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F. No. J-11011/135/2013- IA II (I)
Government of India
Ministry of Environment, Forests and Climate Change
(I.A. Division)

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

E-mail : lk.bokolia@nic.in
Dated: 28th November , 2014

To,

Shri ARS Bhandari
Jt. Sr. Vice President-TS
M/s. Bharat Oman Refineries Ltd.
Post BORL Residential Township
District Sagar, Bina 470124
Madhya Pradesh

E-mail: abhairaj.bandari@borl.co.in

Subject: Expansion of Refinery (from 6 MMTPA to 7.5 MMTPA crude processing) by Debottlenecking of M/s Bharat Oman Refineries Limited (BORL) at Village Agasode, Tehsil Bina, District Sagar, Madhya Pradesh – Environmental clearance reg.

Ref. : Your letter no. BORL/MoEF/EC/2014/03 dated 3rd March, 2014.

Sir,

This has reference to your letter dated 3rd March, 2014 alongwith project documents including Form I, Terms of References, Pre-feasibility Report, EIA/EMP Report alongwith Public Hearing Report and subsequent submission of additional information vide letter dated 8th July, 2014 regarding above mentioned project.

2.0 The Ministry of Environment & Forests has examined your application. It is noted that the proposal is for expansion of Refinery (from 6 MMTPA to 7.5 MMTPA crude processing) by Debottlenecking of M/s Bharat Oman Refineries Limited (BORL) at Village Agasode, Tehsil Bina, District Sagar, Madhya Pradesh. The project includes utilization of available design margins in the existing facilities with minor modifications in equipment such as change of internals of pumps, compressors & columns, addition or replacement of equipments like exchangers, vessels, etc. within the existing plant battery limits. The project also includes addition of a new Sulfur Recovery Unit and up-gradation of existing units for better environment management and suitable augmentation of utility & storage facilities. Total plot area is 773 ha, of which greenbelt will be developed in 255 ha of land. No additional land is required for the project. The cost of project is Rs. 2500 crores. The proposed debottlenecking will be carried out within the existing refinery premises only. No national park/wild life sanctuary/eco-sensitive area/ reserve forest is located within 10 km distance.



Following is the configuration of the existing refinery and after debottlenecking:

Unit	Existing Capacity (MMTPA)	Estimated Post Project Capacity(MMTPA) considering 333 days annual operation
Crude/Vacuum Distillation Unit	6.0	7.5
Hydrocracker/ Diesel Hydrotreater	1.952/1.637	2.537/2.128
Delayed Coker Unit	1.357	1.76
Hydrogen Unit	0.077	0.096
Naphtha Hydrotreater	1.0	1.40
CCR Reformer Unit	0.54	0.76
Isomerization Unit	0.31	0.387
Sulfur Recovery Unit	2 x 180 MTPD	3 x 243 MTPD

Existing & Proposed Product Pattern:

Products	Existing Quantity (MMTPA)	Estimated Post Project Quantity (MMTPA) at 7.8 MMTPA capacity	Estimated Post Project Quantity(MMTPA) at 7.8 MMTPA capacity
LPG	0.22	0.26-0.32	0.344
Naphtha	0.24	0.19-0.23	0.189
Euro-III equivalent MS	0.39	-	-
Euro-IV equivalent MS	0.40	1.00-1.22	1.242
Aviation Turbine Fuel (ATF)	0.55	0.50-0.60	0.722
Superior Kerosene Oil (SKO)	0.49	0.63-0.77	0.396
Euro-III Equivalent HSD	1.61	-	-
Euro-IV Equivalent HSD	1.18	3.15-3.85	3.641
Sulfur	0.11	0.12-0.15	0.152
Pet-coke	0.41	0.45-0.55	0.523

Production of Euro-IV/V fuels will be maximized in the debottlenecking project. The entire HSD will be capable of meeting Euro-V specifications. The entire MS will also meet Euro-V specifications with respect to sulphur. However, products will be manufactured as per the local and national market demand. There are total 80 existing storage tanks i.e. 31 tanks (Crude + Intermediates) and 49 tanks (finished products). A total of 8 nos. of additional tanks in crude and other intermediates product service are considered as part of the debottlenecking project.

3.0 Low Nox burners will be installed in heaters/furnaces/boilers to minimize NOx emissions. Lime injection will be provided in pet coke fired boiler to control SO₂ emissions. SO₂ emissions after expansion from the plant shall not exceed 29.25 TPD. Sulphur recovery unit will be installed to minimize SO₂ emissions from the refinery complex. Total raw water requirement from Betwa River will be 6.26 MGD. Effluent generation will be increased from 200 m³/day to 250 m³/day after expansion. Industrial effluent will be treated in the effluent treatment plant (ETP). Treated effluent will

be reused/ recycled as make up for the raw water cooling tower. Oil catchers/oil traps will be provided at all possible locations in rain/ storm water drainage system inside the factory premises Domestic sewage will be treated in sewage treatment plant (STP). No effluent will be discharged outside the Plant premises and Zero discharge concept will be followed. Rain water harvesting pond will be created in an area of 6 acres. Chemical/inorganic sludge will be sent to Treatment Storage and Disposal Facility (TSDF) for hazardous waste. Spent catalyst and spent/waste oil will be sent to authorized recyclers/re-processors. Oily sludge generated in ETP is reprocessed in the DCU/bio-remediation.

4.0 All the Petroleum Refinery Plants are listed at S.N. 4(a) under Category 'A' and appraised at the Central level.

5.0 Public hearings/public consultation was held on 19th February, 2014.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry) in its meetings held during 29th July, 2013– 31st July, 2013, 28th -30th April, 2014 and 30th July, 2014 -1st August, 2014 respectively. Project Proponent and the EIA Consultant namely M/s 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 14th September 2006, subject to the compliance of the following Specific and General Conditions:

A. SPECIFIC CONDITIONS :

- i. Compliance to all the environmental conditions stipulated in the environmental clearance letter no. J-11011/121/1994-IA II(I) dated 16th February, 1995 and 20th March, 2009 shall be satisfactorily implemented and compliance reports submitted to the Ministry's Regional Office at Bhopal.
- ii. M/s BORL shall comply with new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18th March, 2008.
- iii. Continuous on-line stack monitoring for SO₂, NO_x and CO of all the stacks shall be carried out. Low Nox burners shall be installed in heaters/furnaces/boilers to minimize NO_x emissions.
- iv. The process emissions [SO₂, NO_x, 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. 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.
- v. 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.

- vi. SO₂ emissions after expansion from the plant shall not exceed 29.25 TPD. Sulphur recovery units shall be installed for control of H₂S emissions. The overall sulphur recovery efficiency of Sulphur recovery unit with tail gas treating shall not be less than 99.9%.
- vii. As proposed, record of sulphur balance shall be maintained at the 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, by-product (elemental sulphur), atmospheric emissions etc.
- viii. Ambient air quality monitoring stations, [PM₁₀, PM_{2.5}, SO₂, NO_x, H₂S, mercaptan, non-methane-HC and Benzene] shall be set up in the complex in consultation with Maharashtra 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.
- ix. Ambient air quality data shall be collected as per NAAQS standards notified by the Ministry on 16th 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.
- x. 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.
- xi. Total raw water requirement from Betwa River shall not exceed 6.26 MGD. Industrial effluent shall be treated in the effluent treatment plant. Treated effluent shall be recycled/reused recycled as make up for the raw water cooling tower. Domestic sewage shall be treated in sewage treatment plant (STP). As proposed, no effluent shall be discharged outside the Plant premises and Zero discharge concept shall be followed.
- xii. Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.
- xiii. As proposed, BORL shall developed Rain water harvesting pond in an area of 6 acres.
- xiv. As proposed, oily sludge shall be disposed off through bio-remediation. Annual Oily sludge generation and disposal data shall be submitted to the Ministry's Regional Office and CPCB.
- xv. 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.

- xvi. The membership of common TSDF shall be obtained for the disposal of hazardous waste. Copy of authorization or membership of TSDF shall be submitted to Ministry's Regional Office at Bhopal. Chemical/inorganic sludge shall be sent to treatment storage disposal facility (TSDF) for hazardous waste. Spent catalyst shall be sent to authorised recyclers/re-processors.
- xvii. Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.
- xviii. The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).
- xix. 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.
- xx. Green belt shall be developed at least in 255 ha 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 greenbelt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.
- xxi. All the commitment made regarding issues raised during the Public Hearing/ consultation meeting held on 19th February, 2014 shall be satisfactorily implemented.
- xxii. At least 5 % of the total cost of the project shall be earmarked towards the Enterprise social responsibility based on Public Hearing issues and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Bhopal. Implementation of such program shall be ensured accordingly in a time bound manner.
- xxiii. All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.
- xxiv. Company shall adopt Corporate Environment Policy as per the Ministry's O.M. No. J-11013/41/2006-IA.II(I) dated 26th April, 2011 and implemented.
- xxv. 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; PM₁₀, PM_{2.5}, SO₂, NO_x, 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 31st 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.


(Lalit Bokolia)
Additional Director

Copy to :-

1. The Secretary (Environment), Govt. of Madhya Pradesh, Mantralaya, Ballabh Bhavan, Bhopal, MP.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110032.
3. The Chairman, Madhya Pradesh Pollution Control Board, Paryavaran Parishar , E-5, Arera Colony, Bhopal - 462016
4. The Chief Conservator of Forests (Central), Ministry of Environment, and Forests, Western Regional Office, Kendriya Paryavaran Bhavan, Link Road No. 3, Ravi Shankar Nagar, Bhopal - 462016
5. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi-110003.
6. Guard file / Record file/ Notice Board.

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(Lalit Bokolia)
Additional Director

