pH, APHA 24th Ed.4500-B: 2023	-	6.5-8.5	7.70	02-12
Turbidity, APHA24th Ed 2130B: 2023	N.T.U	1.00	2.68	1-500NTU
Colour, APHA 24th Ed. 2120B: 2023	Hazen	5.00	Colourless	5-10000 Hazen
Conductivity, APHA 24th Ed. 2510B: 2023	µS/cm	NS	545	0.1-10000 µS/cm
Hardness, APHA 24th Ed. 2340 C EDTA Titrimetric Method 2023	mg/l	200	154	10-5000 mg/l
Calcium, APHA 24th Ed. 3500Ca-B: 2023	mg/l	75	39.2	10-1000 mg/l
Magnesium, APHA 24th Ed. 3500 Mg-B: 2023	mg/l	30	13.44	10-1000 mg/l

These standards are subject to revision

*Non-NABL Parameters.

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

mark:* - NA

Analysed by
[Rajni Raj(JRF)]

Authorized by

Anil Kumar
Vishwakarma 2024.03.18 15:30:59 +0530'

Anil Vishwkarma (SA)

Ashutosh 2024.03.18
Chauhan 15:32:09 +05'30'
Regional Officer



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

TEST REPORT: WATER LABORATORY(GROUND WATER)

Date: 18/03/2024

Ref No: 25052486/Moradabad/2024

- 1- Sample Location: Triveni Engineering & Industries Limited, TubeWell-2
- 2- Address: Sugar Unit-Milak Narayanpur
- 3- Distirct: Rampur
- 4- Sample Source: TubeWell
- 5- Type of sample : Ground Water
- 6- Sample Collected By : Anil Vishwkarma , SA, Vishal Bharti, LA
- 7- Odour : None
- 8- Quantity and Packing : 2 Litr.
- 9- Date of Sample Collection : 11/03/2024
- 10- Analys Indented by : RO Moradabad
- 11- Date of sample receipt in Lab : 11/03/2024

Parameter	Unit	Standards Source: IS 10500:2012(2nd Rev.) Required Acceptable Limit	Results	Detection Range
pH, APHA 24th Ed.4500-B: 2023	-	6.5-8.5	7.56	02-12
Turbidity, APHA24th Ed 2130B: 2023	N.T.U	1.00	2.91	1-500NTU
Colour, APHA 24th Ed. 2120B: 2023	Hazen	5.00	Colourless	5-10000 Hazen
Conductivity, APHA 24th Ed. 2510B: 2023	µS/cm	NS	520	0.1-10000 µS/cm
Hardness, APHA 24th Ed. 2340 C EDTA Titrimetric Method 2023	mg/l	200	114	10-5000 mg/l
Calcium, APHA 24th Ed. 3500Ca-B: 2023	mg/l	75	30.4	10-1000 mg/l
Magnesium, APHA 24th Ed. 3500 Mg-B: 2023	mg/l	30	9.12	10-1000 mg/l

These standards are subject to revision

*Non-NABL Parameters.

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

received in Lab.

Remark: * - NA

Analysed by
[Rajni Raj(JRF)]

Authorized by
 Anil Kumar 2024.03.18
 Vishwakarma 15:31:14 +05'30'
Anil Vishwkarma (SA)

Ashutosh 2024.03.18
 Chauhan 15:32:18 +05'30'
Regional Officer



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

TEST REPORT: WATER LABORATORY(GROUND WATER)

Ref No: 26280216/Moradabad/2024

Date:30/05/2024

- 1- **Sample Location:** Triveni Engineering & Industries Limited, TubeWell-1
- 2- **Address:** Sugar Unit-Milak Narayanpur
- 3- **Distirct:** Rampur
- 4- **Sample Source:** TubeWell
- 5- **Type of sample :** Ground Water
- 6- **Sample Collected By :** Anil Vishwkarma , SA, Rajendra Lal, JLA
- 7- **Odour :** None
- 8- **Quantity and Packing :** 2 Litr.
- 9- **Date of Sample Collection :** 18/05/2024
- 10- **Analys Indented by :** RO Moradabad
- 11- **Date of sample receipt in Lab :** 18/05/2024

Parameter	Unit	Standards Source: IS 10500:2012(2nd Rev.) Required Acceptable Limit	Results	Detection Range
pH, APHA 24th Ed.4500-B: 2023	-	6.5-8.5	7.58	02-12
Turbidity, APHA24th Ed 2130B: 2023	N.T.U	1.00	1.9	1-500NTU
Colour, APHA 24th Ed. 2120B: 2023	Hazen	5.00	Colourless	5-10000 Hazen
Conductivity, APHA 24th Ed. 2510B: 2023	µS/cm	NS	492	0.1-10000 µS/cm
Hardness, APHA 24th Ed. 2340 C EDTA Titrimetric Method 2023	mg/l	200	188	10-5000 mg/l
Calcium, APHA 24th Ed. 3500Ca-B: 2023	mg/l	75	44.8	10-1000 mg/l
Magnesium, APHA 24th Ed. 3500 Mg-B: 2023	mg/l	30	18.24	10-1000 mg/l

These standards are subject to revision

*Non-NABL Parameters.

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

mark:* - NA

Analysed by
[Rajni Raj(JRF)]

Authorized by
 Anil Kumar
 Vishwakarma
 Anil Vishwkarma (SA)

Digitally signed by Anil Kumar Vishwakarma
 Date: 2024.05.30 14:11:18 +0530'

Ashutosh
 Chauhan
 Regional Officer

Digitally signed by Ashutosh Chauhan
 Date: 2024.05.30 14:11:37 +0530'





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

TEST REPORT: WATER LABORATORY(GROUND WATER)

Ref No: 26279774/Moradabad/2024

Date:30/05/2024

- 1- Sample Location: Triveni Engineering & Industries Limited, TubeWell-2
2- Address: Sugar Unit-Milak Narayanpur
3- Distirct: Rampur
4- Sample Source: TubeWell
5- Type of sample : Ground Water
6- Sample Collected By : Anil Vishwkarma , SA, Rajendra Lal, JLA
7- Odour : None
8- Quantity and Packing : 2 Litr.
9- Date of Sample Collection : 18/05/2024
10- Analyis Indented by : RO Moradabad
11- Date of sample receipt in Lab : 18/05/2024

Table with 5 columns: Parameter, Unit, Standards Source: IS 10500:2012(2nd Rev.) Required Acceptable Limit, Results, Detection Range. Rows include pH, Turbidity, Colour, Conductivity, Hardness, Calcium, and Magnesium.

These standards are subject to revision

*Non-NABL Parameters.

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

mark: * - NA

Analysed by [Rajni Raj(JRF)]

Authorized by Anil Kumar Vishwakarma (SA)

Ashutosh Chauhan Regional Officer



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

TEST REPORT: WATER LABORATORY(GROUND WATER)

Ref No: 27128944/Moradabad/2024

Date: 01/08/2024

- 1- Sample Location: Triveni Engineering & Industries Limited, TubeWell-2
- 2- Address: Sugar Unit-Milak Narayanpur
- 3- Distirct: Rampur
- 4- Sample Source: TubeWell
- 5- Type of sample : Ground Water
- 6- Sample Collected By : Anil Vishwkarma , SA, Vishal Bharti, LA
- 7- Odour : None
- 8- Quantity and Packing : 2 Litr.
- 9- Date of Sample Collection : 15/07/2024
- 10- Analysis Indented by : RO Moradabad
- 11- Date of sample receipt in Lab : 15/07/2024

Parameter	Unit	Standards Source: IS 10500:2012(2nd Rev.) Required Acceptable Limit	Results	Detection Range
pH, APHA 24th Ed.4500-B: 2023	-	6.5-8.5	7.21	02-12
Turbidity, APHA24th Ed 2130B: 2023	N.T.U	1.00	1.8	1-500NTU
Colour, APHA 24th Ed. 2120B: 2023	Hazen	5.00	Colourless	5-10000 Hazen
Conductivity, APHA 24th Ed. 2510B: 2023	µS/cm	NS	354.6	0.1-10000 µS/cm
Dissolved Solids, APHA 24th Ed. 2540 C Total Dissolved Solids dried at 180 °C 2023	mg/l	500	220	5-10000 mg/l
Hardness, APHA 24th Ed. 2340 C EDTA Titrimetric Method 2023	mg/l	200	218	10-5000 mg/l
Calcium, APHA 24th Ed. 3500Ca-B: 2023	mg/l	75	56.8	10-1000 mg/l
Magnesium, APHA 24th Ed. 3500 Mg-B: 2023	mg/l	30	18.24	10-1000 mg/l

These standards are subject to revision

*Non-NABL Parameters.

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Remark:* - NA

Analysed by
[Vinay Kumar (JRF)]

Authorized by
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Kumar Vishwakarma
Date: 2024.08.01 16:04:07
+05'30'
Anil Vishwkarma (SA)

Ashutosh
Chauhan
Regionl Officer
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Ashutosh Chauhan
Date: 2024.08.01
16:06:18 +05'30'



513
REGIONAL LABORATORY MORADABAD
UTTAR PRADESH POLLUTION CONTROL BOARD
1-A/I.N.S.-1, Avas Vikas Colony, Buddha Vihar, Delhi Road, Moradabad

31

TEST REPORT: WATER LABORATORY(GROUND WATER)

Ref No: 27129024/Moradabad/2024

Date:01/08/2024

- 1- Sample Location: Triveni Engineering & Industries Limited, TubeWell-1
- 2- Address: Sugar Unit-Milak Narayanpur
- 3- Distirct: Rampur
- 4- Sample Source: TubeWell
- 5- Type of sample : Ground Water
- 6- Sample Collected By : Anil Vishwkarma , SA, Vishal Bharti, LA
- 7- Odour : None
- 8- Quantity and Packing : 2 Litr.
- 9- Date of Sample Collection : 15/07/2024
- 10- Analys Indented by : RO Moradabad
- 11- Date of sample receipt in Lab : 15/07/2024

Parameter	Unit	Standards Source: IS 10500:2012(2nd Rev.) Required Acceptable Limit	Results	Detection Range
pH, APHA 24th Ed.4500-B: 2023	-	6.5-8.5	7.32	02-12
Turbidity, APHA24th Ed 2130B: 2023	N.T.U	1.00	1.2	1-500NTU
Colour, APHA 24th Ed. 2120B: 2023	Hazen	5.00	Colourless	5-10000 Hazen
Conductivity, APHA 24th Ed. 2510B: 2023	µS/cm	NS	341.2	0.1-10000 µS/cm
Dissolved Solids, APHA 24th Ed. 2540 C Total Dissolved Solids dried at 180 °C 2023	mg/l	500	210	5-10000 mg/l
Hardness, APHA 24th Ed. 2340 C EDTA Titrimetric Method 2023	mg/l	200	222	10-5000 mg/l
Calcium, APHA 24th Ed. 3500Ca-B: 2023	mg/l	75	72.8	10-1000 mg/l
Magnesium, APHA 24th Ed. 3500 Mg-B: 2023	mg/l	30	9.6	10-1000 mg/l

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Remark:* - NA

Analysed by
[Vinay Kumar (JRF)]

Authorized by
Anil Kumar
Vishwakarma
Anil Vishwkarma (SA)

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Vishwakarma
Date: 2024.08.01 16:05:15
+05'30'

Ashutosh
Chauhan
Regional Officer

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Ashutosh Chauhan
Date: 2024.08.01
16:07:23 +05'30'



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

TEST REPORT: WATER LABORATORY(GROUND WATER)

Ref No: 28642995/Moradabad/2024

Date:16/11/2024

- 1- Sample Location: Triveni Engineering & Industries Limited(Tubewell-1)
- 2- Address: Sugar Unit-Milak Narayanpur
- 3- Distirct: Rampur
- 4- Sample Source: TubeWell
- 5- Type of sample : Ground Water
- 6- Sample Collected By : Anil Vishwkarma , SA, Vishal Bharti, LA
- 7- Odour : None
- 8- Quantity and Packing : 2 Ltr
- 9- Date of Sample Collection : 29/10/2024
- 10- Analysis Indented by : RO Moradabad
- 11- Date of sample receipt in Lab : 29/10/2024

Parameter	Unit	Standards Source: IS 10500:2012(2nd Rev.) Required Acceptable Limit	Results	Detection Range
pH, APHA 24th Ed.4500-B: 2023	-	6.5-8.5	7.26	02-12
Turbidity, APHA24th Ed 2130B: 2023	N.T.U	1.00	1.6	1-500NTU
Colour, APHA 24th Ed. 2120B: 2023	Hazen	5.00	Colourless	5-10000 Hazen
Conductivity, APHA 24th Ed. 2510B: 2023	µS/cm	NS	428.6	0.1-10000 µS/cm
Dissolved Solids, APHA 24th Ed. 2540 C Total Dissolved Solids dried at 180 °C 2023	mg/l	500	240.0	5-10000 mg/l
Hardness, APHA 24th Ed. 2340 C EDTA Titrimetric Method 2023	mg/l	200	232.0	10-5000 mg/l
Calcium, APHA 24th Ed. 3500Ca-B: 2023	mg/l	75	77.6	10-1000 mg/l
Magnesium, APHA 24th Ed. 3500 Mg-B: 2023	mg/l	30	9.12	10-1000 mg/l

These standards are subject to revision

*Non-NABL Parameters.

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Remark: * - NA

Analysed by
[Rajni Raj(JRF)]

Authorized by
Anil Kumar
Kumar Vishwakarma
Vishwakarma
Anil Vishwkarma (SA)
Date: 2024.11.16
14:56:22 +05'30'

Ashutosh Chauhan
Ashutosh Chauhan
Regional Officer
Date: 2024.11.16
15:28:52 +05'30'



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TEST REPORT: WATER LABORATORY(GROUND WATER)

Ref No: 28643073/Moradabad/2024

Date:16/11/2024

- 1- Sample Location: Triveni Engineering & Industries Limited(Tubewell-2)
- 2- Address: Sugar Unit-Milak Narayanpur
- 3- Distinct: Rampur
- 4- Sample Source: TubeWell
- 5- Type of sample : Ground Water
- 6- Sample Collected By : Anil Vishwkarma , SA, Vishal Bharti, LA
- 7- Odour : None
- 8- Quantity and Packing : 2 Ltr.
- 9- Date of Sample Collection : 29/10/2024
- 10- Analysis Indented by : RO Moradabad
- 11- Date of sample receipt in Lab : 29/10/2024

Parameter	Unit	Standards Source: IS 10500:2012(2nd Rev.) Required Acceptable Limit	Results	Detection Range
pH, APHA 24th Ed.4500-B: 2023	-	6.5-8.5	7.41	02-12
Turbidity, APHA24th Ed 2130B: 2023	N.T.U	1.00	1.4	1-500NTU
Colour, APHA 24th Ed. 2120B: 2023	Hazen	5.00	Colourless	5-10000 Hazen
Conductivity, APHA 24th Ed. 2510B: 2023	µS/cm	NS	398.4	0.1-10000 µS/cm
Dissolved Solids, APHA 24th Ed. 2540 C Total Dissolved Solids dried at 180 °C 2023	mg/l	500	210	5-10000 mg/l
Hardness, APHA 24th Ed. 2340 C EDTA Titrimetric Method 2023	mg/l	200	214	10-5000 mg/l
Calcium, APHA 24th Ed. 3500Ca-B: 2023	mg/l	75	60.8	10-1000 mg/l
Magnesium, APHA 24th Ed. 3500 Mg-B: 2023	mg/l	30	14.88	10-1000 mg/l

These standards are subject to revision

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

Remark:* - NA

Analysed by
[Rajni Raj(JRF)]

Authorized by
 Anil Kumar
Digitally signed by Anil Kumar Vishwakarma
 Date: 2024.11.16
 14:57:01 +05'30'
 Vishwakarma
 Anil Vishwkarma (SA)

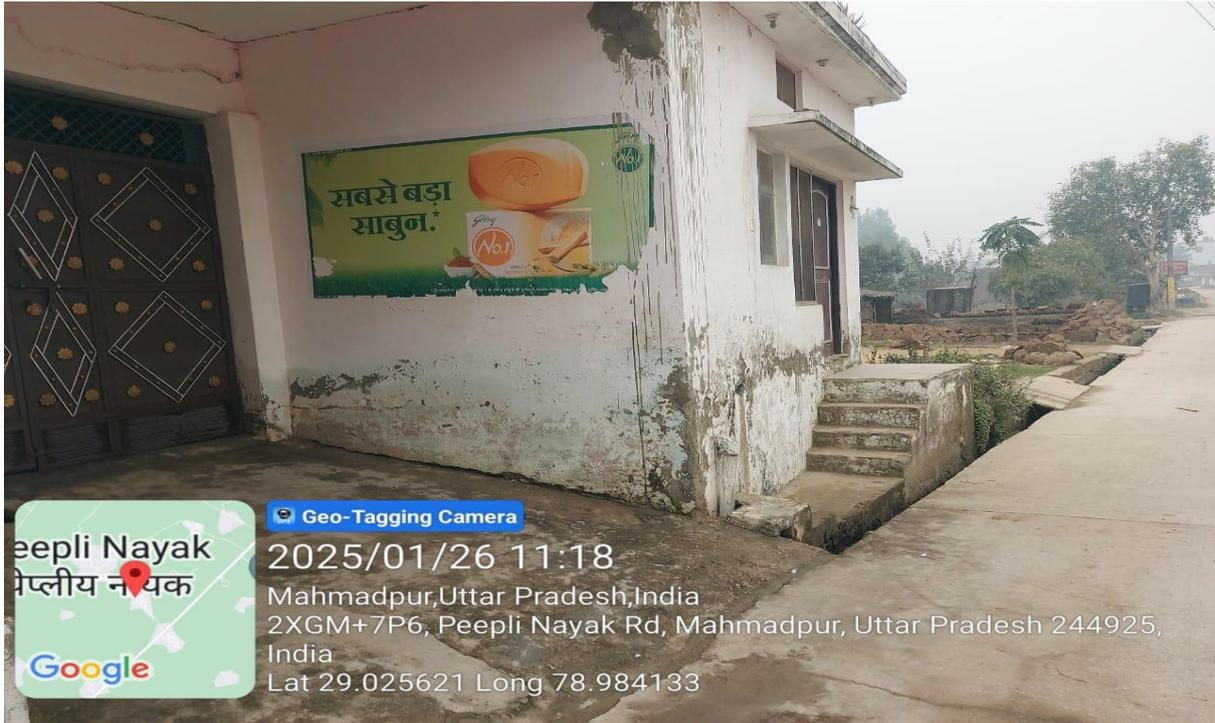
Digitally signed
 by Ashutosh Chauhan
 Date: 2024.11.16
 15:28:33 +05'30'
Ashutosh Chauhan
Regional Officer



Triveni Engg& Industries Ltd Milaknarayanpur

<u>Factory boundry wall near godown Coordinates</u>	
Lat	29.02907769
Long	78.98838395
<u>Satypal-1 residence coordinates</u>	
Lat	29.025621
Long	78.984133
<u>Satypal-2 residence coordinates</u>	
Lat	29.025984
Long	78.985311
<u>Pond coordinates</u>	
Lat	29.02599448
Long	78.98377535

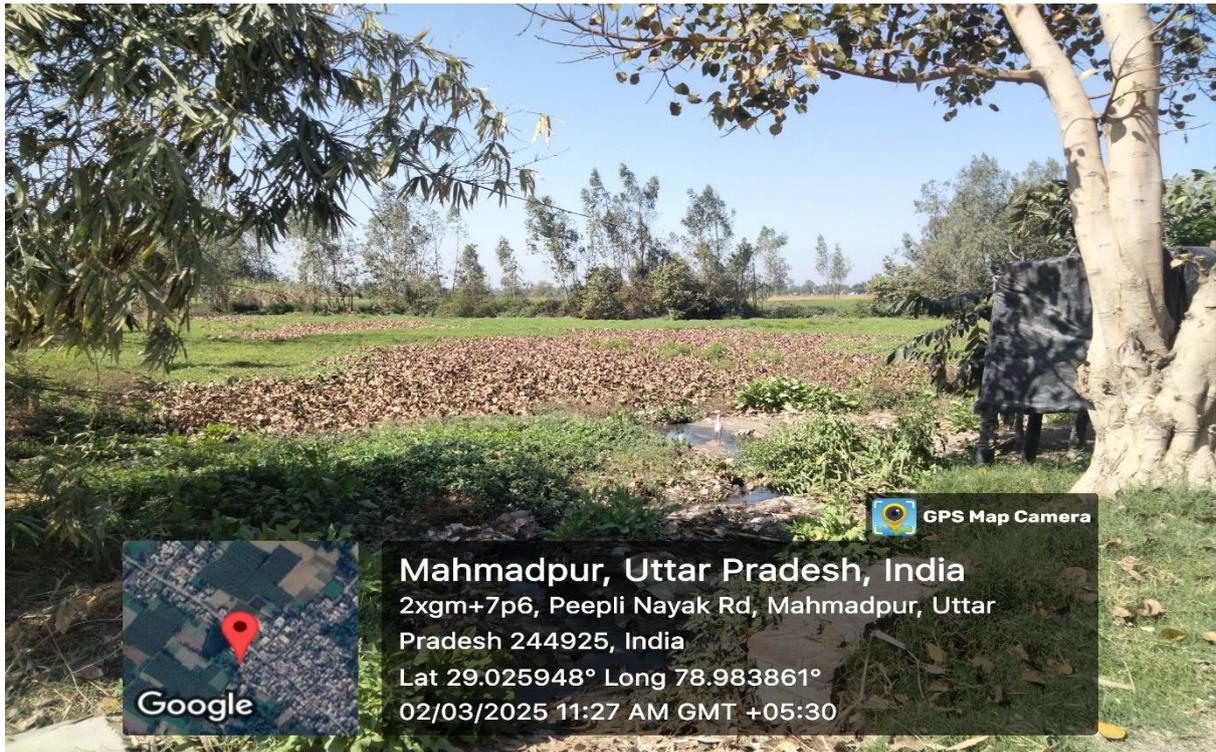
S.No.	Start point	End point	Distance in meter
1-	Factory boundry wall	Satypal S/o kailash-1 res	560
2-	Factory boundry wall	Satypal-2 residence	460
3-	Factory boundry wall	Pond	560
4-	Satypal-1 residence	Satypal-2 residence	120
5-	Satypal-1 residence	Pond	50
6-	Satypal-2 residence	Pond	150



Satypal S/o Kailash Singh Residence



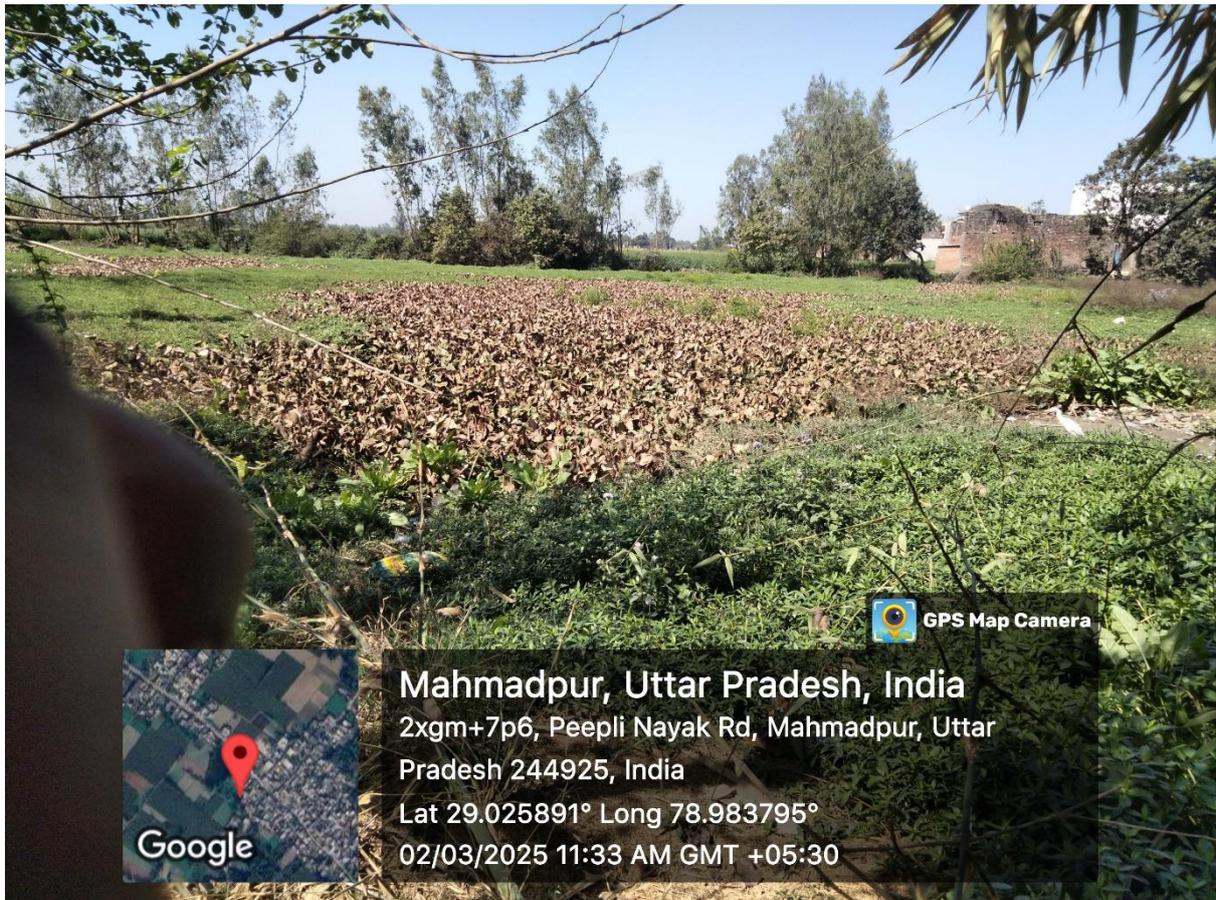
Satypal S/o Sohan Singh Residence



Mahmadpur, Uttar Pradesh, India
2xgm+7p6, Peepli Nayak Rd, Mahmadvpur, Uttar Pradesh 244925, India
Lat 29.025948° Long 78.983861°
02/03/2025 11:27 AM GMT +05:30



Pond pic-1



Mahmadpur, Uttar Pradesh, India
2xgm+7p6, Peepli Nayak Rd, Mahmadvpur, Uttar Pradesh 244925, India
Lat 29.025891° Long 78.983795°
02/03/2025 11:33 AM GMT +05:30



Pond Pic-2



Pond Pic-3



Pond Pic-4



2XGM+9Q2, Mahmadpur, Uttar Pradesh 244925, India

Latitude
29.02595419°
Local 05:12:57 PM
GMT 11:42:57 AM

Longitude
78.98380901°
Altitude 209 meters
Thursday, 13.06.2024

Pond Pic -6



2XGM+9Q2, Mahmadpur, Uttar Pradesh 244925, India

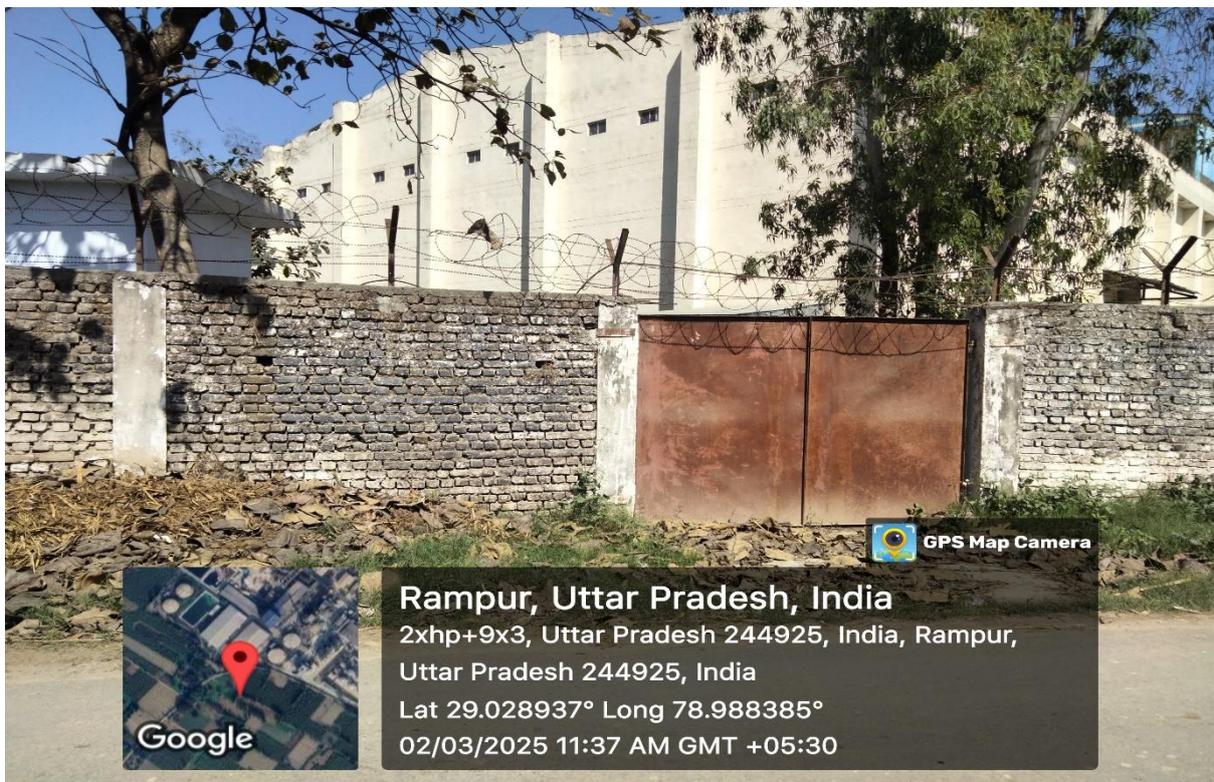
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29.02599448°
Local 05:15:07 PM
GMT 11:45:07 AM

Longitude
78.98377535°
Altitude 209 meters
Saturday, 25.01.2025

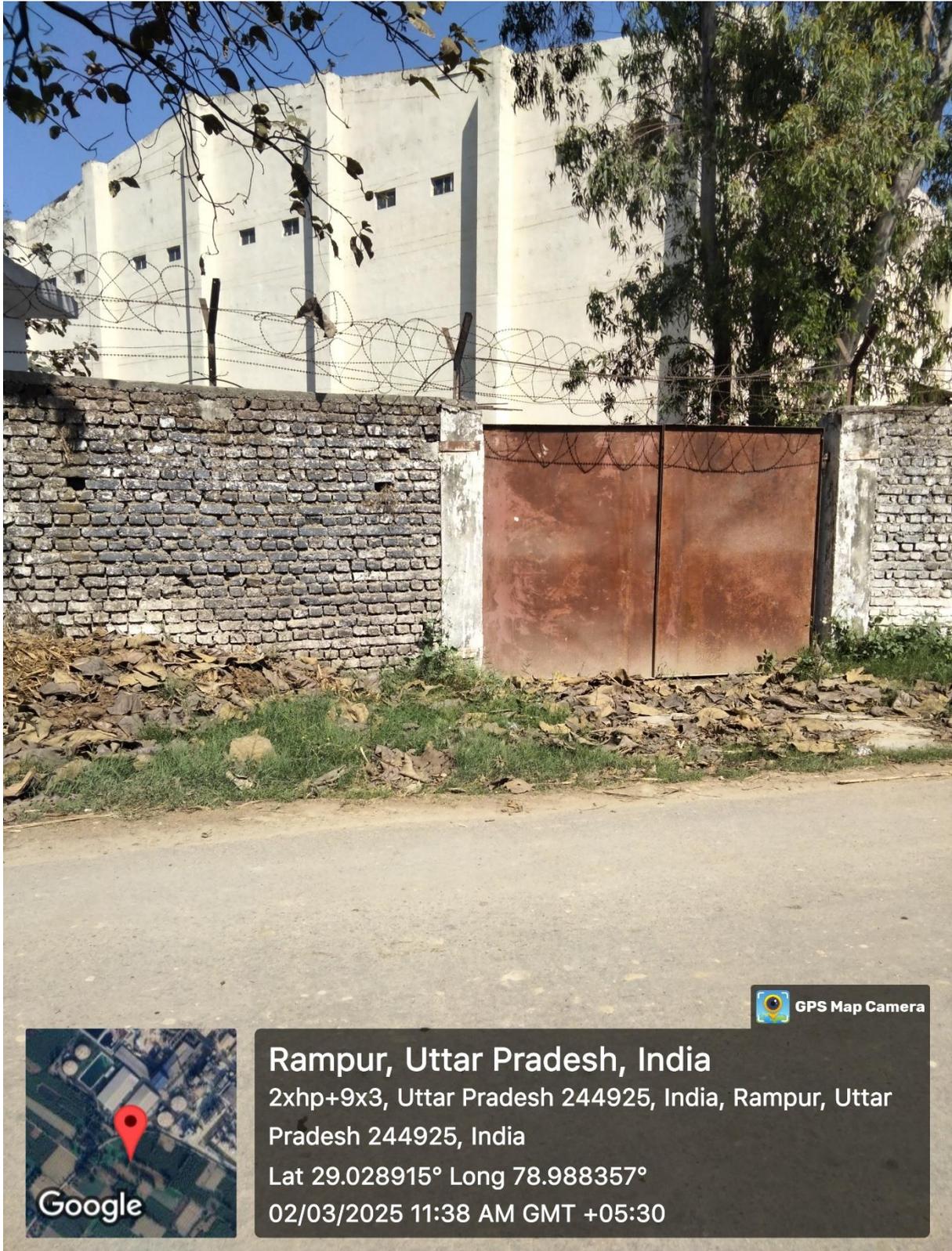
Pond Pic-7



Factory Boundary wall Pic-1 (from inside)

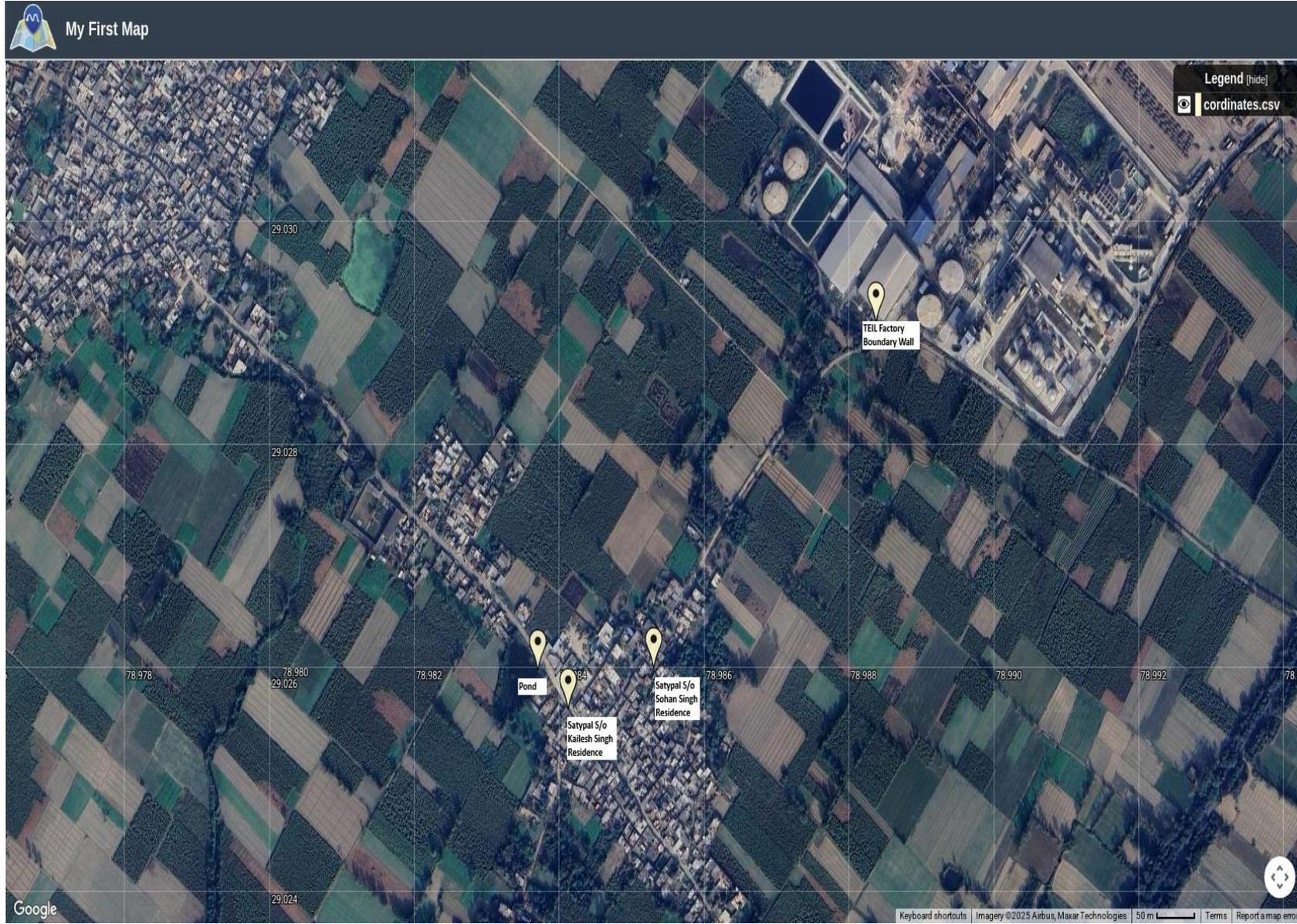


Factory Boundary wall Pic-2 (from outside)



Factory Boundary wall Pic-3 (from outside)

Annexure 4



Google map showing 04 location (Factory boundary wall, Satypal S/o kailash Singh residence, Satypal S/o Sohan Singh residence and Pond near both Satypal residence)



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

TEST REPORT: WATER LABORATORY(SURFACE WATER)

Ref no-30312940/Moradabad/2025

Date:18/02/2025

- 1- **Sample Location:** Triveni Engineering & Industries Limited (Near Satyapal House Village Peepali Nayak Tanda Rampur)
- 2- **District:** Rampur
- 3- **Address:** Sugar Unit-Milak Narayanpur
- 4- **Sample Source:** Drain
- 5- **Type of sample :** Surface Water
- 6- **Sample Collected By :** Anil Kumar Vishwakarma,SA, Sri Asif Ali, JLA
- 7- **Odour :** None
- 8- **Quantity and Packing :** 2 Ltr.
- 9- **Date of Sample Collection :** 07/02/2025
- 10- **Analysis Indented by :** RO Moradabad
- 11- **Date of sample receipt in Lab :** 07/02/2025

Parameter	Unit	Results	Detection Range
pH, APHA24th Ed.4500-B: 2023	-	7.84	02-12
Turbidity, APHA24th Ed 2130B	N.T.U	12.8	1-500NTU
Colour, APHA 24th Ed. 2120B: 2023	Hazen	Turbid	5-10000 Hazen
Conductivity, APHA 24th Ed. 2510B :2023	µS/cm	1530	0.1-10000 µS/cm
Suspended Solids , APHA 24th Ed. 2540 D Total Suspended Solids dried at 103-105 °C 2023	mg/l	56.0	5.0 -10000 mg/l
Dissolved Solids, APHA 24th Ed. 2540 °C Total Dissolved Solids dried at 180 °C 2023	mg/l	1140	5.0 -10000 mg/l
BOD, APHA 24th Ed. 3 day 27 °C IS 3025 (Part 44): 1993 Bio 2023	mg/l	38.0	1.0 -1000 mg/l
COD, APHA 24th Ed. 5220 B Open Reflux Method 2023	mg/l	112.0	4.0 -1000 mg/l

*Non-NABL Parameters.

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

Remark:* - NA

Analysed by
[Rajni Raj(JRF)]

Authorized by

Anil Vishwkarma (SA)

Regional Officer

Water Quality Criteria

Designated-Best-Use	Class of water	Criteria
Drinking Water Source without conventional treatment but after disinfection	A	Total Coliforms Organism MPN/100ml shall be 50 or less pH between 6.5 and 8.5 Dissolved Oxygen 6mg/l or more Biochemical Oxygen Demand 5 days 20 °C 2mg/l or less
Outdoor bathing (Organised)	B	Total Coliforms Organism MPN/100ml shall be 500 or less pH between 6.5 and 8.5 Dissolved Oxygen 5mg/l or more Biochemical Oxygen Demand 5 days 20 °C 3mg/l or less
Drinking water source after conventional treatment and disinfection	C	Total coliforms Organism MPN/100ml shall be 5000 or less pH between 6 to 9 Dissolved Oxygen 4mg/l or more Biochemical Oxygen Demand 5 days 20 °C 3mg/l or less
Propagation of Wild life and Fisheries	D	pH between 6.5 to 8.5 Dissolved Oxygen 4mg/l or more Free Ammonia (as N) 1.2 mg/l or less
Irrigation, Industrial Cooling, Controlled Waste disposal	E	pH between 6.0 to 8.5 Electrical Conductivity at 25 °C micro mhos/cm Max. 2250 Sodium absorption Ratio Max. 26 Boron Max. 2mg/l

Source: <http://www.cpcb.nic.in/wqstandards/>

Source Apportionment Study Report on Groundwater Contamination in Village- Mahmampur, Tehsil-Tanda, Distt- Rampur, Uttar Pradesh

Dated- 05 May 2025

1. Introduction

This report presents primarily a **Source Apportionment Study** of groundwater contamination in the vicinity of **Village Mahmampur, Tehsil-Tanda, District-Rampur** based on sampling data collected by joint inspection committee in the year 2020, visual analysis, the report of the Pond dtd 12.07.2024 provided by M/s Triveni Engineering and Industries Ltd (Sugar Unit). The study evaluates groundwater quality from four hand pumps in nearby village- Mahmampur and assesses potential contamination sources.

Key Observations:

- The industry is **located around 500 m distance from the contaminated Handpump.**
- **Surface water flow direction is** from affected hand pump to Triveni plant as per google elevation.
- **Ground water movement** is from North-West to South-East as per ground water contour map.
- **No industrial drain connects the plant to the affected region (Handpump).**
- Contamination may arise from **Natural geological factors or other anthropogenic sources such as-**
 1. A pond which is situated in village Mahmampur in west direction on 150 m distance from affected handpump/well, in which sewage water of village is accumulated.
 2. Seepage from sewage drains of nearby area.
 3. Seepage from septic tanks in most of the houses in the area.
 4. Garbage and cow dung are dumped in and on the bank of pond and it goes into the pond with runoff, leads to contamination in the pond and finely seep to ground water.

2. Methodology

2.1 Sampling Locations

Four groundwater samples were collected from hand pumps in nearby villages:

Sample No.	Location	Coordinates	Depth (ft)	Proximity to Industry
GW-01	Mahmadpur Hand Pump	29.02550524, 78.98428206	40-50	550 m from Industry
GW-02	Hand Pump near Plant Boundary Wall	29.02844772, 78.98750271	200	80 m from Industry
GW-03	Mahmadpur Hand Pump (Near Satypal House)	29.025984, 78.985311	50	450 m from Industry
GW-04	Hand Pump near ITI (Sarakthal)	29.02267045, 78.99061869	50-60	600 m from Industry

2.2 Analytical Parameters

- **Physicochemical:** pH, Conductivity, TDS, COD, BOD, Total Hardness, Sulphate (SO₄)
- **Heavy Metals:** As, Cd, Cr, Cu, Fe, Mn, Ni, Pb, Sb, Se, V, Zn

2.3 Standards for Comparison

- **Bureau of Indian Standards (BIS) Acceptable & Permissible Limits**
-

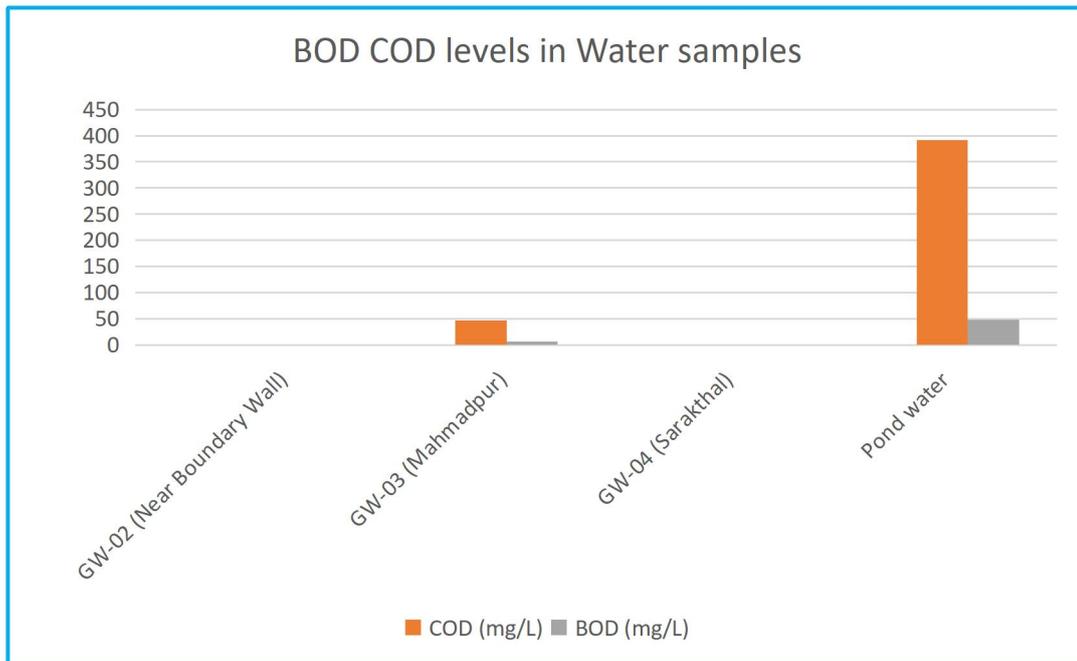
3. Results & Discussion

3.1 Physicochemical Parameters

Parameter	GW-01 (Mahmadpur)	GW-02 (Near Boundary Wall)	GW-03 (Mahmadpur) Affected Handpump	GW-04 (Sarakthal)	Pond water	BIS Acceptable Limit	BIS Permissible Limit
pH	6.4	7.7	6.8	6.8	7.48	6.5-8.5	6.5-8.5
Conductivity ($\mu\text{S}/\text{cm}$)	970	338	1690	924	-	-	-
TDS (mg/L)	602	209	918	530	520	500	2000
COD (mg/L)	06	BDL	46	BDL	392	-	-
BOD (mg/L)	BDL	BDL	5.8	BDL	48	-	-
Total Hardness (mg/L as CaCO₃)	669	216	1275	693	-	200	600
Sulphate (SO₄) (mg/L)	221	BDL	498	310	-	200	400

Key Findings:

- **GW-03 (Satyapal house Mahmadpur)** shows **highest contamination** (TDS: 918 mg/L, Hardness: 1275 mg/L, SO₄: 498 mg/L)
- **GW-02 (Near Boundary Wall)** has no contamination (TDS: 209 mg/L, Hardness: 216 mg/L).
- **GW-04 (Sarakthal,)** has **no contamination**.
- **GW-01 (Mahmadpur)** exceeds **acceptable limits** but under permissible limit for TDS, Hardness, and Sulphate.
- Visual Analysis

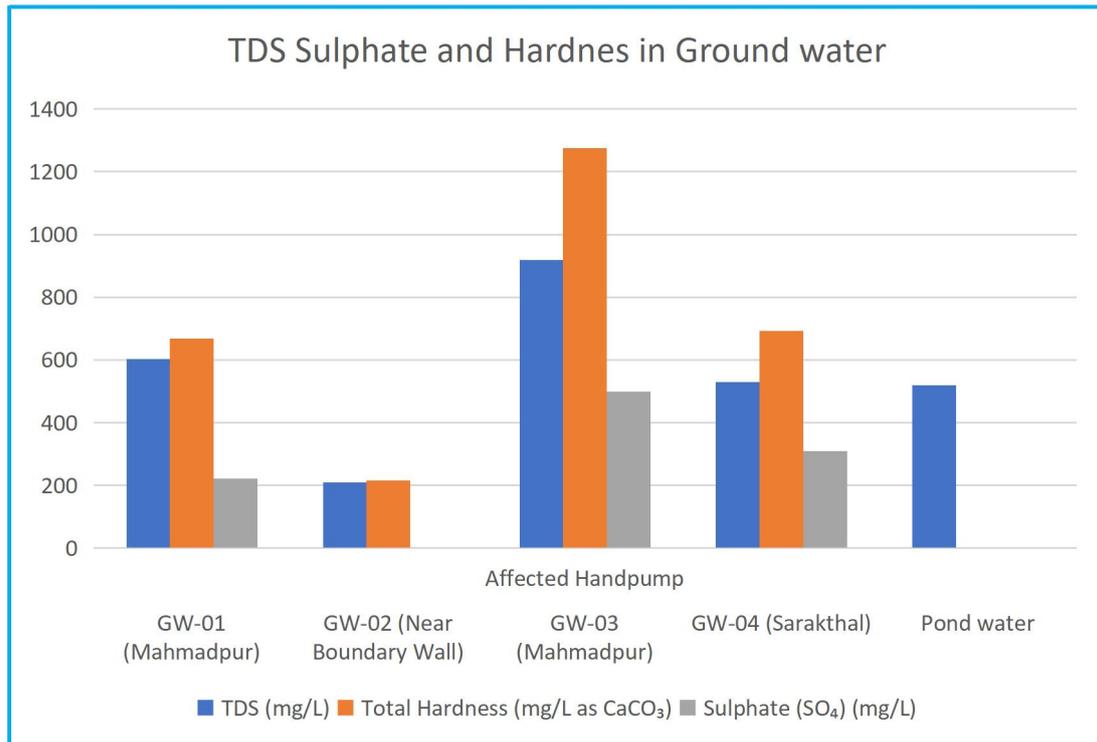


Graph 1: BOD and COD Comparison

Analysis of Pond Water Quality Report

Key Test Results (compared with standard surface water classes)

Parameter	Result	Guideline for Class A (Drinking w/o treatment)	Class B (Bathing)	Class C (Drinking w/ treatment)
pH	7.48	6.5–8.5	6.5–8.5	6–9
Suspended Solids	262 mg/l	No direct standard, but high	-	-
Dissolved Solids	520 mg/l	-	-	-
BOD (3 days @ 27°C)	48.0 mg/l	≤2 mg/l	≤3 mg/l	≤3 mg/l
COD	392.0 mg/l	No specific threshold, but >250 = highly polluted	-	-



Graph 2: TDS, Sulphate, and Hardness

Interpretation:

- **Biochemical Oxygen Demand (BOD)** is extremely high at **48 mg/l in village pond** , which far exceeds the limit for all classes of designated water uses. High BOD levels indicate excessive organic pollution, likely from **untreated sewage or poorly treated wastewater**, possibly from domestic or agricultural sources.
- **Chemical Oxygen Demand (COD)** is also very high at **392 mg/l** in village pond which supports the observation of significant organic and possibly chemical contamination from garbage, cow dung and domestic sewage
- **Suspended Solids** at **262 mg/l** suggest high levels of particulate matter, potentially from runoff or domestic discharge. This can smother aquatic life and alter pond ecology.

Implications for Groundwater Contamination:

The pond water shows **clear signs of heavy pollution**, particularly with biodegradable organic matter. Such contamination poses a **significant threat to nearby groundwater**, especially in areas with:

1. **Shallow water tables** – where polluted surface water can quickly percolate.

2. **Sandy or porous soil** – which allows faster infiltration.
3. **No proper pond lining or protection** – allowing leachate migration.

As the pond is unlined and located near borewells or handpumps, there's a **high risk** that contaminants (especially BOD/COD-related pollutants and pathogens with TDS and Sulphate) can seep into the groundwater, degrading drinking water quality.

3.2 Heavy Metal Analysis

Heavy Metal (mg/L)	GW-01	GW-02	GW-03	GW-04	BIS Acceptable Limit	BIS Permissible Limit
As (Arsenic)	BDL	BDL	-	-	0.01	0.05
Cd (Cadmium)	BDL	BDL	-	-	0.003	NR*
Cr (Chromium)	BDL	BDL	-	-	0.05	NR*
Cu (Copper)	BDL	BDL	-	-	0.05	1.5
Fe (Iron)	0.24	0.76	-	-	0.3	NR*
Mn (Manganese)	0.19	0.19	-	-	0.1	0.3
Ni (Nickel)	BDL	BDL	-	-	0.02	NR*
Pb (Lead)	BDL	BDL	-	-	0.01	NR*
Zn (Zinc)	BDL	0.16	-	-	5	15

Key Findings:

- **Iron (Fe) exceeds acceptable limit** in GW-01 (0.24 mg/L) and GW-02 (0.76 mg/L).
- **Manganese (Mn) exceeds acceptable limit** in GW-01 & GW-02 (0.19 mg/L).
- **Zinc (Zn) detected in GW-02 (0.16 mg/L) but within limits.**
- **No heavy metals (As, Cd, Cr, Pb) detected** in any sample.

4. Source Apportionment Analysis

4.1 Possible Contamination Sources

1. Natural Geological Factors:

- High TDS, Hardness, and Sulphate suggest **geogenic contamination** (mineral leaching).
- Sewage drain nearby hand pump may be one of the cause of contamination.
- **Most probably nearby pond may be the source of ground water contamination** with high BOD/COD and inorganic compounds in it.
- **Seepage from nearby septic tanks may also be a source of contamination in ground water.**
- **Garbage and cow dung dumping on pond bank may lead contamination through rain water and other possible runoff.**

2. Agricultural Runoff:

- Excessive fertilizer use may contribute to **sulphate contamination**.
- Excessive use of fertilizer in nearby agriculture field may be a cause of sulphate contaminant.

3. Domestic Sewage & Open Defecation:

- **BOD (5.8 mg/L in GW-03)** indicates possible organic contamination.

4. Industrial Influence

- **No direct drain from the industry** to the affected area.
- **Surface water flow direction is opposite** to the industry.
- **Heavy metals (except Fe & Mn) are absent**, ruling out industrial pollution.
- Ground water flow direction is opposite to the Industry

4.2 Correlation with Industry

- **GW-02 (Nearest to Industry)** has lower contamination than **GW-03 (far from Industry)**.
- **No chemical signature (e.g., heavy metals, COD/BOD spikes)** linking contamination to the industry.
- **Industrial influence is not observed in this case.**

5. Conclusion & Recommendations

5.1 Conclusion

- **Groundwater contamination is primarily geogenic (natural) and from domestic/agricultural sources**
- **At first glance no evidence links contamination by Unit operations (Triveni) as ground water and surface water movement is towards Triveni plant from contaminated hand pump as per attached google map(Aannexure-I) and ground water movement map(Annexure-III).**
- **Probable source of contamination may be -**
 - **Sewage drain nearby hand pump.**
 - **Most probably nearby pond may be the source of ground water contamination** in Handpumps through seepage flowed by ground water movement.
 - Cow dung, garbage at the bank of pond, indicated that the village pond water is polluted. Photograph of ponds are shown in **Annexure-IV**.
 - **Seepage from nearby septic tanks may be a significant source of contamination in ground water.**
- **High TDS, Hardness, and Sulphate** are due to **natural aquifer conditions**.
- Likelihood of treated water irrigation in the vicinity of M/s Triveni, Milaknarayanpur unit at N/W direction Mahmadpur and village Piplinayak agriculture fields within 200 meters vicinity of the plant, ground water flow of the irrigated land is towards the industry i.e. NW to SE. Hence the impact must be reflected in the plant tube well/handpumps, which was not reflected in the ground water analysis report of the plant tubewells done by the UPPCB and Joint Committee report Dec 2020. It shows the ground water contamination in the ground water in village due to other man-made activities and not Industrial activity.

5.2 Recommendations

1. A detail study should be conducted and sampling analysis should be done by pollution control Board or other government agency.
 2. Monitor agricultural runoff to reduce sulphate/nitrate leaching.
 3. Conduct periodic groundwater quality assessments.
-

6. Annexure

- Annexure -I Google Maps Coordinates of Sampling Locations
 - Annexure-II Laboratory Test Reports of hand pumps and village pond.
 - Annexure-III Groundwater Flow Direction map
 - Annexure IV Photographs of Pond in village Mahmampur, Tehsil Tanda Distt Rampur.
-

Prepared by

Date 05 May 2025



SANTOSH KUMAR SRIVASTAVA
SR.GEOLOGIST
CGWA CERTIFIED GROUND WATER CONSULTANT

Annexure-I

Google Map of the area



Annexure-II

Test report by Joint Committee CPCB and UPPCB 2020

Total Hardness	669	216	1275	693	200	600
SO ₂	221	BDL	498	310	200	400
Heavy Metal Analysis						
As	BDL	BDL	---	---	0.01	0.05
Cd	BDL	BDL	---	---	0.003	NR*
Co	BDL	BDL	---	---	---	---
Cr	BDL	BDL	---	---	0.05	NR*
Cu	BDL	BDL	---	---	0.05	1.5
Fe	0.24	0.76	---	---	0.3	NR*
Mn	0.19	0.19	---	---	0.1	0.3
Ni	BDL	BDL	---	---	0.02	NR*
Pb	BDL	BDL	---	---	0.01	NR*
Sb	BDL	BDL	---	---	---	---
Se	BDL	BDL	---	---	0.01	NR*
V	BDL	BDL	---	---	---	---
Zn	BDL	0.16	---	---	5	15
NR*=No Relaxation						

Parameters, mg/l except pH, Color in Hazen and Conductivity in μ mho/cm						
Parameters	Sampling Locations				(Acceptable limit) Drinking water standards (BIS) DRINKING WATER — SPECIFICATION (Second Revision) IS 10500: 2012	(Permissible limit in the absence of alternate source) Drinking water standards (BIS) DRINKING WATER — SPECIFICATION (Second Revision) IS 10500: 2012
	Groundwater sample- 01 from hand-pump at Mahmadpur village	Groundwater sample - 02 from hand-pump located near the boundary wall of unit adjacent to temple - village Mahmadpur	Groundwater sample- 03 from hand-pump at Mahmadpur village (from residence of Satypal Singh)	Groundwater sample - 04 from hand-pump near ITI from Sarakthal village (from residence of Sompal)		
Depth (ft)	50	200	40-50	50-60	---	---
Color	BDL	BDL	28	BDL	5	15
pH	6.4	7.7	6.8	6.8	6.5-8.5	6.5-8.5
Conductivity	970	338	1690	924	---	---
TDS	602	209	918	530	500	2000
COD	06	BDL	46	BDL	---	---
BOD	BDL	BDL	5.8	BDL	---	---

Handpump Satypal Mahmadpur Sample-GW 03 (affected well)

Ground water analysis report from Plant area

As per CPCB and UPPCB joint committee report

19. One sample was collected from the tap near factory area reported to be borewell water. The analysis results of the sample are placed in Table-2 below:
 Table-2 Groundwater Analysis Report- Quality of Groundwater is compared with Bureau of Indian Standard (BIS) DRINKING WATER — SPECIFICATION (Second Revision) IS 10500: 2012.

Sampling Point	Ground water from tap in industry	(Acceptable limit) Drinking water standards (BIS) DRINKING WATER — SPECIFICATION (Second Revision) IS 10500: 2012	(Permissible limit in the absence of alternate source) Drinking water standards (BIS) DRINKING WATER — SPECIFICATION (Second Revision) IS 10500: 2012
Depth	105 meter (344.5 ft)	---	---
Color	BDL	5	15
pH	7.8	6.5-8.5	6.5-8.5
Conductivity	608	---	---
TDS	194	500	2000
COD	BDL	---	---
BOD	BDL	---	---
Total Hardness	240	200	600
SO ₄	5	200	400
As	BDL	0.01	0.05
Cd	BDL	0.003	-
Co	BDL	-	-
Cr	BDL	0.05	NR*
Cu	BDL	0.05	1.5
Fe	0.04	0.3	NR*
Mn	0.02	0.1	0.3
Ni	BDL	0.02	NR*
Pb	BDL	0.01	NR*
Sb	BDL	-	-
Se	BDL	0.01	NR*
V	BDL	-	-
Zn	0.04	5	15

NR*=No Relaxation

20. Storage of treated Effluent

a. No. & size of lagoons	01 no. of capacity 12990m ³ Size (114 x 53 x 2.15 mt)
b. Retention time	15 days
c. Lagoon type- permeable/impermeable	Impermeable

21. Sludge Handling Process details:

Annexure-III

Water Analysis of Pond water



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

TEST REPORT: WATER LABORATORY(SURFACE WATER)

Ref no-27031562/Moradabad/2024

Date:12/07/2024

- 1- **Sample Location:** Triveni Engineering & Industries Limited (Pond, Village Pipali Nayak, Near Sugar Mill)
- 2- **District:** Rampur
- 3- **Address:** Sugar Unit-Milak Narayanpur
- 4- **Sample Source:** Pond
- 5- **Type of sample :** Surface Water
- 6- **Sample Collected By :** Anil Vishwkarma , SA, Vishal Bharti, LA
- 7- **Odour :** None
- 8- **Quantity and Packing :** 2 liter
- 9- **Date of Sample Collection :** 05/07/2024
- 10- **Analysis Indented by :** RO Moradabad
- 11- **Date of sample receipt in Lab :** 05/07/2024

Parameter	Unit	Results	Detection Range
pH, APHA24th Ed.4500-B: 2023	-	7.48	02-12
Suspended Solids , APHA 24th Ed. 2540 D Total Suspended Solids dried at 103-105 °C 2023	mg/l	262	5.0 -10000 mg/l
Dissolved Solids, APHA 24th Ed. 2540 °C Total Dissolved Solids dried at 180 °C 2023	mg/l	520.0	5.0 -10000 mg/l
BOD, APHA 24th Ed. 3 day 27 °C IS 3025 (Part 44): 1993 Bio 2023	mg/l	48.0	1.0 -1000 mg/l
COD, APHA 24th Ed. 5220 B Open Reflux Method 2023	mg/l	392.0	4.0 -1000 mg/l

*Non-NABL Parameters.

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

Remark:* - NA

Analysed by
[Rajni Raj(JRF)]

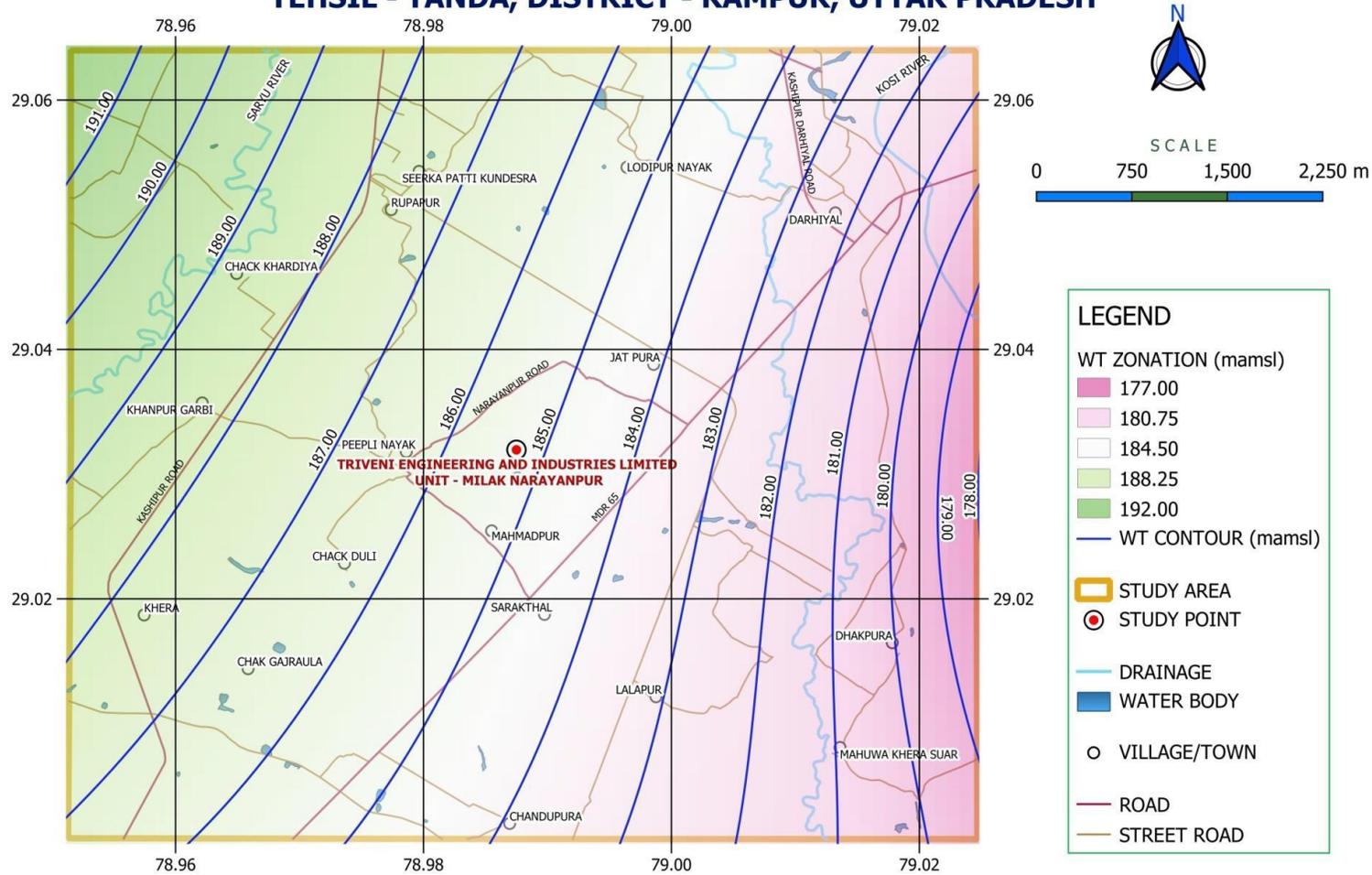
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 Anil Vishwkarma (SA)

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Ashutosh
 Chauhan
 Regional Officer

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 Ashutosh Chauhan
 Date: 2024.07.12
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GROUND WATER FLOW (PREMONSOON - 2020) MAP IN AREA AROUND TRIVENI ENGINEERING AND INDUSTRIES LIMITED, UNIT - MILAK NARAYANPUR, TEHSIL - TANDA, DISTRICT - RAMPUR, UTTAR PRADESH



Source : GW Impact assessment report 2020 based on UPGWD data

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Water Quality Assessment of Pond Water of Kalanaur Block, Rohtak, Haryana

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Water Quality Assessment of Pond Water of Kalanaur Block, Rohtak, Haryana

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Abstract: Various physico-chemical characters of pond water of selected villages of Kalanaur block of Rohtak district in Haryana were compared with WHO and Indian standards. Most of the samples were highly polluted due to higher values of conductivity, turbidity, TDS and dissolved ions and were out of the permissible limits. The results suggested that the water quality of these freshwater bodies is rapidly declining. Regularly updating the data on pond water and appointment of pond managers can help to conserve these freshwater ecosystems.

Keywords: Freshwater, Physico-chemical, Village ponds, Water quality

Water is the basic and most essential requirement for life on earth. All living organisms require water for survival, growth, reproduction and other life processes. About 71% of Earth's surface is covered with water and oceans account about 96.5% of the total water. Earth surface has limited sources of freshwater and it contributes only 2.5% to total water on Earth (Hu et al 2018). It is mainly the freshwater, which is valuable for human beings for drinking and irrigation. Major sources of freshwater are glaciers, rivers, lakes and ponds. From human health to proper functioning of an ecosystem everything depends upon the water (Costanza et al 2017). A pond is a small area of still and fresh water, which holds water for four or more months in a year and is between 1 m² to 20,000 m² in area (Biggs et al 2005). Ponds are the most dynamic and productive freshwater ecosystems with stunning biological diversity. Ponds cover nearly 30% of global water by surface area (Downing et al 2006). Pond ecosystems help in groundwater recharging, supports livestock, prevention of soil erosion, water purification and most importantly in carbon sequestration (Sarma and Saikia 2010, Kumar and Padhy 2015, Nag et al 2019). Ponds provide many ecosystem services free of cost to human beings including social, cultural, economic, scientific, medicinal and aesthetic, etc. (Gupta et al 2012). In spite of having a central role in the life of all organisms, ponds are continuously being degraded due to anthropogenic activities viz. industrialization, urbanization, habitat loss, pollution, etc. (Mishra et al 2014, Chen et al 2019). Due to lack of proper sanitation facilities, most of the people in villages use pond catchment areas for defecation purpose (Adhikary 2016). Increased salinity, acidic content and heavy metal content are some of the consequences of deterioration and

degradation of water quality in these ponds (Nwani et al 2010, Ritchie and Olson 2015, Gerdol et al 2018).

India being an agricultural country has high requirement of freshwater for irrigation purpose. Ponds are mainly exploited by rural people to sustain their life. India has achieved only 71.8% of the target to provide the rural population with safe, adequate and drinking water and is also far behind at achieving its Sustainable Development Goal (SDG) on clean water and sanitation. Thus, conservation of ponds is important in the present scenario to deal with climate change where drought, floods and erratic rainfall are common. Lack of awareness and understanding has somehow hindered the conservation of pond ecosystems. At the national level, various initiatives have been taken by the government of India. National Wetland Conservation Programme (NWCP) was operationalized by the Government of India in close collaboration with concerned State Governments. Recently, Government of India has set up a separate ministry, 'Jal Shakti' to manage and conserve the local water bodies. As a part of the outreach initiative, Maharshi Dayanand University, Rohtak (Haryana) has adopted five villages of Kalanaur block in Rohtak district. Hence, the present study was conducted in these villages to study quality of pond water.

MATERIAL AND METHODS

Study area: Kalanaur block is located in Rohtak district of Haryana, India. The geographical coordinates of the block are 28.8312°N and 76.3956°E. This block receives an average annual rainfall of 44.3cm. The highest temperature recorded is 46°C and the lowest temperature recorded is 4°C. In summers the temperature ranges from 23°C-45°C.

Soil is sandy loam in nature. Bhali Anandpur, Balab, Baniyani, Marodhi Jattan and Marodhi Rangran were the villages selected for physico-chemical analysis of pond water from Kalanaur block of Rohtak district, Haryana (India).

Sample collection: Water samples for analysis were collected from fourteen ponds from five selected villages. Sample collection was carried out from February to April 2018 in morning hours before noon. The bottles were washed with detergent and dilute nitric acid before sampling. Finally, the de-ionized water was used to rinse the sampling bottles and then dried in sunlight. Samples were collected in plastic bottles from each sampling point. After taking the samples the bottles were marked with sampling numbers (Table 1). The samples were collected and preserved in an icebox and were brought to the laboratory of Botany Department, Maharshi Dayanand University, Rohtak, Haryana.

Sample analysis: Physical parameters viz. temperature, pH, conductivity, turbidity and salinity were measured using mercury thermometer, pH meter (ESICO-1615), conductivity meter (ESICO-1615), portable turbidity meter and portable salinity meter, respectively. Sodium and Potassium ion concentration was determined using Flame Photometer (ESICO, Model No.-381) against the standard solutions of NaCl and KCl at different light intensities (Amrutkar 2013). Calcium, Magnesium and total hardness were measured using titration methods. Chloride, carbonate and bicarbonate concentrations were measured using titration methods of Gupta (2000) with minor modifications. The amount of sulphate in the collected samples was measured with little modifications in accordance with (BIS 2003, IS: 3025, Part 24 Reaffirmed 2003).

Statistical Analysis: The data collected was suitably tabulated and analysed. Coefficient of correlation (r) among different parameters were also calculated.

RESULTS AND DISCUSSION

The ponds are backbone of rural society. Villagers depend upon village ponds for source of fresh water. In these areas the main occupation is agriculture and animal husbandry. They depend on pond water for cattle drinking, bathing and also for irrigation. But due to continuous decrease in water quality, ponds can no longer be used as a source of water. From the present study, it was observed that most of the village ponds have physical and chemical parameters out of acceptable limit.

Physical Parameters

Colour, odour and temperature: The colour and odour in a natural water body are mainly due to the presence of phytoplankton and zooplankton. Most of the samples were greenish to yellowish in colour. S_1 was blackish and S_2 was

Table 1. Name of villages and ponds selected for sample collection

S. No.	Name of pond	Name of village	Latitude	Longitude
S_1	Bada johr	Bhali Anandpur	28°52'44"N	76°30'38"E
S_2	Guhae johr	Bhali Anandpur	28°52'58"N	76°30'31"E
S_3	Pirali johr	Bhali Anandpur	28°52'50"N	76°30'15"E
S_4	Tarne wala johr	Baniyani	28°51'04"N	76°30'34"E
S_5	Budha johr	Baniyani	28°50'54"N	76°30'33"E
S_6	Thakuron wala johr	Baniyani	28°50'59"N	76°30'46"E
S_7	Sati wala johr	Marodhi Jattan	28°50'13"N	76°31'24"E
S_8	Nanu wala johr	Marodhi Jattan	28°50'05"N	76°31'29"E
S_9	Dalla wala johr	Marodhi Jattan	28°49'58"N	76°31'27"E
S_{10}	School wala johr	Marodhi Rangran	28°50'01"N	76°31'12"E
S_{11}	Choudhary wala johr	Marodhi Rangran	28°50'12"N	76°31'15"E
S_{12}	Mandir wala johr	Balab	28°47'56"N	76°30'30"E
S_{13}	Badi wali johr	Balab	28°47'59"N	76°30'52"E
S_{14}	Semali johr	Balab	28°47'53"N	76°30'53"E

turbid. Odour for most of the samples was non-agreeable. The temperature of samples ranged from 19.9°C to 27.6°C and was within permissible limits. The colour and odour are indicators of water quality of fresh water bodies (Dhanalakshmi et al 2013). Further, colour does not affect the aquatic organism directly, but it prevents the light penetration and reduces the growth of aquatic plants (Olopade 2013). The green colour represents higher planktons and light green color represents low planktons level (Das 1997). Some village ponds were covered with cow dung cakes. The black colour of village ponds may be due to dumping of cow dung cakes with rainwater within the ponds. The odour of the water may be due to the organic and inorganic contaminants in water (Table 2).

pH: The value of pH ranged from 7.4-9.0 and was within acceptable limits as specified by Indian standard (BIS 2012). The maximum value of pH was recorded for S_{14} and minimum for S_2 .

Conductivity: The recorded conductivity ranged from 1382-9970 μ -mho cm^{-1} . The maximum conductivity was recorded in S_{14} (9970 μ -mho cm^{-1}) and minimum in S_3 (1382 μ -mho cm^{-1}). The acceptable limit for conductivity is 600 μ -mho cm^{-1} (WHO 2018). When compared to WHO standard all the samples were out of the acceptable limit.

Turbidity: Turbidity of water is due to the suspension of particles and these suspension particles make the solution to appear cloudy. Turbidity recorded in the water samples ranged from 04 to 46 Nephelometric Turbidity Units (NTU). The maximum value of turbidity was recorded in S_2 (46 NTU)

and the minimum value of turbidity was recorded in S₅ (4 NTU). In context with turbidity, the results were in concordance with Senthilkumar et al (2017) and Muralidaran et al (2017). The fresh water bodies may get contamination from soil runoff that increases the turbidity (EPA 2000, Schwartz et al 2000).

Total dissolved solids (TDS) and salinity: The TDS ranged from (908 ppm) in S₃ to (6600 ppm) in S₁₄. According to Indian standard (BIS 2012), the acceptable limit of TDS for drinking water is specified at 500 ppm. All the samples were out of acceptable limits. Maximum salinity was reported in S₁₄ (4960 ppm) and minimum in S₃ (680 ppm). The change in salinity might be due to changes in total solids. High level of TDS is an indicator of increased nutrient content which results into eutrophication of aquatic bodies (Singh and Mathur 2005, Verma et al 2012).

Chemical Parameters

Chloride: Chloride anions recorded in pond water samples ranged from 207.5-1614.5 mg l⁻¹ (Table 3). Maximum in S₁₄ (1614.5 mg l⁻¹) and minimum in S₁₁ (207.5 mg l⁻¹). The permissible limit of chloride content is 250 mg/l (BIS 2012). The high chloride content in water samples may be due to the high rate of sedimentation and evaporation. All other samples were out of acceptable limit. The higher concentration of chloride ions in freshwater bodies is an indication of pollution by dumping of domestic sewage. High concentration of chloride ions in natural freshwater bodies is due to

anthropogenic impacts viz. dumping of village waste, cow dung cakes, washing of agricultural tools and tractors, washing of clothes and invasive plants (Singh 2017).

Calcium: Maximum value of calcium cation was recorded in S₁₄ (516.2 mg l⁻¹) and minimum in S₃ (44.1 mg l⁻¹). According to Indian standard (BIS 2012), the acceptable limit of calcium for drinking water is specified at 75 mg l⁻¹. Almost half of the collected samples were out of permissible limits.

Magnesium: Magnesium ions recorded in the pond water samples ranged from 101.5-454.9 mg l⁻¹. Maximum magnesium content was reported in S₁ (454.9 mg l⁻¹) and minimum in S₂ (101.5 mg l⁻¹). According to Indian standard (BIS 2012), the acceptable limit is 30 mg l⁻¹. High concentration magnesium may be due to washing away of nutrients into the ponds with rainwater, from a widespread agricultural area. When the samples were compared with Indian standard, it was reported that all the samples were out of acceptable limit. It may be due to the washing away of nutrients into the ponds with rainwater, from a widespread agricultural area and thus resulting in the increase in level of magnesium ions.

Sulphate: Sulphate is a naturally occurring ion in freshwater bodies. Sample S₁₄ (466.3 mg l⁻¹) was reported to have a maximum value of sulphate and minimum was reported in case of S₉ (18.6 mg l⁻¹). According to Indian standard (BIS 2012), the acceptable limit is 200 mg l⁻¹. The high concentration of sulphate may be due to the extensive growth

Table 2. Physical parameters of the analyzed samples

S. No.	Colour	Odour	Temperature (°C)	pH	Conductivity (μ-mho/cm)	Turbidity (NTU)	TDS (ppm)	Salinity (ppm)
S ₁	Blackish	Non-agreeable	22.1	8.5	4290	18	3290	2330
S ₂	Turbid	Non-agreeable	19.9	7.4	4110	46	2160	2000
S ₃	Light green	Agreeable	24.0	7.8	1382	26	908	680
S ₄	Light green	Non-agreeable	26.7	7.9	2540	10	1790	996
S ₅	Light green	Non-agreeable	26.9	7.5	2980	04	1910	1490
S ₆	Green	Non-agreeable	22.9	7.6	4490	09	2950	2320
S ₇	Yellowish	Non-agreeable	25.1	8.2	3540	08	2300	1720
S ₈	Green	Non-agreeable	23.7	8.7	3560	23	2370	1770
S ₉	Green	Non-agreeable	27.6	8.0	5640	30	3600	2830
S ₁₀	Yellowish	Non-agreeable	26.3	8.4	5140	06	3420	2560
S ₁₁	Yellowish	Non-agreeable	26.6	8.4	3850	34	2660	1900
S ₁₂	Light green	Non-agreeable	24.1	8.1	2410	13	1590	1190
S ₁₃	Green	Non-agreeable	26.5	8.1	6740	16	4490	3380
S ₁₄	Green	Non-agreeable	25.3	9.0	9970	38	6600	4960
Permissible limits								
Range	-	-	-	6.5-9.2	600	1	500	-
Ref.	-	-	-	BIS 2012	WHO 2018	BIS 2012	BIS 2012	-

of water hyacinth (Aneja and Singh 1992). When sulphate samples were compared with Indian standard it was reported that the samples (S_2 , S_3 , S_5 , S_6 , S_7 , S_8 , S_9 , and S_{11}) were within the acceptable limits. The results were in concordance with Senthilkumar et al (2017) and Dubey (2017).

Sodium: Sodium level recorded in the pond samples ranged from 57-460 mg l⁻¹. The maximum sodium concentration was recorded in S_{14} (460 mg l⁻¹) and minimum in S_3 (57 mg l⁻¹). According to (WHO 2006) standard acceptable limit for sodium is 200 mg l⁻¹. Pollution due to human waste disposal in the form of soap solution and detergents might be the cause of high sodium content in ponds. Pond samples viz. S_3 , S_4 , S_5 , S_6 , S_7 , S_{10} and S_{12} were within the acceptable limit. The high concentration of sodium in natural freshwater bodies is mainly due to pollution such as soapy solution, detergent, human and animal waste disposal, precipitation runoff, sewage disposal, mineral deposits and water treatment chemicals such as sodium fluoride, sodium bicarbonate and sodium hypochlorite etc. (Singh 2017).

Potassium: Potassium concentration recorded from water samples ranged from 73-525 mg l⁻¹. The maximum value of potassium was recorded in S_{14} (525 mg l⁻¹) and minimum in S_{12} (73 mg l⁻¹). The acceptable limit of K⁺ for drinking water is specified at 10 mg l⁻¹ (WHO 2018). All water samples were out of acceptable limit. The results also show similarity with the recent studies conducted by Gulia et al (2017) and Akhtar and Rai (2018) for high range of potassium in pond water.

Carbonate: The carbonate anions recorded in pond water samples ranged from 0-120 mg l⁻¹. S_{14} (120 mg l⁻¹) had a maximum value of carbonate ions and most of the other samples had no carbonate content. The carbonate was found nil in more than half of the water samples. The reason for low carbonate was high pH in all the samples because higher pH makes a solution more alkaline and thus less carbonic acid dissociates into carbonate ions.

Bicarbonate: The bicarbonate anions recorded in pond water samples ranged from 414.8-1708 mg l⁻¹. S_{14} (1708 mg l⁻¹) had maximum bicarbonate content and S_5 and S_{12} (414.8 mg l⁻¹) had minimum bicarbonate content. According to Indian standard (BIS 2012), the acceptable limit is 200 mg l⁻¹. Most of the samples had a high concentration of bicarbonate anions.

The dumping of village waste in the ponds is the leading factor for degradation. Most of the villages have very poor drainage system and there is no separate disposal of village waste. Hence, the waste water of most of villages is thrown in ponds. The village waste water contains detergents, cow dung, rotten vegetable waste and many other organic compounds which make the water rich in organic material. There is lack of proper sanitation facilities in most of the houses in villages which results in direct dumping of human excreta in these fresh water bodies. Some religious ponds are also used by villagers for dumping of religious and ceremonial waste i.e. *puja samagri* and garlands in the ponds. Yadav et al (2013) also reported that the ponds surrounded by temple

Table 3. Chemical parameters of analyzed samples

S. No.	Chloride (mg l ⁻¹)	Calcium (mg l ⁻¹)	Magnesium (mg l ⁻¹)	Sulphate (mg l ⁻¹)	Sodium (mg l ⁻¹)	Potassium (ppm)	Carbonate (mg l ⁻¹)	Bicarbonate (mg l ⁻¹)
S_1	925.0	73.8	454.9	345.0	395	187	0	1039
S_2	714.5	230.8	101.5	96.7	256	192	0	1202
S_3	368.4	44.1	175.4	53.0	57	81	0	495.3
S_4	702.9	85.8	350.7	210.1	110	200	0	927.2
S_5	974.1	104.2	311.6	132.5	92	130	0	414.8
S_6	1124.6	393.6	348.1	59.5	131	325	0	1342
S_7	779.6	64.9	319.1	166.4	140	112	0	805.2
S_8	1050.2	359.9	263.7	22.8	260	190	0	1634.8
S_9	869.6	44.9	237.3	18.6	315	210	0	976
S_{10}	707.2	62.5	349.4	299.9	138	275	36	986
S_{11}	207.5	287.0	135.8	111.5	245	300	60	1122.4
S_{12}	620.5	44.9	267.6	238.5	112	73	0	414.8
S_{13}	1028.5	406.4	117.3	329.6	360	230	36	976
S_{14}	1614.5	516.2	261.0	466.3	460	525	120	1708
Permissible limits								
Range	250	75	30	200	200	10	75	200
Ref.	BIS 2012	BIS 2012	BIS 2012	BIS 2012	WHO 2006	WHO 2018	BIS 2012	BIS 2012

Table 4. Correlation among different parameters from analyzed samples

Parameters	pH	EC	Turbidity	TDS	Salinity	Cl ⁻	Ca ²⁺	Mg ²⁺	SO ₄ ²⁻	Na ⁺	K ⁺	CO ₃ ²⁻	HCO ₃ ⁻
pH	1												
EC	0.518	1											
Turbidity	0.154	0.336	1										
TDS	0.591	0.989	0.272	1									
Salinity	0.521	0.996	0.330	0.989	1								
Cl ⁻	0.320	0.729	-0.013	0.726	0.720	1							
Ca ²⁺	0.327	0.656	0.363	0.637	0.651	0.587	1						
Mg ²⁺	0.187	-0.085	-0.636	0.003	-0.065	0.289	-0.497	1					
SO ₄ ²⁻	0.532	0.601	-0.080	0.655	0.596	0.438	0.221	0.254	1				
Na ⁺	0.584	0.798	0.547	0.815	0.814	0.546	0.544	-0.118	0.492	1			
K ⁺	0.488	0.841	0.348	0.843	0.828	0.577	0.742	-0.005	0.454	0.596	1		
CO ₃ ²⁻	0.633	0.785	0.390	0.794	0.766	0.374	0.618	-0.218	0.627	0.563	0.836	1	
HCO ₃ ⁻	0.525	0.638	0.462	0.628	0.632	0.558	0.769	-0.026	0.139	0.643	0.770	0.495	1

receives larger amount of organic and inorganic waste from temples. The pond peripheries are used by villagers for sun drying of cow dung cakes. Gupta et al (2012) conducted study on village ponds of Haryana and also reported the ill impact of cow dung cakes on village ponds.

The EC and TDS, EC and Salinity, TDS and Salinity were closely correlated to each other and value of the r approaches to unity. The correlation between Mg²⁺ and TDS, Mg²⁺ and K⁺ were not significant (Table 4).

CONCLUSIONS

Foul smell from all the samples indicated impurities present in the pond water. Among physical parameters, turbidity and TDS in all the samples were out of permissible limits. According to Indian standard chloride and magnesium, potassium contents were out-off the acceptable limits. Almost half of the samples had more than permissible levels of calcium, sodium and sulphate. So, from the results obtained in the present study, it can be concluded that most of the ponds in these villages were highly polluted and the rest were moderately polluted. Also, due to over-exploitation these water bodies are continuously being deteriorated and degraded. The water from these ponds is unsuitable for human and animal consumption. Assessment and monitoring of pond water should be done on a regular basis. Collective and collaborative efforts by the government and local people can help to conserve and protect these water bodies. Regular monitoring, awareness campaigns and improved regulation of the ponds may help in conservation of these ponds.

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उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड

UTTAR PRADESH POLLUTION CONTROL BOARD

सदरन संख्या

105006/सी-7/जल-394/निर्देश/023

दिनांक

29-12-23

सेवा में

मै० त्रिवेणी इन्जीनियरिंग एण्ड इण्डस्ट्रीज लि०

मिलक नारायणपुर पोस्ट इडियाल

रामपुर। (7217030130)

विषय-बोर्ड के पत्र सं०-एच61396/सी-7/जल-394/21 दिनांक 05.04.2021 द्वारा जल (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1974 की धारा-33ए सपठित 27(2) के अन्तर्गत जारी कारण बताओ नोटिस को निक्षेपित किये जाने के संबंध में।

महोदय

कृपया उपरोक्त विषयक बोर्ड के पत्र सं०-एच61396/सी-7/जल-394/21 दिनांक 05.04.2021 का सदरन ग्रहण करें जिसके द्वारा माननीय राष्ट्रीय हरित अधिकरण नई दिल्ली में विचाराधीन ओ०ए० सं०-234/2020 (आई०ए० नं०-53/2021) अनुराधा बनाम उ०प्र० राज्य में पारित आदेश दिनांक 02.11.2020 के अनुपालन में संयुक्त समिति द्वारा किये गये निरीक्षण दिनांक 01.03.2021 में पाये गये तथ्यों को दृष्टिगत रखते हुए उद्योग के विरुद्ध बन्दी आदेश जारी किये जाने हेतु कारण बताओ नोटिस जारी किया गया। बोर्ड के पत्र दिनांक 03.03.2022 द्वारा उद्योग के विरुद्ध संयुक्त समिति द्वारा आकलित पर्यावरणीय क्षतिपूर्ति रु० रु० 35,40,000/- अधिरोपित की गयी। माननीय सर्वोच्च न्यायालय द्वारा सिविल अपील नं०-2934/2022 में त्रिवेणी इन्जीनियरिंग एण्ड इण्डस्ट्रीज लि० बनाम उत्तर प्रदेश पोल्यूशन कंट्रोल बोर्ड एण्ड अदर्स में पारित आदेश दिनांक 22.04.2022 द्वारा उद्योग के विरुद्ध पर्यावरणीय क्षतिपूर्ति अधिरोपण के संबंध में माननीय अधिकरण के आदेश दिनांक 15.03.2021 को अग्रिम आदेशों तक स्थगित किया गया है।

क्षेत्रीय कार्यालय उ०प्र० प्रदूषण नियंत्रण बोर्ड मुरादाबाद के अधिकारियों द्वारा उद्योग मै० त्रिवेणी इन्जीनियरिंग एण्ड इण्डस्ट्रीज लि० मिलक नारायणपुर पोस्ट-इडियाल, रामपुर का निरीक्षण दिनांक 24.12.2022 एवं 27.12.2022 को किया गया जिसमें उद्योग में स्थापित जल प्रदूषण नियंत्रण व्यवस्थाएँ संचालित पायी गयीं।

क्षेत्रीय अधिकारी, उ०प्र० प्रदूषण नियंत्रण बोर्ड, मुरादाबाद के पत्र दिनांक 30.01.2023 द्वारा प्रेषित सारतुति को दृष्टिगत रखते हुए सक्षम अधिकारी की अनुमति से उद्योग मै० त्रिवेणी इन्जीनियरिंग एण्ड इण्डस्ट्रीज लि० मिलक नारायणपुर पोस्ट-इडियाल रामपुर के विरुद्ध बोर्ड के पत्र सं०-एच61396/सी-7/जल-394/21 दिनांक 05.04.2021 द्वारा जल (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1974 की धारा-33ए सपठित 27(2) के अन्तर्गत जारी कारण बताओ नोटिस को निम्न शर्तों के साथ निक्षेपित किया जाता है -

1. उद्योग मै० त्रिवेणी इन्जीनियरिंग एण्ड इण्डस्ट्रीज लि० मिलक नारायणपुर पोस्ट-इडियाल, जनपद-रामपुर द्वारा माननीय सर्वोच्च न्यायालय में विचाराधीन सिविल अपील नं०-2934/2022 में पारित आदेशों का अक्षरश अनुपालन सुनिश्चित किया जाए एवं बोर्ड द्वारा अधिरोपित पर्यावरणीय क्षतिपूर्ति रु० 35,40,000/-के संबंध में माननीय सर्वोच्च न्यायालय द्वारा निर्गत आदेशों के अनुसार कार्यवाही सुनिश्चित की जाएगी।
2. उद्योग मै० त्रिवेणी इन्जीनियरिंग एण्ड इण्डस्ट्रीज लि० मिलक नारायणपुर पोस्ट-इडियाल, जनपद-रामपुर द्वारा प्रत्येक त्रैमाह में उद्योग परिसर के भूगर्भीय जल एवं सिंचाई हेतु उपयुक्त की जाने वाली कृषि भूमि के भूगर्भीय जल उद्योग द्वारा निस्तारित औद्योगिक उत्पन्नवाह की जल गुणवत्ता तथा औद्योगिक उत्पन्नवाह को नदी/नाले में निस्तारित होने की दशा में नदी/नाले की अप-स्ट्रीम एवं डाउन-स्ट्रीम की जल गुणवत्ता का अनुश्रवण राज्य बोर्ड रो पेड वेसिस पर कराया जाएगा। अपरिहार्य स्थिति में पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार से मान्यता प्राप्त प्रयोगशाला से अनुश्रवण कराते हुए त्रैमासिक रूप से बोर्ड को प्रेषित किया जाएगा।

भवदीय

मुख्य पर्यावरण अधिकारी, वृत्त-7

प्रतिलिपि :-क्षेत्रीय अधिकारी उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड मुरादाबाद को इस निर्देश के साथ की उक्त निर्देशों के क्रम आवश्यक कार्यवाही करना सुनिश्चित करे।

मुख्य पर्यावरण अधिकारी, वृत्त-7

Ref. No : TEIL/MNP/24/
Date: 15th October 2024

To,
The Regional Officer,
U.P. Pollution Control Board,
Moradabad, Uttar Pradesh

Subject: Intimation Regarding Installation of Anaerobic Filter at Effluent Treatment Plant (ETP)

Dear Sir/Madam,

This is to inform you that Triveni Engineering & Industries Ltd. has installed an anaerobic filter with a capacity of 1600 m³ (02 nos. of 800 m³ each) at our Effluent Treatment Plant (ETP) located at Milak Narayanpur, Distt- Rampur. This installation is part of our continuous efforts to enhance the efficiency of wastewater treatment and ensure compliance with the environmental regulations set forth by the Pollution Control Board.

We are pleased to inform you that the anaerobic filter will be operational during the upcoming sugarcane crushing season. The anaerobic filter is designed to significantly reduce the organic load in the wastewater and improve the overall quality of the treated effluent. This upgrade is expected to assist in meeting the prescribed effluent discharge norms more effectively, thereby contributing to the sustainability goals of our company.

We kindly request your office to acknowledge the installation and update our records accordingly. We appreciate your support and cooperation.

Regards,

Triveni Engineering & Ind. Ltd.
Unit-Milak Narayanpur, Rampur

(Chandra Shekhar Singh)
Dy. General Manager (HR & Admn.)



REF :TEIL/MNP/2024/
Date: 12.10.2023

To,
The Regional Officer,
U.P. Pollution Control Board
Budhi Vihar, Moradabad (U.P.)

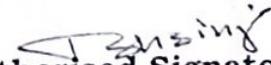
Subject: **Process Conversion**

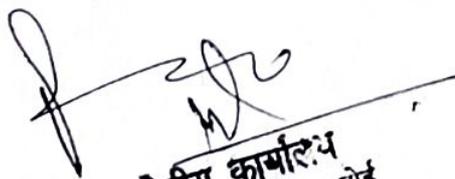
Dear Sir,

This is to inform you that we are changing the process of Sugarcane Juice clarification from Double Sulphitation (D.S.) to Defco-Melt Phosphotation Process (DMP) to produce refined sugar in this process quantum of key clarifications would reduced significantly i.e. Sulphur consumption will be zero and lime consumption will be half in comparison to D.S. Process.

Information submitted for your reference and further needful please.

Triveni Engineering & Industries Limited
Sugar Unit-Milak Narayanpur


(Authorised Signatory)


क्षेत्रीय कार्यालय
उ.प्र. प्रदूषण नियंत्रण बोर्ड
1-A/1.N.S1 अस्वात विकास कालोनी
बुद्धि विहार, मुरादाबाद



Anunaya Mehta <anunaya.mehta@gmail.com>

Service: Anuradha v. State of U.P. & Ors., O.A No. 234 of 2020 | Rejoinder

1 message

Anunaya Mehta <anunaya.mehta@gmail.com>

Mon, May 5, 2025 at 7:47 PM

To: pradeepmisra@yahoo.com, daleepdhayani@yahoo.co.in, hasil jain <advjain25@gmail.com>

Dear all,

Please find attached rejoinder by Respondent No. 4 to IA No. 575 of 2024 being filed in the captioned matter.

Regards,

--

Anunaya Mehta, Adv.
388, Lawyer's Chambers
Delhi High Court
New Delhi - 110003

 **Anuradha-Rejoinder 05.05.2025 FINAL.pdf**
21900K