भारत पेट्रोलियम कॉर्पोरेशन लिमिटेड
भारत सरकार का उपक्रम
कोच्चि रिफ़ाइनरी

BHARAT PETROLEUM CORPORATION LIMITED
A Govt. of India Enterprise
Kochi Refinery

03/HSE/ENV/202/04
07.06.2019

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 October 1st, 2018 to March 31st, 2019 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 2nd 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

पोस्ट बैग नं: 2, अम्बलमुगल - 682 302, एरणाकुलम ज़िला, केरल, दूरभाष: 0484-2722061- 69 ,फैक्स: 0484-2720961 / 2721094
पंजीकृत कार्यालय: भारत भवन, 4 & 6, करीमभॉय रोड, बेलार्ड इस्टेट, पी. बी. नं. 688 मुंबई - 400 001
ईमेल: info@bharatpetroleum.in वेब: www.bharatpetroleum.in सिन: L23220MH1952GOI008931

Post Bag No.: 2, Ambalamugal - 682 302, Ernakulam Dist., Kerala,Phone: 0484 - 2722061-69 Fax: 2720961 / 2721094
Registered Office: Bharat Bhavan, 4 & 6, Currimbhoy Road, Ballard Estate, P.B. No. 688, Mumbai - 400 001
e-mail: info@bharatpetroleum.in Web: www.bharatpetroleum.in CIN: L23220MH1952GOI008931

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 31.03.2019
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	Adequate number (a minimum of 7) of air quality monitoring stations should be set up in the down-wind direction as well as where	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

	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.	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. 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. The data from AAQMS are being provided along with CEMP II clearance accorded vide MoEF&CC letter J-11011/369/2005-IA II(I) dated 2nd February 2006 to KSPCB and MoEF&CC as per the recommended time interval. Stack emission data attached as Annexure I.
8	Fugitive emissions should be regularly monitored and adequate provision should be made for the same.	Complied.
9	Fugitive emission of HC from storage tanks should be minimized by adopting the following measures: a) Provision of Floating Roof Tanks for volatile products b) Replacement of gland packing of pumps by means of mechanical seals. c) Use of submerged filling in product loading gantries	Complied. All the pumps except pumps in heavy oil or water service are provided with mechanical seals. Complied.
10	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.	Complied
11	Total raw water consumption (industrial as well as township) should not exceed the present level (i.e.16,800 m3/day)	Complied.
12	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. The liquid effluent coming out of the plant should meet the stipulated standards and	Complied.

	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. Waste stream segregator should be installed before ETP.	
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.	Scheme for solid and hazardous waste disposal was approved by KSPCB. Scheme was subsequently submitted to MoE&F in March 1993. 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. Spent catalyst is disposed by either returning to the original supplier or selling to the recycler or is disposed in secured land fill. ETP Chemical sludge is disposed in secured landfill. Bio sludge from effluent treatment plant is used as manure.
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.	Complied.
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. Further, LPG spheres are progressively being replaced with mounded storages.
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. Disaster Management Plan was submitted to MoEF &CC in February 1992.
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.

Annexure – I

DATA ON STACK EMISSIONS FROM BPCL KOCHI REFINERY — **ANNEXURE 1**

PERIOD OCTOBER 2018 TO MARCH 2019

SL.NO.	STACK NO. UNIT	NO. OF SAMPLES ANALYSED	PERMITTED EMISSION Nm3/hr	SULPHUR DIOXIDE mg/Nm3			EMISSION RATE Nm3/hr			PARTICULATE MATTER mg/Nm3			PERCENTAGE COMPLIANCE		REMARKS
				MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX	AVG	SPCB	MOE&F	
1	CH1AB	0	130000	SHUTDOWN											
2	KH1B	6	45000	662.58	740.45	704.07	21416	22529	21808.3	46.2	52.18	49.46	100	100	
3	NH2/HH1	6	102000	564.52	735.79	674.75	47129	49056	47823.3	53.82	62.56	58.31	"	"	
7	FH1	6	25000	499.7	525.03	504.415	20609	21777	21090.3	35.22	51.3	42.91	100	100	
8	FH3/COB	6	150000	400.91	495.2	443.11	76355	78964	77916	8.37	65.48	34.315	100	100	
9	UB10	0	136000	**											
10	UB9	6	70000	725.52	810.83	776.32	26547	29997	27442.3	48.45	54.21	51.51	100	100	
11	DSX 002	6	35000	1013.8	1054.35	1031.87	25182	25811	25413.5	39.62	44.83	41.9	"	"	
12	DHH11	4	82500	845.45	864.14	851.32	78883	81280	79941	47.73	53.18	50.11	"	"	
13	DDH1	5	27000	739.46	759.25	742.98	25065	25845	25481.4	60.47	66.74	63.184	"	"	
14	CH21	6	130000	596.84	623.32	610.835	80904	85561	82491.5	30.18	42.16	36.25	"	"	
15	CH22	6	35000	589.36	611.76	598.01	33165	34872	34106.5	39.57	42.74	41.53	"	"	
16	UB7	1	150000	167.47	167.47	167.47	115030	115030	115030	48.6	48.6	48.6	"	"	
17	CPP/HRSG	2	277900	569.56	573.37	571.46	156102	172942	164522	54.31	57.92	56.115	100	100	
18	BITUROX	6	23000	608.39	725.56	662.15	13870	15138	14645.1	24.2	38.07	31.2	"	"	
19	CH223	6	51000	602.87	631.34	613.59	48688	50499	49709	42.64	53.85	49.48	100	100	
20	GT2 HRSG	4	427000	117.28	136.7	125.34	155125	160106	156982	19.09	41.2	25.515	"	"	
21	UB11	6	158000	517.3	568.38	550.43	65950	69636	66622.5	42.4	50.25	47.01	"	"	
22	NHT CCR	4	118000	735.5	783.73	758.37	109162	114114	112488	48.9	54.51	51.79	"	"	
23	VHH02	3	72000	706.1	718.54	712	47859	49402	48635	60.14	63.18	61.53	"	"	
24	DSX 301	2	22000	973.95	983.14	978.545	13547	13745	13646	56.67	58.24	57.455	"	"	
25	UB 8	6	70000	811.97	843.61	833.67	26121	27375	26822.8	43.48	62.1	56.55	"	"	
26	SRU III TRAIN A	6	92500	405.9	434.64	421.02	90880	91691	91243.6	-	-	-	"	"	
27	SRU III TRAIN B	6	92500	524.2	543.72	533.06	89202	92168	90738.3	-	-	-	"	"	
28	CDU III	3	254000	780.13	797.64	787.54	234408	247299	241083	36.81	38.71	37.57			

Annexure – I (continued)

SL.NO.	STACK NO. UNIT	NO. OF SAMPLES ANALYSED	PERMITTED EMISSION Nm3/hr	SULPHUR DIOXIDE mg/Nm3			EMISSION RATE Nm3/hr			PARTICULATE MATTER mg/Nm3			PERCENTAGE COMPLIANCE		REMARKS
				MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX	AVG	SPCB	MOE&F	
29	DHDT	5	59000	191.69	211.28	199.75	51037	58079	56238.4	18.11	22.05	20.06			
30	VGO HDT	5	55000	804.5	716.5	764.01	50549	54444	52791	34.27	45.37	39.81	100	100	
31	PFCCU HEATER	6	22400	21.51	26.46	23.52	21139	22141	21678	16	23.92	19.94	"	"	
32	PFCCU REGENERATOR	6	235250	44.59	49.04	46.32	148902	153317	150487	31.06	39.49	35.59	"	"	
33	DCU-1	4	80000	21.87	38.21	29.4	77941	79731	79136	4.22	4.89	4.64			
34	DCU-2	4	80000	22.94	31.79	26.32	78341	79577	79196.2	3.19	4.16	3.69	100	100	
35	HRSG-3	5	1095907	312.83	357.01	337.6	130489	137936	134257	24.32	27.13	25.91	"	"	
35	HRSG-4	4	1095907	350.16	364.08	354.79	131412	138776	136963	25.81	28.12	27.52	"	"	
36	HRSG-5	0	1095907	287.33	335.98	313.07	129702	131814	131060	22.17	31.12	26.72			
37	UB 12	0	246744	**											
38	UB 13	0	246744	**											

**UB 12,UB13&UB10 sampiing point under modification.