



इंडियन ऑयल कॉर्पोरेशन लिमिटेड

हल्दिया रिफाइनरी, डाकघर : हल्दिया ऑयल रिफाइनरी - 721606

जिला : पूर्व मेदिनीपुर ( प० ब० )

Indian Oil Corporation Limited

Haldia Refinery, P.O.: Haldia Oil Refinery-721606

District : Purba Medinipur, West Bengal

Website : www.iocl.com; Email : HaldiaRefinery@indianoil.in

Fax : 91-3224-252141; Phone : 91-3224-223270



रिफाइनरीज़ प्रभाग

Refineries Division

Ref : HR/HSE/EMS/2017-18(1)

Date:01/06/2017

To  
The Joint Director(S)  
Government of India  
Ministry of Environment & Forests (MoEF),  
Eastern Regional Office  
A/3 CHANDRASEKHARPUR,  
P.O. Rail Vihar  
Bhubaneshwar – 751023

**Sub: Status on conditions stipulated under Environmental Clearance for existing Projects from 1<sup>st</sup> Oct-2016 to 31<sup>st</sup> Mar-2017**

Dear Sir,

We enclose herewith the half yearly compliance status report on EC conditions given by MoE&F for the following existing projects at Haldia Refinery:

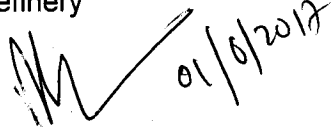
- 1) Environmental Clearance of Lube oil Block
- 2) Installation of Diesel Hydro desulphurisation unit at Crude processing level for 4.6 MTPA at Haldia refinery at IOC
- 3) Fluidised Catalytic Cracking unit (FCCU) at Haldia Refinery of IOC- ENV Clearance
- 4) 2nd Vacuum Distillation Unit (capacity 2 MMTPA) and Catalytic ISO dewaxing unit (capacity 0.2 MMTPA) at 7.5 MMTPA Crude processing level at Haldia Refinery by M/S IOCL at village Haldia , District Midnapore, WB- EC reg.
- 5) Installation of facilities for improvement of HSD Quality and Distillate Yield (OHCU) and MS Quality Improvement ( MSQI) at Haldia Refinery, IOCL, Midnapore,WB
- 6) 3rd Gas turbine ( GT-3) with heat recovery steam generation (HRSG) at Haldia refinery by M/S IOCL- EC reg
- 7) Installation of Delayed Coking unit (DCU) at Haldia refinery Haldia WB by IOCL- EC( Now clubbed to DYIP project)
- 8) Capacity expansion from 7.5 MMTPA to 8.0 MMTPA along with Distillate Yield Improvement Project (DYIP) and Feed Processing Unit (FPU) at IOCL Haldia Refinery, Purba Medinipur, WB - EC reg

We are also enclosing Annexure-1 to Annexure-8 as Environmental Quality Monitoring data here with this report.

Thanking you.

Yours faithfully,

For & on behalf of  
Indian Oil Corporation Ltd.  
Haldia Refinery

Handwritten signature and date: 01/01/2017

(P S Goswami)

Deputy General Manager (HSE)

Encl: Half yearly compliance status report on Environment Clearance conditions



**IndianOil**

**Indian Oil Corporation Limited**

**Haldia Refinery**

**Report  
On**

**Six Monthly Compliance Status on  
Conditions Stipulated under Environmental Clearance  
for existing Projects at Haldia Refinery**

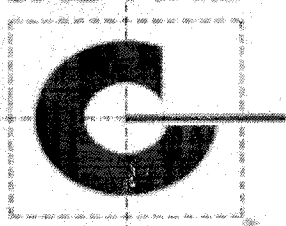
**Status as on 1<sup>st</sup> June, 2017**

ISO 9001:2008/14001:2004/OHSAS 18001:2007

Reg. No.: RI91/9022



**JAS-ANZ**



# INDEX

Sl. No.	EC Ref No, Issue Date	Description of EC	Present Status	Page Number
1	J-11011/34/88-IA, Date 16-Mar-89	Environmental Clearance of Lube oil Block	Now in operation	1-4
2	J.11011/39/96- IA II (I) Date 18-Dec-96	Installation of Diesel Hydro desulphurisation unit at Crude processing level for 4.6 MTPA at Haldia refinery at IOC	Now in operation	5-6
3	J.11011/99/96-IA II (I) Date 1-Oct-97	Fluidised Catalytic Cracking unit (FCCU) at Haldia Refinery of IOC- ENV Clearance	Now in operation	7
4	J. 11011/28/20000-IA II Date 21-Aug-00	2nd Vacuum Distillation Unit (capacity 2 MMTPA) and Catalytic ISO dewaxing unit (capacity 0.2 MMTPA) at 7.5 MMTPA Crude processing level at Haldia Refinery by M/S IOCL at village Haldia , District Midnapore, WB- EC reg.	Now in operation	8-11
5	J-11011/5/2002-IA II(I) Date 1-May-02	Installation of facilities for improvement of HSD Quality and Distillate Yield (OHCU) and MS Quality Improvement (MSQI) at Haldia Refinery, IOCL, Midnapore,WB	Now in operation	12-14
6	J-13011/14/2006-IA II (T) Date 5-Jan-07	3rd Gas turbine ( GT-3) with heat recovery steam generation (HRSG) at Haldia refinery by M/S IOCL- EC reg	Now in operation	15-17
7	J-11011/904/2007-IA II (I) Date 17-Mar-09	Installation of Delayed Coking unit (DCU) at Haldia refinery Haldia WB by IOCL- EC.	Applied to MoEF & CC for extension of EC validity before expiry. As per directives, DCU project was clubbed with the next project. Name of 'DCU' project was later changed as Distillate Yield Improvement Project (DYIP).	18
8	J-11011/299/2013-IA II(I) Date 4-Mar-16	Capacity expansion from 7.5 MMTPA to 8.0 MMTPA along with Distillate Yield Improvement Project (DYIP) and Feed Processing Unit (FPU) at IOCL Haldia Refinery, Purba Medinipur, WB - EC reg	As on 1st June 2017, FPU Project is commissioned. DYIP and Capacity extension project expected to be commissioned in 2018.	18

<b>Annexures</b>	<b>Description</b>	<b>Page No.</b>
<b>Annexure-1</b>	Month wise actual average data of Ambient Air Quality Monitoring (Oct-2016 to Mar-2017)	19-33
<b>Annexure-2</b>	Average data of the effluent water before treatment (at API / TPI inlet) and final treated effluent discharged to river Hoogly.	34
<b>Annexure-3</b>	Expenditure incurred by Haldia Refinery to implement the condition stipulated by MoEF &CC for the year 2016-17	35
<b>Annexure-4</b>	Month wise average data of Final Treated Effluent discharge to river Hoogly	36
<b>Annexure-5</b>	Noise level at Boundary Area of Haldia Refinery	37
<b>Annexure-6</b>	Six month data of SO2 Stack Emission Monitoring	38
<b>Annexure-7</b>	Typical data of Continuous Ambient Air Quality Monitoring Station	39
<b>Annexure-8</b>	A specimen copy of DYIP project EC message published in two news paper	40-41

## Haldia Refinery

**SUB : SIX MONTHLY STATUS REPORT for Oct'16 - Mar'17 dt.01.06.2017**

**1.0 EC Reference No.: J11011/34/88-IA Dated 16<sup>th</sup> MARCH, 1989**

### **Status of Conditions Imposed With Respect To Environmental Clearance For Lube Oil Block at Haldia Refinery**

Sl. No.	STIPULATION BY MoEF & CC	STATUS
i)	The project proponent must strictly adhere to the stipulations made by West Bengal Pollution Control Board.	Haldia Refinery has been adhering to the stipulations made by the West Bengal Pollution Control Board and submitting necessary compliance Reports as per schedule.
ii)	The project authority will explore the possibility of either increasing the stack height or sulphur recovery or desulphurisation of flue gases or use of LSHS to achieve total amount emission of SO <sub>2</sub> at 1.5 tonnes / hour. The quarterly report of the progress in this regard should be submitted to this Ministry till the installation of the unit. Efforts being made to obtain the necessary approvals should be clearly indicated.	Low sulphur fuel gas & fuel oil are used in heaters. Sulphur Recovery Units installed & commissioned in April / May'94. The emissions from stacks are well within the prescribed limits. Online monitoring system and uplinking of data to CPCB server have been completed. The average SO <sub>2</sub> emission from all Process Units heater stacks during 2016-17 was 767 kg/hr.
iii)	Air quality monitoring network design should be made on the basis of model exercise and submitted to this Department within three months for review. A minimum of three air quality monitoring stations should be set up.	The ambient air quality within refinery is monitored twice every week at 5 nos locations. Also a Continuous Ambient Air Quality Monitoring Station (CAAQMS) is provided near the Refinery battery gate whose data is linked and transmitted to CPCB and WBPCB server. Six-monthly ambient air quality monitored data is being submitted to the MoEF&CC Regional Office. Refer <b>Annexure-1</b> for six months data.
iv)	All the stacks should be provided with continuous stack monitoring facilities. The data should be furnished quarterly to State Pollution Control Board and half yearly to this Ministry.	Continuous stack monitoring facilities with SO <sub>2</sub> , PM <sub>10</sub> , NO <sub>x</sub> and CO analyzers are installed to the furnaces having > 10 MM Kcal /Hr heat duty which is linked to CPCB server. West Bengal Pollution Control Board checks the stacks emission on quarterly basis.

Sl. No.	STIPULATION BY MoE&F	STATUS
v)	The project authority should prepare a plan for implementation of disposal of solid waste generated during various process operations or in the treatment plant provided. They should ensure that no leaching of pollutants like sulphides take place from the solid wastes. The plan for disposal and management of solid wastes should be submitted to the competent authority for scrutiny and approval within six months.	Plan for disposal of solid waste submitted and Hazardous waste Authorization obtained from WBPCB. WBPCB periodically visits the site for verification. Yearly Haz. Waste return is submitted to WBPCB in the month of June every year.
vi)	No change in design of stack should be made without the prior approval of State Pollution Control Board. Alternate pollution control system and/or proper design (steam injection system) of the stack should be made to minimize hydrocarbon emission due to failure in the flare system in the plant.	No change in design of stack has been made.  The emissions from stacks are within the stipulated limits.
vii)	Additional area under the control of project which is not being used for the plant utilities should be afforested and funds for this purpose should be suitably provided.	Space has been earmarked in the newly acquired land for Distillate Yield Improvement Project (DYIP) for development of green belt.
viii)	Tree plantation programme in the plant premises and in the periphery of the plant should be undertaken in consultation with State Forest Department. Plant species which are sensitive as well as resistant to sulphur-dioxide emissions should be chosen for plantation purposes.	Haldia refinery has so far planted more than 55,000 saplings in and around Refinery which have flourished and maintained greenery as well as eco-balance in Haldia region.  It is planned to plant 3000 new tree saplings in Haldia region in the year 2017-18.
ix)	Project authority must set up laboratory facilities in the existing premises for testing air emissions and water quality.	Haldia Refinery has its own NABL accredited laboratory and all water quality is being tested daily. The ambient air quality within refinery is monitored twice every week at 5 nos locations through authorized agency M/s Envirotech East (P) Ltd. Also a Continuous Ambient Air Quality Monitoring Station (CAAQMS) is provided near the refinery battery gate whose data is linked and transmitted to CPCB and WBPCB server.
x)	The clearance of Chief Inspector of Explosives must be taken before starting construction of the proposed plant and a copy of consent letter should be made available to this Ministry.	PESO approval obtained before starting construction of every Project.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
xi)	Project authority will establish five water quality monitoring stations in consultation with State Pollution Control Board to monitor the quality of stream water and to study the impact of treated effluent discharge and will submit its report quarterly to state Pollution Control Board and half yearly to this Ministry. Ground water quality also should be monitored.	<p>All effluent water quality is monitored daily at IOCL own NABL accredited laboratory. The treated effluents comply with the prescribed standards(MINAS).</p> <p>The concept of 5 nos water quality monitoring station at refinery discharge was an old stipulation and now not valid. Presently, all surface drain water are routed to the storm water pond near ETP and not discharged outside from any Catch pit as per guidelines of WBPCB. Thereafter the water is pumped to covered floating roof tanks 103 &amp; 104. Next it is processed in ETP-1 and ETP-2. Water quality is monitored at the outlet of ETP-1, ETP-2 and TTP/RO outlet. Online analyzers are also installed at these three locations to monitor pH, TDS, COD &amp; BOD. Refer six months average data of the effluent water before treatment &amp; final treated effluent discharged to Hoogly river is enclosed as <b>Annexure-2</b>.</p> <p>Ground water quality is monitored quarterly. WBPCB also does half yearly monitoring of ground water.</p>
xii)	The project authority will explore the possibility of water recycling to the maximum possible extent. A plan in this regard should be prepared within the next one year and furnished to this Ministry.	As a part of resource conservation, recycling of treated effluent has been implemented to above 92.0%.
xiii)	The liquid effluent coming out of the plant premises should strictly conform to MINAS.	The liquid treated effluent coming out of the ETP premises conform to MINAS and being monitored by Online Effluent monitoring system.
xiv)	The project authority will submit a Disaster Management Plan duly approved by nodal agency.	ERDMP is approved by M/s TQ Services (A division of Tata Projects Ltd. ) as per PNGRB guidelines, 2010 and is valid up to 31.01.2019 .
xv)	A separate environmental management cell with suitably qualified people to carry out various functions related to environmental management should be set up under the control of a Senior Technical personnel who will report direct to the head of organization.	Separate Health Safety environmental (HSE) exists in Haldia Refinery with several qualified personnel with 10-30 years experience in Refineries & Petrochemicals industries. For professional help such as Risk Assessment & EIA/ EMP study, Haldia Refinery is always appointing competent professional agency.



Sl. No.	STIPULATION BY MOE&F	STATUS
xvi)	The fund provision of Rs.10 Crores which has been made should be utilized for implementation of all conditions stipulated herein and the budget so provided will not be delivered for any other purpose. The conditions stipulated above needs additional funds it should be so provided either from non-recurring or recurring budget of the unit.	Adequate funds are allocated every year for implementation of all conditions stipulated for Environmental protection to meet the requirements. Expense in year 2016-17 on Environment monitoring, Waste disposal, Tree plantation, Awareness program, ETP treated water recycle, Sludge oil recovery, EIA study job and RA study job and ETP operation cost are shown in <b>Annexure-3</b> .

## Haldia Refinery

**SUB : SIX MONTHLY STATUS REPORT for Oct'16 - Mar'17 dt.01.06.2017**

**2.0 EC Reference No.: 11011/39/96-IA II (I) DT. 18/12/96**

### **Status Of Conditions Imposed With Respect To Environmental Clearance For DHDS at Haldia Refinery**

Sl. No.	STIPULATION BY MoEF	STATUS
i)	The project authority must strictly adhere to the stipulations laid down by the West Bengal State Pollution Control Board and the State Govt.	Haldia Refinery has been adhering to the stipulations made by the West Bengal Pollution Control Board and submitting necessary compliance Reports as per schedule.
ii)	No expansion or modernization of the plant should be carried out without approval of the Ministry of Environment and Forest.	Environmental clearance from MoEF & CC is always taken before any expansion or modernization in the plant.
iii)	The total SO <sub>2</sub> emission from Haldia Refinery including DHDS project should not exceed norms of 850 Kg/hr. after installing the new Crude Distillation unit (CDU).	The emissions from stacks are well within the prescribed limits. The average SO <sub>2</sub> emission from all heater stacks during 2016-17 was 767 kg/hr.
iv)	The existing ETP should be adequately augmented (if required) to accommodate the additional effluent from the DHDS project before commissioning the project so as ensure that the treated effluent meets the MINAS.	Old ETP capacity already revamped to 650 m <sup>3</sup> /hr and new ETP of capacity 600 m <sup>3</sup> /hr installed. The combined capacity of the two ETPs caters to the effluent load of the entire refinery.
v)	Time bound Action Plan for disposal of oily sludge / recovery of oil & design details of the solid waste disposal pit should be furnished to the Ministry within a period of three months. Hazardous waste should be handled as per Hazardous Waste (Management & Handling) rules, 1989 and necessary approval from SPCB must be obtained for its safe collection, treatment, storage and disposal.	Plan for disposal of solid waste submitted and Hazardous waste Authorization from WBPCB obtained. Yearly Haz. Waste return is being submitted to WBPCB in the month of June every year.
vi)	SRU having an efficiency of more than 99% should be installed.	SRU having efficiency >99.5% has been installed and commissioned.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
vii)	Location of riverine outfall point showing the alignment of pipeline and outfall point with reference to the HTL and LTL should be submitted to this Ministry. IOC should also obtain the expert opinion of NIO or any other expert body on the best possible location of the outfall point and IOC should abide by the changes if any recommended by the expert body.	<p>The job was carried out by National Institute of Oceanography (NIO), Goa. As per the study, the existing location of outfall point of treated effluent to river Hoogly is suitable and does not require change.</p> <p>The copy of final report sent to Joint Director (S), MOE&amp;F, Bhubaneswar in Aug-99. The sketch on location of riverine outfall point has already been included in that report.</p>
viii)	The IOC should commission a study by a competent technical expert to evaluate the effects of the existing effluents on aquatic life and on mangrove and submit to the Ministry the results of the study within one year.	A study was carried out by National Institute of Oceanography (NIO), Goa to evaluate the effects of effluents on aquatic life and on mangroves. As per the study report, the effect of treated effluent is insignificant. The copy of final report was sent to Joint Director (S), MOE&F, Eastern Regional Office, Bhubaneswar in Aug-99.
ix)	A detailed risk analysis study board on maximum credible accident analysis (MCA) and HAZOP study should be done to the Refinery including DHDS project facilities and submitted to this Ministry Board. On this, a Disaster Management Plan and off site plan be prepared and submitted after approval has been obtained from nodal agency.	<ul style="list-style-type: none"> <li>- Risk Analysis Report submitted to Ministry.</li> <li>- Offsite Disaster Management Plan of Haldia Refinery : The present ERDMP is approved by M/s TQ Services (A division of Tata Projects Ltd. ) as per PNGRB guidelines,2010 and is valid upto 31.01.2019 .</li> </ul>
x)	<p>The project authority must strictly comply with the provisions made in MSIHC Rules, 1989 as amended in October, 1994 for handling of hazardous chemicals etc.</p> <p>Necessary approvals from Chief Controller of Explosives must be obtained before commission the project.</p>	<p>Safety Audit under MSIHC Rules done in Feb 2016 in Haldia Refinery.</p> <p>PESO approval obtained before commissioning of all Projects.</p>

## Haldia Refinery

**SUB : SIX MONTHLY STATUS REPORT for Oct'16 - Mar'17 dt.01.06.2017**

**3.0 EC Reference No. J.11011/99/96-IA II (I) DT. 01/10/97**

### **STATUS OF CONDITIONS IMPOSED WITH RESPECT TO ENVIRONMENTAL CLEARANCE OF "FLUIDISED CATALYTIC CRACKING UNIT (FCCU) AT HALDIA REFINERY OF IOC"**

Sl. No.	CONDITIONS	STATUS
i)	The project authority must strictly adhere to the stipulations laid down by the West Bengal State Pollution Control Board and the State Govt.	Haldia Refinery has been adhering to the stipulations made by the West Bengal Pollution Control and submitting necessary compliance Reports as per schedule.
ii)	No expansion or modernization of the plant should be carried out without approval of the Ministry of Environment and Forest	Environmental clearance from MoEF & CC is always taken before any expansion or modernization in the plant.
iii)	The total SO <sub>2</sub> emission from the FCCU project should not exceed 390 kg/hr. Maximum SO <sub>2</sub> emission from the Refinery complex should be below 1500 kg/hr. (letter dated 16.03.89). However, efforts may be made to peg the SO <sub>2</sub> values at 1240 kg/hr. in the post DHDS and FCCU phase.	Low sulphur fuel gas & fuel oil are used in heaters. Sulphur Recovery Units installed & commissioned in April / May'94. The emissions from stacks are well within the prescribed limits. Online monitoring system and uplinking of data to CPCB server have been completed. The average SO <sub>2</sub> emission from all Process Units heater stacks during 2016-17 was 767 kg/hr.
iv)	The studies on aquatic life and marine outfall for discharge of treated effluent into the river should be expedited. A time bound action plan to implement the conditions stipulated by the Ministry while according approval for the DHDS unit vide letter dated 18/12/96 should be submitted to the Ministry for review within a period of one month.	A study was carried out by National Institute of Oceanography (NIO), Goa on aquatic life & marine outfall for discharge of treated effluent into the river Hooghly. As per the study report, effect of treated effluent on aquatic life and marine outfall into the river Hooghly is insignificant.  The copy of final report sent to joint Director (S), MoE&F, Eastern Regional Office, Bhubaneswar in Aug.-99.

## Haldia Refinery

SUB : SIX MONTHLY STATUS REPORT for Oct'16 - Mar'17 dt.01.06.2017

4.0 EC Reference No. J.11011/28/2000-IA II Date 21/08/2000

**Status Of Conditions Imposed With Respect To Environmental Clearance Of "2nd Vacuum Distillation Unit (Capacity 2 MMTPA) And Catalytic Iso-Dewaxing Unit (Capacity 0.2 MMTPA) At 7.5 MMTPA Crude Processing Level At Haldia Refinery Of IOCvgv"**

### SPECIFIC CONDITIONS :

Sl. No	STIPULATION BY MoE&F	STATUS
1	The SO <sub>2</sub> emission from the refinery unit including the proposed 2nd VDU and CIDW should not exceed 1340 kg/hr.	Low sulphur fuel gas & fuel oil are used in heaters. Sulphur Recovery Units installed & commissioned in April / May'94. The emissions from stacks are well within the prescribed limits. Online monitoring system and uplinking of data to CPCB server have been completed. The average SO <sub>2</sub> emission from all Process Units heater stacks during 2016-17 was 767 kg/hr.
2	The ETP load should be within the design capacity of 540 m <sup>3</sup> /hr. The total quantity of effluent generation should not exceed 414 m <sup>3</sup> /hr as indicated in the EMP of which 150 m <sup>3</sup> /hr treated effluent should be recycled and rest 264 m <sup>3</sup> /hr should be discharged after proper treatment. The treated effluent should comply with the prescribed standards.	At present ETP-1 revamped capacity is 650 m <sup>3</sup> /hr and New ETP-2 capacity is 600 m <sup>3</sup> /hr. But the combined ETP load remains 900-1000 m <sup>3</sup> /hr. The treated water from ETP-1 & ETP-2 is reused in TTP-RO feed, Fire water & Cooling water. Only TTP-RO reject is being discharged to Hoogly river. Refer <b>Annexure-4</b> as average data for six months of the effluent water before treatment & final treated effluent discharged to river Hoogly.
3	The oily sludge generated from the refinery operation should be subjected to melting pit treatment for recovery of oil. The recovered oil should be recycled. The residual oily sludge should be disposed off in the HDPE lined pits.  The spent catalyst from CIDW unit should be sent to supplier for metal recovery.	The methodology for recovery of oil as indicated is practiced. The tank bottom sludge is also reprocessed using mechanized BLABO process for recovery of slop oil and recycled. The residual sludge is stored in HDPE lined pits and is disposed off to the WBPCB approved CHW-TSDF agency located at Haldia. The spent catalyst from CIDW Unit is sent to the supplier for metal recovery whenever requirement arises.

Sl. No	STIPULATION BY MoE&F	STATUS
4	Oil spill response facilities should be in place, in accordance with OISD guidelines with regard to the likely risks associated with transportation of finished products by Hooghly-Sea route.	Facilities are in place to combat Tier-I spill situation in line with the guidelines of OISD & Coast Guard.
5	<p>Green belt of adequate width and density should be provided to mitigate the effects of fugitive emission all around the plant in consultation with the local DFO.</p> <p>The bio-sludge from biotreater should be used as manure in the green belt development.</p>	<p>Haldia refinery has so far planted more than 55,000 saplings in and around Refinery which have flourished and maintained greenery as well as eco-balance in Haldia region.</p> <p>Space has been earmarked in the newly acquired land for Distillate Yield Improvement Project (DYIP) for development of green belt.</p> <p>After centrifugation, the bio sludge is natural weathered and used as manure inside the Refinery premises.</p>
6.	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act and the West Bengal Factories Rules.	Haldia Refinery has Occupational Health centre with all facilities. Periodical health checkup schedule is being followed for target employees as per Factories Act and WB Factory Rules and records are being maintained.

**GENERAL CONDITIONS:**

Sl. No	STIPULATION BY MOE&F	STATUS
1	The project authorities must strictly adhere to the stipulations made by the West Bengal State Pollution Control Board and the State Government.	Haldia Refinery has been adhering to the stipulations made by the West Bengal Pollution Control and submitting necessary compliance Reports as per schedule.
2	No further expansion or modernization in the plant should be carried out without prior approval of the Ministry of Environment and Forests.	Environmental clearance from MoEF & CC is always taken before any expansion or modernization in the plant.
3	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the units, the respective unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved.	Low sulphur fuel gas & fuel oil are used in heaters. Sulphur Recovery Units installed & commissioned in April / May'94. The emissions from stacks are well within the prescribed limits. Online monitoring system and uplinking of data to CPCB server have been completed. The average SO2 emission from all Process Units heater stacks during 2016-17 was 767 kg/hr.
4	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules 1989 viz., 75 dBA (day time) and 70 dBA (night time).	Leq of noise level along refinery boundary wall is conforming to limits of <75 dBA in day time and <70 dBA in night time. The noise level data at boundary area of Haldia Refinery is enclosed as <b>Annexure-5</b> . Persons if working in any high noise area use proper PPE.
5	The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 as amended in October, 1994 for handling of hazardous chemicals etc.  Necessary approvals from Chief Controller of Explosives must be obtained before commission of the project.	Safety Audit under MSIHC Rules done in Feb 2016 in Haldia Refinery.  PESO approval obtained before commissioning of the Project.
6	The project authorities will provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes	Adequate funds are allocated every year for implementation of all conditions stipulated for Environmental protection to meet the requirements. Expense in year 2016-17 on Environment monitoring, Waste disposal, Tree plantation, Awareness program, ETP treated water recycle, Sludge oil recovery, EIA study job and RA study job, ETP operation cost are shown in <b>Annexure-3</b> .

Sl. No	STIPULATION BY MOE&F	STATUS
7	The stipulated conditions will be monitored by the Regional of this Ministry at Bhubaneswar/ Central Pollution Control Board / State Pollution Control Board. A six monthly compliance report and the monitored data should be submitted to them regularly.	The compliance status is submitted to the MoEF & CC, Regional Office, Bhubaneswar , Central Pollution Control Board & State Pollution Control Board every six months. Last report sent in Dec 2016
8	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board / Committee and may also be seen at Website of the Ministry and Forests at <a href="http://WWW.envfor.nic.in">http:// WWW. envfor.nic.in</a> . This should be advertised in at least two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned.	This was Complied after receipt of Environmental Clearance. For DYIP project EC, the message is published in news papers. A specimen copy is enclosed as Annexure-8.
9.	The Project Authorities should inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.	2 <sup>nd</sup> VDU & CIDW unit commissioned on 15 <sup>th</sup> March 2002 and 25 <sup>th</sup> March 2003 respectively and the same was communicated.



## Haldia Refinery

**SUB : SIX MONTHLY STATUS REPORT for Oct'16 - Mar'17 dt.01.06.2017**

**5.0 EC Reference No - J11011/5/2002 – IA –II(I) Dated MAY 1,2002**

**Status of conditions imposed with respect to environmental clearance of installation of facilities for improvement of HSD quality and distillate yield (OHCU) and MS quality improvement (MSQI) at Haldia refinery of M/S. IOCL in district Midnapore ( E), West Bengal.**

### **A. SPECIFIC CONDITIONS:**

Sl. No	STIPULATION BY MOE&F	STATUS
I	The company shall ensure strict implementations / compliance of the terms and conditions mentioned vide Ministry's letters No. J-11011/39/96-IA.II(1) dated 18/12/96, J-11011/99/96-IA.II(1) dated 01/10/1997 AND J-11011/28/2000-IA.II(1) dated 21 <sup>st</sup> August, 2000.	Terms and conditions as described in the respective letters are complied.
ii	The company shall also ensure that the total SO <sub>2</sub> emission from the Haldia Refinery (including expansion of OHCU & MS Quality Improvement Project) will not exceed 1466 kg/hr.	Low sulphur fuel gas & fuel oil are used in heaters. Sulphur Recovery Units installed & commissioned in April / May'94. The emissions from stacks are well within the prescribed limits. Online monitoring system and uplinking of data to CPCB server have been completed. The average SO <sub>2</sub> emission from all Process Units heater stacks during 2016-17 was 767 kg/hr. Stack emission monitoring result for six months period of SO <sub>2</sub> emission is enclosed in this report as <b>Annexure-6</b> .
iii	Additional water requirement should be met from the Geonkhali Water Supply Scheme. There should be no further drawl from ground.	No new tube well has been made for withdrawal from ground. Additional requirement is met from Geonkhali Water Supply Scheme.
iv	The ETP load should be within the design capacity of 540m <sup>3</sup> /hr. The total quantity of effluent generation should not exceed 446 m <sup>3</sup> /hr as indicated in the EMP of which 150m <sup>3</sup> /hr treated effluent should be recycled and rest 296 m <sup>3</sup> /hr should be discharged after proper treatment. The treated effluent should comply with the prescribed standards.	At present ETP-1 revamped capacity is 650 m <sup>3</sup> /hr and New ETP-2 capacity is 600 m <sup>3</sup> /hr. But the combined ETP load remains 900-1000 m <sup>3</sup> /hr. The treated water from ETP-1 & ETP-2 is reused in TTP-RO feed, Fire water & Cooling water. Only TTP-RO reject is being discharged to Hoogly river. All effluent water quality is monitored daily at IOCL own NABL accredited laboratory. The treated effluents comply with the prescribed standards(MINAS).

Sl. No	STIPULATION BY MOE&F	STATUS
v	<p>The oily Sludge generated from the refinery operation should be subjected to melting pit treatment for recovery of oil. The recovered oil should be recycled. The residual oily sludge should be disposed off in the HDPE lined pits.</p> <p>The spent catalyst should be sent to supplier for metal recovery.</p>	<p>The methodology for recovery of oil as indicated is practiced.</p> <p>The tank bottom sludge is reprocessed using mechanized BLABO process for recovery of slop oil to recycle.</p> <p>The residual sludge is stored in HDPE lined pits and is disposed off to the WBPCB approved CHW-TSDF agency located at Haldia.</p> <p>The spent catalyst from hydro-processing units containing metals is sold through e-auction.</p> <p>The catalysts containing noble metals are sent to approved recyclers for metal recovery.</p>
vi	<p>Oil spill response facilities should be in place, in accordance with OISD guidelines with regard to the likely risks associated with transportation of finished products by Hoogly-Sea route.</p>	<p>Facilities are in place to combat Tier-I spill situation in line with the guidelines of OISD &amp; Coast Guard.</p>
vii	<p>Green belt of adequate width and density should be provided to mitigate the effects of fugitive emission all around the plant in consultation with the local DFO.</p> <p>The bio-sludge should be used as manure in the green belt development.</p>	<p>Haldia refinery has so far planted more than 55,000 saplings in and around refinery which have flourished and maintained greenery as well as eco-balance in Haldia region.</p> <p>Space has been earmarked in the newly acquired land for Distillate Yield Improvement Project (DYIP) for development of green belt.</p> <p>After centrifugation the bio sludge is natural weathered and used as manure inside the Refinery premises.</p>
vii	<p>Green belt of adequate width and density should be provided to mitigate the effects of fugitive emission all around the plant in consultation with the local DFO.</p> <p>The bio-sludge should be used as manure in the green belt development.</p>	<p>Haldia refinery has so far planted more than 55,000 saplings in and around refinery which have flourished and maintained greenery as well as eco-balance in Haldia region.</p> <p>Space has been earmarked in the newly acquired land for Distillate Yield Improvement Project (DYIP) for development of green belt.</p> <p>After centrifugation the bio sludge is natural weathered and used as manure inside the Refinery premises.</p>
viii	<p>Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act and the West Bengal Factories Rules.</p>	<p>Haldia Refinery has Occupational Health center with all facilities. Periodical health checkup schedule is being followed for target employees as per Factories Act and WB Factory Rules and records are being maintained.</p>

## B. GENERAL CONDITIONS:

Sl. No	STIPULATION BY MOE&F	STATUS
i	The project authorities must strictly adhere to the stipulations made by the West Bengal State Pollution Control Board and the State Government.	Haldia Refinery has been adhering to the stipulations made by the West Bengal Pollution Control Board and State Govt. and submitting necessary compliance Reports as per schedule.
ii	No further expansion or modernization in the plant should be carried out without prior approval of the Ministry of Environment and Forests.	Environmental clearance from MoEF & is always taken before any expansion or modernization in the plant.
iii	The company shall implement all recommendations made in the EMP and risk Analysis reports.	Recommendations from the EMP and Risk analysis reports are implemented at Haldia Refinery.
iv.	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the Units, the respective unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved.	Low sulphur fuel gas & fuel oil are used in heaters. Sulphur Recovery Units installed & commissioned in April / May'94. The emissions from stacks are well within the prescribed limits. Online monitoring system and uplinking of data to CPCB server have been completed. The average SO <sub>2</sub> emission from all Process Units heater stacks during 2016-17 was 767 kg/hr.
v.	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 vis. 75 dBA (day time) and 70 dBA (night time).	Leq of noise level along refinery boundary wall is conforming to limits of <75 dBA in day time and <70 dBA in night time. The noise level data at boundary area of Haldia Refinery is enclosed as <b>Annexure-5</b> . Persons if working in any high noise area use proper PPE.
vi	The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous chemicals Rules, 1989 as amended in 1994 and 2000. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained.	Safety Audit under MSIHC Rules done in Feb 2016 in Haldia Refinery.  PESO approval obtained before commissioning of the Project.

## Haldia Refinery

SUB : SIX MONTHLY STATUS REPORT for Oct'16 - Mar'17 dt.01.06.2017

6.0 EC Reference No. J13011/14/2006 – IA.II(T) Dated 5<sup>TH</sup> JANUARY,2007

**Status Of Conditions Imposed With Respect To Environmental Clearance Of Installation Of 3<sup>rd</sup> Gas Turbine (GT-3) With Heat Recovery Steam Generation (HRSG) At Haldia Refinery By M/S Indian Oil Corporation Ltd.**

### A. SPECIFIC CONDITIONS

Sl. No.	STIPULATION BY MOE&F	STATUS
i	All the conditions stipulated by West Bengal Pollution Control Board vide their letter no. 334-2N-295/2005 dated 28 <sup>th</sup> June 2006 shall be strictly implemented.	All the conditions stipulated by West Bengal Pollution Control Board have been taken care of during implementation of GT-3.
ii	No additional land shall be acquired for any activity/facility of the power project.	GT-3 is installed inside the existing Refinery premises.
iii	Water requirement will be met from existing water supply system. No additional facilities will be created as part of this project.	Water requirement has been met from existing water supply system.
iv	Sulphur content in the Naphtha to be used in the project shall not exceed 0.025%.	Sulphur content in naphtha is less than 0.025%.
v	A single stack of 60 m with exit velocity of 20 m/sec shall be provided with continuous online monitoring equipments.	Stack height is 60 M. Online monitoring system with SO <sub>2</sub> , NO <sub>x</sub> , PM <sub>10</sub> and CO analyzers has been provided.
vi	NO <sub>x</sub> emission shall not exceed 100 ppm.	NO <sub>x</sub> emission level for GT/HRSG is in the range of 10-15 ppm.
vii	The treated effluents conforming to the prescribed standards shall only be discharged in the river Hoogly.	All effluent water quality is monitored daily at IOCL own NABL accredited laboratory.  The treated effluents comply with the prescribed standards (MINAS). Only TTP-RO reject effluent is being discharged to river Hooghly.

Sl. No.	STIPULATION BY MOE&F	STATUS
viii	Adequate measures shall be taken to avoid fire and explosion hazard.	Adequate measures taken to avoid fire and explosion hazard by complying to OISD, PESO and other statutory norms.
ix	A greenbelt shall be developed all along the plant.	Haldia refinery has so far planted more than 55,000 saplings in and around Refinery which have flourished and maintained greenery as well as eco-balance in Haldia region. Space has been earmarked in the newly acquired land for Distillate Yield Improvement Project (DYIP) for development of green belt.
x	First aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	First Aid and sanitation arrangements are provided at worksite and is a part of the Contract Document.
xi	Leq of Noise level should be limited to 75 dBA and regular maintenance of equipment be undertaken. For people working in the high noise areas, personal protection devices should be provided.	Leq of noise level along boundary wall is conforming to limits of <75 DBA in day time and <70 dBA in night time. Persons if working in any high noise area use proper PPE.
xii	Regular monitoring of the ambient air quality shall be carried out in and around the power plant and records maintained. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry.	The ambient air quality within refinery is monitored twice every week at 5 nos locations. Month wise actual average data of Ambient Air Quality monitoring data is being submitted to the MoEF & CC Regional Office as per schedule. Also a Continuous Ambient Air Quality Monitoring Station (CAAQMS) is provided near the refinery battery gate whose data is linked and transmitted to CPCB and WBPCB server. The typical data of Continuous Ambient air quality monitoring station is enclosed as <b>Annexure- 7</b> .
xiii	Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards should be submitted to this Ministry/ Regional Office/CPCB/SPCB.	Six monthly data are being submitted in the month of June and Dec every year to the MoEF&CC Regional Office & WBPCB. Last report sent in the month of Dec 2016.

Sl. No.	STIPULATION BY MOE&F	STATUS
xiv	Regional Office of the Ministry of Environment & Forests located at Bhubaneswar will monitor the implementation of the stipulated conditions. Complete set of Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring.	Regional Office of the Ministry of Environment & Forests located at Bhubaneswar visits Haldia Refinery to monitor the implementation status of the stipulated conditions. As per the requirement, additional information is also submitted during the visit.
xv	Separate funds should be allocated for implementation of environmental protection measures along with item-wise break-up. This cost should be included as part of the project cost. The funds earmarked for the environment protection measures should not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	Adequate funds are allocated for implementation of environmental protection every year to meet the requirements. Expense in 2016-17 on Environment monitoring, Waste disposal, Tree plantation, Awareness program, ETP treated water recycle, Sludge oil recovery, EIA study job and RA study job and ETP operation cost are shown in <b>Annexure-3</b> .
xvi	Full cooperation should be extended to the Scientists/Officers from the Ministry/ Regional Office of the Ministry at Bhubaneswar/the CPCB/the SPCB who would be monitoring the compliance of environmental status.	Haldia Refinery is always extending full co-operation to the Scientists / Officers visiting the Refinery from the statutory bodies.

## Haldia Refinery

**SUB : SIX MONTHLY STATUS REPORT for Oct'16 - Mar'17 dt.01.06.2017**

<b>SI No</b>	<b>EC Reference No and Date</b>	<b>Project name</b>	<b>Status</b>
7.0	J-11011/904/2007-IA II (I) Dated 17 <sup>TH</sup> MARCH,2009	Installation of Delayed Coking unit (DCU) at Haldia refinery Haldia WB by IOCL.	Applied to MoEF & CC for extension of EC validity before expiry. As per directives, DCU project was clubbed with the next FPU & Capacity expansion projects. Name of 'DCU' project was later changed as Distillate Yield Improvement Project (DYIP).
8.0	J-11011/299/2013-IA II(I) DATED 4 <sup>TH</sup> MARCH,2016	Capacity expansion from 7.5 MTPA to 8 MTPA along with distillate yield improvement project (DYIP) and Feed processing unit (FPU) at IOCL Haldia refinery, Purba Medinipur, WB.	As on 1st June 2017: FPU Project is under commissioning stage. DYIP project and Capacity extension project expected to be commissioned in 2018.

**MONTH WISE DATA OF AMBIENT AIR QUALITY  
MONITORING**



# **AAQM DATA FOR REFINERY**

**(OCT- 2016 to MARCH- 2017)**

**Compliance of Statutory Stipulations - Ambient Air Quality**

**Haldia Refinery**

**Period: 1st to 31st Oct-2016**

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
<b>NO. OF SAMPLES</b>	8	8	8	8	8	8	8	8	8	8	8	8
<b>*Annual Target</b>	<b>60</b>	<b>40</b>	<b>50</b>	<b>40</b>	<b>100</b>	<b>0.5</b>	<b>2</b>	<b>5</b>	<b>100</b>	<b>1</b>	<b>6</b>	<b>20</b>
<i>Neem</i> <b>LABORATORY</b>												
<b>**Actual Average</b>	55.0	27.71	16.86	38.12	19.0	0.10	0.86	0.47	24.0	BDL	BDL	BDL
<b>NEAR TUBEWELL 4A</b>												
<b>**Actual Average</b>	58.43	26.71	14.86	38.29	19.29	0.08	0.80	0.43	24.1	BDL	BDL	BDL
<i>Neem</i> <b>MAIN GATE</b>												
<b>**Actual Average</b>	59.54	32.00	19.43	38.25	21.86	0.11	1.01	0.63	21.9	BDL	BDL	BDL
<i>Neem</i> <b>BITUMEN BUILDING</b>												
<b>**Actual Average</b>	55.57	25.00	13.14	33.71	16.14	0.07	0.71	0.40	21.9	BDL	BDL	BDL
<i>Neem</i> <b>OM&amp;S BUILDING</b>												
<b>**Actual Average</b>	57.49	30.43	18.00	39.45	20.43	0.11	0.91	0.57	26.1	BDL	BDL	BDL

BDL- Below Detectable Limit

\* Annual Target - Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* Actual Average - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.

**Compliance of Statutory Stipulations - Ambient Air Quality**

Haldia Refinery

Period: 1st to 30th Nov-2016

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a)Pyrene (BaP)	Arsenic (As)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
<b>NO. OF SAMPLES</b>	8	8	8	8	8	8	8	8	8	8	8	8
<b>*Annual Target</b>	60	40	50	40	100	0.5	2 (8 hours)	5	100 (8 hours)	1	6	20
<i>Near</i> LABORATORY												
<b>**Actual Average</b>	56.9	29.5	17.8	37.6	20.3	0.09	0.8	0.5	20.8	BDL	BDL	BDL
NEAR TUBEWELL 4A												
<b>**Actual Average</b>	53.0	32.4	18.9	36.8	21.8	0.09	0.81	0.61	23.38	BDL	BDL	BDL
<i>Near</i> MAIN GATE												
<b>**Actual Average</b>	55.3	35.5	22.4	34.5	25.1	0.13	0.99	0.68	25.38	BDL	BDL	BDL
<i>Near</i> BITUMEN BUILDING												
<b>**Actual Average</b>	58.6	30.4	16.3	37.3	20.4	0.08	0.78	0.53	20.63	BDL	BDL	BDL
<i>Near</i> OM&S BUILDING												
<b>**Actual Average</b>	54.6	34.3	18.9	37.6	22.0	0.09	0.89	0.60	22.75	BDL	BDL	BDL

BDL- Below Detectable Limit

\* Annual Target - Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* Actual Average - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.

**Compliance of Statutory Stipulations - Ambient Air Quality**

Haldia Refinery

Period: 1st to 31st Dec-2016

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
<b>NO. OF SAMPLES</b>	8	8	8	8	8	8	8	8	8	8	8	8
<b>*Annual Target</b>	60	40	50	40	100	0.5	2 (8 hours)	5	100 (8 hours)	1	6	20
<b>NEPA LABORATORY</b>												
<b>**Actual Average</b>	58.65	38.67	22.78	36.89	25.56	0.12	0.82	0.57	25.44	BDL	BDL	BDL
<b>NEAR TUBEWELL 4A</b>												
<b>**Actual Average</b>	57.23	37.00	22.00	38.96	24.44	0.11	0.84	0.60	24.22	BDL	BDL	BDL
<b>NEPA MAIN GATE</b>												
<b>**Actual Average</b>	55.21	38.00	26.78	39.00	30.22	0.17	1.00	0.70	29.33	BDL	BDL	BDL
<b>NEPA BITUMEN BUILDING</b>												
<b>**Actual Average</b>	55.00	33.11	17.89	39.40	22.56	0.08	0.67	0.51	21.89	BDL	BDL	BDL
<b>NEPA OM&amp;S BUILDING</b>												
<b>**Actual Average</b>	57.45	39.33	23.56	38.60	26.67	0.13	0.89	0.62	25.78	BDL	BDL	BDL

BDL- Below Detectable Limit

\* Annual Target - Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* Actual Average - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.

**Compliance of Statutory Stipulations - Ambient Air Quality**  
**Haldia Refinery**

Period: 1st to 31st Jan-2017

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a)Pyrene (BaP)	Arsenic(Ars)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
<b>NO. OF SAMPLES</b>	8	8	8	8	8	8	8	8	8	8	8	8
<b>*Annual Target</b>	60	40	50	40	100	0.5	2 (8 hours)	5	100 (8 hours)	1	6	20
<i>Near</i> <b>LABORATORY</b>												
<b>**Actual Average</b>	57.32	38.67	22.44	37.43	25.56	0.12	0.82	0.57	25.44	BDL	BDL	BDL
<b>NEAR TUBEWELL 4A</b>												
<b>**Actual Average</b>	57.12	37.00	22.00	38.19	24.44	0.11	0.84	0.60	24.00	BDL	BDL	BDL
<i>Near</i> <b>MAIN GATE</b>												
<b>**Actual Average</b>	56.00	38.18	26.78	37.98	30.22	0.17	1.00	0.70	29.33	BDL	BDL	BDL
<i>Near</i> <b>BITUMEN BUILDING</b>												
<b>**Actual Average</b>	58.12	39.75	19.00	37.54	21.25	0.18	0.81	0.75	24.13	BDL	BDL	BDL
<i>Near</i> <b>OM&amp;S BUILDING</b>												
<b>**Actual Average</b>	58.29	39.33	22.89	37.54	26.67	0.13	0.89	0.62	25.56	BDL	BDL	BDL

BDL- Below Detectable Limit

\* **Annual Target** - Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* **Actual Average** - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.

**Compliance of Statutory Stipulations - Ambient Air Quality**

Haldia Refinery

Period: 1st to 28th Feb-2017

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
SAMPLES	8	8	8	8	8	8	8	8	8	8	8	8
*Annual Target	60	40	50	40	100	0.5	2 (8 hours)	5	100 (8 hours)	1	6	20
<i>NEM</i> LABORATORY												
**Actual Average	57.29	36.13	21.63	37.45	24.25	0.13	0.8	0.55	21.88	BDL	BDL	BDL
NEAR TUBEWELL 4A												
**Actual Average	58.98	35.13	20.63	38.97	23.88	0.11	0.81	0.51	21.63	BDL	BDL	BDL
<i>NEM</i> MAIN GATE												
**Actual Average	57.94	38.49	25.13	38.92	27.88	0.16	0.93	0.68	25.88	BDL	BDL	BDL
<i>NEM</i> BITUMEN BUILDING												
**Actual Average	57.21	31.38	18.00	38.24	21.75	0.09	0.70	0.50	21.00	BDL	BDL	BDL
<i>NEM</i> OM&S BUILDING												
**Actual Average	57.69	38.25	23.00	38.50	25.88	0.13	0.83	0.63	24.13	BDL	BDL	BDL

BDL- Below Detectable Limit

\* Annual Target - Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

**\*\* Actual Average - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.**

**Compliance of Statutory Stipulations - Ambient Air Quality**  
**Haldia Refinery**

**Period: 1st to 31st March-2017**

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
<b>NO. OF SAMPLES</b>	8	8	8	8	8	8	8	8	8	8	8	8
<b>*Annual Target</b>	<b>60</b>	<b>40</b>	<b>50</b>	<b>40</b>	<b>100</b>	<b>0.5</b>	<b>2</b> <b>(8 hours)</b>	<b>5</b>	<b>100</b> <b>(8 hours)</b>	<b>1</b>	<b>6</b>	<b>20</b>
<b>NELM LABORATORY</b>												
<b>**Actual Average</b>	58.9	32.6	18.7	36.8	21.2	0.1	0.7	0.4	21.2	BDL	BDL	BDL
<b>NEAR TUBEWELL 4A</b>												
<b>**Actual Average</b>	54.3	31.3	17.9	38.0	20.0	0.1	0.7	0.4	20.3	BDL	BDL	BDL
<b>NELM MAIN GATE</b>												
<b>**Actual Average</b>	56.0	35.7	21.4	37.8	24.3	0.1	0.9	0.6	24.4	BDL	BDL	BDL
<b>NELM BITUMEN BUILDING</b>												
<b>**Actual Average</b>	58.6	28.4	16.6	35.8	18.6	0.1	0.7	0.3	19.0	BDL	BDL	BDL
<b>NELM OM&amp;S BUILDING</b>												
<b>**Actual Average</b>	57.3	32.9	19.2	38.6	21.6	0.1	0.8	0.5	22.2	BDL	BDL	BDL

BDL - Below Detectable Limit

\* Annual Target - Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* Actual Average - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.

**AAQM DATA FOR TOWNSHIP**

**(OCT -2016 to MARCH-2017)**



**Compliance of Statutory Stipulations - Ambient Air Quality**

**Haldia Refinery**

Period: 1st to 31st Oct-2016

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
<b>NO. OF SAMPLES</b>	8	8	8	8	8	8	8	8	8	8	8	8
<b>*Annual Target</b>	60	40	50	40	100	0.5	2 (8 hours)	5	100 (8 hours)	1	6	20
<i>At</i> <b>REFINERY HOSPITAL</b>												
<b>** Actual Average</b>	42.29	19.57	4.40	25.57	13.71	0.06	0.54	0.30	17.14	BDL	BDL	BDL
<i>Near</i> <b>SECTOR-21</b>												
<b>** Actual Average</b>	45.57	21.14	4.86	28.29	15.00	0.05	0.60	0.37	19.29	BDL	BDL	BDL

BDL- Below Detectable Limit

\* **Annual Target**- Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\*\* **Actual Average** - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.

**Compliance of Statutory Stipulations - Ambient Air Quality**  
Haldia Refinery

Period: 1st to 30th Nov-2016

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a)Pyr ene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
<b>NO. OF SAMPLES</b>	8	8	8	8	8	8	8	8	8	8	8	8
<b>*Annual Target</b>	60	40	50	40	100	0.5	2 (8 hours)	5	100 (8 hours)	1	6	20
<i>A+</i> Refinery Hospital												
<b>** Actual Average</b>	48.50	21.38	4.43	26.63	16.5714	0.06	0.49	0.25	22.25	BDL	BDL	BDL
<i>A</i> Sector-21												
<b>** Actual Average</b>	52.88	24.00	6.63	28.88	16.9	0.05	0.56	0.27	20.13	BDL	BDL	BDL

BDL- Below Detectable Limit

\* Annual Target- Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* Actual Average - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.

## Compliance of Statutory Stipulations - Ambient Air Quality

Haldia Refinery

Period: 1st to 31st Dec-2016

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a)P yrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
NO. OF SAMPLES	8	8	8	8	8	8	8	8	8	8	8	8
* Annual Target	60	40	50	40	100	0.5	2 (8 hours)	5	100 (8 hours)	1	6	20
<i>A7</i> Refinery Hospital												
** Actual Average	53.78	25.67	4.78	29.22	16	0.06	0.51	19.89	0.23	BDL	BDL	BDL
<i>N<sub>20M</sub></i> Sector-21												
** Actual Average	57.67	27.33	6.44	33.11	18	0.06	0.66	0.33	21.67	BDL	BDL	BDL

BDL- Below Detectable Limit

\* Annual Target- Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* Actual Average - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.

**Compliance of Statutory Stipulations - Ambient Air Quality**  
**Haldia Refinery**

Period: 1st to 31st Jan-2017

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a) Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
<b>NO. OF SAMPLES</b>	8	8	8	8	8	8	8	8	8	8	8	8
<b>*Annual Target</b>	60	40	50	40	100	0.5	2 (8 hours)	5	100 (8 hours)	1	6	20
<i>At Refinery Hospital</i>												
<b>** Actual Average</b>	53.78	25.67	4.78	29.22	16	0.06	0.51	19.89	0.23	BDL	BDL	BDL
<i>Near Sector-21</i>												
<b>** Actual Average</b>	57.67	27.33	6.44	33.11	18	0.06	0.66	0.33	21.67	BDL	BDL	BDL

BDL- Below Detectable Limit

\* Annual Target- Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* Actual Average - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.

**Compliance of Statutory Stipulations - Ambient Air Quality**  
**Haldia Refinery**  
**Period: 1st to 28th Feb-2017**

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a) Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
<b>NO. OF SAMPLES</b>	8	8	8	8	8	8	8	8	8	8	8	8
<b>*Annual Target</b>	60	40	50	40	100	0.5	2 (8 hours)	5	100 (8 hours)	1	6	20
<b>Refinery Hospital</b>												
<b>** Actual Average</b>	50.25	22.75	4.75	29.00	14.875	0.06	0.50	N.D.	17.625	BDL	BDL	BDL
<b>Area Sector-21</b>												
<b>** Actual Average</b>	57.38	27.63	5.25	33.00	19.125	0.06	0.61	0.23	18.00	BDL	BDL	BDL

BDL- Below Detectable Limit

\* Annual Target- Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* Actual Average - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.

### Compliance of Statutory Stipulations - Ambient Air Quality

Haldia Refinery

Period: 1st to 31st Mar-2017

Parameters	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	Pb	CO	Benzene	Ozone	Benzo(a) Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>	ng/m <sup>3</sup>
NO. OF SAMPLES	8	8	8	8	8	8	8	8	8	8	8	8
* Annual Target	60	40	50	40	100	0.5	2 (8 hours)	5	100 (8 hours)	1	6	20
<b>At Refinery Hospital</b>												
** Actual Average	44.56	20.44	4.40	25.44	13.11	0.04	0.48	17.11	0.20	BDL	BDL	BDL
<b>NCA Sector-21</b>												
** Actual Average	50.11	23.00	4.57	29.22	14.9	0.05	0.56	0.30	18.22	BDL	BDL	BDL

BDL- Below Detectable Limit

\* Annual Target- Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* Actual Average - Average of the month as analysis is being done twice a week 24 hourly at uniform intervals.

**AVERAGE DATA OF THE EFFLUENT WATER BEFORE  
TREATMENT AND FINAL TREATED EFFLUENT DISCHARGED  
TO RIVER HOOGLY**

(Average for Oct -2016 to Mar- 2017)

Sl.No.	Parameter	Effluent Water	
		Before Treatment (API / TPI inlet)	Final Treated Effluent discharged to river Hooghly
1	pH	7.3	7.2
2	OIL	3.4	2.6
3	PHENOL	1.0	0.05
4	SULPHIDE	0.46	0.25
5	BOD, 3 days 27°C	44	8.0
6	COD	276	64.6
7	TSS	146	13.3

**Note: All parameters are in mg/l except pH**

## Expenditure incurred by Haldia Refinery to implement the condition stipulated by MoEF &amp;CC

For the year 2016-17

Sr. No.	Environment expenditure	Expenditure in 2016-17 (in Rs)
1	Treatment and disposal cost of waste	ETP water treatment for recycle 160 Lakh + Haz. Waste disposal cost 200 Lakh = Rs 360 Lakh
2	Expenditure of Treatment of effluent/ air pollution control etc.,	RO reject treatment facility 49 Lakh + Stack Analyser CO & PM 363 Lakh + Stack Analyser SO <sub>2</sub> & NOX 560 Lakh+ Ambient Air Quality Monitoring 62.6 Lakh = Rs. 1034.6 Lakh
3	Expenditure on Environmental monitoring - stack & ambient monitoring; effluent	Monitoring by WBPCB 6 Lakh + Monitoring by Outsource agency 70 Lakh = RS. 76 Lakh
4	Expenditure for consent / authorization/ EC etc	CTO 3 yrs for Refinery 19.5 Lakh + Consent to Establish for new Projects 50 Lakh + CTO for FPU 10.5 Lakh = Rs. 80 Lakh
5	Other environmental cost (like external services )	Recovery of oil from sludge 194 Lakh + Construction of Lined pit for sludge before disposal 218 Lakh = Rs. 412 Lakh
6	ETP Operation Cost	ETP Operation cost : Rs 156 Lakh
	<b>Total Environment expenditure</b>	<b>Rs . 2,118.60 Lakhs (Rs. Twenty one crores eighteen lakhs and sixty thousand only)</b>



**MONTH WISE AVERAGE DATA  
OF FINAL TREATED EFFLUENT  
DISCHARGED TO RIVER HOOGLY  
( OCT-2016 TO MAR-2017)**

S.No.	Parameter	Statutory Stipulations		Average for the month						Percent Compliance w.r.t.	
		SPCB	MINAS	Oct'16	Nov'16	Dec'16	Jan'17	Feb'17	Mar'17	MINAS	SPCB
1	pH	6 - 8.5	6 - 8.5	7.44	7.30	7.31	7.02	7.20	7.12	100	100
2	Phenol	0.35	0.35	0.05	0.05	0.04	0.04	0.05	0.05	100	100
3	Sulphides	0.5	0.5	0.34	0.25	0.20	0.21	0.27	0.24	100	100
4	Oil	5	5	2.92	2.54	2.50	2.23	2.42	2.74	100	100
5	COD	125	125	63.7	59.20	55	53.15	78.33	78.15	100	100
6	BOD	15	15	7.8	7.27	8.4	8.33	8.35	7.91	100	100
7	TSS	20	20	15.50	13.62	12.56	10.46	14.04	13.56	100	100

**NOISE LEVEL AT BOUNDARY AREA OF HALDIA REFINERY**

Period of Survey: MAR ,2017

SL NO	LOCATION NAME	NOISE RESULTS (dBA)	
		Day Time Limit :75dBA	Night Time Limit: 65dBA
1	West of OHCU Plant Area, Road A	62.6	59.4
2	Near Flare Stack Area	72.4	67.2
3	West of ETP Office ,Road A	70.8	61.7
4	Near Gate No.04,Road A	71.3	67.4
5	South West of Old and closed Catch Pit No.01	62.8	60.8
6	South of Solvent Handling Area	64.3	58.1
7	South East of LPG Bulk Loading Area	73.1	63.7
8	East of Horton Sphere	66.5	56.2
9	East of Tank No.109	63.1	59.2
10	North of Tank No. 111	65.7	60.3
11	East Of Tank No .114	70.4	61.8
12	DHDS Cooling Tower	72.6	64.7

STACK EMISSION MONITORING RESULT for SO<sub>2</sub> emission

Period: Oct'16 - Mar'17

Sl. No.	Stack Attached to	SO <sub>2</sub> emission (kg/hr)					
		Oct'16	Nov'16	Dec'16	Jan'17	Feb'17	Mar'17
1	CDU # 1	34.9	35.7	37.3	35.6	37.2	34.8
2	CDU # 1 Trim Heater	9.1	9.7	10.6	10.3	11.0	10.2
3	CDU # 2	37.1	42.5	43.4	47.9	42.1	46.9
4	CDU # 2 Trim Heater	15.1	16.0	15.6	15.6	15.0	16.7
5	CRU	1.7	1.5	1.4	1.1	1.5	1.2
6	KHDS	1.3	1.1	1.1	1.3	1.1	1.2
7	FEU (North)	11.5	11.9	13.0	12.1	13.3	13.6
8	FEU (Middle)	14.1	15.7	14.8	16.6	15.6	16.1
9	FEU (South)	12.8	13.5	12.8	13.7	11.6	15.0
10	VBU (North)	13.3	15.4	15.6	17.7	17.0	19.0
11	VBU (South)	15.2	15.0	16.7	14.9	16.3	15.7
12	VDU # 1	30.8	33.2	36.1	34.3	35.8	33.3
13	VDU # 1 Trim Heater	11.5	11.0	9.4	10.7	10.2	10.5
14	PDA	13.2	13.7	12.1	14.3	13.3	14.1
15	CIDW	1.6	1.4	1.1	1.1	1.0	0.9
16	HFU	s/d	0.2	0.2	0.2	s/d	0.2
17	OHCU	35.7	33.7	s/d	s/d	26.5	22.3
18	HGU # 2 Reformer	6.7	6.8	6.8	5.9	5.0	6.3
19	HGU # 2 PDS	0.2	0.2	0.1	0.1	0.1	0.1
20	SRU - II	s/d	s/d	s/d	s/d	s/d	s/d
21	SRU - III	36.0	38.9	68.7	38.7	39.1	38.7
22	SRU - IV	66.4	71.2	s/d	s/d	70.8	79.1
23	FCCU (Heater)	3.6	1.3	3.9	3.8	4.1	3.7
24	FCCU (Regenerator)	76.7	81.4	84.4	87.5	88.9	84.0
25	VDU # 2	73.7	80.2	84.9	75.0	83.8	75.2
26	MSQU	1.2	1.1	1.0	1.0	0.8	1.0
27	DHDS	1.6	0.7	0.7	0.7	0.5	0.7
28	GAS TURBINE(GT#1)	14.3	15.0	s/d	14.7	13.1	11.7
29	GAS TURBINE(GT#2)	s/d	12.7	12.1	13.1	11.6	12.8
30	GAS TURBINE(GT#3)	9.8	10.7	9.8	10.7	9.1	10.4
31	TPS (Boiler-I)	s/d	s/d	s/d	s/d	133.7	s/d
32	TPS (Boiler-III)	s/d	s/d	s/d	s/d	s/d	s/d
33	TPS (Boiler-IV)	159.80	170.3	174.7	170.5	s/d	164
	<b>Total SO<sub>2</sub> emission(kg/hr)</b>	<b>708.9</b>	<b>761.7</b>	<b>688.3</b>	<b>669.1</b>	<b>729.1</b>	<b>759.4</b>

Note--- S/D: shutdown

## IOCL , HALDIA REFINERY

Typical Continuous Ambient Air Quality Monitoring  
Data

Time Base :	24 hr					MONTH- OCT 2016				
	SO <sub>2</sub>	NO <sub>x</sub>	RSPM	CO	THC					
UNIT	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>	mg/m <sup>3</sup>					
THRESHOLD										
VALUE	50	40	60	02(08 Hours)	30					
Day-1	34.295	11.76	23.51	0.08	5.676					
Day-2	19.074	12.27	23.54	0.06	8.859					
Day-3	25.475	11.64	49.22	0.13	2.997					
Day-4	28.911	12.05	56.75	0.18	2.746					
Day-5	48.115	12.20	54.74	0.42	3.702					
Day-6	31.255	12.79	41.63	0.47	3.092					
Day-7	26.782	13.21	19.59	0.61	3.366					
Day-8	12.603	13.19	19.62	0.58	3.442					
Day-9	22.308	13.12	17.80	0.53	2.967					
Day-10	23.663	13.52	20.89	0.51	3.407					
Day-11	19.816	13.30	27.03	0.65	3.021					
Day-12	24.670	12.81	49.09	0.91	4.021					
Day-13	6.491	12.92	47.44	0.80	2.923					
Day-14	16.748	12.87	48.37	0.67	3.617					
Day-15	20.052	13.18	47.32	0.63	3.621					
Day-16	22.843	13.27	50.39	0.69	3.639					
Day-17	20.928	12.63	51.45	0.77	3.632					
Day-18	30.508	12.16	54.14	0.76	3.626					
Day-19	26.697	11.94	52.13	0.80	3.631					
Day-20	29.673	12.26	49.93	0.79	3.634					
Day-21	21.322	13.04	48.11	0.77	3.635					
Day-22	19.608	12.90	50.02	0.82	3.630					
Day-23	4.233	13.27	50.80	0.79	3.618					
Day-24	7.757	12.96	54.32	0.97	3.630					
Day-25	10.794	12.71	50.02	0.90	3.638					
Day-26	33.463	12.63	58.19	0.85	3.622					
Day-27	28.951	12.62	50.70	0.68	3.642					
Day-28	20.136	12.35	50.22	0.72	3.627					
Day-29	18.725	12.30	54.16	0.72	3.623					
Day-30	19.025	13.18	51.04	0.64	3.647					
Day-31	25.792	12.69	51.11	0.60	3.628					

**Note:** Continuous Ambient Air Quality Monitoring data has been uplinked with CPCB web server.

গোষ্ঠী

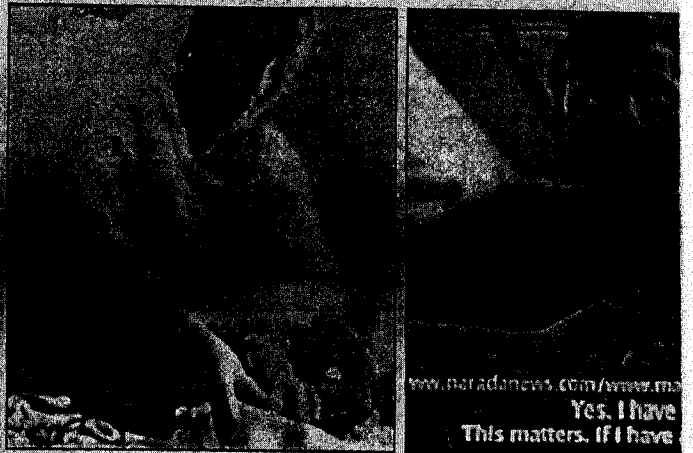
# এবার নাম জড়াল শঙ্কু, অপ

নিজস্ব একিনিরি, কলকাতা: নারদ সিংয়ের ষ্টিং অপারেশনের ফলে নাম জড়াল তৃণমূলের আরও দুই নেতা, এমসি'র। এদের একজন হলেন গুয়ের অন্যতম প্রাক্তন রাজ্য-সংস্পাদক তথা ছাত্রনেতা শঙ্কুদেব পাণ্ডা এবং অন্যজন হলেন আরামবাগ লোকসভা কেন্দ্রের এমপি অশোকী শোখার। সারাদিনেই সিবিআইয়ের তলবের পর শঙ্কুদেবকে দলের যাবতীয় পদ থেকে সরিয়ে দেওয়া হয়েছে। তবে প্রকাশিত ভিডিওতে শঙ্কুদেবকে টাকা নিতে দেখা যায়নি। বরং টাকার বদলে তিনি সুব্রীটী সংস্থার অংশীদারিত্ব চেয়েছেন। এই তদন্তমূলক খবর জান করে দেওয়ার জন্য নারদ সিংজ একটা জুয়ো যাবতীয়ক সংস্থা তৈরি করে। সেই সংস্থার যারপায় 'সহযোগিতার' শব্দেই তৃণমূলের একাধিক নেতৃত্বমণ্ডলে বসে নিতে দেখা গিয়েছে। সেই সংস্থার প্রচলিত যাবতীয় অংশীদারিত্ব চেয়েছেন শঙ্কু। তবে অংশীদারিত্ব চেয়ে হাতে হাতেই এক টাকা নিতে দেখা গিয়েছে প্রকাশিত ভিডিওতে। তবে এবারও

হয়েছে। বিধানসভা নির্বাচনের মুখে বামফ্রন্ট, কংগ্রেস, বিজেপি সহ বিরোধীদের হাতে থাকা অস্ত্র আরও ধারালো হয়ে উঠবে এরপর। এমনটাই রাজনৈতিক মহলের ধারণা। এদিন মাহেশ্বরী ভবনে ভিডিওটি দেখিয়ে বিজেপি নেতা জয়প্রকাশ মজুমদার বলেন, এ আমাদের সারা

দায়র হবে রাজ্য বিজেপি নেতৃত্বকে হসিত করে তী সূর্যকান্ত মিত্র। তিনি বলে ঘুষ খাওয়ার ভিডিও টে মাথা কে? তাকে তো খুঁজে এর তদন্ত হওয়া দরকার শঙ্কুদেব পাণ্ডা নারদ

## ফের নারদের ষ্টিং



www.naradanews.com/www.m...  
Yes. I have  
This matters. If I have

এবারও নাম জড়াল তৃণমূলের আরও দুই নেতা, এমসি'র। এদের একজন হলেন গুয়ের অন্যতম প্রাক্তন রাজ্য-সংস্পাদক তথা ছাত্রনেতা শঙ্কুদেব পাণ্ডা এবং অন্যজন হলেন আরামবাগ লোকসভা কেন্দ্রের এমপি অশোকী শোখার। সারাদিনেই সিবিআইয়ের তলবের পর শঙ্কুদেবকে দলের যাবতীয় পদ থেকে সরিয়ে দেওয়া হয়েছে। তবে প্রকাশিত ভিডিওতে শঙ্কুদেবকে টাকা নিতে দেখা যায়নি। বরং টাকার বদলে তিনি সুব্রীটী সংস্থার অংশীদারিত্ব চেয়েছেন। এই তদন্তমূলক খবর জান করে দেওয়ার জন্য নারদ সিংজ একটা জুয়ো যাবতীয়ক সংস্থা তৈরি করে। সেই সংস্থার যারপায় 'সহযোগিতার' শব্দেই তৃণমূলের একাধিক নেতৃত্বমণ্ডলে বসে নিতে দেখা গিয়েছে। সেই সংস্থার প্রচলিত যাবতীয় অংশীদারিত্ব চেয়েছেন শঙ্কু। তবে অংশীদারিত্ব চেয়ে হাতে হাতেই এক টাকা নিতে দেখা গিয়েছে প্রকাশিত ভিডিওতে। তবে এবারও

রাজ্যের লজ্জা। মুখ্যমন্ত্রী মমতা বন্দোপাধ্যায়কে উদ্দেশ্য করে তিনি বলেন, মাননীয়। এই লজ্জা থেকে রাজ্যবাসীকে মুক্ত করুন আপনি। দেখতে পাচ্ছি, সংসদের এক অত্যন্ত কমবয়সী সদস্য ঘুষের টাকা নিচ্ছেন। মাননীয় কি মুখসমাজকে এটাই বলতে চাইছেন, রাজনীতিতে এসো আর দু'হাতে কামাও। যাদের নাম এখনও পর্বস্ত ঘুষ-কাণ্ডে জড়িয়েছে, তাদের আসন্ন বিধানসভা নির্বাচনের কোনও অংশগ্রহণ যেন না থাকে, সেই দাবি নিয়ে আজ, মঙ্গলবার ফের নির্বাচন কমিশনের

এটাই হল। এদিন রাতে চ কমেন্টস'। রাজনৈতিক বাঘবোয়ালপারা ফেঁসে যে ষ্টিং অপারেশনের দাবিদার বিধায়ককে টাকা নিতে এ সেই অপারেশন করেছিলে গিয়েছিল। দল থেকেও ও

রাজ্যবাসীকেই রাজনৈতিক মহলে আরেকবার তোলপাড় গুস্ত

Barboman - 22/3/2016

**IndianOil**

কম্পানির জন্য বিজ্ঞাপন

এতদ্বারা সকল জনসাধারণকে জানানো যাইতেছে যে, আমাদের প্রস্তাবিত প্রকল্পটি অর্থাৎ পশ্চিমবঙ্গের পূর্ব-মেরিনীপুর জেলায় হলদিয়া তেল শোধনাগারটির প্রস্তাবিত উৎপাদন ক্ষমতার সম্প্রসারণ ১.৫ মিলিয়ন মেট্রিকটন প্রতিবৎসর থেকে ৮.০ মিলিয়ন মেট্রিকটন প্রতিবৎসর তকসহ ডিপিএস ইন্ড ইনস্ট্রুমেন্ট প্রকল্প (DIYP) এবং ফিড প্রস্তুত ইউনিট (FPU) স্থাপনের জন্য পরিবেশগত ছাড়পত্রটি (ই.সি) পরিবেশ, বন এবং জলবায়ু পরিবর্তন মন্ত্রক বিভাগ (MoEFCC), ভারত সরকার হতে যাই, ২০১৬ সালে মঞ্জুর কমেছেন (অনুমতিসংখ্যা: J-11011/2999/2013-IA II (II))। পরিবেশগত ছাড়পত্রের অনুলিপি পশ্চিমবঙ্গ ঘুষ নিয়ন্ত্রণ পর্ষদে পাওয়া যাবে। পরিবেশ, বন এবং জলবায়ু পরিবর্তন মন্ত্রক বিভাগের ওয়েবসাইট <http://envfor.nic.in> থেকে পরিবেশগত ছাড়পত্রের অনুলিপিও পাওয়া যাবে।

প্রকর্তারী:  
ইন্ডিয়ান অয়েল কর্পোরেশন লিমিটেড  
হলদিয়া বিমানবন্দর, পোস্ট অফিস হলদিয়া

## নারদ কাণ্ডে তৃণমূলকে বাঁচাতে র চুপ থেকেছে সিপিএম-কংগ্রেস:

বিএনএ, বঙ্গাপুর: নারদ ষ্টিং অপারেশনের তদন্তভার লোকসভার এরিকস কমিটির হাতে গেলেও রাজ্যসভায় তা এখনও যায়নি। এনিম্নে তৃণমূল-বিজেপি অশুভ আঁর্তাতের অভিযোগ তুলে সরব হয়েছে বিরোধীরা। যদিও, এই অভিযোগ উড়িয়ে রাজ্যসভায় সংখ্যা গরিষ্ঠতা না থাকাকেই টাল করতে চাইছে বিজেপি। সোমবার বঙ্গাপুরে সাংবাদিকদের এক প্রশ্নের উত্তরে বিজেপির কেন্দ্রীয় নেতা সিদ্ধার্থনাথ সিং বলেন, কংগ্রেস এবং বামফ্রন্টের তৃণমূলকে বাঁচাচ্ছে। লোকসভায় আমাদের শক্তি আছে। আমরা ষ্টিং অপারেশন কাণ্ডের বিষয়টি সিঁপকারের মাধ্যমে এরিকস কমিটিতে তুলে দিয়েছি। কিন্তু, রাজ্যসভায় কংগ্রেসের শক্তি আছে। আমাদের সর্বস্ব সদস্য চন্দন মিত্র, প্রকাশ জাভেদেকর এথিকস কমিটি গড়ার জন্য রাজ্যসভায় জোরালো সুওয়াল করেছেন। কারণ রাজ্যসভার সদস্য হলেন

সরকারকে উৎসাহিত করার জন্য আমরা একাই গড়ছি। রাজ্যসভায় মুকুল রায়কে কেন বাঁচানো হল এর জবাব সিপিএমকে দিতে হবে। উল্লেখ্য, আগামী ২৭ মার্চ নির্বাচনী প্রচারে বঙ্গাপুরের বিএনআর ময়দানে আসতে পারেন প্রধানমন্ত্রী নরেন্দ্র মোদি। সেকারণেই এদিন মাঠ পরিদর্শনে এলেছিলেন বিজেপির ওই নেতা। মাঠের

## খড়্গপুরে প্রধানমন্ত্রীর সড়

কোথায় মজ্ঞ বাঁধা হবে, কোথায় সাধারণ মানুষ থাকবেন, সবোদ মাধ্যমকে কোথায় বসানো হবে, জল শৌচালয়ের ব্যবস্থা সহ নানা বিষয়ে শোজ্জন। দলীয় কর্মীদের নির্দেশ দেন, জো ভি কর সাক্ষতে হো করো। আয়সা লাগনা চাইছে মমতাভিত্তিকা বিদায় দিন আ চুক

INDIA'S FAVORITE MUSIC APP | OVER 1

**IndianOil**  
**PUBLIC NOTICE**  
 We hereby inform the public that our Proposed Project i.e., Proposed Capacity Expansion from 7.5 MTPA to 8.0 MTPA along with Distillate Yield Improvement Project (DYIP) and Installation of Feed Preparation Unit (FPU) at Haldia Refinery, District Purba Medinipur in West Bengal has been accorded Environmental Clearance (EC) by Ministry of Environment, Forests & Climate Change (MoEFCC), Government of India vide its Letter dated 4th March, 2016 (Ref. File No. J-11011/299/2013-IA II (I)). The copy of the Environmental Clearance Letter is available with West Bengal Pollution Control Board and may also be seen at Website of the Ministry of Environment, Forests & Climate Change at <http://envfor.nic.in>  
 Act Proponent:  
 Indian Oil Corporation Ltd.  
 Haldia Refinery, P.O. Haldia Oil Refinery,  
 Dist. Purba Medinipur - 721806,  
 West Bengal.

**V.O.CHIDAMBARANAR PORT TRUST**  
 Tuticorin - 628004 TAMILNADU  
 Applications are invited in the prescribed format from the eligible candidates for the Class -III post in the pay scale of Rs.23600-56300 in V.O. Chidambaranar Port Trust:  

Name of the Post	Tug Master Gr. I (B)
No. of Post	Two (02)
Educational Qualification	Essential: (i) Matriculation or its equivalent; (ii) Possession of First Class Master Certificate under Inland Steam Vessels Act, 1917 (I of 1917); (OR) Possession of Certificate of Competency as Master of a Steam Vessel having engine of any nominal Horse Power, (or) of a Motor vessel having engines of any Break Horse Power, issued by the Mercantile Marine Department under Major Ports Harbour Crafts Rules; (iii) Three years experience in handling vessels with above capacity; (iv) Knowledge of Swimming; (v) Should pass the trade test prescribed and conducted by the Port
Age	30 years

 The filled in application with attested copies of educational, experience and professional certificate by Gazetted Officer should reach the undersigned on or before 08.04.2016 For further details and application form please visit the Port's Website [www.vocport.gov.in](http://www.vocport.gov.in)  
**DEPUTY CONSERVATOR**

भारतीय सांस्कृतिक समन्वय परिषद  
 Rabindranath Tagore Centre  
 Cordially invites  
 An evening of Hindustani Vocal Programme  
**Sshastriya Sangeet Sandhya**  
 by Smt. Shalmalee Joshi (Mumbai)  
 Under Horizon Series  
 Date & Time: Friday, March  
 Venue: Satyajit Ray Auditorium, RTC, ICC  
 RSVP: 033 22823431 / 2895 [www.iccr.gov.in](http://www.iccr.gov.in)

**KOLKATA DEBTS RECOVERY TRIBUNAL III**  
 Government of India  
 60, Jawaharal Nehru Road, "Seven Sevens Building", 8th Floor, Kolkata-700 071  
 Summons under Section 19(4) of Recovery of Debts due to Banks and Financial Institutions Act, 1993  
**T.A. No. 938 of 2014**  
**Bank of India** ..... Applicant  
 -Versus-  
**Smt. Anita Kundu and Others**  
 ....Defendant(s)  
 To  
 1) Sri Joy Sankar Roy, presently residing at Indian Airlines Housing Complex, Block No. 28, Flat 01, 21 Mall Road, Kolkata-700 052 and permanently residing at Village dia, P.O. Bhagwanpur, District Medinipur.  
 WHEREAS O.A. No. 160 of 2008 between the parties above named has been transferred from DRT-2, Kolkata Under Section 19(3) of Recovery of Debts Due to Banks and Financial Institutions Act 1993 to this Tribunal.  
 WHEREAS the said O.A. No. 160 of 2008 has been registered in this Tribunal as T.A. No. 938 of 2014.  
 WHEREAS the applicant(s) above named has filed an application under Section 19 of the Recovery of Debts due to Banks and Financial Institutions Act 1993 against you/others for recovery of Rs. 12,42,233.00 (Rupees Twelve Lakh Forty Two Thousand Two hundred Thirty Three) and other relief(s).  
 You are hereby summoned to appear in person or through authorized agent before the Tribunal within 30 (thirty) days from the date of receipt/publication thereof and to show cause in writing along with copies of documents to be relied upon by you as to why the reliefs prayed for shall not be granted.  
 Given under my hand and seal of the Tribunal.  
 The 18th day of February, 2016.  
 Registrar-in-Charge  
 Government of India  
 Ministry of Finance



Indulge yourself with some stunning silver jewellery!  
 Up to **45%\* Off**  
 on Silver Jewellery  
 Offer valid from 3<sup>rd</sup> to 27<sup>th</sup> March 2016

- 
- 
- 
- 
- 
- 

Shop online at: [www.jewelsouk.com](http://www.jewelsouk.com)  
 To locate your nearest store, call (toll free) - 1800 102 4480/82  
 For Distribution & Franchise

gaana.com bas bajna chahiye gaana

TO PUBLISH IN ARS

\* 45% off - valid on regular price and not on sale. \* Prices are inclusive of taxes