



03/HSE/ENV/202/04  
01.06.2020

The Additional Principal Chief conservator of Forests (C),  
Ministry of Environment, Forest & Climate Change, 4th Floor, E&F Wings,  
Kendriya sadan, Koramangala, Bangalore-560 034

Dear Sir,

**Sub: Submission of Half yearly compliance report on Environmental Clearance issued by the Ministry of Environment, Forests and Climate Change.**

**Ref:** EC No.J-11011/32/90-IA-II dt. 20.8.91 issued to our Project "Capacity expansion of M/s Bharat Petroleum Corporation Ltd, Kochi Refinery (Formerly Cochin Refineries Ltd.) from 4.5 to 7.5 MMTPA at Ambalamugal".

Please find enclosed the compliance reports on the various conditions laid down by MoEF &CC, pertaining to the half year period from 1<sup>st</sup> October 2019 to 31<sup>st</sup> March 2020 for the subject project.

The data on emission, ambient air, effluent, CREP recommendations, details of land balance, ground water usage, green belt, solid waste management, rain water harvesting, solar power generation and details of environment management cell being common to all the ECs granted in Kochi Refinery premises, the same are enclosed as part of EC for CEMP-II accorded vide MoEF&CC letter J-11011/369/2005-IA II (I) dated 2<sup>nd</sup> February 2006.

Thanking you  
Very truly yours

For BPCL Kochi Refinery

  
**Babu Joseph**  
**Chief General Manager (HSE)**

Encl: 1.Six Monthly Compliance Report

Cc:

**1. The Member Secretary**  
**Central Pollution Control Board**  
**Parivesh Bhawan**  
**East Arjun Nagar**  
**Delhi - 110 032**

**2. The Member Secretary**  
**Kerala State Pollution Control Board**  
**Plamoodu Junction**  
**Pattom Palace**  
**Thiruvananthapuram - 695 004**

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पंजीकृत कार्यालय: भारत भवन, 4 & 6, करीमभॉय रोड, बेलार्ड इस्टेट, पी. बी. नं. 688 मुंबई - 400 001

**COMPLIANCE STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS FOR CAPACITY EXPANSION PROJECT ACCORDED BY J-11011/32/90-IA.II DTD.20/08/1991**

**Status of the project:** Project commissioned in 1994

Sl. No.	Stipulations of MoEF & CC	Status as on 31.03.2020
1	The project authorities must strictly adhere to the stipulations laid down by the State Pollution Control Board and the State Government and a comprehensive EIA report must be submitted within two months.	Complied.
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.	Complied.
3	The present policy of crude mix refining strategy of minimum 50% Indian crude including B.H and 50% of imported crude should be maintained and implemented under normal conditions.	Capacity is 15.5 MMTPA and crude mix is chosen to improve the gross refining margin of the refinery within the consented conditions of production and emission/effluent norms.
4	Sulphur Recovery Unit with more than 90% Sulphur recovery should be installed and commissioned before the expansion project is completed and precautions for its continuous operation must be taken. Techno-economic feasibility study for additional stand –by 'S' recovery system may be initiated after the installation of first unit.	Sulphur Recovery Unit with more than 90% sulphur recovery commissioned during March 1995. Additional Sulphur Recovery unit has been commissioned as part of DHDS project.
5	Only LSHS should be used in boilers. The additional capacity for heaters, utility furnace must be based on LSHS use only. Low NOx burners should be used to avoid gaseous formation of NOx.	Complied.
6	The gaseous emissions from various process units should conform to the standards prescribed by the concerned authorities from time to time. At no time the emission level should go beyond the stipulated standards. In the event of the 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 measures are rectified to achieve the desired efficiency.	Complied

7	<p>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 monitoring by 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 stations should be selected on the basis of modelling exercise to represent the short term ground level construction.</p>	<p>As per letter No. J-11011/32/90-IA. II dated 19.05.1992. CRL was directed to put up 4 Nos. of AAQMS. Based on wind rose pattern at CRL and modelling exercise conducted, 3 AAQMS were found to be sufficient for monitoring the pollutants from CRL. KSPCB's approval was obtained to put up these 3 stations in CRL premises. 3 Nos. of AAQMS had been installed along with a Data Acquisition Centre and was commissioned in August 1997.</p> <p>Post CEMP- II project, commissioned in 2010 – 2011, BPCL KR has 5 AAQMS stations. The data from all the five AAQMS stations are being uploaded to CPCB servers.</p> <p>The data from AAQMS are being provided along with CEMP II clearance accorded vide MoEF&amp;CC letter J-11011/369/2005-IA II(I) dated 2<sup>nd</sup> February 2006 to KSPCB and MoEF&amp;CC as per the recommended time interval. Stack emission data attached as Annexure I.</p>
8	<p>Fugitive emissions should be regularly monitored and adequate provision should be made for the same.</p>	<p>Complied.</p>
9	<p>Fugitive emission of HC from storage tanks should be minimized by adopting the following measures:</p> <ol style="list-style-type: none"> <li>a) Provision of Floating Roof Tanks for volatile products</li> <li>b) Replacement of gland packing of pumps by means of mechanical seals.</li> <li>c) Use of submerged filling in product loading gantries</li> </ol>	<p>Complied.</p> <p>All the pumps except pumps in heavy oil or water service are provided with mechanical seals.</p> <p>Complied.</p>
10	<p>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.</p>	<p>Complied</p>
11	<p>Total raw water consumption (industrial as well as township) should not exceed the present level (i.e.16,800 m<sup>3</sup>/day)</p>	<p>Complied, current consumption is within the revised figures as per latest consent</p>

12	<p>The project authorities must recycle waste water to the maximum extent possible. The present practice of ETP effluent discharged into water logged areas should not be continued.</p> <p>The liquid effluent coming out of the plant should meet the stipulated standards and disposed through the channel only into the outfall point in Chitrapuzha river to be identified by the State Pollution Control Board. Flow of oil and grease into biological system should be avoided.</p> <p>Waste stream segregator should be installed before ETP.</p>	Complied.
13	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
14	No oily sludge should be generated and stored as was being done in the past.	As part of IREP project, BPCL-KR has commissioned a Delayed Coker Unit (DCU). Sludge generated is processed in this DCU.
15	The project authority should prepare a well designed scheme for solid and hazardous wastes disposal generated from CRL, taking into account the suggestions made by consultants in the EIA report. The plan for disposal duly approved from the State Pollution Control Board should be submitted to the Ministry within six months and adequate space should be provided for it, as far as possible on the premises itself.	<p>Scheme for solid and hazardous waste disposal was approved by KSPCB. Scheme was subsequently submitted to MoE&amp;F in March 1993.</p> <p>BPCL Kochi Refinery has implemented a scheme for recovery of oil from oily sludge. The oil recovery process consists of a series of physical separation processes. The oil recovered is reprocessed in the refinery process units. Bio remediation is carried out through TERI suggested methods.</p> <p>Spent catalyst is disposed by either returning to the original supplier or selling to the recycler or is disposed in delayed Coker unit.</p> <p>ETP Chemical sludge is disposed in delayed Coker unit.</p> <p>Bio sludge from effluent treatment plant is used as manure.</p>

16	Green belt, 500 meters wide, as recommended by the consultants in their report should be developed and maintained. The treated effluent conforming to the standard should be used for green belt development plan taking into account attenuation factors, soil characteristics etc. should be prepared and submitted to this Ministry within 6 months.	Adequate green cover provided.
17	Relocate LPG spheres so that risk due to these remains within the plant area	As it was not feasible to relocate the LPG spheres, it had been desired by MoE&F to acquire land in the adjoining area where impact will be more. Accordingly, the adjoining land of 63 acres had been acquired by CRL that has been occupied by IOC, HPC and BPC area.
18	A detailed risk analysis study based on Maximum Credible Accident Analysis should be done and submitted to this Ministry once the process design / technology and lay out is frozen. 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.	Risk analysis study had been conducted and was submitted to MoEF &CC in October 1991. Accordingly Disaster Management Plan was submitted to MoEF &CC .
19	Feasibility of using 20 tonner truck may be studied / assessed wherever road transport is being envisaged and report submitted to this Ministry in three months.	20 Tonner trucks are utilised wherever feasible.
20	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.	Complied
21	A Separate Environmental Management Cell with suitably qualified people to carry out various functions should be set up under the control of Senior Executive, who will report directly to the Head of the organization.	Already exists.
22	The funds earmarked for the environmental protection measures should not be diverted for other purposes and year-wise expenditure should be reported this Ministry.	Complied with. An estimated amount of Rs.74 crores have been spent during implementation of Capacity Expansion Project towards environmental protection measures.

DATA ON STACK EMISSIONS FROM BPCL KOCHI REFINERY  
PERIOD OCTOBER 2019 TO MARCH 2020

SL.NO.	STACK NO. UNIT	NO. OF SAMPLES ANALYSED	PERMITTED EMISSION Nm <sup>3</sup> /hr	SULPHUR DIOXIDE mg/Nm <sup>3</sup>			EMISSION RATE Nm <sup>3</sup> /hr			PARTICULATE MATTER mg/Nm <sup>3</sup>			PERCENTAGE COMPLIANCE		REMA RKS
				MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX	AVG	SPCB	MOEF&F	
1	KH1B	6	45000	571.1	691.4	666.7	17635	29514	22951	50.3	68.3	57.8	100	100	
2	NH2/HH1	6	102000	454.8	535.3	499.5	37441	51797	45050	50.1	67.2	59.6	"	"	
3	FH1	5	25000	510.3	612.6	541.1	20838	21457	21209	32.1	46.7	38.3	100	100	
4	FH3/COB	6	150000	406.3	440	426.4	64931	105590	86459	50.5	69.5	60	100	100	
5	UB10	2	136000	697.3	703.8	700.5	46926	47271	47156	41.3	45.8	43.5			
6	UB9	5	70000	704.5	780.5	747.2	24999	28755	26915	52.2	72.6	58.7	100	100	
7	DSX 002	5	35000	1025	1044.	1034.	25584	28073	26828	31.6	43.1	35.9	"	"	
9	DDH1	5	27000	730.4	841.5	762.2	24182	26656	25349	60.8	69.9	65.1	"	"	
10	CH21	6	130000	604.1	626.0	614.1	63252	86350	73701	30.5	56.1	38.7	"	"	
11	CH22	6	35000	610.7	674.8	631.5	31493	34571	33343	42.6	58.4	50.4	"	"	
12	UB7	5	150000	146.6	158	154.8	104204	119800	111639	40.7	52.1	46.3	"	"	
13	CPP/HRS9	6	277900	545.4	562	556.0	164280	185894	174637	50.1	68.1	57.5	100	100	
14	BITUROX	6	23000	593.6	636.5	616.9	11089	15527	13479	20.3	33.6	27.2	"	"	

## Annexure-I(Cont....)

DATA ON STACK EMISSIONS FROM BPCL KOCHI REFINERY															
PERIOD OCTOBER 2019 TO MARCH 2020															
SL.NO.	STACK NO. UNIT	NO. OF SAMPLES ANALYSED	PERMITTED EMISSION Nm <sup>3</sup> /hr	SULPHUR DIOXIDE mg/Nm <sup>3</sup>			EMISSION RATE Nm <sup>3</sup> /hr			PARTICULATE MATTER mg/Nm <sup>3</sup>			PERCENTAGE COMPLIANCE		REMARKS
				MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX	AVG	SPCB	MOEF	
15	CH223	6	51000	591.4	619.1	597.8	49203	50824	50328	20.3	33.6	27.2	100	100	
16	GT2 HRS G	3	427000	120.2	132.4	125	147090	161408	156971	34.6	41.1	37.8	"	"	
17	UB11	6	158000	534.3	605.2	574	49855	67279	58959	40.1	60.5	48.1	"	"	
18	NHT CCR	5	118000	709.7	743.1	725.6	92430	113405	104786	41.4	57.4	48.5	"	"	
19	VHH02	5	72000	709.3	732.6	719.7	36321	54850	48910	57.9	68.2	62.9	"	"	
20	DSX 301	5	22000	975.6	998.7	984	13599	14118	13976	50.9	59.4	55.5	"	"	
21	UB 8	1	70000	818.8	818.8	818.8	25872	25872	25872	62.2	62.2	62.2	"	"	
22	SRU III TRAIN A	6	92500	376.1	427.4	394.4	83930	91955	89948	-	-	-	"	"	
23	SRU III TRAIN B	6	92500	350.7	536.1	422.4	83380	91106	88955	-	-	-	"	"	
24	CDU III	5	254000	740.5	762.3	751.5	239632	251602	248038	30.4	40.5	38.4	"	"	
25	DHDT	5	59000	185.6	198.4	191	53220	59032	57515	20.4	30	24.9	"	"	
26	VGO HDT	5	55000	610.1	780.8	632.9	50463	53520	52552	32	37.3	34.1	100	100	
27	PFCCU HEATER	6	22400	25.3	37	32.0	19950	22361	21260	20.4	29.5	25.5	"	"	
28	PFCCU REGENERATOR	6	235250	27.6	42.6	34.1	104390	154534	131822	19.7	34.6	27.8	"	"	
29	DCU-1	4	80000	20.5	31.4	26.8	70129	77892	74309	3.3	4.8	4.0	"	"	
30	DCU-2	5	80000	30.9	39.8	35.4	71543	78754	74161	3.0	4.5	3.9	100	100	
31	HRS G-3	3	1095907	304.7	309.3	316.8	105539	157273	133418	20.2	27.5	23.3	"	"	
32	HRS G-4	5	1095907	286.5	415.7	347.5	105164	136109	121513.0	16.6	29.6	26.1	"	"	
33	HRS G-5	2	1095907	388.3	399.5	393.9	143443	142509	142976	28.8	28.8	28.8	"	"	