

इंडियन ऑयल कॉर्पोरेशन लिमिटेड
(भारत सरकार का उपक्रम)
पानीपत रिफाइनरी
डाकघर : पानीपत रिफाइनरी, पानीपत-132140



INDIAN OIL CORPORATION LTD.
(Govt. of India Undertaking)
PANIPAT REFINERY
PO - PANIPAT REFINERY,
PANIPAT- 132140 (Haryana),
Fax : 0180-2578833

Ref. No. PR/HS&E/4/367

Date: 27.07.2012

To

The Additional Director(S)
Ministry of Environment & Forests,
Govt. of India,
Regional Office (N.R.)
Bays No. 24-25,
Sector-31-A, Dakshin Marg,
Chandigarh - 160047

Ref. No. J-11011/27/91-IA.II(I) dated 16.07.1992 - Panipat Refinery

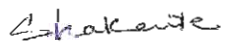
Sub: Compliance report of environmental conditions - Panipat Refinery

Dear Sir,

Please find enclosed herewith the half-yearly compliance report of the MoE&F stipulations for the period Jan'12-Jun'12 w.r.t. Panipat Refinery (Ref no. J-11011/27/91-IA.II(I) dated 16.07.1992)

Thanking you

Yours faithfully,


(V.S. Dhakate)
Chief Manager (HS&E)

Encl: (i) Copy of Stack emission monitoring results
(ii) Copy of fugitive emission report
(iii) Greenbelt development plan
(iv) Copy of Hazardous Waste authorization

CC: RO, HSPCB, Panipat

**COMPLIANCE TO ENVIRONMENTAL CLEARANCE STIPULATIONS FROM MoEF FOR
PANIPAT REFINERY**

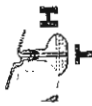
Your Ref No. J-11011/27/91-IA.II(I) dated 16.07.1992

Sl. No.	EC Conditions	Compliance Status
1.	The project authority must strictly adhere to the stipulations laid down by the state pollution control board and state government.	We have made a system to ensure strict compliance of conditions of HSPCB / Environment department etc. in NOC.
2.	Any expansion of the plant, either with the existing product mix or new products can be taken up only with the prior approval of this ministry.	Already complied. PR Expansion to 15 MMTPA has been accorded EC vide letter no. J-11011/7/2004-IA-II(I) dated 09.08.04.
3.	Sulphur recovery unit with more than 90% sulphur recovery should be installed and commissioned before the project is completed, and measure for its continuous operation must be taken. Technoeconomic feasibility study for additional standby sulphur recovery system may be initiated after the installation of first unit.	With the expansion of Panipat Refinery to 15 MMTPA, 3 SRUs (out of five SRUs) remain in operation and rest two SRUs remain in standby mode.
4.	Low sulphur fuel (sulphur content not exceeding 1%) should be used in the boilers/furnaces.	Sulphur content of fuel oil used in boilers/furnaces is maintained below 0.5%.
5.	Low NOx burners should be used to avoid excessive formation of NOx.	Low NOx burners have been installed in the process heaters.
6.	Total emission of SO2 from the refinery should not exceed 1 tonne/hr.	SO2 emissions is maintained below the prescribed limits. Typical SO2 emission data is enclosed as <u>Annexure-I</u> .
7.	The gaseous emissions (SO2, NOx etc.) from various process units should conform to the standards prescribed by the concerned authorities, from time to time. At no time the emission levels should go beyond the stipulated standards. In the event of failure of any pollution control system adopted by the unit, the respective unit should be put out of operation immediately and should not be restarted until the control measure are rectified to achieve the desired efficiency.	The gaseous emissions from various process units conform to the standards as prescribed by HSPCB/MoEF.
8.	Adequate number (a minimum of 7) of air quality monitoring stations should be set up in the down-wind direction as well as where maximum ground level concentration is anticipated. Stack emission should be monitored by setting up of an automatic continuous stack monitoring unit. The data on stack emission should be submitted to the State Pollution Control Board once in three months and to this Ministry once in six months along with the statistical analysis. The air quality monitoring station should be selected on the basis of modeling exercise to represent the short-term ground level concentrations.	8 nos. CAAQMS (2 nos. in Panipat city, 1 no. in Refinery township & 5 nos. in Refinery & Petrochemical units) & a mobile van are in operation. These were set up in consultation with HSPCB. All stacks are having online SO2 & NOx analyzers. The reports are submitted to HSPCB every month. Apr'12-May'12 report is attached as <u>Annexure-I</u> .

Sl. No.	EC Conditions	Compliance Status
9.	Fugitive emissions of hydrocarbons from storage tanks etc. should be minimized by adopting necessary measures.	Necessary measures e.g. double mechanical seals on light Hydrocarbon pumps and secondary seals in light Hydrocarbon storage tanks etc. have been provided to minimize fugitive emission.
10.	Fugitive emission should be regularly monitored and record maintained.	A typical report of Fugitive Emission is enclosed as <u>Annexure-II</u> .
11.	There should be no change in the stack design without the approval of the State Pollution Control Board. Alternate pollution control system and proper design in the stack should be provided to take care of excess emissions due to failure in any system of the plant.	Stack designs are not changed.
12.	The height of stacks attached to AVU, FCCU and TPS etc. should not be less than 100 m.	The height of stacks attached to AVU, FCCU and TPS etc. have been kept as 100 m.
13.	Total fresh water consumption (Industrial as well as township) should not exceed 8 MGD. Ground water should not be tapped for this purpose.	Complied.
14.	The project authorities must recycle wastewater to the maximum extent possible (at least 25% to 30% to start with). The treated effluent coming out of the plant must meet MINAS.	Treated effluent of ETPs meets MINAS. More than 80% of treated effluent is reused as a feed to RO plant and as a makeup to Cooling Towers.
15.	Adequate number of effluent quality (oil & grease, COD, BOD, suspended solids, phenols, sulphides, pH and flow) monitoring stations must be set up in consultation with State Pollution Control Board.	Complied Online analysers for monitoring quality of effluent (w.r.t. oil, phenol, sulphide, TOC & pH) have been installed at our ETPs.
16.	Maximum recovery of oil from the sludge should be done and residual oily sludge should be incinerated.	Centrifuges/ Melting pit have been provided at the wastewater treatment plant for recovery of oil from oily sludge. Lined pits are provided for storage of residual sludge.
17.	The project authorities must prepare a scheme for solid and hazardous waste disposal. The plan for disposal duly approved from the State Pollution Control Board should be submitted to this Ministry within one year and adequate space should be provided for it within the plant premises.	Four nos. of lined pits of 400 m ³ each with shed are existing in Refinery for storage of oily sludge and a spent catalyst yard has been developed for storage of spent catalysts from process units.
18.	A green belt of at least 500 m width and adequate density should be developed and maintained. Selection of the species should be done in consultation with the State Forest Department. A detailed green belt development plan taking into account attenuation factors, soil characteristics etc. should be prepared and submitted to this Ministry within six months.	Greenbelt were developed in consultation with State Forest Department. Details of Greenbelt is attached herewith as a <u>(Annexure-III)</u> .

Sl. No.	EC Conditions	Compliance Status
19.	A detailed risk analysis study based on Maximum Credible Accident (MCA) analysis should be done and submitted to this Ministry once the process design/technology and layout is finalised. Based on this, a Disaster Management Plan has to be prepared and after approval by the concerned Nodal Agency, should be submitted to this ministry within six months. The impact zone under no circumstances should cross the plant premises.	Complied
20.	A 'no development zone' of minimum 5km radius in between the refinery and the Panipat town should be provided. Where only restricted growth on nonpolluting industries may be allowed (Action - State Govt.)	Controlled zone around refinery premises has been declared by District authority and copy was submitted to MoE&F vide letter no. PR/S&EP/12 dated 14.09.04.
21.	No tree should be cut from the site without prior written order of the competent authority.	Agreed
22.	The industrial township should be located on the northern side of the refinery i.e. in the up-wind direction.	The Refinery township is located about 8 kms (by road) from the Refinery Gate in the upwind direction.
23.	A detailed Rehabilitation Plan for the affected people should be prepared and submitted to this Ministry within 3 months.	Was submitted
24.	Contractors labourers must leave place after the construction work is over to avoid creation of slum in the adjoining areas of the refinery and township.	Complied All the contract labours had left the site after commissioning of Panipat Refinery in Oct'98.
25.	A comprehensive EIA must be prepared and submitted to this Ministry by September, 1993 covering regional implications and 'no development zone' aspects.	Comprehensive EIA report was submitted long back to MoE&F in 1993.
26.	Feasibility of using 20 tonner truck may be studied/assessed wherever road transport is being envisaged and report submitted to this Ministry within three months.	Bulk Movement of Products through Pipeline and rail. Product pipelines to Saharanpur, Najibabad, Meerut, Jalandhar, Rewari have been commissioned long back. Thus reducing TTL loading considerably.
27.	Necessary approval may be obtained from the Regulatory Authority as per Section 5(2) and 5(3) of the Hazardous Wastes (Management and Handling) Rules, 1989 of the Environment (Protection) Act, 1986.	Copy is enclosed as <u>Annexure-IV</u>
28.	The State Govt. should prepare a Master Plan for the region to avoid haphazard growth of industries and human settlements in the area.	Haryana Govt.'s controlled zone and details of controlled zone was submitted to MoEF vide our letter no. PR/S&EP/12 dated 14.09.04.
29.	The project authority must set up laboratory facilities for collection and analysis of samples under the supervision of competent technical personnel, who will directly report to the Chief Executive.	NABL & HSPCB accredited laboratory is functioning in Panipat Refinery since 1998.

SL No.	EC Conditions	Compliance Status
30.	A separate Environment Management Cell with suitably qualified people to carry out various functions should be set up under the control of Sr. Executive, who will report directly to the Head of the organisation.	<p>A separate department called Health, Safety & Environment (HS&E) has been in existence since the commissioning of Panipat Refinery in the year 1998.</p> <p>The HS&E department is headed exclusively by General Manager, who directly reports to the head of Panipat Refinery</p>
31.	The funds earmarked for the environmental protection measures should not be diverted for other purposes and yearwise expenditure should be reported to this Ministry.	Complied



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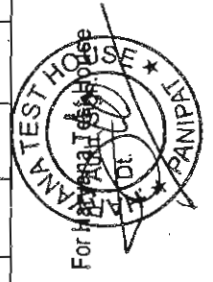
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Test Results of Stack Emissions

Period: April 2012 to May 2012

Unit: Panipat Refinery

Sr. No.	Stack Particular	Date of Sampling	Temp. °C	Diameter of Stack (m)	Gas Velocity (m/sec.)	Flue Gas Volume at 25°C (Nm ³ /Hr.)	Particulate Matter (SPM)		Sulphur Dioxide (SO ₂)		Oxides of Nitrogen (NO _x)		Carbon Monoxide (CO)		Nickel (Ni)	Vanadium (V)	Nickel+Vanadium Limit: (Ni+V) Liquid: 5 mg/Nm ³						
							mg/Nm ³	kg/hr.	ppm	mg/Nm ³	kg/hr.	ppm	mg/Nm ³	kg/hr.				mg/Nm ³	kg/hr.	mg/Nm ³	kg/hr.		
A PX																							
1	NHT (PX-1)	16.05.2012	215	1.00	7.27	12061.67	41.34	0.50	43.11	113.07	1.36	36.67	69.14	0.83	6	6.90	0.08	0.0000	0.0000	0.00	0.0000		
2	CCR-H (PX-1)	16.05.2012	192	1.90	7.34	46136.32	9.97	0.46	10.78	28.27	1.30	26.39	49.75	2.30	6	6.90	0.32	0.0000	0.0000	0.00	0.0000		
3	ISOMER (PX-2)	16.05.2012	207	1.20	7.46	18119.77	9.67	0.18	13.48	35.34	0.64	24.61	46.39	0.84	6	6.90	0.13	0.0000	0.0000	0.00	0.0000		
4	TATORAY (PX-2)	16.05.2012	170	1.20	7.16	18843.63	19.10	0.38	16.17	42.41	0.80	32.62	61.51	1.16	8	9.20	0.17	0.0000	0.0000	0.00	0.0000		
5	XYLENE (PX-2)	16.05.2012	220	2.00	7.05	46312.14	22.89	1.06	25.15	65.97	3.06	40.84	76.99	3.57	12	13.80	0.64	0.0000	0.0000	0.00	0.0000		
B PTA																							
6	Hot Oil Heater (PTA)	17.05.2012	270	2.95	7.80	64227.82	42.52	2.73	68.28	179.06	11.50	55.82	105.25	6.76	10	11.50	0.74	0.0380	0.0024	1.01	0.0649	1.05	0.0873
7	FCPH (PTA)	17.05.2012	215	2.36	7.27	66610.55	44.85	2.99	73.67	193.20	12.87	51.08	96.31	6.42	8	9.20	0.61	0.0300	0.0020	1.10	0.0733	1.13	0.0753
8	Thermal Oxidizer (PTA)	17.05.2012	85	1.10	--	--	--	--	110.50	289.80	--	54.92	103.55	--	12	13.80	--	--	--	--	--	--	--
C TPS / CPP																							
9	Boiler-1 (Utility)	23.05.2012	160	3.04	14.61	252465.58	86.44	21.82	115.96	304.13	76.78	55.85	105.30	26.58	16	18.40	4.65	0.0000	0.0000	0.00	0.0000	0.00	0.0000
10	Boiler-2 (Utility)	23.05.2012	197	3.04	14.76	234978.60	95.13	22.35	84.34	221.19	51.97	65.40	123.31	28.98	14	16.10	3.78	0.0000	0.0000	0.00	0.0000	0.00	0.0000
11	HRSG-1 (CPP)	24.05.2012	188	3.30	6.94	132733.06	62.45	8.29	64.77	169.86	22.55	28.16	53.09	7.05	7	8.05	1.07	0.0000	0.0000	0.00	0.0000	0.00	0.0000
12	HRSG-2 (CPP)	24.05.2012	168	3.30	6.91	138152.90	61.89	8.55	73.76	193.45	26.73	26.97	50.84	7.02	6	6.90	0.95	0.0000	0.0000	0.00	0.0000	0.00	0.0000
13	HRSG-3 (CPP)	24.05.2012	172	3.30	6.82	136127.87	64.20	8.68	79.16	207.60	28.05	29.04	54.76	7.40	8	9.20	1.24	0.0000	0.0000	0.00	0.0000	0.00	0.0000



Annexure - J



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Test Results of Stack Emissions

Period: April 2012 to May 2012

Unit: Panipat Refinery

Sr. No.	Stack Particular	Date of Sampling	Temp. °C	Diameter of Stack (m)	Gas Velocity (m/sec.)	Flue Gas Volume at 25°C (Nm ³ /Hr.)	Particulate Matter (SPM)		Sulphur Dioxide (SO ₂)		Oxides of Nitrogen (NO _x)		Carbon Monoxide (CO)		Nickel (Ni)		Vanadium (V)		Nickel+Vanadium Limit: (Ni + V) Liquid: 5 mg/Nm ³		
							mg/Nm ³	kg/hr.	ppm	kg/hr.	ppm	mg/Nm ³	kg/hr.	ppm	mg/Nm ³	kg/hr.	mg/Nm ³	kg/hr.	mg/Nm ³	kg/hr.	mg/Nm ³
14	HRSG-4 (CPP)	24.05.2012	176	3.30	7.09	139.23	66.67	0.01	79.04	207.29	0.03	40.52	76.39	0.01	8	9.20	0.00	0.0000	0.0000	0.00	0.0000
15	HRSG-5 (CPP)	24.05.2012	150	3.30	6.77	141113.59	63.97	9.03	61.08	160.18	22.60	36.55	68.91	9.72	7	8.05	1.14	0.0000	0.0000	0.00	0.0000
16	Boiler-1 (TPS)	23.05.2012	198	3.04	14.83	235591.76	91.49	21.55	168.68	442.37	104.22	71.50	134.81	31.76	10	11.50	2.71	0.0000	0.0000	0.00	0.0000
17	Boiler-3 (TPS)	23.05.2012	180	3.04	14.72	243136.11	87.66	21.31	137.05	359.43	87.39	67.50	127.27	30.94	9	10.35	2.52	0.0000	0.0000	0.00	0.0000
	<u>D PR</u>																				
18	CDU/ VDU/ NSU (AVU-1)	22.05.2012	175	5.09	5.79	271099.55	44.86	12.16	102.42	268.60	72.82	27.46	51.78	14.04	10	11.50	3.12	0.0000	0.0000	0.00	0.0000
19	Reformer Heater-1 (CCRU)	22.05.2012	240	2.34	7.19	62134.95	12.15	0.75	10.78	28.27	1.76	19.92	37.56	2.33	8	9.20	0.57	0.0110	0.0007	0.14	0.0087
20	Reformer Heater-2 (CCRU)	22.05.2012	205	1.64	7.20	32800.84	13.41	0.44	8.08	21.20	0.70	29.88	56.34	1.85	8	9.20	0.30	0.0000	0.0000	0.00	0.0000
21	Reformer Heater-3 (CCRU)	22.05.2012	220	1.68	7.31	33882.99	18.03	0.61	10.78	28.26	0.96	29.23	55.10	1.87	10	11.50	0.39	0.0000	0.0000	0.00	0.0000
22	PR HGU	21.05.2012	--	2.64	--	--	--	--	7.18	18.84	--	30.78	58.04	--	8	9.20	--	--	--	--	--
23	DHDS	21.05.2012	135	1.26	6.42	26225.94	10.80	0.28	12.58	32.98	0.86	29.88	56.34	1.48	9	10.35	0.27	0.0230	0.0006	0.30	0.0079
24	LP Suction Furnace (OHCU)	23.05.2012	215	2.42	7.52	73067.03	9.67	0.71	8.38	21.99	1.61	33.43	63.03	4.61	8	9.20	0.67	0.0000	0.0000	0.00	0.0000
25	Recycle Gas Heater (OHCU)	23.05.2012	190	1.35	7.44	23711.13	8.72	0.21	5.39	14.13	0.34	31.01	58.47	1.39	6	6.90	0.16	0.0000	0.0000	0.00	0.0000
26	BBU Stack	17.05.2012	225	0.85	7.09	8328.13	22.89	0.19	75.45	197.87	1.65	54.92	103.54	0.86	10	11.50	0.10	0.0080	0.0001	0.89	0.0074
	<u>E MSQ</u>																				
27	HDS Heater (MSQ)	18.05.2012	178	2.22	7.11	62905.94	9.55	0.60	12.57	32.97	2.07	34.98	65.95	4.15	8	9.20	0.58	0.0190	0.0012	0.50	0.0315





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Test Results of Stack Emissions

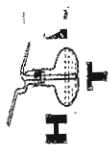
Period: April 2012 to May 2012

Unit: Panipat Refinery

Sr. No.	Stack Particular	Date of Sampling	Temp. °C	Diameter of Stack (m)	Gas Velocity (m/sec)	Flue Gas Volume at 25°C (Nm ³ /Hr.)	Particulate Matter (SPM)		Sulphur Dioxide (SO ₂)		Oxides of Nitrogen (NO _x)		Carbon Monoxide (CO)		Nickel (NI)	Vanadium (V)	Nickel+Vanadium Limit (NI + V) Liquid: 5 mg/Nm ³							
							mg/Nm ³	kg/hr.	ppm	mg/Nm ³	kg/hr.	ppm	mg/Nm ³	kg/hr.				ppm	mg/Nm ³	kg/hr.				
28	NHT Heater (MSQ)	18.05.2012	--	3.05	--	--	--	--	14.37	37.68	--	36.68	68.15	10	11.50	--	--	--						
E PREP																								
29	CDU/VDU (AVU-II)	18.05.2012	175	5.10	7.20	338444.54	47.35	16.03	86.23	226.14	76.54	34.51	65.06	10	11.50	3.89	0.0380	0.0129	2.04	0.6904	2.08	0.7033		
30	HCU Stack (HCU)	18.05.2012	192	1.70	6.97	35072.79	12.75	0.45	9.88	25.91	0.91	31.48	59.35	10	11.50	0.40	0.0150	0.0005	0.69	0.0207	0.61	0.0212		
31	DHDT-1 (Heater-1)	18.05.2012	172	1.80	6.7	39495.94	28.14	1.11	19.76	51.82	2.05	30.56	57.62	8	9.20	0.36	0.0230	0.0009	1.11	0.0438	1.13	0.0447		
32	DHDT-2 (Heater-2)	18.05.2012	135	1.80	6.87	44170.70	25.97	1.15	16.16	42.39	1.87	33.43	63.03	7	8.05	0.36	0.0210	0.0009	0.99	0.0437	1.01	0.0447		
33	HGU-76 (HGU)	21.05.2012	--	3.40	--	--	--	--	9.88	25.91	--	30.15	56.84	8	9.20	--	--	--	--	--	--	--	--	
34	HGU-77 (HGU)	21.05.2012	--	3.40	--	--	--	--	8.08	21.19	--	27.46	51.77	10	11.50	--	--	--	--	--	--	--	--	
35	DCU (Heater 1 & II)	21.05.2012	222	0.96	7.32	11034.20	23.75	0.26	12.58	32.98	0.36	45.22	85.26	8	9.20	0.10	0.0130	0.0001	0.39	0.0043	0.40	0.0044		
Total in (Kg/ hr)													164.84	616.34	298.12	32.03	0.02	1.00	0.0043	0.40	0.0044	1.02		



For Haryana Test House



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Test Results of Stack Emissions

Period: May 2012

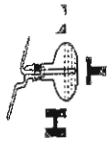
Unit: Panipat Refinery

Stack Particular	Date of Sampling	Temp. °C	Diameter of Stack (m)	Gas Velocity (m/sec.)	Flue Gas Volume at 25°C (Nm ³ /Hr.)	Sulphur Dioxide (SO ₂)			Oxides of Nitrogen (NO _x)			Carbon Monoxide (CO)			Hydrogen Sulphide (H ₂ S)			
						ppm	mg/Nm ³	kg/hr.	ppm	mg/Nm ³	kg/hr.	ppm	mg/Nm ³	kg/hr.	ppm	mg/Nm ³	kg/hr.	ppm
SRU New (Unit 22,24)	17.05.2012	105.00	1.16	6.93	19973.31	312.57	819.74	16.37	5.10	13.38	0.27	12.00	13.80	0.28	N.D	N.D	N.D	N.D
SRU Old (Unit 25)	17.05.2012	124.00	1.16	6.99	19182.06	280.23	734.94	14.10	5.74	15.06	0.29	8.00	9.20	0.18	N.D	N.D	N.D	N.D

N.D: Not Detectable

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& Consultancy Services

50-C, Sector-25, Part-II, HUDA, Panipat-132 104 (HARYANA)

Ph: (O) 0180-3290403, (M) 94160-17160, Tele-Fax: 0180-2671112, Website: www.haryanatesthouse.net, e-mail: info@haryanatesthouse.net, ml.dna@sathy.com,

Test Results of Stack Emissions

Period: April 2012

Unit: Panipat Refinery

Stack Particular	Date of Sampling	Temp. °C	Diameter of Stack (m)	Gas Velocity (m/sec.)	Flue Gas Volume at 25°C (Nm ³ / Hr.)	Sulphur Dioxide (SO ₂)			Oxides of Nitrogen (NO _x)			Carbon Monoxide (CO)			Hydrogen Sulphide (H ₂ S)		
						ppm	mg/Nm ³	kg/hr.	ppm	mg/Nm ³	kg/hr.	ppm	mg/Nm ³	Kg/hr.	ppm	mg/Nm ³	Kg/hr.
SRU New (Unit 22,24)	10.04.2012	120.00	1.16	7.17	19876.29	331.58	869.60	17.28	7.95	20.86	0.41	10.35	11.90	0.24	N.D	N.D	N.D
SRU Old (Unit 25)	10.04.2012	132.00	1.16	7.07	19018.36	269.41	706.55	13.44	6.97	18.29	0.35	6.90	7.94	0.15	N.D	N.D	N.D

N.D: Not Detectable

For Haryana Test House





Report on LDAR to M/s. IOCL Panipat Refinery

SUMMARY SHEET OF IOCL - PANIPET, TVOC MEASUREMENTS						
DATE: 27.02.2012 TO 29.02.2012						
S.No	Unit	Component	Number of Points	Total VOC Emissions in Kg/Year	No.of points measured	Total VOC Kg/ year
1	PR unit117-	F	16	1.2116	41	25.7033
		V	6	0.1932		
		SV	2	0.6855		
		SP	6	15.7036		
		SF	1	0.0314		
		SD	3	6.1847		
		OF	1	0.37492		
		MF	2	0.90493		
		GV	3	0.83445		
		CV	1	0.2382		
2	DHDS	F	42	0.4373	70	2.637
		V	23	0.6691		
		GV	1	0.0683		
		DS	2	0.5088		
		DP	2	0.4182		
3	OHCU	F	22	0.764	35	1.6027
		V	13	0.8388		
4	Tank farm	F	13	6.2851	72	129.217
		V	18	0.7713		
		GV	12	8.7423		
		HV	2	4.3809		
		RD	3	0.525		
		SD	2	1.4969		
		D	1	3.58		
		DP	19	103.2325		
SV	2	0.2				
5	PR unitAHV01/NSU	F	26	0.5621	37	1.9113
		MF	3	0.0946		
		V	8	1.2547		
6	AVUII	F	18	0.8038	30	3.4315
		GV	1	0.9039		
		V	10	1.7149		
7	PR UNIT CCRU	F	21	0.3507	37	13.2954
		V	16	12.944		
8	DHDT	F	28	1.7658	35	2.2359



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Report on LDAR to M/s. IOCL Panipat Refinery

		V	6	0.4674		
9	HCU	F	30	0.6247	35	1.0414
		V	5	0.4167		
10	PDS UNIT 76	F	49	3.6139	70	7.6627
		V	8	0.4412		
		GV	13	3.4482		
11	PDS UNIT & UNIT 77	F	25	0.428	35	1.3619
		V	4	0.2733		
		GV	6	0.5606		
12	PX - UNIT	F	29	0.9888	42	4.3265
		V	9	0.6121		
		GV	3	0.3218		
		OP	1	2.4038		
13	PX2	F	7	1.2019	14	2.1035
		V	5	0.2443		
		GV	2	0.6573		
14	PX1	F	7	0.2094	14	8.1902
		V	1	0.0547		
		GV	1	0.164		
		OP	5	7.7637		
15	PX2 TANK FARM	F	3	0.6053	7	1.7033
		V	4	0.204373		
16	BATTERY LIMIT	F	4	0.2943	4	0.2943
17	PTA UNIT	F	60	3.1006	107	37.8967
		V	27	6.515		
		GV	4	0.4446		
		OP	16	27.8632		
18	CCRU PR	F	6	0.0417	7	0.0606
		V	1	0.0188		
19	FCCU PR	F	4	0.088	4	0.088
20	GASOLINE MEROX	F	2	0.0271	2	0.0271
21	OM & S TANK FARM	F	9	0.3941	15	0.4617
		V	5	0.05871		
		GV	1	0.0088		
TOTAL					713	245.252

Total VOC Loss in Kg/year Before Repair includes Zero Factor Value =245.252



Conducted by SGS India Pvt Ltd., Environment Division



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Report on LDAR to M/s. IOCL Panipat Refinery

**SUMMARY SHEET OF IOCL - PANIPET, BENZENE EMISSIONS MEASUREMENTS
DATE: 27.02.2012 TO 29.02.2012**

1	PX-PTA Plant	F	15	0.467	19	1.2499
		V	1	0.0355		
		OP	3	0.7473		
2	Reformate Splitter	F	2	0.0369	3	0.1848
		OP	1	0.1479		
3	Tatoray	F	4	0.0807	4	0.0807
4	Isomar	F	5	0.1631	5	0.1631
5	Tank farm	F	2	0.0507	2	0.0507
6	Benzene tank	F	5	1.4127	18	2.9207
		V	13	1.499		
7	Benzene tank	F	10	14.2492	19	16.7409
		V	6	0.7889		
		SV	1	0.2484		
		GV	2	1.4545		
8	Tank 9A (New Number - 5209 C)	F	2	0.3914	9	13.1588
		GV	3	0.3763		
		DP	1	1.893		
		OP	3	10.4982		
9	Tank B 5209 B	F	2	0.826	9	14.4293
		GV	3	1.8915		
		OP	3	9.7663		
		DP	1	1.9454		
10	Tank C 5209 A	F	2	2.0829	9	23.9363
		GV	3	1.2781		
		OP	3	18.8023		
		IDP	1	1.337		
Total					97	72.9152

Total benzene Loss in Kg/year Before Repair includes Zero Factor Value =72.9152

PSV - Pressure Safety Valve; PS - Pump Seal; OP - Open Ends;

GV - Gland Valves; SV - Small Valve; SP - Sampling Point; SF - Small Flange

MF - Motor Flange; CV - Control Valve; DP - Drain Point; OF - Open Flange;

SD - Sampling Drain; RD - Roof Drain; HV - Hand Valve; SD - Syphon Drain



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Report on LDAR to M/s. IOCL Panipat Refinery

CONCLUSION:

The results are submitted component wise in the enclosed Annexure-I & Annexure -II. As per CPCB guidelines no components are detected more than the standard values of 3000ppmv and 5000ppmv.

Based on the calculation and concentrations of VOC in the equipment, we took default value 1 for Response Factor (RF). The total loss of volatiles emission is 245.252 Kg/year with 713 components and the total loss of benzene is 72.9152 Kg/year with 97 components (The section wise loss enclosed in summary sheet-Annexure- III). The total VOC and benzene emissions are very low so IOCL-Panipet is excellent control of VOC loss in the plant. This has to be extrapolated to the real number of components (non measured, no reachable components).

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Panipat Refinery

Detail of Plantation, Greenbelt, Ecopark, Herbal Park

Green Belts :

Panipat refinery, since conceptualization of the project, is trying to balance the eco-system in a more systematic way. The refinery developed a Green belt in close co-ordination with Haryana Forest department. The details are given below :

Green Belts around the Refinery :

- The tree plantation was started in the year 1993-94 i.e. much before commissioning of the Panipat Refinery.
- 500 acres Greenbelt in S-E direction of the Refinery.
- 14 KM long peripheral Greenbelt.
- 40 different species of trees planted in Green Belts. Some of the varieties are: *Eucalyptus, Papri, Poplar, Sulabul, Semai, Arjun, Teak, Amaltas, Mango, Jamum, Kachnar, Sisham, Gul Mohar, Neem, Kaner Bottle Brush, Silver Oak, Kasarina, Chandni, Toon, Bouganvelai.*



Green Belt in the Township

- Plantation of trees in Refinery Township in 20 ha area.
- Types of trees planted : *Arjun, Shisham, Neem, Jamun/Jamoa, Papri, Bottle Brush, Eucalyptus, Boegunvillea, Kaner, Silver Oak, Kikar, Alstonia*
- A beautiful Herbal Park developed in the township under the guidance of renowned horticulturists from Yamnunanagar Herbal Park. The part is using treated effluent from STP for irrigation.
- Rs. 34.36 lacs given to the District Authorities of Karnal & Panipat for development of various parks & trees.
- Around Rs. 300 lacs were spent for development of Greenbelt. About Rs. 25-27 lacs per annum is being spent on maintaining the Green Belts thru' Haryana Forest Department. In the year 2009-10, the Refinery has spent around Rs. 24.5 lacs on maintenance.

Green Belt at PNCP :

- Panipat Refinery has also developed a New Green belt area at the village Baljatan, which is adjacent to Naphtha Cracker project (NCP) site.
- The green belt is situated at the outer periphery of the NCP. It consists of 50m wide strips along 7 km long periphery of NCP.
- This green belt has been developed with an objective of growing mixed varieties of plants including fruit plants at the spacing of 4m x 4m. Trees, which grows up to the height of 20-25 feet are planted at the spacing of 8m x 8m (one alternate trees in each direction of grid of 4m x 4m), plants, which grow up to 10 to 15 feet, planted in the remaining pits. In order to provide greenery in the initial years, small fruit bearing shrubs are planted between two fruits plants. The area will be irrigated by making water channels connecting our treated effluent piping network.

The trees planted are:

- Tall fruit plants like Mango, Jack fruit, Jamun and Kadamb
- Medium size fruit plants like Aonla, Guava, Ber and Aru
- Medium size shrubs like Lemon, Karonda and Anar.

Eco-Park in ETPs area :

An eco-park has been developed in the south side of ETP-2 having landscaping. The park is nurtured by using treated effluent. The park consists of a small water reservoir wherein fishes have also been kept. A scenic view has been created by providing artistic railing, gates made-up off iron & stones.

Eco-Ponds (Polishing Ponds) located outside the Refinery boundary :

- Total 4 nos. of Polishing Ponds are existing.

The total holding capacity of these Polishing Ponds :

PR PP	: 125000 m ³
PTA-PP A	: 28000 m ³
PTA-PP B	: 30000 m ³
PTA-PP C	: 64000 m ³



Panipat Refinery

- Treated effluent from ETP-1, ETP-2 & PTA-ETP is stored in these ponds for natural aeration & UV rays treatment.
- Treated water from the ponds is used for watering the green belt.
- Treated effluent is stored in Eco Ponds as intermediate storage and recycled back to ETP for further treatment and for reuse in Fire Water Network, Cooling Towers etc.
- A large number of migratory birds visit the area particularly in winter season.
- A scenic view has been created by providing artistic metal structures, a pathway using pre-cast blocks, planting lawns & bushes. Thereby it has taken a shape of beautiful picnic spot for the PRian families.

Storm water ponds inside the Refinery

Since inception the Refinery has storm water collection systems and thereby has constructed two nos. Storm Water Ponds of total capacity 1.5 lac KL. These ponds received water from all over the Refinery through the network of Storm Water Drains. To improve the quality of Storm Water 9 nos. oil catch pits have been constructed to prevent the ingress of oil in the Storm Water Ponds.

Books on trees & herbs :

Two books have been published by the Refinery on the World Environment Day, one book is on trees in the Green belt and the other book is about herbal plants in our Herbal Parks.



Panipat Green Fund :

Apart from our own initiatives, Panipat Refinery has taken a lot of interest in greening the environment by contributing towards Panipat Green Fund, which has been formed by District Conservator of Forest, Panipat. The refinery has been associating for tree plantation in Panipat City, since 1998-99 and around 6500 trees have been planted.



In order to conserve the environment, Panipat refinery and the District authorities are working hand in hand and an amount of Rs 34.36 lacs have been given to the District authorities in the districts of Karnal and Panipat for the following purposes:

- To provide 1000 tree guard at National Highways, Panipat and Karnal
- Beautification of National Park, Narain Singh Park & Hero Park at Model Town of Panipat
- Development of Hali Park, Marla Park, Librarywala Park.
- DAV parks in the Panipat city and nearby locations

Total Tree Planted

Location	Area in Ha	No. of Tree Planted
Eco-Park	128 Ha	88,550
Green Belt / Bio-drainage	130 Ha	3,13,335
Township	26 Ha	16,500
Refinery Road	45 Ha	34,650
Township – Dadlana Road	3 Ha	4,270
RWTP (old)	8 Ha	6,900
NCP Green Belt	30 Ha	35,600
Other public place	6 Ha	3,750
Newly Acquire Land (387 acre)	7.5 Ha	4,700
Total		5,08,225

Detail of Species Planted

1. Kaijicia	13. Legestovia	25. Jaerenda	37. Legestonia
2. Shisham	14. Papri	26. Anaar	
3. Neem	15. Chukresia	27. Budr	
4. Kaehvav	16. Aovla	28. Pipal	
5. Jamun / Jamoa	17. Gulmohar	29. Kauair	
6. Arjun	18. Bottle bram	30. Bogan bail	
7. Alestonia	19. Nimboo	31. Aeralvpornis	
8. Amal Tas	20. Amrud	32. Benjamin	
9. Kadavb	21. Cassia galuca	33. Cassia shamia	
10. Kussum	22. Safeda	34. Toon	
11. Poplar	23. Bail Patthar	35. Guddal	
12. Casuarinas	24. Chandni	36. Siros	



HARYANA STATE POLLUTION CONTROL BOARD
C-11, SECTOR 6, PANCHKULA
PH- 2577870-73
E-mail: hspcb.pkl@sify.com

Regd.A.D.

NO.HSPCB/2013/1022

Dated: 30/3/12

To

M/s Lohian and Cerpa Ltd
V. Bahuli Pan Pat
Pan Pat Refinery Pan Pat

Sub: Authorization for operating a facility for collection, reception, treatment, storage, transportation and disposal of hazardous wastes. 2012-2013

Please refer to your Authorization application form received through Regional Officer, P.N.P. vide his letter No.HSPCB/ 9670 dated 27/1/12, received in this office on the subject noted above.

1. Number of authorization and date of issue as above.
2. M/s as above is hereby granted an authorization to operate a facility for collection, reception, treatment, storage, Transportation and disposal of hazardous wastes on the premises situated at as above
3. The authorization granted to operate a facility for collection, reception, treatment, storage, transportation and disposal of hazardous wastes.
4. The authorization shall be in force for a period of upto 31.3.2013
5. The authorization is subjected to the conditions stated below and such conditions as may be specified in the rules for the time being in force under the Environment (protection) Act, 1986.

TERMS AND CONDITIONS OF AUTHORIZATION

1. The authorization shall comply with the provisions of the Environment (protection) Act, 1986 and the rules made thereunder.
2. The authorization or its renewal shall be produced for inspection at the request of an officer authorized by the State Pollution Control Board.
3. The person authorized shall not rent, lend, sell transfer or otherwise transport the hazardous wastes without obtaining prior permission of the State Pollution control Board.
4. Any unauthorized change in personnel, equipment as working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.
5. It is the duty of the authorized person to take prior permission of the State Pollution Control Board to close down the facility.
6. An application for the renewal of an authorization shall be made as laid down in rule 5(6)(ii).
7. The unit should have the necessary facilities for collection, reception, treatment, Transport and disposal of such wastes under the rule. In case of deadly toxic wastes such as Cyanide, Chromium, Nickel, Zinc, etc., the unit shall make arrangement for the pre-treatment before dumping it in the disposal site so that the toxic element does not leach down to pollute the underground water resources.
8. Each unit shall have its own disposal at his site own costs at his own premises for the disposal of these wastes for a period of at least two years. In case he does not have any land in his premises, then shall make appropriate alternative arrangement. The site for