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INDIAN OIL CORPORATION LTD.
(Refineries Division)

INTER OFFICE MEMO

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From:	CM (S&EP), Refineries - HQ, New Delhi.	To:	Shri U.K Roy, DGM (Project), R-HQ, ND
Ref:	EP/EC	Yr. Ref.	
Date:	16.07.2007	Date:	

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16/7/07

Sub: Environment Clearance for Grass Root Refinery cum Petrochemical Complex at Paradip

Please find enclosed the copy of **Environment Clearance** for Grass Root Refinery cum Petrochemical Complex at Paradip received from MoE&F vide their F. No. J-11011/70/2007-IA II (I) dated 6th July'07.

This is for reference and necessary action at your end.

R. Prasad
(R. Prasad)

F. No. J-11011/70/2007- 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 - 24363973
Dated July 6, 2007

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: Grass Root Refinery cum Petrochemical Complex of 15 MMTPA for unloading Crude Oil at Paradip village Abhaychandrapur district Jagatshipur Cuttack Orissa by M/s IOCL – Environmental Clearance reg.

Sir,

This has reference to your letter no. PJ/PS/PDRP/02 dated 22nd January 2007 on the above mentioned subject.

2. The Ministry of Environment and Forests has examined your application. It is noted that the proposal is for Environmental Clearance for Grass root project facilities of 15 MMTPA Refinery along with Single Point Mooring (SPM). The proposed refinery will also include units for production of Styrene, Paraxylene & Polypropylene. The project will be implemented at Abhay Chandrapur and adjoining villages at Paradip, in the State of Orissa. The project was earlier planned for 9.0 MMTPA of crude processing at the same location and Environmental Clearance was accorded by MOE&F vide letter no. J-11011/26/97-IA.II(I) dated 24.12.1997. Land area acquired for the project is 3344 acres including 393 acres for township/approach road. The crude will be received in VLCC to be unloaded in Single Point Mooring(SPM). A new SPM will be installed for unloading of crude. There will be a 48" dia. and 21 km long Offshore line from PLEM (Pipeline End Manifold) of new SPM to the Land Fall Point (LFP). A 48" Loop line of approx 2.2 km from PLEM of existing SPM to PLEM of new SPM will be provided for interconnectivity of two SPMs.to keep operational flexibility. Optic fibre cable shall be laid along with the pipeline for telemetry system of the SPM system for continuously monitoring the offloading operation and various system parameters. The proposed Refinery cum Petrochemicals plant will have the following units:

Refinery Units

- Crude / Vacuum Distillation unit (15 MMTPA)
- Delayed Coking unit (4.1 MMTPA)
- Diesel Hydrotreating Unit (5.8MMTPA)
- VGO Hydrotreatment Unit (5.2MMTPA)

- Fluidised Catalytic Cracking Unit (3.9 MMTPA)
- Sulphur Recovery Unit(2+1) x 450 TPD of Sulphur
- Hydrogen plant and various treating units
- Alkylation Unit (0.5 MMTPA)

Petrochemical units:

- Polypropylene Unit (2 x 340 TMTA)
- Paraxylene Unit (Naphtha Hydrotreating Unit, Continuous Catalytic Reformer, Xylene Isomerisation Unit, Parex Unit, Sulfolane Extraction unit, Benzene and Toluene Fractionation Unit, Tatory Unit) (1200 TMTA of Paraxylene)
- Ethyl Benzene and Styrene Monomer Unit (600 TMTA)
- Captive Power Plant and Cooling Tower

3. The maximum fresh water requirement is 6014 m³/hr which will be sourced from River Mahandi barrage (about 75 km from Refinery site) near Cuttack. The water will be received through pipeline from the above barrage. The necessary water withdrawal permission for 40 MGD (6280 m³/hr) has been received from Department of Water Resource, Orissa. The solid waste of 9 MT/day will be disposed off in secured landfill area inside the refinery. The spent catalyst and incinerated sludge will be stored in segregated manner in the secured landfill area. Tank bottom sludge from refinery operation will be put to oil recovery system and the residual sludge will be incinerated. The incinerated sludge ash will be stored in secured landfill inside refinery. Bio sludge will be stored in drying pit for natural weathering and then used as manure inside refinery premises. Public hearing is exempted as per para (ii) Of EIA notification.2006. Cost of the project is reported to be Rs. 25646.00 crore.

4. The project has been considered in accordance with the para 2.2 {2.2.1(i) (a)} interim operational guidelines of the Ministry issued on 13th October 2006 issued by the Ministry of Environment and Forests under Para 12 of the EIA Notification 2006.

5. 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 ensure strict implementation/ compliance to the stipulations made by MOEF vide OM no. J-11011/26/1997-IA-II dated 24th December 1997.
- ii. The gaseous emissions (SO₂, NO_x, CO, NMHC & Benzene) from the various process units shall conform to the standards prescribed under the Environment (Protection) Rules, 1986 or norms stipulated by the SPCB whichever is more stringent. At no time, the emission level shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the respective unit should not be restarted until the control measures are rectified to achieve the desired efficiency.
- 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 shall be installed for measurement of
SO₂ and NO_x. Data on VOC shall be monitored and submitted to the SPCB / Ministry.

- iv. The total SO₂ emission from the refinery complex shall not exceed 1000 kg/hr after fully stabilizing of the expansion and modernization of the refinery complex and upgrading the existing facilities. SO₂ emission report may be made on daily basis for all the stacks (fuel burning and process emissions through the computerized mechanism). Further, regular monitoring of stacks every fortnight must also be carried out to cross check the data obtained from computerized monitoring by engaging a reputed organization. In addition, a monthly sulphur balance statement indicating type of fluid, its s - content, product s-content, SO₂ emission etc may be made. Daily, fortnightly and monthly reports generated as above shall be sent to the SPCB and MoEF.
- v. All the Sulphur Recovery Units shall have overall efficiency of 99.9 %.
- vi. Ultra Low-NO_x burners shall be provided in the new furnaces to avoid excessive formation of NO_x.
- vii. Company shall install online SO₂ and NO_x analysers in all the stacks of the refinery.
- viii. Fugitive- emissions of HC from product storage tank farms etc must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations. Necessary measures shall be adopted so as to ensure that the NMHC levels outside the refinery complex premises does not exceed prescribed limits. Monitored data shall be submitted to the OPCB / CPCB every three months and to Ministry of Environment & Forests every six months.
- ix. For control of fugitive emissions, the company shall augment route all unsaturated hydrocarbons to the flare system in addition to the existing flare system. All the pumps and other equipment where there is a likelihood of HC leakages shall be provided with LEL indicators and also provide for immediate isolation of such equipment, in case of a leakage. The company shall adopt Leak Detection and Repair (LDAR) programme for quantification and control of fugitive emissions.
- x. All stacks shall be of appropriate design and height shall be attached to pollution control systems, wherever necessary. All stacks in the complex must meet the minimum stack height criteria as prescribed in the Environment Protection Rules.
- xi. All new standards / norms which are being proposed by CPCB for refinery projects / petrochemical units shall be applicable for the proposed expansion and modernization of the petrochemical refinery complex. These standards shall be incorporated into the detail designs for the proposed expansion and modernization. The existing refinery complex shall also be upgraded to the new above mentioned emission standards.
- xii. Ground water shall not be tapped for construction, industrial or domestic uses including the township.

- xiii. Liquid effluents shall be treated to conform to the standards stipulated by the OPCB / Ministry of Environment & Forests under EPA 1986 and also the new norms being specified. Treated effluent will be recycled and reused. The treated effluent shall be discharged into the sea through a pipeline of about 3 km from low tide line. The domestic effluent after treatment and conforming to the prescribed standards shall be used for greenbelt development.
- xiv. The company shall undertake monitoring of the groundwater quality at the locations as suggested by the Central Ground Water Board. Monitoring results of the same shall be submitted to the OPCB/CPCB and MOEF.
- xv. M/s IOCL shall undertake rainwater harvesting measures to recharge the ground water in the area in consultation with Central Ground Water Board and Orissa Pollution Control Board.
- xvi. Green belt shall be raised in 580 acre area as per CPCB guidelines.
- xvii. Occupational Health Surveillance of the employees and workers shall be done on a regular basis and records maintained as per the Factories Act.
- xviii. The marine water quality shall be regularly monitored for the water quality (temperature, petroleum hydrocarbons, phenols, sulphides, total organic carbon), sediment quality (trace elements, petroleum hydrocarbons, TOC and sediment size) and biological parameters (primary productivity, benthos, fish quality and growth, biomass, phytoplankton and zooplankton).
- xix. The design, material of construction, assembly, inspection, testing and safety aspects of operation and maintenance of pipeline and transporting the oil shall be governed by ASME/ANSI B 31.8/B31.4 and OISD standard 141.
- xx. The project authorities should install SCADA system with dedicated optical fibre based telecommunication link for safe operation of pipeline and Leak Detection System. Intelligent pigging facility should be provided for the entire pipeline system for internal corrosion monitoring. Coating and impressed current cathodic protection system should be provided to prevent external corrosion.
- xxi. The project authorities shall patrol and inspect the pipeline regularly for detection of faults as per OISD guidelines and continuous monitoring of pipeline operation by adopting non-destructive method(s) of testing as envisaged in the EMP. Pearson survey and continuous potential survey should be carried out at regular intervals to ensure the adequacy of cathodic protection system.
- xxii. The solid waste of shall be disposed off in secured landfill facility within the refinery. The spent catalyst and incinerated sludge will be stored in segregated manner in the secured landfill area. Tank bottom sludge from refinery operation shall be put to oil recovery system and the residual sludge will be incinerated. The incinerated sludge ash shall be stored in secured landfill inside refinery. Bio sludge shall be stored in drying pit for natural weathering and then used as manure inside refinery premises.

- xxiii. The Company shall also comply with all the conditions and safeguards prescribed in the EIA & Risk Assessment Reports.
- xxiv. The On-site and Off-site Emergency Preparedness Plans, Oil Spill Contingency Plans, Marine Disaster Management Plan shall be prepared for the enhanced refinery throughput and submitted to the Ministry before commissioning at the enhanced capacity.
- xxv. The Environmental Management Cell and laboratory facilities for the collection of the samples shall be augmented with suitable facilities and qualified personnel and directly report to the chief executive of the refinery complex.
- xxvi. The company shall prepare comprehensive EIA/EMP report and submit to the Ministry within one year.

B. GENERAL CONDITIONS:

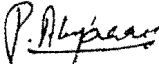
- i. The project authorities must strictly adhere to the stipulations made by the Orissa State Pollution Control Board and the State Government.
- ii. No further expansion or modernization in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.
- iii. At no time, the emissions shall go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the units, the respective unit should be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.
- iv. The overall noise levels in and around the plant area should be kept well within the 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).
- v. 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 project.
- vi. The project authorities must strictly comply with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with 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.
- vii. The project authorities will provide requisite funds both recurring and non-recurring 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.

- viii. The stipulated conditions will be monitored by the Regional of this Ministry at Bhubneshwar/Central Pollution Control Board/State Pollution Control Board. A six monthly compliance report and the monitored data should be submitted to them regularly.
- ix. 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 Regional office.
- x. The Project Authorities should 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.

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

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

8.0. 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, Hazardous Wastes (Management and Handling) Rules, 2003 and the Public Liability Insurance Act, 1991 along with their amendments and rules.


(Dr. P. L. Ahujarai)
Director

Copy to:

1. Secretary, State Department of Environment, Govt. of Orissa, Bhubaneswar.
2. Chairman, Central Pollution Control Board, Paribesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
3. Chairman, Orissa Pollution Control Board, Paribesh Bhawan, A/118, Neelkanthanagar, Unit-8, Bhubaneswar-751012.
4. The Chief Conservator of Forests (Eastern), Regional Office (EZ), A/3, Chandrasekharpur, Bhubaneswar - 751 023
5. JS(CCI-I), Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi.
6. Monitoring Cell, Ministry of Environment & Forests, New Delhi.
7. Guard file.
8. Monitoring file
9. Record file.