

**MINUTES OF 15th EXPERT APPRAISAL COMMITTEE (INDUSTRY-2) MEETING HELD ON
10th NOVEMBER, 2016**

VENUE: Bharamputra Hall, First Floor, Vayu Wing, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan Aliganj, Jorbagh Road, New Delhi - 110003.

Time : Meeting to be held at 10: 00 AM

15.1 Opening Remarks of the Chairman

Time : 10: 00 - 10: 15 AM

10th November (Day 1)

1st Session: Time: 10.15 AM

	Name of the project	Corrections sought	May be read as
14.6.8	Proposed expansion of Mumbai Refinery from 7.5 MMTPA to 9.5 MMTPA at BD Patil Marg, Mahul, Mumbai, Maharashtra by M/s HPCL – reg EC.	In specific condition no. vi SO ₂ emissions after expansion from the plant shall not exceed 1579 kg/hr and further efforts shall be made for reduction of SO ₂ load through use of low sulphur fuel.	SO ₂ emissions after expansion from the plant shall not exceed 525 kg/hr and further efforts shall be made for reduction of SO ₂ load through use of low sulphur fuel.
		In specific condition no. ix Kerala Pollution Control Board	Maharashtra Pollution Control Board
		In specific condition xiii The Ministry regional office at Bangalore	Ministry's regional office at Nagpur

15.3 Environmental Clearance

15.3.1 Drilling of Exploratory Wells (26 Nos.) in PEL & PML blocks of Cachar Forward Base, in Assam by M/s ONGC Ltd.- reg EC.

The project proponent and their consultant (M/s SGS India Pvt. Ltd.) gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken as per Terms of References (TORs) awarded in the 7th Meeting of the Expert Appraisal Committee (Industry -2) held during 4th-5th April 2013 respectively 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.

Ministry has issued Environmental clearance vide letter no. J-11011/211/2008-IA-II(I) dated 11th June 2008 to M/s ONGC for Onshore Exploratory Drilling the 15 wells for Oil and Gas in Kachar area, Assam.

M/s ONGC. Ltd. has proposed for drilling of Exploratory Wells (26 Nos.) in PEL & PML blocks of Cachar Forward Base, in Assam. Proposed depth of well will be 3000 m. During presentation PP informed that Location of well No. N/L 17 has been decided to be dropped and location well no. TNAA has been shifted to well no. TNAB due to involvement of forest land. It is reported that no national park/wildlife sanctuary/tiger reserve / elephant reserve/ turtle nesting ground is present within 10 Km radius of project site. Total cost of the proposed project will be 780 crore. The coordinates of proposed wells are as follows:

Sl.no	Name of Location	Name of PML	(WGS -84) Latitude	Longitude
1.	TIAA	Adamtila Ext PML	24°32'14.25" N	92°17'25.56"E
2.	N/L 2	Adamtila Ext PML	24°30'8.517"N	92°18'17.39"E
3.	N/L 3	Adamtila Ext PML	24°32'54.17"N	92°19'4.955"E
4.	N/L 4	Adamtila Ext PML	24°21'58.0"N	92°16'41.65"E
5.	BK3(Sub)	Banskandi PML	24°43'40.67"N	92°50'32.72"E
6.	BKAC	Banskandi PML	24°45'33.04"N	92°51'19.28"E
7.	N/L 7	Cachar Dist. PML	24°54'13.55"N	92°35'6.669"E
	TNAA	Shifted to well name TNAB as additional well		
8.	HRAB	Cachar Dist. PML	24°53'18.73"N	92°34'51.14"E
9.	N/L 10	Cachar Dist. PML	24°59'23.02"N	92°28'22.39"E
10.	NTAB	Cachar Dist. PML	24°59'45.15"N	92°26'23.38"E
11.	N/L 12	Cachar Dist. PML	24°34'13.15"N	92°51'3.459"E
12.	RPAA	Cachar	24°48'21.55"N	93°02'57.85"E

		Dist. PML		
13.	BKAD	Cachar Dist. PML	24°42'45.53"N	92°50'3.668"E
14.	N/L 15	Cachar Dist. PML	24°38'29.88"N	92°48'45.45"E
15.	N/L 16 Cachar Dist. PML	Cachar Dist. PML	24°37'39.59"N	92°49'54.22"E
	N/L 17 Cachar Dist. PML	Dropped		
16.	PTAC	N.Pathari a PML	24°48'14.06"N	92°19'21.71"E
17.	N/L 19	N.Pathari a PML	24°49'49.73"N	92°19'58.11"E
18.	N/L 20	N.Pathari a PML	24°46'41.35"N	92°18'16.66"E
19.	PTAB	N.Pathari a PML	24°45'45.37"N	92°18'14.9"E
20.	N/L 22	Sector- VC PML	24°54'58.6"N	92°51'43.4"E
21.	N/L 23	Sector- VC PML	24°51'25.5"N	93°04'41.46"E
22.	PMAC	Sector- VC PML	24°52'19.65"N	92°57'48.65"E
23.	MPM	Sector- VC PML	24°53'58.58"N	92°46'39.8"E
24.	TKAD	Sector- VC PML	24°54'50.17"N	93°04'10.83"E
25.	TNAB		24°35'42.2"N	92°55'42.51"E

Additionally, the PP informed the Committee that ambient air quality monitoring was carried out at 8 locations during 26th January, 2015 – 17th April, 2015 and submitted baseline data indicates that ranges of concentrations of PM₁₀ (35.8 µg/m³ to 92.2 µg/m³), SO₂ (5 µg/m³ to 11.9 µg/m³) and NO_x (19 µg/m³ to 32.2 µg/m³) respectively. AAQ modeling study for point source emissions indicates that the maximum incremental GLCs after the proposed project would be 0.14 µg/m³, 1.86 µg/m³ and 5.96 µg/m³ with respect to PM, SO₂ and NO_x respectively. The resultant concentrations are within the NAAQS.

The power requirement of drill rig will be met by Four (04) x 1430 KVA DG sets (including one as standby) with a diesel consumption of about 6 KL/day. During well testing/flaring one auxiliary 250 KVA DG Set will be in operation.

Total water requirement will be 25 m³/day per well which will be sourced through water tanker. During drilling operations, approximately 5 m³/day of drilling waste water will be generated. The rig wash water and drilling wastewater will be treated through a mobile Effluent Treatment Plant installed at the drilling site. The plant will be capable of handling 10 KLD of drilling effluents. Domestic wastewater will be treated through a soak pit/septic tank arrangement.

Water Based drilling mud will be used. Drill cutting (DC) will be separated from water based mud (WBM) and washed properly and unusable drilling fluids (DF) will be disposed off in well designed lined pit with impervious liner for solar drying. Disposal of drill cuttings and drill mud will be carried out in accordance with the GSR 546 (E) dated 30th August, 2005. Used oil will be sent to the Authorized recyclers. Blow out preventers (BOP) will be installed to control fluid from the formation gushing to the surface. In the situation when the well is unsuccessful, the well bore will be plugged with cement/concrete. All fuels, lubricants and chemicals will be kept in a well-designed storage facility with regular inventory checking. Used and unused chemicals will be stored in a lined & bounded area. Waste oil/spent oil/waste batteries will be sold to registered recyclers/re-processors.

The Committee deliberated upon the issues raised during the Public Hearing / Public Consultation meetings conducted by the Assam Pollution Control Board on 14/09/2016 at Karimganj District and on 15/09/2016 at Cachar District(Silchar) respectively. The issues were raised regarding land acquisition; noise pollution, land compensation, name of location where drilling activity is proposed; local employment, etc. The Committee noted that issues have satisfactorily been responded by the project proponent and incorporated in the final EIA-EMP report.

During presentation the Committee noted that PP has decided to drop well No. N/L 17 and intend to shift well no. TNAA to well no. TNAB, due to involvement of forest land, therefore, number of wells have been reduced from 26 to 25 nos. In this regard the committee suggested PP to apply for amendment in TOR first.

After deliberations the Committee sought the following additional information:

1. Ambient air monitoring was done inappropriate location. Therefore, to gather representative samples, air monitoring to be conducted in such a manner to represent background data of well locations.

2. Water quality monitoring to be repeated as consultant unable to explain the correlation between inconsistent values.
3. Action taken report on non complied points w.r.t inspection done by RO, MoEF&CC

The Committee underrated the performance of consultant advice for improvement in monitoring of air and water quality.

The above information may be up uploaded through online on Ministry website.

15.3.2 Installation of Gasoline Hydrotreatment Unit (GTU) and associated facilities to produce 100% BS-VI MS in existing Mumbai Refinery at village Anik, Mahul, Tehsil Kurla, Mumbai, Maharashtra by M/s BPCL Mumbai Refinery – reg EC.

The project proponent and their consultant (M/s Engineers India Ltd.) gave a detailed presentation on the salient features of the project and proposed environmental protection measures to be undertaken as per Terms of References (TORs) awarded in the 8th Meeting of the Expert Appraisal Committee (Industry -2) held during 26th – 27th May, 2016 respectively for preparation of EIA-EMP report.

Ministry has issued Environmental clearance vide letter no. J-11011/582/2011-IA II(I) dated 07/06/2013, letter no. 2:-J-11011/140/2012-IA II(I) dated 12/06/2013, letter no. J-11011/270/2013-IA II(I) dated 08/08/2014 and letter no. J-11011/21/2013-IA II(I) dated 13/08/2015.

All Petroleum Refinery Plants are listed at S.No. 4(a) under category “A” and appraised at Central level.

M/s BPCL Mumbai Refinery has proposed for Installation of Gasoline Hydro treatment Unit (GTU) and associated facilities to produce 100% BS-VI MS in existing Mumbai Refinery at village Anik, Mahul, Tehsil Kurla, Mumbai, Maharashtra. Refinery plant area is 6901 m² GTU will be installed wiyhin existing refinery. Cost of the project is Rs 554 Crore. It is reported that no national park/wildlife sanctuary/tiger reserve / elephant reserve/ turtle nesting ground is present within 10 Km radius of project site. Total capacity of GTU is 0.9 MMTPA. Production with and without GTU:

Sr. No.	MS Production	Before GTU MMTPA	Post GTU MMTPA
1	BS-IV	1.2	0.0
2	BS-VI MS	1.1	2.3
3	Total MS	2.3	2.3

Additionally, the PP informed the Committee that ambient air quality monitoring was carried out at 5 locations during March, 2016 - June, 2016 and submitted baseline data indicates that ranges of concentrations of PM₁₀ (42.8 µg/m³ to 78.1 µg/m³), PM_{2.5} (12.2 µg/m³ to 29.1 µg/m³), SO₂ (4.5 µg/m³ to 10.9 ug/m³), NOx (11.1 µg/m³ to 26.6 µg/m³), CO (0.39 mg/m³ to 1.83 mg/m³) and MHC (0.44 µg/m³ -0.9 µg/m³), Benzene (1.2 µg/m³ -5.41 µg/m³), ozone (1.5 µg/m³ - 19.3 µg/m³) respectively.

Power requirement for the proposed project will be 3 MW, which will be sourced from existing gas turbines. Net steam requirement will be 35 MTPD which will be met from existing steam generation system. Fuel requirement will be 57 MT/day of RLNG of the refinery complex will be met by Low Sulphur Fuel Oil and the fuel gas systems. Existing water requirement is 16500 m³/day. No additional water will be required. About 300 m³/hr of cooling water blowdown will be discharged into sea.

The spent catalyst will be sold or recycled as per existing practices. All statutory rules / guidelines of MoEF / CPCB will be complied prior to recycle, reclamation or sale of spent catalyst. There is no additional generation of crude tank bottom sludge or any oily sludge, as the existing storage and offsite facilities will be used.

Public hearing was exempted as per para 7(ii) of EIA, Notification 2006.

After deliberations, the Committee sought the following additional information:

1. Revised water balance chart w.r.t. existing and proposed water requirement with special emphasis on water recycling and reuse.
2. Fresh water requirement shall be based on quantity of treated effluent sent by M/s RCF for consumption in Refinery. Realistic figure of fresh water should be worked out with MoU signed between M/s RCF and M/s BPCL.
3. Five year plan at the rate of 2% of project cost under CSR activities.

The above information may be up uploaded through online on Ministry website

15.3.3 Exploratory Drilling & Testing of Hydrocarbons at 7 locations in NELP VIII Block AA-ONN-2009/4 in Jorhat District, Assam by M/s Oil India Ltd. – reg EC.

PP did not attend the meeting. The proposal shall be considered as and when submitted by PP through online.

Reconsideration of EC

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

Proposal was considered by EAC (Industry-2) in its 12th EAC meeting held during 23rd to 24th August, 2016 and the Committee desired following information :

- i. Certification w.r.t validation of EIA-EMP report by accredited consultant.
- ii. To rework on GLC calculation.

- iii. ZLD Plan with recycle and reuse of waste water. Accordingly revised value of fresh water to be drawn.
- iv. Action taken to compliance of condition of existing EC duly inspected by RO of MOEF&CC. .

Now PP has submitted the following additional information:-

- i. EIA report has been validated by M/s Hubert Enviro care systems Pvt. Ltd. A copy of accreditation status is attached in the EIA report.
- ii. Based on the post project scenario and stack design data, GLC has been reworked by PP. Now, total predicted maximum GLC concentration for SO₂ is estimated to be 35 µg/m³ and 32.6 µg/m³ respectively based on maximum and average value of baseline ambient air quality data. During modeling SO₂ emission from Refinery is taken as 1034.59 kg/hr.
- iii. ZLD plan submitted by PP with recycle and reuse of wastewater. For achieving ZLD, PP has proposed for implementing RO Plant in Barauni refinery for effluent treatment as tertiary facility which is likely to be commissioned by Dec 2016 whereupon the refinery shall utilize the water as alternative to fresh water intake in DM plant and/or cooling towers. Further, RO reject which will be generated during RO plant operation will be utilized for Coke cutting water & spraying in Coke yard (to be dispensed with the product) as well as make up for eco-pond, horticulture & greenbelt while maintaining TDS within permissible limit. The total fresh water requirement for post BS-IV project will be 538 m³/hr.
- iv. PP has submitted the Action taken report w.r.t. non compliance points raised by RO, MoEF&CC and found to be satisfactory.

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

- i. M/s HPCL shall comply with standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18th March, 2008.
- ii. Continuous on-line stack monitoring for SO₂, NO_x and CO of all the stacks shall be carried out.
- iii. The process emissions [SO₂, NO_x, HC (Methane & Non-methane)], VOCs and Benzene from various units shall conform to the standards prescribed under the Environment (Protection) Act. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency of the pollution control device has been achieved.

- iv. Leak Detection and Repair programme shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.
- v. SO₂ emissions after expansion from the plant shall not exceed 1035 kg/hr and further efforts shall be made for reduction of SO₂ load through use of low sulphur fuel. Sulphur recovery units shall be installed for control of H₂S emissions. The overall sulphur recovery efficiency of Sulphur recovery unit with tail gas treating shall not be less than 99.9%.
- vi. As proposed, record of sulphur balance shall be maintained at the Refinery as part of the environmental data on regular basis. The basic component of sulphur balance include sulphur input through feed (sulphur content in crude oil), sulphur output from Refinery through products, byproduct (elemental sulphur), atmospheric emissions etc.
- vii. Flare gas recovery system shall be installed.
- viii. Ambient air quality monitoring stations, [PM₁₀, PM_{2.5}, SO₂, NO_x, H₂S, mercaptan, non-methane-HC and Benzene] shall be set up in the complex in consultation with State Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs.
- ix. Total freshwater requirement from BMC after expansion of proposed project shall not exceed 538 m³/hr and prior permission shall be obtained from the competent authority.
- x. As proposed, Industrial effluent generation shall not exceed 178 m³/hr after proposed expansion and treated in the integrated effluent treatment plant. The plant shall be based on Zero Liquid Discharge and as proposed RO to be installed within the plant. Treated effluent shall be recycled/reused within the factory premises. Domestic sewage shall be treated in sewage treatment plant (STP).
- xi. Automatic mechanical Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.
- xii. The oily sludge shall be subjected to melting pit for oil recovery and the residue shall be bio-remediated. The sludge shall be stored in HDPE lined pit with proper leachate collection system.

- xiii. At least 2.5 % of the total cost of the project shall be earmarked towards the Enterprise Social Commitment (ESR) based on Public Hearing issues and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Bangalore.
- xiv. Green belt should be developed in 33% of the plot area to mitigate the effect of fugitive emission all around the plant in consultation with DFO as per CPCB guidelines. Thick green belt around factory premises should be ensured

15.3.5 Setting up of 3x500 MT mounded LPG storage vessels & bottling capacity (60000 TPA) at Haldia LPG plant, village Brindavan Chak, Tehsil Durgachak, District Purba Medinipur, West Bengal by M/s HPCL – reg EC.

Proposal was considered by EAC (Industry-2) in its meeting held during 26th to 27th September, 2016 and the Committee desired following information :

- i. Onsite and offsite disaster management plan to be submitted
- ii. Detailed plan under ESR to be drawn at the cost of 2.5% of project cost for local development

Accordingly, PP has submitted the Onsite and offsite disaster management plan Onsite and offsite disaster management plan and detailed plan under ESR to be drawn at the cost of 2.5% of project cost for local development. The Committee discussed the additional information and found satisfactory response.

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

- i. Adequate buffer zone around the LPG Marketing Terminal shall be provided, as may be required as per OISD or other statutory requirements.
- ii. Continuous monitoring of VOC and HC in the work zone area in the plant premises should be carried out and data to be submitted to Ministry's Regional Office , CPCB and State Pollution Control Board. Quarterly monitoring for fugitive emissions should be carried out as per the guidelines of CPCB and reports submitted to Ministry's Regional Office .
- iii. Total fresh water requirement of 10 m³/day will be met from ground water and prior permission shall be obtained from the CGWA/SGWA.

- iv. The company should 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 should be created for oil contaminated and non-oil contaminated streams. During rainy season, the storm water drains should be connected to oil water separator and passed through guard pond. Water quality monitoring of guard pond should be conducted.
- v. 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.
- vi. The company should obtain all requisite clearances for fire safety and explosives and should comply with the stipulation made by the respective authorities.
- vii. Emergency Response Plan should be based on the guidelines prepared by OISD, DGMS and Govt. of India. Mock drill should be conducted once in a month.
- viii. Additional safety measures should be taken by using remote operated shut off valve, double block & bleed valve (DBB), impervious dyke wall and un-bonded flexible roof drain pipe.
- ix. Unit should carry out safety audit and report submitted to the Ministry and its Regional Office within six months.
- x. LPG transfer line from refinery to the LPG terminal shall be laid underground with adequate Cathodic protection against External Corrosion and the SCADA system.
- xi. Occupational health surveillance of worker should be done on a regular basis and records maintained as per the Factory Act.
- xii. Green belt should be developed in 33% of the plot area to mitigate the effect of fugitive emission all around the plant in consultation with DFO as per CPCB guidelines. Thick green belt around factory premises should be ensured.
- xiii. The Company should 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.
- xiv. All the recommendations mentioned in the EMP should be implemented.
- xv. At least 2.5 % of the total cost of the project shall be earmarked towards the Enterprise Social Commitment (ESC) based on local needs and action plan with financial and physical breakup/details shall be prepared and submitted to the Ministry's Regional Office. Implementation of such program shall be ensured accordingly in a time bound manner.

- xvi. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

15.3.6 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. – reg EC.

Proposal was considered by EAC (Industry-2) in its meeting held during 23rd to 24th August, 2016 and the Committee desired following information :

- i. Coordinates of location of all proposed development wells.
- ii. A map indicating distance of proposed development wells from the Thol Wildlife sanctuary dully 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

The Committee discussed the para-wise information submitted by the PP:-

- i. PP did not submit Coordinates of location of all proposed development wells. Only block coordinate are given.
- ii. PP has only submitted the map of 22 wells and their coordinates. However, against 108 wells, there is no mention of well being covered under ESZ and Bird Sanctuary of Thol. On examination of Notification of ESZ (Thol Bird Sanctuary) dated 09.02.2015, it is noted the block coordinate covers Kalol and Kadi, Taluka/village, which is also part of ESZ. Therefore, there is lack of clarity on submission by PP. Full details of well within or outside the ESZ to be provided alongwith coordinates
- iii. PP submitted, no GGS well is proposed.
- iv. Details of quantity of produced water generated from the proposed project and its treatment has been provided. The total quantity of produced water projected after drilling of proposed wells is given in table below:

S.No	year	Quantity of water Generated in m3 /day
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		from the existing projects
1	2015-16	6922
2	2016-17	6950
3	2017-18	7069
4	2018-19	7304
5	2019-20	7605

The produced water generated will be treated in existing ETP of Area I & III of Ahmedabad Asset (Total treatment capacity of Area I & III is 9000 m³/day). After primary and tertiary treatment, the treated effluent will be disposed off in an injection well 1000 m below the ground level

v. Details of quantity of produced water generated from the existing project and its treatment and disposal methods.

The total quantity of produced water generated from the existing projects given in table below:

S.No	year	Quantity of water Generated (Qw) in m ³ /day from the existing projects
1	2015-16	2722
2	2016-17	2750
3	2017-18	2869
4	2018-19	3104
5	2019-20	3405

The produced water generated will be treated in existing ETP of Area I & III of Ahmedabad Asset (Total treatment capacity of Area I & III is 9000 m³/day). After primary and tertiary treatment, the treated effluent will be disposed off in an injection well 1000 m below the ground level.

vi. Details of public hearing conducted for the proposed project

Public Hearing / Public Consultation meeting conducted by the Gujarat Pollution Control Board on 23rd January, 2015 for Gandhinagar district and on 29.01.2016 for Mehsana district. The concerns were raised regarding local employment, education ,heavy vehicular movement on the village road .

In view of the above, the Committee found that information is in adequate and deferred the proposal for want of following information

- 1 Coordinate of well to be submitted
- 2 Full details of wells within or outside the ESZ to be provided alongwith coordinate in tabular form. In case some wells are within ESZ of Thol WL sanctuary then status of permission from Monitoring committee of ESZ to be confirmed.

The above information may be up uploaded through online on Ministry website.

2nd Session: Time: 2.00 PM

15.4 Terms of Reference (TOR)

15.4.1 Augmentation of refrigerated LPG (Propane / Butane) import facility with provision of additional storage of 2 X 10000 MT and associated facilities at BPCL Uran LPG Plant at Navghar Industrial Estate , Behind MSEB Gas Turbine Unit, P.B. No. 8, Dist.- Raigad , Bokadvira , Uran, Maharashtra by M/s BPCL- 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 Oil & Gas Transportation Pipeline (crude and refinery/petrochemical products) and All the projects related to Isolated storage & handling of hazardous chemicals are listed in at S.N. 6(b) of schedule of EIA Notification, 2006 covered under category 'B' but as existing unit had taken EC from Central, it is listed in category 'A' and appraised at central level.

Ministry has issued EC vide letter no. 10-63/2008-IAII dated 26.08.2008 to M/s BPCL for proposed LPG pipeline, and handling facility from Jetty to LPG bottling plant at Uran.

M/s BPCL has proposed for Augmentation of refrigerated LPG (Propane / Butane) import facility with provision of additional storage of 2 X 10000 MT and associated facilities at BPCL Uran LPG Plant at Navghar Industrial Estate , Behind MSEB Gas Turbine Unit, P.B. No. 8, Dist.- Raigad , Bokadvira , Uran, Maharashtra. Proposed project will be done within existing

LPG bottling plant and ROW of existing Pipeline. No additional land will be required. Total cost of the project is Rs. 507.07 crore. It is reported that no national parks/Wildlife Sanctuary/ Reserve/ protected forest lies within 10 km distance. Existing and proposed facilities are as follows:

- **Existing Storage:** 2 X 8,000 MT Cryogenic LPG/Propane/ Butane storage.
- **Existing Pipeline:** 2 X 12" cross country pipeline.
- **Additional Storage:** 2 X 10,000 MT Cryogenic LPG/Propane/ Butane storage.
- **Additional Pipeline:** 2 X 12" cross country pipeline.

Power requirement will be 7 MVA during operation phase. Power will be sourced from the State Power Company. Fresh water requirement will be 50 m³/ day during construction and 35 m³/ day during operation which will be sourced from CIDCO.

Fuel (Diesel) requirement will be around 120 Lt/day during construction phase. Diesel shall be sourced from national oil company's retail network. PP confirms that during construction phase emission is expected from the small DG sets. During operation phase emission is expected from occasional use of DG power sets. No liquid effluent, solid and hazardous waste will be created during operation phase.

A. Standard TOR

1. Details on list of hazardous chemicals to be stored alongwith storage quantities at the facility, their category (as per MSIHC Rules), MSDS.
2. Mode of receiving hazardous chemicals in isolated storages and mode of their dispatch.
3. Layout plan of the storage tanks and other associated facilities.
4. 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.
5. Arrangements to control loss/leakage of chemicals and management system in case of leakage.
6. 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.
7. Justification of the project
8. Route map indicating project location. Details of land to be acquired. Details of projects vis-à-vis ESAs and approvals thereof.
9. 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.
10. Analysis of alternative sites and Technology.
11. Location of National Park/Wild life sanctuary/Reserve Forest within 10 km radius of the project.

12. Recommendation of SCZMA /CRZ clearance for the proposed pipeline.
13. Present land use based on satellite imagery for the study area of 10 km radius.
14. 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.
15. Process Description along with Process Flow Diagram.
16. Details of water consumption and source of water supply, waste water generation, treatment and effluent disposal.
17. Detailed solid & Hazardous waste generation, collection, segregation, its recycling and reuse, treatment and disposal.
18. Total cost of the project along with total capital cost and recurring cost/annum for environmental pollution control measures.
19. Site-specific micro-meteorological data for temperature, relative humidity, hourly wind speed and direction and rainfall for one season at one location.
20. 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.
21. Determination of atmospheric inversion level and assessment of ground level concentration of pollutants. Air quality modelling for proposed project.
22. At about 10 locations, water monitoring will be conducted including surface & ground water for one season (Non Monsoon)
23. At 15 locations, Soil sample analysis within the study area for one season (Non Monsoon).
24. At 30 locations, noise Monitoring will be taken up for one season (Non Monsoon)
25. Demography & socio-economics of the study area.
26. Ecological features (terrestrial & Aquatic) of the study area for one season (Non Monsoon)
27. Assessment of impact on air, water, soil, solid/hazardous waste and noise levels.
28. Air pollution control measures proposed for the effective control of gaseous emissions within permissible limits.
29. Details of proposed preventive measures for leakages and accident.
30. Risk assessment including Hazard identification, Consequence Analysis, Risk Assessment and preparation of Disaster Management Plan as per Regulations.

31. Corrosion Management of Pipeline
32. Details of proper restoration of land after laying the pipelines.
33. Details of proposed Occupational Health Surveillance program for the employees and other labour
34. 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.

B. Additional TOR

- i. Public hearing to be conducted in each district where pipeline is passing 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. Recommendation from SCZMA to be submitted.

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.

15.4.2 Drilling of two exploratory wells in nominated PEL BLOCK BB-OS-DW-II, Mumbai Offshore by M/s ONGC – 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 Drilling of two exploratory wells in nominated PEL BLOCK BB-OS-DW-II, Mumbai Offshore. Total area of the block is 8950 Km². The proposed drilling depth of each well will be between 1500-2100 m. Total cost of the project is Rs. 295 crore. Proposed project has employment potential of 80-100. It is reported that no national parks/Wildlife Sanctuary/ Reserve/ protected forest lies within 10 km distance. Coordinates of the Block BB-OS-DW-11 are as follows:

Point	Longitude (E)			Latitude (N)		
	Degree	Minute	Second	Degree	Minute	Second
A	69°	38'	21.92"	19°	00'	00.00

B	69°	27'	18.80"	19°	19'	11.40"
C	69°	15'	00.00"	19°	13'	00.00"
D	69°	15'	00.00"	19°	30'	00.00"
E	68°	45'	00.00"	19°	30'	00.00"
F	68°	45'	00.00"	19°	52'	42.16"
G	69°	02'	01.73"	19°	52'	42.16"
H	68°	57'	06.92"	20°	02'	50.27"
I	69°	07'	06.08"	20°	08'	06.48"
J	68°	53'	55.00"	20°	30'	27.00"
K	68°	48'	30.00"	20°	30'	27.00"
L	68°	48'	30.00"	20°	41'	53.51"
M	68°	45'	00.00"	20°	41'	53.51"
N	68°	45'	00.00"	20°	50'	00.00"
O	68°	59'	20.00"	20°	50'	00.00"
P	69°	07'	30.00"	20°	43'	45.00"
Q	69°	08'	35.00"	20°	39'	00.00"
R	69°	23'	08.00"	20°	39'	10.00"
S	69°	27'	53.00"	20°	16'	20.00"
T	69°	22'	44.00"	20°	16'	02.00"
U	69°	24'	57.00"	19°	58'	54.00"
V	69°	21'	33.00"	19°	55'	00.00"
W	69°	36'	00.00"	19°	20'	55.00"

X	69°	50'	29.00"	19°	01'	40.00
Y	69°	53'	00.00"	19°	00'	00.00

The power requirement for this exploratory well will be met through the five DG set. Fuel requirement will be 15 KLD of H.S.D during drilling Phase.

The daily water consumption will be 20 m³/d, which will be supplied through supply vessels. Water based Mud will be used as drilling fluid. Used water will be discharge in sea as per CPCB guide line vide GSR-541. 700 MT drill cutting will be generated, which will be disposed off in sea after washing & cleaning.

It was informed that detailed geological and geophysical studies, mostly 2D-seismic mapping have been carried out to finalize these locations, keeping in mind the results of previously drilled wells.

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 the project.
2. No. of exploratory wells for which environmental clearance is accorded and No. of new wells proposed during expansion. Status and No. of the wells which are completed and closed.
3. Project Description and Project Benefits;
4. Cost of project and period of completion.
5. Employment to be generated.
6. Distance from coast line.
7. Details of sensitive areas such as coral reef, marine water park, sanctuary and any other eco-sensitive area.
8. Recommendation of SCZMA/CRZ clearance as per CRZ Notification dated 6th January, 2011 (if applicable).
9. Details on support infrastructure and vessel in the study area.
10. Climatology and meteorology including wind speed, wave and currents, rainfall etc.
11. Details on establishment of baseline on the air quality of the areas immediately affected by the exploratory drilling and also particularly with reference to hydrogen sulphide, sulphur dioxide, NOx and background levels of hydrocarbons and VOCs.
12. Details on estimation and computation of air emissions (such as nitrogen oxides*, sulphur oxides*, carbon monoxide*, hydrocarbons*, VOCs*, etc.) resulting from flaring, DG sets, combustion, etc. during all project phases
13. Base line data collection for surface water for one season leaving the monsoon season within 1 km for each exploratory wells, particularly in respect of oil content in the water sample and sediments sample.
14. Fisheries study w.r.t. benthos and marine organic material and coastal fisheries.
15. Source of fresh water. Detailed water balance, waste water generation and discharge.

16. Noise abatement measures and measures to minimize disturbance due to light and visual intrusions in case of project site closed to the coast.
17. Procedure for handling oily water discharges from deck washing, drainage systems, bilges etc.
18. Procedure for preventing spills and spill contingency plans.
19. Procedure for treatment and disposal of produced water.
20. Procedure for sewage treatment and disposal and also for kitchen waste disposal.
21. Details on solid waste management for drill cuttings, drilling mud and oil sludge, produced sand, radioactive materials, other hazardous materials, etc. including its handling and disposal options during all project phases.
22. Storage of chemicals on site.
23. Commitment for the use of water based mud (WBM) and synthetic oil based mud in special case.
24. Details of blowout preventer Installation.
25. Risk assessment and mitigation measures including whether any independent reviews of well design, construction and proper cementing and casing practices will be followed.
26. Handling of spent oils and oil from well test operations.
27. H₂S emissions control plans, if required.
28. Details of all environment and safety related documentation within the company in the form of guidelines, manuals, monitoring programmes including Occupational Health Surveillance Programme etc.
29. Restoration plans and measures to be taken for decommissioning of the rig and restoration of on-shore support facilities on land.
30. Documentary proof for membership of common disposal facilities, if required.
31. Any litigation pending against the project or any directions/order passed by any Court of Law against the project. If so, details thereof.
32. Total capital and recurring cost for environmental pollution control measures.

B. Additional TOR

- I. Public hearing is exempted as project is located offshore.
- II. Characteristic of wastewater.
- III. Coordinate of wells to be provided in EIA-EMP report.
- IV. Compliance of existing EC to be submitted.
- V. Diversity of aquatic flora and fauna .

It was recommended that 'TOR without 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.

15.4.3 Exploratory Drilling of one well in Kangra Mandi PEL block, district Mandi, Himachal Pradesh by M/s ONGC – 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.

Ministry has issued EC vide letters no. J-11011/160/2007-IA II (I) dated 16.11.2009 and J-11011/410/2012-IA II (I) dated 21.06.2013.

M/s ONGC Ltd. has proposed for Exploratory Drilling of one well in Kangra Mandi PEL block, district Mandi, Himachal Pradesh. Area of the block is 1828 Km². Application was proposed for 3 wells but during presentation PP requested for one well only. Coordinate one well is as follow;

Well Name	Latitude	Longitude
B-MKI-1	31°50'36.80	76°46'20.70

Cost of the proposed project will be Rs. 105 crores. Proposed depth of drilling is 1600 m. It is reported that no national parks/Wildlife Sanctuary/ Reserve/ protected forest lies within 10 km distance. Beas river is flowing at a distance of 3 Km from the proposed well site. During presentation the committee noted that PP has submitted Coordinates of block in place of wells.

The power requirement for this exploratory well will be met through the operation of DG set. Fuel requirement will be 6-8 KLD of diesel during drilling Phase. Fuel will be supplied onsite by local supplier through mobile tankers.

Fresh water requirement will be 15-20 m³/d which will be sourced from tube well/Tankers. The quantity of drill cuttings generated will be around 120m³ for B-MKI-1. The quantity of waste water produced will be about 2-3m³/ day. Water will be sourced from contractors through tanker or tube well after validating their permission from concerned authorities. A total of 200 m³ of Drilling Waste will be generated and will be based on target depth of well.

It is reported that the temporarily storage of drilling waste will be in an HDPE lined pit and will be subsequently treated to ensure conformance with CPCB designated Best Use Standards and Oil Drilling & Gas Extraction Industry Standards and guidelines provided by the MoEFCC under the Hazardous Wastes (Management, Handling & Trans boundary Movement) Rules, 2008. The major solid waste generated during peak drilling period will be 410-585m³ of mud Cuttings, 15-20 m³ per day of waste water would also be generated.

Drill cuttings generated will be collected and separated using a solid control system and temporarily stored on-site in HDPE lined pits. Drilling and wash wastewater generated will also be stored at an onsite HDPE lined pit. The water will be adequately treated in a ETP.

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 the project.

2. No. of exploratory wells for which environmental clearance is accorded and No. of new wells proposed during expansion. Status and No. of the wells which are completed and closed.
3. Project Description and Project Benefits;
4. Cost of project and period of completion.
5. Employment to be generated.
6. Distance from coast line.
7. Details of sensitive areas such as coral reef, marine water park, sanctuary and any other eco-sensitive area.
8. Details on support infrastructure and vessel in the study area.
9. Climatology and meteorology including wind speed, wave and currents, rainfall etc.
10. Details on establishment of baseline on the air quality of the areas immediately affected by the exploratory drilling and also particularly with reference to hydrogen sulphide, sulphur dioxide, NOx and background levels of hydrocarbons and VOCs.
11. Details on estimation and computation of air emissions (such as nitrogen oxides*, sulphur oxides*, carbon monoxide*, hydrocarbons*, VOCs*, etc.) resulting from flaring, DG sets, combustion, etc. during all project phases
12. Base line data collection for surface water for one season leaving the monsoon season within 1 km for each exploratory wells, particularly in respect of oil content in the water sample and sediments sample.
13. Fisheries study w.r.t. benthos and marine organic material and coastal fisheries.
14. Source of fresh water. Detailed water balance, waste water generation and discharge.
15. Noise abatement measures and measures to minimize disturbance due to light and visual intrusions in case of project site closed to the coast.
16. Procedure for handling oily water discharges from deck washing, drainage systems, bilges etc.
17. Procedure for preventing spills and spill contingency plans.
18. Procedure for treatment and disposal of produced water.
19. Procedure for sewage treatment and disposal and also for kitchen waste disposal.
20. Details on solid waste management for drill cuttings, drilling mud and oil sludge, produced sand, radioactive materials, other hazardous materials, etc. including its handling and disposal options during all project phases.
21. Storage of chemicals on site.
22. Commitment for the use of water based mud (WBM) and synthetic oil based mud in special case.
23. Details of blowout preventer Installation.
24. Risk assessment and mitigation measures including whether any independent reviews of well design, construction and proper cementing and casing practices will be followed.
25. Handling of spent oils and oil from well test operations.
26. H₂S emissions control plans, if required.
27. Details of all environment and safety related documentation within the company in the form of guidelines, manuals, monitoring programmes including Occupational Health Surveillance Programme etc.
28. Restoration plans and measures to be taken for decommissioning of the rig and restoration of on-shore support facilities on land.
29. Documentary proof for membership of common disposal facilities, if required.
30. Any litigation pending against the project or any directions/order passed by any Court of Law against the project. If so, details thereof.
31. Total capital and recurring cost for environmental pollution control measures.

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. Compliance of existing EC to be submitted.

It was recommended that 'TOR 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.

15.4.4 Laying of pipeline from Ramanathapuram-Tuticorin R-LNG section of ETBPNMTPL project having 35 MMSCMD capacity passing through district of Ramanathapuram and Thoothukkudi in Tamil Nadu by M/s IOCL- reg TOR.

The project proponent 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) for preparation of EIA-EMP report. All Oil & Gas Transportation Pipeline (crude and refinery/petrochemical products) passing through national parks/sanctuaries/coral reefs/ecologically sensitive areas are listed at S.N. 6 (a) under category 'A' and appraised at Central level.

M/s IOCL has proposed for Laying of pipeline from Ramanathapuram-Tuticorin R-LNG section of ETBPNMTPL project having 35 MMSCMD capacity passing through district of Ramanathapuram and Thoothukkudi in Tamil Nadu. It is reported that the pipeline would cross a number of rivers, canals, roads, forest areas and 5 eco-sensitive zone from Sakkarakottai Bird Sanctuary, Keelsevanur – Melsevanur Bird Sanctuary and Chithrangudi bird sanctuary. Apart from that the pipeline also traverses through the biosphere reserve of gulf of Mannar and buffer zone of Marine National park of gulf of Mannar in State of Tamil Nadu. The project involve following major features:

Pipeline specifications:	18" Pipeline along with connectivity to anchor customers with 6" spur lines.
Pipeline length	142 Km
Capacity	35 MMSCMD
Project Cost	Rs. 700 crore
Originating Point	ONGC Marginal fields at Ramanathapuram
Terminal	Tuticorin in tamil nadu

The proposal of laying the proposed branch pipeline system would broadly involve the following activities.

- 142 km of 18" pipeline along with connectivity to anchor customers with 6" spur lines.
- Sectionalizing valves, intermediate pigging stations,
- Tap-off points for anchor customer enroute.
- Compressor station at Ramanathapuram.
- Installation of custody transfer metering facilities for anchor customers at their premises.

- Associated pipeline facilities at Ramanathapuram and anchor customers.

During presentation PP confirmed that pipeline project traverses through two districts and Pipeline will pass through number of river, canal, road, forest areas and eco-sensitive zone.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure-I (as referred on Ministry's web site) 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 labor
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. Public hearing to be conducted in 2 districts through which the pipeline passes. Point wise comments/reply to the issues raised during Public Hearing / Public Consultation.

B. Additional TOR

- I. Public hearing to be conducted in Ramanathapuram and Tuticorin districts 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. Detail w.r.t. pumping station, marketing storage facility if any at all along the route and rivers, canal, forest land etc. involved in the project.
- III. A copy of letter seeking Wildlife clearance to be submitted.
- IV. Forest clearance to be obtained.
- V. CRZ clearance to be submitted.
- VI. Detailed route map of pipeline to be submitted.

It was recommended that 'TOR 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.

15.4.5 Exploratory Drilling of Forty Eight (48) Wells in Thirteen (13) ML Blocks of Western Onshore Basin District Surat, Bharuch and Vadodara, Gujarat by M/sONGC

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.

Ministry has issued EC vide letter J-11011/160/2007-IA II (I) dated 25.06.2014 to M/ ONGC for Exploratory drilling of 67 wells.

M/s ONGC Ltd. has proposed for Exploratory Drilling of Forty Eight (48) Wells in Thirteen (13) ML Blocks of Western Onshore Basin District Surat, Bharuch and Vadodara, Gujarat. Area of land required is 12100 m² per well. It is reported that no national parks,

Reserve/ protected forest, Wildlife Sanctuary River lies within 10 km distance. All 48 wells to be drilling within PML block covering 13 blocks and having area of 1456 sq km and covering three districts.

Area of land required for each well will be 110m X110 m. Estimated cost of project is. 1082.70 crores. Power will be sourced from two DG Set of 1250 KVA and 1 DG set will be used as standby. Diesel consumption will be 2.8-3 m3/day.

The daily fresh water consumption will be 30-35 m3/day, of which 15 m3/d will be used for mud preparation and 10 m3/d will be used for domestic purposes including drinking. Water will be made available from the nearest ONGC installation, and will be transported by water tanker. A water pit of approx.100 m3 capacity will be constructed at the site for the purpose of fire fighting. Wastewater generated from drilling operation is sewage from sanitation facilities, which shall be disposed through septic tanks/soak pits. It is expected that wastewater in the form of washings shall be generated at an average rate of around 5 m3/day during the drilling operations from a single well. Waste water will be discharged in HDPE lined pit, and solar dried.

Drill cuttings generated will be collected and separated using a solid control system and temporarily stored on-site in HDPE lined pits. Drilling and wash wastewater generated will also be stored at an onsite HDPE lined pit. The water will be adequately treated in a mobile ETP.

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 the project.
2. No. of exploratory wells for which environmental clearance is accorded and No. of new wells proposed during expansion. Status and No. of the wells which are completed and closed.
3. Project Description and Project Benefits;
4. Cost of project and period of completion.
5. Employment to be generated.
6. Distance from coast line.
7. Details of sensitive areas such as coral reef, marine water park, sanctuary and any other eco-sensitive area.
8. Recommendation of SCZMA/CRZ clearance as per CRZ Notification dated 6th January, 2011 (if applicable).
9. Details on support infrastructure and vessel in the study area.
10. Climatology and meteorology including wind speed, wave and currents, rainfall etc.
11. Details on establishment of baseline on the air quality of the areas immediately affected by the exploratory drilling and also particularly with reference to hydrogen sulphide, sulphur dioxide, NOx and background levels of hydrocarbons and VOCs.
12. Details on estimation and computation of air emissions (such as nitrogen oxides*, sulphur oxides*, carbon monoxide*, hydrocarbons*, VOCs*, etc.) resulting from flaring, DG sets, combustion, etc. during all project phases

13. Base line data collection for surface water for one season leaving the monsoon season within 1 km for each exploratory wells, particularly in respect of oil content in the water sample and sediments sample.
14. Fisheries study w.r.t. benthos and marine organic material and coastal fisheries.
15. Source of fresh water. Detailed water balance, waste water generation and discharge.
16. Noise abatement measures and measures to minimize disturbance due to light and visual intrusions in case of project site closed to the coast.
17. Procedure for handling oily water discharges from deck washing, drainage systems, bilges etc.
18. Procedure for preventing spills and spill contingency plans.
19. Procedure for treatment and disposal of produced water.
20. Procedure for sewage treatment and disposal and also for kitchen waste disposal.
21. Details on solid waste management for drill cuttings, drilling mud and oil sludge, produced sand, radioactive materials, other hazardous materials, etc. including its handling and disposal options during all project phases.
22. Storage of chemicals on site.
23. Commitment for the use of water based mud (WBM) and synthetic oil based mud in special case.
24. Details of blowout preventer Installation.
25. Risk assessment and mitigation measures including whether any independent reviews of well design, construction and proper cementing and casing practices will be followed.
26. Handling of spent oils and oil from well test operations.
27. H₂S emissions control plans, if required.
28. Details of all environment and safety related documentation within the company in the form of guidelines, manuals, monitoring programmes including Occupational Health Surveillance Programme etc.
29. Restoration plans and measures to be taken for decommissioning of the rig and restoration of on-shore support facilities on land.
30. Documentary proof for membership of common disposal facilities, if required.
31. Any litigation pending against the project or any directions/order passed by any Court of Law against the project. If so, details thereof.
32. Total capital and recurring cost for environmental pollution control measures.

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 well to be provided in EIA-EMP.

It was recommended that 'TOR 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.

15.4.6 Installation of Gas Turbine Generator and Heat Recovery Steam Generator at RCF Trombay under energy reduction Scheme at village Maravali & Anik, Tehsil Kurla, Maharashtra by M/s Rashtriya Chemicals and Fertilizers Ltd – reg TOR.

The project proponent 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) for preparation of EIA-EMP report. All Chemical fertilizers industry are listed at S.N. 5 (a) under category 'A' and appraised at Central level.

M/s M/s Rashtriya Chemicals and Fertilizers Ltd has proposed for Installation of Gas Turbine Generator and Heat Recovery Steam Generator at RCF Trombay under energy reduction Scheme at village Maravali & Anik, Tehsil Kurla, Maharashtra. Existing land area is 560 Acres, out of which proposed project will be carried out in 1.36 Acre area. The estimated cost of project is 481.61 crore. It is reported that no national parks, Reserve/ protected forest, Wildlife Sanctuary lies within 10 km distance. PP confirms that there will be no change in the production. The project involve following major features:

- GTG (2 X 32 MW) ISO Rating
- HRSG (2 x 65 TPH)
- Replacement of turbine for Benfield solution pump in ammonia V with new motor.
- Deaerator with HP BFW pump motor Set
- One PRDS system for 12 ata to 4.5 ata in Ammonia-V
- Modification in power distribution system.

Existing power requirement is 40 MW, sourced from TATA. After proposed modification power import will be discontinued and it is proposed to install GT of 2x32 MW ISO and HRSG of 2x65 MTPH capacities. Existing natural gas consumption in Steam generation plant is 16736 Sm³/hr, which will reduced to 7524 m³/hr after revamping. After this modification project freshwater requirement will be reduced by 1270 m³/day.

A. Standard TOR

1. Details on requirement of energy and water alongwith its source and authorization from the concerned department.
2. Energy conservation in ammonia synthesis for urea production and comparison with best technology.
3. Details of ammonia storage and risk assessment thereof.
4. Measures for control of urea dust emissions from prilling tower.
5. Measures for reduction of fresh water requirement.
6. Details of proposed source-specific pollution control schemes and equipments to meet the national standards for fertilizer.
7. Details of fluorine recovery system in case of phosphoric acid plants and SSP to recover fluorine as hydrofluoro silicicacid (H₂SiF₆) and its uses.
8. Management plan for solid/hazardous waste including storage, utilization and disposal of bye products viz., chalk, spent catalyst, hydro fluoro silicic acid and phosphor gypsum, sulphur muck, etc.
9. Details on existing ambient air quality for PM₁₀, PM_{2.5}, Urea dust*, NH₃*, SO₂*, NO_x*, HF*, F*, Hydrocarbon (Methane and Non-Methane) etc., and expected, stack and fugitive emissions and evaluation of the adequacy of the proposed pollution control devices to meet standards for point sources and to meet AAQ

standards.(*as applicable)

10. Details on water quality parameters in and around study area such as pH, Total Kjeldhal Nitrogen, Free Ammonical Nitrogen, free ammonia, Cyanide, Vanadium, Arsenic, Suspended Solids, Oil and Grease, *Cr as Cr⁺⁶, *Total Chromium, Fluoride, etc.

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. Efforts to be made to make tie up with M/s BPCL for disposing treated wastewater of STP for industrial purposes. Quantity of effluent to be worked immediately for the M/s BPCL.

It was recommended that 'TOR 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.

15.4.7 Augmentation of Koyali- Sanganer Pipeline by augmenting pumping station at Vadodara, Pali by M/s IOCL- reg. TOR.

The project proponent 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) for preparation of EIA-EMP report. All Oil & Gas Transportation Pipeline (crude and refinery/petrochemical products) passing through national parks/sanctuaries/coral reefs/ecologically sensitive areas are listed at S.N. 6 (a) under category 'A' and appraised at Central level.

Ministry has issued Environmental Clearance vide letter no. J-11011/66/2001-IA II (I) dated 23.12.2002 to M/s IOCL

M/s IOCL has proposed for Augmentation of Koyali- Sanganer Pipeline by augmenting pumping station at Vadodara, Pali. Total cost of proposed project is Rs 276.23 crore. It is reported that No national park and Protected forest/ reserved forest lies within 10 km radius of the project but this pipeline project passes through Eco-sensitive zone of Balaram and Jessore Sloth bear Wildlife sanctuary in district Banaskantha in state of Gujarat. The existing KSPL pipeline passes through Gujarat and Rajasthan. Pumping stations is at Gujarat. Koyali pumping station, Viramgam station, Kot Station and Sidhpur station. The project involve following major features:

- Existing pipe line length is 1285 kms.
- KSPL augmentation project the capacity would be augmented from existing 4.6 MMTPA to 6 MMTPA with use of DRA (Drag reducing Agent).
- Project Cost is Rs. 276.23 crore.

The proposal would broadly involve the following activities.

- Replacement of 1 existing motor-driven MLPU(Main Line Pumping Unit) at Koyali with new MLPU of adequate capacity
- Replacement of 2 existing mainline pumps at Koyali with new pumps of adequate capacity
- Installation of 3 (2+1) motor-driven MLPUs of adequate capacity at Viramgam for pumping in Viramgam-Sidhpur section
- Replacement of all existing engine/motor-driven MLPUs at Sidhpur and Kot with new MLPUs of adequate capacity
- 1 LBT of 10,000 kl nominal capacity at Kot.

The power supply will be met through 33 KV grid power supply from Jaipur. 33/6.6 KV switchyard has been envisaged for extending 6.6 KV power supply to MLPUs. During construction phase water requirement will be 20m³/day which will be met from the tanker supply. No water required during operational phase. No waste water will generate due to project activity.

No solid waste will generate. The project belongs to augmentation for enhancing the capacity of the stations. Pipeline will pass through number of river, canal, road, forest areas and eco-sensitive zone.

After detailed deliberations, the Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure-I (as referred on Ministry's web site) 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 predominant 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 labor
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.

B. Additional TOR

- I. Public hearing is exempted as per para 7 (ii) of EIA, Notification 2006.
- II. One month data shall be obtained.
- III. Detailed route map of pipeline to be submitted.

It was recommended that 'TOR along without 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.

15.5 Any Other

15.5.1 Drilling of Exploratory Wells (26 Nos.) in PEL & PML blocks of Cachar Forward Base, in Assam by M/s ONGC Ltd. - regarding extension in TOR.

Ministry had issued TOR with Public Hearing to M/s ONGC Ltd. vide letter No.J-11011/229/2012-IA II (I) dated 11th September 2013 for Drilling of Exploratory Wells (26 Nos.) in PEL & PML blocks of Cachar Forward Base, in Assam.

Now, Project Proponent has applied online application vide dated 8th August 2016 seeking amendment in TOR's for extension in validity of existing TOR's.

As per MOEF&CC O.M No.J-11013/41/2006-Ia-II(I) (Part) dated 8th October 2014, the validity of TOR has been extended from 2 years to 3 years. As such the existing TOR was valid till 11th September 2016. During presentation, PP also requested for amendment in TOR by shifting one drilling location and dropping one well, which leave total number of wells up to 25 nos.

PP has applied for extension of TOR within the time limit of existing TOR.

After deliberation, the Committee recommended the aforesaid amendment for 25 wells in place of 26 wells and for extension of TOR up to 10th September 2017.

15.5.2 Exploratory drilling of 6 wells of M/s ONGC in PML Cauvery Offshore, Cauvery Basin, Tamil Nadu- reg amendment in TOR.

Proposal already recommended by Expert Appraisal Committee (Industry) in its 8th meetings held during 26th-27th May, 2016.

15.5.3 New Integrated unit of coal based Fertilizer & Chemical Complex at village Vikrampur, Talcher, Ansul, Odisha by M/s Rastriya Chemical and Fertilizer Ltd. – reg extension of TOR.

Ministry had issued TOR with Public Hearing to M/s Rastriya Chemical and Fertilizer Ltd. vide letter No.J-11011/231/2013-IA II (I) dated 26th November 2013 for New Integrated unit of coal based Fertilizer & Chemical Complex at village Vikrampur, Talcher, Ansul, Odisha.

Now, Project Proponent has applied online application vide dated 26th August 2016 seeking extension in validity of existing TOR for another one year.

As per MOEF&CC O.M No.J-11013/41/2006-IA-II(I) (Part) dated 8th October 2014, the validity of TOR has been extended from 2 years to 3 years and extendable for another one year.

PP has applied for extension of TOR within the time limit of existing TOR.

After deliberation, the Committee recommended the aforesaid extension of TOR up to 25th November, 2017.

15.5.4 Expansion of LPG Mounded Storage capacity from 2100 MT to 4200 MT project at village Dilwari, Gaderi, Tehsil: Nasirabad, District Ajmer Rajasthan by M/s Hindustan Petroleum Corporation Limited reg amendment in EC.

Ministry had issued Environmental clearance to M/s Hindustan Petroleum Corporation Limited vide letter No.J-11011/274/2008-IA II (I) dated 21st August, 2008 for Expansion of LPG Mounded Storage capacity from 2100 MT to 4200 MT project at village Dilwari, Gaderi, Tehsil: Nasirabad, district Ajmer, Rajasthan.

Project Proponent has applied online vide dated 19th September, 2016 for seeking amendment in the existing EC.

Now, PP informed that emergency power requirement is 1000 KVA but existing unit has Two DG set of 380 and 125 KVA respectively. So as to cater the emergency power requirement PP wants to install one additional DG set of 500 KVA capacity.

After deliberation, the Committee recommended the aforesaid amendment in existing EC subject to the followings;

1. Acoustic DG should be deployed as per CPCB guidelines with adequate stack.
2. Efforts to be made for use of cleaner fuel for existing as well as proposed DG set.

15.5.5 Recovery of Styrene at Indian Oil Panipat Refinery & Petrochemical Complex at Panipat, Haryana by M/s Indian Oil Corporation Limited. - reg Site Visit Report

As per recommendations of the Expert Appraisal Committee (Industry-2) in its 11th meeting held during 20-21st July, 2016, a Sub-committee comprising of Dr. J P Gupta, Chairman, Shri LK Bokolia, Additional Director and Dr Saurabh Upadhyay, Scientist 'B' MoEF&CC was to visit the project site to assess the pollution control measures being adopted in the existing plant and to suggest additional pollution control measures to be adopted in the proposed project.

Site visit was conducted by the Sub-committee on 05.11.2016 and the following officials from IOCL were present during presentation:

1. Shri B V Rama Gopal – Executive Director(I/C)
2. Shri T D V Gopalakrishna - GM(I/C)
3. Shri L C Gopalani – GM(TS)
4. Shri S K Verma - GM(P& U)
5. Shri H V Farkya - DGM(HSE)
6. Shri Anand Kr Varma – DGM(Project)
7. Shri B Saha - DGM(Production)
8. Shri S C Ghosh - DGM(TS)

Firstly, team visited Main control room (MCR) wherein technological software of control panel was seen. Team was explained about MCR consists of DDCS control panel of different units Panipat Naphtha Cracker like - NCU,HDPE , SWING, PP , PTD etc. Capacities of these plants follow as below:

Naphtha Cracker Unit	: 0.80 (MMTPA)
LLDPE/HDPE Swing Unit	: 0.35 (MMTPA)
HDPE Unit	: 0.30 (MMTPA)
Polypropylene Unit	: 0.60 (MMTPA)
MEG Unit	: 0.30 (MMTPA)

After that EAC team visited Cooling towers & main Naphtha Cracker unit. EAC team also visited PADC(Product Application & Development centre) . EAC team visited ETP(Effluent treatment Plant) and checked VOC system , Bioremediation , & TPI sections.

PNC ETP is design to treat 200 m³/ hr OWS, 130 m³ /hr CRWS and 9.5 m³ /hr sanitary waste. Different effluent streams generated from NCU&AU, HDPE, HDPE/LLDPE SWING, PP, MEG, CPP and offsite facilities and utilities which are collected, regenerated and treated in ETP. The treatment of effluent involves the following steps.

- Oil removal/separation section
- Chemical Treatment section
- Biological treatment section
- Polishing section
- Slop oil & sludge handling section
- Chemical dosing section
- Sludge Bio remediation section
- Slop Oil Recycling to PFO
- VOC treatment system
- Spent Caustic Treatment System

Ethylene Recovery Unit in Brief

- The capacity of proposed plant is 18.8 KTA.

- The cost of project is 347 Crores approximately.
- Plant will not have any fired heaters.
- Water requirement is 2.5m³/hr., which will be met within allocated limit of 3100 m³/hr.
- About 0.2 m³/hr., liquid effluent will be generated which will be treated in existing ETP.
- Gaseous emission will take place from off gas during reactor regeneration in 1-2 years for 3 days

Styrene Recovery Unit in Brief

- The capacity of proposed plant is 20KTA.
- The cost of project is 190 Crs approximately.
- Plant will not have any fired heaters.
- About 0.2 m³/hr, liquid effluent will be generated which will be treated in existing ETP.
- Gaseous emission will take place from off gas during reactor regeneration in 1- 2 years for 3 days

Observations:

- i. Committee noted odor near and at treatment plant due to reaction of oil with chemicals used in the treatment system. It was suggested that efforts to be made to catch the oil at the source and whatever spill over at the treatment should be tapped properly.
- ii. VOC at the effluent treatment plant need to be monitored regularly.
- iii. Bio remediation site require proper maintenance and continuous supervision so that oily sludge could be managed properly
- iv. There need to be developed be adequate green belt within treatment plant to arrest the emission.

Based on the observations at the project site, Sub-committee recommends the following specific conditions to be stipulated in the EC:

1. Adequate odour management plan and its mitigation measure to be implemented on priority.
2. Regular VOC monitoring to be done at vulnerable points.
3. Bio-remediation site needs to be maintained properly. The oily sludge shall be subjected to melting pit for oil recovery and the residue shall be bio-remediated. The sludge shall be stored in HDPE lined pit with proper leachate collection system.

The aforesaid recommendation of the sub-committee discussed in meeting. After detailed deliberations, the Committee found the final EIA/EMP report adequate and suggested to stipulate following specific conditions along with other environmental conditions while considering for accord of environmental clearance:

- i) the Ministry vide G.S.R. 608(E) dated 21st July, 2010 and amended time to time shall be complied by the unit.
- ii) Compliance to all the environmental conditions stipulated in the environmental clearance shall be satisfactorily implemented and compliance reports submitted to the Ministry's Regional Office of MEF&CC.
- iii) All pollution control and monitoring equipments shall be installed, tested and interlocked with the process. SPCB shall grant 'Consent to Operate' after ensuring that all the mentioned pollution control equipments, construction of storm water drain, rain water harvesting structure, Greenbelt, uploading of compliance report on the website etc have been implemented.
- iv) SO₂ emissions after expansion from the plant shall not exceed 138 kg/hr and further efforts shall be made for reduction of SO₂ load through use of low sulphur fuel. Sulphur recovery units shall be installed for control of H₂S emissions.
- v) Ambient air quality data shall be collected as per NAAEQS standards notified by the Ministry vide G.S.R. No. 826(E) dated 16th September, 2009. The levels of PM₁₀, PM_{2.5}, SO₂, NO_x, VOC and CO shall be monitored in the ambient air and emissions from the stacks and displayed at a convenient location near the main gate of the company and at important public places. The company shall upload the results of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MOEF, the respective Zonal office of CPCB and the state Pollution Control Board (MPCB).
- vi) In plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Fugitive emissions shall be controlled by providing closed storage, closed handling & conveyance of chemicals/materials, multi cyclone separator and water sprinkling system. Dust suppression system including water sprinkling system shall be provided at loading and unloading areas to control dust emissions. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored. The emissions shall conform to the limits stipulated by the SPCB.
- vii) 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.

- viii) Total fresh water requirement from canal shall not exceed 1700 m³/hr. and prior permission shall be obtained from the Competent Authority. No ground water shall be used without permission.
- ix) The marginal waste water from SRU & ERU plants shall be sent to ETP/RO plant. Effluent stream shall be treated in the ETP comprising primary, secondary and tertiary treatment facility. As proposed RO plant shall be employed to treat 140 m³/hr.
- x) Automatic /online monitoring system (24 x 7 monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB and in the Company's website.
- xi) Adequate odour management plan and its mitigation measure to be implemented on priority.
- xii) Regular VOC monitoring to be done at vulnerable points.
- xiii) The oily sludge shall be subjected to melting pit for oil recovery and the residue shall be bio-remediated. The sludge shall be stored in HDPE lined pit with proper leachate collection system.
- xiv) Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MEF&CC. Outcome from the report to be implemented for conservation scheme.
- xv) Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.
- xvi) Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm. Solvent transfer shall be by pumps.
- xvii) The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All Transportation of Hazardous Chemicals shall be as *per* the Motor Vehicle Act (MVA), 1989.
- xviii) The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms.
- xix) Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
- xx) At least 2.5 % of the total cost of the project shall be earmarked towards the Enterprise Social Commitment (ESC) based on local needs and action plan with financial and physical breakup/details shall be prepared and submitted to

the Ministry's Regional Office at Bhopal. Implementation of such program shall be ensured accordingly in a time bound manner.

- xxi) As proposed, green belt over 33% shall be developed within plant premises with at least 10 meter wide green belt 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.

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 NAQPM 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.
- ix. 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 14th MEETING OF EAC (INDUSTRY-2)
HELD ON 26-27th October , 2016

S.N.	Name	Designation	Attendance
1	<u>Dr. J. P. Gupta</u>	Chairman	P
2	<u>Sh. R. K. Singh</u>	Member	A
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
6	<u>Dr. N. Nandini</u>	Member	P
7	<u>Prof. (Dr.) H.R. V Reddy</u>	Member	A
8	<u>Dr. Shashank Shekhar</u>	Member	Ab
9	<u>Ms. Saloni Goel</u>	Member	P
10.	<u>Shri _____ Suhas RamchandraPharande</u>	Member	Ab
11.	<u>Shri G. C. Pati</u>	Member	Ab
12	<u>Dr. Sanjay Bist</u>	Member	Ab
13	<u>Sh. Paritosh Kumar, CPCB</u>	Member	Ab
14	<u>Sh. Y.V. Rami Reddy</u>	Member	P
MOEF &CC Representatives			
15	Shri Lalit Bokolia	Additional Director & MS	P

		Industry-(2)	
16.	Shri A.N. Singh, JD	MEF&CC	Ab
17	Dr. Saurabh Upadhyay, Sc-B	MEF&CC	P