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
20.11.2020

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 1st April 2020 to 30th Sept 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 2nd February 2006.

Thanking you
Very truly yours

For BPCL Kochi Refinery

Ramachandran.M.K
General Manager I/C (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

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 30.09.2020
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	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.	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. 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, current consumption is within the revised figures as per latest consent

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 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.	At present Entire ETP effluents, Boiler B/D, Cooling Water B/D are being routed to RO-DM plant.
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 delayed Coker unit. ETP Chemical sludge is disposed in delayed Coker unit. 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.	At present KR is having maintaining Green cover to the Extent of 33% of the plant area. (243 acres).
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.

Annexure – 1

DATA ON STACK EMISSIONS FROM BPCL KOCHI REFINERY															
PERIOD - April 2020 to Sept. 2020															
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	KH1B	1	45000	578	578	578	26527	26527	26527	56	56	56	100	100	
2	NH2/HH1	5	102000	233	526	426	41376	58735	48397	45	84	70	"	"	
3	FH1	2	25000	606	613	610	23991	24224	24107	47	51	49	100	100	
4	FH3/COB	2	150000	447	451	449	63936	76817	70376	50	56	53	100	100	
5	UB10	2	136000	687	691	689	42670	48324	45497	49	53	51			
6	UB9	3	70000	561	722	667	21242	32455	26931	46	53	50	100	100	
7	DSX 002	4	35000	799	1021	960	26941	32824	29582	40	53	48	"	"	
9	DDH1	2	27000	750	755	752	25914	26076	25995	56	62	59	"	"	
10	CH21	2	130000	609	620	615	48630	74469	61550	46	51	49	"	"	
11	CH22	2	35000	661	672	666	21480	34685	28082	47	53	50	"	"	
12	UB7	2	150000	141	150	146	101083	126427	116338	40	52	46	"	"	
13	CPP/HRSG	2	277900	287	554	420	129083	190414	159748	37	61	49	100	100	
14	BITUROX	4	23000	411	618	537	10958	14379	12988	20	39	28	"	"	

DATA ON STACK EMISSIONS FROM BPCL KOCHI REFINERY															
PERIOD - April 2020 to Sept. 2020															
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	
15	CH223	2	51000	548	556	552	49407	50376	49891	58	67	63	100	100	
16	GT2 HRSG	4	427000	92	147	131	115497	151121	133083	23	53	43	"	"	
17	UB11	4	158000	362	604	512	43484	79645	63839	22	61	42	"	"	
18	NHT CCR	5	118000	322	756	623	91716	116529	102401	32	69	56	"	"	
19	VHH02	2	72000	711	718	715	38645	50980	44812	55	61	58	"	"	
20	DSX 301	3	22000	887	1106	962	12963	14164	13527	31	47	40	"	"	
21	UB 8	2	70000	827	835	831	26341	28345	27343	65	71	68	"	"	
22	SRU III TRAIN A	5	92500	317	460	382	91222	91679	91493	-	-	-	"	"	
23	SRU III TRAIN B	5	92500	338	532	401	82138	92105	88616	-	-	-	"	"	
24	CDU III	4	254000	346	762	569	245958	253661	251571	10	46	28			
25	DHDT	5	59000	90	192	151	58183	58572	58328	11	36	24			
26	VGO HDT	4	55000	25	796	396	52265	53880	52909	21	47	35	100	100	
27	PFCCU HEATER	4	22400	14	30	23	19078	21883	21116	10	34	21	"	"	
28	PFCCU REGENERATOR	4	235250	18	40	29	124015	175359	149948	11	31	21	"	"	
29	DCU-1	1	80000	23	23	23	75056	75056	75056	4	4	4			
30	DCU-2	3	80000	32	42	38	74589	77788	76491	3.6	4.3	4	100	100	
31	HRSG-3	4	1095907	120	339	237	122736	160102	141058	15	32	23	"	"	
32	HRSG-4	1	1095907	313	313	313	143521	143521	143521	29	29	29	"	"	
33	HRSG-5	5	1095907	129	368	280	98047	159874	132024	18	45	34			
34	UB 12	2	246744	40	70	55	139567	153253	146410	9	18	14			
35	UB 13	2	246744	41	51	46	114892	126579	120735	12	22	17			