



IndianOil

BARAUNI REFINERY

Date: 01st June 2017

Subject: Status of Environmental Clearance Conditions for MS quality up-gradation and HSD quality up-gradation in Barauni Refinery

Ref: Ministry's clearance letter no J-11011/15/2015 - IA II (I) dated 06.03.2017.

SN	Point	Status
A	Specific Conditions	
i.	M/s IOCL shall comply with standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18 th March, 2008.	<ul style="list-style-type: none">• Please refer Annexure-1 for detailed status for compliance of 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 SO ₂ , NO _x and CO of all the stacks shall be carried out.	<ul style="list-style-type: none">• Continuous on-line stack analyzers for monitoring of SO₂, NO_x and CO have been installed and connected to CPCB server.• Complied.
iii.	The process emissions {SO ₂ , NO _x , HC (Methane & Non-methane)}, VOCs and Benzene from various units shall conform to the standards prescribed under the Environment (Protection) Act, 1986. 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.	<ul style="list-style-type: none">• SO₂, NO_x, CO & PM are monitored with online SO₂, NO_x, CO and PM analyzers.• Process emissions from all units are monitored once in two months except SRU (which is monitored monthly) by MoEF approved external agency M/s Ecomen Laboratories Pvt. Ltd.• Total SO₂ emissions from existing units at BR are less than the stipulated limit of 815 kg/hr.• Complied.
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.	<ul style="list-style-type: none">• Leak detection and repair programme is already in place at Barauni Refinery and same is carried out on quarterly basis.• Preventive maintenance schedule for each unit is in place and same is strictly adhered to.• Monitoring of fugitive emission from tank farm area is included in Leak Detection and Repair Programme.• 394 nos of hydrocarbon detectors are installed in strategic locations in the various process units, tank farm, and other plausible locations.• Complied.

v.	SO ₂ emissions after expansion from the plant shall not exceed 815 kg/hr and further efforts shall be made for reduction of SO ₂ load through use of low sulphur fuel. Sulphur recovery units shall be installed for control of H ₂ S emissions. The overall sulphur recovery efficiency of Sulphur recovery unit with tail gas treating shall not be less than 99.9%.	<ul style="list-style-type: none"> • Total SO₂ emission from existing units at BR is less than the stipulated limit of 815 kg/hr. • SRU (Sulphur Recovery Unit) unit consisting of 2 chains of capacity 40 MT/day of Sulphur production each is installed at Barauni Refinery. • As per norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18th March, 2008, existing SRU installed in the refinery should have 98.7% sulphur recovery and Barauni Refinery complies this standard. • New SRU envisaged in upcoming project (capacity expansion) will be installed with overall sulphur recovery efficiency of min 99.9%. • Complied.
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.	<ul style="list-style-type: none"> • Sulphur balance record is being maintained as a part of Environmental data. • Complied.
vii.	Flare gas recovery system shall be installed.	<ul style="list-style-type: none"> • Flare gas recovery system is installed and operational in the refinery. • Complied.
viii.	Ambient air quality monitoring stations, [PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , H ₂ S, 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 deiced based on modeling exercise to represent short term GLCs.	<ul style="list-style-type: none"> • Five nos. of offline ambient air quality monitoring stations (four in refinery and one in township) and three nos. of continuous ambient air quality monitoring station has been provided at strategic locations at BR for monitoring of ambient air quality. • Ambient air quality is checked twice in a week in five nos. of offline ambient air quality monitoring stations as per MoEF standards 2009. • Complied.
ix.	The total water requirement from artesian wells after expansion of proposed project shall not exceed 651m ³ /hr and prior permission shall be obtained from the competent authority.	<ul style="list-style-type: none"> • Average fresh water requirement for 2016-17 is 632 m³/hr which is within the allowable limit of 651m³/hr. • The fresh water requirement post project shall be maintained within 651 m³/hr.
x.	As proposed, Industrial effluent generation shall not exceed 497 m ³ /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	<ul style="list-style-type: none"> • Industrial effluent generation for the year 2016-17 is 433 m³/hr which is within the allowable limit of 497 m³/hr and is treated in the effluent treatment plant of the refinery. • Industrial effluent generation post project shall be maintained within 497 m³/hr. • Zero liquid discharge is being maintained at Barauni Refinery except during heavy rainfall, when excess surface run off may have to be allowed to flow into

	plant (STP).	<p>Refinery owned pit (Burrow Pit) adjacent to refinery premise in the West.</p> <ul style="list-style-type: none"> • Treated effluent is being reused for following purpose in the refinery: <ul style="list-style-type: none"> ○ Cooling Tower makeup water ○ Fire water make up ○ Coke cutting water ○ Make up water for Eco Ponds ○ Horticulture in Eco park • Domestic sewage is treated in biological treatment plant of the refinery.
xi.	Automatic mechanical Oil catchers/oil traps shall be provided at all possible locations in rain/storm water drainage system inside the factory premises.	<ul style="list-style-type: none"> • Oil catchers have been constructed at following strategic locations of the refinery: <ul style="list-style-type: none"> ○ West of AVU-III ○ West of RFCCU ○ South of DHDT ○ East of Coker A ○ North of Coker A ○ North west corner of Stores ○ Final drain going to Burrow Pit. • Oil containment booms have also been installed at 3 nos of strategic locations in the refinery. • Oil collected/trapped by oil catcher and oil containment booms are transferred to ETP mechanically through gully suckers. • Complied.
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.	<ul style="list-style-type: none"> • RCC pit for storage of Oily Sludge is in place and mechanized skid process has been deployed for better recovery of oil from oily sludge in place of melting pit. Presently M/s Balmer Lawrie is engaged for this job. • Residual oily sludge is bio-remediated in HDPE lined pit. • Complied.
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 Ranchi.	<ul style="list-style-type: none"> • A total of Rs 3 Crore has been allocated for year 2017-18 for CSR/ESR activities. The detailed plan for expenditure of 1.2855 Cr is enclosed as Annexure-2. The plan for balance expenditure is under approval.
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.	<ul style="list-style-type: none"> • Total plot area of the refinery including BTP: 887.83 acres. • Green belt area in Refinery: 148.39 acres. • Green belt area in Refinery Township: 82.19 acres. • Total green belt area: 230.58 acres. • In view of unavailability of space within the refinery premises, scope for extensive tree plantation is limited. However, tree plantation is being taken up both in refinery and township at available spaces. 6000 nos of tree

		plantations have been planted during 2016-17. The district authority (Forest department) is being approached for development of additional green belt area.
B	General Conditions	
i.	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.	<ul style="list-style-type: none"> • Stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority are being followed. • Complied.
ii.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	<ul style="list-style-type: none"> • Prior approval of ministry would be taken before carrying out any expansion or modification of the plant if required. • Complied.
iii.	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one stations is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	<ul style="list-style-type: none"> • Five nos. of offline ambient air quality monitoring stations (four in refinery and one in township) and three nos. of continuous ambient air quality monitoring station has been provided at strategic locations at BR for monitoring of ambient air quality which are located both in upwind as well as downwind direction. • Complied.
iv.	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed.	<ul style="list-style-type: none"> • Ambient air quality is checked twice in a week in five nos. of offline ambient air quality monitoring stations as per the National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009. • Complied.
v.	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules viz. 75 dBA (day time) and 70 dBA (night time).	<ul style="list-style-type: none"> • The ambient noise levels from existing facilities conform to the standards prescribed under standards prescribed under Environment (Protection) Act, 1986 Rules. • For personnel working in the proximity of high noise generating equipments, appropriate PPEs are used, and exposure is controlled through job rotation, education and awareness. • Adequate noise control measures shall be taken in new facilities in the project. • Complied.
vi.	The company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.	<ul style="list-style-type: none"> • Rain water harvesting has been implemented at 14 buildings of Barauni Refinery in which water collected from roof top of the refinery is recharged to ground water. For year 2017-18, 10 nos of buildings have been planned for rain water harvesting. • Storm water drain of the refinery has been routed to ETP and storm water is being reused in refinery operation after

		<p>treatment along with ETP water except during heavy rainfall, when excess surface run off may have to be allowed to flow into Refinery owned pit (Burrow Pit) adjacent to refinery premise in the West.</p> <ul style="list-style-type: none"> • Complied.
vii.	<p>Training shall be imparted to all employees on Safety and health aspects of chemical handling. Pre- employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemical shall be imparted.</p>	<ul style="list-style-type: none"> • Training is continuously imparted to all employees on chemical handling. • Pre – employment medical examination of all employees are carried out before joining the organization. • Routine periodical medical examination as per statutory requirement is carried out on regular basis. • Complied.
viii.	<p>The company shall also comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing relating to the project shall be implemented.</p>	<ul style="list-style-type: none"> • Presently Environmental Monitoring of all required parameters in Refinery is carried out periodically. The existing practice shall be extended for the proposed project as per EIA/EMP report. • Recommendations of Quantitative Risk Analysis shall be implemented along with project execution.
ix.	<p>The company shall undertake all relevant measures for improving the socio economic conditions of the surrounding area. CSR activities shall be undertaken by involving local villages and administration.</p>	<ul style="list-style-type: none"> • Being done based on the drawn up schedule as part of CSR. CSR plan is finalized in consultation with mukhiyas of surrounding villages. • Complied
x.	<p>The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.</p>	<ul style="list-style-type: none"> • Being done based on the drawn up schedule as part of CSR. • Complied
xi.	<p>A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.</p>	<ul style="list-style-type: none"> • BR has a full-fledged environment protection cell and a well equipped dedicated pollution control laboratory established back in 1975. • Complied
xii.	<p>The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds to earmark for environment management/pollution control measures shall not be diverted for any other purpose.</p>	<ul style="list-style-type: none"> • Being complied. • In addition to one time investment in facilities for combating pollution, separate funds are allocated for specific activities such as environment monitoring, operation and maintenance of effluent treatment plant, oil recovery from oily sludge through mechanized skid process and studies related to environment etc.
xiii.	<p>A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, ZilaParisad / Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while</p>	<ul style="list-style-type: none"> • The instant project being environment project was exempted from public hearing. Further, no suggestions were received from Panchayat, Zila Parisad / Municipal Corporation, Urban local Body and the local NGO while processing the proposal. Accordingly, copy of Environment Clearance letter has not been sent to any of

	processing the proposal.	the above mentioned authorities against suggestions. <ul style="list-style-type: none"> • Complied
xiv.	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliance status reports shall be posted on the website of the company.	<ul style="list-style-type: none"> • Being complied. • A six monthly compliance report and the monitored data are submitted regularly. • We are communicating with RHQ for uploading of e-Six monthly compliance report. It is expected by this year end.
xv.	The environmental statement for each financial year ending 31 st March in Form-V as its mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.	<ul style="list-style-type: none"> • Environment Statement for each financial year is submitted to Bihar State Pollution Control Board. Same shall be sent to Regional Office of MoEF&CC by e-mail.
xvi.	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at http://moef.nic.in . This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.	<ul style="list-style-type: none"> • The information regarding accord of Environment clearance for the subject project has been advertised in two local newspapers. Copy enclosed as Annexure-3. • Complied.
xvii.	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	<ul style="list-style-type: none"> • Noted for Compliance.