

**BEFORE THE NATIONAL GREEN TRIBUNAL  
SOUTHERN ZONE, CHENNAI**

**Original Application No.73 of 2021 (SZ)**

IN THE MATTER OF:

Visakha Pawan Praja Karmika  
Sangham, Andhra Pradesh

...Applicant

:Vs:

Union of India  
Rep. by its Secretary,  
Ministry of Environment, Forest & CC  
Indira Paryavaran Bhavan,  
Jorbagh, NewDelhi-110 003 and Others

... Respondents

**PAPER BOOK-II  
ANNEXURES FILED ON BEHALF OF HPCL – 7<sup>th</sup> RESPONDENT**

**M/s. KING & PARTRIDGE  
ADVOCATES FOR  
7<sup>th</sup> RESPONDENT**

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... Respondents

**PAPER BOOK – II**

**DOCUMENTS FILED BY THE 7<sup>th</sup> RESPONDENT**

<b>S.No</b>	<b>Date</b>	<b>Description of documents</b>	<b>Pg. No.</b>
1.		Brief compliance report	1
2.	16.03.2015	Consent order	2-7
3.		Latest Test report by Pragathi Labs & Consultants Pvt Ltd	8-10
4.		Analysis report treated effluent by MOEF recognized 3 <sup>rd</sup> party laboratory for the past three months	11-22
5.		Photographs	23-24

Certified that the above documents filed are the true copies of the original.

Dated at Chennai on this the 12<sup>th</sup> day of April, 2021

7<sup>th</sup> Respondent

Advocates for 7<sup>th</sup> Respondent

## ANNEXURE-I

S.No	Recommendations in IISc Odour Study Report	Action Taken by HPCL
1	<p>Even if industries follow the good practices and maintain the emissions within the limits, there are possibilities of episodic odour issues. In such cases, it is a responsibility of each and every industry in the region towards community to cooperate and participate in taking the odour problem in Visakhapatnam area.</p>	<p>Whenever information on odour issue was received, the location was visited and checked.</p> <p>Interacted with the person who has provided the information.</p> <p>Checks were carried out inside the refinery and no abnormalities were observed. The same was promptly communicated to the person/authority as applicable.</p>
2	<p>APPCB being the nodal agency should form an odour squad comprising members from APPCB, each stakeholder industry, prominent community members and experts in environmental areas. Typical tasks of the squad should include:</p> <ul style="list-style-type: none"> <li>• In case of any episode, the APPCB nominee to inform all members about the complaint and locations</li> <li>• The squad to visit the site and take ambient air samples in Tedier bags which should be stored under appropriate conditions and transported immediately (for GC-MS analysis) to a recognized laboratory,</li> <li>• Upon receiving the complaints from the squad, each industry should check for abnormal emissions/operating conditions, if any, in their industry and report to APPCB and take necessary actions.</li> </ul>	<p>As and when complaints were received, checked the plant conditions for any abnormality. No abnormalities were observed and communicated the same to APPCB.</p>
3	<p>APPCB should initiate community medical study to correlate the mortality rates before and after the odour episodes and compare the data during non-episodes to evaluate the hazard</p>	<p>Pertains to APPCB.</p>
4	<p>Use of respiratory masks must be encouraged whenever odour is experienced</p>	<p>Action by Odour squad.</p>
5	<p>Public education is an important concept in odour management. The odour squad should strive to impress upon the people of Visakhapatnam that the common odour one might smell from the industries or any other source will not have serious impact to the average person's health if released in small amounts. It is important to maintain public decorum and take steps to mitigate the panic among the general public through proper education.</p>	<p>Action by Odour squad.</p>



# ANDHRA PRADESH POLLUTION CONTROL BOARD

Paryavarana Bhavan, A-III, Industrial Estate,  
Sanathnagar, Hyderabad-500 018  
Phone : 040-23887500, Website : www.appcb.ap.nic.in

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## RED CATEGORY RENEWAL OF CONSENT & AUTHORISATION ORDER BY REGISTERED POST WITH ACKNOWLEDGEMENT DUE

**Consent Order No : APPCB/VSP/VSP/210/HO/CFO/2015- 2062**

**Date:16 .03.2015**

(Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof, Operation of the plant under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Issue of Authorisation under Rule 5 of the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 & Amendments thereof.

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974, under section 21 of Air (Prevention & Control of Pollution) Act 1981 and Authorisation under the provisions of HW (MH & TM) Rules, 2008 (hereinafter referred to as 'the Acts', 'the Rules') and the rules and orders made thereunder to:

**M/s. Hindustan Petroleum Corporation Ltd.,  
Diesel Hydro Treatment and Associated facilities,  
(EURO-IV HSD Specifications)  
M/s. HPCL(Visakha Refinery) premises,  
PO Box No:15,Malkapuram,  
Visakhapatnam- 530011**

**E-mail: nandanwarss@hpcl.co.in**

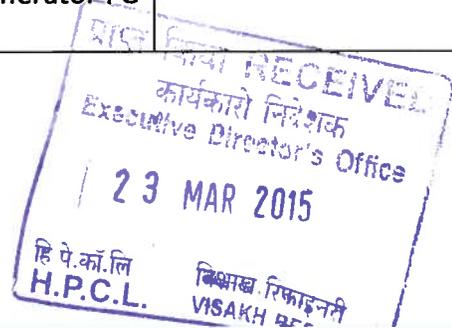
(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of emissions per hour from the chimneys as detailed below:

### i) Out lets for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge KLD	Point of Disposal
1.	Process & washings	528	Into Meghadrigedda surplus course finally joining to Sea after treatment in ETP (I to IV).
2.	DM waste water	240	
3.	Domestic	288	Onland for plantation after treatment in STP.

### (i) Emissions from chimneys:

Chimney No.	Description of Chimney	Quantity of Emissions at peak flow (m <sup>3</sup> /hr)
1.	Attached to DHT Feed Heater (2.2 MMTPA) / Product Fractionators reboiler	--
2.	Attached to HGU (Naphtha superheater) FG firing (36,000 TPA)	--
3.	Attached to HGU (Tubular Reformer) Naphtha firing	--
4.	Attached to Sulphur Recovery Unit Incinerator FG firing	--



## (iii) HAZARDOUS WASTE AUTHORISATION (FORM – II) [See Rule 5 (4)]:

M/s. Hindustan Petroleum Corporation Ltd., Diesel Hydro Treatment and Associated facilities, (EURO-IV HSD Specifications) M/s. HPCL(Visakha Refinery) premises, PO Box No:15,Malkapuram, Visakhapatnam is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

• HAZARDOUS WASTES WITH DISPOSAL OPTION:

Sl. No.	Process unit	Stream	Quantity	Mode of disposal
1.	<b>Diesel Hydrotreater unit</b>			Shall be disposed to APPCB / CPCB approved agencies.
	i) Reactor -1	4.4 of Schedule - I	190 Tons/2 years	
	ii) Reactor – 2	4.4 of Schedule - I	279 Tons/2 years	
2.	<b>Hydrogen generation unit (HGU)</b>			
	i) Hydrodesulphurizer/ Reformer etc.	4.4 of Schedule - I	302.3 M <sup>3</sup> /2 years	
	ii) Desulphurizer (ZnO)	4.4 of Schedule - I	106.1 M <sup>3</sup> /6 months	
	iii) Chlorine Guard	4.4 of Schedule - I	32.8 M <sup>3</sup> /6 months	
3.	<b>Sulphur Recovery Unit (SRU)</b>			
	Catalyst/ support bed etc.	4.2 of Schedule - I	31.2 M <sup>3</sup> /3 years	

This consent order is valid for Diesel Hydro Treating and Associated facilities as mentioned below to produce Diesel to meet EURO – IV specification (50 ppm of sulphur content) of capacity 2.2 MMTPA as per Auto Fuel Policy of the Government of India within existing refinery premises. The process is an enriched treatment facility within the permitted 10 MMTPA crude through put of Visakha Refinery.

Sl. No	Process units	Capacity
1	Diesel Hydro Treatment Unit (DHT)	2.2 MMTPA of Feed
2	Hydrogen Generation Unit	36000 TPA of H <sub>2</sub>
3	Sulphur Recovery Unit-I (SRU) with TGT unit	300 TPD of Sulphur product
4	Amine Regeneration Unit (ARU)-I	300 T/hr
5	Fuel Gas Amine Treating Unit (FGT)-I	20 T/hr

This order is subject to the provisions of 'the Acts' and the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorization should be valid for a period ending with the 31<sup>st</sup> day of December, 2015.

Sd/-  
MEMBER SECRETARY

To  
M/s. Hindustan Petroleum Corporation Ltd.,  
Diesel Hydro Treatment and Associated facilities,  
(EURO-IV HSD Specifications)  
M/s. HPCL(Visakha Refinery) premises,  
PO Box No:15,Malkapuram,  
Visakhapatnam- 530011

//T.C.F.B.O//

*15/12/15*

JOINT CHIEF ENVIRONMENTAL ENGINEER  
UNIT HEAD - IV

**SCHEDULE - A**

1. The applicant shall make applications **through online** for renewal of Consent (under Water and Air Acts) and Authorisation under HWM Rules at **least 120 days before the date of expiry of this order**, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorisation of the Board along with detailed compliance to the conditions stipulated in the CFO and HWA Order.
2. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water(Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air(Prevention and Control of Pollution) Act, 1981.
3. The industry may explore the possibility of tapping solar energy for their energy requirements.
4. All other conditions stipulated in the Schedule – A of the earlier combined CFO & HWA order No: **APPCB/VSP/VSP/210/HO/CFO/2014-40, dated 20.10.2014** remains same. The industry shall ensure consistent compliance of each condition of Schedule-A.

**SCHEDULE - B**

1. The effluent discharged should not contain constituents in excess of the tolerance limits mentioned below. Further, the following parameters should be complied for Process & Wash effluents at the Outlets of ETP-I,II,III & IV i.e., before mixing with Cooling waste water discharge:

Outlet	Parameter	Limiting Standards
1 & 2	pH	6.50 – 8.50
	Oil & Grease	5 mg/l
	Chromium Hexavalent	0.10 mg/l
	Pb	0.10 mg/l
	Total Suspended Solids	100 mg/l
	Phenols	0.35 mg/l
	Cyanides as CN	0.20 mg/l
	Chemical Oxygen Demand	125 mg/l
	Biochemical Oxygen Demand	15 mg/l
	Sulphides (as S)	0.5 mg/l
	Ammonia as N	15.0 mg/l
	P	3.0 mg/l
	Cr (Total)	2.0 mg/l
	Hg	0.01mg/l
	Zn	5.0 mg/l
	Ni	1.0 mg/l
Cu	1.0 mg/l	
Benzene	0.1 mg/l	

2. The water consumption shall not exceed the quantities mentioned below:

Sl. No.	Purpose	Quantity (KLD)
1.	Process & washings	6576
2.	Cooling	1536
3.	Domestic	360
	<b>Total</b>	<b>8472</b>

The industry shall maintain separate meters with necessary pipe-line for assessing the quantity of water used for each purpose.

3. The industry shall file the water Cess returns in Form-I as required under section (5) of Water (Prevention and Control of Pollution) Cess Act, 1977 on or before the **5<sup>th</sup> of every calendar month**, showing the quantity of water consumed in the previous month along with

water meter readings. The industry shall remit water Cess as per the assessment orders as and when issued by Board.

4. The emissions should not contain constituents in excess of the prescribed limits mentioned below:

Chimney No.	Parameter	Emission Standards (mg/Nm <sup>3</sup> )
1 to 3	Particulate matter	50
4	Particulate matter	10

5. The industry shall comply with ambient air quality standards of PM<sub>10</sub> (Particulate Matter size less than 10µm) - 100 µg/ m<sup>3</sup>; PM<sub>2.5</sub> (Particulate Matter size less than 2.5 µm) - 60 µg/ m<sup>3</sup>; SO<sub>2</sub> - 80 µg/ m<sup>3</sup>; NO<sub>x</sub> - 80 µg/m<sup>3</sup>, outside the factory premises at the periphery of the industry.

Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009

Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)

Night time (10 PM to 6 AM) - 70 dB (A).

6. The industry shall not manufacture any product, other than those mentioned in this order.
7. The industry shall comply with the commitments mentioned in the letter dated 05.09.2014. The industry shall maintain water meters and shall submit reports every month to RO-Visakhapatnam.
8. The industry shall submit commitment to connect and upload the online stack emission equipments (both for Refinery and for DHT), CAAQMs and effluent monitoring data at APPCB as well as CPCB websites before 31.03.2015 as per CPCB directions dated 05.02.2014. As per CPCB guidelines, M/s. HPCL(Visakha Refinery) has to provide effluent monitoring system for pH, BOD, COD, TSS as well as emission monitoring system for PM, CO, NOx and SO<sub>2</sub>.
9. The industry shall construct Sewage Treatment Plant (STP) for treating domestic effluents within 6 months.
10. The industry shall comply with all the directions stipulated in the EC order dated 02.09.2009 and 06.04.2011.
11. The industry shall comply with all the directions stipulated in the CFE order No. 210/PCB/CFE/RO-VSP/HO/2010-2184, dated 17.10.2011 and CFE (Amendment Order) No. 210/PCB/CFE/RO-VSP/HO/2010-3627, dated 03.02.2012.
12. The industry shall obtain necessary CFE amendments regarding increase in water consumption, source of water, increase in waste water generation, change in disposal system for DM waste water.
13. Thick green belt shall be maintained all along the boundary of the industry with minimum area of 33% of total project area. Existing Green belt shall not be disturbed in the proposed expansion / construction activity. The industry shall participate in Green Visakha programme and shall achieve the targets in time frames specified.
14. Dyke walls to be provided around storage tanks. Spillages / oil water mixture if any, shall be contained in the dykes and treated in the existing ETP and the oil shall be taken to storage tank. The treated wastewater conforming to onland for irrigation standards only shall be used for gardening purpose within the premises.
15. The industry shall install automatic leak detection system supported hooters or alarm system.
16. Mock drills should be conducted atleast twice a year.
17. Emergency visual indicators should be installed at main gate and other important points so that critical information is available within 2 minutes of declaring emergency.
18. Wind sock(s) should be positioned such that they are easily visible to all persons and one of them should be visible at night.
19. Required water drains and Fire fighting hydrants should be provided in the facility.

20. The industry shall ensure compliance of standards notified for oil refinery industry by MOE&F, GOI vide notification dated 18.03.2008.
21. The industry shall provide adequate Sulphur recovery unit for flue gases in order to maintain the over all emission load for SO<sub>2</sub> emissions shall be less than 11.5 TPD even after implementation of DHT unit.
22. The industry shall maintain Flue Gas Desulphurisation units at both FCCUs to reduce the SO<sub>2</sub> emission levels.
23. The industry shall take measures to achieve 99.5% of Sulphur recovery as per the MOE&F standards.
24. The industry shall inform the breakdowns, shutdowns, non operations of pollution control systems and startup & shutdown periods of process units to APPCB duly taking alternate measures.
25. The refinery shall furnish the details of crude processed i.e., it shall specifically furnish the percentage of individual constituents of the crude processed, whenever it is required by A.P. Pollution Control Board.
26. The stack and online AAQ monitoring analysers shall be regularly calibrated so as to record the actual values of air pollutants.
27. The facility shall not cause any odour nuisance problem.
28. The industry shall comply with New Standard for Oil Refineries which have been notified by MOEF vide GSR No. 186(E), dt.18.03.2008 should be implemented.
29. In the plant area, values of VOC (non-methane hydrocarbons) should be monitored as per EPA notification.
30. The industry shall comply with the recommendations made by M/s. NEERI.
31. The industry shall commence the commercial operations after informing to the Board.
32. The industry shall ensure that IISc., expedite the study and implement the recommendations, in order to control odour nuisance.
33. The industry shall comply with Task Force directions issued by the Board from time to time.
34. The applicant shall submit Environment statement in Form V before 30<sup>th</sup> September of every year as per Rule No.14 of E (P) Rules, 1986 & amendments.
35. The conditions are stipulated without prejudice to the rights and contentions of this Board in any Hon'ble court of law.

**SCHEDULE – C**

***[see rule 5(4)]***

**[ CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES ]**

1. The industry shall give top priority for waste minimization and cleaner production practices.
2. The industry shall not store hazardous waste for more than 90 days as per the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 and amendments thereof.
3. The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal.
4. The industry shall not dispose Waste oils to the traders and the same shall be disposed to the authorized Reprocessors/ Recyclers.
5. The industry shall dispose Used Lead Acid Batteries to the manufacturers / dealers on buyback basis.
6. The industry shall take necessary practical steps for prevention of oil spillages and carry over of oil from the premises.
7. The industry shall maintain 6 copy manifest system for transportation of waste generated and a copy shall be submitted to Board Office and concerned Regional Office.

8. The industry shall maintain good house keeping & maintain proper records for Hazardous Wastes stated in Authorisation.
9. The industry shall maintain proper records for Hazardous Wastes stated in Authorisation in FORM-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 22(2) of the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 and amendments thereof.
10. The industry shall dispose of e-waste to the authorised recyclers only.
11. The industry shall conform to the co-processing guidelines of CPCB in sending wastes to co-processing for cement plants.
12. The industry shall submit the condition wise compliance report of the conditions stipulated in Schedule A, B & C of this Order on half yearly basis to Board Office, Hyderabad and concerned Regional Office.

Sd/-  
MEMBER SECRETARY

To  
M/s. Hindustan Petroleum Corporation Ltd.,  
Diesel Hydro Treating facilities (EURO-IV HSD Specifications)  
of M/s. HPCL(Visakh Refinery),  
PO Box No:15,Malkapuram,  
Visakhapatnam- 530011

//T.C.F.B.O//

*18/3/15*

\* JOINT CHIEF ENVIRONMENTAL ENGINEER  
UNIT HEAD - IV









# SV ENVIRO LABS & CONSULTANTS

(Environmental Engineers & Consultants in Pollution Control)

**Corporate Office :** Enviro House, B-1, Block-B, IDA, Autonagar, Visakhapatnam-530012  
& Laboratory www.svenviolabs.com, Ph:0891-2755528, Cell: +91 9440338628  
info@svenviolabs.com, svenviro\_labs@yahoo.co.in

**Branch Office :** 2-53, Mahipala Street, Yanam - 533464.

**Recognized by Govt.of India-MoEF & CC, New Delhi, Accredited by : NABL & NABET**



Ref: SVELC/HPCL-VR/21-02/003

Date: 09-03-2021

NAME AND ADDRESS : **Mr. G.Bhagavan, DGM – Technical,  
M/s. Hindustan Petroleum Corporation Ltd.,  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.**

SAMPLE PARTICULARS : **EFFLUENT**

SOURCE OF COLLECTION : **MHF –I Outlet**

SAMPLE COLLECTED BY : **SVELC**

QUANTITY OF SAMPLE : **3 lts**

TYPE OF CONTAINER : **2 PVC Containers and 1 Glass Container each 1ltr**

DATE OF COLLECTION : **25-02-2021**

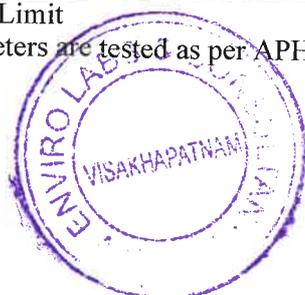
## TEST REPORT

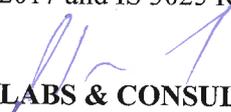
S. No.	Parameter	Unit	Result	Limits	Method followed
1.	Ph	--	7.84	6.5-8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	-	-	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	-	-	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	-	-	IS 3025, Part 44
5.	Oil & Grease	mg/l	<1.0	1.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	-	-	APHA, 5530-C
7.	Sulphides as S	mg/l	-	-	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	-	-	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	-	-	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	-	-	IS 3025, Part 34
11.	Phosphorus as P	mg/l	-	-	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	-	-	APHA, 3120-B
15.	Mercury as Hg	mg/l	-	-	APHA, 3120-B
16.	Zinc as Zn	mg/l	-	-	APHA, 3120-B
17.	Nickel as N	mg/l	-	-	APHA, 3120-B
18.	Copper as Cu	mg/l	-	-	APHA, 3120-B
19.	Vanadium as V	mg/l	-	-	APHA, 3120-B
20.	Benzene	mg/l	-	-	APHA, 6410-B
21.	Benzo pyrene	mg/l	-	-	APHA, 6440-B

\*BDL – Below Detectable Limit

**Note:** All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

  
CHECKED BY



  
SV ENVIRO LABS & CONSULTANTS



# SV ENVIRO LABS & CONSULTANTS

(Environmental Engineers & Consultants in Pollution Control)

**Corporate Office :** Enviro House, B-1, Block-B, IDA, Autonagar, Visakhapatnam-530012  
**& Laboratory** www.svenviolabs.com, Ph:0891-275528, Cell: +91 9440338628  
info@svenviolabs.com, svenviro\_labs@yahoo.co.in

**Branch Office :** 2-53, Mahipala Street, Yanam - 533464.

**Recognized by Govt.of India-MoEF & CC, New Delhi, Accredited by : NABL & NABET**



Ref: SVELC/HPCL-VR/21-02/004

Date: 09-03-2021

NAME AND ADDRESS : **Mr. G.Bhagavan, DGM – Technical,  
M/s. Hindustan Petroleum Corporation Ltd.,  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.**

SAMPLE PARTICULARS : **EFFLUENT**

SOURCE OF COLLECTION : **MHF –II Outlet**

SAMPLE COLLECTED BY : **SVELC**

QUANTITY OF SAMPLE : **3 lts**

TYPE OF CONTAINER : **2 PVC Containers and 1 Glass Container each 1ltr**

DATE OF COLLECTION : **25-02-2021**

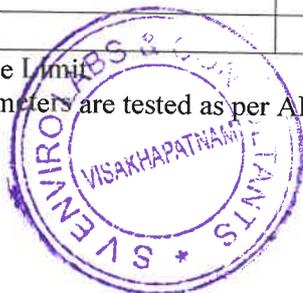
## TEST REPORT

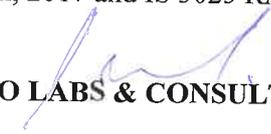
S. No.	Parameter	Unit	Result	Limits	Method followed
1.	pH	--	8.1	6.5-8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	-	-	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	-	-	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	-	-	IS 3025, Part 44
5.	Oil & Grease	mg/l	<1.0	1.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	-	-	APHA, 5530-C
7.	Sulphides as S	mg/l	-	-	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	-	-	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	-	-	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	-	-	IS 3025, Part 34
11.	Phosphorus as P	mg/l	-	-	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	-	-	APHA, 3120-B
15.	Mercury as Hg	mg/l	-	-	APHA, 3120-B
16.	Zinc as Zn	mg/l	-	-	APHA, 3120-B
17.	Nickel as N	mg/l	-	-	APHA, 3120-B
18.	Copper as Cu	mg/l	-	-	APHA, 3120-B
19.	Vanadium as V	mg/l	-	-	APHA, 3120-B
20.	Benzene	mg/l	-	-	APHA, 6410-B
21.	Benzo pyrene	mg/l	-	-	APHA, 6440-B

\*BDL – Below Detectable Limit

**Note:** All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

  
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[info@svenviolabs.com](mailto:info@svenviolabs.com), [svenviro\\_labs@yahoo.co.in](mailto:svenviro_labs@yahoo.co.in)

**Branch Office :** 2-53, Mahipala Street, Yanam - 533464.

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Ref: SVELC/HPCL-VR/21-02/001

Date: 09-03-2021

NAME AND ADDRESS : **Mr. G.Bhagavan, DGM – Technical,  
M/s. Hindustan Petroleum Corporation Ltd.,  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.**

SAMPLE PARTICULARS : **EFFLUENT**

SOURCE OF COLLECTION : **ETP-I DMF Outlet**

SAMPLE COLLECTED BY : **SVELC**

QUANTITY OF SAMPLE : **3 lts**

TYPE OF CONTAINER : **2 PVC Containers and 1 Glass Container each 1ltr**

DATE OF COLLECTION : **25-02-2021**

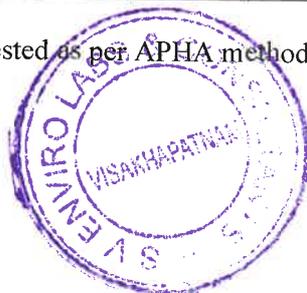
## TEST REPORT

S. No.	Parameter	Unit	Result	Limits	Method followed
1.	pH	--	6.72	6.5 – 8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	12	20	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	86	125	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	13	15	IS 3025, Part 44
5.	Oil & Grease	mg/l	3	5.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	0.06	0.35	APHA, 5530-C
7.	Sulphides as S	mg/l	0.14	0.5	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	<0.01	0.2	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	0.56	15.0	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	1.38	40	IS 3025, Part 34
11.	Phosphorus as P	mg/l	0.31	3.0	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	<0.01	0.1	APHA, 3120-B
15.	Mercury as Hg	mg/l	<0.01	0.01	APHA, 3120-B
16.	Zinc as Zn	mg/l	<0.01	5.0	APHA, 3120-B
17.	Nickel as N	mg/l	<0.01	1.0	APHA, 3120-B
18.	Copper as Cu	mg/l	<0.01	1.0	APHA, 3120-B
19.	Vanadium as V	mg/l	<0.01	<0.01	APHA, 3120-B
20.	Benzene	mg/l	<0.01	0.1	APHA, 6410-B
21.	Benzo pyrene	mg/l	<0.01	0.2	APHA, 6440-B

\*BDL – Below Detectable Limit

**Note:** All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

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info@svenviolabs.com, svenviro\_labs@yahoo.co.in

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14



Ref: SVELC/HPCL-VR/21-02/002

Date: 09-03-2021

NAME AND ADDRESS : **Mr. G.Bhagavan, DGM – Technical,  
M/s. Hindustan Petroleum Corporation Ltd.,  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.**

SAMPLE PARTICULARS : **EFFLUENT**

SOURCE OF COLLECTION : ETP-IV ACF Outlet

SAMPLE COLLECTED BY : SVELC

QUANTITY OF SAMPLE : 3 lts

TYPE OF CONTAINER : 2 PVC Containers and 1 Glass Container each 1ltr

DATE OF COLLECTION : 25-02-2021

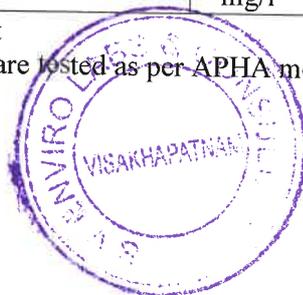
## TEST REPORT

S. No.	Parameter	Unit	Result	Limits	Method followed
1.	Ph	--	8.11	6.5 – 8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	9	20	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	64.5	125	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	9.8	15	IS 3025, Part 44
5.	Oil & Grease	mg/l	2.2	5.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	0.1	0.35	APHA, 5530-C
7.	Sulphides as S	mg/l	0.12	0.5	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	<0.01	0.2	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	0.14	15.0	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	1.41	40	IS 3025, Part 34
11.	Phosphorus as P	mg/l	0.12	3.0	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	<0.01	0.1	APHA, 3120-B
15.	Mercury as Hg	mg/l	<0.01	0.01	APHA, 3120-B
16.	Zinc as Zn	mg/l	<0.01	5.0	APHA, 3120-B
17.	Nickel as N	mg/l	<0.01	1.0	APHA, 3120-B
18.	Copper as Cu	mg/l	<0.01	1.0	APHA, 3120-B
19.	Vanadium as V	mg/l	<0.01	0.2	APHA, 3120-B
20.	Benzene	mg/l	<0.01	0.1	APHA, 6410-B
21.	Benzo pyrene	mg/l	<0.01	0.2	APHA, 6440-B

\*BDL – Below Detectable Limit

**Note:** All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

  
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Ref: SVELC/HPCL-VR/21-01/004

Date: 10-02-2021

NAME AND ADDRESS : Mr. G.Bhagavan, DGM – Technical,  
M/s. Hindustan Petroleum Corporation Ltd.,  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.

SAMPLE PARTICULARS : EFFLUENT

SOURCE OF COLLECTION : MHF –II Outlet

SAMPLE COLLECTED BY : SVELC

QUANTITY OF SAMPLE : 3 lts

TYPE OF CONTAINER : 2 PVC Containers and 1 Glass Container each 1ltr

DATE OF COLLECTION : 29-01-2021

## TEST REPORT

S. No.	Parameter	Unit	Result	Limits	Method followed
1.	pH	--	7.2	6.5-8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	-	-	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	-	-	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	-	-	IS 3025, Part 44
5.	Oil & Grease	mg/l	<1.0	1.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	-	-	APHA, 5530-C
7.	Sulphides as S	mg/l	-	-	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	-	-	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	-	-	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	-	-	IS 3025, Part 34
11.	Phosphorus as P	mg/l	-	-	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	-	-	APHA, 3120-B
15.	Mercury as Hg	mg/l	-	-	APHA, 3120-B
16.	Zinc as Zn	mg/l	-	-	APHA, 3120-B
17.	Nickel as N	mg/l	-	-	APHA, 3120-B
18.	Copper as Cu	mg/l	-	-	APHA, 3120-B
19.	Vanadium as V	mg/l	-	-	APHA, 3120-B
20.	Benzene	mg/l	-	-	APHA, 6410-B
21.	Benzo pyrene	mg/l	-	-	APHA, 6440-B

\*BDL – Below Detectable Limit

Note: All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

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**Branch Office :** 2-53, Mahipala Street, Yanam - 533464.

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Ref: SVELC/HPCL-VR/21-01/003

Date: 10-02-2021

NAME AND ADDRESS : **Mr. G.Bhagavan, DGM – Technical,  
M/s. Hindustan Petroleum Corporation Ltd.,  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.**

SAMPLE PARTICULARS : **EFFLUENT**

SOURCE OF COLLECTION : **MHF –I Outlet**

SAMPLE COLLECTED BY : **SVELC**

QUANTITY OF SAMPLE : **3 lts**

TYPE OF CONTAINER : **2 PVC Containers and 1 Glass Container each 1ltr**

DATE OF COLLECTION : **29-01-2021**

## TEST REPORT

S. No.	Parameter	Unit	Result	Limits	Method followed
1.	Ph	--	6.86	6.5-8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	-	-	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	-	-	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	-	-	IS 3025, Part 44
5.	Oil & Grease	mg/l	<1.0	1.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	-	-	APHA, 5530-C
7.	Sulphides as S	mg/l	-	-	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	-	-	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	-	-	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	-	-	IS 3025, Part 34
11.	Phosphorus as P	mg/l	-	-	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	-	-	APHA, 3120-B
15.	Mercury as Hg	mg/l	-	-	APHA, 3120-B
16.	Zinc as Zn	mg/l	-	-	APHA, 3120-B
17.	Nickel as N	mg/l	-	-	APHA, 3120-B
18.	Copper as Cu	mg/l	-	-	APHA, 3120-B
19.	Vanadium as V	mg/l	-	-	APHA, 3120-B
20.	Benzene	mg/l	-	-	APHA, 6410-B
21.	Benzo pyrene	mg/l	-	-	APHA, 6440-B

\*BDL – Below Detectable Limit

**Note:** All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

  
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**Branch Office :** 2-53, Mahipala Street, Yanam - 533464.

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Ref: SVELC/HPCL-VR/21-01/002

Date: 10-02-2021

NAME AND ADDRESS : **Mr. G.Bhagavan, DGM – Technical,**  
**M/s. Hindustan Petroleum Corporation Ltd.,**  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.

SAMPLE PARTICULARS : **EFFLUENT**

SOURCE OF COLLECTION : ETP-IV ACF Outlet

SAMPLE COLLECTED BY : SVELC

QUANTITY OF SAMPLE : 3 lts

TYPE OF CONTAINER : 2 PVC Containers and 1 Glass Container each 1ltr

DATE OF COLLECTION : 29-01-2021

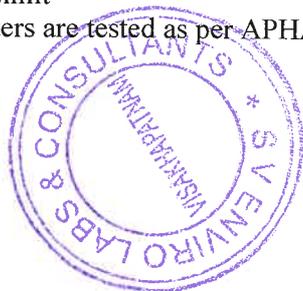
## TEST REPORT

S. No.	Parameter	Unit	Result	Limits	Method followed
1.	Ph	--	7.51	6.5 – 8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	8.0	20	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	45.8	125	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	6.3	15	IS 3025, Part 44
5.	Oil & Grease	mg/l	1	5.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	0.06	0.35	APHA, 5530-C
7.	Sulphides as S	mg/l	0.1	0.5	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	BDL	0.2	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	0.21	15.0	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	1.52	40	IS 3025, Part 34
11.	Phosphorus as P	mg/l	0.16	3.0	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	<0.01	0.1	APHA, 3120-B
15.	Mercury as Hg	mg/l	<0.01	0.01	APHA, 3120-B
16.	Zinc as Zn	mg/l	<0.01	5.0	APHA, 3120-B
17.	Nickel as N	mg/l	<0.01	1.0	APHA, 3120-B
18.	Copper as Cu	mg/l	<0.01	1.0	APHA, 3120-B
19.	Vanadium as V	mg/l	<0.01	0.2	APHA, 3120-B
20.	Benzene	mg/l	<0.01	0.1	APHA, 6410-B
21.	Benzo pyrene	mg/l	<0.01	0.2	APHA, 6440-B

\*BDL – Below Detectable Limit

**Note:** All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

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18



Ref: SVELC/HPCL-VR/21-01/001

Date: 10-02-2021

NAME AND ADDRESS : **Mr. G.Bhagavan, DGM – Technical,  
M/s. Hindustan Petroleum Corporation Ltd.,  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.**

SAMPLE PARTICULARS : **EFFLUENT**

SOURCE OF COLLECTION : **ETP-I DMF Outlet**

SAMPLE COLLECTED BY : **SVELC**

QUANTITY OF SAMPLE : **3 lts**

TYPE OF CONTAINER : **2 PVC Containers and 1 Glass Container each 1ltr**

DATE OF COLLECTION : **29-01-2021**

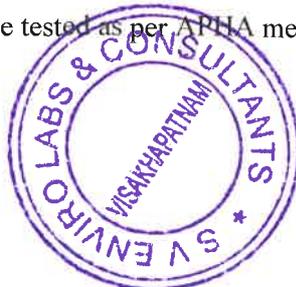
## TEST REPORT

S. No.	Parameter	Unit	Result	Limits	Method followed
1.	pH	--	6.82	6.5 – 8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	12	20	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	96.5	125	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	13.4	15	IS 3025, Part 44
5.	Oil & Grease	mg/l	4	5.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	0.14	0.35	APHA, 5530-C
7.	Sulphides as S	mg/l	0.18	0.5	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	BDL	0.2	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	0.48	15.0	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	1.24	40	IS 3025, Part 34
11.	Phosphorus as P	mg/l	0.35	3.0	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	<0.01	0.1	APHA, 3120-B
15.	Mercury as Hg	mg/l	<0.01	0.01	APHA, 3120-B
16.	Zinc as Zn	mg/l	<0.01	5.0	APHA, 3120-B
17.	Nickel as N	mg/l	<0.01	1.0	APHA, 3120-B
18.	Copper as Cu	mg/l	<0.01	1.0	APHA, 3120-B
19.	Vanadium as V	mg/l	<0.01	<0.01	APHA, 3120-B
20.	Benzene	mg/l	<0.01	0.1	APHA, 6410-B
21.	Benzo pyrene	mg/l	<0.01	0.2	APHA, 6440-B

\*BDL – Below Detectable Limit

**Note:** All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

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Branch Office : 2-53, Mahipala Street, Yanam - 533464.

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19



Ref: SVELC/HPCL-VR/20-12/001

Date: 08-01-2021

NAME AND ADDRESS : Mr. G.Bhagavan, DGM – Technical,  
M/s. Hindustan Petroleum Corporation Ltd.,  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.

SAMPLE PARTICULARS : EFFLUENT

SOURCE OF COLLECTION : ETP-I DMF Outlet

SAMPLE COLLECTED BY : SVELC

QUANTITY OF SAMPLE : 3 lts

TYPE OF CONTAINER : 2 PVC Containers and 1 Glass Container each 1ltr

DATE OF COLLECTION : 24-12-2020

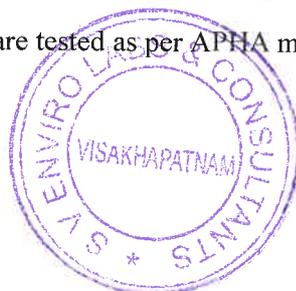
## TEST REPORT

S. No.	Parameter	Unit	Result	Limits	Method followed
1.	pH	--	7.25	6.5 – 8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	11.0	20	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	78.2	125	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	8.0	15	IS 3025, Part 44
5.	Oil & Grease	mg/l	2.0	5.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	0.12	0.35	APHA, 5530-C
7.	Sulphides as S	mg/l	0.1	0.5	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	<0.01	0.2	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	0.26	15.0	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	1.02	40	IS 3025, Part 34
11.	Phosphorus as P	mg/l	0.31	3.0	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	<0.01	0.1	APHA, 3120-B
15.	Mercury as Hg	mg/l	<0.01	0.01	APHA, 3120-B
16.	Zinc as Zn	mg/l	<0.01	5.0	APHA, 3120-B
17.	Nickel as N	mg/l	<0.01	1.0	APHA, 3120-B
18.	Copper as Cu	mg/l	<0.01	1.0	APHA, 3120-B
19.	Vanadium as V	mg/l	<0.01	<0.01	APHA, 3120-B
20.	Benzene	mg/l	<0.01	0.1	APHA, 6410-B
21.	Benzo pyrene	mg/l	<0.01	0.2	APHA, 6440-B

\*BDL – Below Detectable Limit

Note: All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

4.01  
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(Environmental Engineers & Consultants in Pollution Control)

**Corporate Office :** Enviro House, B-1, Block-B, IDA, Autonagar, Visakhapatnam-530012  
**& Laboratory** www.svenvirolabs.com, Ph:0891-2755528, Cell: +91 9440338628  
info@svenvirolabs.com, svenviro\_labs@yahoo.co.in

**Branch Office :** 2-53, Mahipala Street, Yanam - 533464.

**Recognized by Govt.of India-MoEF & CC, New Delhi, Accredited by : NABL & NABET**



Ref: SVELC/HPCL-VR/20-12/002

Date: 08-01-2021

NAME AND ADDRESS : **Mr. G.Bhagavan, DGM – Technical,  
M/s. Hindustan Petroleum Corporation Ltd.,  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.**

SAMPLE PARTICULARS : **EFFLUENT**

SOURCE OF COLLECTION : **ETP-IV ACF Outlet**

SAMPLE COLLECTED BY : **SVELC**

QUANTITY OF SAMPLE : **3 lts**

TYPE OF CONTAINER : **2 PVC Containers and 1 Glass Container each 1ltr**

DATE OF COLLECTION : **24-12-2020**

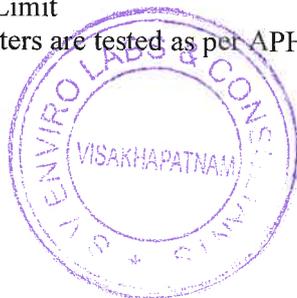
## TEST REPORT

S. No.	Parameter	Unit	Result	Limits	Method followed
1.	Ph	--	7.51	6.5 – 8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	6.0	20	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	45.8	125	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	6.0	15	IS 3025, Part 44
5.	Oil & Grease	mg/l	1.0	5.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	0.03	0.35	APHA, 5530-C
7.	Sulphides as S	mg/l	0.06	0.5	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	<0.01	0.2	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	<0.01	15.0	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	1.62	40	IS 3025, Part 34
11.	Phosphorus as P	mg/l	0.08	3.0	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	<0.01	0.1	APHA, 3120-B
15.	Mercury as Hg	mg/l	<0.01	0.01	APHA, 3120-B
16.	Zinc as Zn	mg/l	<0.01	5.0	APHA, 3120-B
17.	Nickel as N	mg/l	<0.01	1.0	APHA, 3120-B
18.	Copper as Cu	mg/l	<0.01	1.0	APHA, 3120-B
19.	Vanadium as V	mg/l	<0.01	0.2	APHA, 3120-B
20.	Benzene	mg/l	<0.01	0.1	APHA, 6410-B
21.	Benzo pyrene	mg/l	<0.01	0.2	APHA, 6440-B

\*BDL – Below Detectable Limit

Note: All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

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Ref: SVELC/HPCL-VR/20-12/003

Date: 08-01-2021

NAME AND ADDRESS : **Mr. G.Bhagavan, DGM – Technical,  
M/s. Hindustan Petroleum Corporation Ltd.,  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.**

SAMPLE PARTICULARS : **EFFLUENT**

SOURCE OF COLLECTION : **MHF –I Outlet**

SAMPLE COLLECTED BY : **SVELC**

QUANTITY OF SAMPLE : **3 lts**

TYPE OF CONTAINER : **2 PVC Containers and 1 Glass Container each 1ltr**

DATE OF COLLECTION : **24-12-2020**

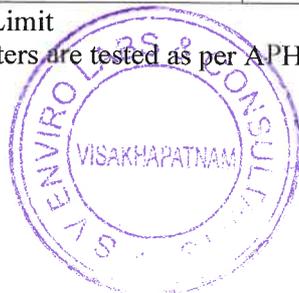
## TEST REPORT

S. No.	Parameter	Unit	Result	Limits	Method followed
1.	Ph	--	7.01	6.5-8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	12.0	-	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	86	-	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	13.0	-	IS 3025, Part 44
5.	Oil & Grease	mg/l	<1.0	1.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	0.05	-	APHA, 5530-C
7.	Sulphides as S	mg/l	0.15	-	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	<0.01	-	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	<0.01	-	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	1.39	-	IS 3025, Part 34
11.	Phosphorus as P	mg/l	2.84	-	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	<0.01	-	APHA, 3120-B
15.	Mercury as Hg	mg/l	<0.01	-	APHA, 3120-B
16.	Zinc as Zn	mg/l	<0.01	-	APHA, 3120-B
17.	Nickel as N	mg/l	<0.01	-	APHA, 3120-B
18.	Copper as Cu	mg/l	<0.01	-	APHA, 3120-B
19.	Vanadium as V	mg/l	<0.01	-	APHA, 3120-B
20.	Benzene	mg/l	<0.01	-	APHA, 6410-B
21.	Benzo pyrene	mg/l	<0.01	-	APHA, 6440-B

\*BDL – Below Detectable Limit

**Note:** All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

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Ref: SVELC/HPCL-VR/20-12/004

Date: 08-01-2021

NAME AND ADDRESS : **Mr. G.Bhagavan, DGM – Technical,  
M/s. Hindustan Petroleum Corporation Ltd.,  
Visakh Refinery, Post Box No.15,  
Visakhapatnam – 530 011.**

SAMPLE PARTICULARS : **EFFLUENT**

SOURCE OF COLLECTION : **MHF –II Outlet**

SAMPLE COLLECTED BY : **SVELC**

QUANTITY OF SAMPLE : **3 lts**

TYPE OF CONTAINER : **2 PVC Containers and 1 Glass Container each 1ltr**

DATE OF COLLECTION : **24-12-2020**

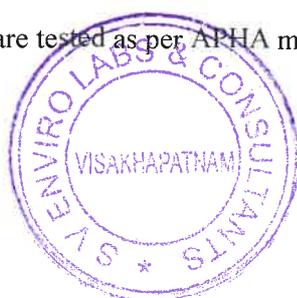
## TEST REPORT

S. No.	Parameter	Unit	Result	Limits	Method followed
1.	pH	--	6.89	6.5-8.5	APHA, 4500-H+B
2.	Total Suspended Solids – TSS	mg/l	7.0	-	APHA, 2540-D
3.	Chemical Oxygen Demand – COD	mg/l	59.3	-	APHA, 5220-B
4.	Bio-Chemical Oxygen Demand – BOD (3 days incubation at 27°C)	mg/l	9.0	-	IS 3025, Part 44
5.	Oil & Grease	mg/l	<1.0	1.0	APHA, 5520-D, 5-38
6.	Phenols as C <sub>6</sub> H <sub>5</sub> OH	mg/l	0.05	-	APHA, 5530-C
7.	Sulphides as S	mg/l	0.09	-	APHA, 4500S <sup>2</sup> D
8.	Cyanide as CN	mg/l	<0.01	-	APHA, 4500-CN - E
9.	Ammonia as N	mg/l	<0.01	-	IS 3025, Part 34
10.	Total Kjeldahl Nitrogen	mg/l	1.72	-	IS 3025, Part 34
11.	Phosphorus as P	mg/l	1.18	-	APHA, 4500 P- C
12.	Hexavalent Chromium as Cr <sup>+6</sup>	mg/l	BDL	0.1	APHA, 3500 Cr - B
13.	Total Chromium as Cr	mg/l	<0.01	2.0	APHA, 3120-B
14.	Lead as Pb	mg/l	<0.01	-	APHA, 3120-B
15.	Mercury as Hg	mg/l	<0.01	-	APHA, 3120-B
16.	Zinc as Zn	mg/l	<0.01	-	APHA, 3120-B
17.	Nickel as N	mg/l	<0.01	-	APHA, 3120-B
18.	Copper as Cu	mg/l	<0.01	-	APHA, 3120-B
19.	Vanadium as V	mg/l	<0.01	-	APHA, 3120-B
20.	Benzene	mg/l	<0.01	-	APHA, 6410-B
21.	Benzo pyrene	mg/l	<0.01	-	APHA, 6440-B

\*BDL – Below Detectable Limit

**Note:** All the above parameters are tested as per APHA methods, 23rd Edition, 2017 and IS 3025 RA: 2014

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