इंडियन ऑयल कॉर्पोरेशन लिमिटेड
हल्दिया रिफाइनरी, डाकघर : हल्दिया ऑयल रिफाइनरी–721606
जिला: पूर्व मेदिनीपुर, पश्चिम बंगाल
Indian Oil Corporation Limited
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ISO 9001 / ISO 14001 / OHSAS 18001
CB-035-MS

रिफाइनरीज प्रभाग
Refineries Division

16th Nov-2019

To
The Joint Director(S)
Government of India
Ministry of Environment, Forests & Climate Change,
Eastern Regional Office, A/3 Chadrasekharpur,
Bhubaneshwar – 751023

Our reference no.: HR/HSE/8C/2019-20/(2)

Sub: Half yearly compliance reports in respect of the stipulated conditions under Environmental Clearance for existing Projects at Haldia Refinery, IOCL for the period 01-04- 2019 to 30-09-2019

Sir,

We enclose herewith the half yearly compliance reports in respect of the stipulated terms and condition under Environment Clearance for existing projects at Haldia Refinery for the period 01-04- 2019 to 30-09-2019.

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) Environmental Clearance for expansion of Crude oil Refining capacity by revamping of RFCCU from 0.7 MMTPA to 1.0 MMTPA at Haldia Refinery, Purba Medinipur, WB by M/s IOCL.

8) Installation of Delayed Coking unit (DCU) at Haldia refinery Haldia WB by IOCL- EC (Now clubbed to DYIP project).

9) 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.

10) BS-VI Fuel Quality Up-gradation Project Phase-I at Haldia Refinery, West Bengal by M/s IOCL.

We are also enclosing Annexure-1 to Annexure-7a & 7b as Environmental Quality Monitoring data here with this report.

Thanking you.

Yours faithfully,

16/11/19

P S Goswami
General Manager (TS & HSE)
IOCL, Haldia Refinery
Haldia, Dist-Purba Medinipur
Pin-721606

Enclosure: Half yearly compliance reports in respect of the stipulated condition under Environmental Clearance.

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 1st Dec, 2019

ROHS

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ISO 9001:2015/14001:2015/OHSAS 18001:2007

Index on Status of Compliance on past Environmental Clearance

			4th March 2016.	
9	J-11011/299/2013-IA II(I) Date 4-Mar-2016	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	EC Compliance status enclosed.	25-31
10	J-11011/175/2016-IA-II(I) Date 28-Nov-2017	BS-VI Fuel Quality Up-gradation Project (Phase-I) at Haldia Refinery, Haldia West Bengal by M/s IOCL.	Status as on date: BS-VI Commissioning planned in Dec'19.	32-35

Annexure	Description
Annexure-1 &1A	Month wise actual average data of Ambient Air Quality Monitoring (Apr'19 to Sep'19)
Annexure-2	Monthly average data last six months of Final Treated Effluent discharge to River Hooghly
Annexure-3	Details of Environmental Expenditure for the period - Apr'19 to Sep'19
Annexure-4	Day & Night Noise Monitoring results of Apr'19
Annexure-5	Stack Monitoring result for SO_2 emission - Apr'19 to Sep'19
Annexure-6	Typical Continuous Ambient Air Quality Monitoring data of Aug'19
Annexure-7a & 7b	Record on Occupational health Check up for the period from Apr'19 to Sep'19

Haldia Refinery

SUB: SIX MONTHLY STATUS REPORT for Apr'19 – Sep'19 Date: 01.12.2019

1.0 EC Reference No. & Issue date: J11011/34/88-IA; 16th 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_2 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 (SRU) commissioned in April/May'94. New SRUs are commissioned in 2010. The emissions from stacks are well within the prescribed limits. Online monitoring system and up-linking of data to CPCB server have been completed. Six months average of SO2 emission from heater stacks of all Process Units during Apr'19 to Sep'19 was 834.2 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 of locations. Also a Continuous Ambient Air Quality Monitoring Station (CAAQMS) is provided near the Refinery Gate-2 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 Annexure-1 & Annexure 1A for six months data from Apr'19 to Sep'19.
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_2, PM10, NOx 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 also checks the stack emission by sampling on quarterly basis.

Sl. No.	STIPULATION BY MoEF & CC	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 Hazardous 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. Flare gas recovery compressors are installed to reduce flaring.
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.	Tree plantation done in all previous years in nearby region of Haldia refinery. Haldia refinery has planted 62000 trees in and around the Haldia region. Shortage of land space within refinery constraints the tree plantation at present time. Tree plantation is now done in nearby region, schools, municipality /HDA area with due permission.
viii)	Tree plantation program 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 62,000 saplings in and around Refinery which have flourished and maintained greenery as well as eco-balance in Haldia region.
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 at five different locations inside Refinery through authorized agency. Also a Continuous Ambient Air Quality Monitoring Station (CAAQMS) installed near the refinery Gate-2 whose data is 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.

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.	All effluent water quality is monitored daily at IOCL own NABL accredited laboratory. The treated effluents comply with the prescribed standards (MINAS). 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 is routed to the storm water pond near ETP. Thereafter the water is pumped to covered floating roof holding tanks 103 & 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, TSS, COD & BOD. Refer monthly average data for six months of the final treated effluent discharged to Hooghly river is enclosed as Annexure-2. Ground water quality is monitored quarterly by WBPCB recognized laboratory. WBPCB also does half yearly monitoring of ground water.
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%. Treated water is used as Cooling Tower make up and Fire water make up. It is also used in Tertiary Treatment Plant (TTP-RO) to produce permeate water. The permeate water is used as feed to DMW Plant and make up to Cooling tower.
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 manual updated and recertification job from PNGRB approved agency in progress. ERDMP manual including BS-VI project recertified by authorized agency in Sep'19.
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.	Health Safety & Environment (HS&E) department exists in Haldia Refinery with several qualified personnel with 15 - 30 years experience in Refineries & Petrochemicals industries. Also all activities are monitored by Refinery Head quarter HSE department. For any professional help such as Risk Assessment & EIA/ EMP study, Haldia Refinery is always appointing competent professional agency. Regular Environmental monitoring and Ambient air quality monitoring is done by WBPCB recognized laboratory.
	The fund provision of Rs.10 Crores which	Adequate funds are allocated every year for

xvi)	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.	implementation of all conditions stipulated for Environmental protection to meet the requirements. Environmental expenditure for the period Apr-19 to Sep-19 on environment monitoring job, tree plantation, operation & maintenance of ETP & TTP-RO, Oil recovery from oily sludge, disposal of hazardous waste, awareness program, installation of new Solar PV power plant, Consents, EIA study job and RA study job etc are shown in Annexure-3.

Haldia Refinery

SUB: SIX MONTHLY STATUS REPORT for Apr'19 – Sep'19 Date: 01.12.2019

2.0 EC Reference No. & Issue date: 11011/39/96-IA II (I) ; 18/12/1996

Status of Conditions Imposed With Respect To Environmental Clearance For DHDS unit at Crude Processing level for 4.6 MMTPA at Haldia Refinery, IOC

Sl. No.	STIPULATION BY MoEF & CC	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_2 emission from Haldia Refinery including DHDS project should not exceed norms of 850 Kg/hr. after installing the new Crude Distillation unit (CDU).	Low sulphur fuel gas & fuel oil are used in heaters. The emissions from stacks are well within the prescribed limits. The six monthly average of SO2 emission rate from heater stacks of all Process Units is 834.2 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 revamped capacity is 650 m3/hr since 2003-04 and new ETP of capacity 600 m3/hr commissioned in 2010. 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.	Haldia refinery has Hazardous Waste Authorization from WBPCB with validity up to 31-12-2020. Yearly Hazardous 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.	New 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.	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. The copy of final report sent to Joint Director (S), MOE&F, Bhubaneswar in Aug-99. The sketch on location of riverine outfall point has already been included in that report.
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.	- Risk Analysis Report submitted to Ministry. - Emergency Response and Disaster Management Plan of Haldia Refinery: ERDMP document recertification is done by PNGRB approved agency for recertification.
x)	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. Necessary approvals from Chief Controller of Explosives must be obtained before commission the project.	Safety Audit of Haldia Refinery done in Nov'19 as per MSIHC Rules. PESO approval obtained before commissioning of all Projects.

Haldia Refinery

SUB: SIX MONTHLY STATUS REPORT for Apr'19 – Sep'19 Date: 01.12.2019

3.0 EC Reference No. & Issue Date : J.11011/99/96-IA II (I) ; 01/10/1997

Status of Conditions Imposed With Respect To Environmental Clearance of "Fluidized 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 taken before any expansion or modernization in the plant.
iii)	The total SO_2 emission from the FCCU project should not exceed 390 kg/hr. Maximum SO_2 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_2 values at 1240 kg/hr. in the post DHDS and FCCU phase.	Low sulphur fuel gas & fuel oil are used in Furnace/heater. Sulphur Recovery Units commissioned in April / May'94. New SRUs are commissioned in 2010. The emissions from stacks are well within the prescribed limits. Online monitoring system and uplinking of data to CPCB server have been completed. The emissions from stacks are well within the prescribed limits. The six monthly average of SO2 emission rate from heater stacks of all Process Units is 834.2 Kg/hr. The average data of SO2 emission from all heater stacks of all process units is shown as Annexure-5.
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 Apr'19 – Sep'19 Date: 01.12.2019

4.0 EC Reference No. & Issue date : J.11011/28/2000-IA II ; 21/08/2000

Status of Conditions Imposed With Respect To Environmental Clearance Of "2nd Vacuum Distillation Unit (Capacity 2 MMMTPA) and Catalytic ISO-Dewaxing Unit (Capacity 0.2 MMMTPA) At 7.5 MMMTPA Crude Processing Level At Haldia Refinery of IOC"

SPECIFIC CONDITIONS:

Sl. No	STIPULATION BY MoE&F & CC	STATUS
1	The SO2 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 Furnace/heater. Sulphur Recovery Units (SRU) commissioned in April / May'94. New SRUs are commissioned in 2010. The emissions from stacks are well within the prescribed limits. Online monitoring system and uplinking of data to CPCB server have been completed. The six monthly average of SO_2 emission rate from heater stacks of all Process Units is 834.2 Kg/hr. The average data of SO_2 emission from all heater stacks of all process units is shown as Annexure-5.
2	The ETP load should be within the design capacity of 540 m^3/hr. The total quantity of effluent generation should not exceed 414 m^3/hr as indicated in the EMP of which 150 m^3/hr treated effluent should be recycled and rest 264 m^3/hr should be discharged after proper treatment. The treated effluent should comply with the prescribed standards.	Present ETP-1 revamped capacity is 650 m3/hr and New ETP-2 capacity is 600 m3/hr. The combined ETP load remains 900-1000 m3/hr. The treated water from ETP-1 & ETP-2 is reused in TTP-RO feed, Fire water & Cooling water. TTP-RO reject is being discharged to Hoogly river. The monthly average data for six months of the Final treated effluent discharged to river Hooghly is attached as Annexure-2.
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 reprocessed using mechanized process for recovery of slop oil and recovered oil is recycled. The residual sludge after oil recovery is being disposed to authorized agency approved by WBPCB. The spent catalyst discharged from CIDW Unit after run life is sent to authorize metal recyclers for metal recovery through MSTC whenever requirement arises.

Sl. No	STIPULATION BY MoE&F & CC	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	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. The bio-sludge from biotreater should be used as manure in the green belt development.	Tree plantation done in all previous years in nearby region of Haldia refinery. Haldia refinery has planted 62000 trees. Shortage of land space within refinery constraints the tree plantation at present time. Tree plantation is now done in nearby region, schools, municipality /HDA area with due permission. Residual sludge is presently disposed through authorized Co-processing Cement Plant.
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. The OHC record from Apr'19 to Sep'19 is shown in Annexure-7a &7b.

GENERAL CONDITIONS:

Sl. No	STIPULATION BY MOE&F & CC	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 WBPCB 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 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 Furnace/heater. Sulphur Recovery Units (SRU) commissioned in April / May'94. New SRUs are commissioned in 2010. 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 data of SO2 emission from all heater stacks of all process units is shown as Annexure-5.
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	Leq of noise level along refinery boundary wall is conforming to limits of <75 dBA in day time and <70 dBA in

	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).	night time. The noise level data at boundary area of Haldia Refinery is enclosed as Annexure-4. Proper Personal Protective Equipments (PPEs) are being used, if person working in any high noise area.
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 Nov'19 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. Expenditure for the period Apr'19 to Sep'19 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 etc are shown in Annexure-3.
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 & State Pollution Control Board every six months. Last report sent in May'19.
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 http:/ WWW. envfor.nic.in. 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.	After receipt of Environmental clearance, application is being placed before State pollution control board to obtain consent to establish. Also the news of EC is being published in two local news papers.
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.	2nd VDU & CIDW unit commissioned on 15th March, 2002 and 25th March, 2003 respectively and the same was communicated to the authorities in time.

Haldia Refinery

SUB: SIX MONTHLY STATUS REPORT for Apr'19 – Sep'19 Date: 01.12.2019

5.0 EC Reference No. & Issue Date: J11011/5/2002 IA II(I) ; 1st May 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 & CC	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 21st August, 2000.	Terms and conditions as described in the respective letters are complied.
ii	The company shall also ensure that the total SO_2 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 (SRU) commissioned in April/ May'94. New SRUs are commissioned in 2010. 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_2 emission from all Process Units heater stacks from Apr'19 to Sep'19 is 834.2 Kg/hr and SO_2 emission report is enclosed as Annexure-5.
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 water requirement is met from Geonkhali Water Supply of Haldia development authority.
iv	The ETP load should be within the design capacity of 540m^3/hr. The total quantity of effluent generation should not exceed 446 m^3/hr as indicated in the EMP of which 150m^3/hr treated effluent should be recycled and rest 296 m^3/hr should be discharged after proper treatment. The treated effluent should comply with the prescribed standards.	At present ETP-1 revamped capacity is 650 m3/hr and New ETP-2 capacity is 600 m3/hr. But the combined ETP load remains 900-1000 m3/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 Hooghly river. All effluent water quality is monitored daily at IOCL owned NABL accredited laboratory. The treated effluents comply with the prescribed standards (MINAS).

Sl. No	STIPULATION BY MOE&F	STATUS
v	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 should be sent to supplier for metal recovery.	The methodology for recovery of oil as indicated is practiced. The tank bottom sludge is reprocessed using mechanized process for recovery of slop oil and recovered oil is 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 hydro-processing units containing metals is sold through e-auction. The catalysts containing noble metals are sent to recyclers for metal recovery.
vi	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.	Facilities are in place to combat Tier-I spill situation in line with the guidelines of OISD & Coast Guard.
vii	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. The bio-sludge should be used as manure in the green belt development.	Tree plantation done in all previous years in nearby region of Haldia refinery. Haldia refinery has planted 62000 trees in and around the Haldia region. Shortage of land space within refinery constraints the tree plantation at present time. Tree plantation is now done in nearby region, schools, municipality /HDA area with due permission. The residual sludge is being disposed to authorized Co-processing agency approved by WBPCB/ SPCB.
viii	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 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. The health check up record of Haldia Refinery OHC from Apr'19 to Sep'19 is shown in Annexure-7a &7b.

B. GENERAL CONDITIONS:

Sl. No	STIPULATION BY MOE&F & CC	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 (SRU) commissioned in April / May'94. New SRUs are commissioned in 2010. 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 of SO2 emission rate from heater stacks of all Process Units during Apr'19 to Sep'19 is 834.2 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 Annexure-4. Proper Personal Protective Equipments (PPEs) are being used, if person working in any high noise area.
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 as per MSIHC rules is done through Consultant in Nov'19 at Haldia Refinery. PESO approval obtained before commissioning of the Project.

Haldia Refinery

SUB: SIX MONTHLY STATUS REPORT for Apr'19 – Sep'19 Date: 01.12.2019

6.0 EC Reference No. & Issue Date: J13011/14/2006 IA.II (T); 5TH JAN, 2007

Status Of Conditions Imposed With Respect To Environmental Clearance Of Installation Of 3rd 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 &CC	STATUS
i	All the conditions stipulated by West Bengal Pollution Control Board vide their letter no. 334-2N-295/2005 dated 28th 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 is being 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 SO2, NOx, PM10 and CO analyzers has been provided.
vi	NOx emission shall not exceed 100 ppm.	NOx 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.	Effluent water quality is monitored daily at IOCL owned NABL accredited laboratory. The treated effluents comply with the prescribed standards (MINAS). Only TTP-RO reject effluent is being discharged to river Hooghly.
viii	Adequate measures shall be taken to avoid fire and explosion hazard.	Adequate measures taken to avoid fire and explosion hazard by complying with OISD, PESO and other statutory norms.
ix	A greenbelt shall be developed all along the plant.	Haldia refinery has so far planted more than 62000 plants in and around Refinery which have flourished and maintained greenery as well as eco-balance in Haldia region. Shortage of land space within refinery constraints the tree plantation at present time. Tree plantation is now done in nearby region, schools, municipality /HDA area with due permission.

Sl. No.	STIPULATION BY MOE&F & CC	STATUS
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 are 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. Proper Personal Protective Equipments (PPEs) are being used, if person working in any high noise area.
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 Annexure- 6.
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 May'19.
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 every year for implementation of all conditions stipulated for Environmental protection to meet the requirements. Expenditure for the period Apr'19 to Sep'19 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 etc are shown in Annexure-3.

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 Apr'19 – Sep'19 Date: 01.12.2019

7.0 EC Reference No & Issue date; J11011/422/2006IA II(I): 6th March 2007

Status of conditions imposed with respect to environmental clearance for Crude Oil Refining Capacity by Revamping of RFCCU from 0.7 MMTPA to 1.0 MMTPA and installing a Gas Turbine of 20 MW capacity at Haldia refinery of M/S. IOCL in district Purba Medinipure (E), West Bengal.

A. SPECIFIC CONDITIONS:

Sl.No	STIPULATION BY MOE&F & CC	STATUS
I	The gaseous emissions (SO2, NOx, HC, VOC and Benzene) from various process units shall be kept within limit as per standard prescribed by the concerned SPCB. All the measures detailed in the EMP shall be taken to control the point/stack and fugitive gaseous emissions from the proposed facilities, RFCCU, process and storage units etc. for ensuring that the ambient air quality around the Refinery due to the expansion is maintained at the predicted 24 hourly average maximum concentration levels and shall not exceed for the worst scenario predicted for SO2 (15.7 Micro gram/m3).	The revamping job of RFCCU was not pursued due to economic reasons. The emission level of SO2 remains unchanged.
II	There will be no increase in the pollution load of SO2 emission as augmentation of Flue Gas Scrubbing section will be undertaken to keep the SO2 emission levels within the existing levels. A new Sulphur Recovery Unit (SRU) with more than 99% of efficiency shall be installed under once through hydro-Cracker Unit to keep. SO2 emission levels within the existing levels.	Sulphur Recovery Unit (SRU) having efficiency >99.5% has been commissioned along with Once through hydrocracking unit. The month wise data of SO2 emission from heater stacks of all process units is provided in Annexure-5 for the period of Apr'19 to Sep'19.
III	No additional stack is envisaged for the revamp of RFCCU. There will be no increase in emission levels of SO2 from the existing two stacks in the RFCCU of 100 and 60M attached to the regenerator and the heater.	There is no change in emission levels of SO_2 from existing RFCCU as revamping job was not done.
IV	The emission levels of the other pollutants shall also remain within the existing levels.	Emission level is remains within limit and stack emission parameters is being monitored online.
V	Low sulphur internal fuel oil will be fired in process heaters and boilers.	Low sulphur fuel gas & low Sulphur fuel oil are used in heaters and boilers.

Sl.No	STIPULATION BY MOE&F & CC	STATUS
VI	Regular Ambient Air Quality Monitoring shall be carried out. The location and results of existing monitoring stations will be reviewed in consultation with the concerned State Pollution Control Board based on the occurrence of maximum ground level concentration and downwind direction of wind. Additional Stations shall be set up, if required. It will be ensured that at least one monitoring station is set up in up-wind and in down-wind direction along with those in other directions.	The ambient air quality within Refinery is monitored twice every week at 5 nos of locations. Six-monthly ambient air quality data is being submitted to MoEF&CC Regional Office. Monthly average of ambient air quality monitoring data from Apr'19 to Sep'19 is enclosed as Annexure-1.
VII	On-line data for air emissions shall be transferred to the CPCB and SPCB regularly. The instruments used for ambient air quality monitoring shall be calibrated regularly. The monitoring protocol shall ensure continuous monitoring of all the parameters.	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 analyzers are calibrated at regular interval. CAAQMS data for the month of Aug'19 is shown as Annexure-6.
VIII	The practice of acoustic plant design shall be adapted to limit noise exposure for personnel to an 8 hr time weighted average of 90 db(A).	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 Annexure-4. Proper Personal Protective Equipments (PPEs) are being used, if person working in any high noise area.
IX	For control of fugitive emissions, all unsaturated hydrocarbons will be routed to the flare system. The flare system shall be designed for smokeless burning.	Gaseous hydrocarbons are recovered in flare gas recovery system and recycled to fuel gas system. Refinery flare is designed for smoke less burning.
X	All the pumps and other equipment's where there is a likelihood of HC leakages shall be provided with LEL indicators. Provision for immediate isolation of such equipment, in case of a leakage will also be made. The company shall adopt Leak Detection and Repair (LDAR) program for quantification and control of fugitive emissions.	HC gas detectors are provided at specific locations within process units and it raises alarms at DCS in case if any HC leaks. Calibration of the HC detectors is being done at regular interval.
XI	The product loading gantry shall be connected to the product sphere in closed circuit through the vapour arm connected to the tanker. Data on fugitive emissions shall be regularly monitored and records will be maintained.	The vapour line from tank trucks is connected to the product storage system during LPG loading to collect vapour. Fugitive emission is being monitored and recorded through authorize agency within units and offsite area.

Sl.No	STIPULATION BY MOE&F & CC	STATUS
XII	The company shall ensure that no halogenated organic is sent to the flares. If any of the halogenated organic are present than the respective streams may be incinerated, if there are no technically feasible or economically viable reduction/ recovery options. Any stream containing organic carbon, other than halogenated shall be connected to proper flaring system, if not to a recovery device or an incinerator.	Flare gas recovery system is already in use to recover gases from flare header and reuse as fuel. There is a separate flare system to incinerate if any acid gas is generated.
XIII	All new standards/ norms that are being proposed by the CPCB for petrochemical plants shall be applicable for the proposed expansion unit. The company shall conform to the process vent standards for organic chemicals including non-VOCs and all possible VOCs i.e. TOCs standard and process vent standards for top priority chemicals. The company shall install online monitors for VOC measurements. Regular monitoring will be carried out for VOC and HC.	The VOC and HC monitoring is carried out once in a quarter by authorized agency approved by WBPCB.
XIV	No additional fresh water will be used for the expansion project. The requirement of 40 m3/hr of additional fresh water will be met from the existing facilities.	The revamping of RFCCU job was not done and fresh water consumption remains same.
XV	Additional waste water generation from the expansion project will be around 5 m3/hr which will be treated in the existing ETP. Part of the treated effluent shall be recycled and remaining shall be disposed into the river Hoogly through closed pipeline.	The revamping of RFCCU job was not done and effluent generation rate remain unchanged.
XVI	An additional generation of 1.5 T/day of Spent Catalyst (including filter cake), will be disposed off through the common hazardous waste disposal site of WBIDC at Haldia. Oily sludge shall be sent to melting pit treatment for recovery of oil. The recovered oil shall be recycled into the refinery system. The residual sludge will be stored in HDPE line pit for disposal through bio-remediation inside the 'refinery premises. Bio sludge will be stored in drying pit for natural weathering and then used as manure inside refinery premises. Remaining sludge will be incinerated in their own incinerator.	The spent catalyst generated from existing RFCCU is being disposed to authorized TSDF agency approved by WBPCB. Oily sludge is processed thru centrifuge to recover oil and the recovered oil is recycled. The residual sludge after oil recovery is being disposed to authorized Co-processing agency approved by WBPCB /SPCB.

Sl.No	STIPULATION BY MOE&F & CC	STATUS
XVII	Green belt shall be provided to mitigate the effects of fugitive emissions all around the plant in a minimum of 33% of the plant area in consultation with DFO as per CPCB guidelines.	Tree plantation done in all previous years in nearby region of Haldia refinery. Haldia refinery has planted 62000 trees in and around the Haldia region. Shortage of land space within refinery constraints the tree plantation at present time. Tree plantation is now done in nearby region, schools, municipality /HDA area with due permission.
XVIII	The company shall strictly follow all the recommendations mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).	All recommendations mentioned in Charter on CREP are being followed by Haldia Refinery.
XIX	The Company must harvest surface as well as rainwater from the rooftops of the buildings proposed in the expansion project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.	At Haldia Refinery, 8 nos. rainwater harvesting projects installed since 2011-12 either for storage of rain water or for re-charging the ground water. The total catchment area for rain water harvesting is developed up to 11,930 Square meters.
XX	Occupational Health surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Occupational Health check up for the employees is being carried out at periodic interval and records maintained at Occupational health centre. The record of Haldia Refinery OHC check up done from Apr'19 to Sep'19 is enclosed as **Annexure-7a & Annexure-7b.**
XXI	The company shall implement all the recommendations made in the EIA / EMP report and risk assessment report.	Recommendations made in the EIA, EMP and risk assessment report are implemented.

GENERAL CONDITIONS:

Sl.No	STIPULATION BY MOE&F & CC	STATUS
I	The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government.	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 further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests .	Environmental clearance from MoEF & CC shall be taken before any expansion or modernization in the plant.
III	At no time, the emissions should go beyond the	The emissions from stacks are well

	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.	within the prescribed limits. Online monitoring system and uplinking of data to CPCB server have been completed. The last six months average data of SO_2 emission from heater stacks of all Process Units during Apr'19 to Sep'19 is 834.2 Kg/hr (Refer Annexure-5).
IV	Adequate number of influent and effluent quality monitoring stations shall be set up in consultation with the SPCB. Regular monitoring shall be carried out for relevant parameters.	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, TSS, COD & BOD. Real time data of these analyzers are connected to CPCB & SPCB server.
V	Industrial wastewater shall be properly collected and treated so as to conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.	Waste effluent water generated from process units are collected into Influent sump through Oily Water Sewer (OWS). This waste effluent water is treated in ETP-1 & ETP-2. The treated water from ETP-1 & ETP-2 is being used in Tertiary Treatment plant, Cooling water and Fire water service.
VI	The overall noise levels in and around the plant area shall be limited within the prescribed 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 Annexure-4. Proper Personal Protective Equipments (PPEs) are being used, if person working in any high noise area.
VII	The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous chemicals Rules 1989 as amended in 2000 for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commission of the expansion project.	Safety Audit as per MSIHC Rules is done by Consultant in Nov'19 at Haldia Refinery. Prior approval is always taken from PESO before commissioning of any new project at Haldia refinery.
VIII	Authorization from the SPCB must be obtained for collections/ treatment/ storage /disposal of hazardous wastes.	Hazardous Waste authorization for handling and disposal of hazardous wastes is obtained from WBPCB with validity up to 31-12-2020.
IX	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	Adequate funds are allocated every year for implementation of all conditions stipulated for Environmental protection to meet the requirements.

	implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.	The expenditure for Environment monitoring, Chemical treatment of treated water to reuse for fire water & cooling water make up, Hazardous waste disposal, Tree plantation, WED program, ETP treated water recycle, Sludge oil recovery, EIA study job and RA study job and ETP & TTP operation cost are shown in Annexure-3.
X	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 May'19.
XI	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 SPCB/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http://www.envfor.nic.in This should 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 should be forwarded to the concerned Regional office of this Ministry.	After receipt of Environmental clearance, application is being placed before State pollution control board to obtain Consent to Establish (NOC). Also the news of EC is being published in two local news papers.
XII	The date of Financial Closure and final approval of the project by the concerned authorities and the date of commencing the land development work as well as the commissioning of the project will be informed to the Ministry and its Regional Office.	The revamping job of RFCCU was not pursued due to economic reasons.
XIII	Proper Housekeeping and adequate occupational health programs shall be taken up. Regular Occupational Health Surveillance Program for the relevant diseases shall be carried out and the records shall be maintained properly for at least 30-40 years. Sufficient preventive measures shall be adopted to avoid direct exposure to emission and other Hydrocarbons etc.	Proper housekeeping is done within refinery to maintain cleanliness. There is a dedicated Occupational health check up centre at Haldia refinery and periodical OHC check up is done for employees and records are maintained. The record of OHC check up done from Apr'18 to Sep'19 is enclosed as Annexure-7a & Annexure-7b. Fugitive emission monitoring is being carried out by authorize agency and exposure to emission and other hydrocarbons is utmost avoided.
XIV	A separate environment management cell with full fledge laboratory facilities to carry out various management and monitoring functions	Health Safety Environment (HSE) department exists in Haldia Refinery with several qualified personnel with

	shall be set up under the control of a Senior Executive.	15 - 30 years' experience in Refineries & Petrochemicals industries. Also all activities are monitored by Refinery Head quarter HSE department. For any professional help such as Risk Assessment & EIA/ EMP study, Haldia Refinery is always appointing competent professional agency. Regular Environmental monitoring and Ambient air quality monitoring is done by authorized agency M/S Envirotech East Pvt Ltd. A separate OHC center also exists for periodic occupational health checkup for employees.

Haldia Refinery

SUB: SIX MONTHLY STATUS REPORT for Apr'19 – Sep'19 Date: 01.12.2019

8.0 EC Reference No & Issue date J-11011/904/2007-IA II (I) Dated 17TH MARCH, 2009

SI No	EC Reference No and Date	Project name	Status
8.0	J-11011/904/2007-IA II (I) Dated 17TH MARCH,2009	Installation of Delayed Coking unit (DCU) at Haldia refinery Haldia WB by IOCL.	This project was clubbed with the next FPU & Capacity expansion projects and a fresh EC was granted. Name of 'DCU' project was changed as Distillate Yield Improvement Project (DYIP).

Haldia Refinery

SUB: SIX MONTHLY STATUS REPORT for Apr'19 – Sep'19 Date: 01.12.2019

9.0 EC Reference No & Issue date; J-11011/299/2013-IA II(I) DATED 4TH MARCH,2016

Status of conditions imposed with respect to environmental clearance for "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.

Sl. No.	SPECIFIC CONDITIONS	STATUS
i)	Compliance to all the environmental conditions stipulated in the environmental clearance letter No. J-11011/39/96-IA II(I) dated 18th December, 1992, F. No. J-11011/99/96-IA II (I) dated 1st October, 1997 and J-11011/28/2000-IA (I) dated 21st August, 2000 shall be satisfactorily implemented and compliance reports submitted to the Ministry's Regional Office at Bhubaneswar.	Environmental conditions stipulated in the Environmental Clearance are complied and half yearly compliance status report is being submitted in the month of June & Dec every year to the MoEF & CC Regional Office.
ii	M/s. IOCL shall comply with new standards/norms for Oil Refinery Industry notified under the Environment (Protection)Rules, 1986 vide G.S.R. 186(E) dated 18th March, 2008	New standards/ norms for Oil Refinery are being followed as per notification under the Environment (Protection) Rules, 1986 vide G.S.R. 186 (E) dated 18th March, 2008.
iii	Continuous on-line stack monitoring for SO_2, NOX and CO of all the stacks shall be carried out. Low NOX burners shall be installed.	New analyzers for stack emission monitoring (SO2, NOx, CO & PM) are installed in the subject project. Online data will be transmitted to CPCB server. Low NOX burners are installed in new heaters under this project.
iv	The process emissions [SO_2, NOx, HC (Methane & Non-methane)], VOCs and Benzene from various units shall conform to the standards prescribed under the Environment (Protection) Act. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system (S) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency of the pollution control device has been achieved.	The process emissions [SO_2, NOx, HC (Methane & Non-methane)], VOCs and Benzene are being checked by SPCB approved laboratory. The operation of all pollution control devices shall be monitored very closely.
v	Leak Detection and Repair program shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are	1) LDAR program is followed.VOC monitoring is being done at all critical location. 2) Double mechanical seals are being provided for pumps handling

	required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.	hydrocarbon. 3) Floating roof tanks are used to store volatile hydrocarbon (HC) products. 4) Preventive maintenance is done for pumps, valves & pipelines. 5) HC gas detectors are provided at specific location within process units & tank farms area and their alarms are provided at DCS in case of any HC leaks. Calibration of the HC detectors is being done as per plan schedule.
vi	SO_2 emissions after expansion from the refinery shall not exceed 941 Kg/hr. Sulphur recovery units shall be installed for control of H_2S emissions. The overall sulphur recovery efficiency of Sulphur recovery unit with tail gas treating shall not be less than 99.9%.	SO2 emission is being monitored monthly basis for all heater stacks. SO2 emission data is shared in half yearly compliance report to Regional office of MoEF & CC. Online monitoring system and unlinking of data will be provided to CPCB server. New Sulphur unit efficiency shall be maintained more than 99.9%. The SO2 emission shall be maintained within 941 Kg/hr.
vii	As proposed, record of sulphur balance shall be maintained at the Refinery as part of the environmental data on regular basis. The basic component of sulphur balance include sulphur input through feed (sulphur content in crude oil), sulphur output from Refinery through products, byproduct (elemental sulphur), atmospheric emissions etc.	Sulphur balance for Haldia refinery shall be prepared and monitoring after commissioning of the subject project.
viii	Ambient air quality monitoring stations, [PM_{10}, $PM_{2.5}$, SO_2, NO_X, H_2S, mercaptan, non-methane-HC and Benzene] shall be set up in complex in consultation with West Bengal Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs and trend analysis w.r.t. past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.	Installation of Continuous Ambient air quality monitoring stations, [PM_{10}, $PM_{2.5}$, SO_2, NO_X, H_2S, mercaptan, non-methane-HC and Benzene] is in progress after discussion with West Bengal Pollution Control Board. Ambient air quality will be closely monitored.
ix	The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Besides, acoustic enclosure / silencer shall be installed wherever noise levels exceed the limit.	No DG set shall be installed in the subject DYIP project.

x	Fresh water requirement from Geonkhali Water Supply System and ground water sources (16 deep tube wells) will be 1270 m^3/hr.	Fresh water consumption shall be maintained within 1270 M3/hr as per EC directives.
xi	Industrial effluent generation shall not exceed 1150 m^3/hr. after expansions. Industrial effluent shall be treated in effluent treatment plant. Treated effluent shall be recycled / reused as make up for the raw water cooling tower and remaining treated effluent (262.5 m^3/hr) shall be discharged into surface water bodies.	Effluent generation will be controlled and is maintained within limit. Treated effluent shall be recycled/ reused in Fire water make up, Cooling water make up and Tertiary Treatment Plant – RO plant to produce permeate.
xii	All the effluents after treatment shall be routed to a properly lined guard pond for equalization and final control. In the guard pond, automatic monitoring system for flow rate, pH and TOC shall be provided.	All the effluent shall be treated in existing ETPs. Online analyzers are already installed to check quality of treated water & final river discharge at ETP treated. Quality parameters like pH, COD, BOD & TSS of ETP treated water are being monitored.
xiii	Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MoEF&CC. Outcome from the report to be implemented for conservation scheme.	Periodic water audit is being carried out at Haldia Refinery. Some of the water conservation scheme implemented and some schemes are under implementation stage. Next water consumption study has been done by M/s EIL and final report shall be submission by Feb'20. Recommendation shall be implemented to optimize fresh water consumption.
xiv	Automatic / online monitoring system (24 x 7) monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB, Regional Office of MoEF&CC and in the Company's website.	OCEMS data are being transmitted to CPCB as well as WBPCB server.
xv	Oil catchers / oil traps shall be provided at all possible locations in rain / storm water drainage system inside the factory premises.	Oil catchers/ oil traps are already installed all possible location on rain/ storm water drainage system inside the Refinery.
xvi	As proposed, spent catalyst shall be sent to the authorize recycler/re-processors. Oily sludge shall be treated in the sludge Centrifuge provided in the ETP and the cake generated from the centrifuge is further sent to bioremediation for disposal.	Spent catalyst is being sent to authorize recyclers approved by SPCB for metal recovery. Residual oily sludge generated from ETP is being disposed through authorize co-processing cement plant & TSDF agency.
xvii	The Company should strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals rules, 1989 as amended in October, 1994 and January, 2000. Hazardous waste should be disposed of as per Hazardous Waste	MSIHC Rules is being compiled by Haldia Refinery. Safety Audit is being conducted every year and report is submitted to Factories Inspector, Haldia. Hazardous waste is being disposed through SPCB authorize TSDF agency &

	(management, Handling and Trans-boundary Movement) rules, 2008 and amended time to time.	authorized Co-processing cement industry.
xviii	The membership of common TSDF should be obtained for the disposal of hazardous waste. Copy of authorization or membership of TSDF should be submitted to Ministry's Regional Office at Bhubaneswar. Chemical/inorganic sludge shall be sent to treatment storage disposal facility (TSDF) for hazardous waste. Spent catalyst shall be sent to authorize recyclers/re-processors.	Hazardous waste authorization from WBPCB is valid up to 31.12.2020. The authorization copy shall be submitted to MoEF & CC regional office. Different types of hazardous waste are being disposed through TSDF and some spent catalysts are sent to authorize recyclers for metal recovery.
xix	Proper oil spillage prevention management plan shall be prepared to avoid spillage/ leakage of oil/ petroleum products and ensure regular monitoring.	Oil spillage is prevented inside units & spilled oil is routed to oily water sewer (OWS) which is collected in Influent sump at ETP. Slop oil skimming done from holding tanks and Slop oil is being processed in process units.
xx	Acoustic enclosure/ silencer shall be installed wherever it is possible.	Acoustic enclosure/ silencer are mostly installed at steam pressure reducing & de-super heater system (PRDS).
xxi	Occupational health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Occupational Health checkup for the employees is being carried out at periodic interval and records are maintained at Occupational health centre.
xxii	The company should make the arrangement for protection of possible fire and explosion hazards during construction and operation phase. To prevent fire and explosion at oil and gas facility, potential ignition sources shall be kept to a minimum and adequate separation distance between potential ignition sources and flammable materials shall be in place.	Haldia Refinery has well established Fire & Safety department. There exist fire water network covering all units and tank farm area. Various types of fire tenders and fire extinguishers are placed to control any fire emergency situation. Risk studies are done for every process units & recommendations are complied. OISD standard is followed for installation of different process equipment.
xxiii	The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).	All recommendations mentioned in Charter on CREP are being followed by Haldia Refinery.
xxiv	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.	Recommendations made in the rapid risk assessment & ERDMP are implemented. ERDMP is updated at 3 years of interval.
xxv	As proposed, spent catalyst shall be sent to the authorized recycler/re-processors. Oily sludge shall be treated in the sludge Centrifuge provided in the ETP and the cake generated from centrifuge is further sent for bioremediation for disposal.	Reply is already covered in point no. xvi.
xxvi	Green belt over 19.5 acres land area should be developed within plant premises with at	Haldia refinery has so far planted more than 62,000 saplings in and around

	least 10 meter wide green belt on all sides along the periphery of the project area, in downward direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.	Refinery which have flourished and maintained greenery as well as eco-balance in Haldia region. Selected sapling species are planted as per list provided by DFO, Tamluk (WB).
xxvii	All the commitments made to the public during public hearing/public consultation meeting held on 12th September, 2014 shall be satisfactorily implemented and adequate budget provision shall be made accordingly.	All commitments made to the public during public hearing meeting held for subject project on 12.09.2014 are implemented.
xxviii	At least 2.5% of the total cost of the project should be earmarked towards the corporate social responsibility and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhubaneshwar. Implementation of such program should be ensured accordingly in a time bound manner.	The total expenditure of Haldia Refinery for CSR in the year 2017-18 & 2018-19 is Rs 3.3 & Rs. 8.0 Crore respectively.
xxix	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Provision of drinking water and toilets are made available at site. No temporary housing is developed near project site as labors are coming from nearest village area.

Sl. No.	GENERAL CONTITIONS	STATUS
i)	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.	Haldia Refinery has been adhering to the stipulations made by the WBPCB and submitting necessary compliance Reports as per schedule.
ii	No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & forests. In case of deviations or alternations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Environmental clearance from MoEF & CC is always taken before expansion or modernization of the existing plants.
iii	The project authorities must strictly comply with the rules and regulations under manufacture, Storage and Import of Hazardous chemicals rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety inspectorate etc. must be obtained, wherever	MSIHC rules- 2000 (amended) is being followed by Haldia Refinery. Prior approvals are always taken from Petroleum & Explosives Safety Organizations (PESO) for new projects.

	applicable.	
iv	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (night time).	The noise level in and around the plant area will be maintained as per norms. The ambient noise levels day & night time monitoring is being done by authorized agency as per schedule. Refer day & night noise monitoring report is enclosed as Annexure-4.
v	A separate Environmental management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.	1. Separate HSE department exists for all environment related monitoring. For any professional help such as Risk Assessment & EIA/ EMP study, Haldia Refinery is always appointing competent agencies. 2. QC laboratory of Haldia Refinery is well equipped, NABL accredited and approved by WBPCB for carrying testing of water parameters. 3. Authorized outsource laboratory is also employed for stack emission & ambient air quality monitoring.
vi	Adequate funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and forests as well as the State government alongwith the implementation schedule for all the conditions stipulated herein. The funds so provided shall 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. Expenditure for the period Apr'19 to Sep'19 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 etc are shown in Annexure-3.
vii	The Regional Office of this Ministry/Central Pollution control Board / State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	The compliance status is submitted to the MoEF & CC, Regional Office, Bhubaneswar & Central Pollution Control Board every six months. Last report sent in May'19. Environment statement is submitted to CPCB & SPCB every year.
viii	A copy of 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 whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	The EC intimation is published in local two newspaper & also intimated to MoEF & CC regional office, SPCB, Factories Inspector & local Administration.
ix	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall	The status of compliance of the stipulated environment clearance conditions including results of monitored data are being uploaded on IOCL website.

	update the same periodically. It shall simultaneously be sent to the Regional office of the MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM_{10}, $PM_{2.5}$, SO_2, NOX, HC (Methane & Non- methane) VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	The criteria pollutant levels namely; PM_{10}, $PM_{2.5}$, SO_2, NOX, HC (Methane & Non-methane) VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects will be monitored and displayed at a convenient location near Refinery main gate.
x	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The Regional office of this Ministry / CPCB / SPCB shall monitor the stipulated conditions.	The EC compliance status report is being submitted to the MoEF & CC, Regional Office, Bhubaneswar & State Pollution Control Board in every six months (June & Dec.).
xi	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) rules, 1986, as amended subsequently, shall also be put on the web side of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.	The environmental statement in Form-V is submitted to WBPCB for each financial year.
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 SPCB and may also be seen at Website of the Ministry of Environment and forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional Office.	After receipt of Environmental clearance, application is being placed before State pollution control board to obtain consent to establish. Also the news of EC was published in two local newspapers.
xiii	Project authorities shall inform the Regional 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.	The subject project was approved on 20th Apr-2014.

Haldia Refinery

SUB: SIX MONTHLY STATUS REPORT for Apr'19 – Sep'19 Date: 01.12.2019

10.0 EC Reference No. & Issue date: J11011/175/2016-IA -II (I) dated 28th November 2017

Status of conditions imposed with respect to environmental clearance for "BS-VI Fuel Quality Upgradation Project (Phase-I) at Haldia Refinery, Haldia (West Bengal) by M/S Indian Oil Corporation Limited –Environmental Clearance-reg".

Sl. No.	SPECIFIC CONDITIONS	STATUS
(i)	Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.	Consent to Establish obtained from WBPCB.
(ii)	As already committed by the project proponent, Zero Liquid Discharge shall be ensured and no waste/treated water shall be discharged outside the premises.	Treated water from ETP will be recycled. Zero Liquid discharge shall be implemented in future for if any waste water.
(iii)	Necessary authorization required under the Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016 Solid Waste Management Rules, 2016 shall be obtained and the provisions contained in the Rules shall be strictly adhered to.	Authorization obtained from WBPCB and strictly adhered. Reports submitted every year to WBPCB.
(iv)	National Emission Standards for Organic Chemicals Manufacturing Industry issued by the Ministry vide G.S.R. 608(E) dated 21st July, 2010 and amended from time to time shall be followed.	VOC monitoring done at around 2000 locations within refinery. VOC emission is within limit.
(v)	To control source and the fugitive emissions, suitable pollution control devices shall be installed with different stacks (attached to DHDT, HGU-II-Revamp, Prime G-Revamp and Sulphuric Acid Plant) to minimize the incremental concentrations (for PM_{10} & $PM_{2.5}$) in order to meet the prescribed norms/NAAQS. Sulphur content should not exceed 0.5% in the coal for use in coal fired boilers to control particulate emissions within permissible limits. The gaseous emissions shall be dispersed through of adequate height as per CPCB/SPCB guidelines.	1. SO2, NOx, CO & PM online monitoring in furnace stack is being done. 2. Stack emission manual sampling/testing is done every month. 3. Low NOx burners used in new heaters. 4. No coal fired heaters in refinery.
(vi)	Total fresh water requirement shall not exceed 1395 cum/hr to be supplied by Haldia Development Authority. Necessary permission in this regard shall be obtained	Raw water consumption remains within limit every year.

	from the concerned regulatory authority. No ground water shall be used without prior permission from the CGWA.	
(vii)	Industrial/ trade effluent shall be segregated into High COD/TDS and Low COD/TDS effluent streams, if any. High TDS/COD shall be passed through stripper followed by MEE and ATFD (agitated thin film drier). Low TDS effluent stream shall be treated in ETP and then passed through RO system.	All effluent is treated in ETP-1 and ETP-2. COD remains within MINAS standard. Treated water from ETP is used in TTP-RO Plant to produce Permeate Water.
(viii)	Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.	Process effluent routed through OWS channel and treated at ETPs. Storm water is stored in guard pond to reprocess.
(ix)	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm, and solvent transfer to be done through pumps.	Hydrocarbon stored in Floating roof and fixed roof tanks. Flame arrestor fitted in fixed roof tanks.
(x)	Process organic residue and spent carbon, if any, shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF. The ash from boiler shall be sold to brick manufacturers/ cement industry.	1. Residual sludge being disposed through TSDF and Co-processing agency. 2. Other hazardous waste disposed through TSDF.
(xi)	The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended the time to time. All transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act(MVA), 1989.	MSIHC Rules, 1989 is being followed. Safety audit done periodically.
(xii)	Fly ash should be stored separately as per CPCB guidelines so that it should not adversely affect the air quality, becoming air borne by wind or water regime during rainy season by flowing along with the storm water. Direct exposure of workers to fly ash & dust should be avoided.	No fly ash generation in Haldia refinery. Heaters are oil and gas fired.
(xiii)	The company shall undertake waste minimization measures as below:-	
	(a) Metering and control of quantities of active ingredients to minimize waste.	Flow meters used for every streams.
	(b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.	There is no by products generated in refinery process. Oily sludge reprocessed to recover oil to recycle.
	(c) Use of automated filling to minimize spillage.	Automated filling followed.
	(d) Use of Close Feed system into batch reactors.	Close feed system is practiced.
	(e) Venting equipment through vapor recovery system.	No venting equipment used in refinery. Any purge gas goes to

		flare and flare gas is recovered in the system to reuse as fuel.
	(f) Use of high pressure hoses for equipment clearing to reduce wastewater generation.	Being followed.
(xiv)	The green belt of at least 10 m width shall be developed in more than 33% of the total project area, mainly along the plant periphery, in downwards wind direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department.	Haldia refinery has so far planted more than 62000 saplings in and around Refinery which have flourished and maintained greenery as well as eco-balance in Haldia region.
(xv)	At least 5% of the total project cost shall be allocated for Enterprise Social Commitment. The item-wise details in this regard along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office.	The total expenditure of Haldia Refinery for CSR in the year 2017-18 & 2018-19 is Rs 3.3 Crore & Rs. 8.0 Crore respectively.
(xvi)	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.	No DG set shall be installed in the project. Refinery will use power from existing GTs and TGs and also will import power from external source.
(xvii)	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per the norms.	All measures have been taken to avoid Fire hazards. Refinery have its own Fire & safety department and having firefighting facilities.
(xviii)	Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises. In case of the treated effluent to be utilized for irrigtation/ gardening, real time monitoring system shall be installed at the ETP outlet.	Continuous online monitoring system for stack emissions installed for measurement of SO2, NOx, PM & CO level. Online monitoring is done for ETP outlet water quality. The data is transmitted to the CPCB and SPCB server.
(xix)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Refinery has its own occupational health center and occupational health checkup is done for employees.
(xx)	Wetland habitat shall be provided for migratory birds, at the reservoir and green belt areas.	Green belt is developed in area nearby and township.
(xxi)	Natural surface water bodies within 10 km study area shall be rejuvenated and developed as complete eco-system with the tree plantation development and growth using satellite imageries.	Tree plantation is done in area nearby refinery and townships.

12.1	The grant of environmental clearance is subject to compliance of other general conditions, as under:-	
(i)	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board, Central Pollution Control Board, State Government and any other statutory authority.	Statutory stipulations are being complied.
(ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Permission always taken from MoEF & CC and State pollution control board for every projects.
(iii)	The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one station each is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	Installation of Ambient air quality monitoring station is in progress after discussion with SPCB.
(iv)	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed.	Shall be followed.
(v)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall be conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA(day time) and 70 dBA (night time).	Noise monitoring done within refinery as well as boundary area. The noise monitoring report is enclosed as Annexure-4. Noise level conforms the statutory limits.

Annexure-1

Compliance of Statutory Stipulations - Ambient Air Quality Monitoring data

Haldia Refinery

Period: 1st to 30th Apr-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH3	Benzene	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
NO. OF SAMPLES	8	8	8	8	8	8	8	8	8	8	8	8
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near LABORATORY												
****Actual Average**	42.0	18.67	10.56	31.9	18.3	0.06	0.73	16.67	0.13	BDL	BDL	BDL
Location: Near TUBEWELL 4A												
****Actual Average**	44.1	20.3	11.7	34.2	18.9	0.1	0.8	17.6	0.1	BDL	BDL	BDL
Location: Near MAIN GATE												
****Actual Average**	51.9	23.7	13.9	37.3	20.1	0.1	0.9	21.1	0.2	BDL	BDL	BDL
Location: Near BITUMEN BUILDING												
****Actual Average**	40.1	18.4	10.0	29.4	16.6	0.1	0.7	16.3	0.1	BDL	BDL	BDL
Location: Near OM&S BUILDING												
****Actual Average**	45.6	20.9	12.0	34.3	19.2	0.1	0.8	18.0	0.2	BDL	BDL	BDL

BDL- Below Detectable Limit

* **Annual Target** - Annual Arithmatic 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 Monitoring data

Haldia Refinery

Period: 1st to 31st May-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH3	Benzene	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
NO. OF SAMPLES	9	9	9	9	9	9	9	9	9	9	9	9
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near LABORATORY												
****Actual Average**	39.2	17.6	11.0	29.0	15.1	0.06	0.7	16.0	0.2	BDL	BDL	BDL
Location: NEAR TUBEWELL 4A												
****Actual Average**	41.7	18.8	11.7	30.6	16.4	0.06	0.79	17.00	0.13	BDL	BDL	BDL
Location: Near MAIN GATE												
****Actual Average**	49.8	23.2	13.7	34.1	19.2	0.08	0.92	20.22	0.18	BDL	BDL	BDL
Location: Near BITUMEN BUILDING												
****Actual Average**	36.9	16.6	9.9	27.9	15.0	0.05	0.69	15.44	0.10	BDL	BDL	BDL
Location: Near OM&S BUILDING												
****Actual Average**	43.2	20.1	12.2	31.7	17.3	0.07	0.78	18.00	0.15	BDL	BDL	BDL

BDL- Below Detectable Limit

* **Annual Target** - Annual Arithmatic 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 Monitoring data

Haldia Refinery

Period: 1st to 30th Jun-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH3	Benzene	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
NO. OF SAMPLES	9	9	9	9	9	9	9	9	9	9	9	9
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near LABORATORY												
****Actual Average**	37.63	15.75	10.38	26.13	14.75	0.06	0.69	15.50	0.13	BDL	BDL	BDL
Location: NEAR TUBEWELL 4A												
****Actual Average**	39.13	15.38	10.75	26.38	14.38	0.06	0.73	15.13	0.15	BDL	BDL	BDL
Location: Near MAIN GATE												
****Actual Average**	47.88	19.25	13.75	31.13	18.63	0.08	0.89	19.75	0.15	BDL	BDL	BDL
Location: Near BITUMEN BUILDING												
****Actual Average**	33.88	13.63	9.13	24.25	13.50	0.06	0.68	12.63	0.10	BDL	BDL	BDL
Location: Near OM&S BUILDING												
****Actual Average**	40.00	16.88	11.50	28.25	16.00	0.07	0.76	16.13	0.15	BDL	BDL	BDL

BDL- Below Detectable Limit

* **Annual Target** - Annual Arithmatic 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 Monitoring data

Haldia Refinery

Period: 1st to 31st Jul-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH3	Benzene	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
NO. OF SAMPLES	9	9	9	9	9	9	9	9	9	9	9	9
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near LABORATORY												
****Actual Average**	34.78	14.78	9.00	22.78	13.44	0.06	0.61	13.11	0.10	BDL	BDL	BDL
Location: NEAR TUBEWELL 4A												
****Actual Average**	35.22	15.33	9.56	23.11	13.22	0.05	0.68	12.78	0.10	BDL	BDL	BDL
Location: Near MAIN GATE												
****Actual Average**	44.22	19.11	12.11	27.78	16.89	0.07	0.79	16.33	0.15	BDL	BDL	BDL
Location: Near BITUMEN BUILDING												
****Actual Average**	32.44	13.89	8.67	22.11	12.22	0.06	0.61	11.89	BDL	BDL	BDL	BDL
Location: Near OM&S BUILDING												
****Actual Average**	38.11	16.00	10.33	25.22	14.44	0.06	0.71	13.89	0.10	BDL	BDL	BDL

BDL- Below Detectable Limit

* **Annual Target** - Annual Arithmatic 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 Monitoring data

Haldia Refinery

Period: 1st to 31st Aug-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH3	Benzene	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
SAMPLES	9	9	9	9	9	9	9	9	9	9	9	9
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near LABORATORY												
****Actual Average**	43.56	19.33	11.78	27.44	16.67	0.05	0.80	16.43	0.18	BDL	BDL	BDL
Location: NEAR TUBEWELL 4A												
****Actual Average**	33.56	15.00	8.67	22.22	13.11	BDL	0.51	10.50	BDL	BDL	BDL	BDL
Location: Near MAIN GATE												
****Actual Average**	43.56	19.33	11.78	27.44	16.67	0.05	0.80	16.43	0.18	BDL	BDL	BDL
Location: Near BITUMEN BUILDING												
****Actual Average**	30.44	12.67	7.11	19.89	11.78	BDL	0.60	10.00	BDL	BDL	BDL	BDL
Location: Near OM&S BUILDING												
****Actual Average**	40.11	16.89	10.67	26.33	15.11	0.05	0.72	14.56	BDL	BDL	BDL	BDL

BDL- Below Detectable Limit

* **Annual Target** - Annual Arithmatic 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 Monitoring data

Haldia Refinery

Period:1st to 30th Sep-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH3	Benzene	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
NO. OF SAMPLES	7	7	7	7	7	7	7	7	7	7	7	7
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near LABORATORY												
****Actual Average**	51.60	34.20	10.60	26.80	17.40	0.05	0.09	18.60	0.18	BDL	BDL	BDL
Location: NEAR TUBEWELL 4A												
****Actual Average**	35.60	14.80	9.40	21.00	11.10	BDL	0.45	10.10	BDL	BDL	BDL	BDL
Location: Near MAIN GATE												
****Actual Average**	41.50	18.70	11.00	26.70	15.80	0.05	0.75	14.20	0.21	BDL	BDL	BDL
Location: Near BITUMEN BUILDING												
****Actual Average**	32.30	13.40	7.50	18.70	10.40	BDL	0.60	9.70	BDL	BDL	BDL	BDL
Location: Near OM&S BUILDING												
****Actual Average**	41.20	14.50	8.90	24.10	14.30	0.05	0.64	11.30	BDL	BDL	BDL	BDL

BDL- Below Detectable Limit

* **Annual Target** - Annual Arithmatic 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 Monitoring data

Haldia Refinery

Period:1st to 30th Apr-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH_3	Benzene	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
NO. OF SAMPLES	9	9	9	9	9	9	9	9	9	9	9	9
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near REFINERY HOSPITAL												
** **Actual Average**	32.6	14.9	4.25	26.2	14.6	0.05	0.6	13.20	BDL	BDL	BDL	BDL
Location: Near SECTOR-21												
** **Actual Average**	35.4	16.0	4.20	28.3	15.7	0.06	0.6	13.14	BDL	BDL	BDL	BDL

Period:1st to 31st May-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH_3	Benzene	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
NO. OF SAMPLES	8	8	8	8	8	8	8	8	8	8	8	8
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near REFINERY HOSPITAL												
** **Actual Average**	31.6	14.4	4.00	25.1	14.7	BDL	0.6	13.22	BDL	BDL	BDL	BDL
Location: Near SECTOR-21												
** **Actual Average**	33.1	14.4	4.25	25.9	14.9	0.05	0.6	13.78	BDL	BDL	BDL	BDL

BDL- Below Detectable Limit, ND- Not Detectable

* **Annual Target**- Annual Arithmatic 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 Monitoring data

Haldia Refinery

Period:1st to 30th Jun-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH_3	Benzene	Benzo(a) Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
NO. OF SAMPLES	9	9	9	9	9	9	9	9	9	9	9	9
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near REFINERY HOSPITAL												
**** Actual Average**	30.5	12.8	4.00	19.6	11.9	0.05	0.6	10.25	BDL	BDL	BDL	BDL
Location: Near SECTOR-21												
**** Actual Average**	31.5	13.3	4.00	20.4	12.3	0.06	0.6	12.50	BDL	BDL	BDL	BDL

Period:1st to 31st Jul-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH_3	Benzene	Benzo(a) Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
NO. OF SAMPLES	9	9	9	9	9	9	9	9	9	9	9	9
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near REFINERY HOSPITAL												
**** Actual Average**	28.7	12.4	BDL	18.6	13.7	BDL	0.5	BDL	BDL	BDL	BDL	BDL
Location: Near SECTOR-21												
**** Actual Average**	29.6	12.4	BDL	18.9	13.0	BDL	0.5	BDL	BDL	BDL	BDL	BDL

BDL- Below Detectable Limit, ND- Not Detectable

* **Annual Target-** Annual Arithmatic 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 Monitoring data

Haldia Refinery

Period:1st to 31st Aug-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH_3	Benzene	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
NO. OF SAMPLES	8	8	8	8	8	8	8	8	8	8	8	8
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near REFINERY HOSPITAL												
** **Actual Average**	26.1	11.6	BDL	16.1	10.3	BDL	0.5	BDL	BDL	BDL	BDL	BDL
Location: Near SECTOR-21												
** **Actual Average**	27.3	11.9	BDL	17.2	10.9	BDL	0.5	BDL	BDL	BDL	BDL	BDL

Period:1st to 30th Sep-2019

Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2	Ozone	Pb	CO	NH_3	Benzene	Benzo(a)Pyrene (BaP)	Arsenic(As)	Nickel (Ni)
Unit	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3	$\mu g/m^3$	$\mu g/m^3$	ng/m^3	ng/m^3	ng/m^3
NO. OF SAMPLES	9	9	9	9	9	9	9	9	9	9	9	9
***Annual Target**	**60**	**40**	**50**	**40**	**100 (8 hours)**	**0.5**	**2 (8 hours)**	**100**	**5**	**1**	**6**	**20**
Location: Near REFINERY HOSPITAL												
** **Actual Average**	31.2	14.2	BDL	15.4	9.8	BDL	0.4	BDL	BDL	BDL	BDL	BDL
Location: Near SECTOR-21												
** **Actual Average**	32.8	11.9	BDL	16.8	12.3	BDL	0.2	BDL	BDL	BDL	BDL	BDL

BDL- Below Detectable Limit, ND- Not Detectable

* **Annual Target**- Annual Arithmatic 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.

Annexure-2

Month wise average data of Final Treated effluent discharged to River Hooghly

(Apr-2019 to Sep-2019)

S.No.	Parameter	Statutory Stipulations	Average for the month						Percent Compliance w.r.t.
		SPCB	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	SPCB
1	pH	**6 - 8.5**	7.8	7.9	7.8	7.9	7.8	7.9	100
2	Phenol, mg/l	**0.35**	0.07	0.07	0.08	0.07	0.08	0.07	100
3	Sulphides, mg/l	**0.5**	0.34	0.37	0.3	0.31	0.34	0.33	100
4	Oil, mg/l	**5**	2.4	2.5	2.4	3.1	3.2	3.5	100
5	COD, mg/l	**125**	65	58	52	64	78	68	100
6	BOD, mg/ l	**15**	12	11	11	11	12	11	100
7	TSS, mg/l	**20**	14	13	12	13	14	12	100

ANNEXURE-3

Details of Environmental Expenditure of Haldia Refinery for the Year: 2019-20

Period : Apr'19 to Sep'19

Sl. No	Item description	Expenditure (Rs. Lakhs)		
		Apr'19 to Jun'19	Jul'19 to Sep'19	FY 2019-20
O&M contracts (Operation of ETP/STP/RO/TSDF/Oily Sludge Treatment/Biomethanation plant/Mobile Ambient Air/ Bio Medical Waste Handling etc.				
1	Operation of ETP	70.00	70.0	140.0
2	O & M Contracts for TTP-RO	52.35	53.1	105.5
2	Oily Sludge Treatment for recovery of Oil	105.23	58.64	163.9
One Time Expenditure (ETP Chemicals, activated Carbon etc./ Bioremediation of oily Sludge/Disposal of Haz. Wastes, Spent Catalyst / Storage Tank Cleaning/ Tree Plantation etc.)				
1	ETP Chemicals like ACF & PSF	5.00	5.00	10.0
2	Disposal of Hazardous waste to TSDF through authorized agency	22.24	58.74	81.0
3	Disposal of Residual Oily Sludge to TSDF through authorized agency	170.85	146.25	317.1
4	Tree Plantation	0.1	0.6	0.7
Fees payable towards Statutoty authorities (for Consents, Authorisation/Water Cess/ Effluent Discharge etc.)				
1	Consent to Operate for Refinery	46.47	0	46.5
2	Consent to Establish for New projects	0	0	0.0
3	Consent to Operate for before commissioning of new project plants	0	11.62	11.6
4	Pre-Commissioning Safety Audit by OISD	10	11.8	21.8
5	ETP Treated effluent & Effluent discharge monitoring by WBPCB	0.23	0.23	
6	Quarterly Stack emission monitoring by WBPCB	0.42	0.42	0.8
AMC jobs (Online Stack/Treated Effluent / Ambient Air Monitoring)				
1	Chemical Treatment of ETP treated effluent water for using at Cooling tower & Fire water	23.73	18.60	42.3
Audit / Study / Consultancy jobs (Water Pinch Study/Audits; ISO Audits; Audits by External Agencies etc.)				
1	ISO Audit	0	0.16	0.2
2	RRA Study	0	0	0.0
3	Water Consumption Study	0	0	
4	Water flow rate measurement job	3.89	0	3.9
Monitoring jobs (Ground water, soil, stack emissions, ambient air, fugitive emissions (LDAR) etc.				
1	Environmental Monitoring job	1.4	1.85	3.3
2	Ambient Air Quality Monitoring	6.6	6.87	13.5
Other Jobs (WED Celebrations/ Awareness & Training Programs/ Process Modifications/ Green Belt Development				
1	World Environment Day Celebration/ Awareness program	2.3	0.0	2.3
A	Total Revenue expenditure	520.8	443.8	964.180
Capital Expenditure				
(ETP Modernisation/RO Plant/EIA&RA Studies/ Rainwater Harvesting/Solarisation/ LED Lights etc.)				
1	LED Lights	0.0	0.0	0.0
2	EIA & RA study	0.0	0.0	0.0
B	Total Capital expenditure	0.0	0.0	0.0
Environmental Expediture Rs.in Lakh (A+B)		**520.81**	**443.83**	**964.18**

Environmental Expediture of first six months for the FY 2019-20 works out Rs.9.64 Crore (Rupees Nine Crore Sixty Four Lakh only)

Annexure-4

Indian Oil Corporation Ltd

Haldia Refinery

DAY & NIGHT NOISE MONITORING RESULTS

Date: 01/04/2019 to 02/04/2019

Sl No.	Location Name	Noise results (dBA)	
		Day Time Limit: 75 dBA	Night Time Limit: 65 dBA
1	West of OHCU Plant Area, Road A	61.7	59.4
2	Near Flare Stack Area	72.1	67.7
3	West of ETP Office, Road A	64.3	58.2
4	Near Gate No. 04, Road A	63.4	60.7
5	South West of Old and Closed Catch Pit No. 01	58.9	57.2
6	South of Solvent Handling Area	61.4	59.6
7	South East of LPG Bulk Loading Area	66.5	61.3
8	East of Horton Sphere	68.8	60.8
9	East of Tank No. 109	63.2	58.7
10	North of Tank No. 111	63.2	61.4
11	East of Tank No. 113	69.6	62.7
12	DHDS Cooling Tower	67.9	66.1

Annexure-5

INDIA OIL CORPORATION LTD

Haldia Refinery

Stack Monitoring Result for SO2 emission

Period : Apr'19 to Sep'19

Sl.No.	Source Name / Stack Attached to	SO2 emission data of Haldia Refinery					
		Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19
1	CDU # 1	21.2	23.6	21.6	23.7	24.0	25.0
2	CDU # 1 Trim Heater	6.9	6.5	6.5	S/D	5.9	7.0
3	CDU # 2	39.1	34.7	35.2	36.8	39.0	37.4
4	CDU # 2 Trim Heater	S/D	9.2	10.2	10.5	10.5	10.7
5	CRU	1.4	1.7	1.6	1.7	2.3	1.9
6	KHDS	1.3	0.9	1.1	0.9	1.2	1.1
7	FEU (North)	S/D	S/D	S/D	S/D	S/D	S/D
8	FEU (Middle)	S/D	S/D	S/D	S/D	S/D	S/D
9	FEU (South)	S/D	S/D	S/D	S/D	S/D	S/D
10	HFU	S/D	0.2	0.2	0.2	0.3	0.2
11	VBU (North)	16.0	12.4	15.0	S/D	13.7	14.1
12	VBU (South)	13.5	10.5	12.9	S/D	13.6	13.4
13	VDU # 1	24.3	23.5	27.2	10.7	27.4	23.9
14	VDU # 1 Trim Heater	8.8	7.7	9.2	4.2	8.9	8.5
15	CIDW	S/D	S/D	1.4	1.0	1.4	1.5
16	PDA	12.8	11.8	13.1	S/D	12.8	12.5
17	OHCU	16.0	14.9	16.8	16.6	16.8	15.8
18	HGU # 2 Reformer	5.3	4.1	4.6	4.2	4.5	4.2
19	HGU # 2 PDS	0.1	0.1	0.1	0.1	0.1	0.1
20	FPU	S/D	S/D	2.2	2.1	2.4	2.2
21	SRU - II	S/D	31.3	36.8	42	35.8	36.5
22	SRU-III	43.7	S/D	41.5	44.0	S/D	44.6
23	SRU - IV	79.8	57.3	71.6	68.0	83.4	52.9
24	FCCU (Heater)	1.4	1.3	1.3	1.1	1.2	1.3
25	FCCU (Regenarator)	82.9	69.3	82.1	70.8	75.5	69.6
26	VDU # 2	63.2	59.6	58.5	61.5	57.1	62.5
27	MSQU	0.9	1.0	1.2	1.3	1.6	1.7
28	DHDS	1.0	0.8	0.8	0.8	0.9	0.8
29	GAS TURBINE(GT#1)	8.2	6.5	7.0	6.8	7.6	7.3
30	GAS TURBINE(GT#2)	10.3	9.1	9.5	s/d	9.7	9.5
31	GAS TURBINE(GT#3)	7.0	5.2	6.1	5.7	7.0	5.7
32	TPS (Boiler-II)	136.8	147.9	150.2	129.5	6.1	136.5
33	TPS (Boiler-III)	199.2	158.5	S/D	154	143.4	138.1
34	TPS (Boiler-IV)	S/D	168.7	159.5	159.5	147.1	155.1
Total SO2 emission (Kg/hr)		801.1	878.3	805.0	857.7	761.2	901.6

Note- S/D : Shutdown

Average SO2 emission rate from Apr'19 to Sep'19 834.2 Kg/hr

Annexure-6

INDIAN OIL CORPORATION LTD

HALDIA REFINERY

Typical Continuous Ambient Air Quality Monitoring Data

Month: Aug-2019								
Time Base:	24 hours							
	Permissible Limit							
Pollutants	PM-10	PM-2.5	SO2	NOx	O3	CO	NH3	Benzene
Unit	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	mg/m3	ug/m3	ug/m3
Date	60	40	50	40	100 (8 hours)	02 (8 hours)	100	5
1-8-19	34.7	14.9	37.1	24.9	23.1	0.7	3.4	4.1
2-8-19	23.8	11.6	41.8	15.1	21.3	0.9	5.1	3.8
3-8-19	39.6	15.7	43.5	26.6	21.7	0.9	4.1	3.4
4-8-19	45.4	18.5	20.2	20.2	32.8	0.7	6.7	3.9
5-8-19	53.2	27.1	0.0	29.8	21.4	0.6	4.8	3.4
6-8-19	35.1	18.2	47.8	26.7	10.6	0.7	4.4	3.1
7-8-19	16.0	8.0	45.5	12.7	0.0	0.9	4.2	4.1
8-8-19	18.6	9.6	42.4	26.4	16.2	0.8	5.1	4.2
9-8-19	40.4	21.5	30.6	19.7	25.4	0.6	12.6	3.9
10-8-19	38.7	18.9	31.5	22.5	28.4	0.7	11.4	3.7
11-8-19	32.7	21.1	28.7	28.9	24.6	0.8	12.6	3.1
12-8-19	36.8	25.8	22.9	28.2	18.6	0.9	13.5	2.4
13-8-19	17.6	11.2	28.2	17.9	27.1	0.7	14.0	2.8
14-8-19	54.2	37.2	47.1	36.2	22.6	0.8	11.2	3.1
15-8-19	36.0	23.6	39.3	24.4	24.6	0.8	12.8	3.0
16-8-19	37.5	21.1	25.9	21.0	26.4	0.8	13.6	3.2
17-8-19	26.0	16.7	24.9	28.4	24.3	0.5	13.3	3.4
18-8-19	15.0	9.9	29.2	22.2	29.3	0.5	13.1	3.7
19-8-19	28.2	18.1	45.4	26.0	18.5	0.7	12.2	3.8
20-8-19	37.7	21.1	37.1	20.2	23.8	0.8	13.4	4.1
21-8-19	44.9	25.7	36.9	19.8	28.4	0.7	14.2	4.0
22-8-19	44.6	25.7	37.1	17.3	22.5	0.6	14.5	3.8
23-8-19	19.4	11.4	28.8	15.1	21.0	0.7	14.8	3.6
24-8-19	19.5	10.6	23.2	17.5	22.0	0.7	14.1	3.4
25-8-19	19.5	13.4	41.2	18.8	23.6	1.0	16.9	3.9
26-8-19	18.9	21.1	35.7	17.1	32.1	0.7	18.9	4.1
27-8-19	32.1	29.4	34.2	26.4	24.1	0.5	17.8	4.3
28-8-19	43.9	25.2	33.2	35.7	18.9	0.5	15.9	3.7
29-8-19	23.5	12.6	41.5	12.0	27.2	0.6	16.4	3.4
30-8-19	34.9	22.6	43.2	11.8	35.3	0.5	15.8	3.8
31-8-19	33.1	21.3	37.5	24.1	34.8	0.7	18.9	3.8

Annexure-7a

Haldia Refinery

OHC Health Check up Records of employees

(Status for the period of Apr'19 to Sep'19)

Periodical examination		STATUTORY-A (Half Yearly)								
Group - A		Target groups exposed to chemical hazards								
	Unit / Department	Toxic Chemical Exposure	Frequency	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Done/Total
Toxic Chemical Exposure	FOB (production)(CDU-I/II,KHDS,NHDT)-Area Field Operation	Corrosion inhibitor, CCL4, Caustic, Ammonia, H2S and	Half yearly	0	1	1	13	31	8	54
	LOB (production) (VDU,VBU,NMP,CIDW,FEU,SDU,WHFU,HFU)-Area Field Operation	MEK, NMP, Furfural, H2S, Toluene, Ammonia, corrosion inhibitor, Caustic,	Half yearly	4	1	8	6	21	18	58
	DHDS (production) MSQ,FCCU,VDU-II,SRU-2/3/4,ARU Area-Field operation.	Corr inhibitor, CCL4, Caustic Ammonia, H2S, Amine, Morpholine, TSP	Half yearly	1	0	23	36	12	18	90
	ETP (production) Area-Field operation.	Acid, Caustic, HC vapour	Half yearly	1	0	2	12	2	0	17
	OMS-(solvent area) Area-Field operation.	Furfural	Half yearly	0	0	0	1	0	0	1
	OFFSITE (E/M,M/M,I/M)	Maintenance group	Half yearly	0	0	3	3	9	8	23
	P&U (operation) Turb hall,Compressor field,Boiler Basement, All Cooling Towers, GT Area-Field operation.	Caustic, Chlorine, Sulphuric Acid, Morpholine, TSP.	Half yearly	11	5	26	20	10	8	80
	QC Lab Area-testing and sampling	Lab chemicals	Half yearly	0	3	3	8	10	7	31
	OHCU (production) / NHGU Area-Field operation.	H2S, Amine	Half yearly	1	1	20	16	4	2	44
	TWL Field operation	HC VAPOUR	Half yearly	3	0	0	25	0	0	28
	TTL Field operation	HC VAPOUR	Half yearly	2	0	0	2	1	0	5
	LPG	HC VAPOUR	Half yearly	1	0	1	9	0	0	11
	Elect. Testing	Process units	Half yearly	0	0	0	0	4	1	5
	Telecom	All office area	Half yearly	0	0	0	0	2	0	2
	Medical- Industrial Hygienist.Area-Hosp & FAC	Toxic gas,noise,HC Vapour	Half yearly	0	0	0	0	0	1	1
	TOTAL			**24**	**11**	**87**	**151**	**106**	**71**	**450**

Annexure-7b

Haldia Refinery

OHC Health Check up Records of employees

(Status for the period of Apr-2019 to Sep- 2019)

Periodical examination		STATUTORY-B (Yearly)								
Group - B		Target groups performing Critical Tasks /Hazardous operation								
Sl. No	STATUTORY	Frequency	Area / Task	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Total
1	Production (MM - BFS) Fork lift	Annual	Forklift Operator	1	0	4	8	1	0	14
2	Medical (Hospital & First Aid Centre)	Annual	Ambulance Driver (Contract Worker)	2	1	0	0	0	0	3
3	Mech - Maint (rigger)	Annual	Rigging	0	0	4	0	0	0	4
4	Mech - Maint (welding &cutting)	Annual	Welding & Cutting	0	0	0	0	0	0	0
5	Mech - Maint (hydra crane)	Annual	Hydra Crane	0	0	0	0	0	0	0
6	Materials	Annual	Materials Handling	0	0	0	0	0	0	0
7	Electrical maintaianance	Annual	workshop	0	0	0	0	1	0	1
8	Instrumentation Maintenance	Annual	Process units	0	0	0	5	0	1	6
9	F&S Dept.	Annual	Fire fighting & Rescue Operation	0	0	1	2	3	1	7
10	Medical (X-ray Tech.)	Annual	X-ray Tech.	0	0	0	1	0	0	1
11	Medical (Kitchen-Food Handler)	Halfyearly	Food handler (Contract Labour)	0	2	0	0	0	0	2
12	Canteen (Food Handler)	Halfyearly	Food handler (Contract Labour)	0	4	25	2	0	0	31
13	Guest House - Main (Food Handler)	Halfyearly	Food handler (Own Employee)	0	0	0	0	0	7	7
14	Guest House - Annex- (Food Handler)	Halfyearly	Food handler (Contract Labour)	0	0	0	0	2	4	6
15	IMA (Food Handler)	Halfyearly	Food handler (Contract Labour)	0	4	8	1	0	0	13
	Total			**3**	**11**	**42**	**19**	**7**	**13**	**95**