

F. No. J-11011/491/2007- IA II (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi – 110 003
E-mail : plahujarai@yahoo.com
Telefax: 011 – 2436 3973
Dated: March 18, 2008

To,

The General Manager(S & EP)
M/s Indian Oil Corporation Limited
Refineries Division, SCOPE Complex,
Core -2, 7, Institutional Area,
Lodi Road, New Delhi- 110 003

Sub: MS Quality Upgradation, HSD Quality Up-gradation and High Sulphur Crude Maximization Project at Barauni Refinery , District Barauni in Bihar by M/s IOCL- Environmental Clearance reg.

Sir,

This has reference to your letter no. EP/EC-APPL dated 8.12.2006 along with application in Form – 1, draft TOR and pre-feasibility report and subsequent correspondence vide letter no. EP/EC-APPPL dated 5.12.2007 seeking environmental clearance under the EIA Notification, 2006

2. The Ministry of Environment and Forests has examined your application. It is noted that the proposal is for MS and HSD Quality Improvement project to meet Euro-III equivalent quality norms and High Sulphur Crude Maximization Project. It is noted that the project will be implemented within Baruni Refinery complex in district Baruni in Bihar. No additional land is required. For MS quality upgradation project the facility proposed include Naphtha Splitter unit (NSU), Catalytic Reformer Unit (CRU), Reformate Splitter unit , Naphtha Hydro Treating Unit (NHDT) Splitter, Fluidized catalytic Cracking Unit (FCC BLOCK (Prime G+), Isomerisation unit , Selective Hydro-treating Unit (SHU)+ Splitter unit, Diesel Hydro-treating Unit (DHDT) and Naphtha Splitter unit. One additional reactor in DHD unit will be installed for HSD quality upgradation quality unit. It is also noted that for HS crude maximization unit , the unit proposed are bitumen blowing unit, ATF treating unit, sulphur recovery unit, revamp of delayed coker unit and residue fluidized catalytic cracking unit. The above facilities will be within the existing refinery premises. No additional land is required.

3. Water requirement of 242 m³/hr will be met from the ground water source and power requirement of 10.5 MW will be met from the Captive Power Plant (CPP). About 70 m³/hr of additional effluent will be generated and treated in the existing ETP. The effluent after treatment and conforming to the MINAS will be discharged into river Ganga. Total SO₂ emission inclusive of existing (800kg/hr) and additional (235kg/hr) from the stacks will be 1035 kg/hr. solid waste will be generated in the form of oily sludge would be subjected to melting pit treatment for recovery of oil and the residual oily sludge will be bio-remediated. Public hearing of the project was held on 25.09.2007. Cost of the project is reported to be Rs. 676.84 crores for MS Quality upgradation, 83.4 crores for HSD Q upgradation and 790 crores for HS Crude maximization.

4. The Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification, 2006 subject to strict compliance of the following Specific and General Conditions:

A. SPECIFIC CONDITIONS:

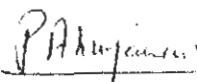
- i. The company shall comply with new standards/norms that are being proposed by the CPCB for petrochemical plants and refineries.
- ii. The process emissions (SO₂, NO_x, HC, VOCs and Benzene) from various units shall conform to the standards prescribed by the Bihar State Pollution Control Board from time to time. 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 has been achieved.
- iii. Ambient air quality monitoring stations, [SPM, SO₂, NO_x and NMHC, Benzene] shall be set up in the Refinery complex in consultation with SPCB, 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 Continuous on-line stack monitoring equipment should be installed for measurement of SO₂ and NO_x.
- iv. Quarterly monitoring of fugitive emissions shall be carried out as per the guidelines of CPCB by fugitive emission detectors and reports shall be submitted to the Ministry's regional office at Bhubaneswar. For control of fugitive emission all unsaturated hydro carbon will be routed to the flare system and the flare system shall be designed for smoke less burning.
- v. Fugitive emissions of HC from product storage tank yards etc must be regularly monitored. Sensors for detecting HC leakage shall also be provided at strategic locations. The company shall use low sulphur fuel to minimize SO₂ emission.
- vi. The effluent after treatment and conforming to the MINAS standards shall be discharged into the river Ganga. The company shall undertake measures for water conservation and treated effluent to the extent possible shall be used for fire water make up , coke cutting water , make up water for eco pond and irrigation of eco park etc.
- vii. M/s IOCL shall investigate cause of odour problem in one of the wells as reported during the public hearing meeting held on 25.9.2007 and report submitted to the Ministry's Regional office at Bhubaneswar.
- viii. The oily sludge shall be subjected to melting pit for oil recovery and the residues shall be bio-remediated. The sludge shall be stored in the HDPE lined pit along with proper leachate collection system.
- ix. The company shall strictly follow all the recommendation mentioned in the charter on Corporate Responsibility for Environmental Protection (CREP).
- x. The Company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during flaring.
- xi. To prevent fire and explosion at Oil and Gas facility, potential ignition sources should be kept to a minimum and adequate separation distance between potential ignition sources and flammable material shall be in place.

- xii. Occupational health surveillance of worker shall be done on a regular basis and records maintained as per the Factory Act.
- xiii. Greenbelt shall be developed to mitigate the effect of fugitive emission all around the plant in a minimum 30% plant area in consultation with DFO as per CPCB guidelines.
- xiv. Environment protection measures suggested in the EIA/EMP /risk assessment report and during the public hearing meeting shall be implemented.

B. GENERAL CONDITIONS

- i. The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government and any other statutory body.
- ii. No further expansion or modification in the project shall be carried without prior approval of the Ministry of Environment and Forests. In case of deviations or alternations in the project proposal from those submitted to the Ministry for clearance, a fresh reference shall be made to the Ministry.
- iii. At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system, the respective well site should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved. Provision of adequate height of stack attached to DG sets & flare is to be done.
- iv. Wastewater shall be properly collected and treated so as to conform to the standards prescribed under EP Act & Rules and mentioned in the Consents provided by the relevant SPCB.
- v. The overall noise levels in and around the premises shall be limited within the prescribed standards (75 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- vi. The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 as amended in 2000 for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commission of the expansion project, if required. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.
- vii. Disposal of hazardous wastes shall be as per the Hazardous Wastes (Management and Handling) Rules, 2003. Authorization from the State Pollution Control Board must be obtained for collections/treatment/storage/disposal of hazardous wastes.

- viii. The project authorities will provide adequate funds as non-recurring and recurring expenditure 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 should not be diverted for any other purposes.
 - ix. The company shall develop rain water harvesting structures to harvest the run off water for recharge of ground water.
 - x. The stipulated conditions will be monitored by the concerned Regional Office of this Ministry /Central Pollution Control Board/State Pollution Control Board. A six monthly compliance report and the monitored data should be submitted to them regularly. It will also be displayed on the Website of the Company.
 - xi. The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at <http://www.envfor.nic.in>. This should 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 should be forwarded to the concerned Regional office of this Ministry.
 - xii. A separate environment management cell with full fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive.
 - xiii. The 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 start of the project
4. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
5. The Ministry reserves the right to stipulate additional conditions if found necessary. The company will implement these conditions in a time bound manner.
6. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, Hazardous Waste (Management & Handling) Rules, 1989 and Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 along with their amendments and rules.


(Dr.P.L. Ahujara)
Director

No. J-11011/23/98-IA.II(I)
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS

PARYAVARAN BHAVAN,
CGO COMPLEX, LODHI ROAD,
NEW DELHI - 110 003.

Dated 8th March, 1999.

To,
The Chairman & Managing Director,
M/s Indian Oil Corporation Ltd.,
Scope Complex, Core-2,
Lodi Road,
New Delhi - 110 003.

Sub: *Expansion of Barauni Refinery to 6.0 MMTPA with Matching Secondary Processing Facilities of M/s IOC - Environment Clearance regarding.*

Sir,

This has reference to IOC letter No. EP/EC dated August 7, 1998 along with EIA/EMP, risk analysis and other related project documents seeking environmental clearance for the proposed Expansion of Barauni Refinery upto 6.0 MMTPA Crude Processing capacity. The proposal involves revamping of the main distillation unit and setting up secondary processing units. The secondary processing facilities proposed include Fluidized Catalytic Cracking Unit (FCCU), Diesel Hydrotreating Unit (DHTU), Hydrogen Unit, LPG Treating Unit and Gasoline Treating Unit. It is noted that NOC from the Bihar State Pollution Control Board has been obtained and Public Hearing of the project has been held as required under the provisions of EIA Notification, 1994 as amended on 10th April, 1997. Supplementary clarifications have been submitted by IOC vide its letter dated 17th November, 1998, 17th December, 1998 and 4th January, 1999.

The above proposal has been examined taking into consideration the above submitted project documents and the Ministry hereby grants environmental clearance to the project subject to terms and conditions mentioned below:-

(A) Specific Conditions.

- i. The gaseous emissions from the process stacks must conform to the standards prescribed under the EPA rules and/or State Pollution Control Board. At no time, the emission level should go beyond the prescribed standards. Specifically, the total SO₂ emissions must not go beyond 1080 kg/hr as confirmed by the Company. In the event of failure of any pollution control system adopted by the

units, the respective unit must be put out of operation immediately and should not be restarted until control measures are rectified to achieve desired efficiency.

- ii. In consultation with SPCB, the project authority must set up sufficient number of air quality monitoring stations to monitor SPM, SO₂, NO_x, CO & NH₃. Stack emissions should be monitored regularly. Data on stack emission and ambient air quality including work zone should be submitted to the Ministry (Regional Office, Bhubaneswar) once in six-months and SPCB once in three-months along with statistical analysis.
- iii. Adequate effluent treatment facilities (primary, secondary & tertiary) should be provided so that liquid effluents conform to the standards prescribed under EPA rules/SPCB before discharging into river Ganga. The outfall point in the river must be approved by Bihar Pollution Control Board.
- iv. Adequate number of effluent quality monitoring stations must be set up in consultation with SPCB to monitor the water quality parameters as per EPA/SPCB regulations. Monitored data along with analysis should be submitted to this Ministry (Regional Office, Bhubaneswar) once in six months and SPCB once in three months.
- v. The Company must identify and implement water conservation and treated effluent recycling/reusing schemes to minimize the raw water consumption and to achieve zero – pollutant discharge to the river Ganga.
- vi. The hazardous solid wastes like spent catalysts must be disposed off in a secured landfill with facility for leachate collection and treating in the ETP.
- vii. The proposed storage for LPG shall be of mounded type in order to reduce the risk level. The OISD Guidelines must be strictly followed.
- viii. In addition to the above stipulations, the Company must undertake additional afforestation and eco-development work in the area. In this regard, the Company must augment its tree plantation activities by 25 thousand trees in a phased manner. Further, the Company has around 120 acres of borrow-pit area in and adjoining to the plant premises. The Company must give an action plan to ecologically develop this area within 3-months.

(B) General Conditions.

- i. The project authority must adhere to the stipulations made by Bihar Pollution Control Board and State Government.
- ii. No expansion or modification of the plant should be carried out without prior approval of this Ministry.

- iii. A green belt of adequate width and density should be provided all around the plant in consultation with the State Forest Department. A norm of 2500 plants/ha. may be followed and minimum of 25% area must be covered by green belt.
- iv. Handling, manufacturing, storage and transportation of hazardous chemicals should be carried out in accordance with the Manufacture, Storage & Import of Hazardous chemicals Rules, 1989, as amended in 1991. On-site and off-site emergency preparedness plans shall be prepared adequately and permissions from State and Central nodal agencies in this regard must be obtained.
- v. Hazardous wastes, if any, must be handled and disposed as per Hazardous waste (Management and Handling) Rules, 1989. Authorization from State Pollution Control Board in this regard must be obtained.
- vi. Proper housekeeping and adequate occupational health programmes must be taken up.
- vii. Adequate provisions for infrastructure facilities such as water supply, fuel, sanitation etc. should be ensured for construction workers during the construction phase so as to avoid felling of trees and pollution of water and the surroundings.
- viii. Occupational Health Surveillance of the workers should be done on a regular basis and records maintained.
- ix. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA and risk analysis report.
- x. The project proponent should have a scheme for social upliftment in the surrounding villages with reference to contribution in road construction, education of Children, festivals, health centres, sanitation facilities, drinking water supply, community awareness and employment to local people whenever and wherever possible both for technical and non-technical jobs.
- xi. A separate environmental management cell with full fledged laboratory facilities to carry out various management and monitoring functions should be set up under the control of Senior Executive.
- xii. The funds earmarked for the environmental protection measures should not be directed for any other purpose and year-wise expenditure should be reported to this Ministry and SPCB.
- xiii. Six monthly status report on the project vis-à-vis implementation of environmental measures should be submitted to this Ministry (Regional Office, Bhubaneswar)/CPCB/SPCB.

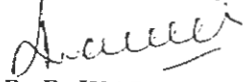
The Ministry or any competent authority may stipulate any further condition(s) on receiving reports from the project authorities. The above conditions will be monitored by the Regional Office of this Ministry located at Bhubaneswar.

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

Any other conditions or alternation in the above conditions will have to be implemented by the project authorities in a time bound manner.

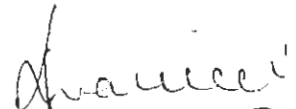
The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention and Control of Pollution) Act, 1974 the Air (Prevention and Control of Pollution) Act, 1981 the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

Yours faithfully,


(DR. R. WARRIER)
JOINT DIRECTOR

Copy to :-

1. Secretary, Ministry of Petroleum and Natural Gas, New Delhi.
2. Secretary, Department of Environment, Government of Bihar.
3. Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
4. Chairman, Bihar State Pollution Control Board, Beltron Bhavan, 2nd Floor, Jawaharlal Nehru Marg, Shastri Marg, Patna-800 023.
5. Chief Conservator of Forests, (Central), Regional Office (EZ), 194, Kharvela Nagar, Bhubaneswar-751 001.
6. Senior Adviser (EI), Min. of Env. & Forests, New Delhi.
7. Guard file.
8. Monitoring file.
9. Record file.


(DR. R. WARRIER)
JOINT DIRECTOR