STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS FOR ISOM UNIT

AS ON 31.03.2016

Ref: MoE&F LETTER NO: J-11011/215/2007-1A II (I) dated 07.02.2008 for ISOM Unit

Sl No	Conditions	Status as on 31.03.2016
	SPECIFIC CONDITIONS	
1	The company shall comply with new standards/norms that are being proposed by the CPCB for petrochemical plants and refineries	New norms/standards are complied
2	The company shall comply with all the stipulations of environmental clearance issued vide File No 11011/375/2006-1A.H(I) dated 22nd March 2007	Guwahati Refinery obtained no such environmental clearance
3	The process emission (SO_2, NO_X, HC, VOCs and Benzene) from various units shall conform to the standards prescribed by the Assam State Pollution Control Board from time to time. 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 units, the units shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	Emissions (SO_2, NO_x, HC, VOCs and Benzene) from various process units are monitored every month and the results are well within the applicable norms. The stack emission data and Ambient Air Quality monitoring data from Oct'15 to Mar'16 attached as Annexure I & II Complied
4	The improvement projects shall be installed within the existing premises and no additional land shall be acquired for the project.	The project installed within the existing premises. Complied
5	Quarterly monitoring of fugitive emissions shall be carried out as per the guidelines of CPCB by fugitive emission detectors (GMI	Fugitive emission monitoring at work zone carried out monthly and the reports is attached as Annexure-III

	Leak Surveyor) and reports shall be submitted to the Ministry's regional office at Shillong.	Quarterly monitoring of fugitive emissions from process plant and tank farm area is carried out as per the guidelines of CPCB through external agency. Complied
6	For control of fugitive emission all unsaturated hydrocarbon will be routed to the flare system and the flare shall be designed for smokeless burning	All uncontrollable Hydrocarbons from flare are routed through FGRS unit for its recovery. Only minimum quantities of Hydrocarbons are allowed to burn in smokeless flare. Complied

Sl No	Conditions	Status as on 31.03.2016
7	The company shall strictly follow all the recommendations mention in the charter on corporate responsibility for environmental protection (CREP)	CERP recommendations are followed strictly. Complied
8	Occupational health surveillance of workers' shall be done on a regular basis and records maintained as per the Factory Act.	Regular occupational health checks up done to employees as per the Assam factory rule and record maintained. Complied
9	Greenbelt shall be developed to mitigate the effect of fugitive emission all around the plant in a minimum 30% plant area in consultation with DFO as per CPCB guidelines.	Greenbelt cannot be developed/expanded in the refinery battery area due to space constrain & safety reason. However the plantation is taken up in Township areas. About 2500 tree saplings planted in 2015-16 Complied
10	The company shall make suitable arrangement for disposed of catalyst waste and alumina balls. The report of this disposal of this waste shall be submitted to Ministry's regional office at Shillong.	Provisions of MSIHC Rules, 1989 and amendments are followed. MoE&F shall be kept informed whenever catalyst waste is disposed. Noted
11	The company shall take necessary measured to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums shall installed to minimize gaseous emission during flaring.	Guwahati Refinery has installed fire fighting facilities in compliance with OISD 116 standards. There is no ground flaring system followed in the Refinery. Noted
12	To prevent fire and explosion at oil and gas facility, potential ignition sources should be kept to a minimum and adequate separation distance between potential ignition sources and flammable material shall be in place.	All applicable Petroleum Rules & OISD standards are followed for laying out various facilities. Complied
GENERAL CONDITIONS		
Sl No	Conditions	Status
1	The project authority must adhere to the	Stipulation of SPCB & State Government and any

	stipulations made by the concerned Assam State Pollution Control Board and the State Government and any other statutory body.	other statutory body are followed. Complied
GENERAL CONDITIONS		
Sl No	Conditions	Status
2	No further expansion or modification in the project shall be carried without prior approval of the Ministry of Environment and Forests. In case of deviation or alteration in the project proposal from those submitted to the Ministry for clearance, fresh reference shall be made to the Ministry	Expansion or modification of ISOM shall not be done without prior approval of Ministry. There is no deviation or alterations in the project from those submitted to the Ministry for clearance. Complies
3	At no time, the emission should go beyond the prescribed standards. In the event of failure of any pollution control system, the respective well site should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved. Provision of adequate height of stack attached to DG sets & flare is to be done.	To meet the prescribed standards, online and manual emission monitoring systems are set. There is no well site in the Refinery. Complied
4	Waste water shall be properly collected and treated so as to conform to the standards prescribed under EP Act & Rules and mentioned in the Consents provided by the relevant SPCB.	Waste water is properly collected and treated in ETP through physical, chemical and biological process to conform to the standards prescribed under EP Act & Rules and mentioned in the Consents provided by the PCB, Assam. Effluent analysis data is from Oct'15 to Mar'16 attached as Annexure- IV Complied
5	The overall noise levels in and around the premises shall be within the prescribed standards (75 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 overall noise level is within the prescribed limits. Regular ambient noise level monitoring is done and observations are within the prescribed limits of EPA rule. Observations are attached as Annexure-V

	the standards prescribed under EPA Rules, 1989 viz 75 dBA (day time) 70 dBA (night time)	Complied
6	The project authority must strictly comply with the previous 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, if required. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.	Provisions of MSIHC Rules, 1989 and amendments are strictly followed. Requisite On-site and Off-site Disaster Management Plans are prepared and followed. Complied
7	Handling of Hazardous Waste shall be as per the Hazardous Waste (Management and Handling Rules, 2003). Authorization from the State Pollution Control Board must be obtained for collections, treatment, and storage disposal of Hazardous Wastes.	Present Hazardous Waste authorization granted by PCB, Assam is valid up to 27th January 2020. Complied
8	The project authorities will provide adequate funds as non-recurring and recurring expenditures to implement the conditions stipulated by the Ministry of Environment & Forests as well as the State Govt. along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.	The fund provided to implement conditions stipulated by the Ministry of Environment & Forests as well as the State Govt. not diverted for any other purposes. Complied
9	The company shall develop rainwater harvesting structures to harvest the runoff water for replacement of ground water	Every year 2 (two) nos. rain water harvesting projects are implemented. In 2015-16 RWH projects have been implemented at Refinery Township. Complied
10	The concerned 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 should be submitted to them regularly. It will also be displayed on the website of the company.	Stipulated conditions are regularly monitored by State Pollution Control Board and the six monthly reports are submitted to Regional Office, Shillong Ministry of Environment & Forests. It is also updated in the website www.iocl.com Complied
11	The project proponent should inform the public that the project has been accorded environment clearance by the Ministry and copies of the clearance letter are available	The copies of the Environment clearance from the Ministry are made available to SPCB. Guwahati Refinery informed the public that the project has been accorded environmental clearance by

	with the State Pollution Control Board/Committee and may also be seen at website of the Ministry of Environment & 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 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.	MoE&F through the daily English Newspaper 'The Sentinel' and the local newspaper the 'Dainik Assam' on 25th March, 2008 Complied
12	A separate environment management cell with full-fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of Senior Executive.	Separate environment management cell headed by DGM (TS & HSE) exists. Laboratory facility is available in the Refinery. Complied
13	The Project Authorities shall inform the Regional Office as well as the Ministry the date of Financial closure and final approval of the project by the concerned authorities and the date of start of the project	The project started in 2010

Annexure -I

Data on Stack Emission Monitoring at Guwahati Refinery (Oct'15-March' 16)

Stack	Concentration (mg/NM3)		
	PM	SO2	NOX
CDU	33.0-51.0	341.0-536.0	150.0-204.0
DCU	15.0-36.0	201.0-331.0	139.0-205.0
TPS Boilers			
Blr 5	26.0-45.0	249.3-320.8	145.4-150.4
Blr 6 & 7	38.0-96.0	272.0-396.0	142.0-177.0
HDT	9.0-13.0	49.0-62.0	30.0-175.0
HGU	16.0-36.0	85.0-218.0	56.0-182.0
INDMAX			
ISOM	10.0-12.0	8.0-21.0	24.0-63.0

Annexure-II

Data on Ambient Air Monitoring at Guwahati Refinery (Oct'15-March'16)

AMBIENT AIR QUALITY MONITORING REPORT												
	SO2	NO2	PM 10	PM 2.5	Ozone (O3)	Lead (Pb)	CO	Ammonia (NH3)	Benzene (C6H6)	Benzo(O) Pyrene	Arsenic (As)	Nickel (Ni)
	Concentration of Pollutants											
	SO2	**NO2**	**PM 10**	**PM 2.5**	**Ozone (O3)**	**Lead (Pb)**	**CO**	**Ammonia (NH3)**	**Benzene (C6H6)**	**Benzo (O) Pyrene**	**Arsenic (As)**	**Nickel (Ni)**
	µg/m3	**µg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**µg/m3**	**mg/m3**	**µg/m3**	**µg/m3**	**ng/m3**	**ng/m3**	**ng/m3**
Limit as per CPCB notification, New Delhi,18th Nov, 2009.for Ambient air quality	**80**	**80**	**100**	**60**	**100**	**1**	**2**	**400**	**5**	**1**	**6**	**20**
Location : Adm Building												
Max.	**12.70**	**57.40**	**98.00**	**54.00**	**45.2**	**0.09**	**0.92**	**27.40**	**4.67**	**0.88**	**BDL**	**17.12**
Min.	**4.00**	**12.90**	**34.00**	**11.00**	**BDL**	**BDL**	**0.21**	**10.20**	**BDL**	**BDL**	**BDL**	**BDL**
Avg.	**7.74**	**37.81**	**81.08**	**38.00**	**12.77**	**0.03**	**0.64**	**16.37**	**2.28**	**0.35**	**BDL**	**10.49**

Location : Guest House												
Max.	11.80	53.70	98.00	53.00	51.20	0.09	0.92	27.40	4.85	0.84	BDL	13.90
Min.	4.00	13.20	38.00	14.00	BDL	BDL	0.23	10.30	BDL	BDL	BDL	BDL
Avg.	7.62	36.60	79.58	37.42	11.73	0.04	0.65	15.79	2.06	0.27	BDL	8.86
Location : Sector II												
Max.	12.60	57.30	98.00	51.00	56.70	0.09	0.82	23.90	4.44	0.86	BDL	14.66
Min.	4.00	14.20	47.00	21.00	BDL	BDL	0.32	10.20	BDL	BDL	BDL	5.57
Avg.	7.20	38.54	78.92	38.50	11.82	0.04	0.62	14.60	1.78	0.34	BDL	8.79
Location : WTP												
Max.	7.60	44.50	83.00	44.00	38.70	0.06	0.71	21.20	BDL	BDL	BDL	9.62
Min.	4.00	11.70	28.00	10.00	BDL	BDL	0.18	10.30	BDL	BDL	BDL	BDL
Avg.	5.28	28.83	63.83	29.25	5.17	0.01	0.47	12.76	BDL	BDL	BDL	5.16
Note :	**BDL= Below Detection s Limit :**											

Note : **BDL= Below Detections Limit :**

Detection Limit of O3 : 19.62 µg/m3,Pb : 0.02 µg/m3, Ni: 1.0 ng/m^3,As : 2 ng/ m3 , C_6H_6: 2.8 µg/m3 , Benzo(a)pyrene : 0.2 ng/m3 .

Annexure III

RESULTS OF FUGITIVE EMISSION MONITORING

AT GUWAHATI REFINERY FOR (Oct'15-March'16**)**

Fugitive Emission						
		H2U & HDT	**Boiler 6/7**	**CDU**	**SRU**	**DCU**
OCT'15	**Total HC(ppm)/Benzene(MG/NM3)**	3.79/0.236	5.22/0.18	5.85/0.346	6.27/0.297	6.41/0.265
NOV'15	**Total HC(ppm)/Benzene(MG/NM3)**	5.12/0.346	4.98/0.297	6.21/0.451	7.32/0.406	5.87/0.398
DEC'15	**Total HC(ppm)/Benzene(MG/NM3)**	2.5/0.063	3.84/0.111	4.95/0.176	2.45/0.065	5.66/0.169

Fugitive Emission

		H2U & HDT	**Boiler 6/7**	**CDU**	**SRU**	**DCU**
JAN-16	**Total HC(ppm)/Benzene(MG/NM3)**					

FEB-16	**Total HC(ppm)/Benzene(MG/NM3)**	4.64/0.110	5.54/0.182	7.34/0.167	6.67/0.149	4.69/0.137
MAR-16	**Total HC(ppm)/Benzene(MG/NM3)**	9.15/0.286	7.2/0.244	4.41/0.130	6.69/0.194	8.3/0.279

Annexure-IV

Data on Discharged Effluent Analysis at Guwahati Refinery
OCT'15 to MAR'16

Sl. No.	Parameter	Concentration value (mg/l except pH)	Concentration value (mg/l except pH)	%age Compliance
		National Limit	**Average**	
1	pH	**6.0 – 8.5**	7.30	**100**
2	Oil & Grease	**5**	3.46	**100**
3	BOD	**15**	9.45	**100**
4	COD	**125**	67.30	**100**
5	TSS	**20**	12.35	**100**
6	Phenols	**0.35**	0.21	**100**
7	Sulphides	**0.5**	0.08	**100**
8	CN	**0.2**	0.02	**100**
9	Ammonia as N	**15**	6.41	**100**
10	TKN	**40**	11.12	**100**
11	P	**3**	0.08	**100**
12	Cr (Hexavalent)	**0.1**	0.01	**100**
13	Cr (Total)	**2**	0.01	**100**
14	Pb	**0.1**	0.01	**100**
15	Hg	**0.01**	0.00	**100**

16	Zn	**5**	0.04	**100**
17	Ni	**1**	0.02	**100**
18	Cu	**1**	0.02	**100**
19	V	**0.2**	0.20	**100**
20	Benzene	**0.1**	0.01	**100**
21	Benzo (a) -Pyrene	**0.2**	0.00	**100**

Load Mass Based Effluent data

OCT'15 to MAR'16

Figs in Kg/1000 tonnes crude

Sl. No.	Parameter	Quantum value (kg/TMT of Crude processed)	Quantum value (kg/TMT of Crude processed)
		National Limit	Average
1	**pH**	**--**	
2	**Oil & Grease**	**2**	**0.701**
3	**BOD**	**6**	**1.85**
4	**COD**	**50**	**13.51**
5	**TSS**	**8**	**2.50**
6	**Phenols**	**0.14**	**0.04**
7	**Sulphides**	**0.2**	**0.02**
8	**CN**	**0.08**	**0.003**
9	**Ammonia as N**	**6**	**1.17**
10	**TKN**	**16**	**2.03**
11	**P**	**1.2**	**0.02**
12	**Cr (Hexavalent)**	**0.04**	**0.002**
13	**Cr (Total)**	**0.8**	**0.002**
14	**Pb**	**0.04**	**0.002**
15	**Hg**	**0.004**	**0.000**
16	**Zn**	**2**	**0.007**

17	Ni	0.4	0.003
18	Cu	0.4	0.004
19	V	0.8	0.04
20	Benzene	0.04	0.001
21	Benzo (a) -Pyrene	0.08	0.000
	Effluent discharge,M3/TMT of crude processed	400/700	201

Annexure - V

NOISE LEVEL MONITORING
BATTERY AREA
GUWAHATI REFINERY (OCT'15-DEC'15)

SL. NO.	AREA	LOCATION	AVERAGE EXPOSURE FOR AN EMPLOYEE PER SHIFT (HRS)	READING IN dBA
1	TPS	Boiler - 3	1.30 hrs	97.0
		Boiler - 4	1.30 hrs	OFF
		Boiler - 5	1.30 hrs	96.0
		Boiler - 6	1.30 hrs	95.0
		Boiler - 7	1.30 hrs	OFF
		Boiler Control Room	8.0 hrs	66.0
		TG - 3	1.30 hrs	97.0
		TG - 4	1.30 hrs	OFF
		TG - 5	1.30 hrs	97.0
		Turbine Control Room	8.0 hrs	68.0
		DM Plant Pump Area	1.30 hrs	97.0
		DM Plant Control Room	8.0 hrs	67.0

2	CDU	Model Pump House	1.30 hrs	95.0
		Cold Pump House	1.30 hrs	95.0
		Hot Pump House	1.30 hrs	96.0
		NSF Area	1.30 hrs	95.0
		CDU Field Control Room	8.0 hrs	69.0
3	DCU	Cold Pump House	1.30 hrs	95.0
		Hot Pump House	1.30 hrs	96.0
		Air Compressor Area	1.30 hrs	93.0
		DCU Field Control Room	8.0 hrs	69.0
	NITROGEN	Air Compressor 013-K-01A	1.00 hr	101.0
		Air Compressor 013-K-01B	1.00 hr	OFF
		Air Compressor 013-K-01C	1.00 hr	OFF
5	INDMAX	Main Air Blower Area	1.00 hr	96.0
		INDMAX Field Control Room	8.0 hrs	64.0
6	SRU	Main Air Blower 51A-K-01A	1.30 hrs	96.0
		Main Air Blower 51A-K-01B	1.30 hrs	OFF
		SRU Field Control Room	8.0 hrs	62.0
7	HDT	Pump Area	1.00 hr	95.0
		HDT/HGU Field Control Room	8.0 hrs	68.0
8	HGU	Pump Area	1.00 hr	95.0

		HDT/HGU Field Control Room	8.0 hrs	68.0
9	MSQU	Pump Area	1.00 hr	95.0
		MSQU Field Control Room	8.0 hrs	67.0
10	ETP	Air Blower Area	1.00 hr	98.0
		ETP Control Room	8.0 hrs	68.0

NOISE LEVEL MONITORING
BATTERY AREA
GUWAHATI REFINERY (JAN'16-MAR'16)

SL. NO.	AREA	LOCATION	AVERAGE EXPOSURE FOR AN EMPLOYEE PER SHIFT (HRS)	READING IN dBA
1	TPS	Boiler - 3	1.30 hrs	OFF
		Boiler - 4	1.30 hrs	OFF
		Boiler - 5	1.30 hrs	OFF
		Boiler - 6	1.30 hrs	95.0
		Boiler - 7	1.30 hrs	95.0
		Boiler Control Room	8.0 hrs	66.0
		TG - 3	1.30 hrs	OFF
		TG - 4	1.30 hrs	98.0
		TG - 5	1.30 hrs	97.0
		Turbine Control Room	8.0 hrs	66.0
		DM Plant Pump Area	1.30 hrs	95.0
		DM Plant Control Room	8.0 hrs	66.0

2	CDU	Model Pump House	1.30 hrs	94.0
		Cold Pump House	1.30 hrs	93.0
		Hot Pump House	1.30 hrs	93.0
		NSF Area	1.30 hrs	95.0
		CDU Field Control Room	8.0 hrs	69.0
3	DCU	Cold Pump House	1.30 hrs	94.0
		Hot Pump House	1.30 hrs	94.0
		Air Compressor Area	1.30 hrs	92.0
		DCU Field Control Room	8.0 hrs	70.0
	NITROGEN	Air Compressor 013-K-01A	1.00 hr	101.0
		Air Compressor 013-K-01B	1.00 hr	OFF
		Air Compressor 013-K-01C	1.00 hr	U/M
5	INDMAX	Main Air Blower Area	1.00 hr	95.0
		INDMAX Field Control Room	8.0 hrs	62.0
6	SRU	Main Air Blower 51A-K-01A	1.30 hrs	95.0
		Main Air Blower 51A-K-01B	1.30 hrs	OFF
		SRU Field Control Room	8.0 hrs	61.0
7	HDT	Pump Area	1.00 hr	94.0
		HDT/HGU Field Control Room	8.0 hrs	62.0
8	HGU	Pump Area	1.00 hr	94.0

		HDT/HGU Field Control Room	8.0 hrs	62.0
9	MSQU	Pump Area	1.00 hr	94.0
		MSQU Field Control Room	8.0 hrs	64.0
10	ETP	Air Blower Area	1.00 hr	97.0
		ETP Control Room	8.0 hrs	69.0

Permissible Noise Level For Continuous Exposure (OISD-GDN-166, JULY 1997,)

DURATION PER DAY (HOURS)	SOUND LEVEL (dBA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
1/2	110
1/4 or less	115