136

NOTARY R.N. 918 CHITTORGARH (RAJ.)

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

PRINCIPAL BENCH, DELHI

ORIGINAL APPLICATION NO. 795 OF 2024

IN THE MATTER OF:

Badarilal & Ors. ...APPLICANT

VERSUS

State of Rajasthan & Ors. ...RESPONDENTS

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Rajasthan State Pollution Control Board

Through

JAGDISH CHANDRA VAISHNAV NOTARY R.N. 918 CHITTORGARH (RAJ.)

(Nishant Awana)
FOR NMA Law Chambers
Advocates
+91 7838760760
mail@nmalawchambers.in / nishantawana@outlook.com

NEW DELHI
DATED:26.11.2024

क्षेत्रीय अधिकारी
राजस्थान प्रदूषण नियंत्रण मण्डल
चित्तौड़गढ़ (राज.)

ATTESTED
Jagdish Chandra Vaishnav
NOTARY
CHITTORGARH (RAJ.)

26 NOV 2024

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

PRINCIPAL BENCH, DELHI

ORIGINAL APPLICATION NO. 795 OF 2024

IN THE MATTER OF:

Badarilal & Ors. ...APPLICANT

VERSUS

State of Rajasthan & Ors. ...RESPONDENTS

Action taken Report on behalf of Respondent No. 2, i.e. Rajasthan State Pollution Control Board (RSPCB)

1. It is submitted that pursuant to order dated 30.08.2024, Joint Committee had submitted report vide email dated 22.10.2024 with certain recommendations before Hon'ble National Green Tribunal, New Delhi, which is already on record.
2. It is submitted that the Respondent No. 3 has submitted the compliance of the Factual Report submitted by the Joint committee before Hon'ble National Green Tribunal, New Delhi to Regional Office, Chittorgarh vide letter dated 19.11.2024, received on dated 20.11.2024, which was subsequently verified by the officials of the Regional Office, Rajasthan State Pollution Control Board, Chittorgarh on dated 20.11.2024. The Verification Report prepared by RSPCB is annexed herewith and marked as **ANNEXURE – A.**

Rajasthan State Pollution Control Board

Through

(Nishant Awana)
FOR NMA Law Chambers
Advocates
+91 7838760760
mail@nmalawchambers.in / nishantawana@outlook.com

NEW DELHI
DATED: 26.11.2024

क्षेत्रीय अधिकारी
राजस्थान प्रदूषण नियंत्रण मण्डल
चित्तौड़गढ़ (राज.)

ATTESTED
Jagdish Chandra Vaishnav,
NOTARY
CHITTORGARH (RAJ.)
26 NOV 2024

BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 795 OF 2024

IN THE MATTER OF:

Badarilal and Ors. ...Applicant

VERSUS

State of Rajasthan and Ors. ...Respondents

AFFIDAVIT IN SUPPORT

I Sharad Saksena S/o Sh.Onkarnath Saksena aged about 56 years, working as Regional Officer with Rajasthan State Pollution Control Board available at Near F.C.I. Godown, Chanderiya, Chittorgarh, presently at Chittorgarh do hereby solemnly affirm and declare as under:

1. That I am the Officer Incharge for the above noted matter and have been duly authorized in this regard. I am well conversant with the facts of the case, and, hence, competent to affirm this affidavit.

2. That the contents of the accompanying ATR have been drafted by my counsel under my instructions. Facts stated therein are true to my knowledge and the legal submissions made therein are based on the advice received and believed to be correct. Nothing material has been concealed therein.

NOTARY REG. S.No 2649 Date 26.11.24

शरद सक्सेना
क्षेत्रीय अधिकारी
राजस्थान प्रदूषण नियंत्रण मण्डल
चित्तौड़गढ़ (राज.)
DEPONENT

Verification:

Verified at Chittorgarh on this day of 26 November 2024 that the contents of the above affidavit are true and correct to my knowledge and belief and as per the official records available. I say that no part of it is false and nothing material has been concealed therefrom.

26.11.24

Identified by

Jagdish Chandra Vaishnav
NOTARY
Chittorgarh (Raj.)

शरद सक्सेना
क्षेत्रीय अधिकारी
राजस्थान प्रदूषण नियंत्रण मण्डल
चित्तौड़गढ़ (राज.)
DEPONENT

FACTUAL REPORT BY REGIONAL OFFICE, RAJASTHAN STATE POLLUTION CONTROL BOARD

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
Principal Bench, New Delhi

In the Matter of

Original Application No.795/2024 (PB)
Badarilal & Ors V/s State of Rajasthan

w.r.t.

Hon`ble National Green Tribunal PB, Delhi
order dated 20.08.2024

Date of Site Inspection: **20th November, 2024**
Location: **Chittorgarh, Rajasthan**

INDEX

Glossary

APCD	Air Pollution Control Device
CPCB	Central Pollution Control Board
CEMS	Continuous Emission Monitoring System
COD	Chemical Oxygen Demand
CSR	Corporate Social Responsibility
RSPCB	Rajasthan State Pollution Control Board
RO	Reverse Osmosis
ETP	Effluent Treatment Plant
MEE	Multi-Effect Evaporator
CRP	Caustic Recovery Plant
TDS	Total Dissolved Solids
MT	Metric Ton
NAAQM	National Ambient Air Quality Monitoring
NOC	No Objection Certificate
OCMS	Online Continuous Monitoring System
PM	Particulate Matter
ZLD	Zero Liquid Discharge

1. Background:

The Hon'ble NGT, Principal Bench, New Delhi took Suo Moto cognizance of the present case based on the letter petition dated 21.10.2023 and registered in the Hon'ble NGT (PB), New Delhi as O.A. No. 795 of 2024.

In the above matter, Hon'ble NGT, Principal Bench, New Delhi vide its Order dated 20.8.2024 constituted a Joint Committee comprising of (i) Central Pollution Control Board (ii) Rajasthan State Pollution Control Board (iii) Regional Director, MoEF & CC, Jaipur and (iv) District Magistrate Chittorgarh and directed the said Committee to submit factual report within two months. In the above said Order dated 20.08.2024, Hon'ble NGT appointed the Central Pollution Control Board as nodal agency for coordination and compliance.

2. Constitution of Joint Committee:

In compliance to the above order of Hon'ble NGT, New Delhi and based on the nominations received from the organizations concerned, a Joint Committee has been constituted, comprising the following members:

(i). Sh. Alok Ranjan, Collector, Chittorgarh.
(ii). Sh. P. Jagan, Regional Director, CPCB, Bhopal.
(iii). Sh. Mahesh Dutt Purohit, Scientist-D, MoEF&CC, Jaipur.
(iv). Sh. Sharad Saksena, Regional Officer, RSPCB Chittorgarh.
(v). Dr. Anoop Chaturvedi, Scientist-B, CPCB, Bhopal

3. Terms of reference (ToR) to the Joint Committee:

The Terms of the Reference (ToR) of the Joint Committee referred in the Order dated 20.08.2024 of Hon'ble NGT in the above matter inter-alia include the following:

(i). Committee shall visit the site, collect relevant information and submit a factual report within two months before Registrar of Principal Bench at Delhi.

(ii). To carried out the sampling and monitoring of Ambient air, Stack emissions, Ground water, Noise levels in surrounding areas.

(iii). To assess the functionality of water and air pollution control devices.

4. Meeting and interaction of the Joint Committee:

The meeting was held at the Collector's office Chittorgarh on 07.10.2024 with committee members for discussing the issues mentioned in the petition. For better coordination in the investigation, the committee informed to the applicants who signed on the petition well in advance regarding the proposed visit. The relevant issue also discussed with representative of M/s Manomay Tex India Ltd. Chittorgarh (further referred as 'Unit') during visit. The other officials that were present during the inspection are Dr. B.K. Soni, Sr. Scientific Officer, RSPCB, Sh. Vinod Malhotra, ADM, Sh. Rahul Dev Singh, GM DIC, Officers from the Revenue authority and monitoring staff of CPCB and RSPCB.

The committee member interacted with the applicants Sh. Mangi lal, Sh. Ghanshyam Singh, Sh. Nehru Singh on 7.10.2024 to provide opportunities for providing any other information related to the petition, the committee members also interacted with the residents and Principal of senior secondary school of Jojro Ka Kheda which is nearest village of the unit. Committee also contacted with other applicants but due to some work they were out of station. Committee also interacted with the Sh. Kan Singh Rathore who is the owner of Rajputana green farm house and all the applicants are working in his farm. It is pertinent to mention that Sh Kan Singh Rathore also sent similar type of complaints previously which were already addressed by the authorities concerned.

An opportunity was given to the local residents also to submit their views before the Committee. To find out facts as well as to know the extent of problem, the committee members also visited the nearby main village which is mentioned in petition. During the committee inspection Smt. Geeta Devi, Sarpanch, Jojro Ka Kheda has also submitted the letter regarding no smell observed in the village area and industry provided the employments to the villagers and do plantations and CSR activities in the village.

5. Brief Status of Unit and legal permissions

1. M/s Manomay Tex India Ltd is located at Village-Jojro Ka Kheda, District-Chittorgarh (Raj.) and was commissioned in 2013 at that time its capacity was 1.02 Cr. Meter of Denim fabric production subsequently in 2016 unit increased its capacity upto 2.1 Cr meter and finally in 2018 unit expanded its capacity upto 4.10 Cr meter of denim production.

2. The industry has obtained Consent to operate (CTO) under Water (Prevention & Control of Pollution) Act, 1974 & Air (Prevention & Control of Pollution) Act, 1981 from RSPCB for production of 4.10 Cr meter denim production. The CTO is valid upto 30/09/2028. The unit also has valid authorization under Hazardous & Other Waste (Management & Transboundary Movement) Rules 2016 upto 30.06.2026.

3. Source of water for industry is their own bore wells. 02 bore wells are installed. The unit has obtained CGWA NOC no. CGWA/NOC/IND/REN/3/2023/7962 for 100 KLD ground water extraction and permission are valid upto 16.02.2025.

4. Water mainly consumed in manufacturing process, boiler feed, cooling water, floor washing and domestic purposes. Wastewater is mainly generated from manufacturing process of dyeing. For treatment of waste water and to maintain the zero liquid discharge, the unit has provided ETP of 650 KLD followed by RO of 450 KLD and MEE of 50 KLD for total recycling of waste water. At the time of visit all the treatment units were found functional. The sludge generated from the ETP having some fibre content hence it is being co-processed in cement plant and MEE sludge is being sent to TSDF, Udaipur for further disposal. However the unit may re-incorporate the co-processing mode of disposal in authorisation.

5. The unit have two coal-based boilers of 04 and 10 TPH and 01 Thermic Fluid Heater (Thermopack) of capacity 10 Lac Kilo Cal/hr and steam generation capacity having bag filter attached with common stack. The bottom ash is being sold to local brick manufacturers. Online continuous emission monitoring system has been found installed.

6. Recommendation submitted by the Joint Committee

The following recommendations were submitted by the Joint Committee to Hon'ble National Green tribunal:

1. The unit should be directed to upgrade the odour control system and install it above the roof of the process house to avoid stray odour and try to minimise the fugitive emissions by process optimisation.

2. The unit may explore the possibility of optimisation in aeration system of ETP and capacity enhancement of MEE system.

3. Night visualized camera should be installed particularly to cover the odour control system and proper record of the chemicals consumption for odour control along with the supporting documents and evidence should be maintained.

4. The industry should conduct the ground water study in and around the area from reputed institute under supervision of Rajasthan SPCB to ascertain reasons for the same and impact on ground water due to the industry activity. The study report may be submitted to RSPCB for further action, if required.

5. The unit should appoint the nodal officer especially for the complaints redressal locally and the name & contact number of person should be displayed on the Main Gate of unit

6. The unit should provide proper ventilation inside the STP area..

7. Verification of compliance submitted by the Industry for the recommendations submitted by the Joint Committee :

Unit has submitted compliance to the above recommendations of the Factual report of the Joint committee vide letter dated 19.11.2024 received to the Regional Office, RSPCB Chittorgarh on dated 20.11.2024 (Enclosed as **Annexure-01**). To verify the compliances of recommendations by the committee, Unit was inspected by the officials of Rajasthan State Pollution Board, Regional Office, Chittorgarh on dated 20.11.2024 and following observations were made: -

No. 01 The unit should be directed to update odour control system and install it above the roof of the process house to avoid stray odour and try to minimise the fugitive emissions by process optimisation.

Observations: Unit has existing odour control system near the Effluent Treatment Plant area to avoid stray odour. As per the recommendation of the Joint Committee, Unit has installed additional Odour Control System above the roof, at the backside of the premises as well as near the entrance of the unit. (Photos enclosed) Unit has also installed energy meter at pump station and has also maintained the records regarding the operation of odour control system. (Enclosed as **Annexure -02**)

No. 02 The unit may explore the possibility of optimisation in aeration system of ETP and capacity enhancement of MEE system.

Observations: Unit has submitted the Purchase order for the installation of Multi-effect Evaporator of capacity 150 KLD. During the inspection, construction activity near the existing MEE was under process. (**Purchase order enclosed as Annexure 03)**

No. 03 Night Visualized camera should be installed particularly for the odour control system and proper record of the chemical consumption for odour control along with the supporting documents and evidence should be maintained.

Observations: Unit has installed Night Visualized Cameras at the roof top, near the backside of the premises and near the entrance of the unit to monitor the regular operation of odour control system. Unit has also maintained records of chemical consumption for odour control. (Enclosed as **Annexure 04**)

No. 04 The industry should conduct the ground water study in and around the area from reputed institute under supervision of Rajastha SPCB to ascertain reasons for the same and impact on ground water due to the industry activity. The study report may be submitted to RSPCB for further action, if required.

Observations: The Office of Senior Hydrogeologist, Ground Water Department, Senthi, Chittorgarh had conducted investigation of water quality parameters in and around M/s Manomay Tex India Ltd., near village Jojaro ka Kheda, Chittorgarh The report submitted vide letter dated 21.11.2024 is enclosed as **Annexure 05**).

The Report in the conclusive remarks' states that "**On the basis of above technical facts it can be concluded that the present industrial activity of Manomay Tex India Ltd., near village Jojaro Ka Kheda does not impart noticeable impact on groundwater quality parameters in and around regional periphery of the area under observation.**"

No. 05 The unit should appoint the nodal officer especially for the complaints redressal locally and the name & contact number of person should be displayed on the Main Gate of unit.

Observations: Unit has appointed Sh. Bheru Lal Sharma (Mobile No.9351233417) as the nodal Officer and has also installed Display Board with Name & contact number of person at the entrance of the premises outside the unit. (Photograph Enclosed)

No. 06 The unit should provide proper ventilation inside the STP area.

Observations: Unit has provided ventilation system at the roof top inside the STP area.(Photograph enclosed)

Dr. Bhupendra Kumar Soni
Senior Scientific Officer
RSPCB, Chittorgarh

Dipesh Kumar Meghwal
Junior Environmental Engineer
RSPCB, Chittorgarh

C/s

Sharad Saksena
Regional Officer
RSPCB, Chittorgarh

8. Photograph of the visit

Odor control system at the roof top of the Unit

Odor Control System at the entrance

Energy Meter

Construction of MEE

Cameras installed to monitor Odor Control System

Sign Board of Nodal Officer

Ventilation system inside STP area

Annexure-1

MANOMAY
A MOMENT OF STYLE

Date- 19-11-2024

TO,

THE JOINT COMMITTEE,

NGT NEW DELHI

Subject- for replay of NGT original application no-795/2024

Sir,

With due respect that NGT NEW DELHI original application no -795/2024 badrilal & Ors. Vs state of rajasthan & ors.have given factual report of the JOINT COMMITTEE on date 21/10/2024 in reports following recommendation may be implemented by Manomay Tex India Ltd. We have resolved all recommendation and attach in latter.

CC-:

1. Secretary, MoEF & CC, Jaipur
2. Regional Director, Central Pollution Control Board, Bhopal
3. Regional Officer Rajasthan state Pollution Control Board, Chittorgarh

For MANOMAY TEX INDIA LTD

Manomay tex india ltd.
Authorised Signatory

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TO,

THE NGT COMMITTEE Date:- 19/11/2024

Sir,

With due respect that according to factual report of joint committee

We have adopted recommendations which is given by joint committee in factual report and same is as under

1. The unit should be directed upgrade odour control system install it above the roof of the process house to avoid stray odour and try to minimise the fugitive emission by process optimisation

Reply - We have installed the odour control system near main gate and ETP area, now as per recommendation we have upgrade the odour control system on roof of dyeing area. we have installed energy meter on the pumping arrangement of odour control system with maintain of log book record also copy enclosed (Annexure 1) .

2. The unit may explore the possibility of optimisation in aeration system of ETP and enhancement of MEE system.

Reply - We have ordered 150 KLD MEE in replacement of 50 KLD MEE which is currently working since starting of unit and will be install with in 2-3 months. We will also upgraded with improvement in aeration tanks by addition new air grid and screw blowers which is under progress

150 KLD MEE Purchase order Attach (Annexure 2).

3. Night visualized camera should be installed particularly to cover the odour control system and proper recorded of chemical consumption for odour control system along with supporting documents and evidence should maintained

Reply - We have installed night visualized camera on odour control system at ETP area and dyeing roof area we have start up maintain of log book for need of chemical consumption for order control system copy enclosed (Annexure 3).

4. The industry should conduct the ground water study in and around the area from reputed under supervision of RSPCB to ascertain reason or the same impact on ground water due to industry activity the study report may be submitted to RSPCB for further exaction

Reply - The study has been conduct by GROUND WATER DEPARTMENT CHITTORGARH for study of ground water its collect sample with supervision of RSPCB and reports attach in enclosed file (Annexure 4)

5. The unit should appoint the nodal officer especially for the complaints redressel locally and the name and contact number of person should be displayed on the main gate of unit

Reply - We appointed nodal officer Mr Bheru Lal Sharma MO. NO- 9351233417 we display at main gate of units .photo attach .

6. The unit should provide proper ventilation inside the STP area.

Reply - We have installed air vent fans on STP roof for proper ventilation. Photo enclosed.

(Annexure-1)

PAGE NO. :
DATE:

Odour Control System Energymeter Reading. (Nov-2024)

Date	Present reading (kwh)	Previous reading (kwh)	Total units
1/11/24	69921	—	0
2/11/24	Deewali holiday	—	0
3/11/24	— 11 —	—	0
4/11/24	69951	69921	30
5/11/24	69978	69951	27
6/11/24	70007	69978	29
7/11/24	70035	70007	28
8/11/24	70062	70035	27
9/11/24	70091	70062	29
10/11/24	70121	70091	30
11/11/24	70149	70121	28
12/11/24	70179	70149	30
13/11/24	70208	70179	29
14/11/24	70235	70208	27
15/11/24	70265	70235	30
16/11/24	70293	70265	28
17/11/24	70323	70293	30
18/11/24	70348	70323	25
19/11/24			
20/11/24			
21/11/24			

For MANOMAY TEX INDIA LTD
Authorised Signatory

For MANOMAY TEX INDIA LTD
Authorised Signatory

UNITOP AQUACARE LIMITED

501, DOSTI PINNACLE, PLOT NO. E/7, ROAD NO. 22, WAGLE MIDC, THANE - 400 604
THANE (DT), MAHARASHTRA
Tel: (022) 4192 9300 / 4192 9318 * Fax: (022) 4192 9319
E-MAIL: unitop@unitopaquacare.com * WEB: http://www.unitopaquacare.com

COPIES OF THIS DOCUMENT	
Original for Recipient	☐
Duplicate for Transporter	☐
Triplicate for Supplier	☐

PROFORMA INVOICE

Consignee / Shipped To:	Receiver / Billed To:
MANOMAY TEX INDIA LTD AARAJI 5 TO 7, JOJRO KA KHERA NEAR TOLL PLAZA , GANGRAR CHOTTORGRAH-RAJASTHAN-312901	MANOMAY TEX INDIA LTD AARAJI 5 TO 7, JOJRO KA KHERA NEAR TOLL PLAZA , GANGRAR CHOTTORGRAH-RAJASTHAN-312901
GSTIN: 08AAFCM9997C1ZX	GSTIN: 08AAFCM9997C1ZX
State: RAJASTHAN State Code: 08	State: RAJASTHAN State Code: 08
Contact: MR. GHANSHYAM Tel: 93512 33390	Challan No: PROFORMA-MEE-01 Date 09-07-2024 L/R No: Date Mode of Despatch: Transporter: Freight: TO PAY BASIS
Job No: 5957	
Your Order No: ORD/24/18503 DATED 09-07-2024	

Dear Sirs,
Kindly receive the following goods in good order and condition & acknowledge the receipt of the same by endorsing the duplicate. You are requested to report the complaints about goods if any to us within 24 hours, failing which they will not be entertained.

Sr.No	Description	HSN / SAC	GST Rate	Qty Unit	Rate, Rs	aDVANCE Value
SUPPLY OF:						
1	EFFLUENT EVAPORATION PLANT 7500 LPH FEED 4 STAGE MEE 4S FC All-PH-3 TC AE1 **20% ADVANCE ALONG WITH PO**	84194020	18%	1 No	3,51,00,000.00	70,20,000.00

BANK DETAILS FOR PAYMENT
ICICI BANK LIMITED
BHOOMI VELOCITY INFOTECH PARK
PLOT NO.39 ROAD NO.23
WAGLE INDUSTRIAL ESTATE , THANE - WEST-400604
UNITOP AQUACARE LIMITED
CASH CREDIT ACCOUNT NUMBER : 188751000004
RTGS / NEFT IFSC CODE: ICIC0001887

TOTAL TAXABLE VALUE, RS.	70,20,000.00
IGST	-
TOTAL GST, RS.	-
TOTAL INVOICE VALUE, RS.	**70,20,000.00**

Payment Terms:
1) TOKAN 10 LAKH, 20% ALONG WITH ORDER
2) 70% : Against Proforma Invoice before dispatch
3) 10% AFTER INSTALLATION

GSTIN: 27AACCU2389P1ZL
State: Maharashtra
State Code: 27

Thanking you,
For UNITOP AQUACARE LIMITED

Authorised Signatory

UNITOP AQUACARE LTD.

Received the above mentioned goods in good order & condition.

Receiver's Seal & Signature

Nov. 2024 (Annexure-3)

ODOUR Control System
Chemical Consumption Record

PAGE NO.:
DATE:

Date	opening stock (LTR.)	Balance stock (LTR.)	total Consumption (LTR.)
1/11/24	580	580	0
2/11/24	Deepawali holiday		
3/11/24	"		
4/11/24	580	550	30
5/11/24	550	515	35
6/11/24	515	487	28
7/11/24	487	460	27
8/11/24	460	430	30
9/11/24	430	400	30
10/11/24	400	368	32
11/11/24	368	340	28
12/11/24	340	310	30
13/11/24	310	278	32
14/11/24	278	250	28
15/11/24	250	215	35
16/11/24	215	185	30
17/11/24	185	153	32
18/11/24	153	123	30
19/11/24			
20/11/24			
21/11/24			

For [illegible] INDIA LTD

Authorised Signatory

Tax Invoice 161 *(ORIGINAL FOR RECIPIENT)* e-Invoice

IRN : e82bb6d71ac286023dcd63b2c5f71d557bf66cb8fb70aa7-068b117beb7594cb5
Ack No. : 172416076189419
Ack Date : 23-Oct-24

BP 3610

30 DAYS

24862

Bluecare Systems Private Limited Factory Add.H1-378 / 378 A & B Growth Center RIICO Ind. Area Hamirgarh , Bhilwara -311025 UAM - RJ07B0028593 UDYAM : UDYAM-RJ-07-0010230 (Small) GSTIN/UIN: 08AAICB8214G1ZP State Name : Rajasthan, Code : 08 CIN: U29309RJ2019PTC067512 E-Mail : bluecare@bluecare.in	Invoice No. **BSPL/24-25/00231**	Dated **23-Oct-24**
	Delivery Note **BSPL/24-25/00231**	Mode/Terms of Payment **30 Days**
	Reference No. & Date. **BSPL/24-25/00231 dt. 23-Oct-24**	Other References
	Buyer's Order No. **ORD/24/19786**	Dated **12-Oct-24**
Consignee (Ship to) **Manomay Tex India Limited** 32 Heera Panna Market, Pur Road Bhilwara, RAJASTHAN-311001, PAN NO. - AAFCM9997C GSTIN/UIN : 08AAFCM9997C1ZX State Name : Rajasthan, Code : 08 Contact person : Ashish Dadhich Contact : +91-9351233391 E-Mail : store1@manomaytexindia.com	Dispatch Doc No. **BSPL/24-25/00231**	Delivery Note Date **23-Oct-24**
	Dispatched through **BY ROAD**	Destination **BHILWARA**
	Terms of Delivery **EX WORK**	
Buyer (Bill to) **Manomay Tex India Limited** 32 Heera Panna Market, Pur Road Bhilwara, RAJASTHAN-311001, PAN NO. - AAFCM9997C GSTIN/UIN : 08AAFCM9997C1ZX State Name : Rajasthan, Code : 08 Contact person : Ashish Dadhich Contact : +91-9351233391 E-Mail : store1@manomaytexindia.com		

Sl No.	Description of Goods	HSN/SAC	Quantity	Rate	per	Disc. %	Amount
1	**PURFUME FOR ODOUR CONTROL** *LEMON FLAVOUR*	38249090	**500.000 LTR.**	165.00	LTR.		**82,500.00**
	CGST						**7,425.00**
	SGST						**7,425.00**
	Total		**500.000 LTR.**				**₹ 97,350.00**

MANOMAY TEX INDIA LTD.
No. 24858
24/10/24

GE 24888

244060
23-10-24

Amount Chargeable (in words) *E. & O.E*
Indian Rupees Ninety Seven Thousand Three Hundred Fifty Only

TDS 01/11 = 83

Previous Balance: **₹ 56,458.00 Dr**
Current Balance : **₹ 1,53,808.00 Dr**

HSN/SAC	Taxable Value	CGST Rate	CGST Amount	SGST/UTGST Rate	SGST/UTGST Amount	Total Tax Amount
38249090	82,500.00	9%	7,425.00	9%	7,425.00	14,850.00
Total	**82,500.00**		**7,425.00**		**7,425.00**	**14,850.00**

Tax Amount (in words) : **Indian Rupees Fourteen Thousand Eight Hundred Fifty Only**

Ashish 23/10/24

Company's Bank Details
A/c Holder's Name : **Bluecare Systems Private Limited**
Bank Name : **Bank of Baroda**
A/c No. : **46520200000551**
Branch & IFS Code : **Transport Nagar , Bhilwara-311001 & BARB0TRABHI**
SWIFT Code : **BARBINBBBHR**

24862

Company's PAN : **AAICB8214G**

Declaration
We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct .

for Bluecare Systems Private Limited

Authorised Signatory

SUBJECT TO BHILWARA JURISDICTION

This is a Computer Generated Invoice

Dyes & Chemical
Exp.

Tax Invoice

(ORIGINAL FOR RECIPIENT)

e-Invoice

IRN : 08cc9dff6ea2c8c9e9046b315f7fa2aadfd0d3ef018528a5-eb0a9495d94198f4
Ack No. : 172416076223467
Ack Date : 23-Oct-24

Bluecare Systems Private Limited
Factory Add.H1-378 / 378 A & B Growth Center
RIICO Ind. Area Hamirgarh , Bhilwara-311025
UAM - RJ07B0028593
UDYAM : UDYAM-RJ-07-0010230 (Small)
GSTIN/UIN: 08AAICB8214G1ZP
State Name : Rajasthan, Code : 08
CIN: U29309RJ2019PTC067512
E-Mail : bluecare@bluecare.in

Invoice No. **BSPL/24-25/00232**	Dated **23-Oct-24**
Delivery Note **BSPL/24-25/00232**	Mode/Terms of Payment **30 Days**
Reference No. & Date. **BSPL/24-25/00232 dt. 23-Oct-24**	Other References
Buyer's Order No. **ORD/24/19600**	Dated **28-Sep-24**
Dispatch Doc No. **BSPL/24-25/00232**	Delivery Note Date **23-Oct-24**
Dispatched through **BY ROAD**	Destination **BHILWARA**
Terms of Delivery **EX WORK**	

Consignee (Ship to)
Manomay Tex India Limited
32 Heera Panna Market, Pur Road Bhilwara,
RAJASTHAN-311001, PAN NO. - AAFCM9997C
GSTIN/UIN : 08AAFCM9997C1ZX
State Name : Rajasthan, Code : 08
Contact person : Ashish Dadhich
Contact : +91-9351233391
E-Mail : store1@manomaytexindia.com

Buyer (Bill to)
Manomay Tex India Limited
32 Heera Panna Market, Pur Road Bhilwara,
RAJASTHAN-311001, PAN NO. - AAFCM9997C
GSTIN/UIN : 08AAFCM9997C1ZX
State Name : Rajasthan, Code : 08
Contact person : Ashish Dadhich
Contact : +91-9351233391
E-Mail : store1@manomaytexindia.com

Sl No.	Description of Goods	HSN/SAC	Quantity	Rate	per	Disc. %	Amount
1	**PURFUME FOR ODOUR CONTROL** *LAMON FLAVOUR*	38249090	**80.000 LTR.**	165.00	LTR.		**13,200.00**
	CGST						**1,188.00**
	SGST						**1,188.00**
	Total		**80.000 LTR.**				**₹ 15,576.00**

Amount Chargeable (in words) E. & O.E
Indian Rupees Fifteen Thousand Five Hundred Seventy Six Only

Previous Balance: **₹ 1,53,808.00 Dr**
Current Balance : **₹ 1,69,384.00 Dr**

HSN/SAC	Taxable Value	CGST Rate	CGST Amount	SGST/UTGST Rate	SGST/UTGST Amount	Total Tax Amount
38249090	13,200.00	9%	1,188.00	9%	1,188.00	2,376.00
Total	**13,200.00**		**1,188.00**		**1,188.00**	**2,376.00**

Tax Amount (in words) : **Indian Rupees Two Thousand Three Hundred Seventy Six Only**

Company's PAN : **AAICB8214G**

Declaration
We declare that this invoice shows the actual price of the goods described and that all particulars are true and correct .

Company's Bank Details
A/c Holder's Name : **Bluecare Systems Private Limited**
Bank Name : **Bank of Baroda**
A/c No. : **46520200000551**
Branch & IFS Code : **Transport Nagar , Bhilwara-311001 & BARB0TRABHI**
SWIFT Code : **BARBINBBBHR**

for Bluecare Systems Private Limited

Authorised Signatory

SUBJECT TO BHILWARA JURISDICTION

This is a Computer Generated Invoice

कार्यालय वरिष्ठ भू जल वैज्ञानिक

भू जल विभाग, सेंगवा हाउसींग बोर्ड, सैंथी – 312001

Email:- sr.hyd.chittor@gmail.com

क्रमांक : 266 दिनांक : 21/11/2024

मैसर्स मनोमय टेक्स इंडिया लिमिटेड,
32, हिरा-पन्ना मार्केट, पुर रोड, भीलवाड़ा

विषय : भू जल गुणवत्ता अध्ययन रिपोर्ट बाबत्।
सन्दर्भः आपका पत्रांक दिनांक 07.11.2024 के क्रम में।

उपरोक्त विषयान्तर्गत संदर्भित पत्र के क्रम में लेख है कि NGT के पत्र क्रमांक 795/2024 मनोमय टेक्स इंडिया लिमिटेड, ग्राम जोजरो का खेड़ा, तहसील गंगरार, जिला चित्तोड़गढ के आस पास के क्षेत्रों से एकत्रित नवीन जल स्रोतो के भू जल नमूनों एवं पूर्व मे भू जल गुणवत्ता रिपोर्ट के अध्ययन पर आधारित रिपोर्ट को मूल संदर्भ मानकर तैयार क्षेत्र विशेष की भू जल गुणवत्ता के तकनीकी अध्ययन एवं विश्लेषण रिपोर्ट पत्र के साथ सलंग्न कर आवश्यक कार्यवाही हेतु प्रेषित है,

सलंग्नः उपरोक्तानुसार

वरीष्ठ-भूजल वैज्ञानिक
(कैम्प-भीलवाड़ा)

वरिष्ठ भूजल वैज्ञानिक
(सर्वेक्षण एवं अनुसंधान)
भू-जल विभाग
चित्तौड़गढ़

(Ann exure – 4)

REPORT

ON

THE

INVESTIGATION OF WATER QUALITY PARAMETERS IN AND AROUND MANOMAY TEX INDIA LTD. PLANT PREMISES, NEAR VILLAGE JOJARO KA KHEDA, BLOCK GANGRAR, DISTRICT CHITTORGARH, RAJASTHAN

A CASE STUDY

BY

OFFICE OF THE SENIOR HYDEOGEOLOGIST
(SURVEY & RESEARCH)
STATE GROUND WATER DEPARTEMNT, SEGWA ROAD, SAITHI
CHITTORGARH (RAJASTHAN)

NOVEMBER 2024

वरिष्ठ - जल वैज्ञानिक
(सर्वेक्षण एवं अनुसंधान)
भू-जल विभाग

INDEX

वरिष्ठ भू-जल वैज्ञानिक
(सर्वेक्षण एवं अनुसंधान)
भू-जल विभाग
चित्तौड़गढ़

1. Executive Summary:

The unplanned and non-scientific development of ground water resources has led to sharp depletion of the natural resources and also degradation in water quality up to some extent at many places. Water quality investigation of ground water in and around Manomay Tex India Ltd. near village Jojaro ka kheda, block Gangrar, district Chittorgarh has been studied. The present study aims to evaluate probable impact on reginal ground water quality of the area by any sort of dumping industrial waste & sewage if any into the open land surfaces or within the unsaturated zone by present industrial activity.

For the proposed work, 3 Nos of chemical parameters published in earlier report has been taken in account as base line data for the present study. In addition to it, results of five ground water samples analyzed during pre-monsoon period 2024 by State Ground Water Department, Chittorgarh also consider and studied in detail. For this, 7 Nos of representative groundwater sample collected from different locations of bore wells/hand pumps in and around Manomay plant premises. The ground water samples collected so far physio-chemically analyzed for the different parameters like pH, Electrical conductivity TDS, Chloride, Total hardness, sodium, potassium, calcium, magnesium, Nitrate & Fluoride etc. has been evaluated & results obtained are compared with Indian Standard Drinking Water specification IS: 10500-2012, which indicates that quality parameters of not only plant premises shows moderately higher limits of TDS, chloride, Nitrate & total hardness but ground water samples from regional periphery of the plant area also depicts higher dominance of same contents is by virtue of the principally varied nature of mineral composition in gneiss/granitic gneiss rocks as a main hydrogeological formation encountered in the area & consist of rich feldspar and mica group of minerals which after extensive weathering in turn triggers the dominance of TDS, Chloride and total hardness content in ground water. Whereas, anthropogenic activities are responsible for the enrich Nitrate content. Thus, overall water quality obtain from the study area is within prescribed permissible limit.

2. Introduction:

- The rapid growth in population as well as accelerated pace of industrialization may adversely affect the groundwater quality due to over exploitation of ground water resources and improper practices adopted during waste disposal.
- As a result of which the human health is threatened by unsanitary conditions through open drain carrying and disposing waste water into natural water bodies.
- There may be certain examples of ground water quality deterioration in different parts of the Chittorgarh district but particularly a case study with site specific of Manomay Tex India Ltd. has been evaluated as per direction issued by the NGT.

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- The utilization of nitrogenous fertilizers in irrigation and use of pesticides, herbicides may increase the level of nitrate up to considerable extent in ground water in certain rich agriculture sector.
- The salient features of study are to assess the groundwater quality parameters and classify the hydrochemistry of location specific ground water quality in and around Manomay plant premises in order to evaluate detailed comparative study with respect to decipher probable factor that affecting ground water quality in regional periphery of plant premises.

3. Study Area:

- The Manomay Tex India Ltd is located about 1.5 km north east of village Jojaro ka kheda, block Gangrar, district Chittorgarh. (Figure-1).
- The topography of the area is undulating with table lands and typical hillocks specially towards west of the plant premises. General topographic elevation varies between 440 to 540 meters above msl with a steep as well as gradual gentle slope from West to East direction. Average annual rainfall is about 764 mm recorded in the year 2023.
- The area is underlain predominantly by gneiss and granite rocks of varied nature and composition of Bhilwara super group.
- The general water table ranges observed is (5-20 mts b.g.l.) during premonsoon period 2024.
- Ground water potentiality is moderate and is restricted to weathered and fractured gneiss/granitic gneiss rocks. The aquifer is unconfined to semi confined in conditions.

4. Materials and Methods:

- In order to assess detailed ground water chemistry of the area under observation , 3 nos of ground water analytical data of earlier published report and 5 ground water analysis results so far collected during the pre-monsoon period 2024 by the State Ground Water Department, Chittorgarh have been also taken in account.
- Initially, proposed samples site locations were identified and then the samples were collected from that pre-defined site location of existing ground water sources viz. tube wells and hand pumps after allowing some amount of water to flow out.
- The samples were collected in clean plastic bottles, which were pre cleaned, dried in dust free environment and sterilized.
- The ground water samples collected from different ground water sources used for agriculture, drinking and domestic purposes (Figure-2). These samples

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were properly labeled as MJK-01 to MJK-07 and a record was prepared indicating the ground water source of the samples, location of the sources etc. relevant necessary field data and tabulated as Annexure-1

- For the present study all the representative samples were collected and analyzed mainly for pH, Electrical conductivity, TDS, Chloride, Total hardness, Sodium, Potassium, Calcium, Magnesium, Nitrate & Fluoride etc.

5. Results and Discussion:

The ground water quality comparison between regional periphery and project site is enumerated in Annexure-I. The chemical parameters observed from the study area compared with Bureau of Indian Standards (BIS) and summarized in below Table#1.

Range of chemical constituents reported in and around Manomay Tex India Limited premises

Table#1

S.No.	Parameter	Range (Min.-Max.)	Average	BIS Range (IS 10500: 2012)	
				Desirable (Acceptable)	Permissible Limit in the Absence of Alternate
1	pH	7.12-8.25	8	6.50-8.20	8.5
2	Electrical Conductivity	450-2390	1296	-	-
3	Total Dissolved Solids	266-1608	757	740	2000
4	Calcium	10-272	113	75	200
5	Magnesium	1-116	55	30	100
6	Chloride	28-454	178	250	1000

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7	Sulphate	1-206	47	200	400
8	Nitrate	0.25-342	49	45	*No Relaxation*
9	Fluoride	0.12-1.75	1	1	1.5
10	Total Hardness (as $CaCO_3$)	190-1060	423	300	600

- The chemical results data of bore well located inside the Manomay plant published earlier by joint committee report on dated 7 & 8 October 2024 compared in detailed with the ground water quality parameters reported from regional vicinity of the Manomay plant site .
- The ground water samples of the study area analyzed for pH, Electrical conductivity, TDS, Chloride, Total hardness, sodium, potassium, calcium, magnesium, Nitrate & Fluoride etc. are presented in Annexure-I. Depending on the geological, hydrological and climatological conditions the ground water chemistry of the area under study are differ.

pH: In the present study the pH values in all the samples range from 7.12 to 8.25, which are all within the limit in the study area. The pH of water is very important indication of its quality and provides information in many types of geochemical equilibrium.

Electrical Conductivity: In present case study EC values varies widely from 450 µmho/cm to 2390 µmho/cm. The water quality map for EC was prepared for the study area shown in Fig.3. It is also observed that ground waters of high EC values are predominant with sodium and chloride ions (samples viz. MJK-02 & MJK-06).

TDS: Total dissolved solid is an important parameter for drinking water and water to be used for other purposes. The maximum permissible limit of TDS is 2000 mg/l (BIS range-IS 10500:2012). The water quality map for TDS was prepared for the study area shown in Fig.4. TDS concentration is varying in the range of 266 to 1608 mg/L. It is 1608 mg/L observed in already published chemical parameters report from tube well inside the plant premises. Although it indicates moderately dominance value compared with desirable limit but less then permissible limit. However, the extent of TDS value 1393 & 1362 mg/L has been also reported in ground water samples (MJK-02 & MJK-06) collected about 750 mts NEE and 1.5 km SSE away from the plant area is probably by virtue of moderate to highly weathered nature of metamorphic rock

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(gneiss/granite gneiss) encountered as a hydrogeological formation at the site specific, but overall TDS character of ground water is within the allowable limit.

Nitrate: Nitrate concentration in ground water is found mainly due to anthropogenic activities which include improper disposal of bio-waste, urban sewerage, utilization of nitrogenous fertilizers in irrigation, use of pesticides & herbicides etc. considerably enhances the level of nitrate in ground water.

The water quality map for Nitrate was prepared and shown in Fig.5. In the present study Nitrate values ranges from 0.25 to 342. One ground water sample (MJK-02) collected about 750 mts NEE of Manomay plant site shows 342 mg/l, which shows extremely higher than the permissible limit. In the study area, marginal higher value of 87, 66 & 72 mg/l nitrate has been also reported from ground water samples viz. MJK-06, MJK-11 & 12 respectively, which is located about 1.5 km SSE, 3.67 km south and 5.40 km east of the plant premises.

As the main occupation of surrounding population is rich irrigation and during this activity extensive use of chemical fertilizers and pesticides contribute significantly to the loading of nitrate to ground water in the area. Further, Nitrogen released through weathering of underlying gneiss/granitic gneiss rocks may have more impact on soil and ground water quality of the study area.

Chloride: Chloride is the most troublesome anion in the irrigation water. It's generally more toxic than sulphate to most of the plants and are best indicator of pollution. The water quality map for Cl was prepared for the study area shown in Fig.6. In the study area, Chloride contents varied from 28-454 mg/l in earlier published chemical results and presently analyzed samples, which are all in permissible limit (BIS range-1000 mg/L).

Total hardness: The maximum permissible limit for total hardness is 600 mg/l. (**IS 10500:2012**). In the present case study, results of chemical parameters of ground water the total hardness varies from 190 to 1060 mg/l, which exceed the prescribe permissible limit. Hardness of one ground water samples (MJK-02) collected about 750 mts NEE from Manomay plant location shows 1060 mg/l, which is higher than permissible limit. In addition to it, two samples (MJK-06 & MJK-07) collected about 1.50 Km SSE & 1.18 Km SSW from Manomay plant area also shows marginal rise in hardness value of 740 mg/l & 635 mg/l.

As evident, hardness in ground water is primarily due to the results of interaction between the chemical reaction in the hydrogeological formations

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encountered in the area. The hardness of water is due to the presence of alkaline earths such as calcium and magnesium minerals.

6. Conclusive Remarks:

- On the basis of study of representative ground water analysis the outcome of the present works in and around Manomay Tex India Ltd. near village Jojaro ka kheda of Gangrar block in Chittorgarh district reveals that ground water quality has been worsen up to some extent due to both geogenic and anthropogenic activities.

- As the thickness of overburden (loose soil + weathered gneiss rock) specially in the southern and eastern part of the study area is negligible. Therefore, there is a poor fluxing of ground water which in turn triggers the moderate concentration of TDS, chloride and total hardness reported from the area.

- As evident, study area mainly comprising of granite gneiss/gneiss of varied nature which consist feldspar and mica group of minerals. Any minerals exposed at the earth's surface may decompose, and its matter may become dissolved in water by the weathering process. One of the principal agents of weathering is water itself. So, during the process of extensive weathering, water exerts an influence on the parent geologic materials exist. The net result is that rocks are broken down into finer and finer and, where water is present, minerals may become dissolved. Ultimately, ground water affected by geochemical, hydrogeological and climatic process may contribute to excessive hardness beyond its threshold value.

- The detailed analytical results and interpretation of the published water level history data (Pre-monsoon 2004 period), it can be also be reveals that study area has found generally shallow ground water conditions (range from 5-20 mts b.g.l) is more sensitive to weathering processes, thereby tends to deteriorate faster in quality parameters of ground water.

- All others parameters except TDS, Chloride, Total Hardness and Nitrate were found within permissible limits in the area under consideration .

- Among the studied geochemical parameters nitrate is also one of the dominant chemical constituents reported in the area when compared with BIS quality standard and its concentration is mostly controlled by anthropogenic background rather than natural factors. Activities viz

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intensive irrigation, unlined septic tanks and unplanned sewerage system have triggered the nitrate content in groundwater, particularly in north-east, south east and southern part of the study area. The rest of the area is safe and has potable groundwater.

- At a glance, overall chemical comparison of ground water is based on the regional ground water samples (MJK-01 to MJK-07 & MJK-09 to MJK-15) with the plant site quality results (MJK-08) and is shown in Annexure-I, which reveals almost similar ground water quality parameters from the rest of the study area. However, minor differences were reported in Total hardness, Chloride and TDS concentration. Thus, it has been found that hydrogeochemical evidence of ground water samples of the area shows distinctive variations in quality parameters at selected ground water stations.
- The difference in chemical parameters of ground water also attributed to the change in depth of tube wells /dug wells from where samples has been collected to ascertain quality parameters. Generally, hardness dominance component is higher in deep ground water samples.
- On the basis of above technical facts it can be conclude that the present industrial activity of Manomay Tex India Ltd. near village Jojaro ka kheda does not impart noticeable impact on ground water quality parameters in and around regional periphery of the area under observation.

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Physio-chemical results of waters samples in & around Manomay Tex India Ltd., Block -Gangrar, District -Chittorgarh

(All Figures in mg/L)

ANNEXURE-1

	Gram panchayat	Village	Sample No /UID No	Site specific location wrt Manomay plant premises	Well_ Type	Latitude	Longitude	E.C.	TDS	pH	Na^{+1}	K^{+1}	Ca^{+2}	Mg^{+2}	Cl^{-1}	SO_4^{-2}	CO_3^{-2}	HCO_3^{-1}	NO_3^{-1}	F	TH	Na%	RSC	SAR	Data Source
1	Soniyana	Soniyana	MJK01	2.1 Km NNE	TW	25.1038	74.6285	1240	605	7.90	99	2	10	90	113	48	0	476	5	0.96	395	35.2	0	2.17	Nov 2024 results
2	Jojaro ka kheda	Surat singh kas khera	MJK02	750 m NEE	TW	25.0875	74.6305	2390	1393	7.4	68	5	234	116	319	10	0	598	342	0.56	1060	12.2	0	0.93	
3	Jojaro ka kheda	Jojaro ka kheda	MJK03	1.10 Km NWW	TW	25.0915	74.6138	720	352	7.6	27	1	14	68	35	7	0	366	16	0.82	345	15.6	0	0.66	
4	Jojaro ka kheda	Jojaro ka kheda	MJK04	750 m NW	TW	25.0920	74.6189	1200	613	7.5	59	2	80	72	92	19	0	549	15	0.75	495	20.5	0	1.16	
5	Jojaro ka kheda	Jojaro ka kheda	MJK05	450 m SE	TW	25.0830	74.6256	450	267	8.2	34	1	32	29	28	10	12	232	5	1.28	200	26.8	0.2	1.04	
6	Jojaro ka kheda	Jojaro ka kheda	MJK06	1.5 Km SSE	TW	25.0731	74.6237	2370	1362	7.7	224	1	140	95	454	123	0	476	87	1.75	740	39.7	0	3.59	
7	Jojaro ka kheda	Jojaro ka kheda	MJK07	1.18 Km SSW	TW	25.07623	74.6194	1910	1079	8.25	154	2	174	49	383	68	12	391	43	1.16	635	34.4	0	2.65	
8	Jojaro ka kheda	Jojaro ka kheda	MJK08	Plant site area	TW	25.08649	74.6230	1980	1608	7.22	-	-	272	-	314	206	288	-	0.33	0.25	344	-	-	-	Old published NGT report results
9	Jojaro ka kheda	Jojaro ka kheda	MJK09	Govt. Hr sec school 550 m SSW	TW	25.08166	74.6214	1226	813	7.26	-	-	154	-	164	98	118	-	0.25	0.13	212	-	-	-	
10	Jojaro ka kheda	Jojaro ka kheda	MJK10	Open well near by Unit 700 m NEE	D/W	25.0889	74.6295	875	585	7.12	-	-	114	-	60	56	98	-	0.36	0.19	190	-	-	-	
11	Gangrar	Gangrar	MJK11/CHITT OWL_67	3.67 Km South	D/W	25.0543	74.6172	790	429	7.60	46	10	92	7	57	4	0	293	66	0.46	260	27	0.0	1.25	Pre- monsoon 2024 SGWD results
12	Lalas	Mansingh ji ka kheda	MJK12/CHITT OWL_31	5.40 Km East	D/W	25.08039	74.6751	1600	873	7.80	112	3	156	39	241	42	0	415	72	0.81	550	30.45	0.0	2.07	
13	Soniyana	Soniyana	MJK13/CHITT OWL_69	3.53 Km North	D/W	25.11847	74.6287	960	470	7.65	23	1	72	49	170	4	0	256	23	0.12	380.0	11.38	0.0	0.59	
14	Sudri	Sudri	MJK14/CHITT OWL_36	6.36 Km SW	D/W	25.05918	74.5674	800	436	7.55	71	7	78	1	85	1	0	305	40	0.38	200	42.58	1.0	2.19	
15	Undawa	Deoda	MJK15/CHITT OWL_66	4.30 Km NW	D/W	25.09921	74.5830	930	467	7.65	34	22	72	45	149	4	0	256	13	0.19	365	15.85	0.0	0.77	

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Fig.1 : Map showing Manomay plant (red legend) and sample locations (01-15) in Google Map with reference to periphery of Manomay Tex India Ltd

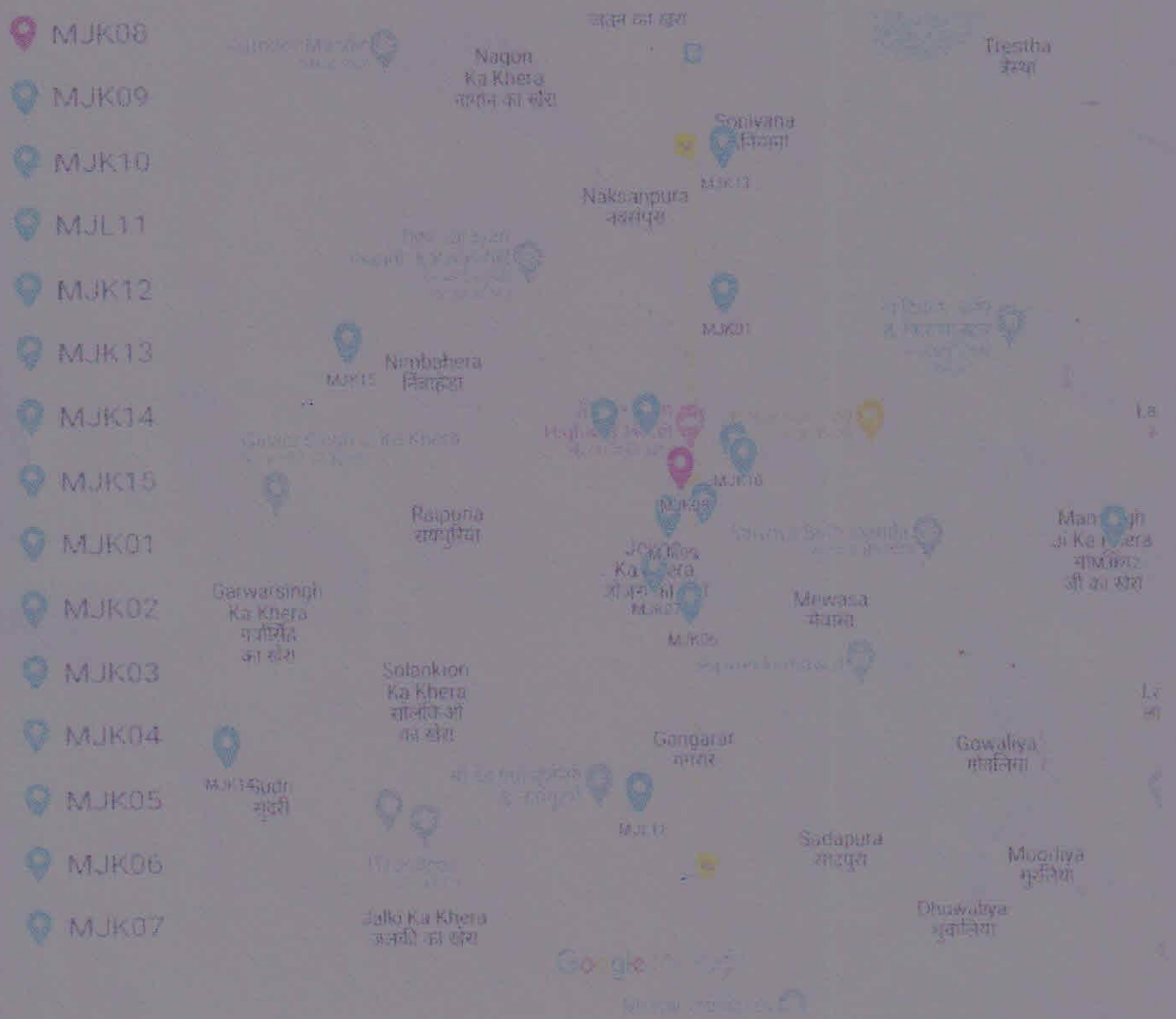

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Fig.2 : Location Map of study area depicting the sample sites

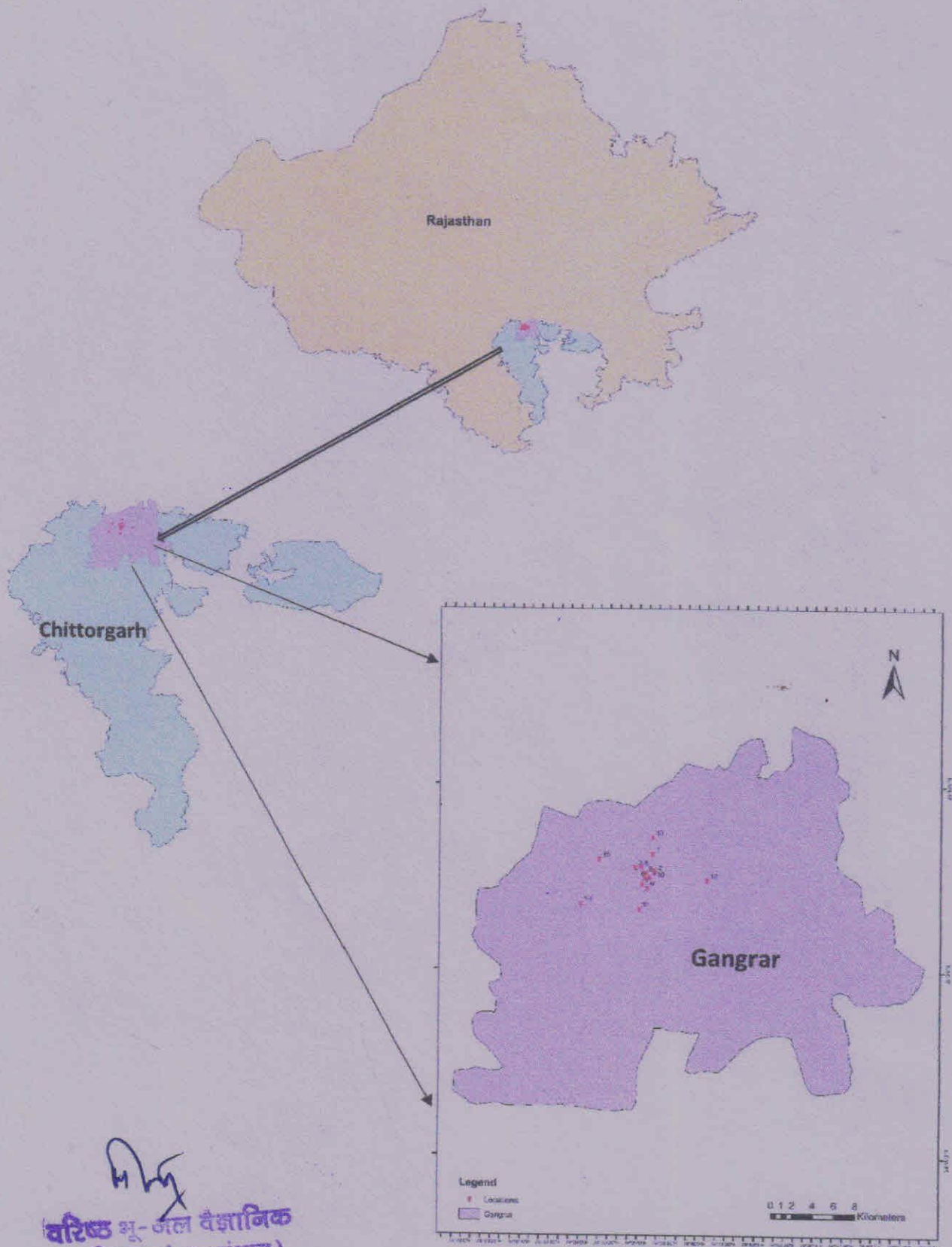

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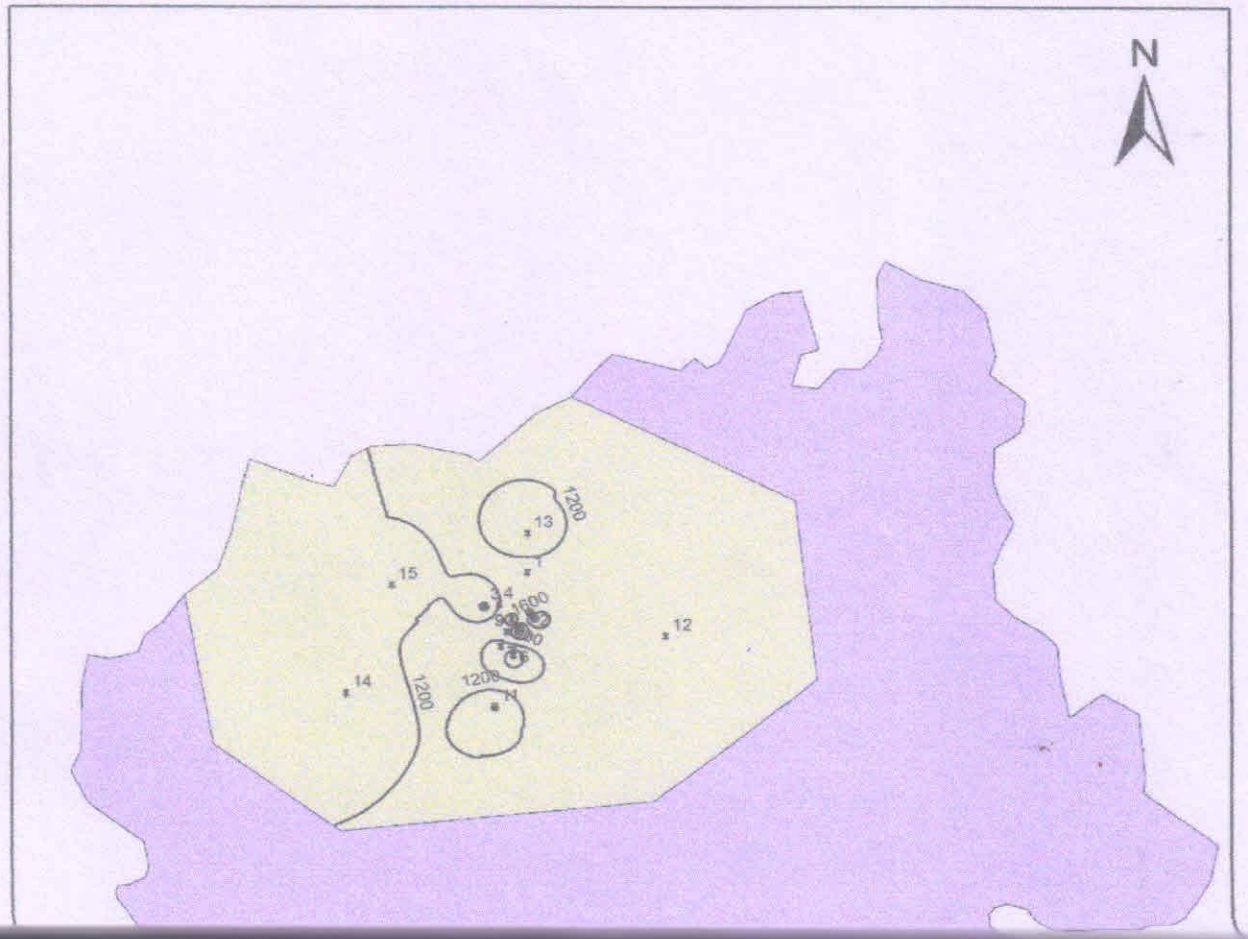
Fig.3 : Map showing Distribution of Electrical Conductivity (EC) in and around Manomay Tex India Ltd.



Contour
Location_extent
Gangrar

0 1.25 2.5 5 7.5 10 Kilometers

Fig. 4 : Map showing Distribution of Total dissolved solid (TDS) in and around Manomay Tex India Ltd.

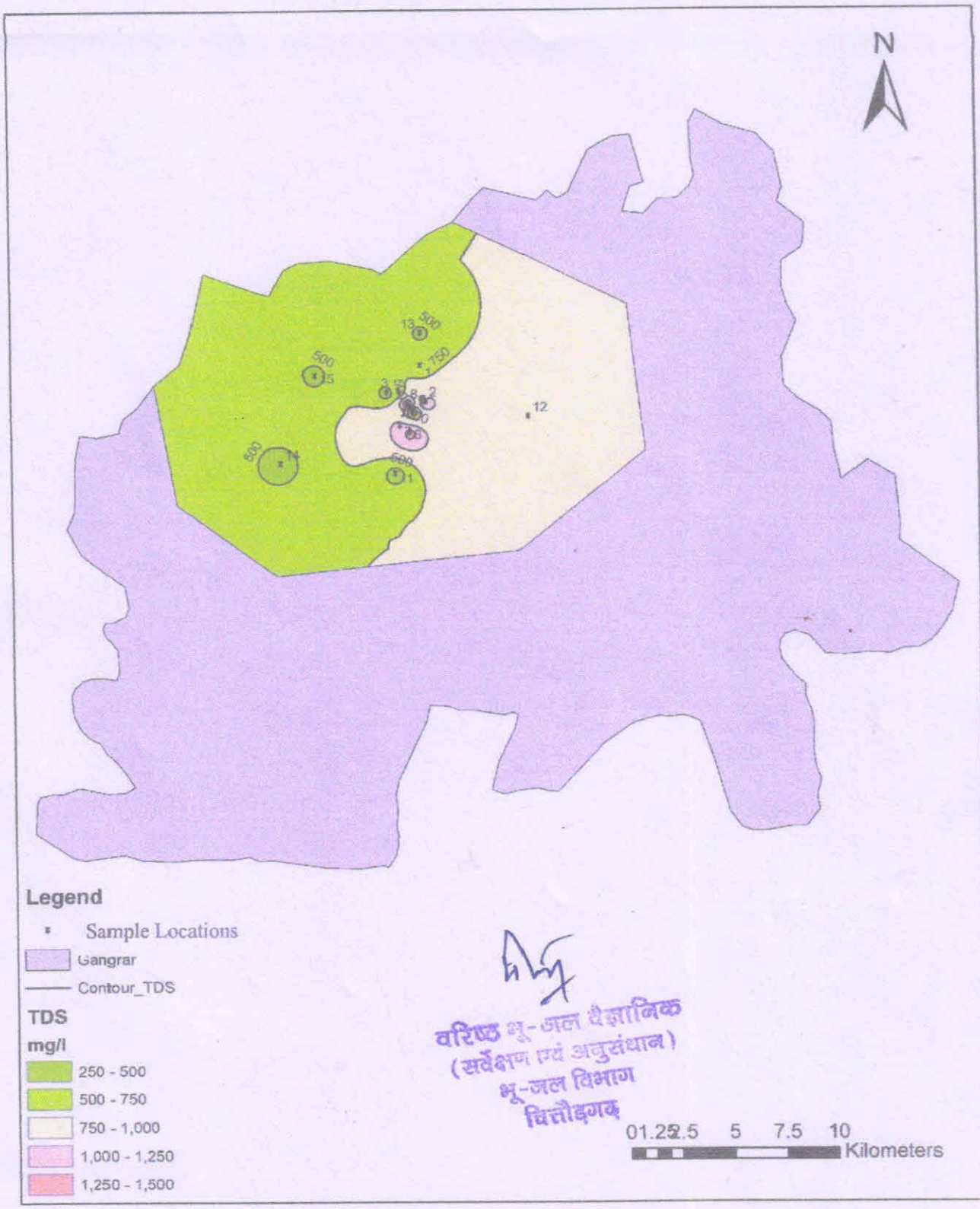


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Fig.5 : Map showing Distribution of Nitrate (NO3) in and around Manomay Tex India Ltd.

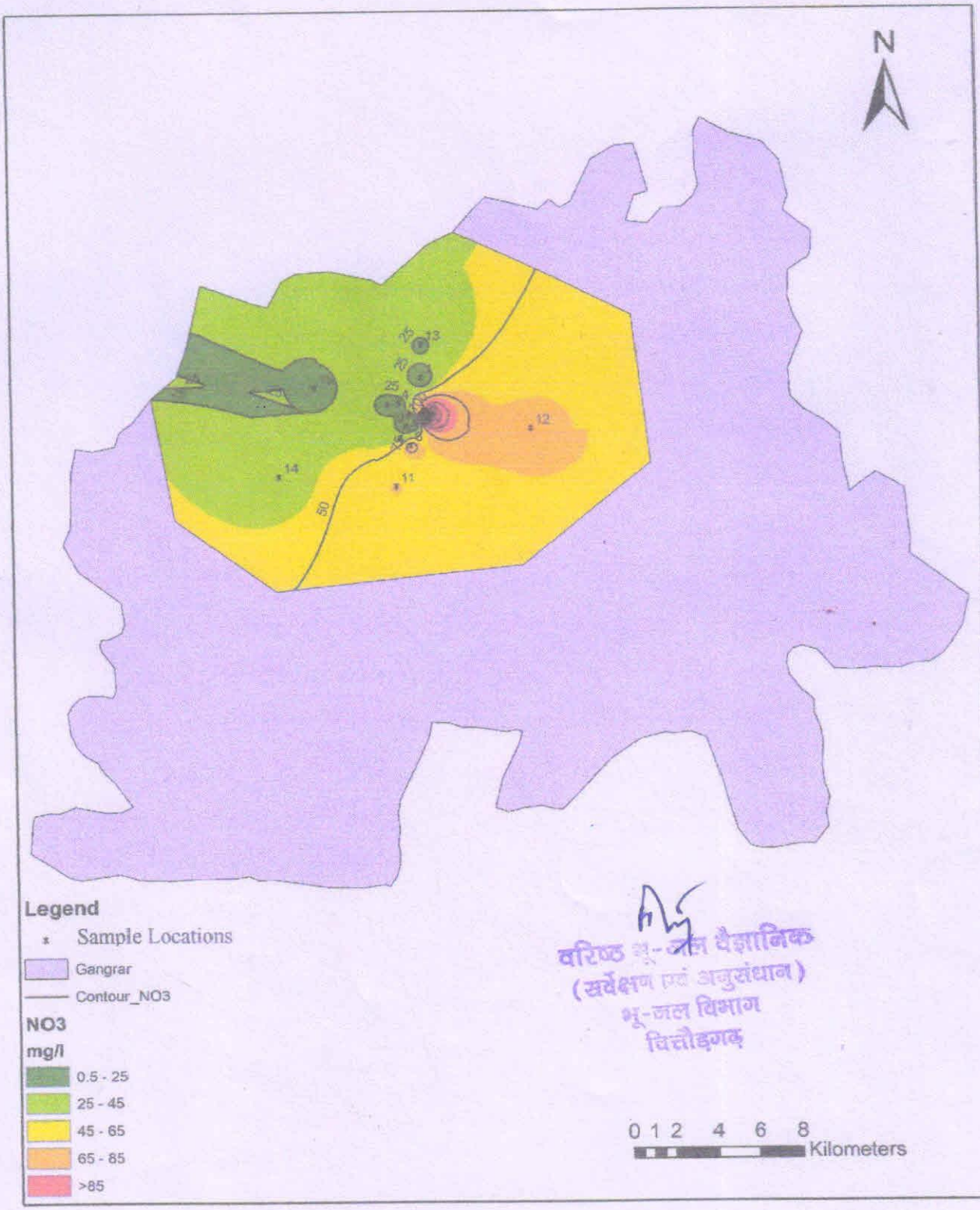

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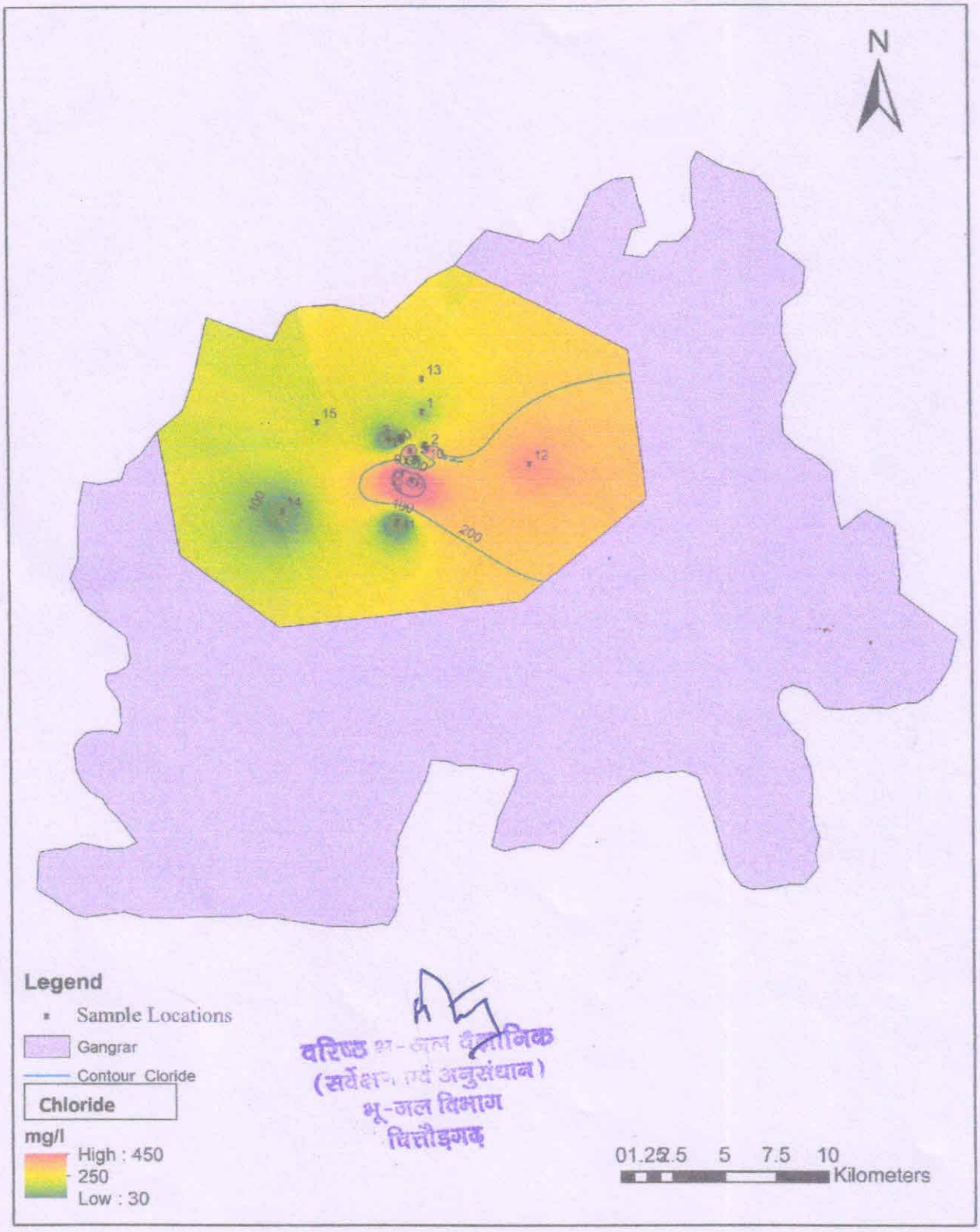
Fig.6 : Map showing Distribution of Chloride (Cl) in and around Manomay Tex India Ltd.



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Annexure-2

for MAKOMAY TEX INDIA LTD

Authorised Signatory

OPOUK Control. System. Energy meter Reading. (Nov.2024)

Date	Present reading. (KWH)	Previous reading. (KWH)	Total units.
1/11/24	69927		0
2/11/24	Deewali holiday		0
3/11/24	—11—		0
4/11/24	69951	69921	30
5/11/24	69978	69951	27
6/11/24	70007	69978	29
7/11/24	70035	70007	28
8/11/24	70062	70035	27
9/11/24	70091	70062	29
10/11/24	70121	70091	30
11/11/24	70149	70121	28
12/11/24	70179	70149	30
13/11/24	70208	70179	29
14/11/24	70235	70208	27
15/11/24	70265	70235	30
16/11/24	70293	70265	28
17/11/24	70323	70293	30
18/11/24	70348	70323	25
19/11/24	70371	70348	23

UNITOP AQUACARE LIMITED

501, DOSTI PINNACLE, PLOT NO. E/7, ROAD NO. 22, WAGLE MIDC, THANE - 400 604
THANE (DT), MAHARASHTRA
Tel: (022) 4192 9300 / 4192 9318 * Fax: (022) 4192 9319
E-MAIL: unitop@unitopaquacare.com * WEB: http://www.unitopaquacare.com

COPIES OF THIS DOCUMENT	
Original for Recipient	☐
Duplicate for Transporter	☐
Triplicate for Supplier	☐

PROFORMA INVOICE

Consignee / Shipped To:	Receiver / Billed To:
MANOMAY TEX INDIA LTD AARAJI 5 TO 7, JOJRO KA KHERA NEAR TOLL PLAZA , GANGRAR CHOTTORGRAH-RAJASTHAN-312901	MANOMAY TEX INDIA LTD AARAJI 5 TO 7, JOJRO KA KHERA NEAR TOLL PLAZA , GANGRAR CHOTTORGRAH-RAJASTHAN-312901
GSTIN: 08AAFCM9997C1ZX	**GSTIN:** 08AAFCM9997C1ZX
State: RAJASTHAN State Code: 08	State: RAJASTHAN State Code: 08
Contact: MR. GHANSHYAM Tel: 93512 33390	Challan No: PROFORMA-MEE-01 Date 09-07-2024 L/R No: Date
Job No: 5957	Mode of Despatch:
Your Order No: ORD/24/18503 DATED 09-07-2024	Transporter: Freight: TO PAY BASIS

Dear Sirs,
Kindly receive the following goods in good order and condition & acknowledge the receipt of the same by endorsing the duplicate. You are requested to report the complaints about goods if any to us within 24 hours, failing which they will not be entertained.

Sr.No	Description	HSN / SAC	GST Rate	Qty	Unit	Rate, Rs	aDVANCE Value
SUPPLY OF:							
1	EFFLUENT EVAPORATION PLANT 7500 LPH FEED 4 STAGE MEE 4S FC All-PH-3 TC AE1 **20% ADVANCE ALONG WITH PO**	84194020	18%	1	No	3,51,00,000.00	70,20,000.00

BANK DETAILS FOR PAYMENT
ICICI BANK LIMITED
BHOOMI VELOCITY INFOTECH PARK
PLOT NO.39 ROAD NO.23
WAGLE INDUSTRIAL ESTATE , THANE - WEST-400604
UNITOP AQUACARE LIMITED
CASH CREDIT ACCOUNT NUMBER : 188751000004
RTGS / NEFT IFSC CODE: ICIC0001887

TOTAL TAXABLE VALUE, RS.	70,20,000.00
IGST	-
TOTAL GST, RS.	-
TOTAL INVOICE VALUE, RS.	**70,20,000.00**

Payment Terms:
1) TOKAN 10 LAKH, 20% ALONG WITH ORDER
2) 70% : Against Proforma Invoice before dispatch
3) 10% AFTER INSTALLATION

GSTIN: 27AACCU2389P1ZL
State: Maharashtra
State Code: 27

Thanking you,
For UNITOP AQUACARE LIMITED

Authorised Signatory

UNITOP AQUACARE LTD.

Received the above mentioned goods in good order & condition.

Receiver's Seal & Signature

Annexure-4

For MANGMAY TEX INDIA LTD

Authorised Signatory

Nov. 2024

ODOUR Control. System.

Chemical Consumption. Record.

Date	Opening stock (LTR.) (KG)	Balance stock (LTR.)	total Consumption (LTR.)
1/11/24	580	580	0
2/11/24	— Deewali holiday	—	—
3/11/24	— 11 —	—	
4/11/24	580	550	30
5/11/24	550	515	35
6/11/24	515	487	28
7/11/24	487	460	27
8/11/24	460	430	30
9/11/24	430	400	30
10/11/24	400	368	32
11/11/24	368	340	28
12/11/24	340	310	30
13/11/24	310	278	32
14/11/24	278	250	28
15/11/24	250	215	35
16/11/24	215	185	30
17/11/24	185	153	32
18/11/24	153	123	30
19/11/24	123	95	28

Annexure-5

कार्यालय वरिष्ठ भू जल वैज्ञानिक

भू जल विभाग, सेंगवा हाउसींग बोर्ड, सैंथी – 312001

Email:- sr.hyd.chittor@gmail.com

क्रमांक : 266 दिनांक : 21/11/2024

मैसर्स मनोमय टेक्स इंडिया लिमिटेड,
32, हिरा-पन्ना मार्केट, पुर रोड, भीलवाड़ा

विषय : भू जल गुणवत्ता अध्ययन रिपोर्ट बाबत्।
सन्दर्भः आपका पत्रांक दिनांक 07.11.2024 के क्रम में।

उपरोक्त विषयान्तर्गत संदर्भित पत्र के क्रम में लेख है कि NGT के पत्र कमांक 795/2024 मनोमय टेक्स इंडिया लिमिटेड, ग्राम जोजरो का खेड़ा, तहसील गंगरार, जिला चित्तोड़गढ के आस पास के क्षेत्रों से एकत्रित नवीन जल स्रोतो के भू जल नमूनों एवं पूर्व मे भू जल गुणवत्ता रिपोर्ट के अध्ययन पर आधारित रिपोर्ट को मूल संदर्भ मानकर तैयार क्षेत्र विशेष की भू जल गुणवत्ता के तकनीकी अध्ययन एवं विश्लेषण रिपोर्ट पत्र के साथ सलंग्न कर आवश्यक कार्यवाही हेतु प्रेषित है,

सलंग्नः उपरोक्तानुसार

वरीष्ठ-भूजल वैज्ञानिक
(केम्प-भीलवाड़ा)

वरिष्ठ भू-जल वैज्ञानिक
(सर्वेक्षण एवं अनुसंधान)
भू-जल विभाग
चित्तौड़गढ़

REPORT

ON

THE

INVESTIGATION OF WATER QUALITY PARAMETERS IN AND AROUND MANOMAY TEX INDIA LTD. PLANT PREMISES, NEAR VILLAGE JOJARO KA KHEDA, BLOCK GANGRAR, DISTRICT CHITTORGARH, RAJASTHAN

A CASE STUDY

BY

OFFICE OF THE SENIOR HYDEOGEOLOGIST
(SURVEY & RESEARCH)
STATE GROUND WATER DEPARTEMNT, SEGWA ROAD, SAITHI
CHITTORGARH (RAJASTHAN)

NOVEMBER 2024

वरिष्ठ -- जल वैज्ञानिक
(सर्वेक्षण एवं अनुसंधान)
भू-जल विभाग

INDEX

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भू-जल विभाग
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1. Executive Summary:

The unplanned and non-scientific development of ground water resources has led to sharp depletion of the natural resources and also degradation in water quality up to some extent at many places. Water quality investigation of ground water in and around Manomay Tex India Ltd. near village Jojaro ka kheda, block Gangrar, district Chittorgarh has been studied. The present study aims to evaluate probable impact on reginal ground water quality of the area by any sort of dumping industrial waste & sewage if any into the open land surfaces or within the unsaturated zone by present industrial activity.

For the proposed work, 3 Nos of chemical parameters published in earlier report has been taken in account as base line data for the present study. In addition to it, results of five ground water samples analyzed during pre-monsoon period 2024 by State Ground Water Department, Chittorgarh also consider and studied in detail. For this, 7 Nos of representative groundwater sample collected from different locations of bore wells/hand pumps in and around Manomay plant premises. The ground water samples collected so far physio-chemically analyzed for the different parameters like pH, Electrical conductivity TDS, Chloride, Total hardness, sodium, potassium, calcium, magnesium, Nitrate & Fluoride etc. has been evaluated & results obtained are compared with Indian Standard Drinking Water specification IS: 10500-2012, which indicates that quality parameters of not only plant premises shows moderately higher limits of TDS, chloride, Nitrate & total hardness but ground water samples from regional periphery of the plant area also depicts higher dominance of same contents is by virtue of the principally varied nature of mineral composition in gneiss/granitic gneiss rocks as a main hydrogeological formation encountered in the area & consist of rich feldspar and mica group of minerals which after extensive weathering in turn triggers the dominance of TDS, Chloride and total hardness content in ground water. Whereas, anthropogenic activities are responsible for the enrich Nitrate content. Thus, overall water quality obtain from the study area is within prescribed permissible limit.

2. Introduction:

- The rapid growth in population as well as accelerated pace of industrialization may adversely affect the groundwater quality due to over exploitation of ground water resources and improper practices adopted during waste disposal.
- As a result of which the human health is threatened by unsanitary conditions through open drain carrying and disposing waste water into natural water bodies.
- There may be certain examples of ground water quality deterioration in different parts of the Chittorgarh district but particularly a case study with site specific of Manomay Tex India Ltd. has been evaluated as per direction issued by the NGT.

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- The utilization of nitrogenous fertilizers in irrigation and use of pesticides, herbicides may increase the level of nitrate up to considerable extent in ground water in certain rich agriculture sector.
- The salient features of study are to assess the groundwater quality parameters and classify the hydrochemistry of location specific ground water quality in and around Manomay plant premises in order to evaluate detailed comparative study with respect to decipher probable factor that affecting ground water quality in regional periphery of plant premises.

3. Study Area:

- The Manomay Tex India Ltd is located about 1.5 km north east of village Jojaro ka kheda, block Gangrar, district Chittorgarh. (Figure-1).
- The topography of the area is undulating with table lands and typical hillocks specially towards west of the plant premises. General topographic elevation varies between 440 to 540 meters above msl with a steep as well as gradual gentle slope from West to East direction. Average annual rainfall is about 764 mm recorded in the year 2023.
- The area is underlain predominantly by gneiss and granite rocks of varied nature and composition of Bhilwara super group.
- The general water table ranges observed is (5-20 mts b.g.l.) during premonsoon period 2024.
- Ground water potentiality is moderate and is restricted to weathered and fractured gneiss/granitic gneiss rocks. The aquifer is unconfined to semi confined in conditions.

4. Materials and Methods:

- In order to assess detailed ground water chemistry of the area under observation , 3 nos of ground water analytical data of earlier published report and 5 ground water analysis results so far collected during the pre-monsoon period 2024 by the State Ground Water Department, Chittorgarh have been also taken in account.
- Initially, proposed samples site locations were identified and then the samples were collected from that pre-defined site location of existing ground water sources viz. tube wells and hand pumps after allowing some amount of water to flow out.
- The samples were collected in clean plastic bottles, which were pre cleaned, dried in dust free environment and sterilized.
- The ground water samples collected from different ground water sources used for agriculture, drinking and domestic purposes (Figure-2). These samples

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were properly labeled as MJK-01 to MJK-07 and a record was prepared indicating the ground water source of the samples, location of the sources etc. relevant necessary field data and tabulated as Annexure-1

- For the present study all the representative samples were collected and analyzed mainly for pH, Electrical conductivity, TDS, Chloride, Total hardness, Sodium, Potassium, Calcium, Magnesium, Nitrate & Fluoride etc.

5. Results and Discussion:

The ground water quality comparison between regional periphery and project site is enumerated in Annexure-I. The chemical parameters observed from the study area compared with Bureau of Indian Standards (BIS) and summarized in below Table#1.

Range of chemical constituents reported in and around Manomay Tex India Limited premises

Table#1

S.No.	Parameter	Range (Min.-Max.)	Average	BIS Range (IS 10500: 2012)	
				Desirable (Acceptable)	Permissible Limit in the Absence of Alternate
1	pH	7.12-8.25	8	6.50-8.20	8.5
2	Electrical Conductivity	450-2390	1296	-	-
3	Total Dissolved Solids	266-1608	757	740	2000
4	Calcium	10-272	113	75	200
5	Magnesium	1-116	55	30	100
6	Chloride	28-454	178	250	1000

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7	Sulphate	1-206	47	200	400
8	Nitrate	0.25-342	49	45	*No Relaxation*
9	Fluoride	0.12-1.75	1	1	1.5
10	Total Hardness (as $CaCO_3$)	190-1060	423	300	600

- The chemical results data of bore well located inside the Manomay plant published earlier by joint committee report on dated 7 & 8 October 2024 compared in detailed with the ground water quality parameters reported from regional vicinity of the Manomay plant site .
- The ground water samples of the study area analyzed for pH, Electrical conductivity, TDS, Chloride, Total hardness, sodium, potassium, calcium, magnesium, Nitrate & Fluoride etc. are presented in Annexure-I. Depending on the geological, hydrological and climatological conditions the ground water chemistry of the area under study are differ.

pH: In the present study the pH values in all the samples range from 7.12 to 8.25, which are all within the limit in the study area. The pH of water is very important indication of its quality and provides information in many types of geochemical equilibrium.

Electrical Conductivity: In present case study EC values varies widely from 450 µmho/cm to 2390 µmho/cm. The water quality map for EC was prepared for the study area shown in Fig.3. It is also observed that ground waters of high EC values are predominant with sodium and chloride ions (samples viz. MJK-02 & MJK-06).

TDS: Total dissolved solid is an important parameter for drinking water and water to be used for other purposes. The maximum permissible limit of TDS is 2000 mg/l (BIS range-IS 10500:2012). The water quality map for TDS was prepared for the study area shown in Fig.4. TDS concentration is varying in the range of 266 to 1608 mg/L. It is 1608 mg/L observed in already published chemical parameters report from tube well inside the plant premises. Although it indicates moderately dominance value compared with desirable limit but less then permissible limit. However, the extent of TDS value 1393 & 1362 mg/L has been also reported in ground water samples (MJK-02 & MJK-06) collected about 750 mts NEE and 1.5 km SSE away from the plant area is probably by virtue of moderate to highly weathered nature of metamorphic rock

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5.

(gneiss/granite gneiss) encountered as a hydrogeological formation at the site specific, but overall TDS character of ground water is within the allowable limit.

Nitrate: Nitrate concentration in ground water is found mainly due to anthropogenic activities which include improper disposal of bio-waste, urban sewerage, utilization of nitrogenous fertilizers in irrigation, use of pesticides & herbicides etc. considerably enhances the level of nitrate in ground water.

The water quality map for Nitrate was prepared and shown in Fig.5. In the present study Nitrate values ranges from 0.25 to 342. One ground water sample (MJK-02) collected about 750 mts NEE of Manomay plant site shows 342 mg/l, which shows extremely higher than the permissible limit. In the study area, marginal higher value of 87, 66 & 72 mg/l nitrate has been also reported from ground water samples viz. MJK-06, MJK-11 & 12 respectively, which is located about 1.5 km SSE, 3.67 km south and 5.40 km east of the plant premises.

As the main occupation of surrounding population is rich irrigation and during this activity extensive use of chemical fertilizers and pesticides contribute significantly to the loading of nitrate to ground water in the area. Further, Nitrogen released through weathering of underlying gneiss/granitic gneiss rocks may have more impact on soil and ground water quality of the study area.

Chloride: Chloride is the most troublesome anion in the irrigation water. It's generally more toxic than sulphate to most of the plants and are best indicator of pollution. The water quality map for Cl was prepared for the study area shown in Fig.6. In the study area, Chloride contents varied from 28-454 mg/l in earlier published chemical results and presently analyzed samples, which are all in permissible limit (BIS range-1000 mg/L).

Total hardness: The maximum permissible limit for total hardness is 600 mg/l. **(IS 10500:2012)**. In the present case study, results of chemical parameters of ground water the total hardness varies from 190 to 1060 mg/l, which exceed the prescribe permissible limit. Hardness of one ground water samples (MJK-02) collected about 750 mts NEE from Manomay plant location shows 1060 mg/l, which is higher than permissible limit. In addition to it, two samples (MJK-06 & MJK-07) collected about 1.50 Km SSE & 1.18 Km SSW from Manomay plant area also shows marginal rise in hardness value of 740 mg/l & 635 mg/l.

As evident, hardness in ground water is primarily due to the results of interaction between the chemical reaction in the hydrogeological formations

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encountered in the area. The hardness of water is due to the presence of alkaline earths such as calcium and magnesium minerals.

6. Conclusive Remarks:

- On the basis of study of representative ground water analysis the outcome of the present works in and around Manomay Tex India Ltd. near village Jojaro ka kheda of Gangrar block in Chittorgarh district reveals that ground water quality has been worsen up to some extent due to both geogenic and anthropogenic activities.

- As the thickness of overburden (loose soil + weathered gneiss rock) specially in the southern and eastern part of the study area is negligible. Therefore, there is a poor fluxing of ground water which in turn triggers the moderate concentration of TDS, chloride and total hardness reported from the area.

- As evident, study area mainly comprising of granite gneiss/gneiss of varied nature which consist feldspar and mica group of minerals. Any minerals exposed at the earth's surface may decompose, and its matter may become dissolved in water by the weathering process. One of the principal agents of weathering is water itself. So, during the process of extensive weathering, water exerts an influence on the parent geologic materials exist. The net result is that rocks are broken down into finer and finer and, where water is present, minerals may become dissolved. Ultimately, ground water affected by geochemical, hydrogeological and climatic process may contribute to excessive hardness beyond its threshold value.

- The detailed analytical results and interpretation of the published water level history data (Pre-monsoon 2004 period), it can be also be reveals that study area has found generally shallow ground water conditions (range from 5-20 mts b.g.l) is more sensitive to weathering processes, thereby tends to deteriorate faster in quality parameters of ground water.

- All others parameters except TDS, Chloride, Total Hardness and Nitrate were found within permissible limits in the area under consideration .

- Among the studied geochemical parameters nitrate is also one of the dominant chemical constituents reported in the area when compared with BIS quality standard and its concentration is mostly controlled by anthropogenic background rather than natural factors. Activities viz

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intensive irrigation, unlined septic tanks and unplanned sewerage system have triggered the nitrate content in groundwater, particularly in north-east, south east and southern part of the study area. The rest of the area is safe and has potable groundwater.

- At a glance, overall chemical comparison of ground water is based on the regional ground water samples (MJK-01 to MJK-07 & MJK-09 to MJK-15) with the plant site quality results (MJK-08) and is shown in Annexure-I, which reveals almost similar ground water quality parameters from the rest of the study area. However, minor differences were reported in Total hardness, Chloride and TDS concentration. Thus, it has been found that hydrogeochemical evidence of ground water samples of the area shows distinctive variations in quality parameters at selected ground water stations.
- The difference in chemical parameters of ground water also attributed to the change in depth of tube wells /dug wells from where samples has been collected to ascertain quality parameters. Generally, hardness dominance component is higher in deep ground water samples.
- On the basis of above technical facts it can be conclude that the present industrial activity of Manomay Tex India Ltd. near village Jojaro ka kheda does not impart noticeable impact on ground water quality parameters in and around regional periphery of the area under observation.

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8.

Physio-chemical results of waters samples in & around Manomay Tex India Ltd., Block -Gangrar, District -Chittorgarh

(All Figures in mg/L)

ANNEXURE-I

	Gram panchayat	Village	Sample No /UID No	Site specific location wrt Manomay plant premises	Well_ Type	Latitude	Longitude	E.C.	TDS	pH	Na^{+1}	K^{+1}	Ca^{+2}	Mg^{+2}	Cl^{-1}	SO_4^{-2}	CO_3^{-2}	HCO_3^{-1}	NO_3^{-1}	F	TH	Na%	RSC	SAR	Data Source
1	Soniyana	Soniyana	MJK01	2.1 Km NNE	TW	25.1038	74.6285	1240	605	7.90	99	2	10	90	113	48	0	476	5	0.96	395	35.2	0	2.17	
2	Jojaro ka kheda	Surat singh kas khera	MJK02	750 m NEE	TW	25.0875	74.6305	2390	1393	7.4	68	5	234	116	319	10	0	598	342	0.56	1060	12.2	0	0.91	
3	Jojaro ka kheda	Jojaro ka kheda	MJK03	1.10 Km NWW	TW	25.0915	74.6138	720	352	7.6	27	1	14	68	35	7	0	366	16	0.82	315	15.6	0	0.66	
4	Jojaro ka kheda	Jojaro ka kheda	MJK04	750 m NW	TW	25.0920	74.6189	1200	613	7.5	59	2	80	72	92	19	0	549	15	0.75	495	20.5	0	1.16	Nov 2024 results
5	Jojaro ka kheda	Jojaro ka kheda	MJK05	450 m SE	TW	25.0830	74.6256	450	267	8.2	34	1	32	29	28	10	12	232	5	1.28	200	26.8	0.2	1.04	
6	Jojaro ka kheda	Jojaro ka kheda	MJK06	1.5 Km SSE	TW	25.0731	74.6237	2370	1362	7.7	224	1	140	95	454	123	0	476	87	1.75	740	39.7	0	3.59	
7	Jojaro ka kheda	Jojaro ka kheda	MJK07	1.18 Km SSW	TW	25.07623	74.6194	1910	1079	8.25	154	2	174	49	383	68	12	391	43	1.16	635	34.4	0	2.65	
8	Jojaro ka kheda	Jojaro ka kheda	MJK08	Plant site area	TW	25.08649	74.6230	1980	1608	7.22	-	-	272	-	314	206	288	-	0.33	0.25	344	-	-	-	
9	Jojaro ka kheda	Jojaro ka kheda	MJK09	Govt. Hr sec school 550 m SSW	TW	25.08166	74.6214	1226	813	7.26	-	-	154	-	164	98	118	-	0.25	0.33	212	-	-	-	Old published NGT report results
10	Jojaro ka kheda	Jojaro ka kheda	MJK10	Open well near by Unit 700 m NEE	D/W	25.0889	74.6295	875	585	7.12	-	-	114	-	60	56	98	-	0.36	0.19	190	-	-	-	
11	Gangrar	Gangrar	MJK11/CHITTOWL_67	3.67 Km South	D/W	25.0543	74.6172	790	429	7.60	46	10	92	7	57	4	0	293	66	0.46	260	27	0.0	1.25	
12	Lalas	Mansingh ji ka kheda	MJK12/CHITTOWL_31	5.40 Km East	D/W	25.08039	74.6751	1600	873	7.80	112	3	156	39	241	42	0	415	72	0.81	550	30.45	0.0	2.07	
13	Soniyana	Soniyana	MJK13/CHITTOWL_69	3.53 Km North	D/W	25.11847	74.6287	960	470	7.65	23	1	72	49	170	4	0	256	23	0.12	380.0	11.38	0.0	0.50	Pre- monsoon 2024 SGWD results
14	Sudri	Sudri	MJK14/CHITTOWL_36	6.36 Km SW	D/W	25.05918	74.5674	800	436	7.55	71	7	78	1	85	1	0	305	40	0.38	200	42.58	1.0	2.19	
15	Undawa	Dooda	MJK15/CHITTOWL_66	4.30 Km NW	D/W	25.09921	74.5830	930	467	7.65	34	22	72	45	149	4	0	256	13	0.19	365	15.85	0.0	0.77	

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Fig.1 : Map showing Manomay plant (red legend) and sample locations (01-15) in Google Map with reference to periphery of Manomay Tex India Ltd

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Fig.2 : Location Map of study area depicting the sample sites

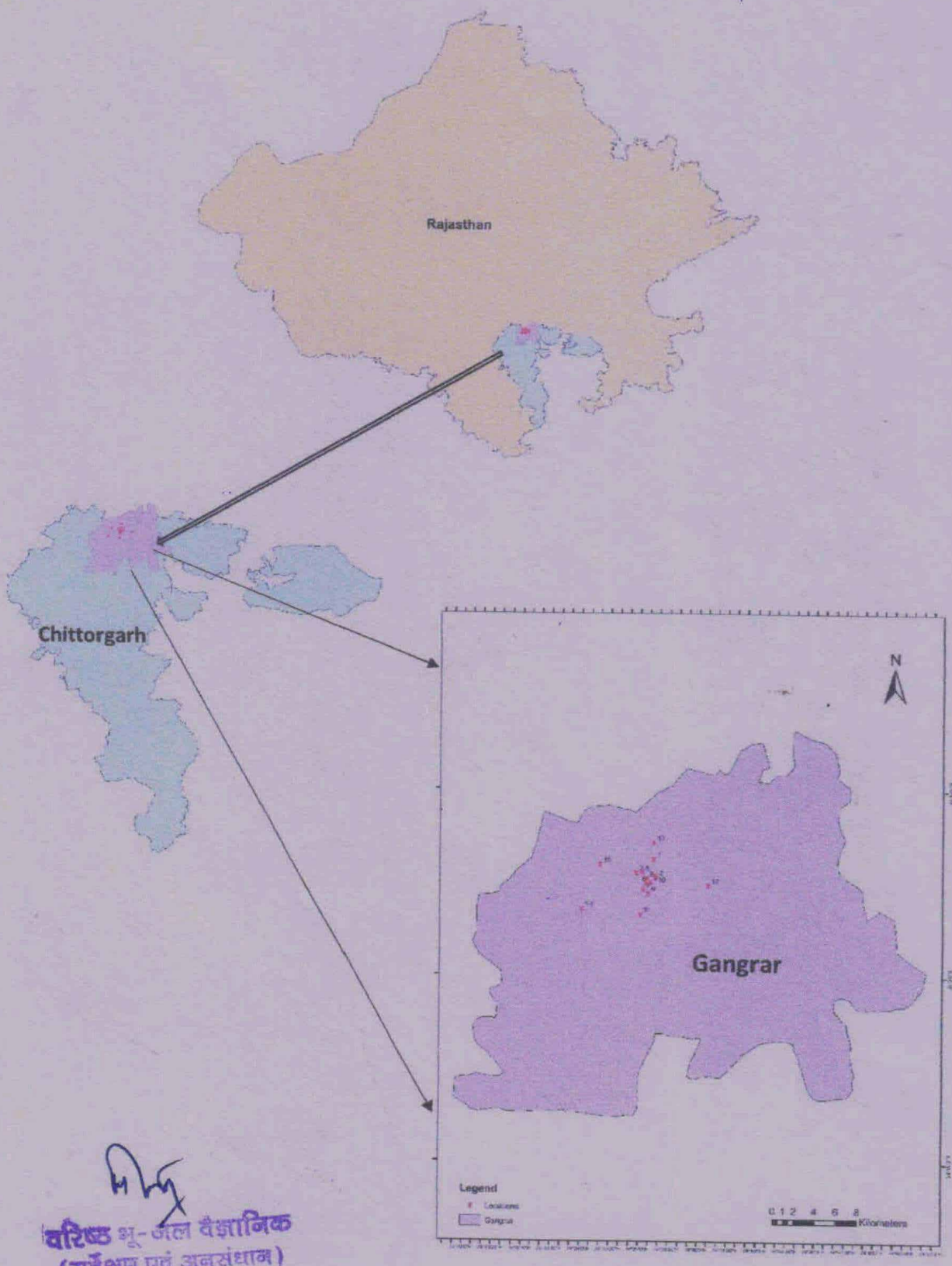

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Fig.3 : Map showing Distribution of Electrical Conductivity (EC) in and around Manomay Tex India Ltd.

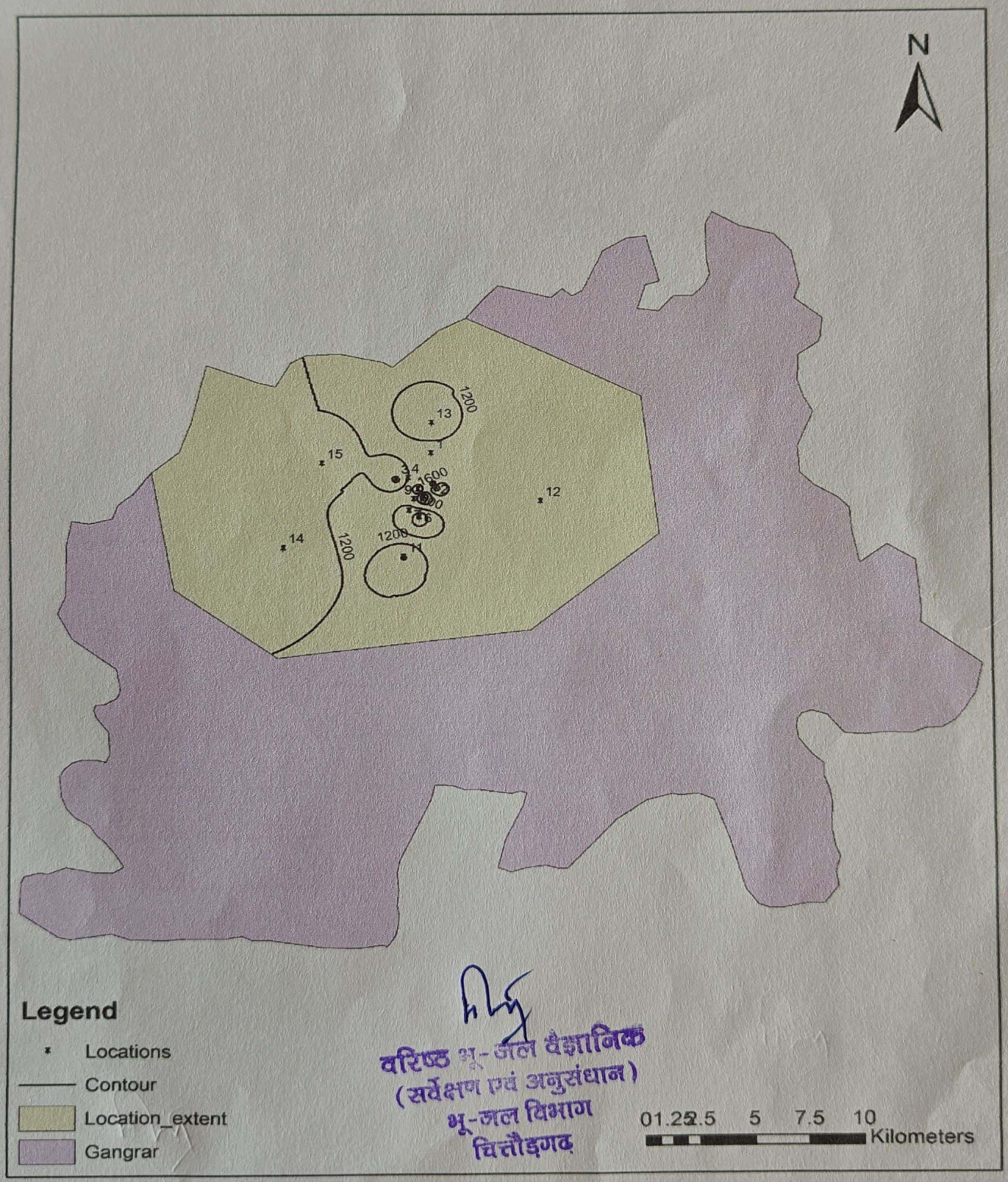

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Fig. 4 : Map showing Distribution of Total dissolved solid (TDS) in and around Manomay Tex India Ltd.

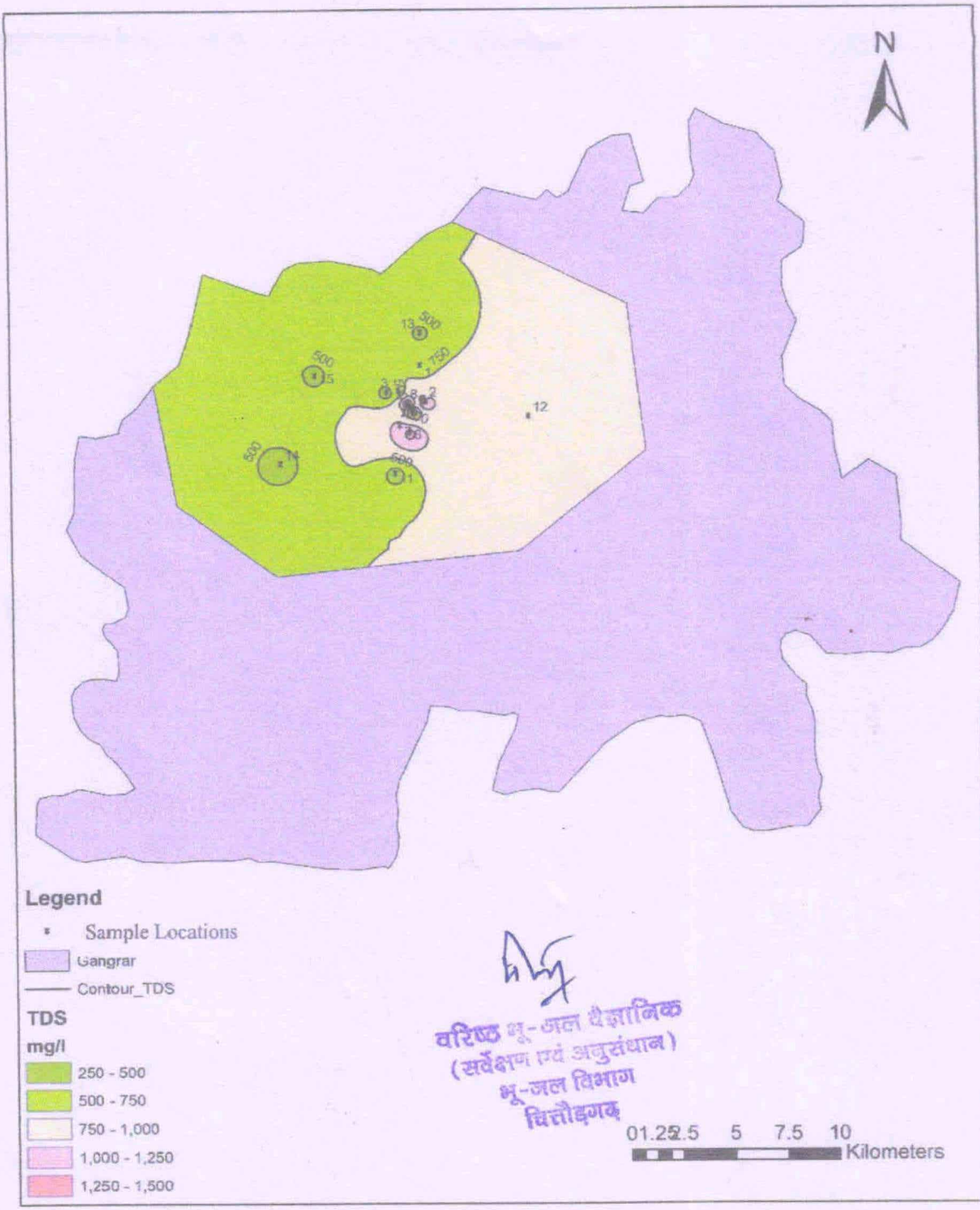

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Fig.5 : Map showing Distribution of Nitrate (NO3) in and around Manomay Tex India Ltd.

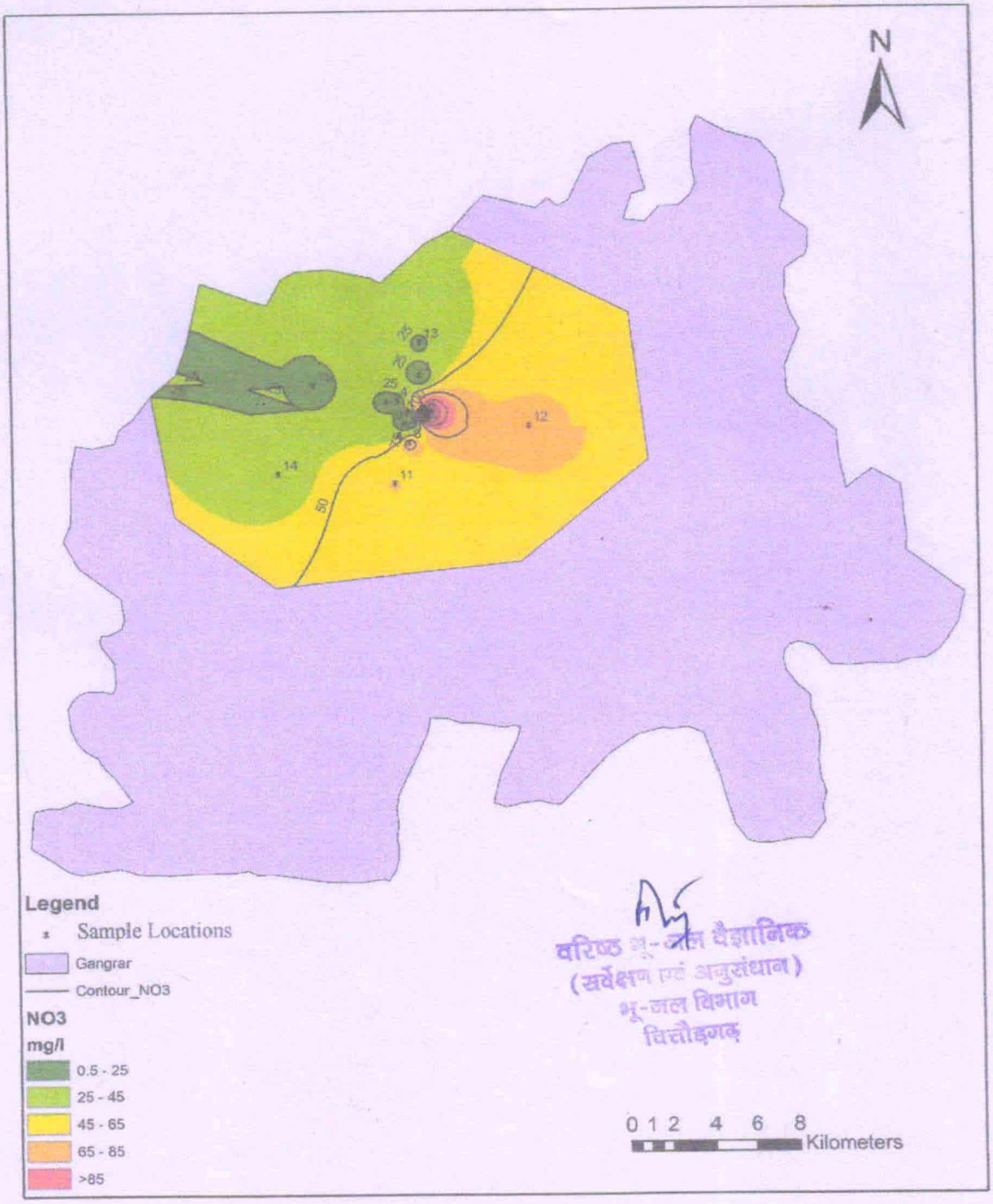

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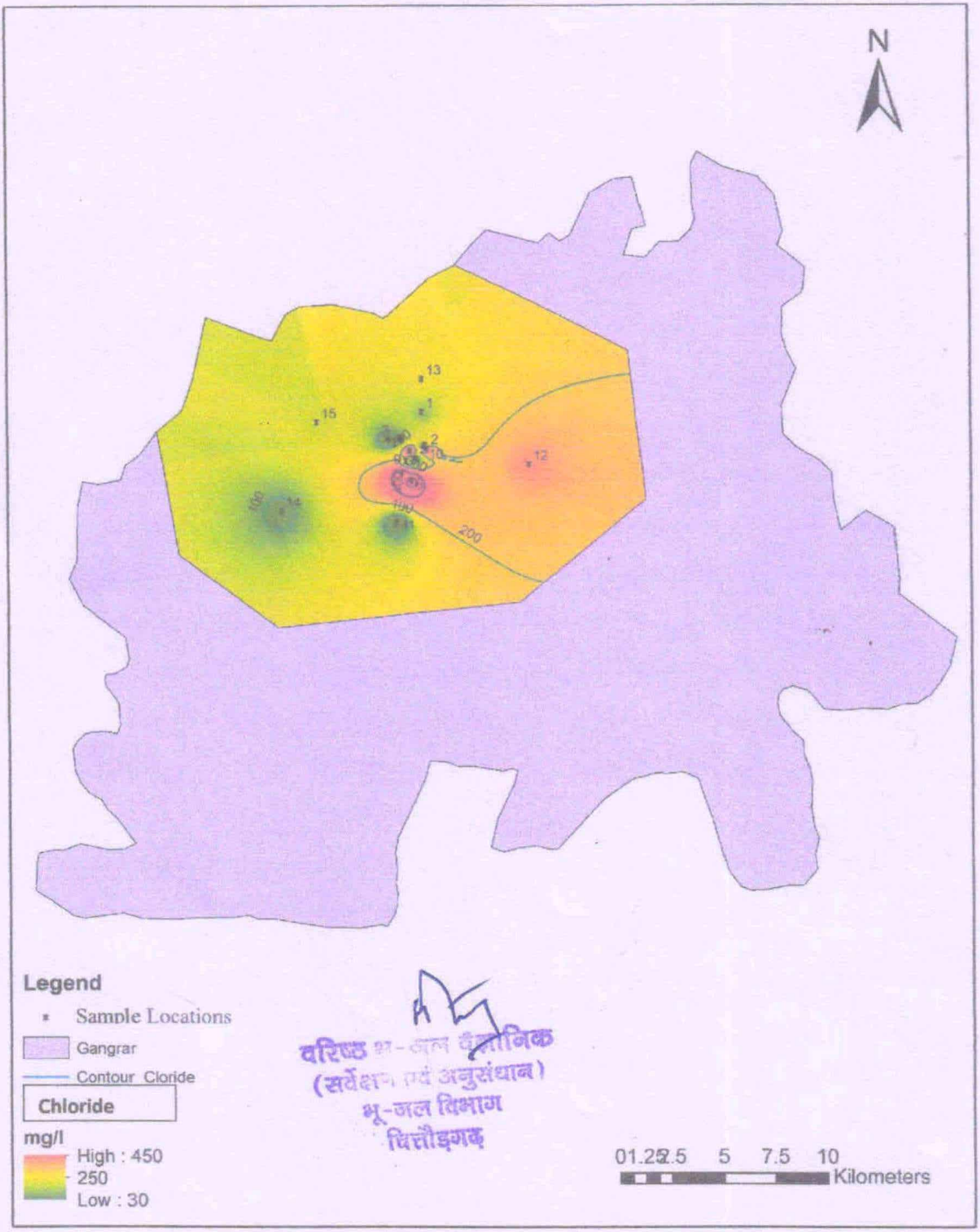
Fig.6 : Map showing Distribution of Chloride (Cl) in and around Manomay Tex India Ltd.



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