



# एचपीसीएल बायोफ्यूल्स लिमिटेड

( हिन्दुस्तान पेट्रोलियम कॉर्पोरेशन लिमिटेड के पूर्ण स्वामित्व वाली सहायक कम्पनी )

## HPCL BIOFUELS LIMITED

(A wholly owned subsidiary company of Hindustan Petroleum Corporation Ltd.)

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**DETAILED CONDITION COMPLIANCE OF ENVIRONMENT CLEARANCE  
OF INTEGRATED SUGAR MILL, DISTILLERY & COGENERATION PROJECT AT  
VILL. Sugauli ; DIST. East CHAMPARAN – 845456 (BIHAR)  
FOR THE PERIOD : OCT.'2016 TO MAR.'2017**

<i>Conditions as per MoEF F. No. J-11011/330/2009-IA II (I)</i>	<b>COMPLIANCE</b>
<b>A. SPECIFIC CONDITIONS:</b>	
<p>i. The industry shall ensure that the treated effluent and stack emissions from the unit are within the norms stipulated under the EPA rules or SPCB whichever is more stringent. In case of process disturbances/failure of pollution control equipment adopted by the unit, the respective unit shall be shut down and shall not be restarted until the control measures are rectified to achieve the desired efficiency.</p>	<p>ETP of 350 m<sup>3</sup>/day capacity (For Sugar Mill &amp; Cogeneration Plant), Multi-effect evaporators (for distillery unit) &amp; ESP are installed to ensure that treated effluent and stack emissions from the unit are within the norms stipulated under the EPA rules or SPCB whichever is more stringent. In case of process disturbances/failure of pollution control equipment adopted by the unit, the respective unit will be shut down and will not be restarted until the control measures are rectified to achieve the desired efficiency. In-line with the requirement of CPCB Direction issued on 05<sup>th</sup> Feb.'2014, we were first in Bihar to Install Online Effluent Monitoring System as per the direction of CPCB and the details of the same has been submitted to BSPCB and CPCB. IP cameras and GPS enabled Flow meter in the Outlet of Raw Spent Wash Generation, Inlet and Outlet of MEE and SPM analyzer in the Chimney are installed</p> <p><b>(Refer Environmental Monitoring Data Annexure I – V)</b></p>



<p>ii. The particulate emissions from the 110 TPH bagasse fired boiler shall be controlled by installation of electrostatic precipitator and emissions shall be dispersed through stack height as per the CPCB guidelines and conform to the prescribed standards. The emissions from the DG sets shall be dispersed through stack of height as per CPCB standards.</p>	<p>Electrostatic Precipitator is installed to control the particulate emissions. Emissions will be dispersed through Stack of 75 m. height as per the CPCB Guidelines. The emissions from the DG sets will be dispersed through stack of height as per CPCB standards.</p> <p><b>(Refer Annexure I)</b></p>
<p>iii. The Company shall upload the status of compliance of the stipulated environmental clearance conditions, including 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. The levels of PM10, SO2, NOx (ambient levels), emissions from the stacks and pH, TDS, BOD, COD, Chloride, suspended solids and sulphates in the treated effluent shall be monitored and displayed at a convenient location near the main gate of the company and at important public places.</p>	<p>HBL is uploading the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on its website and will update the same periodically after commissioning of the project. Arrangements are made to display the emission level &amp; characteristics of effluent at a convenient location near the main gate of the company and at important public places.</p> <p><b>(Refer Environmental Monitoring Data Annexure I – V)</b></p>

<p>iv. The spent wash generation shall not exceed 500 m<sup>3</sup>/d. The spent wash after bi-methanation in the anaerobic digester shall be concentrated in the multiple effect evaporator and concentrated spent wash shall be composted with press mud. The zero discharge shall be strictly complied with. The distillery shall operate for 270 days and shall not operate during the rainy season. The effluent from the sugar unit and cogeneration power plant and the waste water from washings of the distillery unit shall be treated in the effluent treatment plant and treated effluent after conforming to the prescribed standards shall be used for land irrigation and green belt development.</p>	<p>The unit is generating 180 m<sup>3</sup>/day of Spent wash. The spent wash after bi-methanation in the anaerobic digester is being concentrated in the multiple effect evaporators and concentrated spent wash is being composted with press mud. The distillery is operating for 270 days maxm. and will not operate during the rainy season. The effluent from the sugar unit and cogeneration power plant and the waste water from washings of the distillery unit are treated in the effluent treatment plant of 350 M<sup>3</sup>/day capacities which operate on activated sludge process followed by extended aeration. Treated effluent after conforming to the prescribed standards is being used for land irrigation and green belt development. No industrial waste water is being discharged outside the project premises to achieve 'Zero Discharge'.</p>
<p>v. The land requirement for compost yard, storage of finished products and lagoon shall be as per the CPCB guidelines. The bagasse from the sugar unit shall be stored in the covered storage.</p>	<p>3 Acres of land is earmarked for concrete yard for Biocomposting. Unit is storing spent wash in an impervious pucca lagoon with proper HDPE lining, with storage capacity of 30 days spent wash generation, to prevent ground water pollution. Bagasse from the sugar mill are stored in the covered shed for further use as boiler fuel.</p>
<p>vi. The spent wash shall be stored in impervious pucca lagoons. The spent wash lagoons shall have proper lining with HDPE and shall be kept in proper condition to prevent ground water pollution. As per the CPCB recommendation, storage of spent wash shall not exceed 30 days capacity. The storage for the treated effluent from the sugar unit shall not exceed 15 days.</p>	<p>Unit is storing spent wash in an impervious pucca lagoon with proper HDPE lining, with storage capacity of 30 days spent wash generation, to prevent ground water pollution. Treated effluent from the sugar mill is recycle &amp; reutilize within the project premises for plantation, dust suppression &amp; green belt development.</p>

<p>vii. Adequate numbers of ground water quality monitoring stations by providing piezometers around the project area and bio-compost yard shall be set up. Sampling and trend analysis monitoring must be made on monthly a basis and report submitted to the RO, MOEF at Bhubaneswar / CPCB/SPCB and this Ministry.</p>	<p>2 numbers of ground water quality monitoring stations by providing piezometers around the project area and bio-compost yard are made. Sampling and trend analysis monitoring are made on monthly basis and report is being submitted to the RO, MOEF at Bhubaneswar/CPCB/SPCB and MoEF, Delhi. <b>(Refer Environmental Monitoring Data Annexure II)</b></p>
<p>viii. Green belt in an area of 34.7 acres of the plant area shall be provided to mitigate the effects of fugitive emissions all around the plant and compost yard as per the CPCB guidelines in consultation with the local DFO.</p>	<p>To mitigate the effects of fugitive emissions all around the plant and compost yard, Green belt in an area of 34.7 acres is being developed as per the CPCB guidelines in consultation with the local DFO</p>
<p>ix. Company shall adopt rainwater harvesting measures to recharge the ground water.</p>	<p>HBL has adopted rainwater harvesting measures to recharge the ground water.</p>
<p>x. Fire Fighting System shall be as per the TAC Norms and cover all areas where alcohol is produced, handled and stored.</p>	<p>All the Fire Fighting System provided as per TAC Norms and cover all areas where alcohol is produced handled and stored.</p>
<p>xi. Provision of foam system for fire fighting to control fire from the alcohol storage tank.</p>	<p>To control fire from the alcohol storage tank, provision are made for foam system for fire fighting</p>
<p>xii. Risk Assessment shall be carried to assess the fire and explosion risk due to storage of alcohol and report submitted to the Ministry within six months.</p>	<p>Risk Assessment have been done &amp; report will be submitted to the MoEF, Govt. of India, Delhi.</p>
<p>xiii. The company shall comply with the recommendations made in the EIA/EMP report and during public hearing.</p>	<p>HBL ensures that they are complying with all the recommendations made in EIA/EMP report &amp; during public hearing.</p>
<p>xiv. Occupational health surveillance programme shall be undertaken as regular exercise for all the employees. The first aid facilities in the occupational health centre shall be strengthened and the medical records of each employee shall be maintained separately.</p>	<p>Occupational health surveillance programme is being undertaken as regular exercise for all the employees. The first aid facilities in the occupational health centre has been provided and the medical records of each employee is being maintained separately.</p>

<p>xv. Provision shall be made for the housing of construction labour with in the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets and STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project.</p>	<p>Provisions have been made for the housing of construction labour at the Project Site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets and STP, safe drinking water, medical health care etc. All housing facilities were in the form of temporary structure &amp; removed after the completion of the project</p>
<p><b>B. GENERAL CONDITIONS</b></p>	
<p>i. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.</p>	<p>Agreed</p>
<p>ii. Ambient Air Quality Monitoring Stations shall be set up in the down wind direction as well as where maximum ground level concentration of PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, are anticipated in consultation with the State Pollution Control Board.</p>	<p>Ambient Air Quality Monitoring Stations has been set-up in the down wind direction as well as where maximum ground level concentration of PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, are anticipated in consultation with the State Pollution Control Board.</p>
<p>iii. Adequate number of influent and effluent quality monitoring stations shall be set up in consultation with the State Pollution Control Board. Regular monitoring should be carried out for relevant parameters.</p>	<p>Adequate number of influent and effluent quality monitoring stations in consultation with the State Pollution Control Board. Regular monitoring is being carried out at our in-house lab for relevant parameters.</p>
<p>iv. The industry shall ensure that the treated effluent and stack emissions from the unit are within the norms stipulated under the EPA rules or SPCB whichever is more stringent. In case of process disturbances/failure of pollution control equipment adopted by the unit, the respective unit shall be shut down and shall not be restarted until the control measures are rectified to achieve the desired efficiency.</p>	<p>ETP of 350 m<sup>3</sup>/day capacity (For Sugar Mill &amp; Cogeneration Plant), Multieffect evaporators (for distillery unit) &amp; ESP are installed to ensure that treated effluent and stack emissions from the unit are within the norms stipulated under the EPA rules or SPCB whichever is more stringent. In case of process disturbances/failure of pollution control equipment adopted by the unit, the respective unit will be shut down and will not be restarted until the control measures are rectified to achieve the desired efficiency. <b>(Refer Annexure IV)</b></p>

<p>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 should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA ( day time) and 70 dBA ( night time)</p>	<p>HBL has provide noise control measures including acoustic hoods, silencers, enclosures etc. on all the noise generating sources.</p>
<p>vi. A separate environmental management cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.</p>	<p>A separate environmental management cell equipped with full fledged laboratory facilities is set up to carry out the environmental management and monitoring functions.</p>
<p>vii. The project authorities shall provide requisite funds for both recurring and non-recurring expenditure to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose</p>	<p>HBL has allocated requisite funds for both recurring and non-recurring expenditure to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State government along with the implementation schedule for all the conditions stipulated therein. In no case, the funds so provided will be diverted for any other purpose.</p>
<p>viii. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from who suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.</p>	<p>A copy of the clearance letter has been sent to Sugauli Panchayat. The clearance letter will be uploaded on the website of the HBL very shortly.</p>
<p>ix. The implementation of the project vis-à-vis environmental action plans will be monitored by Ministry's Regional Office at Bhubaneswar /State Pollution Control Board/Central Pollution Control Board.</p>	<p>Agreed</p>





<p>x. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated E C conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the State Pollution Control Board.</p>	<p>HBL is submitting six monthly reports on the status of compliance of the stipulated E C conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF at Bhubaneshwar and the State Pollution Control Board.</p>
<p>xi. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is 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 Regional Office of MoEF by e-mail.</p>	<p>The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated is being submitted to the Bihar State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, and also be put on the website of the company along with the status of compliance of environmental clearance conditions and will also be sent to the Regional Office of MoEF by e-mail.</p>
<p>xii. 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 State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a>. 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 Regional office.</p>	<p>HBL has published Notice regarding obtaining Environmental Clearance in the two local daily newspapers within seven days from the date of issue of the Clearance letter.</p>
<p>xiii. The Project Authorities shall inform the Regional Office as well as the Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.</p>	<p>The plant is under operation stage.</p>



**STACK EMISSION MONITORING OF**  
**HPCL BIOFUELS LTD.**  
**Integrated Sugar, Ethanol & Co-generation Project**  
**Vill. Sugauli**  
**Dist. East Champaran – 845456**

(Monitoring & Analysis done by MoEF Recognized Environmental Laboratory,  
Shiva Test House, Patna, Bihar)

	Average Concentration for the Period Oct.'16 – Mar.'17
<b>I. Stack connected to 40 TPH Boiler</b>	
a. PM, mg / NM <sup>3</sup>	<b>50.7</b>
b. SO <sub>2</sub> , mg / NM <sup>3</sup>	<b>18.2</b>
c. NO <sub>2</sub> , mg / NM <sup>3</sup>	<b>20.8</b>
<b>II. Stack connected to DG Set (380 KVA)</b>	
a. PM, mg / NM <sup>3</sup>	<b>41.6</b>
b. SO <sub>2</sub> , mg / NM <sup>3</sup>	<b>51.5</b>
c. NO <sub>2</sub> , mg / NM <sup>3</sup>	<b>210.0</b>



**ANALYSIS OF GROUND WATER SAMPLES OF  
HPCL BIOFUELS LTD.  
Integrated Sugar, Ethanol & Co-generation Project  
Vill. Sugauli  
Dist. East Champaran – 845456**

(Sampling & Analysis done by MoEF Recognized Environmental Laboratory,  
Shiva Test House, Patna, Bihar)

<i>Ground Water sample from</i>	UNIT	Oct.'16	Nov.'16	Dec.'16	Jan.'17	Feb.'17	Mar.'17
<b>Tubewell No.</b>		<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
1. Colour	Hazen	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
2. pH	--	7.23	7.31	7.18	7.24	7.16	7.24
3. Turbidity on NTU	NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4. Total Dissolved Solids (TDS)	mg/l.	378.0	362.0	373.0	385.0	377.0	385.0
5. Total Hardness as CaCO <sub>3</sub>	mg/l.	272.0	288.0	264.0	272.0	280.0	272.0
6. Calcium as Ca	mg/l.	54.5	56.1	51.3	54.5	56.1	52.9
7. Magnesium as Mg	mg/l.	33.0	36.0	33.0	33.0	34.0	34.0
8. Iron as Fe	mg/l.	0.18	0.15	0.13	0.16	0.13	0.16
9. Residual Free Chlorine	mg/l.	NIL	NIL	NIL	NIL	NIL	NIL
10. Total Alkalinity as CaCO <sub>3</sub>	mg/l.	316.0	328.0	312.0	300.0	312.0	300.0
11. Chloride as Cl	mg/l.	18.0	22	16	20	14	16
12. Sulphate as SO <sub>4</sub>	mg/l.	17.4	19.6	16.7	18.5	19.4	17.1
13. Nitrate as NO <sub>3</sub>	mg/l.	3.70	4.3	3.9	3.6	4.1	3.6
14. Fluoride as F	mg/l.	0.23	0.26	0.21	0.18	0.14	0.18
15. Coliform	MPN	NIL	NIL	NIL	NIL	NIL	NIL
<i>Ground Water sample from</i>							
<b>Tubewell No.</b>		<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
1. Colour	Hazen	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
2. pH	--	7.16	7.23	7.12	7.15	7.19	7.15
3. Turbidity on NTU	NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4. Total Dissolved Solids (TDS)	mg/l.	397.0	383.0	391.0	385.0	396.0	391.0
5. Total Hardness as CaCO <sub>3</sub>	mg/l.	264.0	272.0	284.0	284.0	268.0	260.0
6. Calcium as Ca	mg/l.	46.5	51.3	54.5	51.3	52.9	49.7
7. Magnesium as Mg	mg/l.	36.0	35.0	36.0	38.9	33.0	33.0
8. Iron as Fe	mg/l.	0.12	0.17	0.15	0.17	0.12	0.12
9. Residual Free Chlorine	mg/l.	NIL	NIL	NIL	NIL	NIL	NIL
10. Total Alkalinity as CaCO <sub>3</sub>	mg/l.	308.0	316.0	324.0	292.0	300.0	288.0
11. Chloride as Cl	mg/l.	20.0	16.0	18.0	22.0	16.0	14.0
12. Sulphate as SO <sub>4</sub>	mg/l.	19.1	21.3	22.5	17.5	18.7	18.2
13. Nitrate as NO <sub>3</sub>	mg/l.	2.7	3.3	2.8	3.3	3.8	3.3
14. Fluoride as F	mg/l.	0.13	0.15	0.18	0.16	0.13	0.16
15. Coliform	MPN	NIL	NIL	NIL	NIL	NIL	NIL

**MONITORING & ANALYSIS OF AMBIENT AIR QUALITY AT  
HPCL BIOFUELS LTD.  
Integrated Sugar, Ethanol & Co-generation Project  
Vill. Sugauli  
Dist. East Champaran – 845453**

(Monitoring & Analysis done by MoEF Recognized Environmental Laboratory,  
Shiva Test House, Patna, Bihar)

Month	Parameters	Near Main Gate	Near DM Plant	Near ETP	Avg. Values
<b>Average Conc<sup>n</sup> in µg/m<sup>3</sup></b>					
Oct.'16	PM <sub>10</sub>	64.4	58.1	63.1	<b>61.9</b>
	PM <sub>2.5</sub>	31.5	28.3	31.0	<b>30.3</b>
	SO <sub>2</sub>	24.1	19.3	25.7	<b>23.0</b>
	NO <sub>2</sub>	34.3	29.2	31.2	<b>31.6</b>
Nov.'16	PM <sub>10</sub>	68.2	56.1	61.5	<b>61.9</b>
	PM <sub>2.5</sub>	37.8	23.6	28.4	<b>29.9</b>
	SO <sub>2</sub>	21.0	18.6	23.2	<b>20.9</b>
	NO <sub>2</sub>	38.5	26.1	28.3	<b>31.0</b>
Dec.'16	PM <sub>10</sub>	64.5	60.8	58.1	<b>61.1</b>
	PM <sub>2.5</sub>	32.8	27.8	31.4	<b>30.7</b>
	SO <sub>2</sub>	24.4	21.4	19.8	<b>21.9</b>
	NO <sub>2</sub>	36.6	29.5	26.5	<b>30.9</b>
Jan.'17	PM <sub>10</sub>	68.7	56.6	52.2	<b>59.2</b>
	PM <sub>2.5</sub>	31.1	24.5	28.9	<b>28.2</b>
	SO <sub>2</sub>	22.0	18.5	15.9	<b>18.8</b>
	NO <sub>2</sub>	33.1	25.5	22.2	<b>26.9</b>
Feb.'17	PM <sub>10</sub>	63.3	52	50.1	<b>55.1</b>
	PM <sub>2.5</sub>	34.5	29.9	27.6	<b>30.7</b>
	SO <sub>2</sub>	21	16.5	19.8	<b>19.1</b>
	NO <sub>2</sub>	32.1	24.5	27.9	<b>28.2</b>
Mar.'17	PM <sub>10</sub>	67.1	56.2	53.1	<b>58.8</b>
	PM <sub>2.5</sub>	39.1	32.9	31.0	<b>34.3</b>
	SO <sub>2</sub>	24.8	19.3	21.8	<b>22.0</b>
	NO <sub>2</sub>	35.0	29.3	31.1	<b>31.8</b>



**FINAL TREATED EFFLUENT ANALYSIS REPORT OF  
HPCL BIOFUELS LTD.  
Integrated Sugar, Ethanol & Co-generation Project  
Vill. Sugauli  
Dist. East Champaran – 845453**

(Sampling & Analysis done by MoEF Recognized Environmental Laboratory,  
Shiva Test House, Patna, Bihar)

Parameters	UNIT	Average Concn. for the period Oct.'16 to Mar.'17
1. pH	--	7.2
2. Suspended Solids	mg/l.	24.5
3. Total Dissolved Solids	mg/l.	762.8
4. Oil & Grease	mg/l.	<1.0
5. B.O.D.(3 days at 27 <sup>o</sup> C)	mg/l.	25.5
6. C.O.D.	mg/l.	92.5
7. Dissolved Phosphate as P	mg/l.	1.4
8. Ammonical Nitrogen as N	mg/l.	14.7
9. Total Kjeldahl Nitrogen as N	mg/l.	25.3



**AMBIENT NOISE LEVEL MONITORING OF**  
**HPCL BIOFUELS LTD.**  
**Integrated Sugar, Ethanol & Co-generation Project**  
**Vill. Sugauli**  
**Dist. East Champaran – 845456**

(Monitoring done by MoEF Recognized Environmental Laboratory,  
Shiva Test House, Patna, Bihar)

Monitoring Location	Oct.'16	Nov.'16	Dec.'16	Jan.'17	Feb.'17	Mar.'17
	Average Noise Level in dB(A)					
1. Near Main Gate	64.7	62.5	63.4	61.7	63.6	66.2
2. Near Ethanol Plant	52.1	57.4	68.2	67.2	69.4	68.1
3. Near Boiler House	56.3	58.1	59.1	60.9	62.1	60.4
4. Near ETP	54.2	56.7	53.6	56.3	59.6	58.5
5. Near DG Room	66.8	68.3	71.8	72.5	71.1	70.4