

MINUTES FOR 5th EXPERT APPRAISAL COMMITTEE (INDUSTRY-2) MEETING HELD DURING 25-26th FEBRUARY, 2016

VENUE: Narmada Hall, Jal Wing, Ground Floor , Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhawan Aliganj, Jorbagh Road, New Delhi -110003.

Time : Meeting held at 10: 00 AM

5.1 Opening remarks by the Chairman

Time : 10: 00 - 10: 15 AM

5.2 Confirmation of the Minutes of the 4th Expert Appraisal Committee (Industry-2) held during 11-12th February 2016.

25th February, 2016 (Day 1)

5.3 Environmental Clearance

5.3.1 Development of Refrigerated LPG (Propane/Butane) Import, Storage, Bottling and Bulk distribution facilities at Haldia Dock Complex, Haldia Tehsil Kharagpur– I, District East Medinipur, West Bengal by M/s BPCL. – Environmental Clearance and CRZ Clearance

The project proponent and their consultant (M/s Projects & Development India Ltd.) gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken as per Draft Terms of References (TORs) awarded during the 46th Meeting of the Expert Appraisal Committee (Industry) held during 20th to 21st August, 2015 for preparation of EIA-EMP report. All the Isolated Storage & Handling of hazardous chemicals (as per threshold planning quantity indicated in column 3 of schedule 2 & 3 of MSIHC Rules 1989 amended 2000) activities is listed at 6(b) of the Schedule of EIA Notification, 2006 under category 'B' and appraised at State level. However, due to applicability of General Condition i.e. location of project in CPA (Haldia), Proposal is treated as Category 'A' project and appraised at Central Level.

M/s BPCL has proposed for setting up of Development of Refrigerated LPG(Propane/Butane) Import, Storage, Bottling and Bulk distribution facilities at Haldia Dock Complex, Haldia Tehsil Kharagpur – I, District East Medinipur, West Bengal. Total plot area is 45 acres. Cost of project is Rs. 694.15 Lakh. It is reported that no reserved forest/ protected forest/ Eco-sensitive area/ national park is located within 10 km distance. PP informed that the proposed LPG terminal does not fall within CRZ. A small portion of pipeline length at HOJ-3 falls in CRZ-III, CRZ-IVB (Jetty) and CRZ IB (jetty). Following facilities will be created at Jetty and project site:

S.N.	Facility to be created at Jetty	Description
1.	Marine Unloading arms 2 Nos. for Propane & Butane	
2.	Manifold at Jetty	18 in. piping , valves & meters
3.	Skid Mounted Air Compressor cum Dryer	Type: Vert., Cylindrical ID: 1360 mm & Ht: 1500 mm
4	Manifold near jetty Provision for putting up Booster pumps in future in a plot near Jetty	
5	Unloading Pipelines	Insulated LTCS PIPES -18" SCH 30(A333Gr. 6) x 2 no. Length= 7.5 km approx.

Facilities at Project Site

S.N.	Facility	Description
1	Refrigerated Storage Tanks	2 Nos. for Propane & Butane of capacity 15000 MT each
2	Propane/Butane /LPG Storage Bullet	4 Nos. Of 350 MT Capacity of Mounded Bullet
3	Flash Compressor (2+1) Capacity:	Suction Flow : 7528 m ³ /hr (18.0 Te/hr) each
4	Boil Off Compressor (2+1) Capacity:	Suction Flow : 841 m ³ /hr (2.0 Te/hr) each
5	Flare Unit Type:	Molecular Seal, Derrick No. of Pilot Burner: 3 Total Elevation: 50m Tip Dia.: 16"

Facilities at Dispatch Section

S.N.	Facility	Description
1	Bottling Capacity	1no. 24 /72 Point carousel plant + Provision for 1no. 24 point carousel plant in future
2	Bulk Loading Facility	1 x 8 bay gantry + Provision for 1x 8 bay gantry in future

Offsite & Utility Facilities

S.N.	Facility	Description
1.	Cooling Tower	2 Cell Induced Draft Fan, Cap.: 1000 m ³ /hr
2	Mercaptan Dosing System Considered	
3	Nitrogen Storage System Considered	
4	Flare System Considered	
5	Fire Fighting System Considered	
6	Water	200 KL per day
7	Electricity	9834 KVA

Additionally, the PP informed the Committee that ambient air quality monitoring was carried out at 8 locations during October, 2015 – December, 2015 and submitted baseline data indicates that ranges of concentrations of PM₁₀ (50 µg/m³ to 94 µg/m³), PM_{2.5} (22 µg/m³ to 46 µg/m³), SO₂ (12 µg/m³ to 18.2 µg/m³) and NO_x (20.8 µg/m³ to 38.8 µg/m³) respectively. The resultant concentrations are within the NAAQS. Water requirement from HAD will be 200 m³/day. Power requirement is 9834 KVA and sourced from WBSEB. Adequate height will be provided to DG set (5500 KVA + 2500 KVA + 500 KVA). The Committee suggested that effluent from toilet, canteen and washrooms will be treated in the ETP. Rain water harvesting system will be installed.

West Bengal State Coastal Zone Management Authority, vide letter 161/EN/T-II-4/015/2015 dated 21st January, 2016 has recommended the said project for CRZ clearance. The pipelines are two number 18" dia approx.. and 7.5 Km long each. The activity was found to be permissible under clause 3 (i) (a) and no. 8 – I (i) (b) of CRZ Notification, 2011.

After detailed deliberations, the Committee found the final EIA/EMP report adequate and suggested to stipulate following specific conditions alongwith other environmental conditions while considering for accord of environmental clearance and CRZ clearance:

- i) SCZMA recommendation shall be followed.
- ii) Adequate buffer zone around the storage tankages, as may be required as per OISD or other statutory requirements.
- iii) Regular online monitoring of VOC and HC in the work zone area in the plant premises should be carried and data be submitted to Ministry's Regional Office at Bhubaneshwar, CPCB and State Pollution Control Board.
- iv) Total fresh water requirement from ground water source shall not exceed 200 m³/day and prior permission should be obtained from the concerned Authority.
- v) The company shall construct the garland drain all around the project site to prevent runoff of any oil containing waste into the nearby water bodies. Separate drainage system shall be created for oil contaminated and non-oil contaminated streams. During rainy season, the storm water drains shall be connected to oil water separator and passed through guard pond. Water quality monitoring of guard pond shall be conducted and ensured that monitoring parameters shall not exceed the prescribed standards.
- vi) Domestic effluent shall be treated in the STP. Treated effluent shall be recycled/reused for gardening and horticulture purpose. No effluent shall be discharged outside the premises.
- vii) Storm water should pass through efficient oil and grease catchers to trap leaked oil and grease
- viii) Oil Industry Safety Directorate guidelines regarding safety against fire, spillage, pollution control etc. shall be followed. Company should ensure no oil spillage occur during loading / unloading of petroleum products.
- ix) The project authorities shall strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989, as amended in 2000 and the Public Liability Insurance Act for handling of hazardous chemicals etc. All the hazardous waste shall be properly treated and disposed of in accordance with the Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules 2008 and its subsequent amendments.
- x) Necessary approvals from Chief Controller of Explosives must be obtained before commission of project. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.

- xi) The company shall obtain all requisite clearances for fire safety and explosives and shall comply with the stipulation made by the respective authorities.
- xii) All storage tanks shall be provided with design features based on applicable OISD standards.
- xiii) Emergency Response Plan shall be based on the guidelines prepared by OISD, DGMS and Govt. of India. Mock drill shall be conducted once in a month.
- xiv) Occupational health surveillance of worker shall be done on a regular basis and records maintained as per the Factory Act.
- xv) At least 10 meter wide thick green belt shall be developed on all sides along the periphery of the project area, in downward direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.
- xvi) The Company shall harvest surface as well as rainwater from the rooftops of the buildings proposed in the project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.
- xvii) All the recommendations mentioned in the EMP/DMP shall be implemented.

5.3.2 Additional onshore exploratory drilling of 20 wells in PEL block L-II District Tiruvarur, Nagapatnam, Pudukottai, Tanjavur, Tamil Nadu by M/s ONGC Ltd. – reg EC.

The proposal considered in 3rd EAC meeting held during 18-19th January 2016 and clubbed with other project.

5.3.3 One well B-CY-EOT-1 in onshore PEL Block II in Cauvery Basin, Tamilnadu by M/s ONGC – reg EC.

The proposal considered in 3rd EAC meeting held during 18-19th January 2016 and clubbed with other project.

5.3.4 Exploratory Drilling of Additional Two Wells in PEL Block L-II at located in District Tanjavur, Tamil Nadu by M/s Oil and Natural Gas Corporation Ltd.- reg EC.

The proposal considered in 3rd EAC meeting held during 18-19th January 2016 and clubbed with other project.

Reconsideration of Environmental Clearance

5.3.5 Expansion of the existing POL terminal with existing storage capacity 1,62,790 KL to 2,27,360 KL at Pyala at Tehsil Ballabgarh, District Faridabad, Haryana by M/s BPCL – reg EC.

The aforesaid proposal was considered by the Expert Appraisal Committee (EAC) in its 44th meeting held during 20-21st July, 2015, and the Committee sought following addl. Information:

- (i) Certified compliance report from the Regional Office, Chandigarh for implementation of environmental conditions in the existing unit.
 - (ii) Submit safety audit report of the existing depot.
 - (iii) Status note on implementation of MB Lal Committee recommendation on safety.
 - (iv) Conduct two weeks air quality monitoring for CO, VOC, methane and non-methane hydrocarbon etc.
 - (v) Details w.r.t. Emergency preparedness plan.
- (i) Photograph of green belt.

PP has submitted the above additional Information. RO, MoEF&CC, Chandigarh vide letter no F No. 4-90/2005-RO (NZ) dated 21.01.2016 has submitted the monitoring report and the Committee found it satisfactory.

After detailed deliberations, the Committee, on the basis of the additional information provided and presentation made recommended the project for environmental clearance and stipulated following specific conditions along with other environmental conditions while considering for accord of environmental clearance:

- i) As proposed, recommendations of M B Lal committee on safety shall be implemented.
- ii) Adequate buffer zone around the storage tankages, as may be required as per OISD or other statutory requirements.
- iii) Regular online monitoring of VOC and HC in the work zone area in the plant premises should be carried and data be submitted to Ministry's Regional Office at Chandigarh, CPCB and State Pollution Control Board.
- iv) Total fresh water requirement from tanker water supply shall not exceed 14 m³/day m³/day and prior permission should be obtained from the concerned Authority.
- v) All oily effluents will be passed through oily water separator (OWS) followed by effluent treatment plant. The treated effluent will be used for horticulture purpose. No effluent shall be discharged outside the premises.
- vi) The company shall construct the garland drain all around the project site to prevent runoff of any oil containing waste into the nearby water bodies. Separate drainage system shall be created for oil contaminated and non-oil contaminated streams. During rainy season, the storm water drains shall be connected to oil water separator and passed through guard pond. Water quality monitoring of guard pond shall be conducted and ensured that monitoring parameters shall not exceed the prescribed standards.
- vii) Domestic effluent shall be treated in the STP. Treated effluent shall be recycled/reused for gardening and horticulture purpose. No effluent shall be discharged outside the premises.
- viii) Storm water should pass through efficient oil and grease catchers to trap leaked oil and grease
- ix) Oil Industry Safety Directorate guidelines regarding safety against fire, spillage, pollution control etc. shall be followed. Company should ensure no oil spillage occur during loading / unloading of petroleum products.

- x) The project authorities shall strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989, as amended in 2000 and the Public Liability Insurance Act for handling of hazardous chemicals etc. All the hazardous waste shall be properly treated and disposed of in accordance with the Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules 2008 and its subsequent amendments.
- xi) Necessary approvals from Chief Controller of Explosives must be obtained before commission of project. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.
- xii) The company shall obtain all requisite clearances for fire safety and explosives and shall comply with the stipulation made by the respective authorities.
- xiii) As proposed, oily sludge including tank bottom sludge shall be handed over to the authorized recyclers.
- xiv) All storage tanks shall be provided with design features based on applicable OISD standards.
- xv) Emergency Response Plan shall be based on the guidelines prepared by OISD, DGMS and Govt. of India. Mock drill shall be conducted once in a month.
- xvi) Occupational health surveillance of worker shall be done on a regular basis and records maintained as per the Factory Act.
- xvii) At least 10 meter wide thick green belt shall be developed on all sides along the periphery of the project area, in downward direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.
- xviii) The Company shall harvest surface as well as rainwater from the rooftops of the buildings proposed in the project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.
- xix) All the recommendations mentioned in the EMP/DMP shall be implemented.

5.4 Terms of Reference (TOR)

5.4.1 Development Drilling Of 22 Wells in East Godavari district (Godavari Onland PML Block), A.P. by M/s ONGC Ltd.- reg TOR.

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken along with the draft Term of References for the preparation of EIA-EMP. All the projects related to offshore and onshore Oil and Gas exploration, development and production are listed in para 1(b) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at central level.

M/s ONGC Ltd. has proposed for development drilling Of 22 Wells in East Godavari district (Godavari Onland PML Block), A.P. As per Form-1, it is reported that no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. lies within 10 km distance. However, protected forest land is involved. Total cost of project is Rs. 242 Crores. Total area of the block is 2176 m². Details of project are as follow:

S.No	Field / No. of wells (Anticipated Locations)/Name/Target Depth(m)	PML Block	Coordinates	Village (No. of wells)	Mandal
1	Mandapeta / 8/3100	Godavari Onland	Lat 16 deg 48 min 5 sec Long 81 deg 54 min 15 sec	Alamuru (3)	Alamuru
				Mandapeta (5)	Mandapeta
2	Kesavadasupalem / 1/ 1800	Godavari Onland	Lat 16 deg 20 min 2.66 sec Long 81 deg 46 min 9.81 sec	Kesavadasupalem (1)	Sakhinetipalli
3	Kesanapalli west / 5/ 2500	Godavari Onland	Lat 16 deg 23 min 31.45 sec Long 81 deg 54 min 37.78 sec	Kesanapalli (5)	Malkipuram
4	Kammapalem / 7/ 2700	Godavari Onland	Lat 16 deg 28 min 26.87 sec Long 81 deg 49 min 8.38 sec	Kammapalem (7) Hamlet of Sivakodu	Razole
5	Vygreswaram / 1/ 4000	Godavari Onland	Lat 16 deg 37 min 49.54 sec Long 81 deg 56 min 16.96 sec	Vygreswaram (1)	Ambajipeta
Total	22 wells				

ONGC's Development activities are confined to two on land PML blocks, viz., West Godavari and Godavari Onland, in the Krishna Godavari Basin, Andhra Pradesh. These two PML blocks spread over in 3 districts viz., East Godavari, West Godavari and Krishna Districts of Andhra Pradesh. Under the present proposal EC is sought in respect of 40 locations out of which 5 locations are of West Godavari PML Block in Krishna District and 35 locations are of Godavari Onland PML Block. Out of these 35 locations, 13 locations are falling in West Godavari District and 22 locations are falling in East Godavari District of A.P. respectively.

Drilling operation will be completed in 2-3 months for each well. The drilling rig will be operated by approx. 30 persons on the rig at anytime. The manpower will operate in two shifts with continuous operations on the rig.

It was informed that the quantity of drill cuttings generated will be around 225 m³ . The quantity of wastewater produced will be about 15-20 m³ /day per well. The rig will be provided with solids handling system comprising Shale shakers (1200 GPM), Desander (1200 GPM) and Desilter (1200 GPM) and Degasser with vacuum pump. Drilling operations will be carried out using an electrical type drilling rig.

The drilling process requires movement of drill bit through the draw works which require power. The power requirement of the drilling rig will be met by using the six Diesel Generator sets with a diesel consumption of about 6 Kl/day. The exhaust stacks of the DG sets are likely to vent the emissions.

Water requirement in a drilling rig is mainly meant for preparation of drilling mud apart from washings and domestic use. The daily water consumption will be 25 m³ /d of

which 15 m³ /d will be used for mud preparation and 10 m³ /d will be used for domestic purposes including drinking.

Wastewater will be collected in impervious HDPE lined pits. Water based mud (drilling fluid) will be used for drilling operation. Main constituents of the fluid are Bentonite and Barites, both of which are natural minerals. Storage of Chemicals and additives will be required for proposed activities. All quantities will be below specified thresholds for storage permits under the MSIHC Rules. Precautionary measures will be taken as per The Hazardous Wastes (Management, Handling and Trans-boundary Movement) Amendment Rules, 2009.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure (Refer Ministry's web site) for preparation of EIA-EMP report:

A. Standard TOR

1. Executive summary of a project.
2. Project description, project objectives and project benefits.
3. Cost of project and period of completion.
4. Site details within 1 km of the each proposed well, any habitation, any other installation/activity, flora and fauna, approachability to site, other activities including agriculture/land, satellite imagery for 10 km area. All the geological details shall be mentioned in the Topo sheet of 1:40000 scale, superimposing the well locations and other structures of the projects. Topography of the project site.
5. Details of sensitive areas such as National Park, Wildlife sanctuary and any other eco-sensitive area alongwith map indicating distance.
6. Approval for the forest land from the State/Central Govt. under Forest (Conservation) Act, 1980 as project involves forest land.
7. Distance from nearby critically/severely polluted area as per Notification, if applicable. Status of moratorium imposed on the area.
8. Does proposal involve rehabilitation and resettlement? If yes, details thereof.
9. Environmental considerations in the selection of the drilling locations for which environmental clearance is being sought. Present any analysis suggested for minimizing the foot print giving details of drilling and development options considered.
10. Baseline data collection for air, water and soil for one season leaving the monsoon season in an area of 10 km radius with centre of Oil Field as its centre covering the area of all proposed drilling wells.
11. Climatology and Meteorology including wind speed, wind direction, temperature rainfall relative humidity etc.
12. Details of Ambient Air Quality monitoring at 8 locations for PM_{2.5}, PM₁₀, SO₂, NO_x, CO, VOCs, Methane and non-methane HC.
13. Soil sample analysis (physical and chemical properties) at the areas located at 5 locations.
14. Ground and surface water quality in the vicinity of the proposed wells site.
15. Measurement of Noise levels within 1 km radius of the proposed wells.
16. Vegetation and land use; flora/fauna in the block area with details of endangered species, if any.
17. Incremental GLC as a result of DG set operation, flaring etc.
18. Potential environmental impact envisaged during various stages of project activities such as site activation, development, operation/ maintenance and decommissioning.
19. Actual source of water and 'Permission' for the drawl of water from the Competent Authority. Detailed water balance, wastewater generation and discharge.
20. Noise abatement measures and measures to minimize disturbance due to light and

visual intrusions.

21. Details on wastewater generation, treatment and utilization /discharge for produced water/ formation water, cooling waters, other wastewaters, *etc.* during all project phases.
22. Details on solid waste management for drill cuttings, drilling mud and oil sludge, produced sand, radio active materials, other hazardous materials, *etc.* including its disposal options during all project phases.
23. Disposal of spent oil and lube.
24. Storage of chemicals and diesel at site. Hazardous material usage, storage and accounting.
25. Commitment for the use of water based mud (WBM) only
26. Oil spill emergency plans for recovery/ reclamation.
27. H₂S emissions control.
28. Produced oil/gas handling, processing and storage/transportation.
29. Details of control of air, water and noise pollution during production phase.
30. Measures to protect ground water and shallow aquifers from contamination.
31. Whether any burn pits being utilised for well test operations.
32. Risk assessment and disaster management plan for independent reviews of well designed construction *etc.* for prevention of blow out. Blowout preventer installation.
33. Environmental management plan.
34. Total capital and recurring cost for environmental control measures.
35. Emergency preparedness plan.
36. Decommissioning and restoration plans.
37. Documentary proof of membership of common disposal facilities, if any.
38. Details of environmental and safety related documentation within the company including documentation and proposed occupational health and safety Surveillance Safety Programme for all personnel at site. This shall also include monitoring programme for the environmental.
39. A copy of Corporate Environment Policy of the company as per the Ministry's O.M. No. J-11013/41/2006-IA.II(I) dated 26th April, 2011 available on the Ministry's website.
40. Any litigation pending against the project and or any direction/order passed by any court of law against the project. If so details thereof.

B. Additional TOR

1. Public hearing to be conducted and issues raised and commitments made by the project proponent on the same should be included in EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made.
2. A separate chapter on status of compliance of Environmental Conditions granted by State/Centre to be provided. As per circular dated 30th May, 2012 issued by MoEF, a certified report by RO, MoEF on status of compliance of conditions on existing unit to be provided in EIA-EMP report.

It was recommended that '**TORs**' along with **Public Hearing** prescribed by the Expert Appraisal Committee (Industry) should be considered for preparation of EIA / EMP report for the above mentioned project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The draft EIA/EMP report shall be submitted to the State Pollution Control Board for public hearing. The issues emerged and response to the issues shall be incorporated in the EIA report.

5.4.2 BS VI quality Fuel Up gradation and a new MS block comprising of NHT, NSU, LNISM and CCR and associated facilities at Tehsil Kunnathunad, district Ernakulam, Ambalamugal Kochi, Kerala by M/s Bharat Petroleum Corporation Limited- reg TOR.

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken along with the draft Term of References for the preparation of EIA-EMP. All the Petroleum Refinery Plants are listed at S.N. 4(a) under Category 'A' and appraised at the Central level.

M/s Bharat Petroleum Corporation Limited has proposed for BS VI quality Fuel Up gradation and a new MS block comprising of NHT, NSU, LNISM and CCR and associated facilities at Tehsil Kunnathunad, district Ernakulam, Ambalamugal Kochi, Kerala. Ministry has granted EC to existing industry vide letter no. J-11011/26/2013-IA II(I) dated 12.05.2015 for propylene derivatives petrochemical project. As per Form-1, it is reported that no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. lies within 10 km distance. River Chitrapuzha is flowing at a distance of 1 km from the proposed project. Cost of the project is 3313.06 Crore.

Currently, the refinery is implementing the Integrated Refinery Expansion Project (IREP) which will enhance refinery capacity to 15.5 MMTPA by processing of 100% high sulphur crudes and also upgrade auto fuels quality to Euro-IV specifications. IREP includes implementation of a Crude/ Vacuum Distillation Unit, a Naphtha Hydrotreater/ Isomerization unit, a Diesel Hydrotreater unit for Hydrotreating Diesel, VGO Hydrotreater unit to hydro treat feed for Fluidized Catalytic Cracking Unit, a Fluidized Catalytic Cracking Unit to maximize Propylene production, a Poly Propylene Unit for production of Poly propylene and a Delayed Coker Unit for the Residue Up gradation.

BPCL intends to maximise and upgrade MS and diesel processing capabilities to meet BSVI fuel specifications by 1st April 2020. In this regard, following will be installed:

Design Capacities of New/Revamp Process Units

A.	Main Processing Unit	Capacity (MMTPA)
1	Naphtha Hydrotreater Unit.	1.5
2	Light Naphtha Isomerization Unit	0.71
3	Continuous Catalytic Reformer Unit	0.80

Additional power required will be 20 MW which will be sourced by installing 1 GTG (34.5 MW). Overall SO₂ emission will be limited upto 1580 kg/hr. Natural gas has been considered in GTGs. Low sulphur Fuel oil has been considered for firing in the furnaces. Heaters/furnaces will be provided with well-proven Low NO_x burners to restrict the emissions of Nitrogen Oxides (NO_x) to meet the proposed emission standards for Petroleum Oil refineries. Additional water requirement of 3.4 MLD will be sourced from Periyar River.

National Standards as specified under proposed effluent and emission standards for petroleum oil refineries by suitable augmentation of Effluent Treatment Plants will be followed. Committee suggested to take the measures of recycle and reuse to minimize the use of fresh water in reference to the compliance of existing EC.

The solid wastes i.e. Spent Catalysts, ETP Sludge, General Solid Wastes, Tank Bottom Sludge etc. generated in the Refinery shall be managed as per Hazardous Waste Management And Handling Rules, 1989.

PP requested Committee for exemption of Public Hearing for the proposed project as it was conducted on 23.12.2014 while granting EC dated 12.05.2015. Committee recommended the project with exemption of Public hearing as per para 7 (ii).

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure-I for preparation of EIA-EMP report:

A. Specific TOR:

1. Complete process flow diagram describing each unit, its capacity along-with material and energy balance.
2. Details of intermediate product, their storages and final products to be manufactured.
3. Sulphur balance giving input from crude, refinery fuel (if used) and any other outside fuel and output in various products and emissions.
4. Details of proposed source-specific pollution control schemes and equipment to meet the national standards for petroleum refinery.
5. Details of emissions from all the stacks including volumetric flow rate.
6. Details on availability of raw materials (crude oil, natural gas, chemicals, etc.), its source and storage at the plant.
7. Details on mode of transportation of crude and products.
8. Details of storage capacity of crude and products.
9. Ambient air quality data should include hydrocarbon (methane and non-methane), VOC, Ni & V etc.
10. Efforts to minimize water consumption, effluent discharge and to maintain quality of receiving water body.
11. Details of effluent treatment plant, inlet and treated water quality with specific efficiency of each treatment unit in reduction in respect of all concerned/regulated environmental parameters. Also, include treatment details such as primary (physico-chemical), secondary (biological) and tertiary (activated carbon filters) treatment systems.
12. Storm water management plan.
13. Estimation SO₂ and NO_x emissions load.
14. Details on flaring system.
15. Details of VOC recovery devices in the storage tanks.
16. Arrangement for spill management.
17. Oily sludge management plan.
18. Risk Assessment & Disaster Management Plan
 - i. Identification of hazards
 - ii. Consequence Analysis
 - iii. Risk assessment should also include leakages and location near to refinery & proposed measures for risk reduction.
 - iv. Arrangement for fire protection and control.

B. Additional TOR

- i. Public hearing is exempted under section 7 (ii) of EIA Notification, 2006
- ii. A separate chapter on status of compliance of Environmental Conditions granted by State/Centre to be provided. As per circular dated 30th May, 2012 issued by MoEF, a certified report by RO, MoEF on status of compliance of conditions on existing unit to be provided in EIA-EMP report.
- iii. Water Audit to be conducted with recycling and reuse of wastewater.

It was recommended that 'TORs' without prescribed by the Expert Appraisal Committee (Industry) should be considered for preparation of EIA / EMP report for the above mentioned project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006.

5.4.3 LPG Pumping in Existing Ramanmandi-Bahadurgarh Petroleum Products Pipeline (RBPL) laid between Haryana and Bhatinda, Punjab by M/s HPCL- reg TOR.

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken alongwith the draft Term of References for the preparation of EIA/EMP report. Oil and gas transportation pipeline (crude and refinery/petrochemical products), passing through national parks/sanctuaries./coral reefs /ecologically sensitive areas including LNG Terminal is listed at S.N. 6(a) under category 'A' and appraised at Central level. The project is integrated with storage and covered under 6(b) category of EIA, Notification 2006.

M/s HPCL has proposed for LPG Pumping in Existing Ramanmandi-Bahadurgarh Petroleum Products Pipeline (RBPL) laid between Haryana and Bhatinda, Punjab. No national parks, Reserve Forest (RF)/ Protected Forests (PF), Biosphere Reserves, Tiger/Elephant Reserves, lies within 10 km distance. MoEF&CC has issued Environmental Clearance vide letter no J.11011/581/2008-IA II (I) dated 29th April 2009 for proposed Guru Gobind Singh Refinery Ltd.(G.G.S.R.L)for evacuation Pipeline and storage facilities Project at distt. Bathinda, Punjab by M/s. Hindustan Petroleum Corporation Limited.

Total cost of the proposed project is estimated as Rs. 400 Crore. Approx 20 acre of land required for 1 no. new Intermediate pumping station & 8 nos. additional SV stations. Total no. of contract workers- approx. 1000 people including labor will be deployed as peak work force during construction phase.

It is intended to transport LPG through the Ramanmandi- Bahadurgarh multi product Pipeline to cater the LPG demand at the Bahadurgarh and its adjoining areas. The study to consider batching of LPG with HSD and) MS and include facilities required for HSD- LPG & MS- LPG interface separation at Bahadurgarh receiving terminal to meet product quality specifications. Length of existing pipeline is 243 km & 18"and product carrying capacity will enhance from 4.71 MMTPA to 7.11 MMTPA.

The Ramanmandi- Bahadurgarh cross country Pipeline (RBPL) was commissioned during November 2012 for the evacuation of POL products i.e., MS, HSD, SKO, ATF etc. from HMEL Refinery to Bahadurgarh terminal. The pipeline passes through 8 districts and 85 villages of Punjab and Haryana states. Presently, LPG is being transported from HMEL refinery to Bahadurgarh and other LPG plants in North India by LPG Tank Trucks and rail wagons. The utilization of RBPL for transporting LPG along with POL products in RBPL will bring down the dependency of transporting LPG through road trucks and rail wagons and will be environment friendly and economic.

The proposed project facilities are as follows:

1. New Pumping station at Ramanmandi suitable for handling POL and LPG products both. No extra land acquisition is required for pumping station.
2. 1 no. of Intermediate Pumping Station at SV-4 (Near Barwala) with 2 +1 (Working+ Standby) mainline pumps along with associated facilities.

3. 8 nos. of Sectionalization Valve (SV) stations along with associated facilities. No. of SV stations are tentative and may reduce based on detailed engineering studies.
4. Augmentation of receipt facilities at Bahadurgarh for LPG receipt and installation of Interface batch separation facilities for LPG-MS and LPG-HSD along with associated facilities at Bahadurgarh and pipeline jobs for compliance of relevant OISD codes/ standards.

Approx. 5 m³/day of fresh water will be required during operation phase for domestic purposes, fire water storage and Green belt development and requirement will be met thru existing water sources at locations.

Gaseous emissions are expected from DG sets which will be kept well within the prescribed limit of CPCB/SPCB and will discharge thru adequate stack height. Domestic liquid effluent would be treated in septic tanks and soak pits, while the industrial effluent would be handled by on-site ETP and Oil Water Separator (OWS). Excess construction material, scrap metal, packaging and wrapping material, stubs of spent welding electrodes, used rags and house-keeping waste would be properly disposed off. Domestic solid waste will be generated at the stations during operation phase and will be disposed of properly. Hazardous waste would include waste oil of DG sets, oily sludge from storage tanks and pipeline, which would be disposed off through CPCB approved Hazardous waste Vendors.

The Committee noted that pipe line does not pass through any eco-sensitive area. Therefore, Public hearing may not be required in any of districts where pipeline passes. However, due augmentation of receipt facility at Bahadurgarh, Haryana, the public hearing should be conducted in this district in the situation when no public hearing was conducted in past.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR for preparation of EIA-EMP report.

A. Specific TOR:

1. Justification of the project
2. Route map indicating project location
3. Details of land to be acquired. Details of projects vis-à-vis ESAs and approvals thereof.
4. Project location along with map of 1 km area (500 meters on either side of the pipeline from centerline) and site details providing various industries, surface water bodies, forests etc.
5. Analysis of alternative sites and Technology.
6. Location of National Park/Wild life sanctuary/Reserve Forest within 10 km radius of the project.
7. Recommendation of SCZMA /CRZ clearance for the proposed pipeline.
8. Present land use based on satellite imagery for the study area of 10 km radius.
9. Details of applications filed for forest clearance to be obtained for the project for the forest land involved in the project along with details of the compensatory afforestation.
10. Process Description along with Process Flow Diagram.
11. Details of water consumption and source of water supply, waste water generation, treatment and effluent disposal.
12. Detailed solid & Hazardous waste generation, collection, segregation, its recycling and reuse, treatment and disposal.
13. Total cost of the project along with total capital cost and recurring cost/annum for environmental pollution control measures.

14. Site-specific micro-meteorological data for temperature, relative humidity, hourly wind speed and direction and rainfall for one season at one location.
15. At total of 30 locations, ambient air quality monitoring within the study area of 500 m along the pipeline route and around the pumping station and delivery station for PM10, SO₂, NO_x, CO, HC, VOC for one season(Non Monsoon) taking into account the pre-dominant wind direction at the representative locations covering population zone and sensitive receptors including reserved forests.
16. Determination of atmospheric inversion level and assessment of ground level concentration of pollutants. Air quality modelling for proposed project.
17. At about 10 locations, water monitoring will be conducted including surface & ground water for one season (Non Monsoon)
18. At 15 locations, Soil sample analysis within the study area for one season (Non Monsoon).
19. At 30 locations, noise Monitoring will be taken up for one season (Non Monsoon)
20. Demography & socio-economics of the study area.
21. Ecological features (terrestrial & Aquatic) of the study area for one season (Non Monsoon)
22. Assessment of impact on air, water, soil, solid/hazardous waste and noise levels.
23. Air pollution control measures proposed for the effective control of gaseous emissions within permissible limits.
24. Details of proposed preventive measures for leakages and accident.
25. Risk assessment including Hazard identification, Consequence Analysis, Risk Assessment and preparation of Disaster Management Plan as per Regulations.
26. Corrosion Management of Pipeline
27. Details of proper restoration of land after laying the pipelines.
28. Details of proposed Occupational Health Surveillance program for the employees and other labour
29. Detailed Environment management Plan (EMP) with specific reference to Energy conservation and natural resource conservation, details of air pollution control system, water & wastewater management, monitoring frequency, responsibility and time bound implementation plan for mitigation measure will be provided.
30. Details on list of hazardous chemicals to be stored alongwith storage quantities at the facility, their category (as per MSIHC Rules), MSDS.
31. Mode of receiving hazardous chemicals in isolated storages and mode of their dispatch.
32. Layout plan of the storage tanks and other associated facilities.
33. Details on types and specifications of the storage facilities including tanks, pumps, piping, valves, flanges, pumps, monitoring equipments, systems for emissions control safety controls including relief systems.
34. Arrangements to control loss/leakage of chemicals and management system in case of leakage.
35. Risk Assessment & Disaster Management Plan
 - Identification of hazards
 - Consequence Analysis
 - Details of domino effect of the storage tanks and respective preventive measures including distance between storage units in an isolated storage facility.
 - Onsite and offsite emergency preparedness plan.

B. Additional TOR:

- i. Public hearing to be conducted (Bhadurgarh district only) and issues raised and commitments made by the project proponent on the same should be included in

- EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made.
- ii. A separate chapter on status of compliance of Environmental Conditions granted by State/Centre to be provided. As per circular dated 30th May, 2012 issued by MoEF, a certified report by RO, MoEF on status of compliance of conditions on existing unit to be provided in EIA-EMP report.
 - iii. Full details of storage capacity expansion/augmentation to be provided alongwith with pumping station configuration.

It was recommended that '**TORs**' along with **Public Hearing** prescribed by the Expert Appraisal Committee (Industry) should be considered for preparation of EIA / EMP report for the above mentioned project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The draft EIA/EMP report shall be submitted to the State Pollution Control Board for public hearing. The issues emerged and response to the issues shall be incorporated in the EIA report.

5.4.4 Group Gathering Station (GGS-IV) and Water Injection Facility at Gamij at Tehsil Mehmedabad, district Kheda, Gujarat by M/s ONGC Ltd.- reg TOR.

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken along with the draft Term of References for the preparation of EIA-EMP. All the projects related to offshore and onshore Oil and Gas exploration, development and production are listed in para 1(b) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at central level.

M/s ONGC Ltd. has proposed for Group Gathering Station (GGS-IV) and Water Injection Facility at Gamij at Tehsil Mehmedabad, district Kheda, Gujarat. As per Form-1, it is reported that no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. lies within 10 km distance. Total cost of project is Rs. 97.27 Crores. Total are is 73000 m².

The proposed facility will be interlinked with development wells (406 nos) in oil field of Ahemdabad assets at Kheda, Gandinagar and Ahemdabad districts of Gujarat on which EC to be issued through file no. J-11011/92/2012-IA (I). PP has now separately seeking TOR for associated facility with another project. Proposed project covers the following facility

- 600m³/day capacity for Group Gathering Station-IV
- 1300m³/day of water injection capacity

Coordinates of Gamij GGS-IV are;

Latitude- 22° 55'7.9" (N)
 Longitudes- 72° 53' 25" (E)

- a. Facilities for well fluid processing, Gamji GGS-IV

S. No.	Facilities	Quantity
1.	Production Filed Headers & test headers connected to installation	34
2.	Group separator	1
3.	Test separator	1

4.	Gas Scrubber	1
5.	Bath heater	2
6.	Heater treater	3
7.	Storage tank	500 m3x4
8.	Test tank	1x45 m3
9.	Dispatch pump	3 x 25 m3/hr 65 kg/cm2
10.	Curde recirculation pump	2x 5 m3/hr, 5 kg/cm2
11.	Flare System	1 (45000 m3/d)

b. Water injection well

Facilities	Capacity	Quantity
Bore well pump	150 m3/hr	02
Inlet Storage tank (epoxy coated)	700m3	02
Filter feed pump	60 m3/hr, 5 kg/cm2	02
Coarse Filters (Packaged item)	60 m3/hr, 5 kg/cm2	02
Intermediate Filter (Packaged Item)	60m3/hr, 5 kg/cm2	02
Fine Filter	60m3/hr, 5 kg/cm2	02
Treated water tank	700m3	02
High Pressure Injection pump	60m3/hr, 150 kg/cm2	02
Nitrogen Generator	Purity of N ₂ 99.99%	01
Chemical Injection system		01

Approx. 80000 Kwh/month of power will be required and alternatively DG set of 400 KVA.

The liquid phase having oil, water and sediments is passed through heater treaters and subsequently stored in storage tanks. No treatment will be done at GGS IV except for heating. From storage tanks the liquid is pumped to another plant namely Nawagam Desalter Plant for desalting by knocking out the water. The effluent generated at Nawagam Desalter Plant is treated in ETP and subjected to underground injection below sub surface (1000 mts. or below) in compliance to the conditions prescribed in EPA Rule 1986.

Hazardous waste so generated such as spent oil, oil soaked cotton waste, containers of POL and chemicals and oily sludge generated during hydro testing of separators and heater treaters shall be stored at a designated place in the facility and will be managed as per Hazardous Waste (Management & Handling) Rules.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure (Refer Ministry's web site) for preparation of EIA-EMP report:

A. Standard TOR

1. Executive summary of a project.
2. Project description, project objectives and project benefits.

3. Cost of project and period of completion.
4. Site details within 1 km of the each proposed well, any habitation, any other installation/activity, flora and fauna, approachability to site, other activities including agriculture/land, satellite imagery for 10 km area. All the geological details shall be mentioned in the Topo sheet of 1:40000 scale, superimposing the well locations and other structures of the projects. Topography of the project site.
5. Details of sensitive areas such as National Park, Wildlife sanctuary and any other eco-sensitive area alongwith map indicating distance.
6. Approval for the forest land from the State/Central Govt. under Forest (Conservation) Act, 1980 as project involves forest land.
7. Distance from nearby critically/severely polluted area as per Notification, if applicable. Status of moratorium imposed on the area.
8. Does proposal involve rehabilitation and resettlement? If yes, details thereof.
9. Environmental considerations in the selection of the drilling locations for which environmental clearance is being sought. Present any analysis suggested for minimizing the foot print giving details of drilling and development options considered.
10. Baseline data collection for air, water and soil for one season leaving the monsoon season in an area of 10 km radius with centre of Oil Field as its centre covering the area of all proposed drilling wells.
11. Climatology and Meteorology including wind speed, wind direction, temperature rainfall relative humidity etc.
12. Details of Ambient Air Quality monitoring at 8 locations for PM_{2.5}, PM₁₀, SO₂, NO_x, CO, VOCs, Methane and non-methane HC.
13. Soil sample analysis (physical and chemical properties) at the areas located at 5 locations.
14. Ground and surface water quality in the vicinity of the proposed wells site.
15. Measurement of Noise levels within 1 km radius of the proposed wells.
16. Vegetation and land use; flora/fauna in the block area with details of endangered species, if any.
17. Incremental GLC as a result of DG set operation, flaring etc.
18. Potential environmental impact envisaged during various stages of project activities such as site activation, development, operation/ maintenance and decommissioning.
19. Actual source of water and 'Permission' for the drawl of water from the Competent Authority. Detailed water balance, wastewater generation and discharge.
20. Noise abatement measures and measures to minimize disturbance due to light and visual intrusions.
21. Details on wastewater generation, treatment and utilization /discharge for produced water/ formation water, cooling waters, other wastewaters, etc. during all project phases.
22. Details on solid waste management for drill cuttings, drilling mud and oil sludge, produced sand, radio active materials, other hazardous materials, etc. including its disposal options during all project phases.
23. Disposal of spent oil and lube.
24. Storage of chemicals and diesel at site. Hazardous material usage, storage and accounting.
25. Commitment for the use of water based mud (WBM) only
26. Oil spill emergency plans for recovery/ reclamation.
27. H₂S emissions control.
28. Produced oil/gas handling, processing and storage/transportation.
29. Details of control of air, water and noise pollution during production phase.
30. Measures to protect ground water and shallow aquifers from contamination.
31. Whether any burn pits being utilised for well test operations.
32. Risk assessment and disaster management plan for independent reviews of well designed construction etc. for prevention of blow out. Blowout preventer installation.
33. Environmental management plan.

34. Total capital and recurring cost for environmental control measures.
35. Emergency preparedness plan.
36. Decommissioning and restoration plans.
37. Documentary proof of membership of common disposal facilities, if any.
38. Details of environmental and safety related documentation within the company including documentation and proposed occupational health and safety Surveillance Safety Programme for all personnel at site. This shall also include monitoring programme for the environmental.
39. A copy of Corporate Environment Policy of the company as per the Ministry's O.M. No. J-11013/41/2006-IA.II(I) dated 26th April, 2011 available on the Ministry's website.
40. Any litigation pending against the project and or any direction/order passed by any court of law against the project. If so details thereof.

B. Additional TOR

- i. Public hearing to be conducted and issues raised and commitments made by the project proponent on the same should be included in EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made.
- ii. EIA report to be prepared with complete development with all details given in associated project of wells.

It was recommended that '**TORs' along with Public Hearing** prescribed by the Expert Appraisal Committee (Industry) should be considered for preparation of EIA / EMP report for the above mentioned project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The draft EIA/EMP report shall be submitted to the State Pollution Control Board for public hearing. The issues emerged and response to the issues shall be incorporated in the EIA report.

5.4.5 Exploratory Drilling of Twenty Nine (29) Wells in additional Ten (10) ML Blocks of Western Onshore Basin, District Mehsana-Patan, Gujarat by M/s ONGC Ltd.-reg TOR.

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken along with the draft Term of References for the preparation of EIA-EMP. All the projects related to offshore and onshore Oil and Gas exploration, development and production are listed in para 1(b) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at central level.

M/s ONGC Ltd. has proposed for Exploratory Drilling of Twenty Nine (29) Wells in additional Ten (10) ML Blocks of Western Onshore Basin, District Mehsana-Patan, Gujarat. As per Form-1, it is reported that no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. lies within 10 km distance. Total cost of project is Rs. 295 Crores. The Committee noted that PP has not submitted adequate toposheet. Drilling will be done at depth of 3000 mts. During drilling operations, about 55-60 persons may be working in 8 hours shift at site. Once drilling is over no person is required except security cover.

EC for this area has been granted for drilling 103 exploratory wells in 30 blocks vide file no. J-11011/125/2011-IA II(I), dt: 18.09.2014. The said ML blocks are with ONGC since 1965 with 100% operatorship. In support of the long term hydrocarbon exploration program, ONGC proposed to drill exploratory wells in the said ML Blocks in deeper prospects. The blocks are located adjacent to other oil fields of ONGC and ONGC is operating these nearby oil fields since long time and are having proven hydrocarbon reserves.

Approximately 110 m x 110 m land shall be taken on lease for a drilling a single well.

Details of blocks are as follow:

Sl. No.	Name of Block	Area of Block	Wells already drilled	Wells proposed be to drilled	Targeted depth of wells in Meter
1	Lanwa Ext.-1 ML	2.148	167	1	3000
2	Lanwa ML	30.00		3	3000
3	Mehsana City ML	8.850	6	2	3000
4	Balol ML	24.004	259	3	3000
5	Geratpur ML	18.310	6	4	3000
6	Santhal ML	19.460	313	3	3000
7	Dedna ML	5.441	1	1	3000
8	Jotana Ext.-1 ML	57.700	201	8	3000
9	Bechraji ML	37.110	192	3	3000
10	Chanasma ML	2.813	4	1	3000

Approx. 3 m³ per day of wastewater will be generated from drill operations in each well which will contain only drill cutting wash water and will be disposed in HDPE lined pit at site and will be solar dried. 1 m³ per day waste water shall be generated from domestic activity for each well and will be discharged in soak pit.

D.G. sets will be used during drilling operation. Acoustic enclosures will be provided to D.G. sets. Consumption of fuel (HSD) during drilling operations will be approximately 3-4 KL/day. About 200 M³ Drill Cuttings shall be generated per well. All quantities will be below specified thresholds for storage permits under the MSIHC Rules. Precautionary measures will be taken as per The Hazardous Wastes (Management, Handling and Trans-boundary Movement) Amendment Rules, 2009.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure (Refer Ministry's web site) for preparation of EIA-EMP report:

A. Standard TOR

- 1 Executive summary of a project.
- 2 Project description, project objectives and project benefits.
- 3 Cost of project and period of completion.
- 4 Site details within 1 km of the each proposed well, any habitation, any other installation/activity, flora and fauna, approachability to site, other activities including agriculture/land, satellite imagery for 10 km area. All the geological details shall be mentioned in the Topo sheet of 1:40000 scale, superimposing the well locations and other structures of the projects. Topography of the project site.
- 5 Details of sensitive areas such as National Park, Wildlife sanctuary and any other eco-sensitive area alongwith map indicating distance.
- 6 Approval for the forest land from the State/Central Govt. under Forest (Conservation) Act, 1980 as project involves forest land.

- 7 Distance from nearby critically/severely polluted area as per Notification, if applicable. Status of moratorium imposed on the area.
- 8 Does proposal involve rehabilitation and resettlement? If yes, details thereof.
- 9 Environmental considerations in the selection of the drilling locations for which environmental clearance is being sought. Present any analysis suggested for minimizing the foot print giving details of drilling and development options considered.
- 10 Baseline data collection for air, water and soil for one season leaving the monsoon season in an area of 10 km radius with centre of Oil Field as its centre covering the area of all proposed drilling wells.
- 11 Climatology and Meteorology including wind speed, wind direction, temperature rainfall relative humidity etc.
- 12 Details of Ambient Air Quality monitoring at 8 locations for PM_{2.5}, PM₁₀, SO₂, NO_x, CO, VOCs, Methane and non-methane HC.
- 13 Soil sample analysis (physical and chemical properties) at the areas located at 5 locations.
- 14 Ground and surface water quality in the vicinity of the proposed wells site.
- 15 Measurement of Noise levels within 1 km radius of the proposed wells.
- 16 Vegetation and land use; flora/fauna in the block area with details of endangered species, if any.
- 17 Incremental GLC as a result of DG set operation, flaring etc.
- 18 Potential environmental impact envisaged during various stages of project activities such as site activation, development, operation/ maintenance and decommissioning.
- 19 Actual source of water and 'Permission' for the drawl of water from the Competent Authority. Detailed water balance, wastewater generation and discharge.
- 20 Noise abatement measures and measures to minimize disturbance due to light and visual intrusions.
- 21 Details on wastewater generation, treatment and utilization /discharge for produced water/ formation water, cooling waters, other wastewaters, etc. during all project phases.
- 22 Details on solid waste management for drill cuttings, drilling mud and oil sludge, produced sand, radio active materials, other hazardous materials, etc. including its disposal options during all project phases.
- 23 Disposal of spent oil and lube.
- 24 Storage of chemicals and diesel at site. Hazardous material usage, storage and accounting.
- 25 Commitment for the use of water based mud (WBM) only
- 26 Oil spill emergency plans for recovery/ reclamation.
- 27 H₂S emissions control.
- 28 Produced oil/gas handling, processing and storage/transportation.
- 29 Details of control of air, water and noise pollution during production phase.
- 30 Measures to protect ground water and shallow aquifers from contamination.
- 31 Whether any burn pits being utilised for well test operations.
- 32 Risk assessment and disaster management plan for independent reviews of well designed construction etc. for prevention of blow out. Blowout preventer installation.
- 33 Environmental management plan.
- 34 Total capital and recurring cost for environmental control measures.
- 35 Emergency preparedness plan.
- 36 Decommissioning and restoration plans.
- 37 Documentary proof of membership of common disposal facilities, if any.
- 38 Details of environmental and safety related documentation within the company including documentation and proposed occupational health and safety Surveillance Safety Programme for all personnel at site. This shall also include monitoring

programme for the environmental.

- 39 A copy of Corporate Environment Policy of the company as per the Ministry's O.M. No. J-11013/41/2006-IA.II(I) dated 26th April, 2011 available on the Ministry's website.
- 40 Any litigation pending against the project and or any direction/order passed by any court of law against the project. If so details thereof.

B. Additional TOR

- i. Public hearing to be conducted and issues raised and commitments made by the project proponent on the same should be included in EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made.
- ii. Coordinates of wells should be defined in EIA-EMP report.
- iii. A separate chapter on status of compliance of Environmental Conditions granted by State/Centre to be provided. As per circular dated 30th May, 2012 issued by MoEF, a certified report by RO, MoEF on status of compliance of conditions on existing unit to be provided in EIA-EMP report.
- iv. Adequate topo- sheet to be provided in the report.

It was recommended that '**TORs**' along with **Public Hearing** prescribed by the Expert Appraisal Committee (Industry) should be considered for preparation of EIA / EMP report for the above mentioned project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The draft EIA/EMP report shall be submitted to the State Pollution Control Board for public hearing. The issues emerged and response to the issues shall be incorporated in the EIA report.

5.4.6 Exploratory drilling of 11 wells for shale oil/shale gas in Cambay basin, at districts Mehsana, Ahembabad , Bharuch, Gujarat by M/s ONGC Ltd. – reg TOR.

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken along with the draft Term of References for the preparation of EIA-EMP. All the projects related to offshore and onshore Oil and Gas exploration, development and production are listed in para 1(b) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at central level.

M/s ONGC Ltd. has proposed for Exploratory drilling of 11 wells for shale oil/shale gas in Cambay basin, at districts Mehsana, Ahembabad , Bharuch, Gujarat. As per Form-1, it is reported that no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. lies within 10 km distance. Total cost of project is Rs. 366 Crores. During drilling operations, about 55-60 persons may be working. Once drilling is over no person is required except security cover. Drilling will be done at depth of 2000-4500 mts. Approximately 110 m x 110 m land shall be taken on lease for a drilling a single well. During drilling operations, about 55-60 persons may be working in 8 hours shift at site. Once drilling is over no person is required except security cover.

Details of blocks for drilling of shale gas/ oil wells

SI No	Basin	Block Name	Main objective
1	Cambay	Gandhar Ext-III	Cambay Shale
2	Cambay	Gandhar Ext-V	Cambay Shale
3	Cambay	Gandhar Ext-VII	Cambay Shale
4	Cambay	Gandhar Ext-IX	Cambay Shale
5	Cambay	Pakhajan Ext-II	Cambay Shale
6	Cambay	Nawagam	Cambay Shale

7	Cambay	Nandej East	Cambay Shale
8	Cambay	Paliyad – Kalol - Limbodra	Cambay Shale
9	Cambay	Kalol W Ext-I Addl Areas (I, II, III, IV)	Cambay Shale
10	Cambay	Jotana - Warosan	Cambay Shale
11	Cambay	Nandasan - Langhnaj	Cambay Shale

During presentation, PP informed that Assessment well for shale gas & oil is similar to conventional exploratory well in the sense that initial shale gas wells are primarily vertical like any other conventional exploratory well. In terms of the target depth, casing policy, water consumption, drilling, testing and completion plan, the two types of wells are nearly identical. The shale cores collected from these wells are used to assess the potential of the shale gas and oil in the formations. Based on the evaluation of core/ cutting samples and log data collected in these assessment wells, prospective zones in the source rock shale formation will be identified for hydro fracturing and production testing. Approximately 110 m x 110 m land shall be taken on lease for a drilling a single well

Total 3 DG sets (1250 HP) (one stand by) will be required using aprox. 250 to 300 liter of fuel (HSD) per hour. Water of 30 M3/day for drilling and 400-600 m3 one time per well during hydro-fracturing job will be required. Approx. 3 m3 per day of waste water will be generated from drill operations in each well which will contain only drill cutting wash water and will be disposed in HDPE lined pit at site and the same shall be solar dried. About 1 m3 per day waste water shall be generated from domestic activity for each well and will be discharged in soak pit. About 225 - 250 m3 of Drill Cuttings will be produced which will be managed as per Hazardous waste rules 2008, amended till date.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure (Refer Ministry's web site) for preparation of EIA-EMP report:

A. Standard TOR

1. Executive summary of a project.
2. Project description, project objectives and project benefits.
3. Cost of project and period of completion.
4. Site details within 1 km of the each proposed well, any habitation, any other installation/activity, flora and fauna, approachability to site, other activities including agriculture/land, satellite imagery for 10 km area. All the geological details shall be mentioned in the Topo sheet of 1:40000 scale, superimposing the well locations and other structures of the projects. Topography of the project site.
5. Details of sensitive areas such as National Park, Wildlife sanctuary and any other eco-sensitive area alongwith map indicating distance.
6. Approval for the forest land from the State/Central Govt. under Forest (Conservation) Act, 1980 as project involves forest land.
7. Distance from nearby critically/severely polluted area as per Notification, if applicable. Status of moratorium imposed on the area.
8. Does proposal involve rehabilitation and resettlement? If yes, details thereof.
9. Environmental considerations in the selection of the drilling locations for which environmental clearance is being sought. Present any analysis suggested for minimizing the foot print giving details of drilling and development options considered.
10. Baseline data collection for air, water and soil for one season leaving the monsoon season in an area of 10 km radius with centre of Oil Field as its centre covering the area of all proposed drilling wells.

11. Climatology and Meteorology including wind speed, wind direction, temperature rainfall relative humidity etc.
12. Details of Ambient Air Quality monitoring at 8 locations for PM_{2.5}, PM₁₀, SO₂, NO_x, CO, VOCs, Methane and non-methane HC.
13. Soil sample analysis (physical and chemical properties) at the areas located at 5 locations.
14. Ground and surface water quality in the vicinity of the proposed wells site.
15. Measurement of Noise levels within 1 km radius of the proposed wells.
16. Vegetation and land use; flora/fauna in the block area with details of endangered species, if any.
17. Incremental GLC as a result of DG set operation, flaring etc.
18. Potential environmental impact envisaged during various stages of project activities such as site activation, development, operation/ maintenance and decommissioning.
19. Actual source of water and 'Permission' for the drawl of water from the Competent Authority. Detailed water balance, wastewater generation and discharge.
20. Noise abatement measures and measures to minimize disturbance due to light and visual intrusions.
21. Details on wastewater generation, treatment and utilization /discharge for produced water/ formation water, cooling waters, other wastewaters, etc. during all project phases.
22. Details on solid waste management for drill cuttings, drilling mud and oil sludge, produced sand, radio active materials, other hazardous materials, etc. including its disposal options during all project phases.
23. Disposal of spent oil and lube.
24. Storage of chemicals and diesel at site. Hazardous material usage, storage and accounting.
25. Commitment for the use of water based mud (WBM) only
26. Oil spill emergency plans for recovery/ reclamation.
27. H₂S emissions control.
28. Produced oil/gas handling, processing and storage/transportation.
29. Details of control of air, water and noise pollution during production phase.
30. Measures to protect ground water and shallow aquifers from contamination.
31. Whether any burn pits being utilised for well test operations.
32. Risk assessment and disaster management plan for independent reviews of well designed construction etc. for prevention of blow out. Blowout preventer installation.
33. Environmental management plan.
34. Total capital and recurring cost for environmental control measures.
35. Emergency preparedness plan.
36. Decommissioning and restoration plans.
37. Documentary proof of membership of common disposal facilities, if any.
38. Details of environmental and safety related documentation within the company including documentation and proposed occupational health and safety Surveillance Safety Programme for all personnel at site. This shall also include monitoring programme for the environmental.
39. A copy of Corporate Environment Policy of the company as per the Ministry's O.M. No. J-11013/41/2006-IA.II(I) dated 26th April, 2011 available on the Ministry's website.
40. Any litigation pending against the project and or any direction/order passed by any court of law against the project. If so details thereof.

B. Additional TOR

- i. Public hearing to be conducted and issues raised and commitments made by the project proponent on the same should be included in EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made.
- ii. Coordinates of wells should be defined in EIA-EMP report.

It was recommended that '**TORs' along with Public Hearing** prescribed by the Expert Appraisal Committee (Industry) should be considered for preparation of EIA / EMP report for the above mentioned project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The draft EIA/EMP report shall be submitted to the State Pollution Control Board for public hearing. The issues emerged and response to the issues shall be incorporated in the EIA report.

5.5 Any other

5.5.1 Exploratory drilling for oil & gas North Assam Shelf Block in Geleki-Namti area in Sivasagar district in Assam by M/s ONGC- reg extension of EC. {J-11011/623/2007-IA II (I)}

MoEF&CC vide letter no J-110111/623/2007-IA II(I) dated 20th October, 2007 has granted environmental clearance to M/s ONGC for exploratory drilling for oil & gas North Assam Shelf Block in Geleki-Namti area in Sivasagar district in Assam.

Now, PP has applied for extension of validity of EC letter dated 20.10.2007 on 29.01.2016 after expiry of validity of environmental clearance. Therefore, the Committee suggested them to apply afresh.

5.6 Terms of Reference

5.6.1 Proposal for expansion project in the existing LPG Import/Export Terminal with existing storage capacity 31500 MT at Kasberia, Midnapore, West Bengal by M/s Indian Oil Petronas Pvt. Ltd.- reg EC.

The project proponent and their consultant (M/s Projects & Development India Ltd.) gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken as per Draft Terms of References (TORs) awarded during the 46th Meeting of the Expert Appraisal Committee (Industry) held during 20th to 21st August, 2015 for preparation of EIA-EMP report. All the Isolated Storage & Handling of hazardous chemicals (as per threshold planning quantity indicated in column 3 of schedule 2 & 3 of MSIHC Rules 1989 amended 2000) activities is listed at 6(b) of the Schedule of EIA Notification, 2006 under category 'B' and appraised at State level. However, due to applicability of General Condition i.e. location of project in CPA (Haldia), Proposal is treated as Category 'A' project and appraised at Central Level.

M/s Indian Oil Petronas has proposed for expansion project in the existing LPG Import – Export Terminal with existing storage capacity 31500MT at Village Kasberia, Mouza Bardhanyaghata, District East Midnapur, West Bengal. It is reported that there is no Wildlife Sanctuary, National Park and Biosphere Reserve in the entire Study Area. No Endemic, Threatened or Endangered species are found or sited in the Study Area.

The LPG Import / Export Terminal of IPPL at Haldia is meant for dedicated storage of propane and butane in refrigerated state with in-tank pumps, heating system, online blending

of Propane & Butane for producing LPG, mercaptan dosing and transfer to road tanker loading gantry (2 x 8 bays) for loading in road tankers. The existing as well as proposed expansion capacity of the Terminal is furnished below:

Name of Product	Existing Capacity (MT)	Proposed Capacity Expansion (MT)	Total Capacity after Expansion (MT)
LPG	31500	5400	36900

After installation of 3 bullet of aggregate capacity of 5400 MT total storage capacity will increase. Total 79.78 acres of land is under possession of IPPL and expansion will be done in the existing premises. The total project cost for the proposed expansion is around Rs 75 Crores.

Additionally, the PP informed the Committee that ambient air quality monitoring was carried out at 6 locations during November 2014 to February 2015 and submitted baseline data indicates that ranges of concentrations of PM₁₀ (23 µg/m³ to 92.4 µg/m³), PM_{2.5} (11.6 µg/m³ to 43.7 µg/m³), SO₂ (5.3 µg/m³ to 8.1 µg/m³) and NOx (14.2 µg/m³ to 50.2 µg/m³) respectively. AAQ modeling study for point source emissions indicates that the maximum incremental GLCs after the proposed project would be 0.56 µg/m³, 0.43 µg/m³ and 6.93 µg/m³ with respect to PM, SO₂ and NOx. The resultant concentrations are within the NAAQS. Water requirement from Haldia Development Authority will be 150 m³/day after expansion. During rainy season the storm water will be discharged through vapour trap/rain water harvesting pond. Existing blending and ethyl mercaptan dosing is done as per IS code.

The Committee deliberated upon the issues raised during the Public Hearing / Public Consultation meeting conducted by the West Bengal Pollution Control Board on 18th June, 2015. The issues were raised regarding local development, CSR, degradation of local roads, local employment etc. The Committee noted that issues have satisfactorily been responded by the project proponent and incorporated in the final EIA-EMP report.

After detailed deliberations, the Committee found the final EIA/EMP report adequate and suggested to stipulate following specific conditions alongwith other environmental conditions while considering for accord of environmental clearance:

- i) Adequate buffer zone around the storage tankages, as may be required as per OISD or other statutory requirements.
- ii) Regular online monitoring of VOC, mercaptan and HC in the work zone area in the plant premises should be carried and data be submitted to Ministry's Regional Office at Bhubaneshwar, CPCB and State Pollution Control Board.
- iii) Total fresh water requirement from Haldia Development Authority shall not exceed 150 m³/day and prior permission should be obtained from the concerned Authority. No ground water shall be used.
- iv) The company shall construct the garland drain all around the project site to prevent runoff of any oil containing waste into the nearby water bodies. Separate drainage system shall be created for oil contaminated and non-oil contaminated streams. During rainy season, the storm water drains shall be connected to oil water separator and passed through guard pond. Water quality monitoring of guard pond shall be

conducted and ensured that monitoring parameters shall not exceed the prescribed standards.

- v) Domestic effluent shall be treated in the STP. Treated effluent shall be recycled/reused for gardening and horticulture purpose. No effluent shall be discharged outside the premises.
- vi) Storm water should pass through efficient oil and grease catchers to trap leaked oil and grease.
- vii) Oil Industry Safety Directorate guidelines regarding safety against fire, spillage, pollution control etc. shall be followed. Company should ensure no oil spillage occur during loading / unloading of petroleum products.
- viii) The project authorities shall strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989, as amended in 2000 and the Public Liability Insurance Act for handling of hazardous chemicals etc. All the hazardous waste shall be properly treated and disposed of in accordance with the Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules 2008 and its subsequent amendments.
- ix) Necessary approvals from Chief Controller of Explosives must be obtained before commission of project. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.
- x) The company shall obtain all requisite clearances for fire safety and explosives and shall comply with the stipulation made by the respective authorities.
- xi) All storage tanks shall be provided with design features based on applicable OISD standards.
- xii) Emergency Response Plan shall be based on the guidelines prepared by OISD, DGMS and Govt. of India. Mock drill shall be conducted once in a month.
- xiii) Occupational health surveillance of worker shall be done on a regular basis and records maintained as per the Factory Act.
- xiv) At least 10 meter wide thick green belt shall be developed on all sides along the periphery of the project area, in downward direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.
- xv) The Company shall harvest surface as well as rainwater from the rooftops of the buildings proposed in the project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.
- xvi) All the recommendations mentioned in the EMP/DMP shall be implemented.

5.6.2 Proposal for modification of existing Tarapur EPS and connection of additional wells to the same EPS to enhance the production in CB-ON-2 Tarapur Block, Dist. Anand, Gujarat by M/s Gujarat State Petroleum Corporation Ltd. (GSPC)-reg EC.

The project proponent and their consultant (M/s Kadam Environmental Consultants) gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken as per Draft Terms of References (TORs) awarded during the 21st Meeting of the Expert Appraisal Committee (Industry) held

during 30th to 1st August, 2014 for preparation of EIA-EMP report. All the projects related to offshore and onshore Oil and Gas exploration, development and production are listed in para 1(b) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at central level.

M/s Gujarat State Petroleum Corporation Ltd. (GSPC) has proposed for modification of existing Tarapur EPS and connection of additional wells to the same EPS to enhance the production in CB-ON-2 Village Milarampura, Tarapur Block, District Anand, Gujarat. Existing plot area is 24618.08m². Cost of project is Rs. 3.4 Crore. Connection of additional 12 wells to the EPS, the expected to increase the production is as given below:

Sl. No.	Detail	Existing (m3/day)	Additional (m3/day)	Total (m3/day)
1	Crude Oil	10	202	212
2	Natural Gas	10800	59550	70350

It was informed that Environmental Clearance was obtained from drilling of 9 wells and setting up of EPS in Tarapur Block vide letter no J-11011/216/2009 IA II (I) dated 16.06.2009. With the modification, wells connected to EPS will be 15 nos. Separators (4 nos.) with liquid handling capacity (1500 BOPD & Gas handling capacity 2000 m³/hr.) Storage tanks will be 9 Nos. of 45 m³ etc. DG set (63.5 KVA) will be used only in case power failure. Water consumption will be increased from 1 m³/day to 9.0 m³/day. Produced water generation will be increased from 0.5 m³/day to 50 m³/day after modification. Produced water generated will be collected in wastewater pit (200 m³) will either disposed through mobile ETP or sent through approved water tankers to authorized EPT.

Additionally, PP informed the Committee that ambient air quality monitoring was carried out at 8 locations during Summer Season of the year 2015 and submitted baseline data which indicates that ranges of concentrations of PM₁₀ (12 µg/m³ to 94 µg/m³), SO₂ (8 µg/m³ to 11.9µg/m³) and NOx (12.7 µg/m³ to 22.5 µg/m³) respectively. AAQ modeling study for point source emissions indicates that the maximum incremental GLCs after the proposed project would be 0.172 µg/m³, 23.2 µg/m³ and 0.18 µg/m³, with respect to SO₂, NOx and PM,. The resultant concentrations are within the NAAQS. Water requirement from ground water source will be 9 m³/day. Produced water generation from EPS will be 50 m³/day, which will be stored in the lined pit. After treatment for oil & grease and suspended solids, the produced water will be sent to CETP or injected to abandoned well.

The Committee discussed the certified compliance report dated 10.09.2015 issued by the MoEF&CC, Regional Office, Bhopal. The Committee noted that most of points in existing EC are reported to be non-compliance by Regional Office. The Committee expressed dissatisfaction with the response of the PP.

The Committee deliberated upon the issues raised during the Public Hearing / Public Consultation meeting conducted by the Gujarat Pollution Control Board on 8th September, 2015. The issues were raised regarding impact due to flared gas, waste spread, local employment etc. The Committee noted that issues have satisfactorily been responded by the project proponent and incorporated in the final EIA-EMP report.

After detailed deliberations, the Committee recommended that PP should submit action taken report alongwith photographs on the non complied points to the Regional Office, Bhopal. Ministry should also seek the status report from the Regional Office and placed before the EAC. The proposal was deferred till the desired information is submitted. The above information shall be provided with the uploading of minutes on the website.

5.6.3 MS quality up-gradation & HSD quality up-gradation at Tehsil Baruni, district Begusarai, Bihar by M/s IOCL Barauni refinery. – EC regarding.

The project proponent and their consultant (M/s Envirotech East Pvt. Ltd.) gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken as per Draft Terms of References (TORs) awarded during the 30th Meeting of the Expert Appraisal Committee (Industry) held during 22nd to 23rd December, 2014 for preparation of EIA-EMP report. All the Petroleum Refinery Plants are listed at S.N. 4(a) under Category 'A' and appraised at the Central level.

M/s IOCL Barauni refinery has proposed following projects :

i) Replacement of reactors & allied modernization jobs of Coker A and Installation of Biturox Unit at IOCL Barauni Refinery

(a) Coker A revamp project:

Existing reactors/coke drums have been in operation for the last 30 years and already outlived its life. In this project, the coke drums will be replaced with higher metallurgy to process high sulphur feed. It may be mentioned that no capacity augmentation is envisaged in the project however certain automation facilities like automatic heading-un heading devices, coke drum level indication, coke cutting system etc are proposed. In addition, energy optimization measures are also proposed by adding 5 numbers of new heat exchangers in preheat circuit and one furnace will be decommissioned out of total two furnaces.

(b) New Biturox Unit

Installation of Biturox plant at Barauni Refinery is intended for the production of 150TMTPA Bitumen to meet the region's demand. Different grades of Bitumen viz VG-10, 20, 30 & 40 shall be produced from this unit.

ii) BS-IV Project: MS Quality Up-gradation & HSD Quality Up-gradation at IOCL Barauni Refinery in line with Auto Fuel policy.

Total BS-IV MS/HSD supply being statutory requirement, low cost option has been explored with maximum utilization of the existing assets i.e, revamp of existing units has been considered instead of new units to the extent feasible. With the above facilities, at current crude processing capacity of 6.3 MMTPA the refinery can produce about 1.3 MMTPA and 3.2 MMTPA of BS-IV MS & HSD respectively along with flexibility to produce 25 % of Euro V specifications. Comparison of units T'put in BS-IV scenario vis- a- vis current actual operating /design capacity is compiled below:

Attribute Unit Capacity (Figures in MMTPA)	Design	BS-III Scenario (Actual 2013-14)	BS-IV Scenario (Post Project)
Crude T'put	6.00	6.47	6.30
High Sulphur Crude %	13-15	8.98	19.70
Coker A : T' put	0.60	0.38	0.26
Coker B : T' put	0.50	0.12	0.00
RFCCU : T' put	1.43	1.69	1.70
Biturox : T' put	0.15	-	0.15
DHDT : T' put	2.20	2.49	3.30
CRU : T' put	0.30	0.36	0.47

NHDT : T' put	0.18	0.25	0.24
ISOM : T' put	0.13	0.23	0.25
Prime G+	0.4 (0.32+0.08)	0.27	0.76
SRU	80 MTPD	28.4 MTPD	59.54 MTPD

Products	2013-14 (Pre-Scenario)		BS-IV (Post Scenario)	
	MT	%	MT	%
L.P.G.	316882	4.88%	301800	4.79%
S R N	124689	1.92%	92000	1.46%
M S(BS-III)	1190518	18.35%	0	0.00%
MS (BS-IV)	0	0.00%	1302300	20.67%
S K	820005	12.64%	118200	1.87%
H S D (B S - III)	3249279	50.08%	0	0.00%
H S D (BS - IV)	0	0.00%	3501300	55.57%
L S H S / I F O	-116	0.00%	0	0.00%
R P C	124199	1.91%	107300	1.72%
FO	67204	1.04%	114400	1.81%
Bitumen	-1465	-0.02%	149800	2.37%
C B F S	47043	0.73%	33300	0.52%
SULFUR	10253	0.16%	21400	0.34%
Intermediate Stock Difference	-42125	-0.65%	0	0.00%
Fuel & Loss	582170	8.97%	558200	8.88%
Total Output	6488537	100%	6300000	100.00%
	6.48 MTPA		6.3 MTPA	

Cost of the project is Rs. 1879 Crore. Proposed plant will be installed in the existing premises. Refinery is located at a distance of 8 km from the bank of River Ganga.

Additionally, the PP informed the Committee that ambient air quality monitoring was carried out at 5 locations during April, 2014 - March, 2015 and submitted baseline data indicates that ranges of concentrations of PM₁₀ (58.63 µg/m³ to 84.13 µg/m³), PM_{2.5} (19.33 µg/m³ to 34.25 µg/m³), SO₂ (4.63 µg/m³ to 14.43 µg/m³) and NO₂ (12.5 µg/m³ to 24.00 µg/m³) respectively. AAQ modeling study for point source emissions indicates that the maximum incremental GLCs after the proposed project would be 66.9 µg/m³ and 9.4 µg/m³ with respect to SO₂ and NO_x. The committee noted the higher incremental concentration of SO₂.

IOCL Barauni refinery have limit of 1035 kg/hr as per EC letter dated 18.03.2008 granted by MoEF&CC. Presently Barauni Refinery SO₂ emission is between 690-720 Kg/hr. After installation of proposed project, the overall SO₂ emission of refinery will be 870-920 Kg/hr. Fresh water requirement will be reduced from 689 m³/hr to 651 m³/day after expansion. PP informed that RO plant is being installed in the ETP/BTP for maximization of reuse in Refinery Operation. Refinery effluent generation will be 323 m³/hr after installation of proposed project. ETP is designed for effluent flow of 600 m³/hr (Dry Weather) flow or 1000 m³/hr (wet weather flow). The Committee noted that PP has not submitted many TOR points as suggested in the EAC (Industry) meeting held during 22nd-23rd December, 2014. Therefore, the Committee sought following addl. information :

- 1) Total Plot area of the refinery. Area earmarked for greenbelt. A layout plan may be submitted.
- 2) Point wise TOR compliance statement.
- 3) Details of Sulphur balance in the existing and proposed Refinery.
- 4) GLC for post project SO₂ emission is estimated to be 66.9 µg/m³, which seems to be in higher side. Recheck the prediction modeling or clarify with reasons. In this context, air pollution Control measures to be given appropriately to reduce the GLC for SO₂ emissions.
- 5) Proposed unit wise air pollution control devices.
- 6) Complete water balance chart indicating total water requirement, water losses, wastewater generation and water recycled.
- 7) Whether unit is a zero discharge unit or plan to be dawn for complete ZLD of existing and proposed expansion.
- 8) Oily sludge management plan.

The Committee underrated the performance of the Consultant.

After detailed deliberations, the Committee recommended that site visit should be undertaken by the Sub-Committee of EAC to assess the existing environmental scenario and recommend the additional environmental protection measures to be undertaken by the above mentioned project. The site visit will be undertaken after receiving the above mentioned addl. information.

5.6.4 Proposed surface production facilities- two nos. wells in CB- ONN-2003/2 at district Bharuch, Gujarat by M/s Gujarat State Petroleum Corporation Ltd. (GSPCL).

The project proponent and their consultant (M/s Detox Corporation Ltd.) gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken as per Draft Terms of References (TORs) awarded during the 4th Meeting of the Expert Appraisal Committee (Industry) held during 8th to 9th January, 2013 for preparation of EIA-EMP report. All the projects related to offshore and onshore Oil and Gas exploration, development and production are listed in para 1(b) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at central level.

M/s Gujarat State Petroleum Corporation Ltd. has proposed for setting up of two surface facilities in (Ank #21 and Ank# 40S) Ankleshwar Taluka of Bharuch district. No Forest land is involved. It is reported that no National Park/ Wildlife Sanctuary is located

within 10 km radius of the project site. Narmada River is flowing at a distance of 3 Kms. However, tributaries of Narmada River is flowing at a distance of 0.73 km. Cost of project of each facility is Rs. 1.0 Crore. Details of surface facilities are as given below:

S.No.	Facility name	Latitude/Longitude	Survey No	Location	Area	Production
1.	ANK#21: SURFACE PRODUCTION FACILITY	Latitude : 21°39'6.07"N Longitude : 72°59'44.05" E	85/2	Diwi village, Bharuch district	18256 m ²	Crude oil: 3-5 SCM/day, Water: 1-3 SCM/day and Gas: 90-150 SCM/day
2.	ANK#40 S: SURFACE PRODUCTION FACILITY	Latitude : 21°38'15"N Longitude : 72°58'8.2" E	99/3, 100/1, 100/2, 100/4, 102/2, 269	Diwa village, Bharuch district	21686 m ²	Crude oil :6-7 SCM /day, Water: 3-4 SCM/day and Gas: 180-200 SCM/day

The production profile at respective wells is as mentioned below

Proposed EPS	EPS ANK#21	EPS ANK#40S
Products		
Crude oil	3-5 m3/day	6-7 m3/day
Associate Gas	90-150 m3/day	180-200 m3/day

Additionally, PP informed the Committee that ambient air quality monitoring was carried out at 6 locations during December 2013-January, 2014 and submitted baseline data indicates that ranges of concentrations of PM₁₀ (72 µg/m³ to 148 µg/m³), PM_{2.5} (13 µg/m³ to 59 µg/m³), SO₂ (2.73 µg/m³ to 9.50 µg/m³) and NO_x (9.92 µg/m³ to 38.02 µg/m³) respectively. AAQ modelling study for point source emissions indicates that the maximum incremental GLCs after the proposed project would be 0.244 µg/m³, 0.403 µg/m³ and 1.837 µg/m³, with respect to PM, SO₂ and NO_x. The resultant concentrations are within the NAAQS except PM₁₀. Water requirement from ground water source will be 2.2 m3/day/ EPS. Produced water generation in each EPS will be 3 m3/day, which will be stored in the lined pit. After treatment for oil & grease and suspended solids, produced water will be sent to CETP or injected to abandoned well. Excess associated gas will be burnt by flaring having stack height of 9 m.

The Committee discussed the certified compliance report dated 24.09.2015 issued by the MoEF&CC, Regional Office, Bhopal. The Committee noted that non-compliances points w.r.t. monitoring. PP committed to comply with environmental conditions. The Committee was satisfied with the response.

The Committee deliberated upon the issues raised during the Public Hearing / Public Consultation meeting conducted by the Gujarat Pollution Control Board on 10th July, 2014. The issues were raised regarding adverse impact on crop; height of flaring stack; solid waste disposal; local employment; CSR etc. The Committee noted that issues have satisfactorily been responded by the project proponent and incorporated in the final EIA-EMP report.

After detailed deliberations, the Committee, on the basis of the additional information provided and presentation made recommended the project for environmental clearance and stipulated following specific conditions along with other environmental conditions while considering for accord of environmental clearance:

- i. State Pollution Control Board shall grant consent to operate after ensuring that unit is complied with all the conditions stipulated in the said EC.
- ii. 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.
- iii. VOC shall be monitored regularly in the ambient air.
- iv. Total fresh water requirement from tanker supply shall not exceed 4.4 m³/day.
- v. Produced water shall be sent to CETP after meeting the standards prescribed by the SPCB. No process effluent should be discharged in and around the project site.
- vi. Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.
- vii. Oil spillage prevention and mitigation scheme shall be prepared. In case of oil spillage/contamination, action plan shall be prepared to clean the site by adopting proven technology. The recyclable waste (oily sludge) and spent oil shall be disposed of to the authorized recyclers/re-processors.
- viii. The Company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. Possibility of using ground flare shall be explored. At the place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during operation.
- ix. The company shall develop a contingency plan for H₂S release including all necessary aspects from evacuation to resumption of normal operations. The workers shall be provided with personal H₂S detectors in locations of high risk of exposure along with self containing breathing apparatus.
- x. Emergency Response Plan (ERP) shall be based on the guidelines prepared by OISD, DGMS and Govt. of India.
- xi. All the commitments made to the public during public hearing/public consultation meeting held on 10th July, 2014 shall be satisfactorily implemented and adequate budget provision shall be made accordingly.
- xii. Occupational health surveillance of the workers shall be carried out as per the prevailing Acts and Rules.
- xiii. Company shall have own Environment Management Cell having qualified persons with proper background.
- xiv. Company shall prepare operating manual in respect of all activities. It shall cover all safety & environment related issues and system. Measures to be taken for protection. One set of environmental manual shall be made available at the drilling site/ project site. Awareness shall be created at each level of the management. All the schedules and results of environmental monitoring shall be available at the project site office. Remote monitoring of site should be done.
- xv. On completion of project, the company has to plug the drilled wells safely and obtain certificate from environment safety angle from the concerned authority.

5.6.5 Drilling of Development well (108 nos.) in oil field of Ahmedabad Asset of ONGC Ltd. at Mehsana and Gandhinagar Gujarat by M/s ONGC Ltd. - EC

The project proponent and their consultant (M/s Kadam Environmental Consultants) gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken as per Draft Terms of References (TORs) awarded during the 34th Meeting of the Expert Appraisal Committee (Industry) held during 13th to 14th April, 2012 for preparation of EIA-EMP report. All the projects related to offshore and onshore Oil and Gas exploration, development and production are listed in para 1(b) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at central level.

M/s Oil & Natural Gas Corporation Ltd. has proposed for drilling of Development well (108 nos.) in oil field of Ahmedabad Asset of ONGC Ltd. at Mehsana and Gandhinagar Gujarat. Block area of Ahmedabad asset is 6200 Km². The Committee noted that PP has not mentioned the coordinate of proposed development wells to be undertaken for drilling. Therefore, the Committee sought following additional information :

- (i) Coordinates of location of all proposed development wells.
- (ii) A map indicating distance of proposed development wells from the Thol Wildlife sanctuary duly signed by Wildlife warden.
- (iii) Details of new GGS proposed in the project.
- (iv) Details of quantity of produced water generated from the proposed project and its treatment.
- (v) Details of quantity of produced water generated from the existing project and its treatment and disposal methods.
- (vi) Details of public hearing conducted for the proposed project as per TOR.

The proposal was deferred till the desired information is submitted. The above information shall be provided with the uploading of minutes on the website. The project will be appraised afresh after receiving additional information. The Committee underrated performance of the consultant and urged that Consultant needs improvement in monitoring and interpretation of data.

5.7 Terms of Reference (Day 2)

5.7.1 Exploratory drilling of 1 well for shale oil/shale gas in Cauvery Basin, district Nagapattinam Tamilnadu by M/s ONGC

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken along with the draft Term of References for the preparation of EIA-EMP. All the projects related to offshore and onshore Oil and Gas exploration, development and production are listed in para 1(b) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at central level.

M/s ONGC Ltd. has proposed for exploratory drilling of 1 well for shale oil/shale gas in Cauvery Basin, district Nagapattinam, Tamilnadu. As per Form-1, it is reported that no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. lies within 10 km distance. The Committee noted that Form-1 has been filled up casually without mentioned environmental sensitivity and status of habitat within 10 km

radius. Total cost of project is Rs. 45 Crores. Total Block area is 103 m². Approximate drilling depth will be 3200 mts. Details of the proposed well is as follows:

Name of the PML Block	Location coordinates		TD (m)
	Longitude	Latitude	
Kuthalam	79°34'51.3"E	11°05'33.50"N	3200m/basement

During presentation, PP informed that Assessment well for shale gas & oil is similar to conventional exploratory well in the sense that initial shale gas wells are primarily vertical like any other conventional exploratory well. In terms of the target depth, casing policy, water consumption, drilling, testing and completion plan, the two types of wells are nearly identical. The shale cores collected from these wells are used to assess the potential of the shale gas and oil in the formations. Based on the evaluation of core/ cutting samples and log data collected in these assessment wells, prospective zones in the source rock shale formation will be identified for hydro fracturing and production testing. Approximately 110 m x 110 m land shall be taken on lease for a drilling a single well

Exploratory well shall be drilled up to depth of 3200 m . Total 3 DG sets (1250 HP) (one stand by) will be required using approx. 250 to 300 liter of fuel (HSD) per hour. Water of 30 M3/day for drilling and 400-600 m3 one time per well during hydro-fracturing job will be required. Approx. 3 m3 per day of waste water will be generated from drill operations in each well which will contain only drill cutting wash water and will be disposed in HDPE lined pit at site and the same shall be solar dried. About 1 m3 per day waste water shall be generated from domestic activity for each well and will be discharged in soak pit. About 225 - 250 m3 of Drill Cuttings will be produced which will be managed as per Hazardous waste rules 2008, amended till date.

PP requested for exemption of public hearing as public hearing has already been conducted on 20.06.2014. However, the Committee was of the view that the project nature is different with hydrocracking operation.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure (Refer Ministry's web site) for preparation of EIA-EMP report:

A. Standard TOR

- 1 Executive summary of a project.
- 2 Project description, project objectives and project benefits.
- 3 Cost of project and period of completion.
- 4 Site details within 1 km of the each proposed well, any habitation, any other installation/activity, flora and fauna, approachability to site, other activities including agriculture/land, satellite imagery for 10 km area. All the geological details shall be mentioned in the Topo sheet of 1:40000 scale, superimposing the well locations and other structures of the projects. Topography of the project site.
- 5 Details of sensitive areas such as National Park, Wildlife sanctuary and any other eco-sensitive area alongwith map indicating distance.
- 6 Approval for the forest land from the State/Central Govt. under Forest (Conservation) Act, 1980 as project involves forest land.
- 7 Distance from nearby critically/severely polluted area as per Notification, if applicable. Status of moratorium imposed on the area.
- 8 Does proposal involve rehabilitation and resettlement? If yes, details thereof.
- 9 Environmental considerations in the selection of the drilling locations for which environmental clearance is being sought. Present any analysis suggested for minimizing the foot print giving details of drilling and development options

- considered.
- 10 Baseline data collection for air, water and soil for one season leaving the monsoon season in an area of 10 km radius with centre of Oil Field as its centre covering the area of all proposed drilling wells.
 - 11 Climatology and Meteorology including wind speed, wind direction, temperature rainfall relative humidity etc.
 - 12 Details of Ambient Air Quality monitoring at 8 locations for PM_{2.5}, PM₁₀, SO₂, NO_x, CO, VOCs, Methane and non-methane HC.
 - 13 Soil sample analysis (physical and chemical properties) at the areas located at 5 locations.
 - 14 Ground and surface water quality in the vicinity of the proposed wells site.
 - 15 Measurement of Noise levels within 1 km radius of the proposed wells.
 - 16 Vegetation and land use; flora/fauna in the block area with details of endangered species, if any.
 - 17 Incremental GLC as a result of DG set operation, flaring etc.
 - 18 Potential environmental impact envisaged during various stages of project activities such as site activation, development, operation/ maintenance and decommissioning.
 - 19 Actual source of water and 'Permission' for the drawl of water from the Competent Authority. Detailed water balance, wastewater generation and discharge.
 - 20 Noise abatement measures and measures to minimize disturbance due to light and visual intrusions.
 - 21 Details on wastewater generation, treatment and utilization /discharge for produced water/ formation water, cooling waters, other wastewaters, etc. during all project phases.
 - 22 Details on solid waste management for drill cuttings, drilling mud and oil sludge, produced sand, radio active materials, other hazardous materials, etc. including its disposal options during all project phases.
 - 23 Disposal of spent oil and lube.
 - 24 Storage of chemicals and diesel at site. Hazardous material usage, storage and accounting.
 - 25 Commitment for the use of water based mud (WBM) only
 - 26 Oil spill emergency plans for recovery/ reclamation.
 - 27 H₂S emissions control.
 - 28 Produced oil/gas handling, processing and storage/transportation.
 - 29 Details of control of air, water and noise pollution during production phase.
 - 30 Measures to protect ground water and shallow aquifers from contamination.
 - 31 Whether any burn pits being utilised for well test operations.
 - 32 Risk assessment and disaster management plan for independent reviews of well designed construction etc. for prevention of blow out. Blowout preventer installation.
 - 33 Environmental management plan.
 - 34 Total capital and recurring cost for environmental control measures.
 - 35 Emergency preparedness plan.
 - 36 Decommissioning and restoration plans.
 - 37 Documentary proof of membership of common disposal facilities, if any.
 - 38 Details of environmental and safety related documentation within the company including documentation and proposed occupational health and safety Surveillance Safety Programme for all personnel at site. This shall also include monitoring programme for the environmental.
 - 39 A copy of Corporate Environment Policy of the company as per the Ministry's O.M. No. J-11013/41/2006-IAII(I) dated 26th April, 2011 available on the Ministry's website.
 - 40 Any litigation pending against the project and or any direction/order passed by any court of law against the project. If so details thereof.

B. Additional TOR

- i Public hearing to be conducted and issues raised and commitments made by the project proponent on the same should be included in EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made.

It was recommended that '**TORs' along with Public Hearing** prescribed by the Expert Appraisal Committee (Industry) should be considered for preparation of EIA / EMP report for the above mentioned project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The draft EIA/EMP report shall be submitted to the State Pollution Control Board for public hearing. The issues emerged and response to the issues shall be incorporated in the EIA report.

5.7.2 Exploratory drilling of 5 wells for shale oil/shale gas in KG Basin at districts of East Godavari, West Godavari and Krishna Andhra Pradesh by M/s ONGC Ltd.

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken along with the draft Term of References for the preparation of EIA-EMP. All the projects related to offshore and onshore Oil and Gas exploration, development and production are listed in para 1(b) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at central level.

M/s ONGC Ltd. has proposed for exploratory drilling of 5 wells for shale oil/shale gas in KG Basin at districts of East Godavari, West Godavari and Krishna Andhra Pradesh. As per Form-1, it is reported that no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. lies within 10 km distance. Committee noted that PP has filled up Form-1 casually without mentioning any reference of habitant and environmental sensitivity. Total cost of project is Rs. 217 Crores. Total Block area is 1669 m². Approximate drilling depth will be 3300-4400 mts. Details is the proposed wells is as follow:

Sr. No.	Name of the PML Block	Location coordinates		TD (m)
		Longitude	Latitude	
1	West Godavari	81 06 54.36	16 28 18.89	3300
2	Bantumillin Extn	81 22 24.63	16 24 25.47	4200
3	Suryarao peta	81 24 10.29	16 32 40.34	4400
4	Mahadevapatnam	81 36 34.12	16 36 58.86	4300
5	Mandapeta	81 53 46.01	16 47 55.02	4000

During presentation, PP informed that Assessment well for shale gas & oil is similar to conventional exploratory well in the sense that initial shale gas wells are primarily vertical like any other conventional exploratory well. In terms of the target depth, casing policy, water consumption, drilling, testing and completion plan, the two types of wells are nearly identical. The shale cores collected from these wells are used to assess the potential of the shale gas and oil in the formations. Based on the evaluation of core/ cutting samples and log data collected in these assessment wells, prospective zones in the source rock shale formation will be identified for hydro fracturing and production testing. Approximately 110 m x 110 m land shall be taken on lease for a drilling a single well

Exploratory well shall be drilled up to depth of 3200 m . Total 3 DG sets (1250 HP) (one stand by) will be required using aprox. 250 to 300 liter of fuel (HSD) per hour. Water of 30 M3/day for drilling and 400-600 m³ one time per well during hydro-fracturing job will be

required. Approx. 3 m³ per day of waste water will be generated from drill operations in each well which will contain only drill cutting wash water and will be disposed in HDPE lined pit at site and the same shall be solar dried. About 1 m³ per day waste water shall be generated from domestic activity for each well and will be discharged in soak pit. About 225 - 250 m³ of Drill Cuttings will be produced which will be managed as per Hazardous waste rules 2008, amended till date.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure (Refer Ministry's web site) for preparation of EIA-EMP report:

A. Standard TOR

- 1 Executive summary of a project.
- 2 Project description, project objectives and project benefits.
- 3 Cost of project and period of completion.
- 4 Site details within 1 km of the each proposed well, any habitation, any other installation/activity, flora and fauna, approachability to site, other activities including agriculture/land, satellite imagery for 10 km area. All the geological details shall be mentioned in the Topo sheet of 1:40000 scale, superimposing the well locations and other structures of the projects. Topography of the project site.
- 5 Details of sensitive areas such as National Park, Wildlife sanctuary and any other eco-sensitive area alongwith map indicating distance.
- 6 Approval for the forest land from the State/Central Govt. under Forest (Conservation) Act, 1980 as project involves forest land.
- 7 Distance from nearby critically/severely polluted area as per Notification, if applicable. Status of moratorium imposed on the area.
- 8 Does proposal involve rehabilitation and resettlement? If yes, details thereof.
- 9 Environmental considerations in the selection of the drilling locations for which environmental clearance is being sought. Present any analysis suggested for minimizing the foot print giving details of drilling and development options considered.
- 10 Baseline data collection for air, water and soil for one season leaving the monsoon season in an area of 10 km radius with centre of Oil Field as its centre covering the area of all proposed drilling wells.
- 11 Climatology and Meteorology including wind speed, wind direction, temperature rainfall relative humidity etc.
- 12 Details of Ambient Air Quality monitoring at 8 locations for PM_{2.5}, PM₁₀, SO₂, NO_x, CO, VOCs, Methane and non-methane HC.
- 13 Soil sample analysis (physical and chemical properties) at the areas located at 5 locations.
- 14 Ground and surface water quality in the vicinity of the proposed wells site.
- 15 Measurement of Noise levels within 1 km radius of the proposed wells.
- 16 Vegetation and land use; flora/fauna in the block area with details of endangered species, if any.
- 17 Incremental GLC as a result of DG set operation, flaring etc.
- 18 Potential environmental impact envisaged during various stages of project activities such as site activation, development, operation/ maintenance and decommissioning.
- 19 Actual source of water and 'Permission' for the drawl of water from the Competent Authority. Detailed water balance, wastewater generation and discharge.
- 20 Noise abatement measures and measures to minimize disturbance due to light and visual intrusions.
- 21 Details on wastewater generation, treatment and utilization /discharge for produced water/ formation water, cooling waters, other wastewaters, etc. during all project phases.

- 22 Details on solid waste management for drill cuttings, drilling mud and oil sludge, produced sand, radio active materials, other hazardous materials, etc. including its disposal options during all project phases.
- 23 Disposal of spent oil and lube.
- 24 Storage of chemicals and diesel at site. Hazardous material usage, storage and accounting.
- 25 Commitment for the use of water based mud (WBM) only
- 26 Oil spill emergency plans for recovery/ reclamation.
- 27 H2S emissions control.
- 28 Produced oil/gas handling, processing and storage/transportation.
- 29 Details of control of air, water and noise pollution during production phase.
- 30 Measures to protect ground water and shallow aquifers from contamination.
- 31 Whether any burn pits being utilised for well test operations.
- 32 Risk assessment and disaster management plan for independent reviews of well designed construction etc. for prevention of blow out. Blowout preventer installation.
- 33 Environmental management plan.
- 34 Total capital and recurring cost for environmental control measures.
- 35 Emergency preparedness plan.
- 36 Decommissioning and restoration plans.
- 37 Documentary proof of membership of common disposal facilities, if any.
- 38 Details of environmental and safety related documentation within the company including documentation and proposed occupational health and safety Surveillance Safety Programme for all personnel at site. This shall also include monitoring programme for the environmental.
- 39 A copy of Corporate Environment Policy of the company as per the Ministry's O.M. No. J-11013/41/2006-IAII(I) dated 26th April, 2011 available on the Ministry's website.
- 40 Any litigation pending against the project and or any direction/order passed by any court of law against the project. If so details thereof.

B. Additional TOR

- i Public hearing to be conducted and issues raised and commitments made by the project proponent on the same should be included in EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made.

It was recommended that '**TORs**' along with **Public Hearing** prescribed by the Expert Appraisal Committee (Industry) should be considered for preparation of EIA / EMP report for the above mentioned project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The draft EIA/EMP report shall be submitted to the State Pollution Control Board for public hearing. The issues emerged and response to the issues shall be incorporated in the EIA report.

5.7.3 Construction of GCS at BK-1 well-site with 180000 m3 Gas Handling Capacity and Laying of 35 Km underground 3.5" seamless pipeline from well BU-2 to BK-1, including interconnecting pipelines of 4 additional wells at Tehsil Silchar district Cachar, Assam by M/s ONGC.

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken along with the draft Term of References for the preparation of EIA-EMP. All the projects related to offshore and onshore Oil and Gas exploration, development and production are listed in para 1(b) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at central level.

M/s ONGC Ltd. has proposed for construction of GCS at BK-1 well-site with 180000 m³ Gas Handling Capacity and Laying of 35 Km underground 3.5" seamless pipeline from well BU-2 to BK-1, including interconnecting pipelines of 4 additional wells at Tehsil Silchar district Cachar, Assam. As per Form-1, it is reported that no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. lies within 10 km distance. Committee noted that pp has filled form-1 without mentioning environmental sensitivity while river Rukhni flowing within the block. It was advised to resubmit the form-1. Total cost of project is Rs. 117.00 Crores. Total Block area is 73000 m².

About 802 MMSCM of gas production is envisaged in 15 years. Project involve integrated development and monetization of Banskandi Block- 1 and Bhubandar Fields of Cachar Forward Base, A&AA Basin. Project broadly covers the followings;

- a) Drilling of two additional gas wells in Bhubandar and two additional gas wells in Banskandi and re-activation of the wells BK-1 & BU-2
- b) laying of about 35 Kms underground seamless pipeline with Cathodic protection for the entire length from Bhubandar Field to the new GCS at BK-1 well site, including interconnecting pipelines of the 4 additional wells
- c) One river crossing for the river Rukhni by Horizontal Directional Drilling (HDD) with Intermediate Valve stations at both ends of river Rukhni
- d) Construction of GCS at BK-1 well-site

Air compressor, Fire fighting, fuel gas system, flare system, diesel storage & transfer system, utility water, closed blow down system will be the part of GCS system. The Committee noted that PP did not explain the full details of these utility with adequate layout plan.

D.G. sets will be used during drilling operation. Acoustic enclosures will be provided to D.G. sets. Consumption of fuel (HSD) during drilling operations will be approximately 3-4 KL/day

It was informed that all wells are gas free. Profile does not indicate any water and hence no produced water envisaged. Waste water will be collected in impervious HDPE lined pits. Water based mud (drilling fluid) will be used for drilling operation. Modular ETP to be provided for handling produced water. For handling of drill cutting, precautionary measures will be taken as per The Hazardous Wastes (Management, Handling and Transboundary Movement) Amendment Rules, 2009.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure (Refer Ministry's web site) for preparation of EIA-EMP report:

A. Standard TOR

- 1 Executive summary of a project.
- 2 Project description, project objectives and project benefits.
- 3 Cost of project and period of completion.
- 4 Site details within 1 km of the each proposed well, any habitation, any other installation/activity, flora and fauna, approachability to site, other activities including agriculture/land, satellite imagery for 10 km area. All the geological details shall be mentioned in the Topo sheet of 1:40000 scale, superimposing the well locations

- and other structures of the projects. Topography of the project site.
- 5 Details of sensitive areas such as National Park, Wildlife sanctuary and any other eco-sensitive area alongwith map indicating distance.
 - 6 Approval for the forest land from the State/Central Govt. under Forest (Conservation) Act, 1980 as project involves forest land.
 - 7 Distance from nearby critically/severely polluted area as per Notification, if applicable. Status of moratorium imposed on the area.
 - 8 Does proposal involve rehabilitation and resettlement? If yes, details thereof.
 - 9 Environmental considerations in the selection of the drilling locations for which environmental clearance is being sought. Present any analysis suggested for minimizing the foot print giving details of drilling and development options considered.
 - 10 Baseline data collection for air, water and soil for one season leaving the monsoon season in an area of 10 km radius with centre of Oil Field as its centre covering the area of all proposed drilling wells.
 - 11 Climatology and Meteorology including wind speed, wind direction, temperature rainfall relative humidity etc.
 - 12 Details of Ambient Air Quality monitoring at 8 locations for PM_{2.5}, PM₁₀, SO₂, NO_x, CO, VOCs, Methane and non-methane HC.
 - 13 Soil sample analysis (physical and chemical properties) at the areas located at 5 locations.
 - 14 Ground and surface water quality in the vicinity of the proposed wells site.
 - 15 Measurement of Noise levels within 1 km radius of the proposed wells.
 - 16 Vegetation and land use; flora/fauna in the block area with details of endangered species, if any.
 - 17 Incremental GLC as a result of DG set operation, flaring etc.
 - 18 Potential environmental impact envisaged during various stages of project activities such as site activation, development, operation/ maintenance and decommissioning.
 - 19 Actual source of water and 'Permission' for the drawl of water from the Competent Authority. Detailed water balance, wastewater generation and discharge.
 - 20 Noise abatement measures and measures to minimize disturbance due to light and visual intrusions.
 - 21 Details on wastewater generation, treatment and utilization /discharge for produced water/ formation water, cooling waters, other wastewaters, etc. during all project phases.
 - 22 Details on solid waste management for drill cuttings, drilling mud and oil sludge, produced sand, radio active materials, other hazardous materials, etc. including its disposal options during all project phases.
 - 23 Disposal of spent oil and lube.
 - 24 Storage of chemicals and diesel at site. Hazardous material usage, storage and accounting.
 - 25 Commitment for the use of water based mud (WBM) only
 - 26 Oil spill emergency plans for recovery/ reclamation.
 - 27 H₂S emissions control.
 - 28 Produced oil/gas handling, processing and storage/transportation.
 - 29 Details of control of air, water and noise pollution during production phase.
 - 30 Measures to protect ground water and shallow aquifers from contamination.
 - 31 Whether any burn pits being utilised for well test operations.
 - 32 Risk assessment and disaster management plan for independent reviews of well designed construction etc. for prevention of blow out. Blowout preventer installation.
 - 33 Environmental management plan.
 - 34 Total capital and recurring cost for environmental control measures.
 - 35 Emergency preparedness plan.
 - 36 Decommissioning and restoration plans.

- 37 Documentary proof of membership of common disposal facilities, if any.
- 38 Details of environmental and safety related documentation within the company including documentation and proposed occupational health and safety Surveillance Safety Programme for all personnel at site. This shall also include monitoring programme for the environmental.
- 39 A copy of Corporate Environment Policy of the company as per the Ministry's O.M. No. J-11013/41/2006-IAII(I) dated 26th April, 2011 available on the Ministry's website.
- 40 Any litigation pending against the project and or any direction/order passed by any court of law against the project. If so details thereof.

B. Additional TOR

- i Public hearing to be conducted and issues raised and commitments made by the project proponent on the same should be included in EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made.
- ii Details of environmental sensitivity as given in form-1 should be brought out as per the defined scale in the EIA-EMP report.
- iii Layout plan integrated with development filed to be drawn adequately in the report.
- iv No drilling to done within river and its flood zone

It was recommended that '**TORs**' along with **Public Hearing** prescribed by the Expert Appraisal Committee (Industry) should be considered for preparation of EIA / EMP report for the above mentioned project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The draft EIA/EMP report shall be submitted to the State Pollution Control Board for public hearing. The issues emerged and response to the issues shall be incorporated in the EIA report.

5.7.4 BS V/VI Auto fuel Quality Compliance & Associated projects at Tehsil Mangalore, district Dakshina Kannada, Karnataka by M/s Mangalore Refinery And Petrochemicals Ltd.

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken along with the draft Term of References for the preparation of EIA-EMP. All the Petroleum Refinery Plants are listed at S.N. 4(a) under Category 'A' and appraised at the Central level.

M/s Mangalore Refinery And Petrochemicals Ltd. has proposed for BS V/VI Auto fuel Quality Compliance & Associated projects at Tehsil Mangalore, district Dakshina Kannada, Karnataka. Environmental Clearance vide letter no. J-11011/215/2010-IA II (I) dated 1st November 2011 was granted for expansion by adding propylene manufacturing unit (440000 TPA). As per Form-1, it is reported that no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. lies within 10 km distance. Gurupur estuary with patches of mangroves is at the distance of 8 km in south direction. Arabian sea coast is about 6-8 km from refinery. Cost of the project is 5500 Crore.

Following will be covered under the project:

S. No.	Items	Capacity MMTPA
1.	Feed Preparation unit	2.0

2.	PFCCU gasoline hydrotreating	0.4
3.	High RON Alkyate unit	0.6
4.	CCR1,CCR2, RSU, HGU revamp	-
5.	DHDT revamp	3.85
6.	SRU	185 TPD
7.	SWS unit revamp	-
8.	Utilities, offsite facility & other associated facilities	-

It was informed that under the project, 250 m³/hr of additional water will be required. A part of demand of water shall be met from municipal sewage. In the existing the plant treated effluent is being discharged into the sea. However, under the proposed project, no effluent will be discharged into the sea. It was informed that current SO₂ emission is about 45-49TPD, which will be added additionally by 7TPD from BS VI project. The existing limit of Sox is 57TPD. Around 70 MTPY of spent catalyst will be generated, which will be sold to the authorized recycler /reprocessor.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure-I for preparation of EIA-EMP report:

A. Specific TOR:

- 1 Complete process flow diagram describing each unit, its capacity along-with material and energy balance.
- 2 Details of intermediate product, their storages and final products to be manufactured.
- 3 Sulphur balance giving input from crude, refinery fuel (if used) and any other outside fuel and output in various products and emissions.
- 4 Details of proposed source-specific pollution control schemes and equipment to meet the national standards for petroleum refinery.
- 5 Details of emissions from all the stacks including volumetric flow rate.
- 6 Details on availability of raw materials (crude oil,natural gas,chemicals,*etc.*),its source and storage at the plant.
- 7 Details on mode of transportation of crude and products.
- 8 Details of storage capacity of crude and products.
- 9 Ambient air quality data should include hydrocarbon (methane and non-methane), VOC, Ni & V etc.
- 10 Efforts to minimize water consumption, effluent discharge and to maintain quality of receiving water body.
- 11 Details of effluent treatment plant, inlet and treated water quality with specific efficiency of each treatment unit in reduction in respect of all concerned/ regulated environmental parameters. Also, include treatment details such as primary (physico-chemical), secondary(biological) and tertiary (activated carbon filters) treatment systems
- 12 Storm water management plan.
- 13 Estimation SO₂ and NO_x emissions load.
- 14 Details on flaring system.
- 15 Details of VOC recovery devices in the storage tanks.
- 16 Arrangement for spill management.

17 Oily sludge management plan.

18 Risk Assessment & Disaster Management Plan

- i. Identification of hazards
- ii. Consequence Analysis
- iii. Risk assessment should also include leakages and location near to refinery & proposed measures for risk reduction.
- iv. Arrangement for fire protection and control.

B. Additional TOR

- i. Public hearing to be conducted and issues raised and commitments made by the project proponent on the same should be included in EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made
- ii. A separate chapter on status of compliance of Environmental Conditions granted by State/Centre to be provided. As per circular dated 30th May, 2012 issued by MoEF, a certified report by RO, MoEF on status of compliance of conditions on existing unit to be provided in EIA-EMP report.
- iii. Impact of existing discharge on marine life
- iv. Plan to be drawn for zero liquid discharge

It was recommended that '**TORs**' along with **Public Hearing** prescribed by the Expert Appraisal Committee (Industry) should be considered for preparation of EIA / EMP report for the above mentioned project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The draft EIA/EMP report shall be submitted to the State Pollution Control Board for public hearing. The issues emerged and response to the issues shall be incorporated in the EIA report.

5.7.5 Installation of 72 Station Flexi Carousel machine for filling cylinders with additional facility at Existing LPG Bottling Plant at Teela Shahbajpur in Uttar Pradesh by M/s Bharat Petroleum Corporation Limited (BPCL).

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken along with the draft Term of References for the preparation of EIA-EMP. All the Isolated Storage & Handling of hazardous chemicals (as per threshold planning quantity indicated in column 3 of schedule 2 & 3 of MSIHC Rules 1989 amended 2000) activities is listed at 6(b) of the Schedule of EIA Notification, 2006 under category 'B' and appraised at State level. However, due to applicability of General Condition i.e. location of project less than 5 km from interstate boundary (Delhi-UP), the proposal is treated as Category 'A' project and appraised at Central Level.

M/s Bharat Petroleum Corporation Limited (BPCL) has proposed for installation of 72 Station Flexi Carousel machine for filling cylinders with additional facility at Existing LPG Bottling Plant at Teela Shahbajpur in Uttar Pradesh. Total plot area is 59.5 acres of which green belt will be developed in 30 acres area. Cost of project is Rs. 40.5 Crore. As per Form-1, it is reported that no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. lies within 10 km distance. About 60-70 workers will be deployed.

PP informed that The existing LPG Plant was commissioned in 2001, has storage facilities in mounded bullets of capacity 3 x 1350 MT (total 4050 MT LPG). The plant has bottling facility for five types of cylinders 5Kg, 14.2Kg, 19Kg, 47.5 kg and 35 Kg. The plant has bottling capacity of around 11000 cylinders of 14.2 kg per carousel per shift.

BPCL has now planned for installation of 72 station Flexi Carusel machine for filling cylinder at the existing LPG bottling plant with following facilities;

- LPF pumping facilities
- New LPG shed i.e. filling shed is required for 72 station Flexi Carusel alongwith empty & filled cylinder shed
- Errection of additional equipments in LPG sheds etc.

The Committee noted that the above features will be added in the existing Plant which does not attract the provision of EIA, Notification 2006. However, the committee sought the clarification w.r.t submission of a copy of first CTO obtained by the PP from the SPCB prior to 2006.

The proposal is deferred till the above information is submitted through online.

5.7.6 Implementation of BGR INDMAX project associated with BGR crude processing capacity enhancement from 2.35 to 2.7 MMTPA, DHDT capacity enhancement from 1.2 to 1.8 MMTPA, CRUMSQ revamp & implementation of SDS unit at Tehsil Sidli (PT-II), district Dhaligaon by M/s IOCL

The project authorities gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken along with the draft Term of References for the preparation of EIA-EMP. All the Petroleum Refinery Plants are listed at S.N. 4(a) under Category 'A' and appraised at the Central level.

M/s IOCL has proposed for BGR INDMAX project associated with BGR crude processing capacity enhancement from 2.35 to 2.7 MMTPA, DHDT capacity enhancement from 1.2 to 1.8 MMTPA, CRUMSQ revamp & implementation of SDS unit at Tehsil Sidli (PT-II), district Dhaligaon. Ministry has granted environmental clearance to M/s Bongalgaon Refinery & Petrochemical Ltd. vide letter no. J-1011/9/2008-IA II (I) dated 2nd September 2008. As per Form-1, it is reported that no national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. lies within 10 km distance. Following Reserve Forests, Rivers, Water bodies falls are at their respective distance:

- Nakkati Reserved Forest- 7.5km,
- Kakojjana Reserved Forest- 9.5km,
- Bhumeswar Reserved Forest- 7.8km
- Nayachara Lake (Beel) -7.0km
- Bhosamari Lake -9.2 km,
- Paropota Lake -9.5 km,
- Naodora Lake -9.2 km,
- Kasorani Lake -9.2 km
- River Aie -6.0 km,
- River Tunia -4.0km
- River Kujia -7.0 km

Cost of the project is 3500 Crore. The plant area is 3443826 m². PP did not mention the details of green belt covered under the existing project. After construction about 20 person will be employed for operation. Presently crude processing capacity of Bongaigaon Refinery is 2.35 MMTPA having two Crude Distillation Units(CDU)

CDU-I having nameplate capacity of 1.35 MMTPA

CDU-II having nameplate capacity of 1.00 MMTPA

The project involves the following activities:

- Crude processing capacity enhancement from 2.35 MMTPA to 2.7 MMTPA
- DHDT capacity enhancement from 1,200 TMTPA to 1,800 TMTPA to meet BS-V/VI HSD specification
- CRU-MSQ revamp to meet BS-V/VI MS specification
- Selective Desulphurisation (SDS) Unit
- INDMAX Project along with Indmax Gasoline De-Sulphurisation Unit

Extra power of 4220 KW will be required and 48 MT/hr of steam would be required. No additional details of air emission and its control are provided. Fresh water consumption will increase from 330 m³/hr to 370 m³/hr i.e. additional 40m³/hr of fresh water will be required that will be sourced from underground. Additional load of wastewater generated from INDMAX project will be treated in the existing ETP having design capacity of 400 m³/hr. Treated effluent will be reused in cooling tower as make up. The committee suggested for go for maximum recycle and reuse of wastewater upto ZLD level so that freshwater requirement could be minimized.

Catalysts like DHDT , CRU, MMSq catalyst, HDS catalyst, SDS catalyst, INDMAX FCC catalyst etc. need to be replaced regularly and will be disposed to the registered recycler.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure-I for preparation of EIA-EMP report:

A. Specific TOR:

- 1 Complete process flow diagram describing each unit, its capacity along-with material and energy balance.
- 2 Details of intermediate product, their storages and final products to be manufactured.
- 3 Sulphur balance giving input from crude, refinery fuel (if used) and any other outside fuel and output in various products and emissions.
- 4 Details of proposed source-specific pollution control schemes and equipment to meet the national standards for petroleum refinery.
- 5 Details of emissions from all the stacks including volumetric flow rate.
- 6 Details on availability of raw materials (crude oil, natural gas, chemicals, etc.), its source and storage at the plant.
- 7 Details on mode of transportation of crude and products.
- 8 Details of storage capacity of crude and products.
- 9 Ambient air quality data should include hydrocarbon (methane and non-methane), VOC, Ni & V etc.
- 10 Efforts to minimize water consumption, effluent discharge and to maintain quality of receiving water body.
- 11 Details of effluent treatment plant, inlet and treated water quality with specific efficiency of each treatment unit in reduction in respect of all concerned/regulated environmental parameters. Also, include treatment details such as primary (physico-chemical), secondary(biological) and tertiary (activated carbon filters) treatment systems
- 12 Storm water management plan.
- 13 Estimation SO₂ and NO_x emissions load.
- 14 Details on flaring system.
- 15 Details of VOC recovery devices in the storage tanks.

- 16 Arrangement for spill management.
- 17 Oily sludge management plan.
- 18 Risk Assessment & Disaster Management Plan
 - i. Identification of hazards
 - ii. Consequence Analysis
 - iii. Risk assessment should also include leakages and location near to refinery & proposed measures for risk reduction.
 - iv. Arrangement for fire protection and control.

B. Additional TOR

- i. Public hearing to be conducted and issues raised and commitments made by the project proponent on the same should be included in EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made.
- ii. A separate chapter on status of compliance of Environmental Conditions granted by State/Centre to be provided. As per circular dated 30th May, 2012 issued by MoEF, a certified report by RO, MoEF on status of compliance of conditions on existing unit to be provided in EIA-EMP report.
- iii. Plan for ZLD to be drawn

It was recommended that '**TORs**' along with **Public Hearing** prescribed by the Expert Appraisal Committee (Industry) should be considered for preparation of EIA / EMP report for the above mentioned project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The draft EIA/EMP report shall be submitted to the State Pollution Control Board for public hearing. The issues emerged and response to the issues shall be incorporated in the EIA report.

5.8 Any Other

5.8.1 Exploratory Drilling for Oil & Gas at North Assam Shelf Block in SE of Geleki Area (Reserve Forest Area), Sivasagar, Assam by M/s ONGC- reg extension of EC .

MoEF&CC vide letter no J-110111/629/2007-IA II(I) dated 22nd October, 2007 has granted environmental clearance to M/s ONGC for exploratory drilling for oil & gas North Assam Shelf Block in Geleki-Namti area in Sivasagar district in Assam.

Now, PP has applied for extension of validity of EC letter dated 22nd October, 2007 on 29.01.2016 after expiry of validity of environmental clearance. During presentation, PP confirmed that no drilling has been undertaken due to non availability of land and same will be shifted to other side. Therefore, the Committee suggested them to apply afresh.

5.8.2 Onshore exploratory (50wells) and development (200) wells drilling for oil and gas in Noth Assam Shelf Block and Assam Assets at Sivasagar district, Assam – extension of EC .

MoEF&CC vide letter no J-110111/396/2008-IA II (I) dated 11th July, 2008 has granted environmental clearance to M/s ONGC for exploratory drilling for Onshore exploratory (50wells) and development (200) wells drilling for oil and gas in North Assam Shelf Block and Assam Assets at Sivasagar district, Assam.

Now, PP has applied for extension of validity of EC letter dated 11th July, 2008 on 18.02.2016 after expiry of validity of environmental clearance. During presentation, PP

confirmed that no drilling has been undertaken due to non availability of land and same will be shifted to other side. Therefore, the Committee suggested them to apply afresh.

GENERIC TERMS OF REFERENCE (TOR) IN RESPECT OF INDUSTRY SECTOR

1. **Executive Summary**
2. **Introduction**
 - i. Details of the EIA Consultant including NABET accreditation
 - ii. Information about the project proponent
 - iii. Importance and benefits of the project
3. **Project Description**
 - i. Cost of project and time of completion.
 - ii. Products with capacities for the proposed project.
 - iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
 - iv. List of raw materials required and their source along with mode of transportation.
 - v. Other chemicals and materials required with quantities and storage capacities
 - vi. Details of Emission, effluents, hazardous waste generation and their management.
 - vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)
 - viii. Process description along with major equipments and machineries, process flow sheet (quantities) from raw material to products to be provided
 - ix. Hazard identification and details of proposed safety systems.
 - x. Expansion/modernization proposals:
 - a. Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing /existing operation of the project from SPCB shall be attached with the EIA-EMP report.
 - b. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.
4. **Site Details**

- i. Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.
- ii. A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet. (including all eco-sensitive areas and environmentally sensitive places)
- iii. Details w.r.t. option analysis for selection of site
- iv. Co-ordinates (lat-long) of all four corners of the site.
- v. Google map-Earth downloaded of the project site.
- vi. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.
- vii. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.
- viii. Landuse break-up of total land of the project site (identified and acquired), government/private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area)
- ix. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area
- x. Geological features and Geo-hydrological status of the study area shall be included.
- xi. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects)
- xii. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.
- xiii. R&R details in respect of land in line with state Government policy

5. **Forest and wildlife related issues (if applicable):**

- i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department. (if applicable)
- ii. Landuse map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (*in case of projects involving forest land more than 40 ha*)
- iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.
- iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden-
thereon
- v. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area
- vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife

6. **Environmental Status**

- i. Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.
- ii. AAQ data (except monsoon) at 8 locations for PM10, PM2.5, SO2, NOX, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.
- iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with – min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.
- iv. Surface water quality of nearby River (100m upstream and downstream of discharge point) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.
- v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC, if yes give details.
- vi. Ground water monitoring at minimum at 8 locations shall be included.
- vii. Noise levels monitoring at 8 locations within the study area.
- viii. Soil Characteristic as per CPCB guidelines.
- ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.
- x. Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.
- xi. Socio-economic status of the study area.

7. Impact and Environment Management Plan

- i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.
- ii. Water Quality modelling – in case of discharge in water body
- iii. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.
- iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.
- v. Details of stack emission and action plan for control of emissions to meet standards.
- vi. Measures for fugitive emission control
- vii. Details of hazardous waste generation and their storage, utilization and management. Copies of MOU regarding utilization of solid and hazardous

waste in cement plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.

- viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.
- ix. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.
- x. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.
- xi. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.
- xii. Action plan for post-project environmental monitoring shall be submitted.
- xiii. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.

8. Occupational health

- i. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers
- ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre placement and periodical examinations give the details of the same. Details regarding last month analyzed data of above mentioned parameters as per age, sex, duration of exposure and department wise.
- iii. Details of existing Occupational & Safety Hazards. What are the exposure levels of hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,
- iv. Annual report of health status of workers with special reference to Occupational Health and Safety.

9. Corporate Environment Policy

- i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
- ii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
- iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with

- the environmental clearance conditions? Details of this system may be given.
- iv. Does the company have system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report
10. Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.
 11. Enterprise Social Commitment (ESC)
 - i. Adequate funds (at least 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon.
 12. Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.
 13. 'A tabular chart with index for point wise compliance of above TORs.
 14. The TORs prescribed shall be valid for a period of three years for submission of the EIA-EMP reports.

The following general points shall be noted:

- i. All documents shall be properly indexed, page numbered.
- ii. Period/date of data collection shall be clearly indicated.
- iii. Authenticated English translation of all material in Regional languages shall be provided.
- iv. The letter/application for environmental clearance shall quote the MOEF file No. and also attach a copy of the letter.
- v. The copy of the letter received from the Ministry shall be also attached as an annexure to the final EIA-EMP Report.
- vi. The index of the final EIA-EMP report must indicate the specific chapter and page no. of the EIA-EMP Report
- vii. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MOEF vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry shall also be followed.
- viii. The consultants involved in the preparation of EIA-EMP report after accreditation with Quality Council of India (QCI) /National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA-EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. Name of the Consultant and the Accreditation details shall be posted on the EIA-EMP Report as well as on the cover of the Hard Copy of the Presentation material for EC presentation.

TORs' prescribed by the Expert Appraisal Committee (Industry) shall be considered for preparation of EIA-EMP report for the project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. Where the documents provided are in a language other than English, an English translation shall be provided. The draft EIA-EMP report shall be submitted to the State Pollution Control Board of the concerned State for conduct of Public Hearing. The SPCB shall conduct the Public Hearing/public consultation, district-wise, as per the provisions of EIA notification, 2006. The Public Hearing shall be chaired by an Officer not below the rank of Additional District Magistrate. The issues raised in the Public Hearing and during the consultation process and the commitments made by the project proponent on the same shall be included separately in EIA-EMP Report in a separate chapter and summarised in a tabular chart with financial budget (capital and revenue) along with time-schedule of implementation for complying with the commitments made. The final EIA report shall be submitted to the Ministry for obtaining environmental clearance.

**LIST OF PARTICIPANTS OF EAC (Industry-2) IN 5th MEETING OF EAC
(INDUSTRY-2) HELD ON 25-26th FEBRUARY, 2016**

S.N.	Name	Designation	Attendance
1	<u>Dr. J. P. Gupta</u>	Chairman	P
2	<u>Sh. R. K. Singh</u>	Member	P
3	<u>Dr. Ahmed Kamal</u>	Member	A
4	<u>Prof. J.R. Mudakavi</u>	Member	P
5	<u>Dr. Ajay Gairola</u>	Member	Ab - 1 st day P - 2 nd day
6	<u>Dr. N. Nandini</u>	Member	A
7	<u>Prof. (Dr.) H.R. V Reddy</u>	Member	A
8	<u>Dr. Shashank Shekhar</u>	Member	P
9	<u>Ms. Saloni Goel</u>	Member	Ab
10.	<u>Shri Suhas RamchandraPharande</u>	Member	P
11.	<u>Shri G. C. Pati</u>	Member	Ab
12	<u>Dr. S. K. Peshin</u>	Member	Ab
MOEF Representatives			
13.	Shri Lalit Bokolia	Additional Director & MS Industry-(2)	P
14.	Shri A.N.Singh	Joint Director	P

