Interim Progress Report of the Joint Committee in the Matter of OA No. 619 of 2022; Mast Ram & Anr. Vs. State of HP & Ors.

1. Background:

The matter is related to a grievance stating that "The grievance in this application is that hazardous waste effluents are being discharged into nallah and nearby agricultural land of village Masulkhana, Tehsil Kasauli, District Solan, Himachal Pradesh by M/s Morepen Laboratories Pvt. Ltd., a pharmaceutical company manufacturing medicines/drugs, which is causing serious environmental degradation, posing serious risks to the health of the villagers and their domestic animals and damaging their crops".

It was directed by Hon'ble National Green Tribunal vide order dated 29/09/2022 (**Annexure-1**) to constitute a Joint Committee comprising of CPCB, State PCB and Deputy Commissioner, Solan and direct the same to meet within three weeks, *undertake visits to the sites, look into the grievances of the applicant, associate the applicant and representatives of the concerned project proponent, verify the factual position* and submit its report within one month. *The State PCB will be the nodal agency for coordination and compliance.*

It was further directed by the Hon'ble Tribunal that, in case the Joint Committee observes any violation of consent conditions/environmental norms, then it shall forward a copy of its report to:-

i) The concerned Project Proponent to enable the same to comply with the recommendations in the report of the Joint Committee or file objections against the observations/recommendations contained in the same and file its response before this Tribunal as desired, within one month from the date of receipt of a copy of the report of the Joint Committee, by e-mail at judicial-ngt@gov.in; and

ii) the concerned Authorities including State PCB and Deputy Commissioner, Solan to enable them to take appropriate remedial action, in accordance with Statutory provisions mandating them to take remedial action for prevention, control and abatement of environmental

pollution/degradation and for protection and improvement of environment, by giving notice to/hearing the concerned project proponent and following due process of law and they shall submit their action taken reports separately, within one month from the date of receipt of a copy of the report of the Joint Committee.

2. Progress Report o and Submission of the Joint Committee:

2.1 As directed by Hon'ble National Green Tribunal, the Joint Committee Comprising of the following Officers was constituted:

i. Shri Gaurav Mahajan, HAS, SDM. Kasauli (Member nominated by Deputy Commissioner, Solan)
ii. Dr. Narender Sharma, Additional Director, CPCB, RD, Chandigarh (Member, nominated by CPCB)
iii. Er. Pradeep Moudgil, Regional Officer, HPPCB, Parwanoo (Member Nominated by HPSPCB)

2.2 The **Approach followed by the Joint Committee** for arriving at conclusion and preparing a factual report addressing all the grievances of the applicant and covering all the points of Hon'ble NGT Order, involved:

iv. **Site visit and interaction** with the applicant and local villages to understand the grievances and determine the affected area.

v. **Sampling** from nearby drain (up-stream and down-stream of the industry) and from Effluent Treatment Plant (ETP) of the Industry

vi. **Sampling of agriculture Soil** of the affected area established from the above Point No. 2, to determine the accumulation of contaminants in the soil over a period of time, by irrigation with contaminated water.

vii. **Sampling of agriculture crops and the produce,** to estimate the bio-magnification of contaminants in plant and produce.

viii. **Calculation of Transfer Factor (TF),** for determining the bio-accumulation of metals/contaminants in plants from soil and **Health Risk Index (HRI)** by considering daily intake and reference oral dose.

2.3 The meeting of the Joint Committee and site visit were conducted on 31/10/2022 **(Annexure-2)**. Both the representatives of the applicant and the project proponents were also associated, as per directions of the Hon'ble National Green Tribunal.

2.4 The following grievances were shared by the Applicants and other representatives of the Village Masulkhana **(Annexure-3)**:

- Discharge of hazardous waste effluent into the nearby drain, which is a source of water for animals and irrigation.
- Illegal extraction of ground water/surface water, leading to water scarcity.
- Contamination of Soil.
- Damage to Crops and health risk to villagers and domestic animals, due to use of mixing of hazardous waste effluent into the nearby natural drain.

2.5 The surface water samples were collected from the nearby drain and ETP of the Industry during site visit on 31/10/2022, for analysis of water quality parameters and effluent parameters respectively.

2.6 The sampling of the soil, agriculture crops (Plant) and produce to determine the accumulation of contaminants in soil, crops & produce and the correlation with the effluent parameters, by the Joint Committee was also conducted during the site visit on 31/10/2022 and the samples have been sent to Punjab Biotechnology Incubator (PBTI) Laboratory, Mohali. Further, during visit, on the nearby land and in the adjacent nala, no illegal dumping of Hazardous Waste and no by pass or effluent discharge was observed at the site.

2.7 The results of analysis of samples collected from nala up stream & downstream, STP, ETP, Hand pump, Soil, Crop (Plant) and Produce were received from the Nodal Agency (HPPCB) on 15/12/2022. The water samples were get analyzed through the HPSPCB's (Himachal Pradesh State Pollution Control Board) central laboratory Parwanoo and the sample of Soil and Crop were get analyzed through PBTI (Punjab Biotechnology Institute) **(Annexure-4)**

2.8 Further, as per the observations , the COD concentration in the final Outlet of ETP, as per Online Continuous Emission Motoring System (OCEMS) installed by the Industry at the time of Sampling was 140 mg/l; the Concentration inthe sample drawn by the Joint Committee and analyzed in HPPCB Laboratory was 88 mg/l, **which accounts to 42% variation (in comparison to OCEMS) that too on the lower side**, in the analysis results conducted in HPPCB Laboratory. *Examination of previous data of OCEMS with that of analysis conducted in HPPCB Laboratory indication variation as*

high as 300% on the lower side (in comparison to OCEMS). ***Using this type of data for preparing factual report regarding compliance by the Industry and correlation with the contamination of water, soil and crops as alleged by the applicant . In view of this, a comprehensive study and analysis of different stages of ETP of the Industry is required to verify compliance and also to correlate it with the analysis of drain water, soil, crop and produce.*** *Further, the* accumulation of contaminants in Soil (from ETP to drain and then to soil), transfer of contaminants in the agriculture crops and bio-magnification in agro-products will be calculated.

2.9 The documents in support of the compliance of prescribed norms and conditions including ground water extraction ***were provided by the Industry on 2/1/2023 and 6/1/2023, which are under examination by the Joint Committee.***

3. Prayer:

The Joint Committee has completed the field work. The sampling of drain, ETP, soil, agriculture crop and produce has been completed. ***However, revalidation of the data is required through a comprehensive res-sampling of all stages of ETP, to verify compliance by the industry and also for correlation & calculation of the accumulation of contaminants in Soil (from ETP to drain and then to soil), transfer of contaminants in the agriculture crops and bio-magnification in agro-products, if any.***

In view of the above, it is humbly prayed that ***the above interim progress report may be considered by Hon'ble Nation Green Tribunal and grant of time upto February 20, 2023 for submission of authentic and conclusive report by the Joint may kindly be considered.***

The Joint Committee will abide by further directions of Hon'ble National Green Tribunal.

Pradeep Moudgil
HPSPCB, Parwanoo

Dr. Narender Sharma
CPCB, Chandigarh

Gaurav Mahajan
SDM Kasauli, Distt. Solan

Date: January 16, 2023

Annexure-I

Item No.06

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH

(By Video Conferencing)
Original Application No. 619/2022

Mast Ram & Anr. ...Applicant

Versus

State of Himachal Pradesh ...Respondent

Date of hearing: 29.09.2022

CORAM: HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

Application is registered based on a Letter Petition received by Post.

ORDER

1. Mr. Mast Ram resident of Village and Post Masulkhana, Tehsil Kasauli, District Solan, Himachal Pradesh has sent the letter petition by email, which has been treated and registered as Original Application. The grievance in this application is that hazardous waste effluents are being discharged into nallah and nearby agricultural land of village Masulkhana, Tehsil Kasauli, District Solan, Himachal Pradesh by M/s Morpen Laboratories Pvt.Ltd., a pharmaceutical company manufacturing medicines/drugs, which is causing serious environmental degradation, posing serious risks to the health of the villagers and their domestic animals and damaging their crops.

2. This Tribunal is empowered to ***suo moto*** take cognizance of the cases involving questions relating to environment arising out of the implementation of enactments specified in Schedule I of the National Green Tribunal Act, 2010 as held by Hon'ble Supreme Court in ***Municipal Corporation of Greater Mumbai V/s. Ankita Sinha and others 2021 SSC Online SC 897.*** This Tribunal can also take cognizance of such cases on the

basis of letter petitions in accordance with settled principles of law governing Public Interest Litigation.

3. *Prima facie*, the averments made in the application raise questions relating to environment arising out of the implementation of the enactments specified in Schedule I to the National Green Tribunal Act, 2010. In view of the averments made in the application, we consider it appropriate that a Joint Committee be constituted to verify the factual position. Accordingly, we constitute a Joint Committee comprising of **CPCB, State PCB and Deputy Commissioner, Solan** and direct the same to meet **within three weeks**, undertake visits to the sites, look into the grievances of the applicant, associate the applicant and representatives of the concerned project proponent, verify the factual position and submit its report **within one month** by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Supported PDF and not in the form of Image PDF. The State PCB will be the nodal agency for coordination and compliance.

4. In case the Joint Committee observes any violation of consent conditions/environmental norms, then it shall forward a copy of its report to:-

(i) The concerned Project Proponent to enable the same to comply with the recommendations in the report of the Joint Committee or file objections against the observations/recommendations contained in the same and file its response before this Tribunal as desired, **within one month from the date of receipt of a copy of the report of the Joint Committee**, by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Supported PDF and not in the form of Image PDF; and

(ii) the concerned Authorities including **State PCB and Deputy Commissioner, Solan** to enable them to take appropriate remedial

action, in accordance with Statutory provisions mandating them to take remedial action for prevention, control and abatement of environmental pollution/degradation and for protection and improvement of environment, by giving notice to/hearing the concerned project proponent and following due process of law and they shall submit their action taken reports separately, **within one month from the date of receipt of a copy of the report of the Joint Committee**, by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Supported PDF and not in the form of Image PDF.

5. List for further consideration on 24.01.2023.

6. A copy of this order, along with a copy of the application and documents attached with the same, be forwarded to the **CPCB, State PCB and Deputy Commissioner, Solan** by e-mail for compliance.

Arun Kumar Tyagi, JM

Dr. Afroz Ahmad, EM

September 29, 2022
AG

Annexure-2

Interim Compliance Report

On the directions of the worthy Deputy Commissioner Solan vide letter No Accttt. (LFA) O.A. No. 619/2022-525 dated 27-10-2022. S.D.O. (Civil) Kasauli, along with Addl. Director, CPCB, Regional Directorate Chandigarh and. AEE, HPSPCB, R.O. Parwanoo visited the spot of the moreper Lab. Unit at Masulkhana. that had been indicated to be inspected as per the complaint filed by Sh. Mast Ram in the Hon'ble NGT, New Delhi. All the parties concerned were duly informed in advance.

The spots of contention as indicated by the complainant have been visited and the samples of water, soil & crops have been extracted from the spot. The samples collected are being arranged to be sent to the authorized lab for testing the potency of water, soil & crops. and also effluents or any other pollutants have also been indicated to be investigated by the Authorized Lab..

The committee after visiting the spots have satisfied the complainant with the visit of team and team working as per norms and established SOPs have been collected and would be sent to the Lab. The final report in the matter could be only be arrived after the reports of the given samples are received from the designated Lab.

31/10/2022

Pradeep Mehta

(Pradeep Mehta)

Sub-Divisional Officer (Civil)
Kasauli, Distt. Solan (H.P.)

ध्यान सी मस्त राम पुत्र सी ज्यूरू राम, गाँव मशूरखाना, तह० कसौली, जिला सोलन (हि० प्र०) ध्यान किया कि आज दिनांक 31.10.2022 को Pollution Control Board की टीम ने हमारे द्वारा उठाये गए विवादास्पद स्थलों का हमारे साथ औचक निरीक्षण किया तथा मौके पर खेतों के साथ लगते नालों, खेतों की मिट्टी व मौके पर लगी फसल, अरबी व अदरक के सैम्पल लिए। और जो पानी के स्तोत हैं जिनसे हमत मैसर्ज के कारखाने को पानी जाता है तथा उक्त कारखाने द्वारा पानी के मौके पर दिखाया गया और उक्त दल के उन स्तोतों के सैम्पल हमारे समक्ष लिए गए। आज के दिन उक्त दल ने जो मौके पर कार्रवाई की है वो हमारे लिए सन्तोषजनक है।

मदन राम
(Mast Ram)

RIRAC

मदन राम
31/10/2022

Attested
31/10/22

Sub-Divisional Officer (Civil)
Kasauli, Distt. Solan (H.P.)

ध्यान सी कर्म सिंह पुत्र श्री मस्तराम, गाँव. मजूलखाना, तह० कसौली, जिला सोलन हि०प्र. ध्यान किया कि आज दिनांक 31.10.2022 को Pollution control Board की टीम ने हमारे द्वारा उठाये गए विवादास्पद स्थलों का हमारे द्वारा औचक निरीक्षण किया तथा मौके पर खेतों के साथ लगते नालों, खेतों की मिट्टी व मौके पर लगी फसल, सरबी, सदरक के सैम्पल लिए। और भी जो पानी के स्रोत हैं जिनसे उक्त मोरपेन के कारखाने को पानी आता है तथा उक्त कारखाने द्वारा पानी को मौके पर दिखाया गया और उक्त दल ने उन स्रोतों के सैम्पल हमारे समक्ष लिए गए। आज के विजिट उक्त दल के द्वारा मौके पर कार्यवाही की है जो हमारे लिए सन्तोषजनक है।

R.O. And AC
Karam Singh
31-10-2022

(कर्म सिंह)
Karam Singh

Attested
31/10/22
Sub-Divisional Officer (Civil)
Kasauli, Distt. Solan (H.P.)

Annexure-3 (64)

Registered Post

To

986/LP/2022
26/5/22

Dated : 21.05.2022

The Hon'ble Chief Justice

High Court Of Himachal Pradesh

Ravenswood, Shimla-171001 (H.P).

Subject: Complaint against M/s. Morepen Laboratories Private Limited, through its Managing Director/ management situated at Village & Post Office Masulkhana, Tehsil Kasauli, District Solan (H.P).

Sir,

Most Respectfully Showeth;

1. That undersigned are permanent residents of Village & Post Office Masulkhana, Tehsil Kasauli, District Solan (H.P) and depend upon farming and cattle stock to earn their livelihood since generations.

Ld. R.G.
25-05-2022

L.P.

2. That whereas, M/s. Morepen Laboratories Private Limited, a pharmaceutical company is having its business of manufacturing medicines/ drugs at Village & Post Office Masulkhana, Tehsil Kasauli, District Solan (H.P), in vicinity of the agricultural land owned and possessed by the complainant(s).

3. That M/s. Morepen Laboratories Private Limited has been carrying its manufacturing activities in such an irresponsible manner as a result of which continuous hazardous waste, effluents, are being emitted into the nearby fields/ air/ land of the villagers. Such malefic acts and designs are being carried by the management of the aforesaid industry by emitting the smoke and waste water more particularly during the night hours, with ulterior motives to deceive the authorities and the natives of the area.

4. That the abovesaid pharmaceutical company has been deliberately violating the laws laid under The Environment Protection Act & Rules. Hence, causing immense damage to

56

the health and farms of the villagers, livestock, flora and fauna of Village Masulkhana and the nearby areas.

5. That it is pertinent to submit here that due to the hazardous emission of the waste water into the nearby Nallah and fields, the local residents have been suffering with deteriorating health and many with serious ailments. Due to the release of untreated waste water into the nearby fields/land and Nallah, the crop of the farmers usually gets damaged due to contamination of the soil/ land and becomes unfit for human consumption.

6. That on 05.04.2022 due to emission of the hazardous pharmaceutical waste into the filed of the undersigned, the Jerssy Cow of the undersigned died due to food poising/ grazing in the nearby field contaminated by the hazardous waste water released by M/s. Morepen Laboratories Private Limited, Masulkhana. It is pertinent to submit here that there has been a regular death of the cattle stock of the local residents since last many years. Moreover, the grass/ fodder in such contaminated fields have become unfit for livestock.

The photograph of the dead cattle and the animal death certificate is annexed herewith for kind perusal of this hon'ble court.

7. That the undersigned have been repeatedly requesting the management of M/s. Morepen Laboratories Private Limited, Masulkhana to refrain from such inhuman and illegal acts but they paid no heed to such requests of the localvillagesr. Infact, great damage and injury is being caused to the health of the villagers, their domestic animals and crop in their fields.

8. That the undersigned and other villagers have been suffering due to illegal acts, designs of the management of the aforesaid pharmaceutical company, who have been violating The Environment Protection Act.

It is therefore, prayed that the immediate necessary legal actions may be initiated against the pharmaceutical company, M/s. Morepen Laboratories Private Limited, having its factory at

(B)

Village & Post Office Masulkhana, Tehsil Kasauli, District Solan (H.P) for violation of The Enviornment Laws and damage caused to the villagers, animals and farms of Village Masulkhana, Tehsil Kasauli, District Solan (H.P) . Further, necessary direction may be ~~ordered~~ to conduct the inquiry against the illegal activities being carried by the abovesaid pharmaceutical company and the under signed residents may be compensated for the damages suffered by said illegal acts of the company.

Karam Singh

Complainant

मस्त राम

Mast Ram , S/o. Jivanu Ram

Karam Singh, S/o. Mast Ram

R/o. Village & P.O. Masulkhana

Tehsil Kasauli, District Solan (H.P)

98160-70771; 98058-36953

Copy To (for information and necessary actions);

1. Hon'ble Chairman, National Green Tribunal, Faridkot House, Copernicus Marg, New Delhi-110001.

2. The Chairman, HP State Pollution Control Board, Him Parivesh, Phase 3, New Shimla, Shimla, Himachal Pradesh 171009.

(5)

3. Hon'ble District & Sessions Judge, Solan, Teshil & District Solan (H.P).

4. The Member Secretary, H P State Pollution Control Board, Him Parivesh, Phase 3, New Shimla, Shimla, Himachal Pradesh-171009.

5. The Principal Scientific Officer, H P State Pollution Control Board, SCF-6,7 & 8, Sector-4, Parwanoo, Tehsil Kasauli Distrcit Solan (H.P).

24.1.21

Karam Singh

Complainant

(20)

ANIMAL DEATH CERTIFICATE

It is certified that the Animal described below belonging to Shri/Smt Sh Karam chand,
S/o-W/o Sh mast Ram. of village Masulkhang, Post Office M/K,
Tehsil Kasauli, District Solan, has been died on dated 5-4-2022

It is further certified that the Animal has been physically verified by me at the place of Accident/death. the Animal had died to food poisoning.

Description of Animal:-

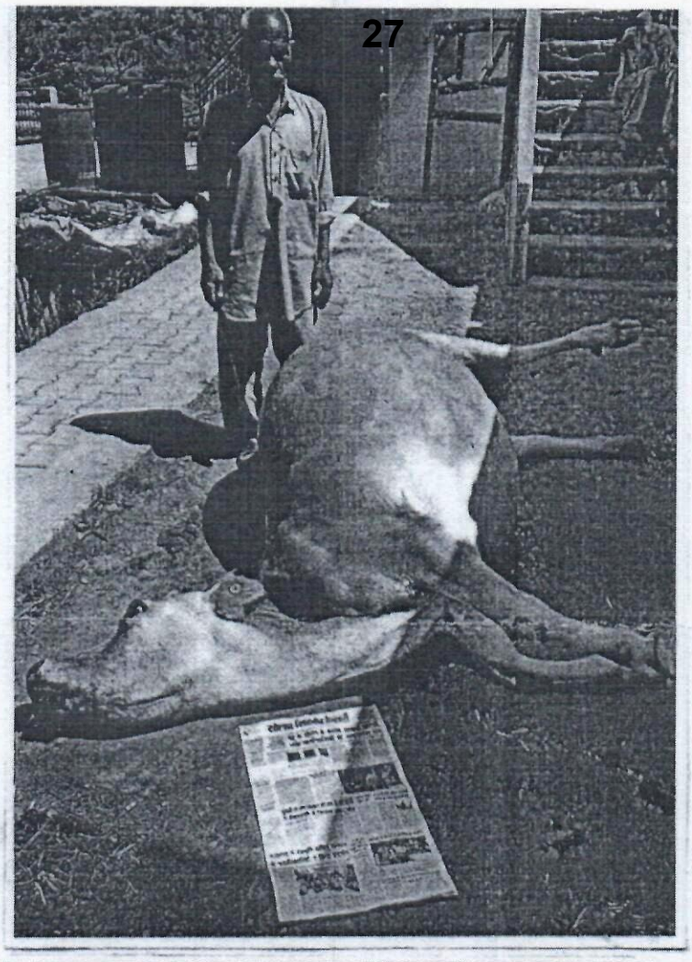
1. Breed :- Jerseycross
2. Sex :- Female
3. Age :- 6y
4. Colour:- Brown
5. Natural Identification Mark:-
6. Tag Number:- - 170008 694396

Date:- 5/4/2022

Place 4.

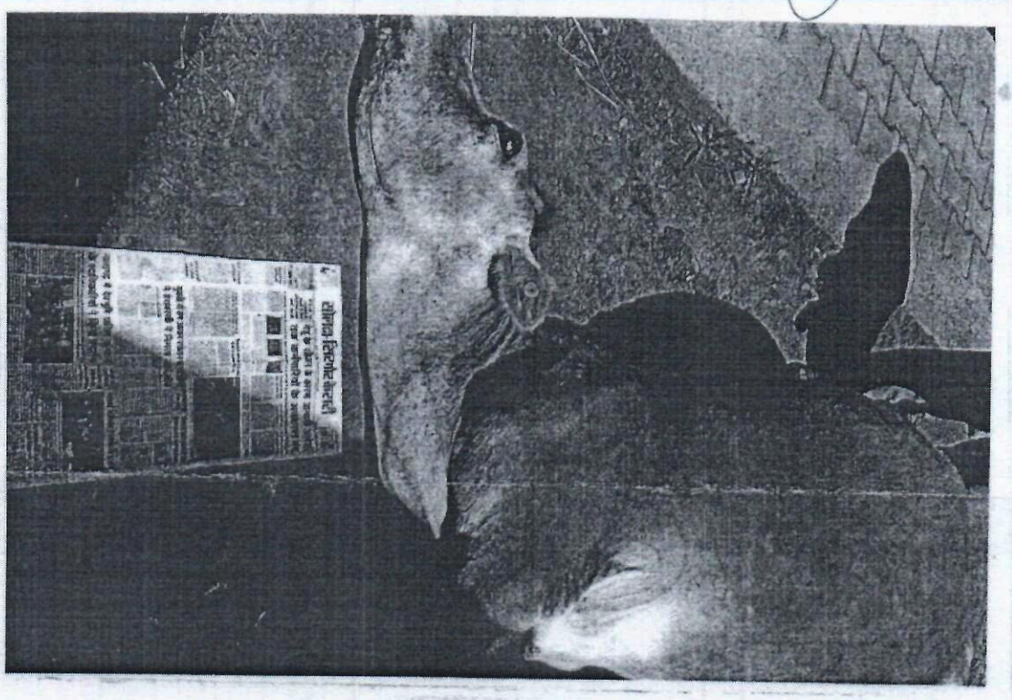
Signature,
Name and Address of
Chief V.Ph./Animal Husbandry Assistant
Veterinary Pharmacist.
Registration Number:-

Incharge
Vety. Dispensary CHAYA
Distt. Solan (H.P.)




सोलन-सिरमौर केसरी
गेहूं के सीजन के कारण आगामी आदेश
तक कर्मचारियों के अवकाश

(72)



Regd Post

EMS SPEED PO
EE793098009IN

Houble Chairman
National Green Tribunal
Faridkot House
Copernicus Marg. New Delhi
Pin Code - 110001

Mast Ram S/o. Jivanu Ram
V.P.O. Maguthna
Teh. Kasauli
Dist. Solan (H.P)
173220

(23)

Annexure- 4

H.P.STATE POLLUTION CONTROL BOARD
FORM X
REPORT BY STATE BOARD ANALYST
(See Rule 26)

Report No: 7435804/W-4977 **06/11/2022**

I hereby certify that I **Rama Kant Awasthi , SO**, State Board Analyst duly appointed under sub-section (3) of section 53 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) received on **18/10/2022** from **Punesh Kumar , JEE**, HP State Pollution Control Board **RO Parwanoo** a **Grab** sample of **Final outlet of ETP** of **Morepen Laboratories Limited**, **1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki** Distt. **Solan Parwanoo**, H.P. **173220** on dated **18/10/2022** for analysis. The sample was in a condition fit for analysis reported below:

I further certify that I have analyzed the aforementioned sample on **18/10/2022** to **06/11/2022** and declare the result of analysis is to be as follows :-

Method of analysis					
IS- 2488(I-V), IS-3025(Part 44): 1933, 'Standard method for examination of water', 22th edition prepared and published jointly by:-					
1. American Public Health Association 2. American Water Works Association 3. Water Pollution Control Federation					
SAMPLING PARAMETERS					
Sr. No.	**Parameter Name**	**Results**	**Units**	**Permissible Limit**	**Remark/Result Analysis**
1	pH	8.28		6.0-8.5	Within Permissible Limit
2	TSS	6.0	mg/L	100	Within Permissible Limit
3	TDS	189.0	mg/L	NA	NA
4	Cadmium	0.0	mg/L	NA	NA
5	Zinc	0.219	mg/L	NA	NA
6	Total Chromium	0.0	mg/L	NA	NA
7	Lead	0.0	mg/L	0.10	Within Permissible Limit
8	Copper	0.051	mg/L	NA	NA
9	BOD	4.0	mg/L	30	Within Permissible Limit
10	Oil and Grease	0.0	mg/L	10	Within Permissible Limit
11	Phenolic Compounds(as C6H5OH)	0.0	mg/L	1.0	Within Permissible Limit
12	Sulphide	0.0	mg/L	2	Within Permissible Limit

13	COD	24.0	mg/L	250	Within Permissible Limit

The condition of the seals, fastening and container on receipt was as: sealed as **PCB**

Signed this on **06/11/2022**

Remarks of Lab Head:

All the prescribed parameters are with in permissible limit as mentioned above.

Rama Kant Awasthi , SO
(State Board Analyst)
CL Parwanoo

From:

H.P. STATE POLLUTION CONTROL BOARD,
CL Parwanoo

To:

Morepen Laboratories Limited
1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki, Distt.Solan Parwanoo, H.P.173220

H.P.STATE POLLUTION CONTROL BOARD
FORM X
REPORT BY STATE BOARD ANALYST
(See Rule 26)

Report No: 7498523/W-5189 **23/11/2022**

I hereby certify that I **Rama Kant Awasthi , SO**, State Board Analyst duly appointed under sub-section (3) of section 53 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) received on **02/11/2022** from **Pradeep Moudgil, AEE**, HP State Pollution Control Board **RO Parwanoo** a **Grab** sample of **Final Outlet of STP** of **Morepen Laboratories Limited, 1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki** Distt. **Solan Parwanoo**, H.P. **173220** on dated **31/10/2022** for analysis. The sample was in a condition fit for analysis reported below:

I further certify that I have analyzed the aforementioned sample on **02/11/2022** to **23/11/2022** and declare the result of analysis is to be as follows :-

Method of analysis					
IS- 2488(I-V), IS-3025(Part 44): 1933, 'Standard method for examination of water', 22th edition prepared and published jointly by:-					
1. American Public Health Association 2. American Water Works Association 3. Water Pollution Control Federation					
SAMPLING PARAMETERS					
Sr. No.	**Parameter Name**	**Results**	**Units**	**Permissible Limit**	**Remark/Result Analysis**
1	COD	72.0	mg/L	250	Within Permissible Limit
2	BOD	7.0	mg/L	30	Within Permissible Limit
3	TSS	26.0	mg/L	99	Within Permissible Limit
4	pH	7.53		6.5-9.0	Within Permissible Limit
5	Oil and Grease	0.8	mg/L	10	Within Permissible Limit

The condition of the seals, fastening and container on receipt was as: sealed as **PCB**

Signed this on **23/11/2022**

Remarks of Lab Head:

All the prescribed parameters are with in permissible limit as mentioned above.

Rama Kant Awasthi , SO
(State Board Analyst)
CL Parwanoo

From:
H.P. STATE POLLUTION CONTROL BOARD,
CL Parwanoo

To:
Morepen Laboratories Limited
1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki, Distt.Solan Parwanoo, H.P.173220

H.P.STATE POLLUTION CONTROL BOARD
FORM X
REPORT BY STATE BOARD ANALYST
(See Rule 26)

Report No: 7499112/W-5192 23/11/2022

I hereby certify that I **Rama Kant Awasthi , SO**, State Board Analyst duly appointed under sub-section (3) of section 53 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) received on **02/11/2022** from **Pradeep Moudgil, AEE**, HP State Pollution Control Board **RO Parwanoo** a **Grab** sample of **Handpump upstream of unit village Tiron** of **Morepen Laboratories Limited, 1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki** Distt. **Solan Parwanoo**, H.P. **173220** on dated **31/10/2022** for analysis. The sample was in a condition fit for analysis reported below:

I further certify that I have analyzed the aforementioned sample on **02/11/2022** to **23/11/2022** and declare the result of analysis is to be as follows :-

Method of analysis					
IS- 2488(I-V), IS-3025(Part 44): 1933, 'Standard method for examination of water', 22th edition prepared and published jointly by:-					
1. American Public Health Association 2. American Water Works Association 3. Water Pollution Control Federation					
SAMPLING PARAMETERS					
Sr. No.	**Parameter Name**	**Results**	**Units**	**Permissible Limit**	**Remark/Result Analysis**
1	pH	8.08		NA	NA
2	BOD	0.2	mg/L	NA	NA
3	Oil and Grease	0.0	mg/L	NA	NA
4	Phenolic Compounds(as C6H5OH)	0.0	mg/L	NA	NA
5	Sulphide	0.0	mg/L	NA	NA
6	TSS	4.0	mg/L	NA	NA
7	Total Phosphate	0.029	mg/L	NA	NA
8	Hexavalent Chromium	0.0	mg/L	NA	NA
9	Iron	0.0	mg/L	NA	NA
10	Nickel	0.0	mg/L	NA	NA
11	Zinc	0.076	mg/L	NA	NA
12	Total Chromium	0.0	mg/L	NA	NA
13	Lead	0.0	mg/L	NA	NA

The condition of the seals, fastening and container on receipt was as: sealed as **pcb**

Signed this on **23/11/2022**

Remarks of Lab Head:

-

Rama Kant Awasthi , SO
(State Board Analyst)
CL Parwanoo

From:
H.P. STATE POLLUTION CONTROL BOARD,
CL Parwanoo

To:
Morepen Laboratories Limited
1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki, Distt.Solan Parwanoo, H.P.173220

H.P.STATE POLLUTION CONTROL BOARD
FORM X
REPORT BY STATE BOARD ANALYST
(See Rule 26)

Report No: 7499122/W-5193 **23/11/2022**

I hereby certify that I **Rama Kant Awasthi , SO**, State Board Analyst duly appointed under sub-section (3) of section 53 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) received on **02/11/2022** from **Pradeep Moudgil, AEE**, HP State Pollution Control Board **RO Parwanoo** a **Grab** sample of **Handpump D/s of the unit village Tharugarh near GPS** of **Morepen Laboratories Limited, 1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki** Distt. **Solan Parwanoo**, H.P. **173220** on dated **31/10/2022** for analysis. The sample was in a condition fit for analysis reported below:

I further certify that I have analyzed the aforementioned sample on **02/11/2022** to **23/11/2022** and declare the result of analysis is to be as follows :-

Method of analysis					
IS- 2488(I-V), IS-3025(Part 44): 1933, 'Standard method for examination of water', 22th edition prepared and published jointly by:-					
1. American Public Health Association 2. American Water Works Association 3. Water Pollution Control Federation					
SAMPLING PARAMETERS					
Sr. No.	**Parameter Name**	**Results**	**Units**	**Permissible Limit**	**Remark/Result Analysis**
1	pH	8.15		NA	NA
2	BOD	0.6	mg/L	NA	NA
3	Oil and Grease	0.0	mg/L	NA	NA
4	Phenolic Compounds(as C6H5OH)	0.0	mg/L	NA	NA
5	Sulphide	0.0	mg/L	NA	NA
6	TSS	5.0	mg/L	NA	NA
7	Total Phosphate	0.013	mg/L	NA	NA
8	Hexavalent Chromium	0.0	mg/L	NA	NA
9	Iron	0.944	mg/L	NA	NA
10	Nickel	0.0	mg/L	NA	NA
11	Zinc	0.245	mg/L	NA	NA
12	Total Chromium	0.0	mg/L	NA	NA
13	Lead	0.0	mg/L	NA	NA

The condition of the seals, fastening and container on receipt was as: sealed as **pcb**

Signed this on **23/11/2022**

Remarks of Lab Head:

-

Rama Kant Awasthi , SO
(State Board Analyst)
CL Parwanoo

From:
H.P. STATE POLLUTION CONTROL BOARD,
CL Parwanoo

To:
Morepen Laboratories Limited
1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki, Distt.Solan Parwanoo, H.P.173220

H.P.STATE POLLUTION CONTROL BOARD
FORM X
REPORT BY STATE BOARD ANALYST
(See Rule 26)

Report No: 7499070/W-5190 **23/11/2022**

I hereby certify that I **Rama Kant Awasthi , SO**, State Board Analyst duly appointed under sub-section (3) of section 53 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) received on **02/11/2022** from **Pradeep Moudgil, AEE**, HP State Pollution Control Board **RO Parwanoo** a **Grab** sample of **River U/s of the unit of Morepen Laboratories Limited, 1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki** Distt. **Solan Parwanoo**, H.P. **173220** on dated **31/10/2022** for analysis. The sample was in a condition fit for analysis reported below:

I further certify that I have analyzed the aforementioned sample on **02/11/2022** to **23/11/2022** and declare the result of analysis is to be as follows :-

Method of analysis					
IS- 2488(I-V), IS-3025(Part 44): 1933, 'Standard method for examination of water', 22th edition prepared and published jointly by:-					
1. American Public Health Association 2. American Water Works Association 3. Water Pollution Control Federation					
SAMPLING PARAMETERS					
Sr. No.	**Parameter Name**	**Results**	**Units**	**Permissible Limit**	**Remark/Result Analysis**
1	pH	8.02		NA	NA
2	COD	4.0	mg/L	NA	NA
3	Fecal Coliform	110.0	MPN/100ml	NA	NA
4	TSS	3.0	mg/L	NA	NA
5	Total Phosphate	0.026	mg/L	NA	NA
6	Hexavalent Chromium	0.0	mg/L	NA	NA
7	Iron	0.664	mg/L	NA	NA
8	Nickel	0.0	mg/L	NA	NA
9	Zinc	0.0	mg/L	NA	NA
10	Total Chromium	0.0	mg/L	NA	NA
11	Lead	0.0	mg/L	NA	NA
12	BOD	0.2	mg/L	NA	NA
13	Oil and Grease	0.0	mg/L	NA	NA
14	Phenolic Compounds(as C6H5OH)	0.0	mg/L	NA	NA
15	Sulphide	0.0	mg/L	NA	NA
16	Total Coliform	280.0	MPN/100ml	NA	NA

The condition of the seals, fastening and container on receipt was as: sealed as **PCB**
Signed this on **23/11/2022**

Remarks of Lab Head:

-

Rama Kant Awasthi , SO
(State Board Analyst)
CL Parwanoo

From:
H.P. STATE POLLUTION CONTROL BOARD,
CL Parwanoo

To:
Morepen Laboratories Limited
1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki, Distt.Solan Parwanoo, H.P.173220

H.P.STATE POLLUTION CONTROL BOARD
FORM X
REPORT BY STATE BOARD ANALYST
(See Rule 26)

Report No: 7499054/W-5191 **23/11/2022**

I hereby certify that I **Rama Kant Awasthi , SO**, State Board Analyst duly appointed under sub-section (3) of section 53 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) received on **02/11/2022** from **Pradeep Moudgil, AEE**, HP State Pollution Control Board **RO Parwanoo** a **Grab** sample of **River D/S of the unit of Morepen Laboratories Limited, 1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki** Distt. **Solan Parwanoo**, H.P. **173220** on dated **31/10/2022** for analysis. The sample was in a condition fit for analysis reported below:

I further certify that I have analyzed the aforementioned sample on **02/11/2022** to **23/11/2022** and declare the result of analysis is to be as follows :-

Method of analysis					
IS- 2488(I-V), IS-3025(Part 44): 1933, 'Standard method for examination of water', 22th edition prepared and published jointly by:-					
1. American Public Health Association 2. American Water Works Association 3. Water Pollution Control Federation					
SAMPLING PARAMETERS					
Sr. No.	**Parameter Name**	**Results**	**Units**	**Permissible Limit**	**Remark/Result Analysis**
1	pH	8.03		NA	NA
2	COD	20.0	mg/L	NA	NA
3	Fecal Coliform	350.0	MPN/100ml	NA	NA
4	BOD	2.5	mg/L	NA	NA
5	Total Coliform	920.0	MPN/100ml	NA	NA
6	Oil and Grease	0.0	mg/L	NA	NA
7	Phenolic Compounds(as C6H5OH)	0.0	mg/L	NA	NA
8	Sulphide	0.0	mg/L	NA	NA
9	TSS	3.0	mg/L	NA	NA
10	Total Phosphate	0.010	mg/L	NA	NA
11	Hexavalent Chromium	0.0	mg/L	NA	NA
12	Iron	0.0	mg/L	NA	NA
13	Nickel	0.0	mg/L	NA	NA
14	Zinc	0.0	mg/L	NA	NA
15	Total Chromium	0.0	mg/L	NA	NA
16	Lead	0.0	mg/L	NA	NA

The condition of the seals, fastening and container on receipt was as: sealed as PCB
Signed this on **23/11/2022**

Remarks of Lab Head:

-

Rama Kant Awasthi , SO
(State Board Analyst)
CL Parwanoo

From:
H.P. STATE POLLUTION CONTROL BOARD,
CL Parwanoo

To:
Morepen Laboratories Limited
1330,1329,828,824,1328,13 Masulkhana, Kasauli Road Parwanoo District Solan, H.P.Masoolkhana, Arki, Distt.Solan Parwanoo, H.P.173220

Dated :

Sample Registration No. : **PBTI/ENV/021122/000672**

Sample code given by customer : **Sample No. A, Soil from the Nallah Upstream of the unit**

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	pH	8.20		IS 2720
2	Total Organic Carbon (TOC)	1.94	%	IS 2720
3	Total Kjeldahl Nitrogen (TKN)	334	mg/kg	AOAC 955.04
4	Phosphorus	42.5	mg/kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
5	Cation Exchange Capacity	0.8	meq/100g m	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
6	Exchangable Sodium	37	mg//kg	USDA Guidelines
7	Exchangable Potassium	30	mg//kg	USDA Guidelines
8	Exchangable Calcium	65	mg//kg	USDA Guidelines
9	Exchangable Magnesium	768	mg//kg	USDA Guidelines
10	Cyanide (as CN)	BDL(MDL1)	mg//kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
11	Phenolic Compounds	BDL(MDL1)	mg//kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
12	Potassium(K2O)	43	mg/kg	AOAC 990.08
13	Magnesium (as Mg)	819	mg/kg	AOAC 990.08
14	Zinc (as Zn)	38.9	mg/kg	AOAC 990.08
15	Manganese (as Mn)	381	mg/kg	AOAC 990.08
16	Iron (as Fe)	2.03	%	AOAC 990.08
17	Copper (as Cu)	10.17	mg/kg	AOAC 990.08
18	Molybdenum (as Mo)	BDL(MDL 0.5)	mg/kg	AOAC 990.08
19	Cadmium (as Cd)	BDL(MDL 0.5)	mg/kg	AOAC 990.08
20	Chromium (as Cr)	21.07	mg/kg	AOAC 990.08
21	Nickel (as Ni)	26.3	mg/kg	AOAC 990.08
22	Lead (as Pb)	12.6	mg/kg	AOAC 990.08
23	Mercury (as Hg)	BDL(MDL 0.1)	mg/kg	AOAC 990.08
24	Arsenic (As)	4.0	mg/kg	AOAC 990.08
25	Selenium (as Se)	BDL(MDL 0.5)	mg/kg	AOAC 990.08

BDL:Below Detection Limit MDL:Method Detection Limit

25/11/2022

Authorized Signatory

Punjab Biotechnology Incubator Lab

6

Dated :

Sample Registration No. : **PBTI/ENV/021122/000673**

Sample code given by customer : **Sample No. B, Soil from the Nallah D/s stream of the unit**

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	pH	8.13		IS 2720
2	Total Organic Carbon (TOC)	1.72	%	IS 2720
3	Total Kjeldahl Nitrogen (TKN)	556	mg/kg	AOAC 955.04
4	Phosphorus	51.9	mg/kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
5	Cation Exchange Capacity	0.8	meq/100gm	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
6	Exchangable Sodium	26	mg//kg	USDA Guidelines
7	Exchangable Potassium	110	mg//kg	USDA Guidelines
8	Exchangable Calcium	85	mg//kg	USDA Guidelines
9	Exchangable Magnesium	783	mg//kg	USDA Guidelines
10	Cyanide (as CN)	BDL(MDL1)	mg//kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
11	Phenolic Compounds	BDL(MDL1)	mg//kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
12	Potassium(K2O)	143	mg/kg	AOAC 990.08
13	Magnesium (as Mg)	835	mg/kg	AOAC 990.08
14	Zinc (as Zn)	52.5	mg/kg	AOAC 990.08
15	Manganese (as Mn)	392	mg/kg	AOAC 990.08
16	Iron (as Fe)	2.59	%	AOAC 990.08
17	Copper (as Cu)	12.04	mg/kg	AOAC 990.08
18	Molybdenum (as Mo)	0.63	mg/kg	AOAC 990.08
19	Cadmium (as Cd)	BDL(MDL 0.5)	mg/kg	AOAC 990.08
20	Chromium (as Cr)	35.32	mg/kg	AOAC 990.08
21	Nickel (as Ni)	41.6	mg/kg	AOAC 990.08
22	Lead (as Pb)	13.5	mg/kg	AOAC 990.08
23	Mercury (as Hg)	BDL(MDL 0.1)	mg/kg	AOAC 990.08
24	Arsenic (As)	4.7	mg/kg	AOAC 990.08
25	Selenium (as Se)	0.54	mg/kg	AOAC 990.08

BDL:Below Detection Limit MDL:Method Detection Limit

25/11/2022

Authorized Signatory

Punjab Biotechnology Incubator Lab

Dated :

ULR : TC611722000001994F

Sample Registration No. : **PBTI/ENV/021122/000670**

Sample code given by customer : **Sample No. 1, Soil from the fields Upstream of the unit**

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	pH	6.88		IS 2720
2	Total Organic Carbon (TOC)	3.90	%	IS 2720
3	Total Kjeldahl Nitrogen (TKN)	1451	mg/kg	AOAC 955.04
4	Phosphorus	158	mg/kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
5	Cation Exchange Capacity	1.7	meq/100g m	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
6	Exchangable Sodium	79	mg//kg	USDA Guidelines
7	Exchangable Potassium	50	mg//kg	USDA Guidelines
8	Exchangable Calcium	70	mg//kg	USDA Guidelines
9	Exchangable Magnesium	865	mg//kg	USDA Guidelines
10	Cyanide (as CN)	BDL(MDL1)	mg//kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
11	Phenolic Compounds	BDL(MDL1)	mg//kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
12	Potassium(K2O)	65	mg/kg	AOAC 990.08
13	Magnesium (as Mg)	914	mg/kg	AOAC 990.08
14	Zinc (as Zn)	69.1	mg/kg	AOAC 990.08
15	Manganese (as Mn)	367	mg/kg	AOAC 990.08
16	Iron (as Fe)	1.50	%	AOAC 990.08
17	Copper (as Cu)	14.29	mg/kg	AOAC 990.08
18	Molybdenum (as Mo)	BDL(MDL 0.5)	mg/kg	AOAC 990.08
19	Cadmium (as Cd)	BDL(MDL 0.5)	mg/kg	AOAC 990.08
20	Chromium (as Cr)	21.06	mg/kg	AOAC 990.08
21	Nickel (as Ni)	21.8	mg/kg	AOAC 990.08
22	Lead (as Pb)	14.8	mg/kg	AOAC 990.08
23	Mercury (as Hg)	BDL(MDL 0.1)	mg/kg	AOAC 990.08
24	Arsenic (As)	2.9	mg/kg	AOAC 990.08
25	Selenium (as Se)	BDL(MDL 0.5)	mg/kg	AOAC 990.08

BDL:Below Detection Limit MDL:Method Deection Limit

25/11/2022

Authorized Signatory

Punjab Biotechnology Incubator Lab

13

Dated :

Sample Registration No. : **PBTI/ENV/021122/000671**

Sample code given by customer : **Sample No. 2, Soil from the fields Downstream of the unit**

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	pH	7.69		IS 2720
2	Total Organic Carbon (TOC)	4.34	%	IS 2720
3	Total Kjeldahl Nitrogen (TKN)	1653	mg/kg	AOAC 955.04
4	Phosphorus	134	mg/kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
5	Cation Exchange Capacity	2.1	meq/100g m	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
6	Exchangable Sodium	100	mg//kg	USDA Guidelines
7	Exchangable Potassium	89	mg//kg	USDA Guidelines
8	Exchangable Calcium	85	mg//kg	USDA Guidelines
9	Exchangable Magnesium	950	mg//kg	USDA Guidelines
10	Cyanide (as CN)	BDL(MDL1)	mg//kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
11	Phenolic Compounds	BDL(MDL1)	mg//kg	Text Book of Soil Analysis by TC Baruah & Barthakur 1998
12	Potassium(K2O)	107	mg/kg	AOAC 990.08
13	Magnesium (as Mg)	989	mg/kg	AOAC 990.08
14	Zinc (as Zn)	100	mg/kg	AOAC 990.08
15	Manganese (as Mn)	596	mg/kg	AOAC 990.08
16	Iron (as Fe)	2.77	%	AOAC 990.08
17	Copper (as Cu)	26.27	mg/kg	AOAC 990.08
18	Molybdenum (as Mo)	BDL(MDL 0.5)	mg/kg	AOAC 990.08
19	Cadmium (as Cd)	BDL(MDL 0.5)	mg/kg	AOAC 990.08
20	Chromium (as Cr)	26.32	mg/kg	AOAC 990.08
21	Nickel (as Ni)	44.9	mg/kg	AOAC 990.08
22	Lead (as Pb)	20.5	mg/kg	AOAC 990.08
23	Mercury (as Hg)	BDL(MDL 0.1)	mg/kg	AOAC 990.08
24	Arsenic (As)	6.9	mg/kg	AOAC 990.08
25	Selenium (as Se)	BDL(MDL 0.5)	mg/kg	AOAC 990.08

BDL:Below Detection Limit MDL:Method Deection Limit

25/11/2022

Authorized Signatory

Punjab Biotechnology Incubator Lab

15

Dated :

Sample Registration No. : **PBTI/FA0/021122/002454**

Sample code given by customer : **Sample No. 3, Sample of ginger crop Upstream of the unit (Edible Part)**

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	Magnesium (as Mg)	310	mg/kg	AOAC 2015.01 By ICPMS
2	Cyanide (as CN)	BDL(MDL1)	mg/kg	IS 3025 (Pt. 27) : 1986,
3	Nickel	0.10	mg/kg	AOAC 2015.01 By ICPMS
4	Zinc	3.96	mg/kg	AOAC 2015.01 By ICPMS
5	Manganese (as Mn)	18.31	mg/kg	AOAC 2015.01 By ICPMS
6	Iron (as Fe)	30.23	mg/kg	AOAC 2015.01 By ICPMS
7	Selenium (as Se)	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
8	Molybdenum (as Mo)	0.08	mg/kg	AOAC 2015.01 By ICPMS
9	Lead (as Pb)	0.03	mg/kg	AOAC 2015.01 By ICPMS
10	Arsenic	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
11	Mercury	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
12	Copper	0.52	mg/kg	AOAC 2015.01 By ICPMS
13	Chromium (as Cr)	0.09	mg/kg	AOAC 2015.01 By ICPMS
14	Cadmium	0.02	mg/kg	AOAC 2015.01 By ICPMS

BDL:Below Detection Limit MDL:Method Deection Limit

25/11/2022

Authorized Signatory

Punjab Biotechnology Incubator Lab

17

Dated :

Sample Registration No. : **PBTI/FA0/021122/002455**

Sample code given by customer : **Sample No. 4, Sample of ginger crop Downstream of the unit (Edible Part)**

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	Magnesium (as Mg)	647	mg/kg	AOAC 2015.01 By ICPMS
2	Cyanide (as CN)	BDL(MDL1)	mg/kg	IS 3025 (Pt. 27) : 1986,
3	Nickel	0.35	mg/kg	AOAC 2015.01 By ICPMS
4	Zinc	2.83	mg/kg	AOAC 2015.01 By ICPMS
5	Manganese (as Mn)	16.12	mg/kg	AOAC 2015.01 By ICPMS
6	Iron (as Fe)	92.6	mg/kg	AOAC 2015.01 By ICPMS
7	Selenium (as Se)	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
8	Molybdenum (as Mo)	0.06	mg/kg	AOAC 2015.01 By ICPMS
9	Lead (as Pb)	0.09	mg/kg	AOAC 2015.01 By ICPMS
10	Arsenic	0.02	mg/kg	AOAC 2015.01 By ICPMS
11	Mercury	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
12	Copper	0.60	mg/kg	AOAC 2015.01 By ICPMS
13	Chromium (as Cr)	0.34	mg/kg	AOAC 2015.01 By ICPMS
14	Cadmium	0.03	mg/kg	AOAC 2015.01 By ICPMS

BDL:Below Detection Limit MDL:Method Deection Limit

25/11/2022

Authorized Signatory

Punjab Biotechnology Incubator Lab

19

Dated :

Sample Registration No. : PBTI/FA0/021122/002456

Sample code given by customer : Sample No. 5, Sample of Taro Root/Arbi Crop Upstream of the unit (Edible Part)

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	Magnesium (as Mg)	264	mg/kg	AOAC 2015.01 By ICPMS
2	Cyanide (as CN)	BDL(MDL1)	mg/kg	IS 3025 (Pt. 27) : 1986,
3	Nickel	0.11	mg/kg	AOAC 2015.01 By ICPMS
4	Zinc	11.32	mg/kg	AOAC 2015.01 By ICPMS
5	Manganese (as Mn)	3.92	mg/kg	AOAC 2015.01 By ICPMS
6	Iron (as Fe)	36.9	mg/kg	AOAC 2015.01 By ICPMS
7	Selenium (as Se)	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
8	Molybdenum (as Mo)	0.18	mg/kg	AOAC 2015.01 By ICPMS
9	Lead (as Pb)	0.04	mg/kg	AOAC 2015.01 By ICPMS
10	Arsenic	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
11	Mercury	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
12	Copper	1.08	mg/kg	AOAC 2015.01 By ICPMS
13	Chromium (as Cr)	0.09	mg/kg	AOAC 2015.01 By ICPMS
14	Cadmium	0.05	mg/kg	AOAC 2015.01 By ICPMS

BDL:Below Detection Limit MDL:Method Deection Limit

25/11/2022

Authorized Signatory

Punjab Biotechnology Incubator Lab

21

Dated :

Sample Registration No. : **PBTI/FA0/021122/002457**

Sample code given by customer : **Sample No. 6, Sample of Taro Root/Arbi Crop Downstream of the unit (Edible Part)**

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	Magnesium (as Mg)	325	mg/kg	AOAC 2015.01 By ICPMS
2	Cyanide (as CN)	BDL(MDL1)	mg/kg	IS 3025 (Pt. 27) : 1986,
3	Nickel	0.15	mg/kg	AOAC 2015.01 By ICPMS
4	Zinc	9.64	mg/kg	AOAC 2015.01 By ICPMS
5	Manganese (as Mn)	3.87	mg/kg	AOAC 2015.01 By ICPMS
6	Iron (as Fe)	28.11	mg/kg	AOAC 2015.01 By ICPMS
7	Selenium (as Se)	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
8	Molybdenum (as Mo)	0.14	mg/kg	AOAC 2015.01 By ICPMS
9	Lead (as Pb)	0.02	mg/kg	AOAC 2015.01 By ICPMS
10	Arsenic	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
11	Mercury	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
12	Copper	2	mg/kg	AOAC 2015.01 By ICPMS
13	Chromium (as Cr)	0.07	mg/kg	AOAC 2015.01 By ICPMS
14	Cadmium	0.05	mg/kg	AOAC 2015.01 By ICPMS

BDL:Below Detection Limit MDL:Method Deection Limit

25/11/2022

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23

Dated :

Sample Registration No. : **PBTI/FA0/021122/002458**

Sample code given by customer : **Sample No. 7, Sample of ginger crop Upstream of the unit (Non-Edible Part i.e Leaves/Stem)**

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	Magnesium (as Mg)	201	mg/kg	AOAC 2015.01 By ICPMS
2	Cyanide (as CN)	BDL(MDL1)	mg/kg	IS 3025 (Pt. 27) : 1986,
3	Nickel	0.11	mg/kg	AOAC 2015.01 By ICPMS
4	Zinc	3.75	mg/kg	AOAC 2015.01 By ICPMS
5	Manganese (as Mn)	7.61	mg/kg	AOAC 2015.01 By ICPMS
6	Iron (as Fe)	18.98	mg/kg	AOAC 2015.01 By ICPMS
7	Selenium (as Se)	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
8	Molybdenum (as Mo)	0.106	mg/kg	AOAC 2015.01 By ICPMS
9	Lead (as Pb)	0.206	mg/kg	AOAC 2015.01 By ICPMS
10	Arsenic	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
11	Mercury	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
12	Copper	0.24	mg/kg	AOAC 2015.01 By ICPMS
13	Chromium (as Cr)	0.36	mg/kg	AOAC 2015.01 By ICPMS
14	Cadmium	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS

BDL:Below Detection Limit MDL:Method Deection Limit

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25

Dated :

Sample Registration No. : **PBTI/FA0/021122/002459**

Sample code given by customer : **Sample No. 8, Sample of ginger crop Downstream of the unit (Non-Edible Part i.e Leaves/Stem)**

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	Magnesium (as Mg)	775	mg/kg	AOAC 2015.01 By ICPMS
2	Cyanide (as CN)	BDL(MDL1)	mg/kg	IS 3025 (Pt. 27) : 1986,
3	Nickel	0.23	mg/kg	AOAC 2015.01 By ICPMS
4	Zinc	4.93	mg/kg	AOAC 2015.01 By ICPMS
5	Manganese (as Mn)	9.67	mg/kg	AOAC 2015.01 By ICPMS
6	Iron (as Fe)	41.6	mg/kg	AOAC 2015.01 By ICPMS
7	Selenium (as Se)	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
8	Molybdenum (as Mo)	0.15	mg/kg	AOAC 2015.01 By ICPMS
9	Lead (as Pb)	0.23	mg/kg	AOAC 2015.01 By ICPMS
10	Arsenic	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
11	Mercury	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
12	Copper	0.36	mg/kg	AOAC 2015.01 By ICPMS
13	Chromium (as Cr)	0.19	mg/kg	AOAC 2015.01 By ICPMS
14	Cadmium	0.01	mg/kg	AOAC 2015.01 By ICPMS

BDL:Below Detection Limit MDL:Method Deection Limit

25/11/2022

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27

Dated :

Sample Registration No. : **PBTI/FA0/021122/002460**

Sample code given by customer : **Sample No. 9, Sample of Taro Root/Arbi Crop Upstream of the unit (Non-Edible Part i.e Leaves/Stem)**

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	Magnesium (as Mg)	186	mg/kg	AOAC 2015.01 By ICPMS
2	Cyanide (as CN)	BDL(MDL1)	mg/kg	IS 3025 (Pt. 27) : 1986,
3	Nickel	0.12	mg/kg	AOAC 2015.01 By ICPMS
4	Zinc	3.97	mg/kg	AOAC 2015.01 By ICPMS
5	Manganese (as Mn)	3.89	mg/kg	AOAC 2015.01 By ICPMS
6	Iron (as Fe)	15.2	mg/kg	AOAC 2015.01 By ICPMS
7	Selenium (as Se)	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
8	Molybdenum (as Mo)	0.06	mg/kg	AOAC 2015.01 By ICPMS
9	Lead (as Pb)	0.05	mg/kg	AOAC 2015.01 By ICPMS
10	Arsenic	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
11	Mercury	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
12	Copper	0.72	mg/kg	AOAC 2015.01 By ICPMS
13	Chromium (as Cr)	0.23	mg/kg	AOAC 2015.01 By ICPMS
14	Cadmium	0.02	mg/kg	AOAC 2015.01 By ICPMS

BDL:Below Detection Limit MDL:Method Deection Limit

25/11/2022

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29

Dated :

Sample Registration No. : **PBTI/FA0/021122/002461**

Sample code given by customer : **Sample No. 10, Sample of Taro Root/Arbi Crop Downstream of the unit (Non-Edible Part i.e Leaves/Stem)**

Test Results

S.No.	Parameter	Results	Units	Standard / Specification / Method Followed
1	Magnesium (as Mg)	276	mg/kg	AOAC 2015.01 By ICPMS
2	Cyanide (as CN)	BDL(MDL1)	mg/kg	IS 3025 (Pt. 27) : 1986,
3	Nickel	0.42	mg/kg	AOAC 2015.01 By ICPMS
4	Zinc	4.57	mg/kg	AOAC 2015.01 By ICPMS
5	Manganese (as Mn)	9.70	mg/kg	AOAC 2015.01 By ICPMS
6	Iron (as Fe)	325	mg/kg	AOAC 2015.01 By ICPMS
7	Selenium (as Se)	0.02	mg/kg	AOAC 2015.01 By ICPMS
8	Molybdenum (as Mo)	0.06	mg/kg	AOAC 2015.01 By ICPMS
9	Lead (as Pb)	0.15	mg/kg	AOAC 2015.01 By ICPMS
10	Arsenic	0.10	mg/kg	AOAC 2015.01 By ICPMS
11	Mercury	BDL(MDL 0.01)	mg/kg	AOAC 2015.01 By ICPMS
12	Copper	0.80	mg/kg	AOAC 2015.01 By ICPMS
13	Chromium (as Cr)	0.27	mg/kg	AOAC 2015.01 By ICPMS
14	Cadmium	0.03	mg/kg	AOAC 2015.01 By ICPMS

BDL:Below Detection Limit MDL:Method Deection Limit

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