**BEFORE THE NATIONAL GREEN TRIBUNAL**
**PRINCIPAL BENCH, NEW DELHI**
**Original Application No. 785/2023**

**In the matter of:**

News item appearing in Tribune dated 15.12.2023 titled "Kasauli Distillery dumps effluent into water source, supply affected"

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| 13. | **Annexure-12** Copy of water balance of chart of the unit | 47 |

Dated:- 23-01-2025

**Respondent HPSPCB**
**Through Counsel**

**Vaibhav Srivatva**
Advocate K-6 LGF, Jungpura Extension
New Delhi 110014
Ph. 9599314169

**Action Taken Report on behalf of HPSPCB in compliance to order dated 23.10.2024 passed by Hon'ble NGT in O.A. No. 785/2023 titled as "News item titled "Kasauli Distillery dumps effluents into water sources supply affected" appearing in Tribune dated 15.12.2023".**

It is submitted that the Hon'ble NGT has registered the present case on the basis of news item titled *"Kasauli Distillery dumps effluents into water source supply affected" appearing in Tribune dated 15.12.2023"*wherein vide order dated 23-10-2024 passed the following directions qua the State Board:-

*".....5. Learned Counsel for Respondent No.5-PP seeks four weeks to file objections to the report of the Joint Committee. The Member Secretary, HP PCB also seeks four weeks to file action taken report. The Member Secretary is also directed to file water balance report concerning Respondent No. 5-PP....."*.

In compliance to the afore-cited directions, it is submitted that the State Board has constituted a committee of its Officers vide office order dated 23-10-2024 to verify the water balance, ETP functionality, Boiler Ash generation and Hazardous waste disposal records, irrigation management plan, recommendations made by the Joint Committee and other relevant aspects. Copy of Office order dated 23-10-2024 is annexed as **Annexure-I.**

That as per report received from the Board's Committee and Regional Office, Parwanoo the action taken report of the HPSPCB in this matter is as under:-

**1. Compliance status Report of recommendation made by Joint Committee**

| Sr. No. | Recommendations | Action Taken/Compliance Status |
|---|---|---|
| 1 | The Unit does not have the permission for the abstraction of water emerging from the two natural springs located within the Unit premises. The Unit should take necessary permissions from the competent authority for use of natural spring water. | It is submitted that with regard to the permission for use of natural spring water, the Member Secretary, HPGWA cum Superintending Engineer, (P&I-II), Jal Shakti Vibhag Shimla has issued a letter 21-11-2024 to the unit, which states that natural spring is not required to be registered with HP Ground Water Authority. |

| | | |
|---|---|---|
| | | The copy of letter dated 21-11-2024 of HPGWA is enclosed herewith as **Annexure-2**. |
| 2 | The Unit has provided CCTV camera focusing on drain adjacent to the ETP. The Unit should relocate the CCTV cameras with PTZ facility at an appropriate place such as final outlet point of ETP [i.e. RO permeate final tank facing gas holder tank also (refer Pic no.2)] and at Drain downstream of the ETP (showing the downstream of natural drain not the adjacent ETP drain) and provide screen with live feed of CCTV in public domain near Unit's entrance. Further, the Unit should also connect the same to HPSPCB and CPCB server. | The unit has installed 02 number of CCTV cameras with PTZ facility at locations i.e. (i) near RO permeate final tank facing gas holder tank, (ii) Drain downstream of the ETP (showing the downstream of natural drain).<br><br>The unit has installed the screen with live feed of CCTV in public domain near Unit's entrance. The photographs are enclosed herewith as **Annexure 3**. |
| **3** | The Unit should provide biogas flaring mechanism at Biogas holding tank for safe disposal of surplus methane gas during shutdowns. | Unit has installed the biogas flaring mechanism for safe disposal of surplus methane gas.<br><br>The photographs are enclosed herewith as **Annexure 4.** |
| **4** | The Unit should prepare irrigation management plan (IMP) as per the CPCB guidelines titled "Guideline for Utilization of treated effluent in irrigation" and submit the same to SPCB which shall verify and incorporate the recommendations of the Irrigation Management Plan as conditions of Consent to Operate granted to the Unit. | The unit has submitted the irrigation and management plan prepared by Dr. Y.S. Parmar University of Horticulture & Forestry, Nauni, District Solan, Himachal Pradesh and same is enclosed as **Annexure 5**. |
| **5** | The Unit should install electromagnetic flow meter at the raw-spent wash line within the process and maintain the logbook of the same and provide its connectivity to CPCB & HPSPCB server. | Unit has installed electromagnetic flow meters at the raw-spent wash line. The photographs are enclosed herewith as **Annexure 6**.<br><br>The electromagnetic flow meter has been connected with CPCB server and connectivity with HPSPCB server is |

<table>
<tr><td></td><td></td><td>under process. The unit has obtained the permission from CPCB for connectivity through email and same is enclosed herewith as Annexure 7.</td></tr>
<tr><td>6</td><td>The Unit should provide a color coding with proper demarcation of pipeline carrying spent-wash & other streams i.e. spent lees, equipment washing, floor washing, boiler blow down, process steam condensate etc.</td><td>The unit has done color coding with proper demarcation of pipeline carrying spent-wash & other streams i.e. spent lees, equipment washing, floor washing, boiler blow down, process steam condensate etc.<br><br>The color coding is as below:
<table>
<tr><th>Sr. No.</th><th>Color</th><th>Pipeline</th></tr>
<tr><td>1</td><td>Sky Blue</td><td>Water</td></tr>
<tr><td>2</td><td>Green</td><td>R.O. Permeate</td></tr>
<tr><td>3</td><td>Grey</td><td>Effluent</td></tr>
<tr><td>4</td><td>Brown</td><td>Sludge</td></tr>
<tr><td>5</td><td>White</td><td>Steam & compressed air</td></tr>
<tr><td>6</td><td>Red</td><td>R.O. Reject</td></tr>
<tr><td>7</td><td>Yellow</td><td>Methane gas</td></tr>
<tr><td>8</td><td>Blue</td><td>C.I.P</td></tr>
</table>
<br>The photographs are enclosed herewith as Annexure 8.</td></tr>
<tr><td>7</td><td>The Unit should directly transport the process steam condensate (18-20 KLD) from the distillation process to boiler section and not to the ETP unless the Unit has any sound justification in this regard as it (steam condensate) could be misused at ETP for dilution purpose. No proper demarcation & colour coding of pipelines was found at ETP which may be properly done.</td><td>Complied.<br><br>The unit has removed the pipeline carrying steam condensate to the ETP area.</td></tr>
<tr><td>8</td><td>The unit should maintain optimum level of MLSS and MLVSS at Aeration tank (Phase-I) and MBR Aeration Tank (phase-2).</td><td>Unit has maintained optimum level of MLSS and MLVSS in Aeration Tank & MBR Aeration Tank.</td></tr>
<tr><td>9</td><td>The Unit shall install an environmental data display board at</td><td>Complied.</td></tr>
</table>

| | | |
|---|---|---|
| | the entrance of main gate instead of effluent treatment plant (ETP) and the data be updated regularly by the Unit. | The unit has relocated the position of Environmental Data Display board from the ETP plant to the Main Gate of the unit.<br><br>The photographs are enclosed herewith as **Annexure 9.** |
| **10** | The Unit should maintain proper logbook records of :<br><br>(i) Raw spent-wash generation and inlet effluent of ETP prior to treatment.<br><br>(ii) Quantity of coal ash generated and disposal from the unit.<br><br>(iii) ETP sludge generation, fermenter sludge generation and use/disposal. | The point wise observations is as below:<br><br>i. Complied as stated at Sr. No. 5.<br><br>ii. The quantity of ash generated in FY 2023-24 was 686 MT and was disposed through Sh. Sachin Prajapat, S/o Sh. Matadin Prajapat Kumar Pada, Purana Shahar, Dhaulpur, Dholpur, Rajsthan, 328001.<br><br>iii. Unit has installed 02 No. of screw press for extraction/concentrations of ETP Sludge. The ETP sludge is disposed to of ETP sludge is being generated from effluent Treatment plant. The unit has disposed of ETP sludge 26560 kg in FY 2023-24 and 13825 kg in FY 2024-25 (till Sept. 2024). |
| **11** | The Unit should dispose of the sludge stored in the drying beds in a scientific manner with proper logbook record w.r.t generation and its disposal. | Complied.<br><br>The photographs are enclosed herewith as **Annexure 10.** |
| **12** | The Jal Shakti Vibhag should review their treatment system at water supply scheme Larah and provide tertiary treatment system and dis-infection system at WSS Larah in order to ensure proper treatment with disinfection of water before distributing to the Gram Panchayat. | Matter pertains to JSV w.r.t. upgradation of WSS Scheme.<br><br>HPSPCB has apprised the Jal Shakti Vibhag regarding the recommendation of joint committee for providing tertiary treatment system and dis-infection system at WSS Larah and directed to submit the action taken report within time frame. |
| **13** | A Sewage Treatment Plant (STP) be installed in Kasauli area to | Though this issue pertains to JSV w.r.t. installation of STP in Kasauli area. |

| | | |
|---|---|---|
| | prevent discharge of untreated domestic/sewage waste into the drains leading to the Water Supply Scheme of Jal Shakti Vibhag which is used to supply drinking water supply to nearby village Panchayats. | However, HPSPCB has apprised the Jal Shakti Vibhag regarding the recommendation of joint committee for providing tertiary treatment system and dis-infection system at WSS Larah and directed to submit the action taken report within time frame.<br><br>In response the JSV has submitted a letter dated 31-12-2024 (copy enclosed as **Annexure -11**) stating that the preparation of estimate for upgradation of WSS scheme is in process w.r.t. the parameter of the source as per CPHEEO guidelines and shall be posed within period of 60 days. |

**2. Water Balance.**

**2.1 Waste Water Generation:** The effluent is being generated in 06 types of streams from manufacturing process area and other utility sections i.e. (i) Spent Wash, (ii) Spent Lees, (iii) Equipment washing & floor cleaning (iv) fermenter washing, (v) Effluent from truck loading area or Leaching collection pit and (vi) Boiler blowdown. The average effluent generation is around 83.5 KL per day. The detail is tabulated as below:

| Sr. No. | Name of Effluent stream | Average effluent generation |
|---|---|---|
| 1 | Spent Wash | 36 KLD |
| 2 | Spent Lees | 9 KLD |
| 3 | Equipment washing & floor cleaning | 21 KLD |
| 4 | Fermenter washing | 9 KLD |
| 5 | Effluent from truck loading area or Leaching collection pit | 0.5 KLD |
| 6 | Boiler Blowdown | 8 KLD |
| | **Total** | **83.5 KLD** |

**2.2 Water Balance:** The daily fresh water intake is around 82.5 KLD out of which 48.5 KLD is used in Brewing process, 30 KLD is used in Floor & Equipment washing or CIP and 4 KLD is used in domestic purposes. The daily waste water generation from the process/manufacturing area is 75 KLD and from the Boiler section (Boiler Blow) is 8 KLD making total effluent generation 83 KLD (75 + 8 = 83 KLD) which is being collected into collection tank of ETP plant for treatment. The effluent approx. 0.5KLD from dedicated truck loading area is being also collected into ETP collection tank. Unit has installed dual RO system as tertiary treatment. Approx. 62 KLD of RO

permeate is being generated from RO Systems, out of which 50 KLD water is being reused in boiler as boiler makeup water and 12 KLD is being used for irrigation and gardening purposes. The unit has approx. 35 bighas green area available for irrigation and gardening purposes. Appox.13 KL of RO Reject is generated which is sent to Agitated Thin Film Dryer (ATFD) unit for further disposal. The dried solids/salt recovered from ATFD is disposed through M/s Shivalik Solid Waste Management Ltd. Village Dabhota, Tehsil Nalagarh, Distt. Solan, H.P. The water balance of unit is attached as **Annexure-12.**

**3.0 Conclusion:**

It is submitted that the unit has complied with the recommendations made by the Joint Committee in its report w.r.t. point No. 2 to 11. As regard to the point No.1 the HP Ground Water Authority, Jal Shakti Vibhag Shimla has issued a letter dated 21-11-2024 to the unit, to the effect that natural spring is not required to be registered with HP Ground Water Authority. Further, as per information from the Jal Shakti Vibhag, Govt of HP the up-gradation of Water Supply Scheme (which is operational since 1990-91 i.e. for more than 30 years) is in process. Therefore, it is humbly requested that the above-mentioned action taken report may kindly be taken on record please.

Dated :23/01/2025

**Member Secretary**
**HPSPCB Shimla**

ANNEXURE -1

**Urgent Time Bound**

# HP STATE POLLUTION CONTROL BOARD,

**Below BCS, Phase-III, New Shimla**

No. PCB-OA No. 785/2023- 12530-38 Dated:-23/10/24

**Office Order**

Pursuant to the directions passed by the Hon'ble NGT in OA No. 785/2023 today on 23rd of Oct. 2024, the committee of following officers of the State Board is hereby constituted to verify the water balance, ETP functionality, Boiler Ash generation and Hazardous waste disposal records, irrigation management plan, recommendations made by the Joint Committee constituted by the Hon'ble NGT and other relevant records pertaining to the M/s Kasauli distillery, vill Panwa, Tehsil Kasauli Distt Solan HP :-

1. Sh. Hitender Sharma, SSO Paonta Sahib.
2. Sh. Lalit Thakur Env, Engineer, Regional Office Shimla.
3. Sh. Anil Kumar, Assistant Environmental Engineer, HPSPCB Parwanoo (coordinator of the committee).
4. Sh. Pawan Chauhan, Assistant Environmental Engineer, Regional Office Baddi.

The aforesaid Committee will meet within one week and submit the report within two weeks positively.

**(Anil Joshi, IFS)**
**Member Secretary,**
**HPPCB-Shimla**

O/C

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ANNEXURE - 2

No.JSV-Member Secy HPGWA-cum-SE P&I-II/2024-25: 3094 Dated 21/11/2024

**Government of Himachal Pradesh**
**Jal Shakti Vibhag**
Dated the Shimla-5 21.11.2024

To

M/s Mohan Meakin Limited,
Kasauli Distillery, Kasauli, Solan (HP)-173204

**Subject:- Registration of private natural Springs for use of water**

Please refer to your letter Ref. No.GSR /SSS/ 710 /24 dated 18.11.2024 vide which it is requested for registration of private natural springs for use of water.

The Himachal Pradesh Ground Water Authority deals with the grant of permit for sinking of borewells/tubewells/energized handpumps and registration of existing borewells/tubewells/energized handpumps under Himachal Pradesh Ground Water (Regulation and Control of Development and Management) Amendment Act, 2022. As per Section 2 (p) of HP Ground Water Amendment Act, 2022, *"well" means a structure sunk for the search or extraction of groundwater by any person, except by the authorized officials of the State of Central government, for carrying out scientific investigations, exploration, development, augmentation, conservation, protection or management of groundwater and shall include open well, dug well, bore well, dug-cum-bore well, tubewell, filter point, collector well, infiltration gallery, recharge well, disposal well, or any of their combinations or variations, except any manually operated device for extraction of ground water.*

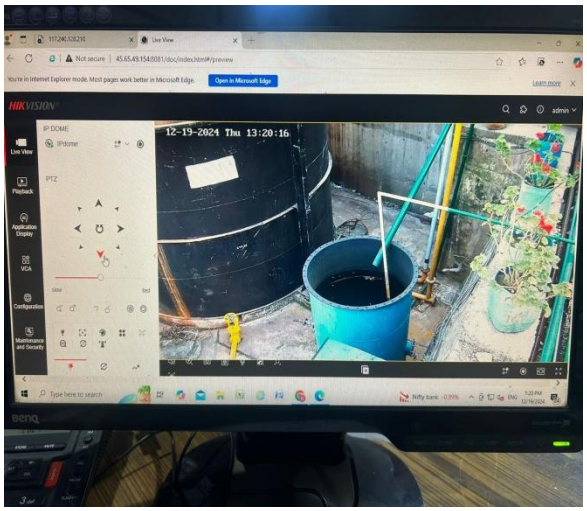
Therefore, in view of above, natural spring is not required to be registered with HP Ground Water Authority.

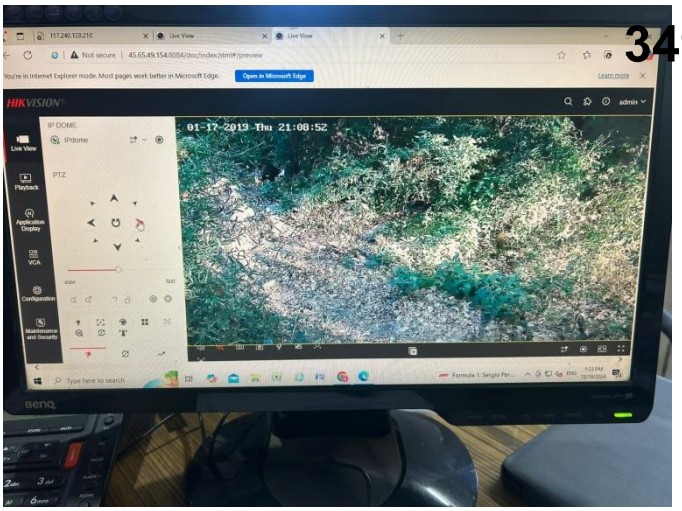
MOHAN MEAKIN LIMITED KASAULI DISTILLERY KASAULI

**Member Secretary HPGWA-cum-**
**Superintending Engineer (P&I-II),**
**Jal Shakti Vibhag,**
**Jal Shakti Bhawan, Shimla-5**

CCTV cameras at drain downstream of the ETP (showing the downstream of natural drain)


CCTV cameras near RO permeate final tank facing gas holder tank




CCTV Live Footage of both cameras



Screen in public domain near Unit's entrance.


**Biogas flaring mechanism**

# Irrigation Management Plan for Effluent Treatment Plant

to

## M/s Mohan Meakin Limited
## Village Panwa, Tehsil Kasauli, District Solan, Himachal Pradesh

Prepared

by

**Department of Soil Science & Water Management**
**Dr Y S Parmar University of Horticulture & Forestry**
**Nauni - Solan (Himachal Pradesh) -173 230**

**December 2024**

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## 1.0 Introduction

M/s Mohan Meakin Limited, Kasauli Distillery, "THE FIRST INDIAN BREWERY" is one of the oldest and leading manufacturers of Indian Made Foreign Liquor in India. It was established in 1855 AD and is located at an altitude of approximately 5600 ft. msl with cold climate in Village Panwa, Tehsil Kasauli, District Solan, Himachal Pradesh. The factory is surrounded by orchards and tree plantation. The temperature during the year varies between 1°C and 32°C.

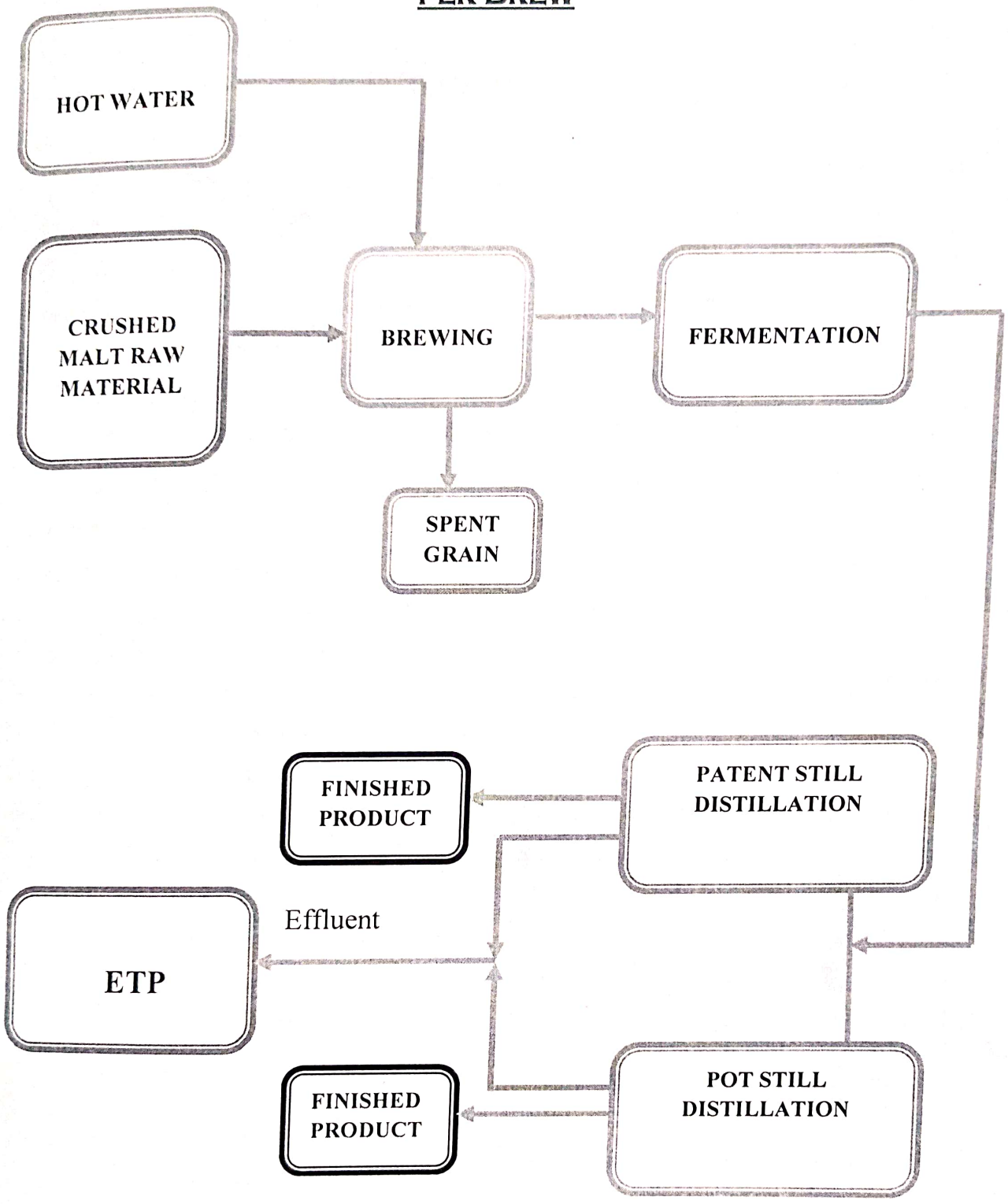
The distillery produces Indian made foreign liquor i.e. spirits of a high quality. The unique features of the Distillery is that it uses Barley Malt, as a raw material of Distillery grade, Natural Spring Water rich in minerals for process. The finished product gives its own typical taste and bouquet.

The installed spirits production capacity of M/s Mohan Meakin Limited, Kasauli Distillery is 1500 Bulk Kilo Liters annually and has a capacity to produce upto 5000 liters of alcohol (95 % alcohol content) per day.

The manufacturing of malt spirit process consists of coarse grinding of barley malt in four rollered malt crushing mill. The coarse grinded malt mixed with enzymes and low gravity hot water is then put into the mashtun for malt mashing process. After completion of mashing process, the filtered wort is then sent for fermentation process. The fermentation process is carried out under controlled temperature and sharp supervision of expert's team. After completion of fermentation process, the wort is then converted into the fermented wash. The fermented wash is then sent for batch distillation process. The batch distillation process is carried out into 99.99% copper pot stills. After completion of batch distillation process, the finished malt spirit is collected into the malt spirit receivers which is further transferred to spirit store room and spirit maturation rooms. The Kasauli distillery consisting fourteen maturation rooms where imported American white oak wood barrels filled with malt spirit are stored.

The solid waste in the form of spent grain is sold to the party outside State for cattle feeding. The effluent and floor & equipment washings are being sent to effluent treatment plant (ETP) for the treatment.

## FLOW DIAGRAM SHOWING MALT MANUFACTURING PROCESS PER BREW



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## 2.0 Effluent Treatment Plant (ETP)

The unit has its own effluent treatment plant (ETP) having 150 KL per day treatment capacity which was installed and commissioned by M/s Wal Chandnagar Industries Ltd., Pune incorporating UASB technology first time in India during year 1989. The effluent treatment plant upgraded and modified time to time with latest modern technologies.

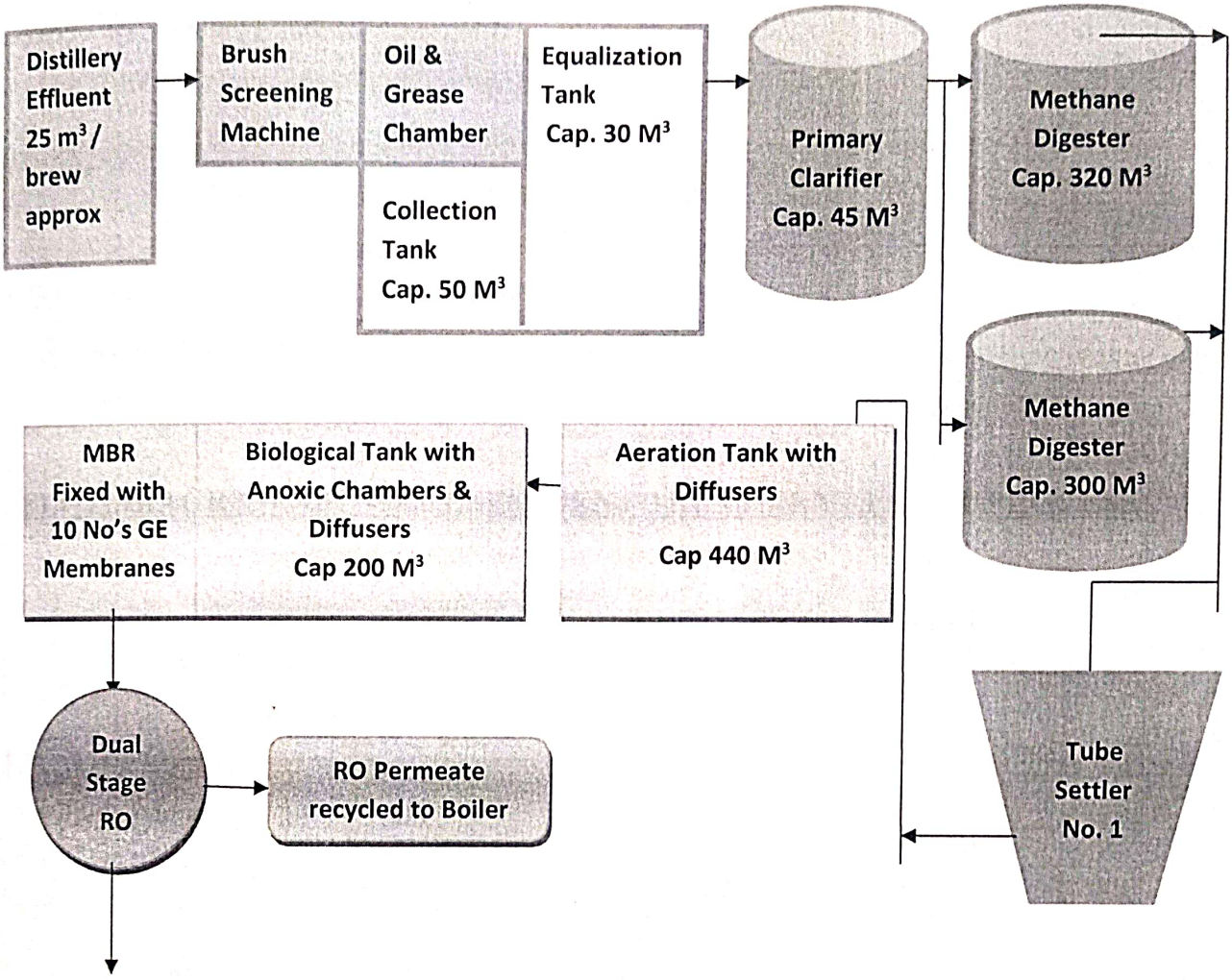
Recently the unit has upgraded its ETP with fully automatic MBR technology, High recovery double stage RO Membrane unit followed by high capacity Activated Carbon Filter and UV unit to produce perfect quality of sterilized treated water for recycling in process, high capacity liquid concentrator unit for evaporation and crystallization of RO reject water to ensure Zero Liquid Discharge.

In first stage, the effluent is being treated primarily with pH correction and then sent for anaerobical treatment. After anaerobic phase, it is being treated aerobically. And, finally it is being passed with MBR and Dual Stage RO. The RO permeate is recycled and is being used as a feed water in Boiler. The methane gas generated during anaerobic phase is being used as an additional fuel in Boiler which results in saving coal. All types of ETP waste is being sent to authorized recycler M/s Shivalik Solid Waste Management Pvt. Ltd., Village Nalagarh, District Solan, Himachal Pradesh.

The unit has installed Real Time Effluent Quality Monitoring System at the final outlet of ETP. The system is being transferred monitoring data to Central Pollution Control Board and HP State Pollution Control Board regularly.

The HP State Pollution Control Board is regularly monitoring the efficiency of Effluent Treatment Plant and analyzed the parameters of final outlet on regular basis.

# FLOW DIAGRAM SHOWING EFFLUENT TREATMENT PLANT PROCESS




RO Reject dried in ATFD Unit

ATFD Unit → Dried Salt Sent To M/s Shivalik Solid Waste Management Ltd. For disposal.

Sludges from Primary, Anaerobic & Aerobic Phase is treated in TSS Separation Units → Sludge Cake sent to M/s Shivalik Solid Waste Management Ltd. for disposal

Methane Gas Generated in Methane Digesters are used at boiler as a fuel

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## 3.0 Preparation of Irrigation Management Plan

The standard guidelines for utilization of treated effluent in irrigation are prescribed by the Central Pollution Control Board, Ministry of Environment, Forest & Climate Change, Govt. of India. Based on these guidelines, The present irrigation management plant for utilization of available irrigation water at M/s Mohan Meakin Limited, Kasauli is prepared and proposed by adopting following methodology.

## 3.1 Visit of university scientists to the site

A team of scientists comprising scientists from discipline of fruit science, vegetable science and irrigation engineering from Dr Y S Parmar University of Horticulture & Forestry, Nauni – Solan were visited the site for obtaining first-hand information at site initially, gathered information of available water for irrigation, agro climatic zone, studied soil and water sample analysis reports, estimated crop water requirement keeping in view crop, climate, irrigation type, soil condition, soil permeability and afterwards visited for identifying different blocks for suggesting plantation of appropriate fruit and vegetables.

## 3.2 Agro- ecological zone

The proposed area for plantation falls under agro ecological zone 3.1 - Wet temperate high hills, which is appropriate for temperate fruit and vegetable crops as shown in Fig. 1.

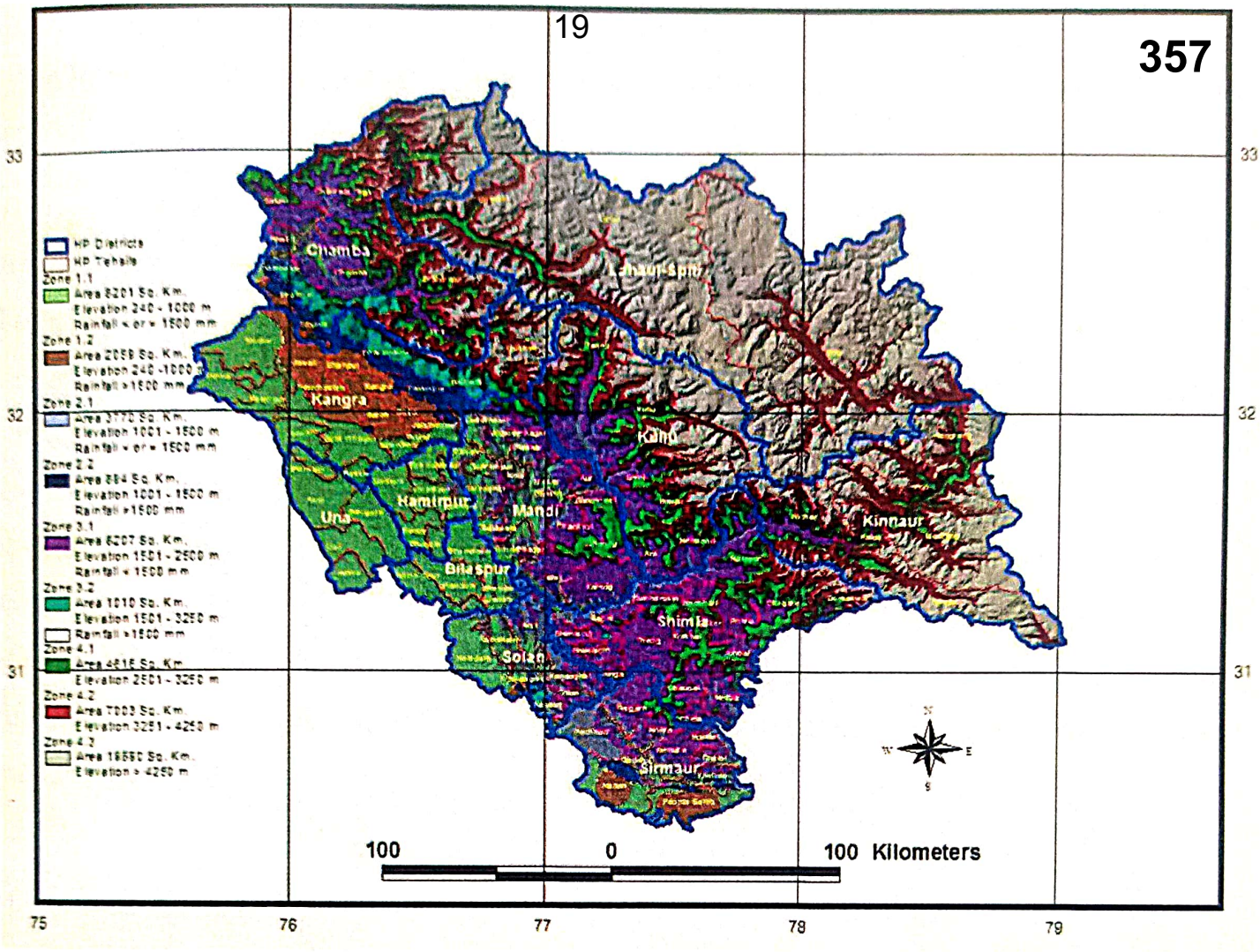


**Fig. 1 Agro ecological zones of Himachal Pradesh**

### 3.3 Water quality

The detailed report on analysis of water samples taken at RO Permeate, water samples taken from RO Permeate storage tank and water samples taken from irrigation water storage tank is annexed in Annexure – I.

As per guidelines by Central Control Board of Pollution, the treated effluent should meet the norms prescribed for irrigation under Environment (Protection) Rules, 1986/Consent. The effluent should also conform to Total Dissolved Solid (TDS)- 2100 mg $l^{-1}$ and Sodium Adsorption Ratio (SAR)- preferably less than 18 but not more than 26, depending on soil/crop type. Therefore, the water is suitable for the irrigation purpose, if pH between 6.0 to 8.5, Electrical conductivity (EC) at 25 $^{O}$C is < 2250 µmhos $cm^{-1}$, TDS < 2100 mg $l^{-1}$, Sodium absorption ratio (SAR) is < 26 and boron concentration is < 2 mg $l^{-1}$. The pH of water samples varied from 6.66 to 7.05, EC varies from 1553 µmhos $cm^{-1}$ to 1658 µmhos $cm^{-1}$, total dissolved of solids (TDS) varies from 928 to 940 mg $l^{-1}$ and SAR varies from 10.4 to 10.9 Based on these guidelines, it may be concluded that the treated water is suitable for irrigation for perennial fruit and seasonal vegetables.

### 3.4 Soil analysis

Three representative soil samples from the site were collected with samples numbers namely 246, 247 and 248 and these soil samples were analyzed at NABL accredited Advanced Soil and Leaf Analysis Laboratory at Department of Soil Science and Water Management, Dr. Y S Parmar University of Horticulture and Forestry, Nauni, -Solan, Himachal Pradesh. The detailed soil analysis report is annexed in Annexture - II

The soil pH varied from 6.34 to 5.81 and the optimal range of pH is 6.5 to 7.3, which is slightly acidic. The soil electrical conductivity (EC) varied from 0.151 $dSm^{-1}$ to 0.331 $dSm^{-1}$ and the optimal range of EC is <2.00 $dSm^{-1}$, hence the results lie in the optimum range. The Organic Carbon (OC) varied from 2.55% to 3.58%, which shows the very high content of the organic carbon present in the soil which is favorable for the fruit and vegetable plantation in the study area. The Nitrogen (N) varied from 370 kg $ha^{-1}$ to 483 kg $ha^{-1}$ which lies in the moderate range. The Phosphorus (P) varied from 88.9 kg $ha^{-1}$ to 206 kg $ha^{-1}$, which lies in very high range. The Potassium (K) varied from 203 kg $ha^{-1}$ to 375 kg $ha^{-1}$, which lies in medium to higher range. The Zinc (Zn) varied from 6.40 ppm to 8.04 ppm, which indicates in higher range. The Copper (Cu) varied from 2.00 ppm to 14.5 ppm, which lies in very high range. The Iron (Fe) varied from 70.9 ppm to 77.8 ppm, which lies in very high range. The Manganese (Mn) varied from 27.1 ppm to 27.9 ppm, which shows very high availability of Mn in the soil. The Calcium (Ca) varied from 6.47 [cmol(p+) $kg^{-1}$] to 12.6 [cmol(p+) $kg^{-1}$], which lies in high to very high range. The

Magnesium (Mg) varied from 1.65 [cmol(p+) $kg^{-1}$] to 3.06 [cmol(p+) $kg^{-1}$], which lies in medium to higher range. The Sulphur (S) ranged from 2.44 ppm to 4.95 ppm, which is in very low range and the Boron (B) varied from 0.62 ppm to 1.34, which is in medium to high range. Therefore, overall, it can be concluded and recommended that the soil is very much suitable for appropriate plantation of perennial fruit and seasonal vegetables for cultivation in the area.

### 3.5 Irrigation water

As per information gathered at the site, the plant is generating 60, 000 litres water daily, out of which about 35,000 litres of water is utilized in boilers and 15,000 litres of water is utilized floor washing and consumed other losses. About 10,000 liters (10 cubic meter) water is available daily for irrigation purpose to irrigate proposed perennial fruit crops, seasonal vegetable crops and green lawn areas. Total operational days of effluent treatment plant are about 300 days and the total annual water available for irrigation is about 3000 $m^3$. The proposed perennial fruit and seasonal vegetable crops and green lawn area for utilizing treated water for irrigation purpose are shown in Table 1 and the total month wise cubic meter water used for irrigation purpose in different blocks and crops are depicted in Table 2. For irrigation water storage, total three no. of RCC water storage tanks of 50,000 litres each are proposed to be constructed for irrigation purpose and to meet out monthly requirements of irrigation. The individual blocks and proposed location of irrigation water storage tanks are shown in Fig 2. The four to five cm surface irrigation through pipes from irrigation water storage tanks are proposed to irrigate perennial fruit and vegetable crops at an interval of 10-15 days and in lawn areas at an interval of 7-10 days depending on the occurrence of rainfall amount in the area. In future, if availability of irrigation water from the ETP is increased then additional blocks of perennial fruit and seasonal vegetables crops may be developed I the area to utilize additional available irrigation water.

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**Table 1: Proposed perennial fruit and seasonal vegetable crops and green lawn area for utilizing treated water for irrigation purpose**

| S. No. | Particulars/ Blocks | Area ($m^2$) | Proposed Crop | Variety/Species | Spacing (m×m) | No. of Plants |
|---|---|---|---|---|---|---|
| 1 | Lawn Area | 336 | Lawn grass | - | - | - |
| 2 | Lawn Area Near Jamun Residence | 656 | Lawn grass | - | - | - |
| 3 | Above Mohan Ground | 36 | Plum | Santa Rosa | 4 m ×4 m | 6 |
| 4 | Block 1 (Above power house) | 300 | Morus ambla (Shatoot) | Morus alba | 4 m ×4 m | 30 |
| 5 | Block 2 | 220 | Apple (Intercropping seasonal vegetable Crops) | Dark Baron Gala/Venus Gala | 2.5 m ×2.5 m | 30 |
| 6 | Block 3 (Plum Block) Contour Slope | 660 | Plum Fruit Crop (Intercropping seasonal vegetable crops) | Santa Rosa/Red Beaut | 3.5 m ×3.5 m | 100 |
| 7 | Block 4 (Pear Block) Above road | 120 | Pear (Intercropping Seasonal Vegetable Crops) | Carmen | 3.5 m ×3.5 m | 20 |
| 8 | Block 5 | 54 | Apple | Dark Baron Gala | 2.5 m ×2.5 m | 12 |
| 9 | Block 6 | 90 | Pomegranate | Bhagwa | 3 m ×3 m | 10 |
| 10 | Block 7 | 100 | Persimmon (Intercropping seasonal vegetable crops) | Fuyu | 3 m ×3 m | 12 |
| 11 | Block 8 (Existing Pear) | 200 | Pear (Intercropping seasonal vegetable Crops) | Red Bartlett | 4.5 m ×4.5 m | 10 |
| 12 | Block 9 | 120 | Walnut (Intercropping seasonal vegetable crops) | Pratap | 4 m ×4 m | 10 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (Above 6 TPH Boiler) | | | | | |
| 13 | Block 10 (Apple block above Jamun) | 2000 | Apple (Intercropping seasonal vegetable crops) | Jeromine /Dark Baron Gala/Venus Gala | 2.5 m ×2.5 m | 170 |
| 14 | Block 11 (Above QTR 13) | 240 | MTP | | 3 m ×3 m | 30 |
| | **Total** | **5132** | | | | **440** |

**Table 2: Total month wise cubic meter water used for irrigation purpose**

| S. No. | Proposed Crop | Jan | Feb | March | April | May | June | July | Aug | Sept | Oct | Nov. | Dec. | Total Irrigation water used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Lawn grass | 13.44 | 13.44 | 26.88 | 26.88 | 26.88 | 6.72 | 6.72 | 6.72 | 6.72 | 20.16 | 20.16 | 13.44 | 188.16 |
| 2 | Lawn grass | 26.24 | 26.24 | 52.48 | 52.48 | 52.48 | 13.12 | 13.12 | 13.12 | 13.12 | 39.36 | 39.36 | 26.24 | 367.36 |
| 3 | Plum | 1.44 | 1.44 | 2.88 | 2.88 | 2.88 | 0.72 | 0.72 | 0.72 | 0.72 | 2.16 | 2.16 | 1.44 | 20.16 |
| 4 | Morus ambla (Shatoot) | 12.00 | 12.00 | 24.00 | 24.00 | 24.00 | 6.00 | 6.00 | 6.00 | 6.00 | 18.00 | 18.00 | 12.00 | 168.00 |
| 5 | Apple (Intercropping seasonal vegetable Crops) | 8.80 | 8.80 | 17.60 | 17.60 | 17.60 | 4.40 | 4.40 | 4.40 | 4.40 | 13.20 | 13.20 | 8.80 | 123.20 |
| 6 | Plum Fruit Crop (Intercropping seasonal vegetable crops) | 26.40 | 26.40 | 52.80 | 52.80 | 52.80 | 13.20 | 13.20 | 13.20 | 13.20 | 39.60 | 39.60 | 26.40 | 369.60 |
| 7 | Pear (Intercropping Seasonal | 4.80 | 4.80 | 9.60 | 9.60 | 9.60 | 2.40 | 2.40 | 2.40 | 2.40 | 7.20 | 7.20 | 4.80 | 67.20 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Vegetable Crops) | | | | | | | | | | | | | |
| 8 | Apple | 2.16 | 2.16 | 4.32 | 4.32 | 4.32 | 1.08 | 1.08 | 1.08 | 1.08 | 3.24 | 3.24 | 2.16 | 30.24 |
| 9 | Pomegranate | 3.60 | 3.60 | 7.20 | 7.20 | 7.20 | 1.80 | 1.80 | 1.80 | 1.80 | 5.40 | 5.40 | 3.60 | 50.40 |
| 10 | Persimmon (Intercropping seasonal vegetable crops) | 4.00 | 4.00 | 8.00 | 8.00 | 8.00 | 2.00 | 2.00 | 2.00 | 2.00 | 6.00 | 6.00 | 4.00 | 56.00 |
| 11 | Pear (Intercropping seasonal vegetable Crops) | 8.00 | 8.00 | 16.00 | 16.00 | 16.00 | 4.00 | 4.00 | 4.00 | 4.00 | 12.00 | 12.00 | 8.00 | 112.00 |
| 12 | Walnut (Intercropping seasonal vegetable crops) | 4.80 | 4.80 | 9.60 | 9.60 | 9.60 | 2.40 | 2.40 | 2.40 | 2.40 | 7.20 | 7.20 | 4.80 | 67.20 |
| 13 | Apple (Intercropping seasonal vegetable crops) | 80.00 | 80.00 | 160.00 | 160.00 | 160.00 | 40.00 | 40.00 | 40.00 | 40.00 | 120.00 | 120.00 | 80.00 | 1120.00 |
| 14 | MTP | 9.60 | 9.60 | 19.20 | 19.20 | 19.20 | 4.80 | 4.80 | 4.80 | 4.80 | 14.40 | 14.40 | 9.60 | 134.40 |
| | **Total** | **205.28** | **205.28** | **410.56** | **410.56** | **410.56** | **102.64** | **102.64** | **102.64** | **102.64** | **307.92** | **307.92** | **205.28** | **2873.92** |

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The present Irrigation Management Plan (IMP) for Effluent Treatment Plant (ETP) at M/s Mohan Meakin Limited, Kasauli has been prepared by the Department of Soil Science & Water Management, Dr. Y S Parmar University of Horticulture & Forestry, Nauni – Solan (Himachal Pradesh) and submitted for the execution by the firm.

23/12/2024

**Dr. Ghanshyam Agrawal**
**Associate Professor (Agricultural Engineering)**
Department of Soil Science & Water Management
Dr Y S Parmar University of Horticulture & Forestry
Nauni-Solan (Himachal Pradesh) – 173230

23/12/2024

**Professor & Head**

Department of Soil Science & Water Management
Dr Y S Parmar University of Horticulture & Forestry
Nauni-Solan (Himachal Pradesh) - 173230

23/12/2024

**Director of Research**
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Director of Research
Dr YS Parmar University of
Horticulture & Forestry
Nauni, Solan-173230

## Annexure -I

## Water sample analysis report

# Interstellar Testing Centre PVT. LTD.

ITC Labs

TC-5926

ORIGINAL
Page 1 of 2

**Test Report**

**Report No.** : ICE-2404301079 (1)

**ULR No.** : TC592624000007448F

To :
Meakin Ltd.
Distillery, Kasauli, Distt. Solan
173204
al Pradesh, India

| | | | |
|---|---|---|---|
| Registration No. | : E01-2404230926 | Received On | : 23-04-2024 |
| Name | : Water Sample (RO Permeate) | Commenced On | : 23-04-2024 |
| Condition | : Good | Completed On | : 30-04-2024 |
| Details (if any) | | Date of Report | : 30-04-2024 |
| Quantity | : 5 Ltr | | |
| ng Mode | : Packed in can | Grade | : NA |
| o./QR Code | : NA | Date of Expiry | : NA |
| Manufacture | : NA | | |
| Submission Type | : Submitted | | |
| r Reference | : GSR/GS/46/Analysis/19-04-2024 | | |
| er Information | : NA | | |
| ort as per | : NA | | |

tion: Water Sample (RO Permeate)

| Parameter | Measuring Unit | Instrument | Method | Result | Specification |
|---|---|---|---|---|---|
| **iscipline : Chemical** | | | | | |
| **roup : Pollution & Environment** | | | | | |
| **eneral Parameters** | | | | | |
| itrate (as N) | mg/l | UV-Spectrophotometer | IS 3025 (Part 34): 2019 | BLQ(LOQ:1.0) | - |
| H Value | NA | pH Meter | IS: 3025 (Part-11): 2022 | 6.66 | - |
| otal Suspended Solids | mg/l | Gravimetric | IS: 3025 (P-17): 2022 | 4 | - |
| hloride(as Cl) | mg/l | Titration | IS 3025 (Part 32) : 2019 | 34.5 | - |
| ead(as Pb) | mg/l | ICPOES | IS:3025 (Part-2): 2019 | BLQ(LOQ : 0.05) | - |
| admium(as Cd) | mg/l | ICPOES | IS:3025 (Part-2): 2019 | 0.08 | - |
| emical Oxygen Demand | mg/l | COD Reflux Assembly | IS 3025 (Part: 58): 2023 | BLQ(LOQ:4.0) | - |
| l & Grease | mg/l | Gravimetric | IS: 3025 (Part 39)-2021 | <4.0 | - |
| o-chemical Oxygen Demand,(3 ys at 27°C) | mg/l | BOD Incubator | IS 3025 (Part 44): 2023 | BLQ(LOQ:1.0) | - |
| dium Absorption Ratio | NA | By Calculation | STP/ITC/EW/027 | 10.4 | - |
| senic(as As) | mg/l | ICPOES | IS:3025 (Part-2): | BLQ(LOQ : 0.05) | - |

30/04/2024
**Vikrant Saini**
**Verified by**

30/04/20
**Prem Kum**
**Authorised**

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# Interstellar Testing Centre PVT. LTD.

**Test Report**

**Report No.** : ICE-2404301079 (1)

**ULR No.** : TC592624000007448F

TC-5926

**ORIGINAL**



| | | | | | |
|---|---|---|---|---|---|
| | | | 2019 | | |
| uctivity | µmhos/cm | Conductivity Meter | IS 3025 (Part 14) : 2019 | 1560 | - |
| Dissolved Solids | mg/l | Gravimetric | IS: 3025 (P-16): 2023 | 930 | - |

A- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sample Submitted by Customer.

S : See Note

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

30/04/2024
Vikrant Saini
Verified by

30/04/20
Prem Kuni
Authorised

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# Interstellar Testing Centre PVT. LTD.

**Test Report**

**Report No. :** ICE-2404301079 (2)

ORIGINAL
Page 1 of 1

akin Ltd.
stillery, Kasauli, Distt. Solan
3204
radesh, India

| | | | |
|---|---|---|---|
| gistration No. | : E01-2404230926 | Received On | : 23-04-2024 |
| me | : Water Sample (RO Permeate) | Commenced On | : 23-04-2024 |
| ndition | : Good | Completed On | : 30-04-2024 |
| tails (if any) | | Date of Report | : 30-04-2024 |
| antity | : 5 Ltr | | |
| Mode | : Packed in can | Grade | : NA |
| QR Code | : NA | Date of Expiry | : NA |
| anufacture | : NA | | |
| ubmission Type | : Submitted | | |
| Reference | : GSR/GS/46/Analysis/19-04-2024 | | |
| r Information | : NA | | |
| ort as per | : NA | | |

ion: Water Sample (RO Permeate)

| Parameter | Measuring Unit | Instrument | Method | Result | Specification |
|---|---|---|---|---|---|
| **iscipline : Chemical** | | | | | |
| **roup : Pollution & Environment** | | | | | |
| **eneral Parameters** | | | | | |
| Mercury(as Hg) | mg/l | ICPOES | IS:3025 (Part-2): 2019 | BLQ(LOQ : 0.05) | - |
| Residual Sodium Carbonate | meq/L | By Calculation | IS:11624-1986(Reaff:2007) | -0.96 | - |
| Total Oxygen Demand | mg/l | By Calculation | By Calculation | Nil | - |

: NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sample Submitted by Customer.

RKS : See Note

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

30/04/2024
**Vikrant Saini**
**Verified by**

30/04/20
**Prem Kum**
**Authorised**



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# Interstellar Testing Centre PVT. LTD.

ITC Labs

TC-5928

Test Report

Report No. : ICE-2404301078 (1)

ULR No. : TC592624000007447F

ORIGINAL



:
Ieakin Ltd.
istillery, Kasauli, Distt. Solan
173204
Pradesh, India

| | | | |
|---|---|---|---|
| egistration No. | : E01-2404230927 | Received On | : 23-04-2024 |
| Name | : Water Sample (RO Permeate Storage Tank) | Commenced On | : 23-04-2024 |
| Condition | : Good | Completed On | : 30-04-2024 |
| Details (if any) | | Date of Report | : 30-04-2024 |
| Quantity | : 5 Ltr | | |
| g Mode | : Packed in can | Grade | : NA |
| o./QR Code | : NA | Date of Expiry | : NA |
| Manufacture | : NA | | |
| Submission Type | : Submitted | | |
| er Reference | : GSR/GS/46/Analysis/19-04-2024 | | |
| ber Information | : NA | | |
| port as per | : NA | | |

tion: Water Sample (RO Permeate Storage Tank)

| Parameter | Measuring Unit | Instrument | Method | Result | Specification |
|---|---|---|---|---|---|
| **Discipline : Chemical** | | | | | |
| **Group : Pollution & Environment** | | | | | |
| **General Parameters** | | | | | |
| Nitrate (as N) | mg/l | UV-Spectrophotometer | IS 3025 (Part 34): 2019 | BLQ(LOQ:1.0) | - |
| pH Value | NA | pH Meter | IS: 3025 (Part-11): 2022 | 6.97 | - |
| Total Suspended Solids | mg/l | Gravimetric | IS: 3025 (P-17): 2022 | 5 | - |
| Chloride(as Cl) | mg/l | Titration | IS 3025 (Part 32) : 2019 | 49 | - |
| Lead(as Pb) | mg/l | ICPOES | IS:3025 (Part-2): 2019 | BLQ(LOQ:0.05) | - |
| Cadmium(as Cd) | mg/l | ICPOES | IS:3025 (Part-2): 2019 | BLQ(LOQ:0.05) | - |
| Chemical Oxygen Demand | mg/l | COD Reflux Assembly | IS 3025 (Part: 58): 2023 | 10 | - |
| Oil & Grease | mg/l | Gravimetric | IS: 3025 (Part 39)-2021 | <4.0 | - |
| Bio-chemical Oxygen Demand,(3 days at 27°C) | mg/l | BOD Incubator | IS 3025 (Part 44): 2023 | 2 | - |
| Sodium Absorption Ratio | NA | By Calculation | STP/ITC/EW/027 | 10.9 | - |
| Arsenic(as As) | mg/l | ICPOES | IS:3025 (Part-2): 2019 | BLQ(LOQ:0.05) | - |

30/04/2024
Vikrant Saini
Verified by

30/04/20
Prem Kum
Authorised

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# Interstellar Testing Centre PVT. LTD.

TC Labs

Test Report

Report No. : ICE-2404301078 (1)

ULR No. : TC592624000007447F

TC-5928

ORIGINAL



| | | | | | |
|---|---|---|---|---|---|
| nductivity | µmhos/cm | Conductivity Meter | IS 3025 (Part 14) : 2019 | 1658 | - |
| otal Dissolved Solids | mg/l | Gravimetric | IS: 3025 (P-16): 2023 | 940 | - |

NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sample Submitted by Customer.

RKS : See Note

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

30/04/2024
Vikrant Saini
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30/04/20
Prem Kum
Authorised

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- If samples not consumed during analysis, it will be stored and retain as per company policy.
- Samples not drawn by us unless otherwise stated.

# Interstellar Testing Centre PVT. LTD.



Labs

Test Report

Report No. : ICE-2404301078 (2)

ORIGINAL
Page 1 of 1

e :
Menkin Ltd.
Distillery, Kasauli, Distt. Solan
173204
h Pradesh, India

Registration No. : E01-2404230927
Name : Water Sample (RO Permeate Storage Tank)
Condition : Good
Details (if any)
Quantity : 5 Ltr
ng Mode : Packed in can
o./QR Code : NA
Manufacture : NA
Submission Type : Submitted
er Reference : GSR/GS/46/Analysis/19-04-2024
her Information : NA
port as per : NA

Received On : 23-04-2024
Commenced On : 23-04-2024
Completed On : 30-04-2024
Date of Report : 30-04-2024

Grade : NA
Date of Expiry : NA

ption: Water Sample (RO Permeate Storage Tank)

| Parameter | Measuring Unit | Instrument | Method | Result | Specification |
|---|---|---|---|---|---|
| **Discipline : Chemical** | | | | | |
| **Group : Pollution & Environment** | | | | | |
| **General Parameters** | | | | | |
| Mercury(as Hg) | mg/l | ICPOES | IS:3025 (Part-2): 2019 | BLQ(LOQ:0.05) | - |
| Residual Sodium Carbonate | meq/L | By Calculation | IS:11624-1986(Reaff:2007) | -1.17 | - |
| Total Oxygen Demand | mg/l | By Calculation | By Calculation | 12 | - |

: NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sample Submitted by Customer.

RKS : See Note

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

30/04/2024
Vikrant Saini
Verified by

30/04/20
Prem Kum
Authorised

# Interstellar Testing Centre PVT. LTD.

ITC Labs

Test Report

Report No. : ICE-2404301077 (1)

ULR No. : TC592624000007446F

TC-5926

ORIGINAL



:
eakin Ltd.
istillery, Kasauli, Distt. Solan
73204
Pradesh, India

egistration No. : E01-2404230928
ame : Water Sample (Irrigation Water Storage Tank)
ondition : Good
etails (if any)
uantity : 5 Ltr
g Mode : Packed in can
/QR Code : NA
lanufacture : NA
ubmission Type : Submitted
Reference : GSR/GS/46/Analysis/19-04-2024
er Information : NA
ort as per : NA

Received On : 23-04-2024
Commenced On : 23-04-2024
Completed On : 30-04-2024
Date of Report : 30-04-2024

Grade : NA
Date of Expiry : NA

ion: Water Sample (Irrigation Water Storage Tank)

| Parameter | Measuring Unit | Instrument | Method | Result | Specification |
|---|---|---|---|---|---|
| iscipline : Chemical | | | | | |
| roup : Water | | | | | |
| eneral Parameters | | | | | |
| itrate (as N) | mg/l | UV-Spectrophotometer | IS 3025 (Part 34): 2019 | BLQ(LOQ:1.0) | - |
| H Value | NA | pH Meter | IS: 3025 (Part-11): 2022 | 7.05 | - |
| otal Suspended Solids | mg/l | Gravimetric | IS: 3025 (P-17): 2022 | 14 | - |
| hloride(as Cl) | mg/l | Titration | IS 3025 (Part 32) : 2019 | 49.5 | - |
| ead(as Pb) | mg/l | ICPOES | IS:3025 (Part-2): 2019 | BLQ(LOQ:0.05) | - |
| admium(as Cd) | mg/l | ICPOES | IS:3025 (Part-2): 2019 | BLQ(LOQ:0.05) | - |
| emical Oxygen Demand | mg/l | COD Reflux Assembly | IS 3025 (Part: 58): 2023 | 5 | - |
| l & Grease | mg/l | Gravimetric | IS: 3025 (Part 39)-2021 | <4.0 | - |
| o-chemical Oxygen Demand,(3 ys at 27°C) | mg/l | BOD Incubator | IS 3025 (Part 44): 2023 | BLQ(LOQ:1.0) | - |
| dium Absorption Ratio | NA | By Calculation | STP/ITC/EW/027 | 10.5 | - |
| senic(as As) | mg/l | ICPOES | IS:3025 (Part-2): 2019 | BLQ(LOQ:0.05) | - |

30/04/2024
Vikrant Saini
Verified by

30/04/20
Prem Kum
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# Interstellar Testing Centre PVT. LTD.



Labs

TC-5928

**Test Report**

**Report No.** : ICE-2404301077 (1)

**ULR No.** : TC592624000007446F

ORIGINAL



| | | | | | |
|---|---|---|---|---|---|
| nductivity | µmhos/cm | Conductivity Meter | IS 3025 (Part 14) : 2019 | 1553 | - |
| otal Dissolved Solids | mg/l | Gravimetric | IS: 3025 (P-16): 2023 | 928 | - |

NA- Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sample Submitted by Customer.

RKS : See Note

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

30/04/2024
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Verified by

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Prem Kum
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# Interstellar Testing Centre PVT. LTD.



## Test Report

**Report No. : ICE-2404301077 (2)**

ORIGINAL
Page 1 of 1

in Ltd.
tery, Kasauli, Distt. Solan
04
desh, India

| | | | |
|---|---|---|---|
| gration No. | : E01-2404230928 | Received On | : 23-04-2024 |
| | : Water Sample (Irrigation Water Storage Tank) | Commenced On | : 23-04-2024 |
| e | : Good | Completed On | : 30-04-2024 |
| ition | | Date of Report | : 30-04-2024 |
| ails (if any) | : 5 Ltr | | |
| ntity | : Packed in can | | |
| Mode | : NA | Grade | : NA |
| QR Code | : NA | Date of Expiry | : NA |
| nufacture | : NA | | |
| mission Type | : Submitted | | |
| eference | : GSR/GS/46/Analysis/19-04-2024 | | |
| Information | : NA | | |
| as per | : NA | | |

n: Water Sample (Irrigation Water Storage Tank)

| Parameter | Measuring Unit | Instrument | Method | Result | Specification |
|---|---|---|---|---|---|
| cipline : Chemical | | | | | |
| oup : Water | | | | | |
| neral Parameters | | | | | |
| rcury(as Hg) | mg/l | ICPOES | IS:3025 (Part-2): 2019 | BLQ(LOQ:0.05) | - |
| sidual Sodium Carbonate | meq/L | By Calculation | IS:11624-1986(Reaff:2007) | -1.53 | - |
| al Oxygen Demand | mg/l | By Calculation | By Calculation | 5 | - |

NA-Not Applicable, LOQ- Limit of Quantification, BLQ- Below limit of Quantification. Sample Submitted by Customer.

KS : See Note

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

30/04/2024
Vikrant Saini
Verified by

30/04/20
Prem Kum
Authorised

**Annexure -II**

**Soil sample analysis report**

## Fertilizer Recommendations for Fruit crops

| Crop | Age | FYM (Kg) | N (Urea) | $P_2O_5$ (SSP) | $K_2O$ (MOP) |
|---|---|---|---|---|---|
| | | | Gram per tree | | |
| Apple | 1 Year Old | 10 | 70 (153) | 35 (220) | 70 (117) |
| | 10 Year and Above | 100 | 700 (1530) | 350 (2200) | 700 (1170) |
| Mango | 1 Year Old | 10 | 25 (54) | 16 (100) | 60 (100) |
| | 10 Year and Above | 100 | 250 (544) | 160 (1000) | 600 (1000) |
| Citrus | 1 Year Old | 10 | 80 (174) | 50 (313) | 60 (100) |
| | 10 Year and Above | 60 | 800 (1740) | 500 (3125) | 600 (1000) |
| Pomegranate | 1 Year Old | 10 | 125 (272) | 96 (600) | 150 (250) |
| | 5 Year and Above | 20 | 625 (1360) | 240 (1500) | 600 (1000) |
| Guava | 1 Year Old | 5 | 50 (109) | 40 (250) | 90 (150) |
| | 10 Year and Above | 50 | 500 (1087) | 400 (2500) | 900 (1500) |

## General Recommendations for Apples:

| Apple (1 year old plantation) | | Apple (Full grown trees; 10 year & above) | |
|---|---|---|---|
| Farm Yard Manure: | 10 Kg/plant | Farm Yard Manure: Kg/plant | 100 |
| Super phosphate for P: | 220 g/plant | Super phosphate for P: Kg/plant | 2.0 |
| Muriate of Potash for K: | 120 g/plant | Muriate of Potash for K: Kg/plant | 1.2 |
| Adhoc recommendation for Nitrogen (N): Urea 150 g/plant & Lime 175 g/plant or Urea 100 g/plant & Calcium Nitrate 150 g/plant or Calcium Nitrate 450 g/plant | | Adhoc recommendation for Nitrogen (N): Urea 1.5 kg/plant & Lime 1.775 kg/plant or Urea 1.0 kg/plant & Calcium Nitrate 1.5 kg/plant or Calcium Nitrate 4.50 kg/plant | |

Apply total FYM, SSP and MOP with half of the urea at the time of field preparation and thoroughly mixed in the soil. Remaining half of urea to be applied in two equal split doses one after one month of sowing and another before flowering as surface dressed.

Apply recommended dose of fertilizers where nutrient values have been rated as medium. Reduce the fertilizer doses by 25% of the recommended dose where the nutrient values are high & increase the doses by 25% where the nutrient values are low by supplementing through straight fertilizers.

TO:

NAME: MOHAN MEAKIN LIMITED

VILLAGE: BREWERY

POST OFFICE: SOLAN

TEHSIL: SOLAN

DISTRICT: SOLAN

PIN CODE 173214

STATE: HP

MOBILE NO.: +91 9805133950 (Gaurav Sharma)

From:

ADVANCED SOIL AND LEAF ANALYSIS LABORATORY

DEPARTMENT OF SOIL SCIENCE AND WATER MANAGEMENT

Dr YS Parmar University of Horticulture & Forestry

Nauni, Solan 173 230 HP

Crop (फसल): —NA—

**ANALYSIS RESULTS (परिणाम):**

| Sample No. / pH | pH | EC ($dSm^{-1}$) | Org. C (%) | N (Kg $ha^{-1}$) | P (Kg $ha^{-1}$) | K (Kg $ha^{-1}$) | Zn (ppm) | Cu (ppm) | Fe (ppm) | Mn (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|
| Optimum Value | 6.5-7.3 | <2.00 | 0.50-1.00 | 280-560 | 10-25 | 137-337 | 0.6-1.2 | 0.2-0.4 | 4.5-9.0 | 2.0-4.0 |
| 1. 246 | 6.34 | 0.331 | 3.58 | 483 | 88.9 | 375 | 6.76 | 2.00 | 74.6 | 27.9 |
| 2. 247 | 5.96 | 0.151 | 3.03 | 376 | 151 | 203 | 8.04 | 6.24 | 70.9 | 27.1 |
| 3. 248 | 5.81 | 0.266 | 2.55 | 370 | 269 | 206 | 6.40 | 14.5 | 77.8 | 24.1 |
| 4. | | | | | | | | | | |
| 5. | | | | | | | | | | |
| 6. | | | | | | | | | | |
| 7. | | | | | | | | | | |
| 8. | | | | | | | | | | |
| 9. | | | | | | | | | | |
| 10. | | | | | | | | | | |

| Test Parameter | Ca [cmol(p+)/kg] | | Mg [cmol(p+)/kg] | | S (ppm) | | B (ppm) | |
|---|---|---|---|---|---|---|---|---|
| Medium Range | 2.0 – 4.0 | | 1.0 – 2.0 | | 10.0 – 20.0 | | 0.5 – 1.0 | |
| Sample No.↓ | Test Value | Interpret. | Test Value | Interpret. | Test Value | Interpret. | Test Value | Interpret. |
| 1 / 246 | 12.6 | V. High | 3.06 | High | 4.95 | V. Low | 1.34 | High |
| 2 / 247 | 9.32 | do | 2.13 | do | 3.19 | do | 0.62 | Medi |
| 3 / 248 | 6.47 | High | 1.65 | Medi | 2.44 | do | 0.76 | do |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |

## INTERPRETATION AND SUGGESTIONS (व्याख्या एवं सुझाव) 40

| Sample No. | pH | EC ($dSm^{-1}$) | Org. C (%) | N (Kg $ha^{-1}$) | P (Kg $ha^{-1}$) | K (Kg $ha^{-1}$) | Zn (ppm) | Cu (ppm) | Fe (ppm) | Mn (ppm) |
|---|---|---|---|---|---|---|---|---|---|---|
| Optimum Value | — | — | — | — | — | — | — | — | — | — |
| 1 | Slight Alkaline | Normal | V. High | Medi. | v. High | High | v. High | v. High | v. High | v. H. gh |
| 2 | Mod. Acidic | do | do | do | Ext. High | Medi. | do | Ext. High | do | do |
| 3 | do | do | do | do | do | do | do | do | do | do |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | | | | | | | | | | |

### RECOMMENDATIONS/SUGGESTIONS

- Apply Lime/Gypsum @ — per tree/hectare in Plot —
- Soil Salinity is in Safer limits. Prescriptions, if any —
- For V. Low Nutrient status, Apply nutrient @ 150 % of RDF.
- For Low Nutrient status, Apply nutrient @ 125 % of RDF.
- For Medium Nutrient status, Apply nutrient @ 100 % of RDF.
- For High Nutrient status, Apply nutrient @ 75 % of RDF.
- For V. High Nutrient status, Apply nutrient @ 50 % of RDF.
- For Ext. High Nutrient status, Apply nutrient @ 25 % of RDF/Skip this year.
- Repeat nutrient tests yearly, if found Low or Medium, otherwise go for testing in alternate years.
- Remarkable comments, if any

**Electromagnetic flow meter at the raw-spent wash line**

# Subject: Re: Mohan Meakin Limited, Kasauli Distillery, Kasauli (HP)

From: CEMS TEAM <cems.cpcb@nic.in> on Wed, 04 Dec 2024 16:54:56

To: "kasauli" <kasauli@mohanmeakin.com>

Cc: "B Vinod Babu" <itdiv.cpcb@nic.in>, "Archit Uprit" <archituprit.cpcb@nic.in>, "Anurag Sharma" <anurag.cpcb@gov.in>, "RTDMS Connectivity" <rtdmsapproval1.cpcb@gov.in>, "Ms. Neha" <rtdmsapproval2.cpcb@gov.in>, "nitish@errandenterprises.com" <nitish@errandenterprises.com>, "Ravindra Shukla" <ravindra@errandenterprises.com>

Sir/Ma'am,

In reference to your trail mail, as requested Edit permission is given, kindly check and update details.

Regards
Central Pollution Control Board, Delhi

---- On Wed, 04 Dec 2024 14:36:38 +0530 **<kasauli@mohanmeakin.com>** wrote ---

*Dear Sir,*

*We have installed CCTV Cameras with PTZ facility covering final outlet point of ETP (i.e. RO Permeate Tank facing Methane Gas Holder Tank) & drain downstream of ETP and electromagnetic flow meters at the raw spent wash pipeline within the process in our unit.*

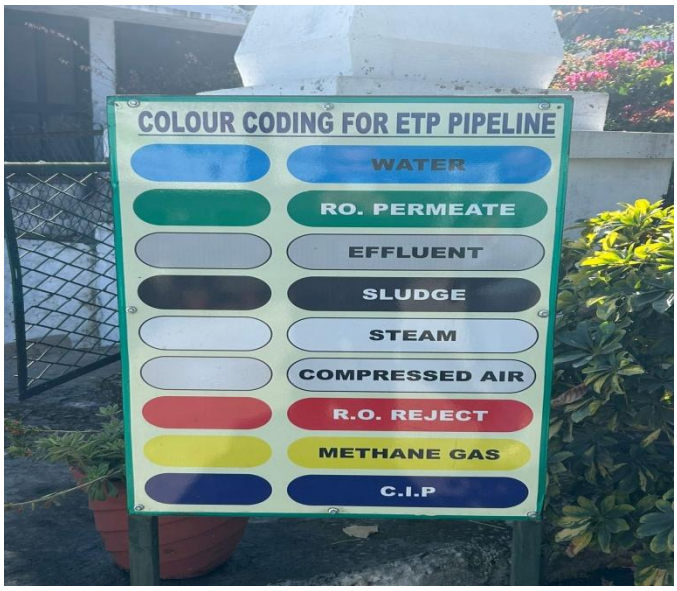
*Further we require to update the details of the above mentioned devices in our existing RTDMS.*

*You are therefore requested to kindly grant permission for editing the existing RTDMS and to add the instrument details. We are hereby attached CTO (Air and Water) with this email for your reference.*

*Thanks and Regards*

*COL G S RATHAUR, RETD*
*Chief Executive Officer*
*Mohan Meakin Limited*
*Kasauli (H.P)*
*PIN 173204*
*FAX 01792-272099*
*Phone 01792-272021*

ANNEXURE - 8




Color Coding


**Environmental Data Display board**

ANNEXURE - 10

Sludge Drying Beds

384

ANNEXURE - 11

**Himachal Pradesh**
**Jal Shakti Vibhag**

No. JSD-DMP-CB-WAII-NGT Kasauli OA No. 785 / 2024- 5633-36 Dated. 31/12/24

To

The Superintending Engineer,
JS Circle Dharampur

Subject: - Compliance of the directions passed by Hon'ble NGT in OA No. 785/2023

Reference is drawn to **the Member Secretary, HPPCB Shimla office letter no. 13395-98 dated 20.11.2024** addressed to the Engineer-in-Chief, Jal Shakti Vibhag, Shimla with the copy to this office. The Hon'ble NGT in OA No. 785/2023 had Suo moto taken the cognizance of the effluent disposal of Kasauli Distillery and pollution of water sources and water supply scheme of nearby areas. The Hon'ble NGT, to the matters raised in the aforementioned O.A., has directed this department to take action on certain points to which the clarification/ comments are as under:

| Sr. No. | Recommendations of Hon'ble NGT | Comments |
|---|---|---|
| 1. | The Jal Shakti Vibhag should review their treatment system at water supply scheme Larah and provide tertiary treatment system and dis-infection system at WSS Larah in order to ensure proper treatment with disinfection of water before distributing to the Gram Panchayat. | The scheme LWSS Garkhal Larah has been in operation sincle 1990-91 i.e. for more than 30 years. An estimate for the upgradation of the Water Treatment System in the scheme is being prepared w.r.t. the parameters of the source as per CPHEEO guidelines and shall be posed within a period of 60 days. |
| 2. | A sewage treatment plant (STP) be installed in Kasauli Area to prevent discharge of untreated domestic/ sewage waste into the drains leading to the Water Supply Scheme of the Jal Shakti Vibhag which is used to supply drinking water supply to nearby village Panchayats. | The area of Kasauli lies in within the boundary of the Cantonment Board and this department has no jurisdiction to carry out any work within the limits of the Cantonment area. |

A discussion was also held in this regard in the office of the Worthy Engineer-in-Chief, Jal Shakti Vibhag, Shimla and therefore, the report is furnished for information and further necessary action please.

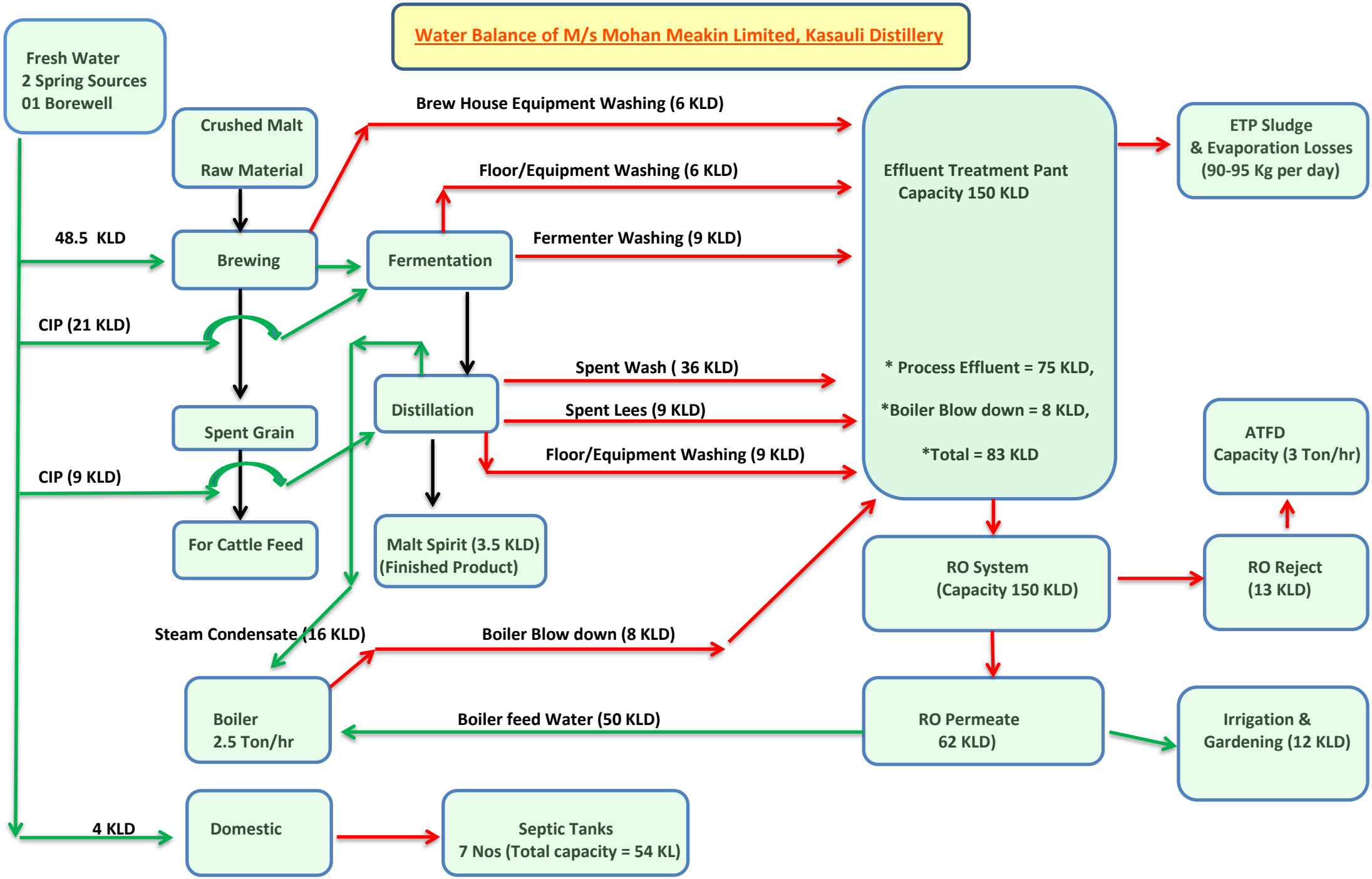
Executive Engineer,
JS Division Dharampur

Copy to the Engineer-in-Chief, Jal Shakti Vibhag, Shimla – 5 for information please.

Copy to the Regional Officer, HPSPCB, Parwanoo for information please.

Copy to the Assistant Engineer, JS Sub-Division Parwanoo for information and necessary action.

Executive Engineer,
JS Division Dharampur


Water Balance of M/s Mohan Meakin Limited, Kasauli Distillery
Fresh Water
2 Spring Sources
01 Borewell
Crushed Malt
Raw Material
48.5 KLD
Brewing
Brew House Equipment Washing (6 KLD)
Fermentation
Floor/Equipment Washing (6 KLD)
Fermenter Washing (9 KLD)
CIP (21 KLD)
Spent Grain
CIP (9 KLD)
For Cattle Feed
Distillation
Spent Wash ( 36 KLD)
Spent Lees (9 KLD)
Floor/Equipment Washing (9 KLD)
Malt Spirit (3.5 KLD)
(Finished Product)
Effluent Treatment Pant
Capacity 150 KLD
* Process Effluent = 75 KLD,
*Boiler Blow down = 8 KLD,
*Total = 83 KLD
ETP Sludge
& Evaporation Losses
(90-95 Kg per day)
ATFD
Capacity (3 Ton/hr)
RO System
(Capacity 150 KLD)
RO Reject
(13 KLD)
Steam Condensate (16 KLD)
Boiler Blow down (8 KLD)
Boiler
2.5 Ton/hr
Boiler feed Water (50 KLD)
RO Permeate
62 KLD)
Irrigation &
Gardening (12 KLD)
4 KLD
Domestic
Septic Tanks
7 Nos (Total capacity = 54 KL)