

Presented on: 27/09/2021

**BEFORE THE HON'BLE NATIONAL  
GREEN TRIBUNAL SOUTHERN ZONE  
AT CHANNAI**

O.A.NO : 265 of 2017 (SZ)

**N G Soman : Applicant**

**Vs  
Bharath Petroleum : Respondents  
Corporation Ltd, Kochi  
& Other**

**REJOINDER FILED BY THE APPLICANT**

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**SUNIL.K.J  
Counsel for the Applicant**

**Mobile No::+918129 02 04 06**

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL**  
**SOUTHERN ZONE AT CHENNAI**

**Original Application No: 265 of 2017 (SZ)**

<b>N.G.SOMAN</b>		<b>Applicant</b>
	<b>Vs</b>	
<b>BHARATH PETROLEUM CORPORATION LTD, KOCHI and Others</b>		<b>Respondents</b>

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Dated this the 25<sup>th</sup> Day of September, 2021



**SUNIL.K.J**  
Counsel for the Applicant

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL**  
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	<b>Vs</b>	
<b>BHARATH PETROLEUM CORPORATION LTD, KOCHI and Others</b>		<b>Respondents</b>

**REJOINER FILED BY THE APPLICANT IN THE ABOVE ORIGINAL  
APPLICATION**

1. All the averments in the reply statement objections except which are specifically admitted hereunder are denied.
2. The reply affidavit and follow up report submitted by the CPCB in OA No-17/2021 dated 08/03/2021 clearly demonstrate the volume of violation of conditions in environment clearance issued by the Respondent No-1. Applicants are in support of the factual aspects reported by the CPCB.
3. It is submitted that as per the instruction from Central Pollution Control Board, the Kerala Pollution Control Board conducted a virtual meeting on 29/09/2020. During virtual meeting the Officials of Respondent No-1 BPCL-Kochi refinery submitted that till date the EC conditions regarding the Green belt was not complied and 40 Acres of land earmarked for green belt and around 8000 tree saplings were planted and moreover admitted that the grievance of the applicants are correct.



4. Then the Central Pollution Control Board conducted the physical inspection on the project site and reported a follow up report 29/12/2020. The follow up report of CPCB clearly reported that during inspection it is confirmed that there is no proper green belt around the project site. To develop green belt as envisaged under the Environment clearance certificate there are several restrictions are prevailed including drawing of high tension power lines over the land earmarked for green belt as reported by the BPCL, inadequate space inside the project location, restrictions on account of some petroleum installations etc. True copy of the Environment Clearance certificate No-F.No- J-11011/26/2013-1A-II(I) dated 12/05/2015 issued to Respondent No-1 is produced herewith and marked as **Annexure-A2**.
  
5. As per specific condition No-A-xxi in the Annexure-A2; it is mandates that there should be a green belt at least 40 Acres of land in and around plant premises. The Respondent No-1 BPCL had submitted quarterly/yearly compliance reports regarding the compliance of Annexure-A2 EC conditions before respondent No-6. True copy of the compliance reports dated 24/12/2019, 01/06/2020 and 10/06/2021 submitted by the Respondent No-1 is produced herewith and marked as **Annexure-A3**, **Annexure-A4** and **Annexure-A5** respectively.



6. It is submitted that vide Annexure-A3, A4 and A5 compliance report, BPCL reported that the EC conditions was duly complied. It is submitted that the compliance reports submitted by the Respondent No-1 BPCL for the last 3 years are contrary to the follow up report dated 29/12/2020 and reply affidavit filed in OA No-17/2021 by the CPCB.
7. It is submitted that as per the conditions stipulated in Annexure-A2; clearly mandates that the PDPP project site is situated in 132.4 Acres of land and out of which 40 Acres should earmarked for Green belt. It is also to be taken into account that the entire BPCL Ambalamughal is situated in 1310 Acres of land, out of which 33% or 40% is earmarked for the Green belt as reported by the BPCL. The specific condition of EC dated 12/05/2015 is that there should be a green belt in and around the plant premise of PDPP Project having plant area of 132.4 Acres and out of which 40 Acres should earmarked for Green belt.
8. It is submitted that for establishing the Respondent No-2 plant and other projects; the Respondent No-1 BPCL had cut down several grown up trees from the land and the cutting of trees were done through M/s Deens Constructions, Palarivattom. True copy of the final bill submitted by the Deens Constructions to Respondent No-1 BPCL is produced herewith and marked as Annexure-A6.



9. It is humbly submitted that the Respondent No-6 also filed an affidavit in OA No-17/2021 (SZ) dated 04/03/2021 in contrary to the findings of inspection report and reply affidavit filed CPCB dated 08/03/2021.
10. All the contentions in the reply statement, objections filed by the respondents are devoid of merit and Original Application is liable to be allowed with cost to this applicant.

Dated this the 25<sup>th</sup> Day of September, 2021.



N.G.Soman

**APPLICANT**

**VERIFICATION**

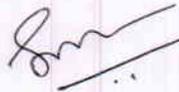
I, N G Soman, S/o Kunjunni Nair, Aged 55 Years, Nenjammalil, Ambalamedu, Puthencruze Village, Kunnathunadu Taluk, Ernakulam District, Kerala State; do hereby verify that the contents of paragraphs 1 to 10 above are true to the best of my knowledge, information and belief and that I have not suppressed any material facts.

Place: Ernakulam

Date: 25/09/2021



N G Soman  
**APPLICANT**



**SUNIL.K.J**  
**Counsel for the Applicant**

F. No. J-11011/28/2013- IA II (I)  
 Government of India  
 Ministry of Environment, Forests and Climate Change  
 (I.A. Division)

Indira Paryavaran Bhawan  
 Allganj, Jorbagh Road,  
 New Delhi -110003

E-mail : ik.bokolla@nic.in  
 Telefax : 011: 24695313  
 Date: 12<sup>th</sup> May, 2015

To,

Shri George Paul (Dy. General Manager)  
 M/s BPCL-Kochi Refinery,  
 Post Bag No. 2 Ernakulam District  
 Ambalamugal -682 302, Kerala

E-mail: [georgepaul@bharatpetroleum.in](mailto:georgepaul@bharatpetroleum.in) ; Fax No.: 0484-2822006

Subject: Propylene Derivatives Petrochemical Project (PDPP) at Village  
 Puthencruz/Thiruvankulam, Tehsil Kunnathanadu, District Ernakulam, Kerala by  
 M/s BPCL-Kochi Refinery- Environmental Clearance req.

Ref. : Your letter no. BPCL-KR-PC7 dated 9<sup>th</sup> January, 2012.

Sir,

This has reference to your letter dated 9<sup>th</sup> January, 2012 alongwith project documents including Form 1, Prefeasibility Report, Draft Terms of References, EIA/EMP report, Public Hearing report and your subsequent letter no. 26-PT-54 dated 19<sup>th</sup> March, 2015 on the above mentioned subject.

2.0 The Ministry of Environment, Forests and Climate Change has examined the application. It is noted that the proposal is for setting up of Propylene Derivatives Petrochemical Project (PDPP) at Village Puthencruz/Thiruvankulam, Tehsil Kunnathanadu, District Ernakulam, Kerala. Total cost of the project is Rs. 4588 Crore. Plant area is 132.4 Acres of which area earmarked for greenbelt is 40 acres. Polymer grade propylene (250 TMT) will be supplied by the BPCL-Kochi Refinery after implementation of the integrated refinery expansion project (IREP) at Kochi, Kerala. Chitrapuzha River (1.0 Km), Panar (1.6 Km) and KaitapuzhaKoyal (5.7 Km) are located within 10 Km distance. It is reported that no national park/wildlife sanctuary/reserve/protected forests are located within 10 km distance. Following products will be manufactured:

Products:	
Ester Grade Acrylic Acid	: 47,000 Metric Tonnes per Annum
Butyl Acrylate	: 180,000 Metric Tonnes per Annum
2 Ethyl Hexyl Acrylate	: 10,000 Metric Tonnes per Annum
Normal Butanol	: 38,000 Metric Tonnes per Annum
2 Ethyl Hexanol	: 47,000 Metric Tonnes per Annum

Iso Butanol	7,000 Metric Tonnes per Annum
<b>Plant Capacities:</b>	
Acrylic Acid Unit	160,000 Metric Tonnes per Annum
Acrylate Unit	190,000 Metric Tonnes per Annum
Oxo Alcohols Unit	212,000 Metric Tonnes per Annum

3.0 Off gases and other waste gases generated from the process units will be routed to waste incineration unit for treatment. Low NOx burners will be provided. Online analyzers / Gas monitors will be provided to monitor emissions / leaks. Smokeless flare of adequate height will be provided for safe disposal of gases during emergencies. Total SO<sub>2</sub> emissions from PDPP will be 43.4 Kg/hr. Total SO<sub>2</sub> emissions after implementation of PDPP alongwith the existing Integrated Refinery Expansion Project (IREP) of Kochi Refinery will be 1561.4 Kg/hr. It is reported that total fresh water requirement from Pariyar River will be 493 m<sup>3</sup>/hr. for which BPCL - Kochi Refinery has consent from the Govt. of Kerala for drawing water from Pariyar River upto 3083.3 m<sup>3</sup>/hr. Effluent generation will be 35 m<sup>3</sup>/hr from process, 102.3 m<sup>3</sup>/hr from cooling tower blow down and 203 m<sup>3</sup>/hr from condensate. Low COD effluent from process will be treated in combine effluent treatment plant of IREP. High COD effluent will be routed to waste incinerator. Cooling tower blow down will be treated in RO. DM plant and treated effluent will be recycled/reused for cooling tower make up. Condensate will be reused in the IREP project of Refinery. Domestic sewage will be treated in sewage treatment plant (STP). Rain water from PDPP complex will be routed to an oil water separator and will be reused. Oxidation catalyst, Feed purification absorbent and Polymer residue will be sent to the Authorized recycler/re-processors.

4.0 All petro-chemical complexes are listed at S.N. 5(c) under category 'A' and appraised at Central level.

5.0 Public hearing/consultation was conducted by the State Pollution Control Board on 23<sup>rd</sup> December, 2014.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry) in its meetings held during 5<sup>th</sup>-7<sup>th</sup> March, 2013, 28<sup>th</sup> to 30<sup>th</sup> April 2014 and 17<sup>th</sup>-19<sup>th</sup> February, 2015 respectively. Project Proponent and the EIA Consultant namely Engineers India Ltd., have presented EIA / EMP report as per the TOR. EAC has found the EIA / EMP Report and additional information to be satisfactory and in full consonance with the presented TORs. The Committee recommended the proposal for environmental clearance.

7.0 Based on the information submitted by the project proponent, the Ministry of Environment and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14<sup>th</sup> September 2006, subject to the compliance of the following Specific and General Conditions:

**A. SPECIFIC CONDITIONS :**

- i. M/s BPCL shall comply with new standards/norms for Oil Refinery Industry and petrochemical industry notified under the Environment (Protection) Rules, 1986.
- ii. Continuous on-line stack monitoring for SO<sub>2</sub>, NOx and CO of all the stacks shall be carried out. Low NOx burners shall be installed.

- iii. The emission standards prescribed by the MoEF under Environment (Protection) Act for petrochemical industry shall be strictly followed. At no time, the emission levels shall go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency. Stack emissions shall be monitored regularly.
- iv. Leak Detection and Repair programme shall be prepared and implemented to control HCVOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.
- v. Total SO<sub>2</sub> emissions after implementation of PDPP including IREP shall not exceed 1561.4 Kg/hr.
- vi. Continuous monitoring system for VOCs at all important places/areas shall be ensured. When monitoring results indicate above the permissible limits, effective measures shall be taken immediately.
- vii. Ambient air quality monitoring stations, [PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, H<sub>2</sub>S, mercaptan, non-methane-HC and Benzene] shall be set up in the complex in consultation with Kerala State Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs.
- viii. Ambient air quality data shall be collected as per NAAQES standards notified by the Ministry on 16<sup>th</sup> November, 2009 and trend analysis w.r.t past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.
- ix. The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Besides, acoustic enclosure /silencer shall be installed wherever noise levels exceed the limit.
- x. Total fresh water requirement from Kochi Refinery for PDPP shall not exceed 493 m<sup>3</sup>/hr and prior permission shall be obtained from the concerned agency. No ground water shall be used.
- xi. Industrial effluent shall be treated in the effluent treatment plant. Treated effluent shall be recycled/reused in the existing cooling tower. As proposed, high COD effluent shall be incinerated. Water quality of treated effluent shall be monitored regularly. Online water monitoring system shall be installed for important parameters.
- xii. Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.
- xiii. Incinerator designed shall be as per CPCB guidelines.

- xiv. The Company should strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000. Hazardous waste should be disposed of as per Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and amended time to time.
- xv. Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.
- xvi. The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).
- xvii. To prevent fire and explosion at oil and gas facility, potential ignition sources shall be kept to a minimum and adequate separation distance between potential ignition sources and flammable materials shall be in place.
- xviii. All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.
- xix. All the issues raised and commitment made during the public hearing/consultation meeting held on 23<sup>rd</sup> December, 2014 shall be satisfactorily implemented. Accordingly, provision of budget to be kept.
- xx. At least 2 % of the total cost of the project should be earmarked towards the Enterprise Social Commitment (ESC) based on local needs and action plan with financial and physical breakup/details should be prepared and submitted to the Ministry's Regional Office at Bangalore. Implementation of such program should be ensured accordingly in a time bound manner.
- ✓ xxi. Green belt shall be developed at least in 40 acres of land in and around the plant premises to mitigate the effects of fugitive emissions all around the plant as per the CPCB guidelines in consultation with DFO. Thick greenbelt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.
- xxii. Provision shall be made for the housing of construction labour within the site with all necessary Infrastructure and facilities such as fuel for cooking, mobile toilets, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

#### B. GENERAL CONDITIONS:

- i. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.
- ii. No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.

- iii. The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.
- iv. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).
- v. A separate Environmental Management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.
- vi. Adequate funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government alongwith the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.
- vii. The Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.
- viii. A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.
- ix. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
- x. The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry / CPCB / SPCB shall monitor the stipulated conditions.
- xi. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company alongwith the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.

xii. The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at <http://envfor.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office.

xiii. Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.

8.0 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

9.0 The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

10.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

11.0 Environment Clearance is issued to M/s BPCL-Kochi Refinery for Propylene Derivatives Petrochemical Project (PDPP) at Village Pulhencruz/Thiruvankulam, Taluk Kunnathanadu, District Ernakulam, Kerala.

(Lalit Bokolia)  
Additional Director

Copy to :-

1. Principal Secretary, Department of Environment & Forest, Govt. of Kerala, Secretariat Annex Building, Room - 604, C Block, 6th Floor, Government Secretariat, Thiruvananthapuram.
2. Chairman, Kerala State Pollution Control Board, Pattom P.O., Thiruvananthapuram
3. Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 110032.
4. The Chief Conservator of Forests, Regional Office (Southern Zone, Bangalore) Kendriya Sadan, 4th Floor, E&F Wing, II Block Koramangala, Bangalore-560034.
5. Monitoring Cell, Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhawan, Jor Bagh, New Delhi-110003.
6. Guard File/Record File.

(Lalit Bokolia)  
Additional Director

True copy

भारत पेट्रोलेियम कॉर्पोरेशन लिमिटेड  
भारत पेट्रोलेियम कॉर्पोरेशन लिमिटेड  
कोची रिफ़िनरी



**BHARAT PETROLEUM CORPORATION LIMITED**  
A Group of Public Enterprises  
Kochi Refinery

KE.PET.S.EC

24<sup>th</sup> Dec.2019

Ministry of Environment, Forests and Climate Change  
Regional Office (Southern Zone)  
Kendriya Sadan, 4<sup>th</sup> Floor, E&F Wings, 17<sup>th</sup> main road  
Koramangala -II Block, Bangalore - 560 034.

Kind Attn: Shri. E Thirunavukkarasu - Scientist D  
Dear Sir,

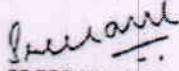
Sub: Propylene Derivatives Petrochemical Project (PDPP) by Bharat Petroleum Corporation Limited, Kochi Refinery, Ambalamugal, Ernakulam District, Kerala: HYCR of stipulated Environmental Conditions for the period April 2019 to Sept 2019.

Ref: MoEF&CC letter no. J-11011/26/2013-IA II (i) dated 12<sup>th</sup> May, 2015 granting Environmental Clearance.

With reference to the aforementioned letter, please find enclosed six monthly compliance report for the period 1<sup>st</sup> April 2019 to 30<sup>th</sup> Sept 2019 on various conditions laid down by MoEF&CC.

Thanking you,

Very truly yours  
For BPCL Kochi Refinery

  
SREERAM A N

GM (Project Technical & Petchem)

Cc: 1. The Member Secretary  
Central Pollution Control Board  
Parivesh Bhawan, CBD-cum-Office Complex  
East Arjun Nagar  
Delhi - 110 032.

2. The Member Secretary  
Kerala Pollution Control Board  
Plamoodu Junction  
Pattom (PO),  
Thiruvananthapuram - 695 004

3. The Environmental Engineer,  
Kerala State Pollution Control Board  
District Office -2,  
Perumbavoor, Ernakulam.

पोस्ट बॉक्स नं: 2, अम्बलामुगल - 682 302, एरनाकुलम जिला, केरला, फोन: 0484 - 2722061 - 69 फेक्स: 0484 - 2720961 / 2721094  
पब्लिक इन्फॉर्मेशन ऑफिस, भारत पेट्रोलेियम कॉर्पोरेशन लिमिटेड, कोची रिफ़िनरी, एम्बलामुगल, एरनाकुलम जिला, केरला, फोन: 0484 - 2722061 - 69 फेक्स: 0484 - 2720961 / 2721094

Post Bag No: 2, Ambalamugal - 682 302, Ernakulam Dist., Kerala, Phone: 0484 - 2722061-69 Fax: 2720961 / 2721094  
Registered Office: Bharat Bhawan, 4 & 6, Cornhill Road Ballard Estate, P.O. No. 858, Mumbai - 400 001

  
Public Information Officer  
Kerala State Pollution Control Board  
District Office - II (L1213)  
Perumbavoor - 688 512

Report on the status of Compliance of stipulated Environmental Conditions; PDDP Project BPCL-KR – Period Apr 19 to Sept 19.

S.No. as per Envtl.No. J-11011252013-12052015 I.R.O. Dtd.:	COMMENTS	Compliance Status
SPECIFIC CONDITIONS:		
I	M/s BPCL shall comply with new standards/norms for Oil Refinery Industry and Petrochemical industry notified under the Environment (Protection) Rules, 1986.	BPCL-KR will comply.
II	Continuous on-line stack monitoring for SO <sub>2</sub> , NO <sub>x</sub> and CO of all the stacks shall be carried out. Low NO <sub>x</sub> burners shall be installed.	Incinerators are having low NO <sub>x</sub> burners. Continuous on-line stack monitoring will be ensured.
III	The emission standards prescribed by the MOEF under Environment (Protection) Act for petrochemical industry shall be strictly followed. At no time, the emission levels shall go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency. Stack emissions shall be monitored regularly.	There are no process heaters in the PDDP Project. Only waste incinerators are there for which vaporized LPG/LNG shall be used. The incinerators are designed to comply with the prescribed emission standards.
IV	Leak Detection and Repair programme shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.	Leak Detection and Repair programme starting from fugitive emissions survey to status update and final reporting will be implemented by availing the services of an expert consultant.  Points for leak detection and repair survey are being identified and listed, the frequency of monitoring of leaks and schedule of repairs of leak will be as per CPCB guidelines  Tendering for an expert and approved agency for conducting field survey is in progress.

P. M. S. S. S. V. V. V.  
Public Information Officer

Report on the status of Compliance of stipulated Environmental Conditions; PDP Project BPCL-KR – Period Apr 19 to Sept 19.

S.No. as per Env.Ltr.No. J-1107172672013-1A/II/01, Dtd: 12MS2015	COMMENTS	Compliance Status
V	Total SO <sub>2</sub> emissions after implementation of PDP including IREP SHALL NOT EXCEED 1561.4 Kg/hr.	Plant-wise PM check schedule for the periodic health check-up of the Rotary Equipment is prepared. All storage tank breathing vents will be routed to Incinerator. Gas detectors provided at strategic locations.
VI	Continuous monitoring system for VOCs at all important places/areas shall be ensured. When monitoring results indicate above the permissible limits, effective measures shall be taken immediately.	BPCL-KR will comply.
VII	Ambient air quality monitoring stations (PMA, PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , H <sub>2</sub> S, mercaptan, non-methane-HC and Benzene) shall be set up in the complex in consultation with Kerala State Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs.	AAQMS is being installed at the location approved by Kerala State Pollution Control Board.
VIII	Ambient air quality data shall be collected as per NAAQES standards notified by the Ministry on 16 <sup>th</sup> November, 2009 and trend analysis w.r.t. past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.	Ambient air quality is being monitored by existing refinery facilities. The same shall utilized for PDP also.

  
 P. MADHAVA, V.V.  
 Director, Pollution Control Board  
 Kerala State Pollution Control Board  
 B-1, 1<sup>st</sup> Floor, P.O. Box 113,  
 Bhoodan, Cochin-682 032.

Report on the status of Compliance of stipulated Environmental Conditions: PDPP Project BPCL-KR - Period Apr 19 to Sept 19.

S.No. as per Env.Ltr.No. J-IA II (9), Dtd: 12/05/2015	COMMENTS	Compliance Status
ix	The gaseous emission from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Besides, acoustic enclosure/silencer shall be installed wherever noise levels exceed the limit.	Complied.
x	Total fresh water requirement from Kochi Refinery for PDPP shall not exceed 493 m <sup>3</sup> /hr and prior permission shall be obtained from the concerned agency. No ground water shall be used.	The total fresh water requirement will be 493 m <sup>3</sup> /hr which is within the total sanctioned quantity of 3083.3 m <sup>3</sup> /hr for refinery by Govt of Kerala
xi	Industrial effluent shall be treated in the effluent treatment plant. Treated effluent shall be recycled/reused in the existing cooling tower. As proposed, high COD effluent shall be incinerated. Water quality of treated effluent shall be monitored regularly. Online water monitoring system shall be installed for important parameters.	High COD effluent will be incinerated. Effluent will be routed to IREP ETP for final treatment & disposal. There will be no treated effluent discharge from PDPP complex.
xii	Oil catchers/soil traps shall be provided at all possible locations in rain/storm water drainage system inside the factory premises.	Oil catchers/soil traps at possible locations provided
xiii	Incinerator designed shall be as per CPCB guidelines.	Two numbers Incinerator (Acrylic acid & Acrylates unit) is considered within the PDPP complex is designed as per CPCB guidelines
xiv	The Company should strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000. Hazardous waste should be disposed of as per Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and amended time to time.	Disposal of Hazardous waste contract with third party disposal agency finalized.

  
 PAMEENA, M. V.,  
 Public Information Officer  
 Kerala State Pollution Control Board  
 District Office - II (K-10)  
 Perumbavoor - 688 042

Report on the status of Compliance of stipulated Environmental Conditions; PDPP Project BPCL-KR – Period Apr 19 to Sept 19.

S.No. as per Env.Ltr.No. J-110117262013-1A II (B), Dtd.: 12/05/2015	COMMENTS	Compliance Status
xv	Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.	Oil spillage prevention is taken care at the design stage itself. However inside the refinery complex, adequate facilities are maintained to prevent and contain oil spillage. Hence the same shall be implemented for PDPP complex also.
xvi	The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).	Complied to the points mentioned in CREP that is applicable for PDPP project
xvii	To prevent fire and explosion of oil and gas facility, potential ignition sources shall be kept to a minimum and adequate separation distance between potential ignition sources and flammable materials shall be in place.	PDPP facility is designed as per OISD & PESO guidelines and the facilities satisfy separation distances as specified by OISD and relevant Petroleum rules.
xviii	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented. Accordingly, provision of budget to be kept.	Emergency Disaster Control Plan is being updated based on the recommendations of risk assessment report.
xix	All the issues raised and commitment made during the public hearing/consultation meeting held on 23 <sup>rd</sup> December 2014 shall be satisfactorily implemented. Accordingly, provision of budget to be kept.	BPCL-KR has complied with the issues mentioned in the minutes of meeting published in the EIA report
xx	At least 2% of the total cost of the project should be earmarked towards the Enterprise Social Commitment (ESC) based on local needs and action plan with financial and physical breakup/details should be prepared and submitted to the Ministry's Regional Office at Bangalore. Implementation of such program should be ensured accordingly in a time-bound manner.	Action plan prepared and submitted with the previous compliance report.
xxi	Green belt shall be developed at least in 40 acres of land in and around the plant premises to mitigate the effects of fugitive emissions all	Green belt is being developed in 40 acres of land in and around the plant premises

  
 MAHESH A. V.V.  
 Public Information Officer  
 Kerala State Pollution Control Board  
 11, Street Office-II (1, 8th)  
 P. O. Box - 507 - 683 512

Report on the status of Compliance of stipulated Environmental Conditions; PDPP Project BPCL-KR – Period Apr 19 to Sept 19.

S.No. as per Env.Ltr.No. J. 1101/126/2013-IA II (I), Dtd.: 12/05/2015	COMMENTS	Compliance Status
iv	Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.  The overall noise levels in the around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	The rules and regulations under manufacture, Storage and import of Hazardous Chemical Rules, 2000, PESO approval obtained for plot plan and other drawings as required.  PESO storage license for the facility is in application stage.  The overall noise level will be limited at the fence as prescribed under EPA rules.
v	A separate Environmental Management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	BPCL-KR is having a separate Environmental Management cell to carry out environmental management and monitoring functions. We have well equipped Centralised Quality Control Laboratory. The same facility will be utilized for PDPP also.
vi	Adequate funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.	BPCL-KR has earmarked adequate funds for environment pollution control measures.

  
 R. ARAVIND, V.V.  
 Public Information Officer  
 State Pollution Control Board  
 District Office - H (SRM)  
 Chennai - 600 007  
 Phone No. 044-26661111

Report on the status of Compliance of stipulated Environmental Conditions; PDPP Project BPCL-KR – Period Apr 19 to Sept 19.

S.No. as per Env.Ltr.No.-J-1101/126/2013-IA II (I), Dtd.: 12/05/2015	COMMENTS	Compliance Status
vii	The Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly. A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the Company by the proponent.	Six monthly compliance reports will be submitted on 1 <sup>st</sup> December (for the period April to 30 <sup>th</sup> September) and on 1 <sup>st</sup> June (for the period 1 <sup>st</sup> Oct to 31 <sup>st</sup> March) by BPCL-KR. BPCL-KR has complied with this condition.
viii	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely: PM10, PM2.5, SO2, NOx, HC (Melhane of Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Six monthly compliance reports will be submitted on 1 <sup>st</sup> December (for the period April to 30 <sup>th</sup> September) and on 1 <sup>st</sup> June (for the period 1 <sup>st</sup> Oct to 31 <sup>st</sup> March) by BPCL-KR after receipt of the Environmental Clearance for the PDPP project. The same will be sent to the Regional Office of MoEF and also uploaded in the website. The criteria pollutant levels namely: PM10, PM2.5, SO2, NOx, HC (Melhane of Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
ix	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions	Six monthly compliance reports will be submitted on 1 <sup>st</sup> December (for the period April to 30 <sup>th</sup> September) and on 1 <sup>st</sup> June (for the period 1 <sup>st</sup> Oct to 31 <sup>st</sup> March) by BPCL-KR after receipt of the Environmental Clearance for the PDPP project. The same will be sent to the Regional Office of MoEF and also uploaded in the website. The criteria pollutant levels namely: PM10, PM2.5, SO2, NOx, HC (Melhane of Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
x	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions	Six monthly compliance reports will be submitted on 1 <sup>st</sup> December (for the period April to 30 <sup>th</sup> September) and on 1 <sup>st</sup> June (for the period 1 <sup>st</sup> Oct to 31 <sup>st</sup> March) by BPCL-KR after receipt of the Environmental Clearance for the PDPP project. The same will be sent to the Regional Office of MoEF and also uploaded in the website. The criteria pollutant levels namely: PM10, PM2.5, SO2, NOx, HC (Melhane of Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

Public Information Officer  
 Secretary, Pollution Control Board  
 District Office - I (R&I)  
 Top, Barabar, Guwahati

Report on the status of Compliance of stipulated Environmental Conditions; PDPP Project BPCL-KR - Period Apr 19 to Sept 19.

S.No. as per Envtlr.No., J-11011/26/2013-IA II (I), Dtd: 12/05/2015	COMMENTS	Compliance Status
xi	<p>Including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry/CPCB/SPCB shall monitor the stipulated conditions.</p>	<p>April to 30<sup>th</sup> September) and on 1<sup>st</sup> June (for the period 1<sup>st</sup> Oct to 31<sup>st</sup> March) by BPCL-KR after receipt of the Environmental Clearance for the PDPP project. The same will be sent to the Regional Office of MoEF and also uploaded in the website. BPCL-KR will comply</p>
xii	<p>The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the Project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.</p>	<p>BPCL-KR has complied with this condition.</p>
xiii	<p>The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at the website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and the copy of the same shall be forwarded to the Regional Office.</p> <p>Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.</p>	<p>Investment clearance from Board obtained on 03.12.2014 and land development started subsequently</p>

  
 RAMESHA V.V.  
 Public Information Officer  
 Kerala State Pollution Control Board  
 District Office - II (KRRM)  
 Perumbavoor - 683 512

True copy

भारत पेट्रोलियम कॉर्पोरेशन लिमिटेड

भारत सरकार का उपक्रम  
कॉर्पोरेट विभाग



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

03/HSE/ENV/202/04  
01.06.2020

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

Dear Sir,

Sub: Submission of Half yearly compliance report of IREP Project on Environmental  
Clearance issued by the Ministry of Environment, Forests and Climate Change.  
Ref: EC Nos.J-11011/341/2011-IA-II (I) dt. 22.11.2012; and Amendment dated 23<sup>rd</sup> May  
2014 issued to the "IREP Project of M/s Bharat Petroleum Corporation Ltd, Kochi  
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.

Thanking you

Very truly yours

For BPCL Kochi Refinery

  
Babu Joseph

Chief General Manager (HSE)

Encl: 1. Status: 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  
F. Itom Palace  
Thiruvananthapuram - 695 004

पोस्ट बॅग नं: 2, अम्बलमुगल - 682 302, एरणाकुलम जिला, केरल, दूरभाष: 0484 - 2722061 - 69 फॅक्स: 0484 - 2720961 / 2721094  
पंजीकृत कार्यालय: भारत भवन, 4 & 6, कुरीम्ब्लो रोड, बॉलार्ड एस्टेट, पी. डी. नं. 688 मुंबई - 400 001

Post Bag No.: 2, Ambalamugal - 682 302, Ernakulam Dist., Kerala, Phone: 0484 - 2722061-69 Fax: 2720961 / 2721094  
Registered Office: Bharat Bhavan, 4 & 6, Currimbley Road, Ballard Estate, P.D. No. 688, Mumbai - 400 001



RAMEENA. V. V.  
Public Information Officer  
Kerala State Pollution Control Board

Report on the status of Compliance of stipulated Environmental Conditions - IREP Project BPCL-KR - Period April 1<sup>st</sup> 2019 to September 30<sup>th</sup> 2019

- Period 1<sup>st</sup> October 2019 to March 31<sup>st</sup> 2020

S.No. as per Envtl.No. J-11A II (I), Dtd.: 22/11/12	COMMENTS	Compliance Status
<b>SPECIFIC CONDITIONS:</b>		
i	Compliance to all the environmental conditions stipulated in the environmental clearance letter nos. J-11011/32/90-IA,II dated 20 <sup>th</sup> August, 1991 J-11011/78/1996-IA,II (I) dated 5 <sup>th</sup> March, 1997 and J-11011/238/2008-IA,II (I), dated 18 <sup>th</sup> February, 2009 shall be satisfactorily implemented and compliance reports submitted to the Ministry's Regional Office at Bangalore.	Complied.
ii	M/s BPCL shall comply with new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186 (E) dated 18 <sup>th</sup> March, 2008.	Complied.
iii	Adequate stack height shall be provided to heaters, furnaces, VGO, HSD and utility boilers as per CPCB/Kerala State Pollution Control Board (KSPCB) guidelines to disperse gases emissions into the atmosphere. Low NOx burners shall be provided to Heaters/furnaces with on-line analyzers. Low sulphur fuel shall be used.	Complied.
iv	Continuous on-line stack monitoring for SO <sub>2</sub> , NOx and CO of all the stacks shall be carried out.	Complied.
v	The process emissions [SO <sub>2</sub> , NOx, HC (Methane & Non-methane)] VOCs and Benzene from various units shall conform to the standards prescribed under the Environment (Protection) Act. At no time, the emission levels shall go beyond the stipulated standards.	Complied.

  
 H.M. MENON, J.V.  
 Public Inform. Officer  
 BPCL-KR  
 Bangalore

Report on the status of Compliance of stipulated Environmental Conditions - IREP Project BPCL-KR -- Period April 1<sup>st</sup> 2019 to September 30<sup>th</sup> 2019

Period 1<sup>st</sup> October 2019 to March 31<sup>st</sup> 2020

S.No. as per Envtl.No. J. 1101324/2201 14A II (B) Dtd. 22/11/12	COMMENTS	Compliance Status
VI	<p>In the event of failure of pollution control system(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency of the pollution control device has been achieved.</p> <p>Leak detection and repair programme shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.</p>	<p>Complied.</p> <p>948 no of Hydrocarbon detectors are installed at different locations of refinery.</p>
VII	<p>SO<sub>2</sub> emissions after expansion from the plant shall not exceed 1518 kg/yr and further efforts shall be made for reduction of SO<sub>2</sub> load through use of low sulphur fuel. Sulphur recovery units shall be installed for control of H<sub>2</sub>S emissions. The overall sulphur recovery efficiency of Sulphur Recovery Unit will not be less than 99.9%.</p> <p>(The SO<sub>2</sub> emission was reduced from 1502 Kg/yr to 1518 based on the EC amendment dated 23.05.2014).</p>	<p>Complied.</p>
VIII	<p>As proposed, record of Sulphur balance shall be maintained at the</p>	<p>Complied.</p>

Project Director  
 BPCL-KR  
 Ref. No. 1101324/2201

Report on the status of Compliance of stipulated Environmental Conditions - (REP Project BP-CL-KR - Period April 1<sup>st</sup> 2019 to September 30<sup>th</sup> 2019

- Period 1<sup>st</sup> October 2019 to March 31<sup>st</sup> 2020

S.No. as per Env.Ltr.No. J-1101/34/2014-IA II (I), Dtd.: 22/11/12	COMMENTS	Compliance Status
ix	Refinery as part of the environmental data on regular basis. The basic component of sulphur balance include sulphur input through feed (sulphur content in crude oil), sulphur output from Refinery through products, byproduct (elemental sulphur), atmospheric emissions etc. Flare gas recovery system shall be installed.	Installed in February 2018.
x	Ambient air quality monitoring stations [PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , H <sub>2</sub> S, mercaptan, non-methane-HC and Benzene] shall be set up in the complex in consultation with Kerala State Pollution Control Board, based on, occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs.	Complied.
xi	Ambient air quality data shall be collected as per NAAQES standards notified by the Ministry on 15 <sup>th</sup> November, 2009 and trend analysis w.r.t. past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.	Complied.
xii	The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Besides, acoustic enclosure/silencer shall be installed wherever noise levels exceed the limit.	DG set are used only in the extreme emergency (for lighting)



Report on the status of Compliance of stipulated Environmental Conditions - JREF Project BPCL-KR - Period April 1<sup>st</sup> 2019 to September 30<sup>th</sup> 2019

- Period 1<sup>st</sup> October 2019 to March 31<sup>st</sup> 2020

S.No. as per Env.Ltr.No. J-11A II (I), Dt: 22/11/12	COMMENTS	Compliance Status
XIII	Total water requirement from River Penyar after expansion shall not exceed 3053.3 m <sup>3</sup> /hr and prior permission shall be obtained from the competent authority.	Complied.
XIV	Industrial effluent generation will be 1400 m <sup>3</sup> /hr and treated in the effluent treatment plant. Treated effluent shall be recycled/reused within the factory premises and remaining treated effluent shall be discharged into Chitrapuzha River after conforming to the standards prescribed for the effluent discharge and obtaining permission from the KSPCB, which shall not exceed 410 m <sup>3</sup> /hr. Domestic sewage shall be treated in sewage treatment plant (STP).	Complied.
XV	All the effluents after treatment shall be routed to a properly lined guard pond for equalization and final control. In the guard pond, automatic monitoring system for flow rate, pH and TOC shall be provided.	Complied.
XVI	Oil catchers/oil traps shall be provided at all possible locations in rain/storm water drainage system inside the factory premises.	Provided.
XVII	A study shall be conducted to identify the source of odour and remedial measures to control the odour problem shall be taken. Study report shall be submitted to the Ministry's Regional office at Bangalore within 6 months from the date of issue of this letter.	Complied.
XVIII	Improvement in the sludge handling area is required and scheme for final disposal of sludge shall be prepared and submitted to the Ministry's Regional office at Bangalore. Oily sludge shall be disposed off into Coker.	Sludge handling area housekeeping improved and Final sludge disposal scheme submitted. Oily sludge is disposed in Delayed Coker Unit (DCU).

  
 RAMESHA, V.V.  
 District Engineer  
 District Office - II (E.C.C.)  
 Perambalur - 621 007



Report on the status of Compliance of stipulated Environmental Conditions - IREP Project, BPCL-KR - Period April 1<sup>st</sup> 2019 to September 30<sup>th</sup> 2019

- Period 1<sup>st</sup> October 2019 to March 31<sup>st</sup> 2020

S.No. as per Env.Ltr.No. J-110113/41/201 1-IA II (I), Dtd.: 22/11/12	COMMENTS	Compliance Status
xxiv	Green belt shall be developed at least in 33% of the plant area in and around the plant premises to mitigate the effects of fugitive emissions all around the plant as per the CPCB guidelines in consultation with DFO. Thick green belt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.	BPCL-KR is having a total area of 1310 acres of land of which plant area accounts for 655 acres. The statutory requirement of green belt as specified in Environmental Clearance is 33% of the plant area. Hence the green cover requirement is 216 acres. At present KR is having a girth of 10cms (trees have been numbered) and above and from 2016 onwards we have planted 31227 Nos. of saplings. Based on the above tree data we are having a total green cover of 243 acres which is well above required no. of 216 acres specified in EC conditions.
xxv	Company shall prepare project specific environmental manual and a copy shall be made available at the project site for the compliance.	Complied
xxvi	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.	Complied
xxvii	All the issues raised and commitment made during the public hearing/consultation meeting held on 14 <sup>th</sup> February 2012	All feasible and applicable concerns addressed.
xxviii	Company shall adopt Corporate Environment Policy as per the Ministry's O.M. No. J-11013/41/2006-IA.II (I) dated 26 <sup>th</sup> April, 2011	BPCL as a Corporation is having a Corporate HSSE Policy which includes Environment also.

RAMBENA, V.V.

Public Information Officer

Public State Pollution Control Board

District II Zone-II (E.P.C.)

Perambalur-605 012

Report on the status of Compliance of stipulated Environmental Conditions - IREP Project BPCL-KR - Period April 1<sup>st</sup> 2019 to September 30<sup>th</sup> 2019  
 - Period 1<sup>st</sup> October 2019 to March 31<sup>st</sup> 2020

S.No. as per Env.Ltr.No. J-1011/341/201 1-A II (I), Dtd.: 22/11/12	COMMENTS	Compliance Status
xxix	and implemented. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied.
<b>GENERAL CONDITIONS:</b>		
i	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.	BPCL-KR will adhere to the stipulations made by KSPCB, State Govt and other statutory bodies.
ii	No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	BPCL-KR had sought some amendments to the EC conditions from MoE&F. MoE&F has accorded the EC amendment on 23 <sup>rd</sup> May 2014.
iii	The project authorities must strictly comply with the rules and regulations under manufacture, Storage and import of Hazardous Chemical Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.	BPCL-KR has obtained approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. BPCL-KR complied the rules and regulations under manufacture, Storage and import of Hazardous Chemical Rules, 2000



RAJIBENA,  
 Public Information Officer  
 State Pollution Control Board  
 (TCEM)  
 Govt.

Report on the status of Compliance of stipulated Environmental Conditions - IREP Project BPCL-KR - Period April 1<sup>st</sup> 2019 to September 30<sup>th</sup> 2019

- Period 1<sup>st</sup> October 2019 to March 31<sup>st</sup> 2020

S.No. as per Env. Ltr.No. J-110110241/201 1-IA II (I), Dtd.: 22/11/12	COMMENTS	Compliance Status
iv	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	The overall noise level will be limited at the fence as prescribed under EPA rules
v	A separate Environmental Management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	BPCL-KR is having a separate Environmental Management cell to carry out environmental management and monitoring functions. We have well equipped Centralized Quality Control Laboratory also to support monitoring.
vi	Adequate funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.	BPCL-KR has earmarked adequate funds for environment pollution control measures.
vii	The Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	Six monthly compliance reports are being submitted by BPCL-KR as per the requirement.
viii	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the local NGO, if any, from whom	BPCL-KR has complied with this condition.

Report on the status of Compliance of stipulated Environmental Conditions - IREP Project BPCL-KR - Period April 1<sup>st</sup> 2019 to September 30<sup>th</sup> 2019

- Period 1<sup>st</sup> October 2019 to March 31<sup>st</sup> 2020

S.No. as per Envt.No. J-11A II (I), Dtd.: 22/11/12	COMMENTS	Compliance Status
ix	The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely: PM10, PM2.5, SO2, NOx, HC (Methane of Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Six monthly compliance reports are being submitted by BPCL-KR after receipt of the Environmental Clearance for the IREP project. The same will be sent to the Regional Office of MoEF and also uploaded in the website. The criteria pollutant levels namely: PM10, PM2.5, SO2, NOx, HC (Methane / Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
x	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry/CPCB/SPCB shall monitor the stipulated conditions.	Six monthly compliance reports are being submitted by BPCL-KR after receipt of the Environmental Clearance for the IREP project. The same will be sent to the Regional Office of MoEF and also uploaded in the website.
xi	The environmental statement for each financial year ending 31 <sup>st</sup> March in Form-V as is mandated to be submitted by the Project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the	Complied.

  
 RAMEENA, V.  
 Public Information Officer  
 State Pollution Control Board  
 Office - II (L&M)  
 No. 683 542

Report on the status of Compliance of stipulated Environmental Conditions - IREP Project BPCL-KR - Period April 1<sup>st</sup> 2019 to September 30<sup>th</sup> 2019  
 - Period 1<sup>st</sup> October 2019 to March 31<sup>st</sup> 2020

S.No. as per Envt.Ltr.No.J. 11011/24/201 144 R (M). Dtd.: 22/11/12	COMMENTS	Compliance Status
20	<p>company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.</p>	
21	<p>The Project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and the copy of the same shall be forwarded to the Regional Office.</p>	<p>BPCL-KR has complied with this condition.</p>
22	<p>Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.</p>	<p>The Board approval for pre-project activities for the IREP project was obtained on 31.01.2011 and capital approval was obtained by the Board on 31.03.2012. Land development work commenced in line with the above approval.</p>

*Q.A.*

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भारत पेट्रोलिएम कॉर्पोरेशन लिमिटेड  
भारत सरकार का उपक्रम  
कोच्चि रिफाइनरी



**BIHARAT PETROLEUM CORPORATION LIMITED**  
A Govt. of India Enterprise  
Kochi Refinery

03/HSE/ENV/202/04  
10.06.2021

To  
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 (MoEF & CC).

Ref: EC No.J-11011/32/90-IA-II dated 20.8.1991 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 2020 to 31<sup>st</sup> March 2021 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

Ramachandran. M.K  
General Manager I/C (HSE)

Encl: 1. Six Monthly Compliance Report.  
2. Annexure - I : Stack emission data

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 बॅग नं: 2, अम्बलमुगल - 682 302, एरनाकुलम जिला, केरल, दूरभाष: 0484 - 2722061 - 69 फैक्स: 0484 - 2720901 / 2721094  
पंजीकृत कार्यालय: भारत भवन, 4 & 6, कुरिम्बहोय रोड, वेल्ड हिल्स, पी. पी. नं. 688 मुंबई - 400 001

Post Bag No.: 2, Ambalamugal - 682 302, Ernakulam Dist., Kerala, Phone: 0484 - 2722061-69 Fax: 2720901 / 2721094  
Registered Office: Bharat Bhavan, 4 & 6, Curimbhoy Road, Ballard Estate, P.B.No. 688, Mumbai - 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 MoE & CC	Status as on 31.03.2021
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 units with newer technology and higher efficiency of 99.9% have been commissioned as part of DHDS / CEMP -II / IREP.
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>
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>Provision of Floating Roof Tanks for volatile products</li> <li>Replacement of gland packing of pumps by means of mechanical seals.</li> <li>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.16800 m<sup>3</sup>/day).</p>	<p>Complied.</p> <p>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	<p>Adequate number of effluent quality (oil &amp; grease, COD, BOD, Suspended solids, phenols, sulphides, pH and flow) monitoring stations must be set up in consultation with State Pollution Control Board</p>	Complied
14	<p>No oily sludge should be generated and stored as was being done in the past.</p>	<p>As part of IREP project, BPCL-KR has commissioned a Delayed Coker Unit (DCU). Sludge generated is processed in this DCU.</p>
15	<p>The project authority should prepare a well designed scheme for solid and hazardous wastes disposal generated from BPCL - KR (formerly 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>	<p>Scheme for solid and hazardous waste disposal was approved by KSPCB. Scheme was subsequently submitted to MoEF &amp;CC 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 The Energy and Resources Institute (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 / approved agency for TSDF.</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.	Complied.
17	Relocate LPG spheres so that risk due to these remains within the plant area	Complied. As it was not feasible to relocate the LPG spheres, it had been desired by MoEF &CC to acquire land in the adjoining area where impact will be more. Accordingly, the adjoining land of 63 acres had been acquired by BPCL - KR (formerly CRL), that has been occupied by IOC, HPC and BPC area. Further, 70% of LPG storage is in mounted bullets.
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 Environment 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.

DEENS CONSTRUCTIONS PALARIVATTOM

PROJECT: IREP BPCL, KOCHI  
WORK NAME: SITE GRADING, DISMANTLING OF EXISTING BUILDINGS AND OTHER ASSOCIATED WORKS (Nov 2011 To December 2013) (Final Bill)

ITEM NO.	DESCRIPTION	UNIT	SOR QTY	RATE	PREVIOUS QTY	PRESENT QTY	TOTAL QUANTITY	Total Amount	95% of Amount
1	<p><b>SITE GRADING &amp; ROCK CUTTING FOR SITE</b></p> <p>Cutting down trees having a girth above 30 cms, and upto and including of 60 cms (girth measured at a height of one metre from ground level) including cutting of trunk and branches, digging and grubbing of roots upto a depth of 1 metre below ground level, filling the hollows produced by removal of roots with approved available earth for all leads and lifts, watering, ramming and compacting the filled earth to obtain 90% of maximum laboratory dry density, including disposing the unserviceable materials to designated areas as identified by Engineer-in-Charge within KR Township and plant boundary limit and stacking the serviceable materials of cut trees anywhere in the plant premises. Complete as per specifications and Directions of Engineer-in-Charge.</p>	EACH	21893	118	21893		21893	2583374.00	2454205.30
2	<p>Cutting down trees having a girth above 60 cms, and upto and including of 120 cms (girth measured at a height of one metre from ground level) including cutting of trunk and branches, digging and grubbing of roots upto a depth of 1 metre below ground level, filling the hollows produced by removal of roots with approved available earth for all leads and lifts, watering, ramming and compacting the filled earth to obtain 90% of maximum laboratory dry density, disposing the unserviceable materials to designated areas as identified by Engineer-in-Charge within KR Township and plant boundary limit and stacking the serviceable materials of cut trees anywhere in the plant boundary limit including KR Township premises. Complete as per specifications and Directions of Engineer-in-Charge.</p>	EACH	41014	130	41014		41014	5331820.00	5065229.00

<p>3 Cutting down trees having a girth above 120 cms, and upto and including of 240 cms (girth measured at a height of one metre from ground level) including cutting of trunk and branches, digging and grubbing of roots upto a depth of 1 m (one metre) below ground level, filling the hollows produced by removal of roots with approved available earth for all leads and lifts, watering, ramming and compacting the filled earth to obtain 90% of maximum laboratory dry density, disposing the unserviceable materials to designated areas as identified by Engineer-In-Charge within KR Township and plant boundary limit and stacking the serviceable materials of cut trees anywhere in the plant boundary limit including KR Township premises. Complete as per specifications and Directions of Engineer-In-Charge.</p>	EACH	71022	150	71022	71022	10653300.00	10120635.00
<p>4 Cutting down trees having a girth above 240 cms, and upto and including of 300 cms (girth measured at a height of one metre from ground level) including cutting of trunk and branches, digging and grubbing of roots upto a depth of 1 m (one metre) below ground level, filling the hollows produced by removal of roots with approved available earth for all leads and lifts, watering, ramming and compacting the filled earth to obtain 90% of maximum laboratory dry density, disposing the unserviceable materials to designated areas as identified by Engineer-In-Charge within KR Township and plant boundary limit and stacking the serviceable materials of cut trees anywhere in the refinery boundary limit including KR Township premises. Complete as per specifications and Directions of Engineer-In-Charge.</p>	EACH	832	2000	832	832	1664000.00	1580800.00
<p>5 Cutting down cluster (Minimum 10 Nos) of bamboos digging and grubbing of roots upto a depth of 1 meter below ground level, filling the hollows produced by removal of roots with approved available earth for all leads and lifts, watering, ramming and compacting the filled earth to obtain 90% of maximum laboratory dry density, disposing the unserviceable materials to designated areas as identified by Engineer-In-Charge within KR Township and plant boundary limit and stacking the serviceable materials of cut trees anywhere in the plant boundary limit including KR Township premises. Complete as per specifications and Directions of Engineer-In-Charge.</p>	EACH	74	5000	183	183	160000.00	152000.00

6.	<p>Earthwork in excavation and filling serviceable materials for general site grading works of already dumped earth and debris like concrete block, R/F bars, structural steel, brick work, RR Masonary, Wooden logs, drums, grating, insulation material, electrical / instrumentation items etc. all complete of all heights and depths including clearing and stripping etc. in excavation areas as per specifications, removing shrubs, grass, bushes, vegetable growth and other objectionable materials, trees upto a girth upto and inclusive of a girth of 30 cms. (girth measured at a height of one metre above ground level) including uprooting of vegetation, roots, etc., dewatering, if necessary, sorting out the excavated soil into serviceable and unserviceable materials in excavation areas and slopes, grades and camber including clearing and stripping in filling areas as per specifications, consolidating exposed natural soil to 90% of max. laboratory dry density, cutting of trees of girth upto and inclusive of 30 cms, removal of vegetation, breaking clods, spreading in layers not exceeding 30 cms loose thickness, watering, ramming and compacting with power road rollers to give at least 90% of max. laboratory dry density, dressing, level ling, testing, etc. and disposal of unserviceable materials/surplus earth if any, as directed by Engineer-in-Charge including stacking and/or lumping and dressing the same in demarcated areas within RR Township and plant boundary limit complete as per specifications, drawing: and directions of Engineer-in-</p>	CUM	25000	62	50747.5	50747.5	2239936.00	2127939.20
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	<p>Earthwork in excavation and filling for general site grading. Roads of all heights and depths including clearing and stripping etc. in excavation areas as per specifications, removing shrubs, grass, bushes, vegetable growth and other objectionable materials, trees upto a girth upto and inclusive of a girth of 30 cms. Girth measured at a height of one metre above ground level including uprooting of vegetation, roots, etc., dewatering, if necessary, sorting out the excavated soil into serviceable and unserviceable materials in excavation areas and including filling in fillings with serviceable material for general site grading and roads for all heights and depths to proper levels, slopes, grades and camber including clearing and stripping in filling areas as per specifications, consolidating exposed natural soil to 90% of max. laboratory dry density, cutting of trees of girth upto and inclusive of 30 cms, removal of vegetation, breaking clods, spreading in layers no: exceeding 30 cms loose thickness, watering, ramming and compacting with power road rollers to give at least 90% of max. laboratory dry density, dressing, levelling, testing, etc. and disposal of unserviceable materials/surplus earth if any, as directed by Engineer-in-Charge including stacking and/or dumping and dressing the same in demarcated areas within Plant Boundary Limit including KR Township etc. complete as per specifications, drawings and directions of Engineering Dept.</p>	CUM	1648300	54	1769672.40	1769672.40	7309710.00	6944224.50
5	<p>Transporting &amp; Disposing the SURPLUS EARTH AND all Debris including shrubs and vegetations from construction area to anywhere within KR Colony Jwaligiri premises including re-excavating the deposited soil excavated earlier loading transporting, unloading laying at all heights, stacking, levelling and dressing both area to required levels and slopes complete with all lifts as directed.</p>	CUM	36275	70	126755.81	126755.81	0.00	0.00
10	Earth work Excavation for NEW POND	CUM		65		11985.00	11985.00	0.00
10	Backfilling with available earth	CUM		60		9858.00	9858.00	0.00
	Earth Work Excavation in SOFT ROCK	CUM		70	8454.61	8454.61	0.00	0.00

11	<p>Earth work in EXCAVATION below ground level for all kinds of works in ALL TYPES OF STRATA INCLUDING SOFT ROCK/ ATERITE AND EXCLUDING HARD ROCK as classified in specification for a depth upto 1.5m including removal of vegetation, shrubs and debris, cutting and dressing of sides in slopes, levelling, grading and ramming of bottoms, dewatering of accumulated water from any source and keeping the surface dry for subsequent works and disposal or stacking of excavated material within a lead of 100m, as directed including providing temporary supports to existing service lines like water pipes, sewage pipes, electric overhead and underground cables etc. all complete, but excluding shoring and strutting.</p>	CUM	39825	70	11845.528	11845.528	0.00	0.00
11	<p>Earth work in EXCAVATION below ground level for all kinds of works in ALL TYPES OF STRATA INCLUDING SOFT ROCK/ ATERITE AND EXCLUDING HARD ROCK as classified in specification for a depth beyond 1.5m and upto and inclusive of 3.0m including removal of vegetation, shrubs and debris, cutting and dressing of sides in slopes, levelling, grading and ramming of bottoms, dewatering of accumulated water from any source and keeping the surface dry for subsequent works and disposal or stacking of excavated material within a lead of 100m, as directed including providing temporary supports to existing service lines like water pipes, sewage pipes, electric overhead and underground cables etc. all complete, but excluding shoring and strutting.</p>	CUM	5410	80	7461.292	7461.292	596803.36	557058.19

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11	Earth work in EXCAVATION below ground level for all kinds of works in ALL TYPES OF STRATA INCLUDING SOFT ROCK / LATERITE AND EXCLUDING HARD ROCK as classified in specification for a depth beyond 3.0m and upto & inclusive of 4.5m including removal of vegetation, shrubs and debris, cutting and dressing of slides in slopes, levelling, grading and ramming of bottoms, dewatering of accumulated water from any source and keeping the surface dry for subsequent works and disposal or stacking of excavated material within a lead of 100m, as directed including providing temporary supports to existing service lines like water pipes, sewage pipes, electric overhead and underground cables etc. all complete, but excluding shoring and strutting.	CUM	250	105	5148.46	5148.46	540538.30	513558.89
12	BACKFILLING after execution of the WORK to proper grade and level with selected materials from available excavated soil from spoil heaps within a LEAD OF 100M, including re-excavating the deposited soil excavated earlier, breaking clods, laying at all depths and heights in layers of thickness not exceeding 15 Cms. waterling, rolling and ramming by manual methods/ mechanical compactors to achieve 90% laboratory maximum dry density, dressing, trimming etc. in foundations, plinths, trenches, pits etc. all complete.	CUM	8700	60	20017.106	20017.106	1201076.36	1140975.04
13	Road Embankment Filling	CUM		60	16548.453	16548.453	992907.18	943261.82
14	Dismantling Road Cluster	SOM		14	25734.491	25734.491	374282.87	355568.73
15	Removing Blasted rock from Hume Pipe Trench including disposal of the same	CUM		150	18525	18525	2778750.00	2639812.50

*[Handwritten signature]*

	Total	36,630,508.07	34,605,268.17
	First RA BILL at 31 march 2012		52,613,887.00
	BALANCE AMOUNT		(18,008,618.83)
	Service Tax 10.30% upto 31 march 2012		5,419,230.36
	Service Tax 12.36% from 1/4/2012 onwards		(2,225,865.29)
	Grand Total		37,798,633.24
	Retention 5%		(1,730,263.41)
	ESI/PF		903,823.00
	IT		2,525,357.35
	Balance		120,413,107.45
	Total Advance		118,053,696.38
	Balance Amount Payable		2,359,411.07

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