

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

OA No.411 of 2025

IN THE MATTER OF:

Inderjeet

...

Applicant

Versus

State of Haryana& Ors.

...

Respondent

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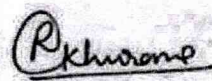
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Dated: 04.07.2026

Regional Officer, HSPCB

Panipat Region

Through



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**Report filed by Bhupinder Singh, Regional Officer, HSPCB,
Panipatin the matter of Original Application No. 411 of 2025;
Indrajeet Versus State of Haryana & Ors.**

I, deponent in the aforesaid official capacity do hereby solemnly affirm and state as under:

1. That the matter was listed before the Hon'ble NGT on 11/03/2026. Hon'ble National Green Tribunal in its order dated 11/03/2026 has directed as under:

"8. In view of the above it is directed that:-

i. HSPCB shall provide the action taken report for the past violations by the unit and the steps taken to prevent discharge in the drain and to ensure that no untreated effluent is discharged in drain/canal/river.

ii. The Project Proponent shall provide the total water usage and water balance indicating recycling and reuse of water and adopting ZLD for the unit.

9. List on 27.04.2026 for further hearing."

Copy of Hon'ble NGT order dated 11/03/2026 is attached as **Annexure-R/1.**



04 JUL 2026

2. That joint committee had carried out the inspection on 26/12/2025 and made observations and suggestions:-

It was observed by the Joint Committee that:

- a. That the storm water drains shown by the Unit inside the premises also carry trade effluent from various sections and the leachate from the sludge stored within the plant for sludge drying.
- b. The Unit has provided pits for collecting the waste water/leakages from different sections of the plant but the presence of colored water in the storm water drains indicate that the pits/mechanism provided is not adequate.
- c. There are no segregation of storm water drains and process waste water drains. The same drains are carrying both the storm water and waste water, leading to contamination of storm water.
- d. As per present mechanism followed by the unit, the waste water and the storm water through the common drain are collected in a collection tank of capacity 777 m³, which is transferred to Process Condensate Treatment Plant (PCTP) of capacity 60 m³/hr (1440 m³/day).
- e. There is also a provision made for discharge of untreated waste water and contaminated storm water from the collection tank into the Drain No. 2, which leads to River Yamuna through pump. It was observed that the pipe-line used to pump the untreated water into the drain No 2 has been temporarily disconnected but it may be connected any time without any effort, if required (Photograph attached in Annexure-11).
- f. It was informed by the Complainant that the Unit has stopped discharging the waste water into the Drain No. 2 after the intervention of Hon'ble NGT.
- g. However, as per present mechanism, if the storm water is to be discharged, it is to be discharged from the aforementioned collection tank only, which contains untreated water and contaminated storm water. Under this condition, the Unit can not be termed as a Zero Liquid Discharge, as mandated in the Environmental Clearance granted by MoEF&CC and Consent to Operate (CTO) granted by HSPCB.
- h. The capacity of Process Condensate Treatment Plant (PCTP) is 60 m³/hr (1440 m³/day), which is just adequate to take care of process condensate of the Unit operating at Full Capacity. This PCTP Plant has been shown to be used for treatment of storm water, as well, by the Unit. The storm water quantity shown in the CTP during heavy rains is 2350 KLD and when this is combined with process condensate generated at full capacity of the Unit @ 60 m³/h or 1440 m³/day will



become $2350 + 1440 = 3790 \text{ m}^3/\text{day}$. This volume of $3790 \text{ m}^3/\text{day}$ cannot be accommodated either in the existing 770 m^3 collection tank or treated by the PCTP with a capacity of $1440 \text{ m}^3/\text{day}$. Consequently, during the rainy season, the unit has no option but to discharge untreated wastewater and contaminated stormwater into Drain No. 2, which ultimately leads to the River Yamuna.

- i. The unit has neither prepared nor implemented a Sludge Management Plan as mandated in the Environmental Clearance granted by MoEF&CC. The leachate from sludge dumped for sun drying at various locations within the premises was observed entering into stormwater drains and open channels. However, it was observed that the Unit has provided concrete flooring at several locations where sludge was found dumped during the first visit of the Joint Committee.

Suggestions for Remedial Action:

The Joint Committee has also submitted suggestions for the appropriate remedial action. The following suggestions are made by the Joint Committee:

- i. The arrangement for discharging untreated wastewater from the collection tank into Drain No. 2, which leads to the River Yamuna, should be permanently dismantled.
- ii. The Unit should provide separate storm water drains before the next raining season to ensure the waste water is not mixed into the storm water and discharged into the Drain No. 2. The permission obtained for discharge of storm water into Drain No. 2 from Executive Engineer, Panipat Water Services Division, Panipat, should not be misused for discharging untreated waste water and/or contaminated storm water.
- iii. The Unit shall prepare a Sludge Management Plan as mandated in the Environmental Clearance; get it approved from the HSPCB and implement it in a time bound manner.
- iv. As per conditions of the Environmental Clearance granted by MoEF&CC, the Company shall harvest rainwater from storm water drains to recharge the ground water. Looking into the condition of storm water drains maintained by the Unit, it is suggested that the Unit should not be allowed to use the storm water drains for recharging the ground water.
- v. The HSPCB shall ensure that the Unit operates only on Zero Liquid Discharge (ZLD) basis by issuing directions and regular monitoring considering the observations/findings of the Joint Committee with HSPCB as the Nodal Agency.



- vi. *A detailed remediation plan should be prepared and implemented in a time bound matter after conducting an audit of the Unit, to ensure that ground water and surface water is not affected due to operation of the Unit.*

3. That unit had submitted the compliance of observations and suggestions made by the joint committee on 19/03/2026 in reference to the show cause notice issued by Regional Office, Panipat and status report of the same as given by the unit was submitted before the Hon'ble NGT on 24.04.2026. That in compliance of the observations raised by the applicant during the time of hearing on 27.04.2026 inspection of the unit was carried out by the team of HSPCB on 16/06/2026 to verify the compliance made by the unit of the observations as raised by the joint committee. A letter dated 15.06.2026 was also sent to the complainant through e-mail to join the inspection on 16.06.2026 and was also contacted telephonically but complainant did not join the inspection citing personal reasons. During inspection, the corrective measures as reported by the unit vide letter no. 19.03.2026 was verified at site and the compliance made by the unit is given in table below:

S. N.	Observation of Joint Committee	Compliance Status
a.	The storm water drains inside the premises also carry trade effluent from various sections and the leachate from the sludge stored within the plant for sludge drying.	The unit has made different effluent pits for the collection of effluent generated from the different process i.e. wet washing, Hydrolysis and co-fermentation, distillation and dehydration, evaporation, solid-liquid separation and bulk chemical storage. The thin slop generated from these section is taken to the evaporation section where process condensate is taken to Process Condensate Treatment Plant (PCTP) and the solid lignin cake generated during treatment is sold to the external agencies for use as fuel component in bio mass pellets. The unit has now made additional collection pit near the wet washing section for biomass laden storm water, routed to Solid-Liquid Separation (SLS) tank for reprocessing. The photograph of additional pit is attached as Annexure-R/2. The unit has also made additional Sludge storage pit at the designated places having concrete floor and to stop mixing of leachate from sludge with storm water.
b.	The unit has provided pits for collecting the waste water/leakages from different sections of the plant but the presence of coloured water in the storm water drains indicate that the pits/mechanism provided is not adequate.	During the time of inspection on 16.06.2026 by the team of HSPCB no leakage from pits provided near process section was observed which can lead to storm water channel. The unit has now made additional collection pit near the wet washing section for biomass laden storm



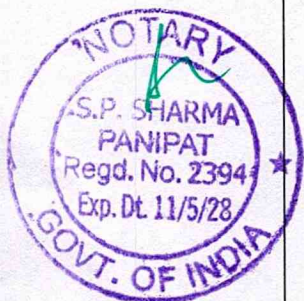
		water, routed to Solid-Liquid separation (SLS) tank for reprocessing. The pits provided by the unit is only for the collection of wastewater/leakage from the process section only and it has no linkage with the storm water. The storm water drain carries the rainwater having color of biomass which is collected in the storm water collection and then treated into Process Condensate Treatment Plant (PCTP). Unit has now made partition into the storm water collection tank for collection of storm water and contaminated storm water separately. The photograph showing storm water collection tank with partition is attached as Annexure-R/3. The unit has now covered the storm water channels to avoid mixing of biomass dust at biomass yard and milling section.
c.	There are no segregation of storm water drains and process wastewater drains. The same drains are carrying both the storm water and wastewater, leading to contamination of storm water.	The unit has provided separate storm water and process waste water drain. The process water from pits provided at different process section is feed to Solid Liquid Separation (SLS) and then to (PCTP). The storm water is collected into separate storm water tank of capacity 3470 m3 capacity and is further treated to PCTP. However, as per logbook of PCTP submitted by the unit, it does not separately quantify the quantum of storm water treated, process condensate and ETP reject. As per logbook the total quantity of all these treated through PCTP in 40 m3/day. The unit required to provide different flow meter at each section to measure the quantity the treatment of waste water from process, storm water and ETP reject.
d.	As per present mechanism followed by the unit, the wastewater and the storm water through the common drain are collected in a collection tank of capacity 777 m3, which is transferred to Process Condensate Treatment Plant (PCTP) of capacity 60 m3/hr (1440 m3/day).	During the time of inspection, it has been found that the unit now made separate provision for collection of waste process water into the collection tank of capacity 777 m3 and has separate storm water pond of capacity 3470 m3/day. The collection of waste process water and storm water is being done by different channels by the unit. The unit has informed that it has made additional safeguards by blocking the internal channels at seven identified locations and reverse flow direction at selected locations to stop the mixing of process waste water and storm water.
e.	There is also a provision made for discharge of untreated waste water and	During the time of inspection, it was found that the unit has permanently



	contaminated storm water from the collection tank into the Drain No. 2, which leads to River Yamuna through pump. It was observed that the pipe-line used to pump the untreated water into the drain No 2 has been temporarily disconnected but it may be connected any time without any effort, if required (Photograph attached in Annexure-11).	disconnected the facility by welding the pipe-line, which can be used to pump the storm water from the storm water collection tank in to drain no.2. The pipe-lines which are leading to drain no-2 has also been permanently blinded by the unit. The pumping facility has been abandoned by the unit. The copy of photographs of pipeline permanently welded near storm water collection tank and pipeline blinded permanently at drain No.2 is attached as Annexure-R/4 & R/5 respectively.
f.	It was informed by the Complainant that the unit has stopped discharging the wastewater into the Drain No. 2 after the intervention of Hon'ble NGT.	No discharge from the unit was observed into drain no.2. The line was already blinded by the unit which could be used to discharge the storm water during heavy rain.
g.	However, as per present mechanism, if the storm water is to discharged, it is to be discharged from the aforementioned collection tank only, which contains untreated water and contaminated storm water. Under this condition, the Unit can not be termed as a Zero Liquid Discharge, as mandated in the Environmental Clearance granted by MoEF&CC and Consent to Operate (CTO) granted by HSPCB.	The unit has provided separate storm water collection tank of capacity 3470 m ³ /day. As per earlier practice adopted by the unit all the open channels made to collect the rain water was leading to this storm water collection tank. The storm water get contaminated due to contact with biomass dust or biomass spillage on the plant surface which further needs to be treated in the PCTP. The unit has now made partition in the storm water tank of capacity 3470 m ³ to collect the contaminated storm water came into contact of biomass spillage and bio mass dust and for the uncontaminated storm water which does not come into contact of any bio mass spillage and bio mass dust. The holding capacity of these parted storm water collection pond in 2400 m ³ (Contaminated storm water pond) and 1070 m ³ (uncontaminated storm water pond). Two different channels have been made by the unit leading to the partition made by the unit in storm water tank. The contaminated storm water will be treated to PCTP and the uncontaminated waste water will be used for other utilities after filtration within premises which required no treatment in PCTP. The unit has identified the open storm water channel near process section as contaminated storm water and channel along the boundary wall of the unit as uncontaminated channel and thus made separate provisions for collection of storm water through these different channels in storm water collection tank. The unit has also covered these open channel with blocks to avoid any contamination. However, good house keeping is required to be maintained by the unit to stop the



		mixing of any bio mass spillage, discharge of any leachate and bio mass dust. The copy of layout plan showing the different channels i.e. contaminated storm water channel and uncontaminated water channel alongwith storm water collection tank where the partition have been made of the capacity 2400 m³ and 1070 m³ is attached as Annexure-R/6.
h.	The capacity of Process Condensate Treatment Plant (PCTP) is 60 m³/hr (1440 m³/day), which is just adequate to take care of process condensate of the Unit operating at Full Capacity. This PCTP Plant has been shown to be used for treatment of storm water, as well as by the Unit. The storm water quantity shown in the CTP during heavy rains is 2350 KLD and when this is combined with process condensate generated at full capacity of the Unit @ 60 m³/h or 1440 m³/day will become 2350 + 1440 = 3790 m³/day. This volume of 3790 m³/day cannot be accommodated either in the existing 777 m³ collection tank or treated by the PCTP with a capacity of 1440 m³/day. Consequently, during the rainy season, the unit has no option but to discharge untreated wastewater and contaminated stormwater into Drain No. 2, which ultimately leads to the River Yamuna.	The unit has two collection tanks. One tank of capacity 777 m³ is used for collection of process waste water and another tank of capacity 3470 m³ is used for collection of storm water. The combined collection capacity of both tanks is 4247 m³. The unit has now made partition in the existing storm water collection tank for collection of contaminated storm water (2400 m³) which require further treatment to PCTP and another tank for storm water with no contamination (1070 m³) which requires no further treatment and can be used for other utilities after filtration. The unit claims that by making this provision the existing PCTP is sufficient to handle the treatment of contaminated storm water and process even during rainy season as claimed by the unit. However, as per rain fall data submitted by the unit of the last three years the maximum rainfall has been noticed in the year 2023 for the month of July, 2023 i.e. 291.9 mm. the copy of rainfall data submitted by the unit as per Indian Metrological Department is attached as Annexure-R/7. If we calculated, the daily rainfall from the data provided for a month will be 9.39 mm/day. The Plant area of the unit is 140200 sqr mtrs therefore total volume of rain per day calculated as per data will be $140200 \times 0.00939 = 1316.478$ m³/day. It will be the daily average rain fall for the month of July, 2023. Thus, taking into consideration of total treatment capacity of PCTP -60 m³/hr * 24 hr = 1440 m³/day and last maximum rain fall as per data the total volume process wastewater and contaminated wastewater will be 2093 m³/day. The total holding capacity of wastewater and contaminated storm water by the unit will be $777 + 3470 = 4247$ m³. As per the treatment capacity of PCTP at 1460 m³/day the unit has enough buffer to hold the contaminated water within premises. Thus, as per rainfall data provided by the unit it has enough



		capacity to accommodate the process water as well as contaminated storm water for the treatment.
i.	The unit has neither prepared nor implemented a Sludge Management Plan as mandated in the Environmental Clearance granted by MoEF&CC. The leachate from sludge dumped for sun drying at various locations within the premises was observed entering into storm water drains and open channels. However, it was observed that the Unit has provided concrete flooring at several locations where sludge was found dumped during the first visit of the Joint Committee.	The unit has made sludge storage room of capacity 1200 m ³ which is constructed on RCC floor with RCC retaining wall. The unit has now constructed one additional sludge storage pit of capacity 396 m ³ . At the time of visit on 16.06.2026 no sludge was found outside the designated area as during previous visit by the joint committee where the sludge was found dumped for open for sun drying due to which leachate was entering into storm water channels and drains. The dry sludge is used as manure in the farm field. The photographs of additional sludge storage room is attached as Annexure-R/8.

4. That in order to ascertain the adequacy of existing treatment facility provided by the unit, inspection was conducted by the team of HSPCB on 16.06.2026 and component wise water sampling of the PCTP was conducted. The sample was collected from the Inlet of PCTP, After neutralization tank, After clarifier and at the final outlet of PCTP. The results at the outlet of PCTP are within in permissible limit. The outlet parameters of the PCTP as received from board's Lab, Panchkula vide No.504 dated 25.06.2026 as mentioned in table below:

Table:1

Parameter	Result (mg/l)	Permissible limit (mg/l)
Color	Colourless	---
pH	8.53	5.5-9.0
BOD	3.6	30
COD	20.0	250
TSS	8.0	100
O&G	BDL	10
TDS	1046	2100
Ammonical Nitrogen	BDL	50

The PCTP provided by the unit operating effectively as per result received from the laboratory. The copy of Analysis report of PCTP is attached as **Annexure-R/9.**

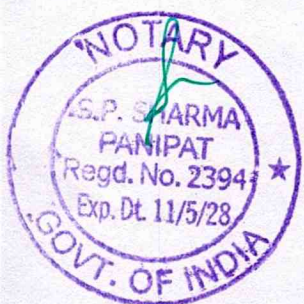
5. That as per conditions no. 9.1 (vi) of the Environment Clearance issued to the unit vide No.IA-J-11011/43/2018-IA II (I) dated 13.11.2029 the unit shall harvest the rain water from roof tops of the building and storm water drains to recharge the ground water and utilize the same of different industrial operation



of the plant. The applicant also raised the observation upon the rain water harvesting pits provided by the unit, that the unit used to discharge the process water through rain water harvesting pits therefore monitoring of all these 18 rain water harvesting pits was conducted by the team of HSPCB on 16.06.2026 and 22.06.2026. the results received from the board's lab, Panchkula are as under:

Table:2

S. N .	Parameters	Results of RWH-01 (mg/l)	Results of RWH-02 (mg/l)	Results of RWH-03 (mg/l)	Results of RWH-04 (mg/l)	Results of RWH-05 (mg/l)	Permissible Limit (mg/l)
1.	pH	8.35	8.20	8.85	7.97	8.14	6.5-8.5
2.	TSS	100.0	36.0	42.0	198.0	469.0	-
3.	BOD	135.0	8.0	4.6	16.0	72.0	-
4.	COD	480.0	40.0	24.0	88.0	368.0	-
5.	Conductivity at 25° C	4510.0	692.0	615.0	1063.0	2949.0	-
6.	TDS	3187.0	470.0	418.0	722	2004.0	2000
7.	Dissolved Oxygen	BDL(D L=01)	-	-	-	-	-
8.	Total Hardness	630.0	182.0	198.0	340.0	560.0	-
9.	Calcium as CaCO ₃	370.0	-	-	-	-	200
10.	Magnesium as CaCO ₃	260.0	-	-	-	-	100
11.	Sulphate	530.58	86.09	84.67	171.02	64.23	400
12.	Total Alkalinity as CaCO ₃	860.0	-	-	-	-	600
13.	Chloride	319.90	81.97	48.98	97.46	409.87	1000
14.	Ammonical Nitrogen as N	20.49	BDL(D L=0.5)	BDL(DL =0.5)	BDL(D L=0.5)	BDL(DL =0.5)	-
15.	Turbidity	96.0	-	-	-	-	5
16.	Sodium	261.0	-	-	-	-	-
17.	Potassium	32.0	-	-	-	-	-
18.	SAR	4.501	-	-	-	-	-
19.	Boron	BDL(D L=0.5)	-	-	-	-	1
20.	Total Phosphate	2.96	-	-	-	-	-
21.	P Alkalinity as CaCO ₃	80.0	-	-	-	-	-
22.	Total Chromium	BDL(D L=0.173)	BDL(D L=0.173)	BDL(DL =0.173)	BDL(D L=0.173)	0.6234	-
23.	Nickle	BDL(D L=0.0458)	-	-	-	-	-
24.	Iron	1.250	0.511	2.963	1.823	1.812	No relaxation



25.	Zinc	BDL(D L=0.059 1)	-	-	-	-	15
26.	Lead	BDL(D L=0.096)	BDL(D L=0.09 6)	BDL(DL =0.096)	BDL(D L=0.09 6)	BDL(DL =0.096)	No relaxat ion
27.	Cadmium	BDL(D L=0.130)	BDL(D L=0.13 0)	BDL(DL =0.130)	BDL(D L=0.13 0)	BDL(DL =0.130)	No relaxat ion
28.	Sulphide	-	13.6	14.0	6.0	16.0	No relaxat ion
29.	Fluoride	-	0.16	0.17	0.19	0.26	1.5

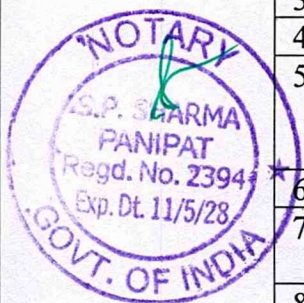
From the table:2, it can be noticed as under:

- That the quality of water in the rain water harvesting pit No.01 is exceeding in TDS (3184 against the limit of 2000 mg/l), Calcium (370 against the limit of 200), Magnesium (260 against the limit of 100), Sulphate (530 against the limit of 400), Total Alkalinity (860 against the limit of 600), Iron (1.250 against the limit No relaxation).
- The quality of water in rain water harvesting pit No.02, 03 and 04 has been found exceeding in Iron with the result (0.5, 2.96, 1.823 respectively against the limit of no relaxation) and pH value found exceeding of RWH-03 (8.85 against the limit of 6.5-8.5)

The permissible limit has been taken as per IS 10500 (2012) in the absence of alternate source. Copy of drinking water standards is attached as **Annexure-R/10** and Copy of the analysis report of RWH-01 to RWH-05 received from board's lab, Panchkula are attached as **Annexure-R/11 to R/15**.

Table:3

S. N.	Parameters	Results of RWH-6 (mg/l)	Results of RWH-07 (mg/l)	Results of RWH-08 (mg/l)	Results of RWH-09 (mg/l)	Results of RWH-10 (mg/l)	Permissible Limit (m/l)
1.	pH	8.04	7.86	7.80	8.93	8.11	6.5-8.5
2.	TSS	52.0	87.0	26.0	120.0	10.0	-
3.	BOD	8.6	14.0	9.8	280.0	8.2	-
4.	COD	44.0	72.0	52.0	960.0	48.0	-
5.	Conductivity at 25° C	1071.0	660.0	625.0	6809.0	2052.0	-
6.	TDS	728.0	448.0	424.0	4886.0	1407.0	2000
7.	Dissolved Oxygen	-	-	-	BDL(DL=01)	BDL(DL=01)	-
8.	Total Hardness	234.0	280.0	224.0	410.0	454.0	-
9.	Calcium as CaCO ₃	-	-	-	160.0	420.0	200
10.	Magnesium as CaCO ₃	-	-	-	250.0	34.0	100



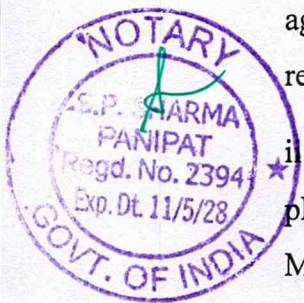
11.	Sulphate	113.45	75.58	80.00	510.15	165.68	400
12.	Total Alkalinity as CaCO ₃	-	-	-	1340.0	152.0	600
13.	Chloride	84.97	82.47	39.98	789.0	69.97	1000
14.	Ammonic al Nitrogen as N	BDL(DL =0.5)	BDL(DL =0.5)	BDL(DL =0.5)	18.64	BDL(DL =0.5)	-
15.	Turbidity	-	-	-	72.0	24.0	5
16.	Sodium	-	-	-	575.0	79.0	-
17.	Potassium	-	-	-	58.6	13.2	-
18.	SAR	-	-	-	12.273	1.609	-
19.	Boron	-	-	-	BDL(DL =0.5)	BDL(DL =0.5)	1
20.	Total Phosphate	-	-	-	3.92	BDL(DL =0.4)	-
21.	P Alkalinity as CaCO ₃	-	-	-	160.0	6.0	-
22.	Total Chromium	BDL(DL =0.173)	BDL(DL =0.173)	BDL(DL =0.173)	BDL(DL =0.173)	BDL(DL =0.173)	-
23.	Nickle	-	-	-	BDL(DL =0.0458)	BDL(DL =0.0458)	-
24.	Iron	2.900	2.764	0.8320	1.769	1.805	No relaxat ion
25.	Zinc	-	-	-	BDL(DL =0.0591)	BDL(DL =0.0591)	15
26.	Lead	BDL(DL =0.096)	BDL(DL =0.096)	BDL(DL =0.096)	BDL(DL =0.096)	BDL(DL =0.096)	No relaxat ion
27.	Cadmium	BDL(DL =0.130)	BDL(DL =0.130)	BDL(DL =0.130)	BDL(DL =0.130)	BDL(DL =0.130)	No relaxat ion
28.	Sulphide	12.4	3.0	11.8	-	-	No relaxat ion
29.	Fluoride	0.18	0.12	0.15	-	-	1.5

From the table:3, it can be noticed as under:

i. The quality of water in rain water harvesting pit No.06, 07 and 08 has been found exceeding in Iron with the result (2.900, 2.764 and 0.8320 respectively against the limit of no relaxation) and Sulphide with the result (12.4, 3.0 and 11.8 respectively against the limit of no relaxation).

ii. That the quality of water in the rain water harvesting pit No.09 is exceeding in pH (8.93 against the limit of 6.5-8.5), TDS (4886 against the limit of 2000 mg/l), Magnesium (250 against the limit of 100), Sulphate (510.15 against the limit of 400), Total Alkalinity (1340 against the limit of 600), Turbidity (72 against the limit of 5) and Iron (1.769 against the limit of no relaxation).

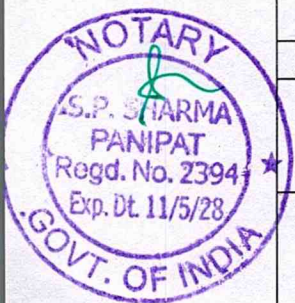
iii. The quality of water in rain water harvesting pit No.10 has been found exceeding in Calcium (420 against the limit of 200), Turbidity (24 against the limit of 5) and Iron (1.805 against the limit of no relaxation).



Copy of the analysis report of Pit No.06 to Pit No.10 received from board's lab.,
Panchkula are attached as **Annexure-R/16 to R/20**.

Table:4

S. N.	Parameters	Results of RWH-11 (mg/l)	Results of RWH-12 (mg/l)	Results of RWH-13 (mg/l)	Results of RWH-14 (mg/l)	Permissible Limit (m/l)
1.	pH	7.96	8.03	7.81	8.00	6.5-8.5
2.	TSS	52.0	65.0	124.0	1864.0	-
3.	BOD	12.0	7.8	20.0	620.0	-
4.	COD	64.0	40.0	100.0	3520.0	-
5.	Conductivity at 25° C	980.0	383.0	948.0	4638.0	-
6.	TDS	664.0	260.0	644.0	3154.0	2000
7.	Dissolved Oxygen	-	-	-	-	-
8.	Total Hardness	220.0	130.0	235.0	1700.0	-
9.	Calcium as CaCO ₃	-	-	-	-	200
10.	Magnesium as CaCO ₃	-	-	-	-	100
11.	Sulphate	95.52	52.97	118.96	394.60	400
12.	Total Alkalinity as CaCO ₃	-	-	-	-	600
13.	Chloride	89.97	34.98	62.98	549.82	1000
14.	Ammonical Nitrogen as N	BDL(DL =0.5)	BDL(DL =0.5)	BDL(DL =0.5)	BDL(DL =0.5)	-
15.	Turbidity	-	-	-	-	5
16.	Sodium	-	-	-	-	-
17.	Potassium	-	-	-	-	-
18.	SAR	-	-	-	-	-
19.	Boron	-	-	-	-	1
20.	Total Phosphate	-	-	-	-	-
21.	P Alkalinity as CaCO ₃	-	-	-	-	-
22.	Total Chromium	BDL(DL =0.173)	BDL(DL =0.173)	BDL(DL =0.173)	1.220	-
23.	Nickle	-	-	-	-	-
24.	Iron	0.250	0.873	1.895	7.260	No relaxation
25.	Zinc	-	-	-	-	15
26.	Lead	BDL(DL =0.096)	BDL(DL =0.096)	BDL(DL =0.096)	BDL(DL =0.096)	No relaxation
27.	Cadmium	BDL(DL =0.130)	BDL(DL =0.130)	BDL(DL =0.130)	BDL(DL =0.130)	No relaxation
28.	Sulphide	10.4	9.8	13.0	664.0	No relaxation
29.	Fluoride	0.29	0.18	0.29	0.46	1.5



From the table:4, it can be noticed as under:

- i. The quality of water in rain water harvesting pit No.11, 12 and 13 has been found exceeding in Iron with the result (0.250, 0.873 and 1.895 respectively against the limit of no relaxation) and Sulphide with the result (10.4, 9.8 and 13.0 respectively against the limit of no relaxation).
- ii. That the quality of water in the rain water harvesting pit No.14 is exceeding in TDS (3154 against the limit of 2000 mg/l), Iron (7.260 against the limit of no relaxation) and Sulphide (664 against the limit of no relaxation).

Copy of the analysis report of Pit No.11 to 14 received from board's lab., Panchkula are attached as **Annexure-R/21 to R/24**.

Table:5

S. N .	Parameter s	Results of RWH-15 (mg/l)	Results of RWH-16 (mg/l)	Results of RWH-17 (mg/l)	Results of RWH-18 (mg/l)	Permissible Limit (m/l)
1.	pH	8.15	8.01	8.34	7.95	6.5-8.5
2.	TSS	13.0	1278.0	134.0	78.0	-
3.	BOD	8.0	180.0	32.0	18.0	-
4.	COD	48.0	928.0	140.0	96.0	-
5.	Conductivity at 25° C	922.0	4962.0	1208.0	1786.0	-
6.	TDS	585.0	3372.0	822.0	1241.0	2000
7.	Dissolved Oxygen	BDL(DL =01)	-	-	-	-
8.	Total Hardness	142.0	1700.0	330.0	288.0	-
9.	Calcium as CaCO ₃	88.0	-	-	-	200
10.	Magnesium as CaCO ₃	54.0	-	-	-	100
11.	Sulphate	105.36	511.40	114.71	0.13	400
12.	Total Alkalinity as CaCO ₃	140.0	-	-	-	600
13.	Chloride	53.98	824.74	97.96	64.97	1000
14.	Ammonical Nitrogen as N	BDL(DL =0.5)	BDL(DL =0.5)	BDL(DL =0.5)	BDL(DL =0.5)	-
15.	Turbidity	27.0	-	-	-	5
16.	Sodium	78.0	-	-	-	-
17.	Potassium	12.8	-	-	-	-
18.	SAR	2.834	-	-	-	-
19.	Boron	BDL(DL =0.5)	-	-	-	1
20.	Total Phosphate	BDL(DL =0.4)	-	-	-	-
21.	P Alkalinity as CaCO ₃	10.0	-	-	-	-
22.	Total Chromium	BDL(DL =0.173)	0.9549	BDL(DL =0.173)	BDL(DL =0.173)	-
23.	Nickle	BDL(DL =0.0458)	-	-	-	-
24.	Iron	0.512	1.881	1.143	1.030	No relaxation



25.	Zinc	BDL(DL =0.0591)	-	-	-	15
26.	Lead	BDL(DL =0.096)	BDL(DL =0.096)	BDL(DL =0.096)	0.0982	No relaxation
27.	Cadmium	BDL(DL =0.130)	BDL(DL =0.130)	BDL(DL =0.130)	BDL(DL =0.130)	No relaxation
28.	Sulphide	-	672.0	6.4	9.6	No relaxation
29.	Fluoride	-	0.58	0.25	0.13	1.5

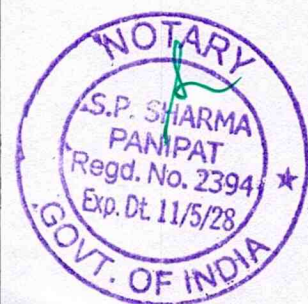
From the table:5, it can be noticed as under:

- i. The quality of water in rain water harvesting pit No.15 has been found exceeding in Turbidity (27 against the limit of 5) and Iron (0.512 against the limit of no relaxation).
- ii. That the quality of water in the rain water harvesting pit No.16 is exceeding in TDS (3372 against the limit of 2000 mg/l), Sulphate (511.40 against the limit of 400 mg/l), Iron (1.881 against the limit of no relaxation) and Sulphide (672 against the limit of no relaxation).
- iii. That the quality of water in the rain water harvesting pit No.17 and 18 is exceeding in Iron (1.143 & 1.030 against the limit of no relaxation) and Sulphide (6.4 & 9.6 against the limit of no relaxation).

Copy of the analysis report of Pit No.15 to 18 received from board's lab., Panchkula are attached as **Annexure-R/25** to **R/28**.

6. That from the table 02-05, it can also be seen that BOD and COD in all the rain water harvesting pits (RWH-01 to RWH-18) has been detected showing that the water accumulated in these pits is not in usable form and some contamination is leading from the 2G Ethanol plant into these rain water harvesting pits from the storm water channels and from the floor area within the premises of the unit during rainy season. The value of BOD & COD has been found on higher side i.e. (RWH-01- BOD-135 & COD-480, RWH-05- BOD-720 & COD-368, RWH-09- BOD-280 & COD-960, RWH-14- BOD-620 & COD-3520, RWH-16-BOD-180 & COD-928 and RWH-17- BOD-32 & COD-140). The presence of high BOD and COD in these mentioned pits may contaminate the ground water and make the water unfit for use in future. Therefore, as per suggestion made by the joint committee in its report dated 26/12/2025 the unit should not be allowed to use the storm water channels for recharging the groundwater.

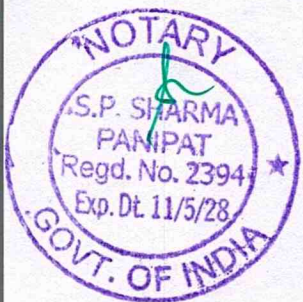
7. That the unit claims to have that all rain water harvesting pits are connected only to harvest roof top rain water but from the quality of water found in the rain harvesting pits as mentioned in table above shows that storm water drains carrying the contaminated storm water during rainy season may also be



connected to these rain water harvesting pits thus affecting the quality of ground water.

8. That show cause notice vide letter No. HSPCB/PR/2026/1319 dated 02/07/2026 has been issued to the unit for the non compliance found as per analysis report received from board's lab on 02.07.2026. The copy of show cause notice is attached as **Annexure- R/29**.
9. That water sample from the drain no 2 was also collected on 04.06.2026 & 16.06.2026 by the team of HSPCB at the upstream and downstream of the unit. As per the analysis report no traces of contamination waste water by 2 G Ethanol Plant has been recorded.

S. N.	Parameters	Results of Drain No.2 entering into District Panipat at Vill-Dadlana (mg/l)	Results of Drain No.2 downstream of 2G Ethanol Plant at Propel Chowk (mg/l)	Results of Drain No.2 opposite to 2G Ethanol Plant (mg/l)
1.	pH	8.45	8.04	8.00
2.	TSS	54.0	86.0	10.0
3.	BOD	7.2	8.2	6.2
4.	COD	40.0	440	28.0
5.	Conductivity at 25° C	1426.0	1587.0	344.0
6.	TDS	846.0	854.0	143.0
7.	Dissolved Oxygen	3.1	12.5	4.8
8.	Total Hardness	372.0	410.0	148.0
9.	Calcium as CaCO ₃	148.0	164.0	90.0
10.	Magnesium as CaCO ₃	224.0	246.0	58.0
11.	Sulphate	-	-	34.28
12.	Total Alkalinity as CaCO ₃	-	-	140.0
13.	Chloride	114.96	119.96	17.99
14.	Ammonical Nitrogen as N	1.36	1.48	BDL(DL=0.5)
15.	Turbidity	9.0	8.0	BDL(DL=0.1)
16.	Sodium	36.4	72.8	12.5
17.	Potassium	5.0	9.6	1.2
18.	SAR	0.81	1.55	0.445
19.	Boron	BDL(DL=0.5)	BDL(DL=0.5)	BDL(DL=0.5)
20.	Total Phosphate	8.43	6.29	BDL(DL=0.4)
21.	P Alkalinity as CaCO ₃	-	-	BDL(DL=0.5)
22.	Oil & Grease	BDL(DL=0.2)	BDL(DL=0.2)	BDL(DL=0.2)
23.	Total Coliform	700.0	900.0	900.0
24.	Fecal Coliform	400.0	200.0	200.0
25.	Fecal Streptococci	100.0	100.0	100.0
26.	Fluoride	-	-	-



27.	Nitrate Nitrogen	2.49	2.16	BDL(DL=0.5)
28.	Nitrite Nitrogen	0.42	1.93	

The analysis report of Drain No.2 are attached as **Annexure-R/30 to R/32**.

10. That ground water monitoring from the borewell located at different locations outside the premises of the unit was also done on 22.06.2026. the result received from the board lab are given in table below:-

Table:6

S. N	Parameters	Results of Borewell- Uma Filling Station near 2G Ethanol Plant (mg/l)	Results of Borewell- Premises of Manjit near 2G Ethanol Plant (mg/l)	Results of Borewell- Premises of Ramesh near 2G Ethanol Plant (mg/l)	Permissible Limit (m/l)
1.	pH	8.40	8.16	8.30	6.5-8.5
2.	TSS	BDL(DL=05)	BDL(DL=05)	BDL(DL=05)	-
3.	BOD	BDL(DL=01)	BDL(DL=01)	BDL(DL=01)	-
4.	COD	BDL(DL=05)	BDL(DL=05)	BDL(DL=05)	-
5.	Conductivity at 25° C	1214.0	1427.0	2194.0	-
6.	TDS	728.0	856.0	1314.0	2000
7.	Dissolved Oxygen	-	-	-	-
8.	Total Hardness	248.0	360.0	288.0	-
9.	Calcium as CaCO ₃	59.6	86.4	69.2	200
10.	Magnesium as CaCO ₃	24.057	34.9920	27.945	100
11.	Sulphate	97.02	111.12	134.73	400
12.	Total Alkalinity as CaCO ₃	354.0	419.0	635.0	600
13.	Chloride	77.47	76.97	114.96	1000
14.	Ammonical Nitrogen as N	BDL(DL=0.5)	BDL(DL=0.5)	BDL(DL=0.5)	-
15.	Turbidity	BDL(DL=01)	BDL(DL=01)	BDL(DL=01)	5
16.	Sodium	-	-	-	-
17.	Potassium	-	-	-	-
18.	SAR	-	-	-	-
19.	Boron	BDL(DL=0.5)	BDL(DL=0.5)	BDL(DL=0.5)	1
20.	Total Phosphate	BDL(DL=0.4)	BDL(DL=0.4)	BDL(DL=0.4)	-
21.	P Alkalinity as CaCO ₃	21.0	26.0	25.0	-
22.	Oil & Grease	-	-	-	-
23.	Total Coliform	-	-	-	-
24.	Fecal Coliform	-	-	-	-
25.	Fecal Streptococci	-	-	-	-
26.	Fluoride	0.06	0.18	0.52	1.5
27.	Nitrate Nitrogen	BDL(DL=0.5)	BDL(DL=0.5)	BDL(DL=0.5)	No Relaxation



From the table:6, it can be noticed as under:

i. The quality of water collected from the 03 borewells outside the premises of the unit. 01 borewell located at Premises of Ramesh near 2G Ethanol Plant has been found exceeding in Total Alkalinity (635 against the limit of 600 mg/l) and the parameters of other 02 borewells are within limit.

The analysis report of borewell are attached as **Annexure-R/33 to R/35**.

11. That, with regard to the action proposed for the past violations allegedly committed by the unit, a personal hearing was afforded to the unit by the Environment Compensation Assessment Authority (ECAC) on 23.04.2026. However, no representative of the unit appeared on the said date. Thereafter, another opportunity of personal hearing was granted on 30.06.2026, which was duly attended by the representatives of the unit.

During the hearing held on 30.06.2026, the unit denied all the observations and findings recorded by the Joint Committee in its report dated 06.01.2026. The unit specifically contended that no effluent is discharged at any stage into Drain No. 2, as alleged by the applicant in O.A. No. 411/2025. It was further submitted that the unit has adequate treatment facilities to treat the entire quantity of effluent generated from its operations, including contaminated storm water.

After considering the submissions made by the unit, the ECAC decided that, before finalizing the assessment of environmental compensation for the alleged past violations, one further opportunity of personal hearing should be granted to the unit. It was also decided that the other members of the Joint Committee be invited to participate in the next hearing to facilitate a comprehensive consideration of all relevant facts and issues. It was proposed by the committee that the next meeting of ECAC will be held within 15 days with other members of the joint committee to decide the environment compensation for past violations made by the unit.

12. That the present report is respectfully submitted for the kind consideration of this Hon'ble Tribunal. The answering respondent shall faithfully abide by such further orders and directions as may be passed by this Hon'ble Tribunal in the present matter."



NOTARIAL REG.
ENTRY No. 1406
DATE 04 JUL 2026

[Signature]
Deponent

Verification:

Verified at Panipat on 4th day of July, 2026 that contents of para No.1 to 12 of the present status report are true and correct to best of my knowledge and information derived from the official record.

Date - 04/07/2026

Place - Panipat

ATTESTED
[Signature]
(S.P. SHARMA)
NOTARY, PANIPAT
04 JUL 2026

[Signature]
Deponent

Item No.01

Court No. 2

**BEFORE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 411/2025

Indrajeet

Applicant

Versus

State of Haryana, Environment, Forest and
Wild Life Department, Government of Haryana & Ors. Respondents

Date of hearing: 11.03.2026

**CORAM: HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER**

Applicant: None for the applicant.

Respondents: Mr. Rahul Khurana and Mr. Santosh Advocates for
respondents no. 1 to 3.
Mr. Rajiv Sharma, Senior Advocate alongwith Mr.
Abhishek Birthray, Ms. Divya Jain, Ms. Shreya
Sharma, Mr. Nishant and Ms. Aiswarya Sahu,
Advocates for respondent no. 4.

ORDER

1. The letter petition pertains to Panipat Refinery under Indian Oil Corporation Ltd. which has a unit of 2G Ethanol plant.
2. As per the complaint, the said 2G Ethanol plant is discharging dirty chemical-laden water through a drain every day. This polluted water from the canal is consumed by cattle and other animals which result in death of the cattle and other animals.

3. In view of the environmental issue indicated in the complaint the Joint Committee was constituted and report was filed on 06.01.2026.

The findings of the Joint Committee report are as follows:-

" 2.2. 2nd Site Visit of the Joint Committee and the findings of the Joint Committee:

The Joint Committee re-visited the site on 26/12/2025 and the following observations were made by the Joint Committee:

- i. The unit M/s 2G Ethanol Plant, IOCL, Panipat is engaged in the manufacturing of Fuel Grade Ethanol from Stubble/Rice Straw involving Enzymatic Hydrolysis, Fermentation and Distillation with capacity of 100 KLPD. The Unit has obtained Environmental Clearance (EC) from Ministry of Environment, Forest and Climate change (MoEF&CC). Copy of Process Chart and EC are attached as Annexure-4 & 5.*
- ii. It was informed by the representative of the PP that at present, the plant is operating at less than 50% capacity.*
- iii. As per conditions of the Environmental Clearance granted to the Unit:*
 - *Effluent of 1000 m³/day will be treated in Effluent Treatment Plant. Treated water will be reused in the plant. There will be no discharge of treated/untreated waste water from the Unit and thus ensuring Zero Liquid Discharge.*
 - *Sludge Management Plan shall be formulated and ensured.*
 - *The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and utilize the same for different industrial operations within the plant.*
- iv. The unit M/s 2G Ethanol Plant, IOCL, Panipat has obtained CTE from the Board vide No. HSPCB/Consent/:313105620PITCTE5730036 dated 10/01/2020 (Annexure-6) and thereafter CTO vide No. HSPCB/Consent/:313105622PITCTO24423185 dated 21/07/2022 which is valid upto 30/09/2026 (Annexure-7). As per conditions of CTO:*
 - *The Unit is required to recycle and reuse the trade effluent after treatment in ETP and MEE.*
 - *That the unit has shown 2350 KLD of Storm Water in case of heavy rain discharge in to Drain no.2 for which unit will obtain prior permission from Irrigation and Water Resource Department.*
- v. The unit has obtained Authorization under Hazardous Waste Management Rules, 2016 vide No.: HWM/PIT/2023/32568824 dated 07/02/2023 (Annexure-8) which is valid upto 30/09/2026.*
- vi. Unit has provided Process Condensate Treatment Plant (PCTP) of capacity 60 m³/hr i.e. 60 x 24: 1440 m³/day, for treatment of process condensate generating from the process. The PCTP reject water is reused in evaporation feed tank. As per Log book of PCTP plant shared by the Unit for the period from 01/7/2024, the Unit is treating rain/storm water, Process Condensate and ETP Reject in PCTP Plant at the rate of around 40 m³/h (Annexure-9)*
- vii. That 2G Ethanol Plant, IOCL, Panipat had obtained permission to discharge storm water (Rain Water) from the*

Office of Executive Engineer, Panipat Water Services Division, Panipat (Annexure-10).

viii. It was observed by the Joint Committee that:

a. That the storm water drains shown by the Unit inside the premises also carry trade effluent from various sections and the leachate from the sludge stored within the plant for sludge drying.

b. The Unit has provided pits for collecting the waste water/leakages from different sections of the plant but the presence of coloured water in the storm water drains indicate that the pits/mechanism provided is not adequate.

c. There are no segregation of storm water drains and process waste water drains. The same drains are carrying both the storm water and waste water, leading to contamination of storm water

d. As per present mechanism followed by the unit, the waste water and the storm water through the common drain are collected in a collection tank of capacity 777 m³.

which is transferred to Process Condensate Treatment Plant (PCTP) of capacity 60 m³/hr (1440 m³/day).

e. There is also a provision made for discharge of untreated waste water and contaminated storm water from the collection tank into the Drain No. 2, which leads to River Yamuna through pump. It was observed that the pipe-line used to pump the untreated water into the drain No 2 has been temporarily disconnected but it may be connected any time without any effort, if required (Photograph attached in Annexure-11).

f. It was informed by the Complainant that the Unit has stopped discharging the waste water into the Drain No. 2 after the intervention of Hon'ble NGT

g. However, as per present mechanism, if the storm water is to be discharged, it is to be discharged from the aforementioned collection tank only, which contains untreated water and contaminated storm water. Under this condition, the Unit can not be termed as a Zero Liquid Discharge, as mandated in the Environmental Clearance granted by MoEF&CC and Consent to Operate (CTO) granted by HSPCB.

h. The capacity of Process Condensate Treatment Plant (PCTP) is 60 m³/hr (1440 m³/day), which is just adequate to take care of process condensate of the Unit operating at Full Capacity. This PCTP Plant has been shown to be used for treatment of storm water, as well, by the Unit. The storm water quantity shown in the CTP during heavy rains is 2350 KL.D and when this is combined with process condensate generated at full capacity of the Unit @ 60 m³/h or 1440 m³/day will become $2350 + 1440 = 3790 \text{ m}^3/\text{day}$. This volume of 3790 m³/day cannot be accommodated either in the existing 770 m³ collection tank or treated by the PCTP with a capacity of 1440 m³/day. Consequently, during the rainy season, the unit has no option but to discharge untreated wastewater and contaminated stormwater into Drain No. 2, which ultimately leads to the River Yamuna

i. The unit has neither prepared nor implemented a Sludge Management Plan as mandated in the Environmental Clearance granted by MoEF&CC. The leachate from sludge dumped for sun drying at various locations within the premises was

observed entering into stormwater drains and open channels. However, it was observed that the Unit has provided concrete flooring at several locations where sludge was found dumped during the first visit of the Joint Committee."

4. The Joint Committee report has also made suggestions for remedial action which is reproduced below:-

"3.0. Suggestions for Remedial Action:

The Joint Committee was directed by Hon'ble NGT to submit suggestions for the appropriate remedial action. The following suggestions are being made by the Joint Committee:

The arrangement for discharging untreated wastewater from the collection tank into Drain No. 2, which leads to the River Yamuna, should be permanently dismantled

ii. The Unit should provide separate storm water drains before the next raining season to ensure the waste water is not mixed into the storm water and discharged into the Drain No. 2. The permission obtained for discharge of storm water into Drain No. 2 from Executive Engineer, Panipat Water Services Division, Panipat, should not be misused for discharging untreated waste water and/or contaminated storm water.

The Unit shall prepare a Sludge Management Plan as mandated in the Environmental Clearance; get it approved from the HSPCB and implement it in a time bound manner.

iv. As per conditions of the Environmental Clearance granted by MoEF&CC, the Company shall harvest rainwater from storm water drains to recharge the ground water. Looking into the condition of storm water drains maintained by the Unit, it is suggested that the Unit should not be allowed to use the storm water drains for recharging the ground water.

The HSPCB shall ensure that the Unit operates only on Zero Liquid Discharge (ZLD) basis by issuing directions and regular monitoring considering the observations/findings of the Joint Committee with HSPCB as the Nodal Agency

vi. A detailed remediation plan should be prepared and implemented in a time bound matter after conducting an audit of the Unit, to ensure that ground water and surface water is not affected due to operation of the Unit"

5. As per the Joint Committee report, untreated waste water is collected in drain no. 2 which is drained to river Yamuna. As per the environmental clearance condition issued by MoEF & CC, the unit was required to harvest the rain water from the storm water drain and recharge the ground water and to ensure that there is no untreated discharge. The photograph filed with the Joint Committee report indicates polluted water in the drain.

6. The matter came up for hearing today and the learned Counsel for the project proponent has submitted that the drain has now been cleaned and no discharge is made in the drain.
7. Mr. Rahul Khurana, learned Counsel for Haryana Pollution Control Board did not provide any information with regard to past violations of the unit nor any water analyses report of the drain before rectification provided by the Haryana PCB.
8. In view of the above it is directed that:-
 - i. HSPCB shall provide the action taken report for the past violations by the unit and the steps taken to prevent discharge in the drain and to ensure that no untreated effluent is discharged in drain/canal/river.
 - ii. The Project Proponent shall provide the total water usage and water balance indicating recycling and reuse of water and adopting ZLD for the unit.
9. List on 27.04.2026 for further hearing.
10. The applicant may be informed about the next date of hearing fixed and may be asked to join the proceedings physically or through V.C. and also to file material available with him in support of the averments made in the original application on that date.

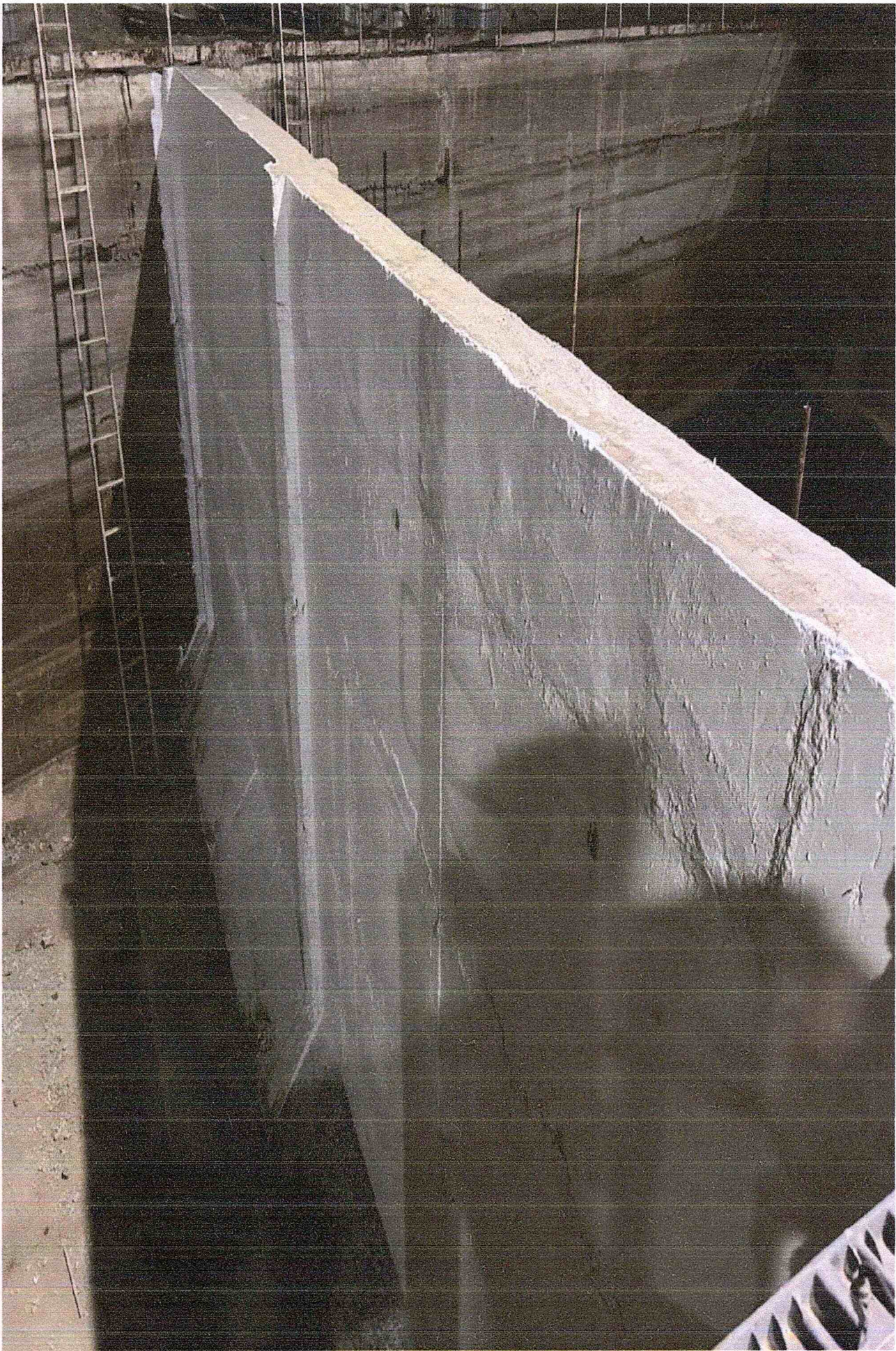
Arun Kumar Tyagi, JM

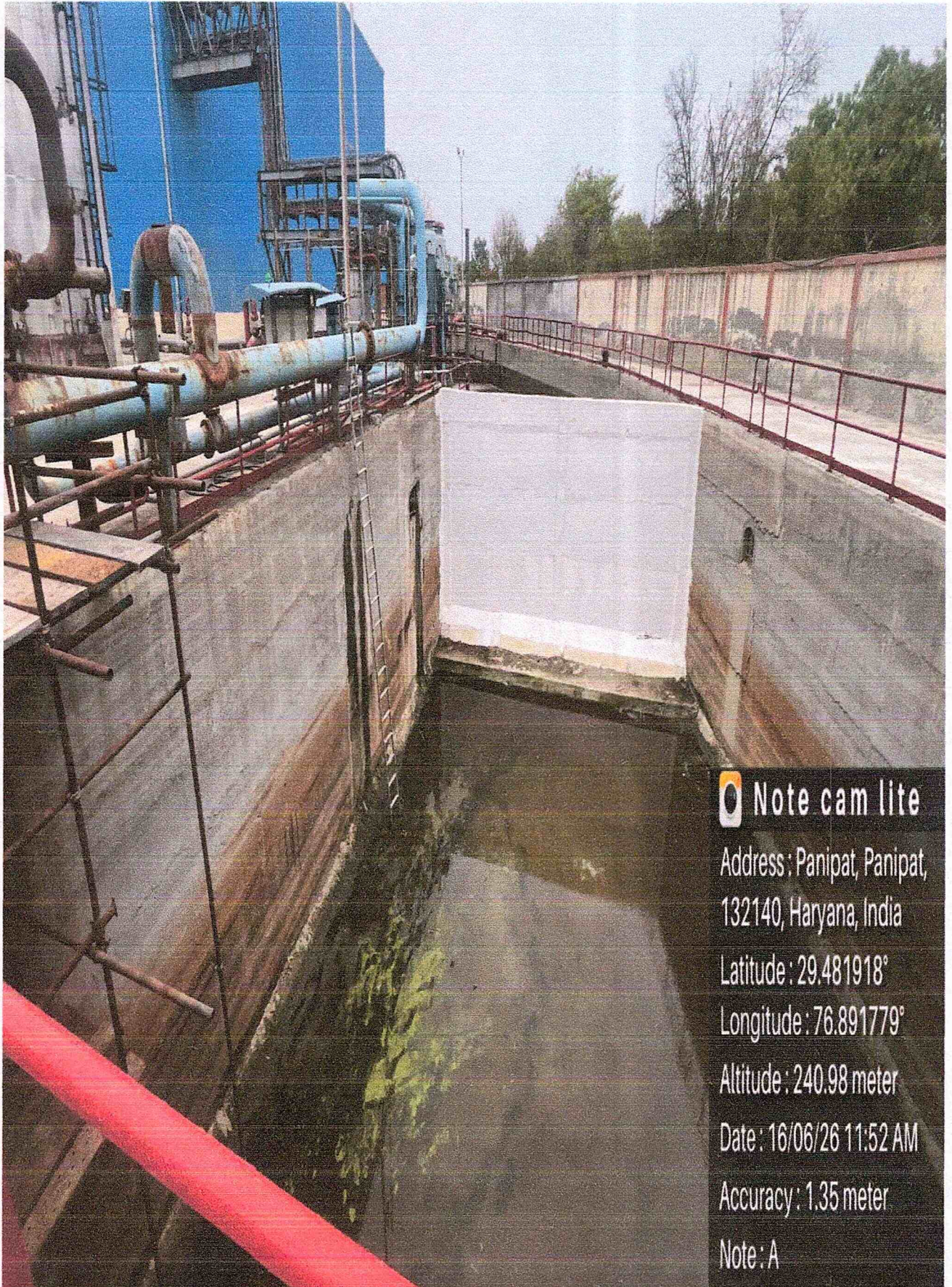
Dr. A. Senthil Vel, EM

March 11th, 2026
AB

241







Note cam lite

Address : Panipat, Panipat,
132140, Haryana, India

Latitude : 29.481918°

Longitude : 76.891779°

Altitude : 240.98 meter

Date : 16/06/26 11:52 AM

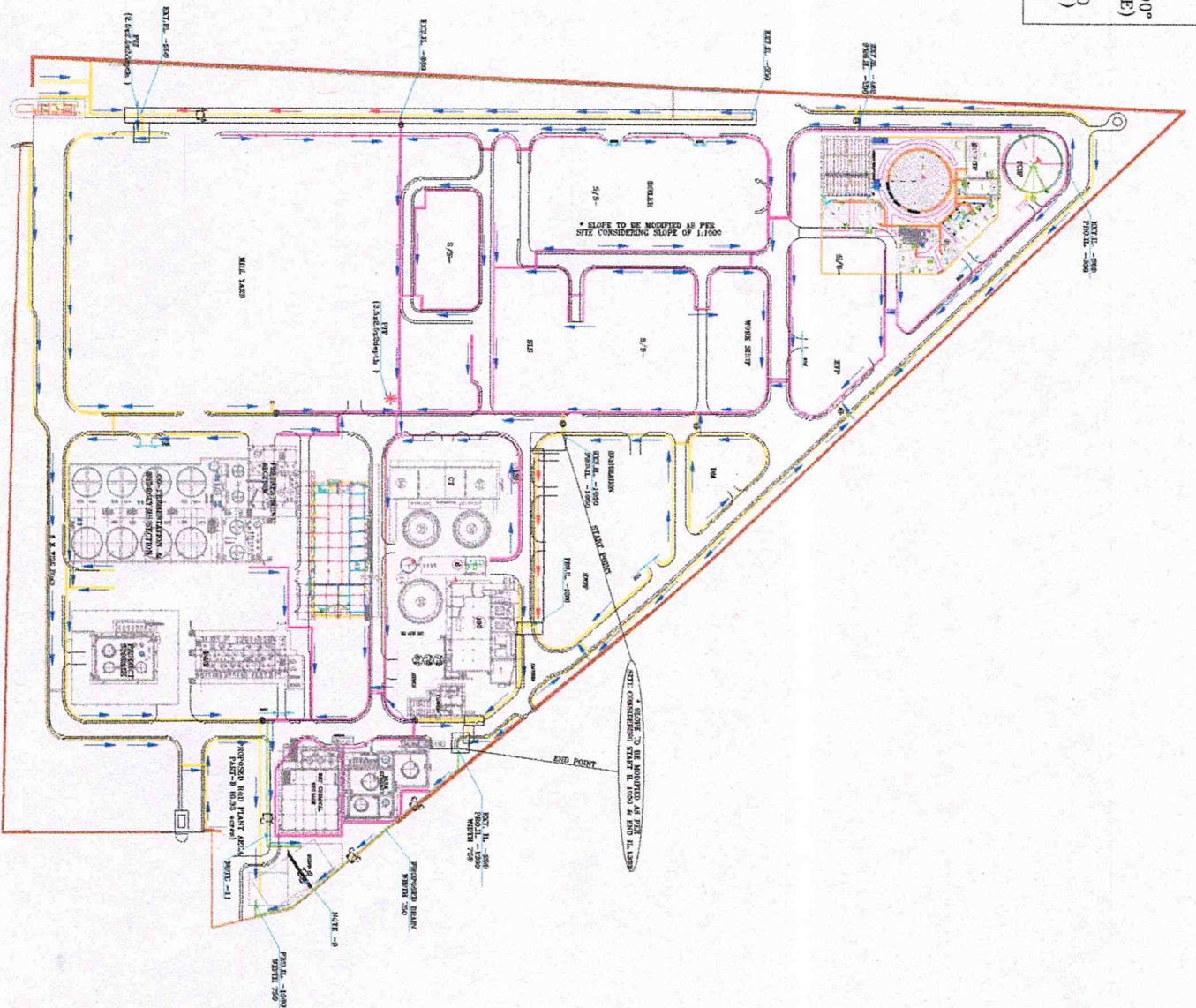
Accuracy : 1.35 meter

Note : A



Annexure-R/S





22

1. ALL DIMENSIONS ARE IN MM & LEVELS ARE IN MTS.
2. UNLESS OTHERWISE NOTED ALL RCC SHALL BE OF GRADE M25.
3. INCASE OF ANY DOUBT AT SITE EXECUTION WITH RESPECT TO DRC, SHALL BE CONFIRMED WITH ES REINFORCEMENT LAP LENGTH SHALL BE 50 TIMES DIA OF BAR.
5. CLEAR COVER TO REINFORCEMENT SHALL BE AS:
COJUM-400, RAFT-50.
6. ALL REINFORCEMENT BARS (FE500) SHOULD BE CONFORMING TO IS 1786:2008(LATEST).
7. CONC.SHAL CONFORM TO S. 456
8. BLOCKING OF DRAIN BY RCC M25 OF 230THK.
9. EXECT POSITION OF PROPOSED RCC PARTION WALL FOR POND SHALL BE CONFIRMED WITH PN/TS DEPT.
10. EXISTING DRAIN L. TO BE VERIFIED AT SITE BEFORE EXECUTION OF WORK.
11. PROPOSED DRAIN TO BE COVERED WITH PRECAST RCC SLAB/FOR SLAB DETAIL REFER DWG NO. 6939 SHT NO.02

- 1) STORM WATER DRAIN
- 2) PROCESS DRAIN
- 3) PRO. STORM WATER DRAIN
- 4) EXISTING FLOW DIRECTION
- 5) REVERSAL FLOW DIRECTION
- 6) PIT
- 7) BLOCK CHANNEL POINT
- 8) SLOPE TO BE MODIFIED

REV.	DATE	DESCRIPTION	ENG. (S)	CHKD. & APPROV. B CSM
1.	07.02.26	REVISED FOR EXECUTION		
0.	20.01.26	ISSUED FOR EXECUTION		
A.	16.01.26	ISSUED FOR COMMENTS		



PANIPAT REFINERY & PETROCHEMICAL COMPLEX
(ENGINEERING SERVICES DEPARTMENT)

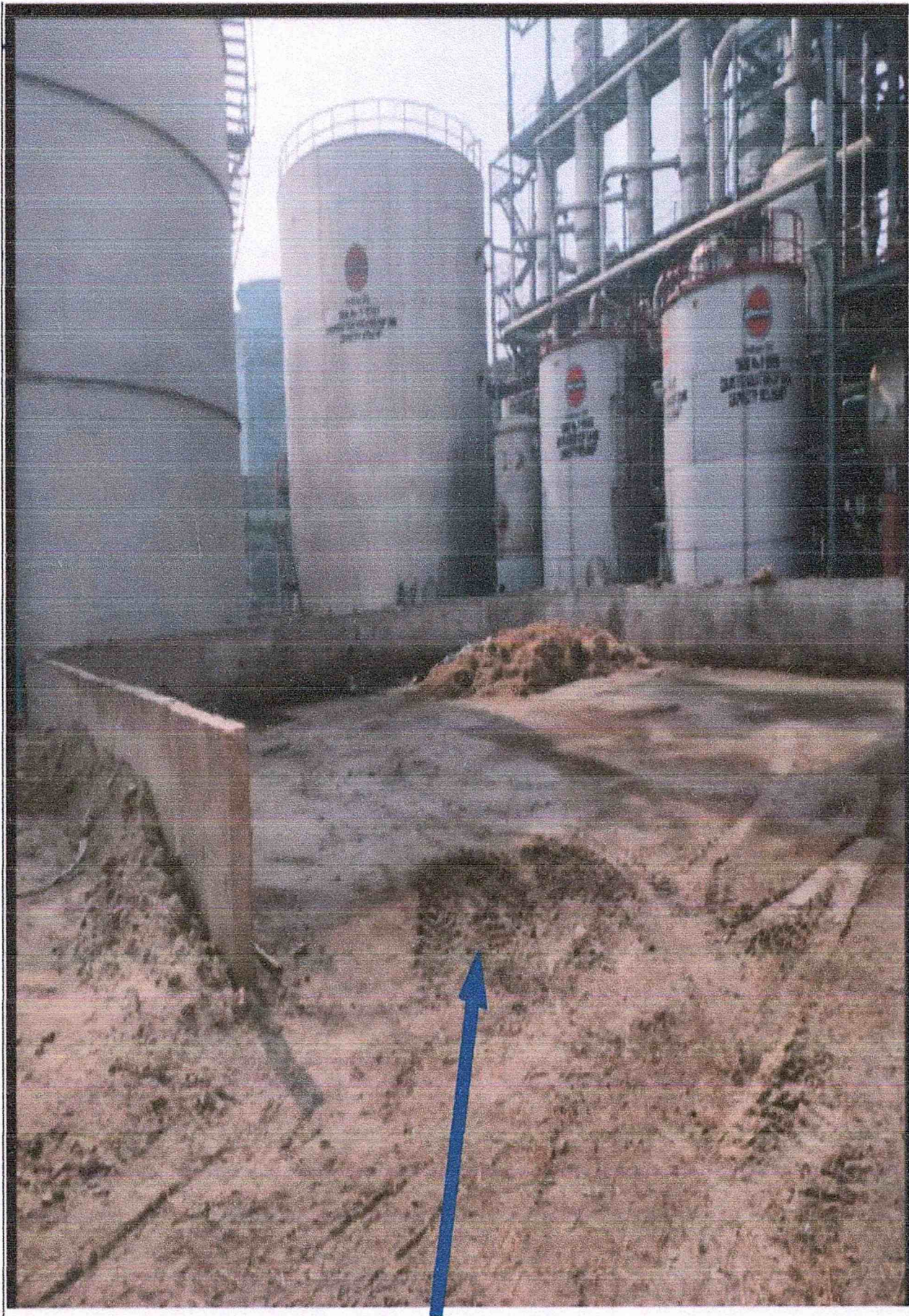
PROPOSED DRAIN LAYOUT & DETAILS FOR SEGREGATION OF STORM
WATER & PROCESS EFFLUENT IN 2G ETHANOL PLANT

SCALE	AREA	SCHEDULE NO.	EMOC NO.	OL-ES NO.	DISCIPLINE	DRG. NO.	SHT. NO-01
1:1	26	---	---	0686	CL	6099	REV. 1.

Rain fall data of Panipat (Haryana) as per IMD (Indian Metrological Department)

Monthly Rainfall (mm)- Panipat	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
2023	11.0	0.0	38.0	29.4	33.8	165.7	291.9	36.7	20.6	7.5	3.5	3.2	Ref. IMD annual report
2024	0.0	18.0	17.3	1.8	15.0	59.9	0.0	0.0	0.0	0.0	0.0	0.0	Ref. IMD annual report
2025						634.9							Ref. IMD data 2025, IMD annual report not published yet,

Annexure- R18





Report No-504

249
Form J

(See Rule 36)

Type of Sample: Legal

Dated: 25.06.2026

Annexure R/19

I, hereby, certify that I, Dr. Pinki Jangra 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 the 17th day of June, 2026 from Dr. Satish Kumar, Sc.B accompanied by Sh. Kuldeep Singh, AEE and Sh. Bhupender Singh, Ro, Panipat a sample of M/s 100 KLPD Ligno Cellulosse 2G Ethanol Plant including 10 TPD 2 G Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex (IOCL) Panipat collected on 16th day of June, 2026 for analysis.

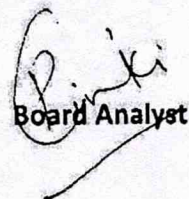
I further certify that I have analyzed the aforementioned sample on 17th day of June, 2026 to 25th day of June, 2026 and declare the result of the analysis to be as follows:-

Sr. No.	Parameter Name	Result	Result	Limit	Test Method
1.	Sample Code	883	884		
2.	Sample Collected from	After Clarifier	Final Outlet		
3.	Color	Brownish	Colourless	-	
4.	Odour	Bad	Odourless	-	
5.	pH value at 25°C	8.80	8.53	5.5-9.0	APHA 4500-H ⁺ (B) (24 th Ed)
6.	Biological Oxygen Demand (mg/l)	480.0	3.6	30	IS:3025 (Part-44)
7.	Chemical Oxygen Demand (mg/l)	2320.0	20.0	250	APHA 5220 (B) (24 th Ed)
8.	Total Suspended Solids (mg/l)	780.0	8.0	100	APHA 2540 (D) (24 th Ed)
9.	Oil and Grease (mg/l)	591.0	BDL(DL=02)	10	APHA 5520 (B) (24 th Ed)
10.	Conductivity at 25°C (µS/cm)	6535.0	1913.0	-	IS:3025(Part-14)
11.	Total Dissolved Solids (mg/l)	3928.0	1046.0	2100	APHA 2540 (C) (24 th Ed)
12.	Ammonical Nitrogen (mg/l)	34.26	BDL(DL=0.5)	50	APHA 4500-NH ₃ (F)

The condition of the seals, fastening and container on receipt was as follows:

The container had its seal intact and in order, slip on the container had the signature of the representative of the industry and the Board.

Signed this 25th day of June 2026


Board Analyst

Haryana State Pollution Control Board Laboratory,
C-11, Sector-6, Panchkula, Haryana
To

The Member Secretary, HSPCB, Panchkula
Regional Office, Panipat

This test report relate only to the particular sample submitted for testing.

End of the Report

IS 10500 : 2012

भारतीय मानक
पीने का पानी — विशिष्टि
(दूसरा पुनरीक्षण)

Indian Standard
DRINKING WATER — SPECIFICATION
(*Second Revision*)

ICS 13.060.20

© BIS 2012

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

May 2012

Price Group 6

Drinking Water Sectional Committee, FAD 25

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Drinking Water Sectional Committee had been approved by the Food and Agriculture Division Council.

This standard was originally published in 1983. A report prepared by the World Health Organization in cooperation with the World Bank showed that in 1975, some 1 230 million people were without safe water supplies. These appalling facts were central to the United Nations decision to declare an International Drinking Water Supply and Sanitation decade, beginning in 1981. Further, the VI Five-Year Plan of India had made a special provision for availability of safe drinking water for the masses. Therefore, the standard was formulated with the objective of assessing the quality of water resources, and to check the effectiveness of water treatment and supply by the concerned authorities.

The first revision was undertaken to take into account the up-to-date information available about the nature and effect of various contaminants as also the new techniques for identifying and determining their concentration. Based on experience gained additional requirements for alkalinity; aluminium and boron were incorporated and the permissible limits for dissolved solids, nitrate and pesticides residues modified.

As per the eleventh five year plan document of India (2007-12), there are about 2.17 lakh quality affected habitations in the country with more than half affected with excess iron, followed by fluoride, salinity, nitrate and arsenic in that order. Further, approximately, 10 million cases of diarrhoea, more than 7.2 lakh typhoid cases and 1.5 lakh viral hepatitis cases occur every year a majority of which are contributed by unclean water supply and poor sanitation. The eleventh five year plan document of India (2007-2012) recognizes dealing with the issue of water quality as a major challenge and aims at addressing water quality problems in all quality affected habitations with emphasis on community participation and awareness campaigns as well as on top most priority to water quality surveillance and monitoring by setting up of water quality testing laboratories strengthened with qualified manpower, equipments and chemicals.

The second revision was undertaken to upgrade the requirements of the standard and align with the internationally available specifications on drinking water. In this revision assistance has been derived from the following:

- a) EU Directives relating to the quality of water intended for human consumption (80/778/EEC) and Council Directive 98/83/EC.
- b) USEPA standard — National Primary Drinking Water Standard. EPA 816-F-02-013 dated July, 2002.
- c) WHO Guidelines for Drinking Water Quality. 3rd Edition Vol. 1 Recommendations, 2008.
- d) Manual on Water Supply and Treatment, third edition — revised and updated May 1999, Ministry of Urban Development, New Delhi.

This standard specifies the acceptable limits and the permissible limits in the absence of alternate source. It is recommended that the acceptable limit is to be implemented as values in excess of those mentioned under 'Acceptable' render the water not suitable. Such a value may, however, be tolerated in the absence of an alternative source. However, if the value exceeds the limits indicated under 'permissible limit in the absence of alternate source' in col 4 of Tables 1 to 4, the sources will have to be rejected.

Pesticide residues limits and test methods given in Table 5 are based on consumption pattern, persistence and available manufacturing data. The limits have been specified based on WHO guidelines, wherever available. In cases where WHO guidelines are not available, the standards available from other countries have been examined and incorporated, taking in view the Indian conditions.

In this revision, additional requirements for ammonia, chloramines, barium, molybdenum, silver, sulphide, nickel, polychlorinated biphenyls and trihalomethanes have been incorporated while the requirements for colour, turbidity, total hardness, free residual chlorine, iron, magnesium, mineral oil, boron, cadmium, total arsenic, lead, polynuclear aromatic hydrocarbons, pesticides and bacteriological requirements have been modified.

In this revision, requirement and test method for virological examination have been included. Further, requirements and test methods for cryptosporidium and giardia have also been specified.

Routine surveillance of drinking water supplies should be carried out by the relevant authorities to understand the risk of specific pathogens and to define proper control procedures. The WHO Guidelines for Drinking Water Quality, 3rd Edition, Vol. 1 may be referred for specific recommendations on using a water safety approach incorporating risk identification. Precautions/Care should be taken to prevent contamination of drinking water from chlorine resistant parasites such as cryptosporidium species and giardia.

Indian Standard

DRINKING WATER — SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for drinking water.

2 REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 TERMINOLOGY

For the purpose of this standard the following definition shall apply.

3.1 Drinking Water — Drinking water is water intended for human consumption for drinking and cooking purposes from any source. It includes water (treated or untreated) supplied by any means for human consumption.

4 REQUIREMENTS

Drinking water shall comply with the requirements given in Tables 1 to 4. The analysis of pesticide residues given in Table 3 shall be conducted by a recognized laboratory using internationally established test method meeting the residue limits as given in Table 5.

Drinking water shall also comply with bacteriological requirements (see 4.1), virological requirements (see 4.2) and biological requirements (see 4.3).

4.1 Bacteriological Requirements

4.1.1 Water in Distribution System

Ideally, all samples taken from the distribution system including consumers' premises, should be free from coliform organisms and the following bacteriological quality of drinking water collected in the distribution system, as given in Table 6 is, therefore specified when tested in accordance with IS 1622.

4.2 Virological Requirements

4.2.1 Ideally, all samples taken from the distribution

Table 1 Organoleptic and Physical Parameters
(Foreword and Clause 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to Part of IS 3025	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Colour, Hazen units, <i>Max</i>	5	15	Part 4	Extended to 15 only, if toxic substances are not suspected in absence of alternate sources
ii)	Odour	Agreeable	Agreeable	Part 5	a) Test cold and when heated b) Test at several dilutions
iii)	pH value	6.5-8.5	No relaxation	Part 11	—
iv)	Taste	Agreeable	Agreeable	Parts 7 and 8	Test to be conducted only after safety has been established
v)	Turbidity, NTU, <i>Max</i>	1	5	Part 10	—
vi)	Total dissolved solids, mg/l, <i>Max</i>	500	2 000	Part 16	—

NOTE — It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

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Table 2 General Parameters Concerning Substances Undesirable in Excessive Amounts
(Foreword and Clause 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Aluminium (as Al), mg/l, <i>Max</i>	0.03	0.2	IS 3025 (Part 55)	—
ii)	Ammonia (as total ammonia-N), mg/l, <i>Max</i>	0.5	No relaxation	IS 3025 (Part 34)	—
iii)	Anionic detergents (as MBAS) mg/l, <i>Max</i>	0.2	1.0	Annex K of IS 13428	—
iv)	Barium (as Ba), mg/l, <i>Max</i>	0.7	No relaxation	Annex F of IS 13428* or IS 15302	—
v)	Boron (as B), mg/l, <i>Max</i>	0.5	1.0	IS 3025 (Part 57)	—
vi)	Calcium (as Ca), mg/l, <i>Max</i>	75	200	IS 3025 (Part 40)	—
vii)	Chloramines (as Cl ₂), mg/l, <i>Max</i>	4.0	No relaxation	IS 3025 (Part 26)* or APHA 4500-Cl G	—
viii)	Chloride (as Cl), mg/l, <i>Max</i>	250	1 000	IS 3025 (Part 32)	—
ix)	Copper (as Cu), mg/l, <i>Max</i>	0.05	1.5	IS 3025 (Part 42)	—
x)	Fluoride (as F) mg/l, <i>Max</i>	1.0	1.5	IS 3025 (Part 60)	—
xi)	Free residual chlorine, mg/l, <i>Min</i>	0.2	1	IS 3025 (Part 26)	To be applicable only when water is chlorinated. Tested at consumer end. When pro- tection against viral infec- tion is required, it should be minimum 0.5 mg/l
xii)	Iron (as Fe), mg/l, <i>Max</i>	0.3	No relaxation	IS 3025 (Part 53)	Total concentration of man- ganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xiii)	Magnesium (as Mg), mg/l, <i>Max</i>	30	100	IS 3025 (Part 46)	—
xiv)	Manganese (as Mn), mg/l, <i>Max</i>	0.1	0.3	IS 3025 (Part 59)	Total concentration of man- ganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xv)	Mineral oil, mg/l, <i>Max</i>	0.5	No relaxation	Clause 6 of IS 3025 (Part 39) Infrared partition method	—
xvi)	Nitrate (as NO ₃), mg/l, <i>Max</i>	45	No relaxation	IS 3025 (Part 34)	—
xvii)	Phenolic compounds (as C ₆ H ₅ OH), mg/l, <i>Max</i>	0.001	0.002	IS 3025 (Part 43)	—
xviii)	Selenium (as Se), mg/l, <i>Max</i>	0.01	No relaxation	IS 3025 (Part 56) or IS 15303*	—
xix)	Silver (as Ag), mg/l, <i>Max</i>	0.1	No relaxation	Annex J of IS 13428	—
xx)	Sulphate (as SO ₄) mg/l, <i>Max</i>	200	400	IS 3025 (Part 24)	May be extended to 400 pro- vided that Magnesium does not exceed 30
xxi)	Sulphide (as H ₂ S), mg/l, <i>Max</i>	0.05	No relaxation	IS 3025 (Part 29)	—
xxii)	Total alkalinity as calcium carbonate, mg/l, <i>Max</i>	200	600	IS 3025 (Part 23)	—
xxiii)	Total hardness (as CaCO ₃), mg/l, <i>Max</i>	200	600	IS 3025 (Part 21)	—
xxiv)	Zinc (as Zn), mg/l, <i>Max</i>	5	15	IS 3025 (Part 49)	—

NOTES

1 In case of dispute, the method indicated by '*' shall be the referee method.

2 It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

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Table 3 Parameters Concerning Toxic Substances
(Foreword and Clause 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Cadmium (as Cd), mg/l, <i>Max</i>	0.003	No relaxation	IS 3025 (Part 41)	—
ii)	Cyanide (as CN), mg/l, <i>Max</i>	0.05	No relaxation	IS 3025 (Part 27)	—
iii)	Lead (as Pb), mg/l, <i>Max</i>	0.01	No relaxation	IS 3025 (Part 47)	—
iv)	Mercury (as Hg), mg/l, <i>Max</i>	0.001	No relaxation	IS 3025 (Part 48)/ Mercury analyser	—
v)	Molybdenum (as Mo), mg/l, <i>Max</i>	0.07	No relaxation	IS 3025 (Part 2)	—
vi)	Nickel (as Ni), mg/l, <i>Max</i>	0.02	No relaxation	IS 3025 (Part 54)	—
vii)	Pesticides, µg/l, <i>Max</i>	See Table 5	No relaxation	See Table 5	—
viii)	Polychlorinated biphenyls, mg/l, <i>Max</i>	0.000 5	No relaxation	ASTM 5175*	— or APHA 6630
ix)	Polynuclear aromatic hydrocarbons (as PAH), mg/l, <i>Max</i>	0.000 1	No relaxation	APHA 6440	—
x)	Total arsenic (as As), mg/l, <i>Max</i>	0.01	0.05	IS 3025 (Part 37)	—
xi)	Total chromium (as Cr), mg/l, <i>Max</i>	0.05	No relaxation	IS 3025 (Part 52)	—
xii)	Trihalomethanes:				
a)	Bromoform, mg/l, <i>Max</i>	0.1	No relaxation	ASTM D 3973-85* or APHA 6232	—
b)	Dibromochloromethane, mg/l, <i>Max</i>	0.1	No relaxation	ASTM D 3973-85* or APHA 6232	—
c)	Bromodichloromethane, mg/l, <i>Max</i>	0.06	No relaxation	ASTM D 3973-85* or APHA 6232	—
d)	Chloroform, mg/l, <i>Max</i>	0.2	No relaxation	ASTM D 3973-85* or APHA 6232	—

NOTES

1 In case of dispute, the method indicated by '*' shall be the referee method.

2 It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table 4 Parameters Concerning Radioactive Substances
(Foreword and Clause 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to Part of IS 14194	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Radioactive materials:				
a)	Alpha emitters Bq/l, <i>Max</i>	0.1	No relaxation	Part 2	—
b)	Beta emitters Bq/l, <i>Max</i>	1.0	No relaxation	Part 1	—

NOTE — It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

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Table 5 Pesticide Residues Limits and Test Method
(Foreword and Table 3)

Sl No.	Pesticide	Limit µg/l	Method of Test, Ref to	
			USEPA (4)	AOAC/ ISO (5)
(1)	(2)	(3)		
i)	Alachlor	20	525.2, 507	—
ii)	Atrazine	2	525.2, 8141 A	—
iii)	Aldrin/ Dieldrin	0.03	508	—
iv)	Alpha HCH	0.01	508	—
v)	Beta HCH	0.04	508	—
vi)	Butachlor	125	525.2, 8141 A	—
vii)	Chlorpyriphos	30	525.2, 8141 A	—
viii)	Delta HCH	0.04	508	—
ix)	2,4- Dichlorophenoxyacetic acid	30	515.1	—
x)	DDT (<i>o, p</i> and <i>p, p</i> – Isomers of DDT, DDE and DDD)	1	508	AOAC 990.06
xi)	Endosulfan (alpha, beta, and sulphate)	0.4	508	AOAC 990.06
xii)	Ethion	3	1657 A	—
xiii)	Gamma — HCH (Lindane)	2	508	AOAC 990.06
xiv)	Isoproturon	9	532	—
xv)	Malathion	190	8141 A	—
xvi)	Methyl parathion	0.3	8141 A	ISO 10695
xvii)	Monocrotophos	1	8141 A	—
xviii)	Phorate	2	8141 A	—

NOTE — Test methods are for guidance and reference for testing laboratory. In case of two methods, USEPA method shall be the reference method.

Table 6 Bacteriological Quality of Drinking Water¹⁾
(Clause 4.1.1)

Sl No.	Organisms	Requirements
(1)	(2)	(3)
i)	All water intended for drinking:	
a)	<i>E. coli</i> or thermotolerant coliform bacteria ^{2), 3)}	Shall not be detectable in any 100 ml sample
ii)	Treated water entering the distribution system:	
a)	<i>E. coli</i> or thermotolerant coliform bacteria ²⁾	Shall not be detectable in any 100 ml sample
b)	Total coliform bacteria	Shall not be detectable in any 100 ml sample
iii)	Treated water in the distribution system:	
a)	<i>E. coli</i> or thermotolerant coliform bacteria	Shall not be detectable in any 100 ml sample
b)	Total coliform bacteria	Shall not be detectable in any 100 ml sample

¹⁾Immediate investigative action shall be taken if either *E.coli* or total coliform bacteria are detected. The minimum action in the case of total coliform bacteria is repeat sampling; if these bacteria are detected in the repeat sample, the cause shall be determined by immediate further investigation.

²⁾Although, *E. coli* is the more precise indicator of faecal pollution, the count of thermotolerant coliform bacteria is an acceptable alternative. If necessary, proper confirmatory tests shall be carried out. Total coliform bacteria are not acceptable indicators of the sanitary quality of rural water supplies, particularly in tropical areas where many bacteria of no sanitary significance occur in almost all untreated supplies.

³⁾It is recognized that, in the great majority of rural water supplies in developing countries, faecal contamination is widespread. Under these conditions, the national surveillance agency should set medium-term targets for progressive improvement of water supplies.

system including consumers' premises, should be free from virus.

4.2.2 None of the generally accepted sewage treatment methods yield virus-free effluent. Although a number of investigators have found activated sludge treatment to be superior to trickling filters from this point of view, it seems possible that chemical precipitation methods will prove to be the most effective.

4.2.3 Virus can be isolated from raw water and from springs, enterovirus, reovirus, and adenovirus have been found in water, the first named being the most resistant to chlorination. If enterovirus are absent from chlorinated water, it can be assumed that the water is safe to drink. Some uncertainty still remains about the virus of infectious hepatitis, since it has not so far been isolated but in view of the morphology and resistance of enterovirus it is likely that, if they have been inactivated hepatitis virus will have been inactivated also.

4.2.4 An exponential relationship exists between the rate of virus inactivation and the redox potential. A redox potential of 650 mV (measured between platinum and calomel electrodes) will cause almost instantaneous inactivation of even high concentrations of virus. Such a potential can be obtained with even a low concentration of free chlorine, but only with an extremely high concentration of combined chlorine. This oxidative inactivation may be achieved with a number of other oxidants also, for example, iodine, ozone and potassium permanganate, but the effect of the oxidants will always be counteracted, if reducing components, which are mainly organic, are present. As a consequence, the sensitivity of virus towards disinfectants will depend on the *milieu* just as much as on the particular disinfectant used.

4.2.5 Viruses are generally resistant to disinfectants as well as get protected on account of presence of particulate and organic matter in water. Because the difference between the resistance of coliform organisms and of virus to disinfection by oxidants increases with increasing concentration of reducing components, for example, organic matter, it cannot be assumed that the absence of available coliform organisms implies freedom from active virus under circumstances where a free chlorine residual cannot be maintained. Sedimentation and slow sand filtration in themselves may contribute to the removal of virus from water.

4.2.6 In practice, >0.5 mg/l of free chlorine for 1 h is sufficient to inactivate virus, even in water that was originally polluted provided the water is free from particulates and organic matter.

4.2.7 MS2 phage are indicator of viral contamination in drinking water. MS2 phage shall be absent in 1 litre of water when tested in accordance with USEPA method 1602. If MS2 phage are detected in the drinking water, virological examination shall be done by the Polymerase Chain Reaction (PCR) method for virological examination as given in Annex B. USEPA method in Manual of Method for Virology Chapter 16, June 2001 shall be the alternate method. If viruses are detected, the cause shall be determined by immediate further investigation.

4.3 Biological Requirements

4.3.1 Ideally, all samples taken including consumers premises should be free from biological organisms. Biological examination is of value in determining the causes of objectionable tastes and odours in water and controlling remedial treatments, in helping to interpret the results of various chemical analysis, and in explaining the causes of clogging in distribution pipes and filters. In some instances, it may be of use in demonstrating that water from one source has been mixed with that from another.

4.3.2 The biological qualities of water are of greater importance when the supply has not undergone the conventional flocculation and filtration processes, since increased growth of methane-utilizing bacteria on biological slimes in pipes may then be expected, and the development of bryozoal growths such as *Plumatella* may cause operational difficulties.

4.3.3 Some of the animalcules found in water mains may be free-living in the water, but others such as *Dreissena* and *Asellus* are more or less firmly attached to the inside of the mains. Although these animalcules are not themselves pathogenic, they may harbour pathogenic organisms or virus in their intestines, thus protecting these pathogens from destruction by chlorine.

4.3.4 Chlorination, at the dosages normally employed in waterworks, is ineffective against certain parasites, including amoebic cysts; they can be excluded only by effective filtration or by higher chlorine doses than can be tolerated without subsequent dechlorination. *Amoebiasis* can be conveyed by water completely free from enteric bacteria; microscopic examination after concentration is, therefore, the only safe method of identification.

4.3.5 Strict precautions against back-syphonage and cross-connections are required, if amoebic cysts are found in a distribution system containing tested water.

4.3.6 The *cercariae* of *schistosomiasis* can be detected by similar microscopic examination, but there is, in

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any case, no evidence to suggest that this disease is normally spread through piped water supplies.

4.3.7 The cyclops vector of the embryos of *Dracunculus medinensis* which causes dracontiasis or Guinea-worm disease can be found in open wells in a number of tropical areas. They are identifiable by microscopic examination. Such well supplies are frequently used untreated, but the parasite can be relatively easily excluded by simple physical improvements in the form of curbs, drainage, and apron surrounds and other measures which prevent physical contact with the water source.

4.3.8 Cryptosporidium shall be absent in 10 liter of water when tested in accordance with USEPA method 1622 or USEPA method 1623* or ISO 15553 : 2006.

4.3.9 Giardia shall be absent in 10 liter of water when tested in accordance with USEPA method 1623* or ISO 15553 : 2006.

4.3.10 The drinking water shall be free from microscopic organisms such as algae, zooplanktons, flagellates, parasites and toxin producing organisms. An illustrative (and not exhaustive) list is given in Annex C for guidance.

NOTE — In case of dispute, the method indicated by ** in 4.3.8 and 4.3.9 shall be referee method.

5 SAMPLING

Representative samples of water shall be drawn as prescribed in IS 1622 and IS 3025 (Part 1).

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	Title	IS No.	Title
1622 : 1981	Methods of sampling and microbiological examination of water (<i>first revision</i>)	(Part 41) : 1992	Cadmium (<i>first revision</i>)
3025	Methods of sampling and test (physical and chemical) for water and waste water:	(Part 42) : 1992	Copper (<i>first revision</i>)
(Part 1) : 1987	Sampling (<i>first revision</i>)	(Part 43) : 1992	Phenols (<i>first revision</i>)
(Part 2) : 2002	Determination of 33 elements by inductively coupled plasma atomic emission spectroscopy	(Part 46) : 1994	Magnesium
(Part 4) : 1983	Colour (<i>first revision</i>)	(Part 47) : 1994	Lead
(Part 5) : 1983	Odour (<i>first revision</i>)	(Part 48) : 1994	Mercury
(Part 7) : 1984	Taste threshold (<i>first revision</i>)	(Part 49) : 1994	Zinc
(Part 8) : 1984	Tasting rate (<i>first revision</i>)	(Part 52) : 2003	Chromium
(Part 10) : 1984	Turbidity (<i>first revision</i>)	(Part 53) : 2003	Iron
(Part 11) : 1983	pH value (<i>first revision</i>)	(Part 54) : 2003	Nickel
(Part 16) : 1984	Filterable residue (total dissolved solids) (<i>first revision</i>)	(Part 55) : 2003	Aluminium
(Part 21) : 1983	Total hardness (<i>first revision</i>)	(Part 56) : 2003	Selenium
(Part 23) : 1983	Alkalinity (<i>first revision</i>)	(Part 57) : 2005	Boron
(Part 24) : 1986	Sulphates (<i>first revision</i>)	(Part 59) : 2006	Manganese
(Part 26) : 1986	Chlorine residual (<i>first revision</i>)	(Part 60) : 2008	Fluoride
(Part 27) : 1986	Cyanide (<i>first revision</i>)	13428 : 2003	Packaged natural mineral water — Specification (<i>first revision</i>)
(Part 29) : 1986	Sulphide (<i>first revision</i>)	14194	Radionuclides in environmental samples — Method of estimation:
(Part 32) : 1988	Chloride (<i>first revision</i>)	(Part 1) : 1994	Gross beta activity measurement
(Part 34) : 1988	Nitrogen (<i>first revision</i>)	(Part 2) : 1994	Gross alpha activity measurement
(Part 37) : 1988	Arsenic (<i>first revision</i>)	15302 : 2002	Determination of aluminium and barium in water by direct nitrous oxide-acetylene flame atomic absorption spectrometry
(Part 39) : 1989	Oil and grease	15303 : 2002	Determination of antimony, iron and selenium in water by electrothermal atomic absorption spectrometry
(Part 40) : 1991	Calcium		

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ANNEX B

(Clause 4.2.7)

POLYMERASE CHAIN REACTION (PCR) METHOD

B-1 GENERAL

The method involves the concentration of viruses from 100 litre of drinking water to 1 ml by membrane filter technique. The concentrate is subjected to amplification using polymerase chain reaction (PCR) and primers based on highly conserved regions of viral genomes. This method can detect as low as 10 genome copies. Stringent precautions are needed to avoid contamination with amplified DNA products leading to false positive reactions. Detection of hepatitis A virus (HAV) RNA and enterovirus (EV) RNA is considered as an indication of presence of viruses in water. Steps involved include concentration of water, RNA extraction, complementary DNA (cDNA) synthesis and PCR.

B-2 CONCENTRATION OF DRINKING WATER

B-2.1 Apparatus

B-2.1.1 Pressure Pump

B-2.1.2 Membrane Filter Assembly with 144 mm Diameter with Tripod Stand

B-2.1.3 Pressure Vessel (50 litre capacity) with Pressure Gauge

B-2.1.4 Inter-connecting Pressure Tubes

B-2.2 Reagents

Autoclaved double distilled water shall be used for the preparation of reagents/buffers in this study.

B-2.2.1 Aluminium Chloride

B-2.2.2 HCl/NaOH Urea (Extra Pure)

B-2.2.3 Disodium Hydrogen Phosphate ($\text{Na}_2\text{HPO}_4 \cdot 2\text{H}_2\text{O}$) — 0.2 M, filter sterilized.

B-2.2.4 Sodium Dihydrogen Phosphate ($\text{NaH}_2\text{PO}_4 \cdot 2\text{H}_2\text{O}$) — 0.2 M, filter sterilized.

B-2.2.5 Citric Acid — 0.1 M, filter sterilized.

B-2.2.6 L-Arginine — 0.5 M, filter sterilized.

B-2.2.7 Urea-Arginine Phosphate Buffer (U-APB) — Mix 4.5 g of urea with 2 ml of 0.2 M NaH_2PO_4 and 2 ml of 0.5 M L - Arginine and make up the volume to 50 ml with sterile distilled water. The pH of the eluent shall be 9.0.

B-2.2.8 Magnesium Chloride (MgCl_2) — 1 M.

B-2.2.9 McIl Vaines Buffer (pH 5.0) — Mix 9.7 ml of

0.1 M citric acid with 10.3 ml of 0.2 M $\text{Na}_2\text{HPO}_4 \cdot 2\text{H}_2\text{O}$ under sterile conditions.

B-2.3 Procedure

Filter 100 litre of drinking water sample through membrane filter assembly using either positively charged membrane of 144 mm diameter or 0.22 micron diameter pore size nitrocellulose membrane. For positively charged membrane the test water pH need not be adjusted. But for the 0.22 micron nitrocellulose membrane adjust the pH to 3.5 after adding the aluminium chloride as a coagulant to a final concentration of 0.000 5 M.

At lower pH pass the water through the membrane. The flow rate shall be 40 litre/h approximately. After the completion of the filtration, elute the adsorbed particles using 100 ml of urea-arginine phosphate buffer (U-APB). Precipitate the suspended particles using 1 ml of magnesium chloride (1 M). Dissolve the resultant precipitate centrifuged out of the sample in 800-1.0 ml of McIl Vaines buffer. The processed sample can be stored at refrigerator until required.

B-3 RNA EXTRACTION

B-3.1 Apparatus

B-3.1.1 Cooling Centrifuge

B-3.1.2 Deep Freezer (-20°C)

B-3.1.3 Vortex Mixer

B-3.1.4 Pipette Man

B-3.2 Reagents

B-3.2.1 Cetyl Trimethyl Ammonium Bromide (CTAB) Buffer

CTAB	: 1 percent
Sodium Dodecyl Sulphate (SDS)	: 1 percent
EDTA	: 20 mM
Sodium Chloride	: 1 M

B-3.2.2 Phenol, Chloroform and Isoamylalcohol in the ratio of 25:24:1 (PCI)

B-3.2.3 Ethanol

B-3.2.4 TE Buffer (pH 8.0)

Tris base	: 1 M
EDTA	: 0.5 M

B-3.2.5 Sodium Acetate — 3 M.

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B-3.3 Procedure

Treat 300 µl of concentrated water sample with equal volume of CTAB and 1/10th volume of PCI. Vortex and centrifuge at $5\,000 \times g$ for 30 min at 4°C. Add 1/10th volume of 3 M sodium acetate and double the volume of cold ethanol to the aqueous layer. Keep the mixture at either at -20°C for overnight or in liquid nitrogen for 2-5 min. Centrifuge at $10\,000 \times g$, for 30 min at 4°C. Discard the supernatant and air dry the pellet and dissolve it in 20 µl TE buffer.

B-4 COMPLEMENTARY DNA (cDNA) SYNTHESIS**B-4.1 Apparatus****B-4.1.1 PCR Machine****B-4.1.2 Deep Freezer (-20°C)****B-4.2 Reagents****B-4.2.1 cDNA Synthesis Kit****B-4.3 Procedure**

Suspend the extracted RNA in 20 µl of cDNA reaction mixture, which consists of 4 µl of 5X reverse transcriptase reaction buffer [250 mM TRIS-HCl (pH 8.5), 40 mM KCl, 150 mM MgCl₂, 5 mM dithiothreitol (DTT)], 0.5 µl of 10 mM deoxynucleotide phosphate (dNTP), 2 µl of hexa nucleotide mixture, 1 µl of 25 U of Maloney Murine Leukaemia Virus (M-MuLV) reverse transcriptase, 0.5 µl of 20 U of human placental RNase inhibitor. Heat the reaction mixture to 95°C for 5 min and rapidly chill on ice, this is followed by the addition of 1 µl (25 U/µl) of M-MuLV reverse transcriptase. Incubate the reaction mixture as given by the manufacturer of the kit and quickly chill the reaction tube on ice.

B-5 PCR AMPLIFICATION**B-5.1 Apparatus****B-5.1.1 PCR Machine****B-5.1.2 Deep Freezer (-20°C)****B-5.1.3 Micropipette****B-5.2 Reagents****B-5.2.1 Primers for EV and HAV**

EV	sense primer, 5' — TCC TCC GGC CCC TGA ATG CG — 3'
	antisense primer, 5' — ATT GTC ACC ATA AGC AGC CA — 3'
HAV	sense primer, 5' — GTTTT GCTCC TCTTT ATCAT GCTAT G-3'

antisense primer, 5' — GGAAA TGTCT
CAGGT ACTTT CTTTG-3'

B-5.2.2 PCR Master Mix**B-5.2.3 Mineral Oil****B-5.3 Procedure****B-5.3.1 PCR Amplification for Hepatitis A Virus (HAV)**

In 5 µl of cDNA, add 95 µl of a PCR Master Mix (10 mM TRIS-HCl (pH 8.3), 50 mM KCl, 2.5 mM MgCl₂, 0.01 percent gelatin (1× PCR buffer), 200 µM of each dNTP, 1.5 U of *Thermus aquaticus* polymerase). Add 25 pico moles of sense and antisense oligonucleotide primers of HAV and overlay with mineral oil. Appropriate positive and negative controls shall be included with each run. Set the following reaction at thermo cycler:

Denaturation at 94°C for 2 min	} 35 cycles
Denaturation for 1.0 min at 94°C	
Annealing for 1.0 min at 57°C	
Extension for 1.3 min at 72°C	
Final extension at 72°C for 7 min.	

B-5.3.2 PCR Amplification for Enterovirus (EV)

In 5 µl of cDNA, add 95 µl of a PCR Master Mix (10 mM TRIS-HCl (pH 8.3), 50 mM KCl, 2.5 mM MgCl₂, 0.01 percent gelatin (1X PCR buffer), 200 µM of each dNTP, 1.5 U of *Thermus aquaticus* polymerase). Add 25 pico moles of sense and antisense oligonucleotide primers of EV and overlay with mineral oil. Appropriate positive and negative controls shall be included with each run. Set the following reaction at thermo cycler:

Denaturation at 94°C for 2 min	} 35 cycles
Denaturation for 1.0 min at 94°C	
Annealing for 1.0 min at 42°C	
Extension for 2.0 min at 72°C	
Final extension at 72°C for 7 min.	

B-6 AGAROSE GEL ELECTROPHORESIS**B-6.1 Apparatus****B-6.1.1 Micropipette****B-6.1.2 Electrophoresis Apparatus****B-6.1.3 Gel Documentation System****B-6.2 Reagents****B-6.2.1 Running Buffer — 50X TAE buffer**

Tris base/Tris buffer : 121.00 g

- Glacial acetic acid : 28.55 ml
- 0.5 M EDTA : 50 .00 ml
- Distilled water : 300.45 ml (autoclaved)

Make the final volume upto 1 000 ml with deionised distilled water, sterilize and store at 4°C. The final concentration for the preparation of agarose gel and to run the gel shall be 1X.

B-6.2.2 Tracking Dye — 6X bromophenol blue.

B-6.2.3 Ethidium Bromide — 0.5 µg/ml.

B-6.3 Procedure

Run the PCR amplified product of EV and HAV on 1.5 percent agarose gel using 1X TAE buffer. Load 10 µl of amplified product after mixing it with 1 µl 10X loading dye. Run the molecular weight marker along with the samples. Run the electrophoresis at 100 V for 30 min. Stain the gel with ethidium bromide (0.5 µl/ml) for 20 min. Wash it with distilled water and view under UV transilluminator and photograph the gel to analyse the band pattern. EV gives the band as 155 base pair and the HAV gives band as 225 base pair.

ANNEX C
(Clause 4.3.10)

ILLUSTRATIVE LIST OF MICROSCOPIC ORGANISMS PRESENT IN WATER

Sl. No.	Classification of Microscopic Organism	Group and Name of the Organism	Habitat	Effect of the Organisms and Significance
(1)	(2)	(3)	(4)	(5)
i) Algae	a) Chlorophyceae:			
		1) Species of Coelastrum, Gomphospherium, Micractinium, Mougeotia, Oocystis, Euastrum, Scenedesmus, Actinastrum, Gonium, Eudorina Pandorina, Pediastrum, Zygnema, Chlamydomonas, Careteria, Chlorella, Chroococcus, Spirogyra, Tetraedron, Chlorogonium, Stigeoclonium	Polluted water, impounded sources	Impart colouration
		2) Species of Pandorina, Volvox, Gomphospherium, Staurostrum, Hydrodictyon, Nitella	Polluted waters	Produce taste and odour
		3) Species of Rhizoclonium, Cladotrix, Ankistrodesmus, Ulothrix, Micrasterias, Chromulina	Clean water	Indicate clean condition
		4) Species of Chlorella, Tribonema, Clostrum, Spirogyra, Palmella	Polluted waters, impounded sources	Clog filters and create impounded difficulties
	b) Cyanophyceae:			
		1) Species of Anacystis and Cylindrospermum	Polluted waters	Cause water bloom and impart colour
		2) Species of Anabena, Phormidium, Lyngbya, Arthrospira, Oscillatoria	Polluted waters	Impart colour
		3) Species of Anabena, Anacystis, Aphanizomenon	Polluted waters, impounded sources	Produce taste and odour
		4) Species of Anacystis, Anabena, Coelospherium, Cleotrichina, Aphanizomenon	Polluted waters	Toxin producing
		5) Species of Anacystis, Rivularia, Oscillatoria, Anabena	Polluted waters	Clog filters

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Sl No.	Classification of Microscopic Organism	Group and Name of the Organism	Habitat	Effect of the Organisms and Significance
(1)	(2)	(3)	(4)	(5)
		6) <i>Species of Rivularia</i>	Calcareous waters and also rocks	Bores rocks and calcareous strata and causes matted growth
		7) <i>Species of Agmenellum, Lemanea</i>	Microcoleus, Clean waters	Indicators of purification
		c) Diatoms (Bacillareophyceae):		
		1) <i>Species of Fragillaria, Stauroneis</i>	Stephanodiscus, —	Cause discoloration
		2) <i>Species of Asterionella, Tabellaria</i>	Hill streams high altitude, torrential and temperate waters	Taste and odour producing clog filters
		3) <i>Species of Synedra and Fragillaria</i>	Polluted waters	Taste and odour producing
		4) <i>Species of Nitzschia, Gomphonema</i>	Moderately polluted waters	Cause discoloration
		5) <i>Species of Cymbella, Synedra, Melosira, Navicula, Cyclotella, Fragillaria, Diatoma, Pleurosigma</i>	Rivers and streams impounded sources	Clog filters and cause operational difficulties
		6) <i>Species of Pinmularia, Cyclotella, Meridion, Cocconeis</i>	Surinella, Clean waters	Indicators of purification
		d) Xanthophyceae:		
		<i>Species of Botryococcus</i>	Hill streams, high altitude and temperate waters	Produces coloration
ii)	Zooplankton	a) Protozoa:		
		1) Amoeba, Giardia, Lamblia, Arcella, Diffugia, Actinophrys	Polluted waters	Pollution indicators
		2) Endamoeba, Histolytica	Sewage and activated sludge	Parasitic and pathogenic
		b) Ciliates:		
		Paramoecium, Vorticella, Carchesium, Stentor, Colpidium, Coleps, Euplotes, Colopoda, Bodo	Highly polluted waters, sewage and activated sludge	Bacteria eaters
		c) Crustacea:		
		1) Bosmina, Daphnia	Stagnant polluted waters	Indicators of pollution
		2) Cyclops	Step wells in tropical climate	Carrier host of guinea worm
iii)	Rotifers	a) Rotifers:		
		Anurea, Rotaria, Philodina	Polluted and Algae laden waters	Feed on algae
		b) Flagellates:		
		1) Ceratium, Glenodinium, Dinobryon	Peridinium Rocky strata, iron bearing and acidic waters	Impart colour and fishy taste
		2) Euglena, Phacus	Polluted waters	Impart colour

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<i>Sl No.</i>	<i>Classification of Microscopic Organism</i>	<i>Group and Name of the Organism</i>	<i>Habitat</i>	<i>Effect of the Organisms and Significance</i>
(1)	(2)	(3)	(4)	(5)
iv)	Miscellaneous Organisms	a) Sponges, Hydra	Fresh water	Clog filters and affect purification systems
		b) Tubifex, Eristalls, Chironomids	Highly polluted waters, sewage and activated sludge and bottom deposits	Clog filters and render water unaesthetic
		c) Plumatella	Polluted waters	Produces biological slimes and causes filter operational difficulties
		c) Dreissena, Asellus	Polluted waters	Harbour pathogenic organisms

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This Indian Standard has been developed from Doc No.: FAD 25 (2047).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-492

Dated: 30.06.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 17.06.2026 sample of Water collected by Dr. Satish, Sc.B accompanied by Sh. Bhupender Singh RO, Panipat and Sh. Kuldeep Singh, AEE from Rain Water Harvesting Pit-I on 16.06.2026. The sample has been analyzed from 17.06.2026 to 30.06.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-492	
2.	Sample Collected from	Rain Water Harvesting Pit-I	
3.	pH value at 25°C	8.35	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	100.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	135.0	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	480.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	4510.0	IS:3025 (Part 14)
8.	Total Dissolved Solid (mg/l)	3187.0	APHA 2540 (C) (24 th Ed)
9.	Dissolved Oxygen (mg/l)	BDL(DL=01)	APHA 2540-O (C) (24 th Ed)
10.	Total Hardness as CaCO ₃ (mg/l)	630.0	IS:3025 (Part-21)
11.	Calcium as CaCO ₃ (mg/l)	370.0	IS:3025 (Part 40)
12.	Magnesium as CaCO ₃ (mg/l)	260.0	IS:3025 (Part-46)
13.	Sulphate (mg/l)	530.58	APHA 4500-SO ₄ ²⁻ (E)
14.	Total Alkalinity as CaCO ₃ (mg/l)	860.0	IS:3025 (Part-23)
15.	Chloride (mg/l)	319.90	IS:3025 (Part-32)

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.

CC to Member Secretary, HSPCB.

CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-492

Dated: 30.06.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 17.06.2026 sample of Water collected by Dr. Satish, Sc.B accompanied by Sh. Bhupender Singh RO, Panipat and Sh. Kuldeep Singh, AEE from Rain Water Harvesting Pit-I on 16.06.2026. The sample has been analyzed from 17.06.2026 to 30.06.2026.

Sr. No.	Parameter	Result	Test Method
16.	Color	Brownish	-
17.	Odour	Bad	-
18.	Ammonical nitrogen as N (mg/l)	20.49	APHA 4500-NH ₃ (F)
19.	Turbidity (NTU)	96.0	SI:3025 (Part-14)
20.	Sodium (mg/l)	261.0	APHA 3500-Na (B)
21.	Potassium (mg/l)	32.0	APHA 3500-K (B)
22.	Sodium Absorption Ratio	4.501	IS 11624:2019
23.	Boron (mg/l)	BDL(DL=0.5)	APHA 4500-B (C)
24.	Total Phosphate (mg/l)	2.96	APHA 4500-P (D)
25.	P Alkalinity as CaCO ₃ (mg/l)	80.0	SI:3025 (Part-23)
26.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
27.	Nickel (mg/l)	BDL(DL=0.0458)	APHA 3111-B
28.	Iron (mg/l)	1.250	APHA 3111-B
29.	Zinc (mg/l)	BDL(DL=0.0591)	APHA 3111-B
30.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
31.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.
CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-507

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-02 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-507	
2.	Sample Collected from	Rain Water Harvesting Pit-02	
3.	pH value at 25°C	8.20	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	36.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	8.0	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	40.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	692.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	470.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	182.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	86.09	APHA 4500-SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	81.97	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-507

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-02 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	Yellowish	-
13.	Odour	Odourless	-
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH3 (F)
15.	Sulphide (mg/l)	13.6	APHA 4500 S ² (F)
16.	Fluoride(mg/l)	0.16	APHA 4500-F (D)
17.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
18.	Iron (mg/l)	0.511	APHA 3111-3
19.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-8
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.
CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-508

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-03 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-508	
2.	Sample Collected from	Rain Water Harvesting Pit-03	
3.	pH value at 25°C	8.85	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	42.0	APHA 2540 (C) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	4.6	IS:3025 (Part-24)
6.	Chemical Oxygen Demand (mg/l)	24.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	615.0	IS:3025(Part-14)
8.	Total Dissolved Solid (mg/l)	418.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	198.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	84.67	APHA 4500-SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	48.98	IS:3025 (Part-32)

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

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 2. Sample Consumed in testing.
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- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-508

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-03 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	Yellowish	
13.	Odour	Odourless	
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
15.	Sulphide (mg/l)	14.0	APHA 4500 S ² (F)
16.	Fluoride (mg/l)	0.17	APHA 4500-F (D)
17.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
18.	Iron (mg/l)	2.963	APHA 3111-B
19.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-509

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-04 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-509	
2.	Sample Collected from	Rain Water Harvesting Pit-04	
3.	pH value at 25°C	7.97	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	198.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	16.0	IS:3025 (Part:44)
6.	Chemical Oxygen Demand (mg/l)	88.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	1063.0	IS:3025 (Part:4)
8.	Total Dissolved Solid (mg/l)	722.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	340.0	IS:3025 (Part:21)
10.	Sulphate (mg/l)	171.02	APHA 4500-SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	97.46	IS:3025 (Part:32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-509

Dated: 01.07.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-04 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	Brown	-
13.	Odour	Mild	-
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
15.	Sulphide (mg/l)	6.0	APHA 4500-S ²⁻ (F)
16.	Fluoride(mg/l)	0.19	APHA 4500-F (D)
17.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
18.	Iron (mg/l)	1.823	APHA 3111-B
19.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.
CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-510

Dated: 01.07.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-05 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-510	
2.	Sample Collected from	Rain Water Harvesting Pit-05	
3.	pH value at 25°C	8.14	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	469.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	72.0	IS:3025 (Part 44)
6.	Chemical Oxygen Demand (mg/l)	368.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	2949.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	2004.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	560.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	64.23	APHA 4500 SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	409.87	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory Incharge
Dr. Pinki Jangra

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 2. Sample Consumed in testing.
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CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-510

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-05 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	Black	-
13.	Odour	Bad	-
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
15.	Sulphide (mg/l)	16.0	APHA 4500-S ²⁻ (F)
16.	Fluoride(mg/l)	0.26	APHA 4500-F (D)
17.	Total Chromium (mg/l)	0.6234	APHA 3111-B
18.	Iron (mg/l)	1.812	APHA 3111-B
19.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.
CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-511

Dated: 01.07.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-06 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-511	
2.	Sample Collected from	Rain Water Harvesting Pit-06	
3.	pH value at 25°C	8.04	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	52.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	8.6	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	44.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	1071.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	728.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	234.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	113.45	APHA 4500:SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	84.97	IS:3025 (Part-32)

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
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CC to Regional Office: Panipat.



Test Report
Type of Sample:- Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-511

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-06 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	Yellowish	-
13.	Odour	Odourless	-
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH3 (F)
15.	Sulphide (mg/l)	12.4	APHA 4500-S ²⁻ (F)
16.	Fluoride (mg/l)	0.18	APHA 4500-F (D)
17.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
18.	Iron (mg/l)	2.900	APHA 3111-B
19.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

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3. The test report relate only to the particular sample submitted for testing.
CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-512

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-07 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-512	
2.	Sample Collected from	Rain Water Harvesting Pit-07	
3.	pH value at 25°C	7.86	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	87.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	14.0	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	72.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	660.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	448.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	280.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	75.58	APHA 4500-SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	82.47	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-512

Dated: 01.07.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-07 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	Brown	-
13.	Odour	Mild	-
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
15.	Sulphide (mg/l)	3.0	APHA 4500-S ²⁻ (F)
16.	Fluoride (mg/l)	0.12	APHA 4500-F (D)
17.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
18.	Iron (mg/l)	2.764	APHA 3111-B
19.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

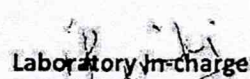

JSA-I
Megha


JSA -II
Manjali


SSA-I
Vipin


SSA-II
Jitesh

Sc.B
Piyush Kumar


Laboratory in-charge
Dr. Pinki Sangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-513

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-08 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-513	
2.	Sample Collected from	Rain Water Harvesting Pit-08	
3.	pH value at 25°C	7.80	APHA 4500 H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	26.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	9.8	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	52.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	625.0	IS:3025(Part-14)
8.	Total Dissolved Solid (mg/l)	424.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	224.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	80.00	APHA 4500-SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	39.98	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-513

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-08 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	L.Brown	-
13.	Odour	Odourless	-
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
15.	Sulphide (mg/l)	11.8	APHA 4500-S ²⁻ (F)
16.	Fluoride(mg/l)	0.15	APHA 4500-F (D)
17.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
18.	Iron (mg/l)	0.8320	APHA 3111-B
19.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B


JSA-I
Megha


JSA -II
Manjali


SSA-I
Vipin


SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-493

Dated: 30.06.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 17.06.2026 sample of Water collected by Dr. Satish, Sc.B accompanied by Sh. Bhupender Singh RO, Panipat and Sh. Kuldeep Singh, AEE from Rain Water Harvesting Pit-09 on 16.06.2026. The sample has been analyzed from 17.06.2026 to 30.06.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-493	
2.	Sample Collected from	Rain Water Harvesting Pit-09	
3.	pH value at 25°C	8.93	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	120.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	280.0	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	960.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	6809.0	IS:3025 (Part-34)
8.	Total Dissolved Solid (mg/l)	4886.0	APHA 2540 (C) (24 th Ed)
9.	Dissolved Oxygen (mg/l)	BDL(DL=01)	APHA 2540-O C (24 th Ed)
10.	Total Hardness as CaCO ₃ (mg/l)	410.0	IS:3025 (Part-21)
11.	Calcium as CaCO ₃ (mg/l)	160.0	IS:3025 (Part-40)
12.	Magnesium as CaCO ₃ (mg/l)	250.0	IS:3025 (Part-46)
13.	Sulphate (mg/l)	510.15	APHA 4500-SO ₄ ²⁻ (E)
14.	Total Alkalinity as CaCO ₃ (mg/l)	1340.0	IS:3025 (Part-23)
15.	Chloride (mg/l)	789.75	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-493

Dated: 30.06.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 17.06.2026 sample of Water collected by Dr. Satish, Sc.B accompanied by Sh. Bhupender Singh RO, Panipat and Sh. Kuldeep Singh, AEE from Rain Water Harvesting Pit-09 on 16.06.2026. The sample has been analyzed from 17.06.2026 to 30.06.2026.

Sr. No.	Parameter	Result	Test Method
16.	Color	Brownish	-
17.	Odour	Bad	-
18.	Ammonical nitrogen as N (mg/l)	18.64	APHA 4500-NH3 (F)
19.	Turbidity (NTU)	72.0	IS:3025(Part-14)
20.	Sodium (mg/l)	575.0	APHA 3500-Na (B)
21.	Potassium (mg/l)	58.6	APHA 3500-K (B)
22.	Sodium Absorption Ratio	12.273	IS:11624:2019
23.	Boron (mg/l)	BDL(DL=0.5)	APHA 4500 B (C)
24.	Total Phosphate (mg/l)	3.92	APHA 4500-P (D)
25.	P Alkalinity as CaCO ₃ (mg/l)	160.0	IS:3025 (Part-23)
26.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
27.	Nickel (mg/l)	BDL(DL=0.0458)	APHA 3111-B
28.	Iron (mg/l)	1.769	APHA 3111-B
29.	Zinc (mg/l)	BDL(DL=0.0591)	APHA 3111-B
30.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
31.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.
CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-494

Dated: 30.06.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 17.06.2026 sample of Water collected by Dr. Satish, Sc.B accompanied by Sh. Bhupender Singh RO, Panipat and Sh. Kuldeep Singh, AEE from Rain Water Harvesting Pit-10 on 16.06.2026. The sample has been analyzed from 17.06.2026 to 30.06.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-494	
2.	Sample Collected from	Rain Water Harvesting Pit-10	
3.	pH value at 25°C	8.11	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	10.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	8.2	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	48.0	APHA 5220 (3) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	2052.0	IS:3025(Part-14)
8.	Total Dissolved Solid (mg/l)	1407.0	APHA 2540 (C) (24 th Ed)
9.	Dissolved Oxygen (mg/l)	BDL(DL=01)	APHA 2540-O ₂ (24 th Ed)
10.	Total Hardness as CaCO ₃ (mg/l)	454.0	IS:3025 (Part-21)
11.	Calcium as CaCO ₃ (mg/l)	420.0	IS:3025 (Part-40)
12.	Magnesium as CaCO ₃ (mg/l)	34.0	IS:3025 (Part-46)
13.	Sulphate (mg/l)	165.68	APHA 4500-SO ₄ ²⁻ (E)
14.	Total Alkalinity as CaCO ₃ (mg/l)	152.0	IS:3025 (Part-23)
15.	Chloride (mg/l)	69.97	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-494

Dated: 30.06.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 17.06.2026 sample of Water collected by Dr. Satish, Sc.B accompanied by Sh. Bhupender Singh RO, Panipat and Sh. Kuldeep Singh, AEE from Rain Water Harvesting Pit-10 on 16.06.2026. The sample has been analyzed from 17.06.2026 to 30.06.2026.

Sr. No.	Parameter	Result	Test Method
16.	Color	Hazy	-
17.	Odour	Odourless	-
18.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
19.	Turbidity (NTU)	24.0	IS:3025(Part:14)
20.	Sodium (mg/l)	79.0	APHA 3500-Na (B)
21.	Potassium (mg/l)	13.2	APHA 3500-K (B)
22.	Sodium Absorption Ratio	1.609	IS 11624:2019
23.	Boron (mg/l)	BDL(DL=0.5)	APHA 4500-B (C)
24.	Total Phosphate (mg/l)	BDL(DL=0.4)	APHA 4500-P (D)
25.	P Alkalinity as CaCO ₃ (mg/l)	6.0	IS:3025 (Part-23)
26.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
27.	Nickel (mg/l)	BDL(DL=0.0458)	APHA 3111-B
28.	Iron (mg/l)	1.805	APHA 3111-B
29.	Zinc (mg/l)	BDL(DL=0.0591)	APHA 3111-B
30.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
31.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.

CC to Member Secretary, HSPCB.

CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-514

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-11 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-514	
2.	Sample Collected from	Rain Water Harvesting Pit-11	
3.	pH value at 25°C	7.96	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	52.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	12.0	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	64.0	APHA 5220 (3) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	980.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	664.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	220.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	95.52	APHA 4500-SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	89.97	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:- Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-514

Dated: 01.07.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Ground Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-11 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	L.Brown	-
13.	Odour	Odourless	-
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
15.	Sulphide (mg/l)	10.4	APHA 4500-S ²⁻ (F)
16.	Fluoride(mg/l)	0.29	APHA 4500-F (D)
17.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
18.	Iron (mg/l)	0.250	APHA 3111-B
19.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

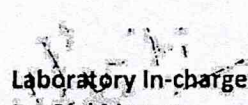

JSA-I
Megha


JSA-II
Manjali


SSA-I
Vipin


SSA-II
Jitesh

Sc.B
Piyush Kumar


Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-515

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-12 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-515	
2.	Sample Collected from	Rain Water Harvesting Pit-12	
3.	pH value at 25°C	8.03	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	65.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	7.8	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	40.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	383.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	260.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	130.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	52.97	APHA 4500 SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	34.98	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

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 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-515

Dated: 01.07.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-12 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	L.Brown	-
13.	Odour	Odourless	-
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
15.	Sulphide (mg/l)	9.8	APHA 4500-S ²⁻ (F)
16.	Fluoride (mg/l)	0.18	APHA 4500-F (D)
17.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
18.	Iron (mg/l)	0.873	APHA 3111-B
19.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-516

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-13 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-516	
2.	Sample Collected from	Rain Water Harvesting Pit-13	
3.	pH value at 25°C	7.81	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	124.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	20.0	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	100.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	948.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	644.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	235.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	118.96	APHA 4500-SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	62.98	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

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CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-516

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-13 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	Brown	-
13.	Odour	Mild	-
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
15.	Sulphide (mg/l)	13.0	APHA 4500-S ²⁻ (F)
16.	Fluoride (mg/l)	0.29	APHA 4500-F (D)
17.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
18.	Iron (mg/l)	1.895	APHA 3111-B
19.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

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2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.
CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-517

Dated: 01.07.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-14 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-517	
2.	Sample Collected from	Rain Water Harvesting Pit-14	
3.	pH value at 25°C	8.00	APHA 4500- H^+ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	1864.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	620.0	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	3520.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C ($\mu\text{S}/\text{cm}$)	4638.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	3154.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO_3 (mg/l)	1700.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	394.60	APHA 4500- SO_4^{2-} (E)
11.	Chloride (mg/l)	549.82	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-517

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-14 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	Black	-
13.	Odour	Bad	-
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
15.	Sulphide (mg/l)	664.0	APHA 4500-S ² (F)
16.	Fluoride(mg/l)	0.46	APHA 4500-F (D)
17.	Total Chromium (mg/l)	1.220	APHA 3111-B
18.	Iron (mg/l)	7.260	APHA 3111-B
19.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111 B
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-495

Dated: 30.06.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 17.06.2026 sample of Water collected by Dr. Satish, Sc.B accompanied by Sh. Bhupender Singh RO, Panipat and Sh. Kuldeep Singh, AEE from Rain Water Harvesting Pit-15 on 16.06.2026. The sample has been analyzed from 17.06.2026 to 30.06.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-495	
2.	Sample Collected from	Rain Water Harvesting Pit-15	
3.	pH value at 25°C	8.15	APHA 4500 H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	13.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	8.0	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	48.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	922.0	IS:3025 (Part 14)
8.	Total Dissolved Solid (mg/l)	585.0	APHA 2540 (C) (24 th Ed)
9.	Dissolved Oxygen (mg/l)	BDL(DL=01)	APHA 2540 O C) (24 th Ed)
10.	Total Hardness as CaCO ₃ (mg/l)	142.0	IS:3025 (Part-21)
11.	Calcium as CaCO ₃ (mg/l)	88.0	IS:3025 (Part-40)
12.	Magnesium as CaCO ₃ (mg/l)	54.0	IS:3025 (Part-46)
13.	Sulphate (mg/l)	105.36	APHA 4500-SO ₄ ²⁻ (E)
14.	Total Alkalinity as CaCO ₃ (mg/l)	140.0	IS:3025 (Part-23)
15.	Chloride (mg/l)	53.98	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-495

Dated: 30.06.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 17.06.2026 sample of Water collected by Dr. Satish, Sc.B accompanied by Sh. Bhupender Singh RO, Panipat and Sh. Kuldeep Singh, AEE from Rain Water Harvesting Pit-15 on 16.06.2026. The sample has been analyzed from 17.06.2026 to 30.06.2026.

Sr. No.	Parameter	Result	Test Method
16.	Color	Hazy	-
17.	Odour	Odourless	-
18.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
19.	Turbidity (NTU)	27.0	IS:3025(Part-14)
20.	Sodium (mg/l)	78.0	APHA 3500-Na (B)
21.	Potassium (mg/l)	12.8	APHA 3500-K (B)
22.	Sodium Absorption Ratio	2.834	IS 11624:2019
23.	Boron (mg/l)	BDL(DL=0.5)	APHA 4500-B (C)
24.	Total Phosphate (mg/l)	BDL(DL=0.4)	APHA 4500-P (D)
25.	P Alkalinity as CaCO ₃ (mg/l)	10.0	IS:3025 (Part-23)
26.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
27.	Nickel (mg/l)	BDL(DL=0.0458)	APHA 3111-B
28.	Iron (mg/l)	0.512	APHA 3111-B
29.	Zinc (mg/l)	BDL(DL=0.0591)	APHA 3111-B
30.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
31.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.
CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-518

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-16 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-518	
2.	Sample Collected from	Rain Water Harvesting Pit-16	
3.	pH value at 25°C	8.01	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	1278.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	180.0	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	928.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	4962.0	IS:3025 Part-14
8.	Total Dissolved Solid (mg/l)	3372.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	1700.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	511.40	APHA 4500-SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	824.74	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-518

Dated: 01.07.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-16 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Color	Black	
2.	Odour	Bad	
3.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
4.	Sulphide (mg/l)	672.0	APHA 4500-S ² (F)
5.	Fluoride(mg/l)	0.58	APHA 4500-F ⁻ (D)
6.	Total Chromium (mg/l)	0.9549	APHA 3111-B
7.	Iron (mg/l)	1.881	APHA 3111-B
8.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
9.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.
CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-519

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-17 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-519	
2.	Sample Collected from	Rain Water Harvesting Pit-17	
3.	pH value at 25°C	8.34	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	134.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	32.0	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	140.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	1208.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	822.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	330.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	114.71	APHA 4500-SO ₄ ²⁻ (E)
11.	Chloride (mg/l)	97.96	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-519

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-17 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
10.	Color	Brown	-
11.	Odour	Mild	-
12.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
13.	Sulphide (mg/l)	6.4	APHA 4500-S ² (F)
14.	Fluoride (mg/l)	0.25	APHA 4500-F ⁻ (D)
15.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
16.	Iron (mg/l)	1.143	APHA 3111-B
17.	Lead (mg/l)	BDL(DL=0.096)	APHA 3111-B
18.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory in-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.
CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-520

Dated: 01.07.2026

- ❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-18 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-520	
2.	Sample Collected from	Rain Water Harvesting Pit-18	
3.	pH value at 25°C	7.95	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	78.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	18.0	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	96.0	APHA 5220 (B) (24 th Ed)
7.	Conductivity at 25°C (µS/cm)	1786.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	1214.0	APHA 2540 (C) (24 th Ed)
9.	Total Hardness as CaCO ₃ (mg/l)	288.0	IS:3025 (Part-21)
10.	Sulphate (mg/l)	0.13	APHA 4500-SC ₄ ²⁻ (E)
11.	Chloride (mg/l)	64.97	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

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 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-520

Dated: 01.07.2026

❖ 100 KLPD Ligno Cellulose 2G Ethanol Plant including 10 TPD 2G /Ethanol Demo Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Water collected by Dr. Satish, Sc.B from Rain Water Harvesting Pit-18 on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
12.	Color	Yellowish	-
13.	Odour	Odourless	-
14.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
15.	Sulphide (mg/l)	9.6	APHA 4500-S ²⁻ (F)
16.	Fluoride(mg/l)	0.13	APHA 4500-F (D)
17.	Total Chromium (mg/l)	BDL(DL=0.173)	APHA 3111-B
18.	Iron (mg/l)	1.030	APHA 3111-B
19.	Lead (mg/l)	0.0982	APHA 3111 B
20.	Cadmium (mg/l)	BDL(DL=0.130)	APHA 3111-B

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory in-charge
Dr. Rinki Jangra

1. Sample Not Collected by us.
2. Sample Consumed in testing.
3. The test report relate only to the particular sample submitted for testing.
CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



HARYANA STATE POLLUTION CONTROL BOARD

SCO No.55, SECTOR-25, HUDA, PANIPAT

Ph.-(0180) 2672037, Telefax-2664951, E-mail: hspcbropr@gmail.com



No.HSPCB/PR/2026/ 1319

Dated 02.07.2026

To

M/s 100 KLPD Ligno Cellulosic 2G Ethanol Plant
Including 10 TPD 2G Ethanol Demo Plant of Panipat Oil Refinery and Petrochemical Complex IOCL,
Village Baholi Panipat

Sub:- Show cause notice for levying Environmental Compensation and Prosecution under section 43/47/48 & 33A of Water (Prevention & Control of Pollution) Act, 1974 for violation of section 24 of Water (Prevention & Control of Pollution) Act, 1974.

Whereas your unit is involved in process of manufacturing Ethanol Plant-Oil Refinery (mineral Oil or Petro Refineries) and covered under Red Category.

Whereas the site was inspected by this office 16/06/2026 and 22/06/2026. The sample was collected from the 18 Nos rainwater recharge pits provided in your premises. Now, as per analysis reports provided by the laboratory the parameters are exceeding for the Recharge Pit No.1, 5, 9, 14, 16, 17 and presence of BOD & COD has been noticed in all Rainwater Harvesting Pit.

Whereas from the result obtained it may be concluded that water entering your rainwater harvesting is contaminated due external source apart from roof top rain water and thus polluting the ground water.

Whereas Hon'ble National Green Tribunal (NGT) has issued the direction in several cases to impose the penalty on the non-complying polluting units and has been directing CPCB, all SPCBs including Haryana to implement "Polluter Pays" Principal in right spirit and to recover environmental compensation from the polluting units and to use the same for restoration of environmental damages caused to the public.

Whereas, Haryana State Pollution Control Board has issued order vide No. HSPCB/PLG/2019/6073 dated 29/04/2019 to adopt the said modalities/methodology for assessing, imposing and utilization of environmental compensation from the polluting units in the State of Haryana in the circumstances mentioned and amended vide order 29/12/2019 thereafter.

In view of that above, you are hereby directed to show cause within 15 days, as to Prosecution under section 43/47/48 of Water (Prevention & Control of Pollution) Act, 1974 for non-compliance of the provisions of the said Act. Beside this why environmental compensation may not be imposed on your unit as provisions of HSPCB orders issued vide No.HSPCB/PLG/2019/6073 dated 29/04/2019 and HSPCB/PLG/2019/742-763 and dated 20/12/2019.

In case you fail to comply with the deficiencies mentioned above within the above mentioned stipulated period, it will be presumed that you have nothing to say in this regard and accept the status above, which will warrant action under section 33-A of Water Act, 1974.

The reply of SCN submitted to concerned RO offices shall only be considered and in case unit submitted their reply to other offices of the Board. The same is not liable for consideration on any legal forum

Further representative of the units may also come in person at the concerned regional office to represent against the proposed action communicated through show cause notice, within the stipulated time period mentioned in show cause notice.

This may be treated as MOST URGENT.

DA/1.Copy of Analysis Reports attached.

CC:

A copy of the above is forwarded to the Chairman, HSPCB, Panchkula for information and further necessary action, please.

Regional Officer
 Panipat Region



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-376

Dated: 11.06.2026

❖ Drain No. 2 entering into District Panipat at Vill. Dadlana, Panipat

Description: Received on 04.06.2026 sample of Drain collected by Sh. Harender Goyat, AEE from Surface Water on 04.06.2026. The sample has been analyzed from 04.06.2026 to 11.06.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-376	
2.	Sample Collected from	Drain	
3.	pH value at 25°C	8.45	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	54.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	7.2	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	40.0	APHA 5220 (B) (24 th Ed)
7.	Oil & Grease (mg/l)	BDL(DL=02)	APHA 5520 (B) (24 th Ed)
8.	Conductivity at 25°C (µS/cm)	1426.0	IS:3025 (Part-14)
9.	Dissolved Oxygen (mg/l)	3.1	APHA 2540-O ₂ (C) (24 th Ed)
10.	Total Dissolved Solid (mg/l)	846.0	APHA 2540 (C) (24 th Ed)
11.	Chloride (mg/l)	114.96	IS:3025 (Part-32)
12.	Total Hardness as CaCO ₃ (mg/l)	372.0	IS:3025 (Part-21)
13.	Calcium as CaCO ₃ (mg/l)	148.0	IS:3025 (Part-40)
14.	Magnesium as CaCO ₃ (mg/l)	224.0	IS:3025 (Part-46)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:- Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-376

Dated: 11.06.2026

❖ Drain No. 2 entering into District Panipat at Vill. Dadlana, Panipat

Description: Received on 04.06.2026 sample of Drain collected by Sh. Harender Goyat, AEE from Surface Water on 04.06.2026. The sample has been analyzed from 04.06.2026 to 11.06.2026.

Sr. No.	Parameter	Result	Test Method
15.	Color	Yellowish	
16.	Odour	A.Odourless	
17.	Ammonical nitrogen as N (mg/l)	1.36	APHA 4500-NH3 (F)
18.	Nitrate nitrogen (mg/l)	2.49	APHA 4500-NO3- (B)
19.	Nitrite nitrogen (mg/l)	0.42	APHA 4500-NO2- (B)
20.	Total Coliform (MPN/100 ml)	700.0	IS 1622
21.	Fecal Coliform (MPN/100 ml)	400.0	IS 1622
22.	Fecal Streptococci (MPN/100 ml)	100.0	IS 1622
23.	Turbidity (NTU)	9.0	IS:3025(Part-14)
24.	Sodium (mg/l)	36.4	APHA 3500-Na (B)
25.	Potassium (mg/l)	5.0	APHA 3500-K (B)
26.	Sodium Absorption Ratio	0.81	IS 11624:2019
27.	Boron (mg/l)	BDL(DL=0.5)	APHA 4500-B (C)
28.	Total Phosphate (mg/l)	8.43	APHA 4500-P (D)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush

Laboratory In-charge
Dr. Panki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-381

Dated: 11.06.2026

❖ Drain No. 2 downstream of 2G Ethanol Plant at Propel Chowk, Panipat.

Description: Received on 04.06.2026 sample of Drain collected by Sh. Harender Goyat, AEE from Surface Water on 04.06.2026. The sample has been analyzed from 04.06.2026 to 11.06.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-381	
2.	Sample Collected from	Drain	
3.	pH value at 25°C	8.04	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	86.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	8.2	IS:3025 (Part-44)
6.	Chemical Oxygen Demand (mg/l)	44.0	APHA 5220 (B) (24 th Ed)
7.	Oil & Grease (mg/l)	BDL(DL=02)	APHA 5520 (B) (24 th Ed)
8.	Conductivity at 25°C (µS/cm)	1587.0	IS:3025 (Part-14)
9.	Dissolved Oxygen (mg/l)	12.5	APHA 2540-O C) (24 th Ed)
10.	Total Dissolved Solid (mg/l)	854.0	APHA 2540 (C) (24 th Ed)
11.	Chloride (mg/l)	119.96	IS:3025 (Part-32)
12.	Total Hardness as CaCO ₃ (mg/l)	410.0	IS:3025 (Part-21)
13.	Calcium as CaCO ₃ (mg/l)	164.0	IS:3025 (Part-40)
14.	Magnesium as CaCO ₃ (mg/l)	246.0	IS:3025 (Part-46)

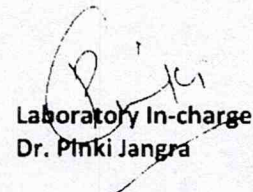

JSA-I
Megha


JSA -II
Manjali


SSA-I
Vipin


SSA-II
Jitesh

Sc.B
Piyush


Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-381

Dated: 11.06.2026

❖ Drain No. 2 downstream of 2G Ethanol Plant at Propel Chowk, Panipat.

Description: Received on 04.06.2026 sample of Drain collected by Sh. Harender Goyat, AEE from Surface Water on 04.06.2026. The sample has been analyzed from 04.06.2026 to 11.06.2026.

Sr. No.	Parameter	Result	Test Method
15.	Color	Yellowish	
16.	Odour	A.Odouless	
17.	Ammonical nitrogen as N (mg/l)	1.48	APHA 4500-NH3 (F)
18.	Nitrate nitrogen (mg/l)	2.16	APHA 4500-NO3- (B)
19.	Nitrite nitrogen (mg/l)	1.93	APHA 4500-NO2 (B)
20.	Total Coliform (MPN/100 ml)	900.0	IS 1622
21.	Fecal Coliform (MPN/100 ml)	200.0	IS 1622
22.	Fecal Streptococci (MPN/100 ml)	100.0	IS 1622
23.	Turbidity (NTU)	8.0	IS:3025(Part-14)
24.	Sodium (mg/l)	72.8	APHA 3500-Na (B)
25.	Potassium (mg/l)	9.6	APHA 3500-K (B)
26.	Sodium Absorption Ratio	1.55	IS 11624:2019
27.	Boron (mg/l)	BDL(DL=0.5)	APHA 4500-B (C)
28.	Total Phosphate (mg/l)	6.29	APHA 4500 P (D)

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Report No.M-496

Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Dated: 30.06.2026

❖ Drain No. 2, Opposite to 2G Ethanol Plant of Panipat Oil & Refinery Plant, Vill. Baholi, Panipat. (Drain No. 2)

Description: Received on 17.06.2026 sample of Surface Water collected by Dr. Satish, Sc.B accompanied by Sh. Bhupender Singh RO, Panipat and Sh. Kuldeep Singh, AEE from Drain No. 2 on 16.06.2026. The sample has been analyzed from 17.06.2026 to 30.06.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-496	
2.	Sample Collected from	Drain No. 2	
3.	pH value at 25°C	8.00	APHA 4500-H ⁺ (B) (24 th Ed)
4.	Total Suspended Solids (mg/l)	10.0	APHA 2540 (D) (24 th Ed)
5.	Biological Oxygen Demand (mg/l)	6.2	IS:3025 (Part 44)
6.	Chemical Oxygen Demand (mg/l)	28.0	APHA 5220 (B) (24 th Ed)
7.	Oil & Grease (mg/l)	BDL(DL=02)	APHA 5520 (B) (24 th Ed)
8.	Conductivity at 25°C (µS/cm)	344.0	IS:3025 (Part-14)
9.	Total Dissolved Solid (mg/l)	143.0	APHA 2540 (C) (24 th Ed)
10.	Total Hardness as CaCO ₃ (mg/l)	148.0	IS:3025 (Part-21)
11.	Calcium as CaCO ₃ (mg/l)	90.0	IS:3025 (Part-40)
12.	Magnesium as CaCO ₃ (mg/l)	58.0	IS:3025 (Part-46)
13.	Sulphate (mg/l)	34.28	APHA 4500-SO ₄ ²⁻ (E)
14.	Total Alkalinity as CaCO ₃ (mg/l)	140.0	IS:3025 (Part-23)
15.	Dissolved Oxygen (mg/l)	4.8	APHA 2540-O (C) (24 th Ed)
16.	Chloride (mg/l)	17.99	IS:3025 (Part-32)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

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CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-496

Dated: 30.06.2026

❖ Drain No. 2, Opposite to 2G Ethanol Plant of Panipat Oil & Refinery Plant, Vill. Baholi, Panipat. (Drain No. 2)

Description: Received on 17.06.2026 sample of Surface Water collected by Dr. Satish, Sc.B accompanied by Sh. Bhupender Singh RO, Panipat and Sh. Kuldeep Singh, AEE from Drain No. 2 on 16.06.2026. The sample has been analyzed from 17.06.2026 to 30.06.2026.

Sr. No.	Parameter	Result	Test Method
17.	Color	Light Greenish	-
18.	Odour	Odourless	-
19.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
20.	Nitrate nitrogen (mg/l)	BDL(DL=0.5)	APHA 4500-NO ₃ -(B)
21.	Total Coliform (MPN/100 ml)	900.0	IS 1622
22.	Fecal Coliform (MPN/100 ml)	200.0	IS 1622
23.	Fecal Streptococci (MPN/100 ml)	100.0	IS 1622
24.	Turbidity (NTU)	BDL(DL=01)	IS:3025(Part-14)
25.	Sodium (mg/l)	12.5	AP-4A-3500-Na (B)
26.	Potassium (mg/l)	1.2	APHA 3500-K (B)
27.	Sodium Absorption Ratio	0.445	IS 11624:2019
28.	Boron (mg/l)	BDL(DL=0.5)	APHA 4500-B (C)
29.	Total Phosphate (mg/l)	BDL(DL=0.4)	APHA 4500 P (D)
30.	P- Alkalinity as CaCO ₃ (mg/l)	BDL(DL=05)	IS:3025 (Part-23)

JSA-I
Megha

JSA -II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush Kumar

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-521

Dated: 01.07.2026

❖ Vicinity of 2G Ethanol Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Ground Water collected by Dr. Satish, Sc.B from Borewell on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-521	
2.	Sample Collected from	Uma Filling Station near 2G Ethanol Plant	
3.	Total Suspended Solids (mg/l)	BDL(DL=05)	APHA 2540 (D) (24 th Ed)
4.	Biological Oxygen Demand (mg/l)	BDL(DL=01)	IS:3025 (Part-44)
5.	Chemical Oxygen Demand (mg/l)	BDL(DL=05)	APHA 5220 (B) (24 th Ed)
6.	pH value at 25°C	8.40	APHA 4500-H ⁺ (B)
7.	Conductivity at 25°C (µS/cm)	1214.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	728.0	APHA 2540 (C)
9.	Chloride (mg/l)	77.47	IS:3025 (Part-32)
10.	Total Hardness as CaCO ₃ (mg/l)	248.0	IS:3025 (Part-21)
11.	Calcium as Ca (mg/l)	59.6	IS:3025 (Part-40)
12.	Magnesium as Mg (mg/l)	24.057	IS:3025 (Part-46)
13.	Sulphate (mg/l)	97.02	APHA 4500-SO ₄ ²⁻ (E)
14.	Total Alkalinity as CaCO ₃ (mg/l)	354.0	IS:3025 (Part-23)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush

Laboratory In-charge
Dr. Pinki Jangra

1. Sample Not Collected by us.
 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-521

Dated: 01.07.2026

❖ Vicinity of 2G Ethanol Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Ground Water collected by Dr. Satish, Sc.B from Borewell on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
15.	Color	Colourless	-
16.	Odour	Odourless	-
17.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-N-43 (F)
18.	Nitrate Nitrogen (mg/l)	BDL(DL=0.5)	APHA 4500-NO ₃ - (B)
19.	Turbidity (NTU)	BDL(DL=01)	IS:3025(Part-14)
20.	Fluoride(mg/l)	0.06	APHA 4500-F (D)
21.	Boron (mg/l)	BDL(DL=0.5)	APHA 4500-B (C)
22.	Total Phosphate (mg/l)	BDL(DL=0.4)	APHA 4500-P (D)
23.	P. Alkalinity as CaCO ₃ (mg/l)	21.0	IS:3025 (Part-23)

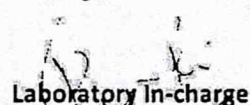

JSA-I
Megha


JSA -II
Manjali


SSA-I
Vipin


SSA-II
Jitesh

Sc.B
Piyush


Laboratory In-charge
Dr. Pinki Jangra

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- CC to Member Secretary, HSPCB.
CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-522

Dated: 01.07.2026

❖ Vicinity of 2G Ethanol Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Ground Water collected by Dr. Satish, Sc.B from Borewell on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-522	
2.	Sample Collected from	Premises of Manjit near 2G Ethanol Plant	
3.	Total Suspended Solids (mg/l)	BDL(DL=05)	APHA 2540 (D) (24 th Ed)
4.	Biological Oxygen Demand (mg/l)	BDL(DL=01)	IS:3025 (Part-44)
5.	Chemical Oxygen Demand (mg/l)	BDL(DL=05)	APHA 5220 (B) (24 th Ed)
6.	pH value at 25°C	8.16	APHA 4500-H ⁺ (B)
7.	Conductivity at 25°C (µS/cm)	1427.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	856.0	APHA 2540 (C)
9.	Chloride (mg/l)	76.97	IS:3025 (Part-32)
10.	Total Hardness as CaCO ₃ (mg/l)	360.0	IS:3025 (Part-21)
11.	Calcium as Ca (mg/l)	86.4	IS 3025 (Part-40)
12.	Magnesium as Mg (mg/l)	34.992.0	IS:3025 (Part-46)
13.	Sulphate (mg/l)	111.12	APHA 4500-SO ₄ ²⁻ (E)
14.	Total Alkalinity as CaCO ₃ (mg/l)	419.0	IS:3025 (Part-23)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush

Laboratory In-charge
Dr. Pinki Jangra

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 2. Sample Consumed in testing.
 3. The test report relate only to the particular sample submitted for testing.
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CC to Regional Office: Panipat.



Test Report
Type of Sample:- Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-522

Dated: 01.07.2026

❖ Vicinity of 2G Ethanol Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Ground Water collected by Dr. Satish, Sc.B from Borewell on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
15.	Color	Colourless	
16.	Odour	Odourless	
17.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH ₃ (F)
18.	Nitrate Nitrogen (mg/l)	BDL(DL=0.5)	APHA 4500-NO ₃ (B)
19.	Turbidity (NTU)	BDL(DL=01)	IS:3025(Part-14)
20.	Fluoride(mg/l)	0.18	APHA 4500-F (D)
21.	Boron (mg/l)	BDL(DL=0.5)	APHA 4500-B (C)
22.	Total Phosphate (mg/l)	BDL(DL=0.4)	APHA 4500-P (D)
23.	P, Alkalinity as CaCO ₃ (mg/l)	26.0	IS:3025 (Part-23)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush

Laboratory in-charge
Dr. Pinki Jangra

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CC to Regional Office: Panipat.

End of the Report



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana



Report No.M-523

Dated: 01.07.2026

❖ Vicinity of 2G Ethanol Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Ground Water collected by Dr. Satish, Sc.B from Borewell on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
1.	Sample Code	M-523	
2.	Sample Collected from	Premises of Ramesh, near 2G Ethanol Plant	
3.	Total Suspended Solids (mg/l)	BDL(DL=05)	APHA 2540 (D) (24 th Ed)
4.	Biological Oxygen Demand (mg/l)	BDL(DL=01)	IS:3025 (Part-44)
5.	Chemical Oxygen Demand (mg/l)	BDL(DL=05)	APHA 5220 (B) (24 th Ed)
6.	pH value at 25°C	8.30	APHA 4500-H ⁺ (B)
7.	Conductivity at 25°C (µS/cm)	2194.0	IS:3025 (Part-14)
8.	Total Dissolved Solid (mg/l)	1314.0	APHA 2540 (C)
9.	Chloride (mg/l)	114.96	IS:3025 (Part-32)
10.	Total Hardness as CaCO ₃ (mg/l)	288.0	IS:3025 (Part-21)
11.	Calcium as Ca (mg/l)	69.2	IS:3025 (Part-40)
12.	Magnesium as Mg (mg/l)	27.945	IS:3025 (Part-46)
13.	Sulphate (mg/l)	134.73	APHA 4500-SO ₄ ²⁻ (E)
14.	Total Alkalinity as CaCO ₃ (mg/l)	635.0	IS:3025 (Part-23)

JSA-I
Megha

JSA-II
Manjali

SSA-I
Vipin

SSA-II
Jitesh

Sc.B
Piyush

Laboratory In-charge
Dr. Pinki Jangra

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CC to Regional Office: Panipat.



Test Report
Type of Sample:-Monitoring
Haryana State Pollution Control Board's Laboratory
C-11, Sector-06, Panchkula, Haryana

Report No.M-523

Dated: 01.07.2026

❖ Vicinity of 2G Ethanol Plant of Panipat Oil Refinery & Petrochemical Complex, Panipat.

Description: Received on 23.06.2026 sample of Ground Water collected by Dr. Satish, Sc.B from Borewell on 22.06.2026. The sample has been analyzed from 23.06.2026 to 01.07.2026.

Sr. No.	Parameter	Result	Test Method
15.	Color	Colourless	-
16.	Odour	Odourless	-
17.	Ammonical nitrogen as N (mg/l)	BDL(DL=0.5)	APHA 4500-NH3 (F)
18.	Nitrate Nitrogen (mg/l)	BDL(DL=0.5)	APHA 4500-NO3- (B)
19.	Turbidity (NTU)	BDL(DL=01)	IS:3025(Part-14)
20.	Fluoride(mg/l)	0.52	APHA 4500-F (D)
21.	Boron (mg/l)	BDL(DL=0.5)	APHA 4500-B (C)
22.	Total Phosphate (mg/l)	BDL(DL=0.4)	APHA 4500-P (D)
23.	P. Alkalinity as CaCO ₃ (mg/l)	25.0	IS:3025 (Part-23)

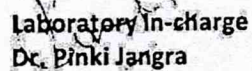

JSA-I
Megha


JSA-II
Manjali


SSA-I
Vipin


SSA-II
Jitesh

Sc.B
Piyush


Laboratory In-charge
Dr. Pinki Jangra

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End of the Report