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File No: ONGC/CBM/HSE/JH/EC Comp

Date: 28.10.2016

To,

T H Mahto, Scientist 'F' / Director (S)
Ministry of Environment and Forests,
Regional office (Ranchi),
Bungalow No. A-2, Shyamli colony,
Ranchi- 834002

Sub: Six Monthly Compliance Report of "Exploratory drilling & Pilot Development Activities for CBM in Jharia CBM Block", by ONGC.

Ref: MoEF Letter No. J-11011/287/2007-IA II (I), dated July 11, 2007.

Dear Sir,

The Environmental Clearance for Exploratory as well as Pilot development activities in Jharia CBM Block was granted on July 11, 2007 vide letter no. F. No. J-11011/287/2006 – IA II (I). The clearances for both the exploratory as well as pilot development activities are granted as a single clearance, as the activities are in the same CBM Block.

The six monthly compliance report in respect of the above EC for the period of April – September, 2016 is enclosed here with for your kind perusal.

Thanking You,

Yours Sincerely,

P K Basu
28/10/16

P K Basu, DGM(P)
Head –HSE, CBM-Asset, Bokaro

COMPLIANCE REPORT

I. SPECIFIC CONDITIONS

Specific Conditions	Status of Compliance
i. The company shall comply with the guidelines for disposal of solid waste, drill cutting and drilling fluids for onshore drilling operation notified vide GSR.546(E) dated 30 th August, 2005.	<ul style="list-style-type: none">• CBM drill cuttings do not carry any oil traces and are non-hazardous.• Cuttings are used for road filling. As per the existing guide lines, application to obtain authorization for disposal of hazardous waste is submitted to JSPCB with 5 year fee.
ii. The company shall monitor non methane hydrocarbon.	<ul style="list-style-type: none">• Non Methane Hydrocarbons are in traces. Exploration of gas in CBM block contains mainly methane (92%-96%).
iii. The drilling shall be restricted to the mine free area. The company shall use water based drilling mud.	<ul style="list-style-type: none">• Parbatpur part of the mining area is overlapping with M/S. Steel Authority of India Ltd.• Water based mud is being used for drilling activities
iv. The surface facilities shall be installed as per applicable codes and standards, international practices and applicable local regulations.	<ul style="list-style-type: none">• Surface facilities will be constructed as per applicable codes and standards.
v. The top soil removed wherever suitable shall be stacked separately for reuse during restoration process.	<ul style="list-style-type: none">• Top soil was not removed during any activity of CBM Exploration in Jharia CBM Block
vi. Drilling waste water including drill cuttings wash water shall be collected in disposal pit lined with HDPE lining evaporated or treated and shall comply with the notified standards for on-shore disposal.	<ul style="list-style-type: none">• Drilling waste water including drill cuttings wash water is collected in disposal pit lined with HDPE lining, and naturally evaporated
vii. The Company shall take necessary measures to prevent fire hazards and soil remediation as needed. At place of ground flaring, the flare pit shall be lined with refractory bricks and efficient burning system shall be provided. In case of overhead flare stacks, the stack height shall be provided as per the norms to minimize	<ul style="list-style-type: none">• Soil Remediation is not required as there is no oil spillages associated with CBM gas extraction.• Firefighting equipment's are provided as per the provisions of OISD – 189• There is no flaring of gas/ground flaring.

<p>gaseous emissions and heating load during flaring.</p>	
<p>viii. The produced water during drilling operations shall be collected in the lined waste pits to prevent ground water contamination. The water shall be treated to the prescribed standards before disposal. The treated produced water shall be used for irrigation, pisciculture and ground water recharge etc.</p>	<ul style="list-style-type: none"> • At present produced water is collected in impervious lined pit and water is being evaporated naturally. As the water drawn out during the process of CBM extraction is of good quality (meets the irrigation water quality parameters) as per the water analysis reports from the MoEF recognized laboratory. • Very small amount of produced water is generated 2-3 m³/day/well
<p>ix. The Company shall take necessary measures to reduce noise levels at the drill site by providing mitigation measures such as proper acoustic enclosures to the DG set and meet the norms notified by the MoEF. Height of all the stacks/vents shall be provided as per the CPCB guidelines.</p>	<ul style="list-style-type: none"> • Gas Based Gen sets with acoustic enclosure are used
<p>x. The design, material of construction, assembly, inspection, testing and safety aspects of operation and maintenance of pipeline and transporting the oil shall be governed by ASME/ANSI B 31.8/B31.4 and OISD standard 141.</p>	<ul style="list-style-type: none"> • There is no oil transportation associated with this project. Only CBM gas is transported in pipelines at very low pressure intended to meet the ASME B 31.8 and OISD standard 141. • The design, material of construction, assembly, inspection, testing and safety aspects of operations will be carried out as per the ASME B 31.8 and OISD standard 141 in the development phase of project.
<p>xi. Annual safety audit should be carried out for the initial three years by an independent agency and report submitted to this Ministry for ensuring the strict compliance of safety regulations on operation and maintenance.</p>	<ul style="list-style-type: none"> • External Safety Audit was conducted by OISD at different work centers. Compliance report is submitted to the OISD on quarterly basis
<p>xii. The project authorities should plant a minimum of 10 trees for every tree cut along the pipeline route in consultation with the local DFO (s).</p>	<ul style="list-style-type: none"> • Tree plantation is carried out around the well sites. 500 saplings are planted on the occasion of 5th June, 2016

<p>xiii. The project authorities should install SCADA system with dedicated optical fiber based telecommunication link for safe operation of pipeline and Leak Detection System. Additional sectionalizing valves in the residential areas and sensitive installations should be provided to prevent the amount of gas going to the atmosphere in the event of pipeline failure. Intelligent pigging facility should be provided for the entire pipeline system for internal corrosion monitoring. Coating and impressed current cathodic protection system should be provided to prevent external corrosion.</p>	<ul style="list-style-type: none"> • Presently the CBM project is under establishment. SCADA system is under trail phase for safe operation.
<p>xiv. The project authorities shall patrol and inspect the pipeline regularly for detection of faults as per OISD guidelines and continuous monitoring of pipeline operation by adopting non-destructive method(s) of testing as envisaged in the EMP. Pearson survey and continuous potential survey should be carried out at regular intervals to ensure the adequacy of cathodic protection system.</p>	<ul style="list-style-type: none"> • Presently the project is under establishment. All measures specified in the EMP will be complied.
<p>xv. Proper infrastructure and sanitation facilities shall be provided for the construction workers during construction. All the construction wastes shall be managed so that there is no impact on the surrounding environment.</p>	<ul style="list-style-type: none"> • Civil work is carried out by local contractors. Construction activities are minimal, as the rig and rig equipment's are mobile. Construction wastes are collected and used for road filling, etc.
<p>xvi. The Company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as need</p>	<ul style="list-style-type: none"> • Oil spill and soil remediation are not applicable for CBM wells as no oil is produced/found during the CBM operations.
<p>xvii. The project proponent shall also comply with the environmental protection measures and safeguards recommended in the EIA /EMP / risk analysis report as well as the recommendations of the public hearing panel.</p>	<ul style="list-style-type: none"> • Environmental protection measures and safeguards recommended in the EIA /EMP / are being complied.

II. GENERAL CONDITIONS

Conditions	Status of Compliance
<p>i. The project authorities must strictly adhere to the stipulations made by the Jharkhand State Pollution Control Board and the State</p>	<ul style="list-style-type: none"> • All requirements of state pollution control board are being complied.

Government.	
<p>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 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.</p>	<ul style="list-style-type: none"> • No further expansion or modification will be done without prior approval of the Ministry of Environment & Forests.
<p>iii. The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous chemicals Rules, 1989 as amended in 2000. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.</p>	<ul style="list-style-type: none"> • Being Complied.
<p>iv. The project authorities must strictly comply with the rules and regulation with regarding to handling and disposal of Hazardous Wastes (Management and Handling) Rules, 1989/ 2003 wherever applicable. Authorization form the State Pollution Control Board must be obtained for collections/treatment/storage/disposal of hazardous wastes.</p>	<ul style="list-style-type: none"> • Authorization for handling and disposal of Hazardous Wastes is obtained from Jharkhand PCB Copy Attached.
<p>v. The overall noise level in around the plant area shall be kept well within the standards providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standard s prescribed under EPA Rules, 1989 viz 75dBA (daytime)and 70 dBA (night time)</p>	<ul style="list-style-type: none"> • Noise levels are within permissible limits. Necessary measures like silencers, enclosures and acoustic hoods are installed to minimize noise levels.
<p>vi. A separate environment management cell equipped with full-fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.</p>	<ul style="list-style-type: none"> • Regional Laboratory, ONGC, Kolkata is catering to the needs of CBM Development Project.
<p>vii. The project authorities will provide adequate funds both recurring and non recurring to implement the conditions stipulated by the</p>	<ul style="list-style-type: none"> • Adequate funds are made available from the planned budget.

<p>ministry of Environment and Forests as well as the state Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.</p>	
<p>viii. The regional office of the ministry at Bhubaneswar/ Central Pollution Control Board/ State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and monitored data along with statistical interpretation shall be submitted to them regularly.</p>	<ul style="list-style-type: none"> • Compliance reports are being sent regularly.
<p>ix. The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the state Pollution Control Board/ committee and may also be seen at advertised within seven days of the issue of this letter in at least two local newspapers that are widely circulated in the region of which on shall be in the vernacular language of the locality concerned.</p>	<ul style="list-style-type: none"> • Local citizens were informed that the project has been accorded environmental clearance by the Ministry, by advertising in one Hindi and in one English daily newspaper.
<p>x. 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 date of commencing the land development work.</p>	<ul style="list-style-type: none"> • The project has the approval of MoPNG. • Total budget for year 2016-17 is 10.00 lakh

MONITORING ACTIVITIES

1. Ambient Air Monitoring: Report is enclosed
2. NOISE MONITORING: Noise levels are regularly checked and are within permissible limits.


 P K Basu, DGM(P)

Head -HSE, CBM-Asset, Bokaro



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 Fax : 2329-9141
 E-mail : envirocheck@cal2.veri.net.in

STACK GAS ANALYSIS REPORT

1.	Name of the Industry	: ONGC
2.	Address	: Parbatpur, Jhoria Jharkhand
3.	Date of sampling	: 21.04.2016
4.	Report No.	: 13/EC/M/TR(A)/VI/16-17
5.	Analysis completed on	: 26.04.2016
6.	Reporting Date	: 30.04.2016

A. GENERAL INFORMATION ABOUT STACK

1.	Stack attached to	: JH # 4 (Rig Engine)
2.	Shape of Stack	: Circular
3.	Material of Construction	: M.S.
4.	Height of Stack from G. L. (mtr.)	: 2.05
5.	Stack I.D. at sampling point (mtr.)	: 0.1525
6.	Height of sampling port from G. L. (mtr.)	: Final Exhaust
7.	Capacity	: 335 HP
8.	Emission due to	: Combustion of H.S.D
(a) Type of Fuel Used		: H.S.D
(b) Fuel Consumption		: 07 liter./hr.

Cal-Value (K-Cal/kg.) - 10800	Ash Content (% by Wt.) - 0.01	Sulphur Content (% by Wt.) - 0.2
9.(a) Permanent ladder & platform	No	(b) Pollution Control Device : Nil

B. RESULTS OF SAMPLING

SL. NO.	PARAMETERS	METHOD NO.	RESULTS
1.	Flue Gas Temperature (°C)	IS : 11255 (Part 1)	: 132.0
2.	Barometric Pressure (mm of Hg.)	--	: 759.0
3.	Velocity of Gas flow (m/s)	IS : 11255 (Part 3)	: 14.41
4.	Quantity of Gas flow (Nm ³ /hr.)	IS : 11255 (Part 3)	: 693.59
5.	Concentration of SO ₂ (mg/Nm ³)	IS 11255 (Part 2)	: 12.50
6.	Concentration of CO ₂ % (v/v)	IS 13270	: 6.8
7.	Concentration of CO % (V/V)	IS 13270	: <1.0
8.	Concentration of Particulate Matter (mg/Nm ³)	IS 11255 (Part - 1) & ASTM D 3685/D 3685M	: 16.50

Remarks : All the information under column A are supplied by the respective industry.
 : During monitoring temporary ladder and platform were provided.

Date : 30.04.2016

Authorised Signatory :

Dr. Ajoy Paul
 (Scientist)

STACK GAS ANALYSIS REPORT

1.	Name of the Industry	: ONGC
2.	Address	: Parbatpur, Jhoria Jharkhand
3.	Date of sampling	: 21.04.2016
4.	Report No.	: 13/EC/M/TR(A)/VII/16-17
5.	Analysis completed on	: 26.04.2016
6.	Reporting Date	: 30.04.2016

A. GENERAL INFORMATION ABOUT STACK

1.	Stack attached to	: JH # 4 (Mud Pump Engine)
2.	Shape of Stack	: Circular
3.	Material of Construction	: M.S.
4.	Height of Stack from G. L. (mtr.)	: 3.36
5.	Stack I.D. at sampling point (mtr.)	: 0.1525
6.	Height of sampling port from G. L. (mtr.)	: Final Exhaust
7.	Capacity	: 335 HP
8.	Emission due to	: Combustion of H.S.D
	(a) Type of Fuel Used	: H.S.D
	(b) Fuel Consumption	: 08 liter./hr.
	Cal-Value (K-Cal/kg.) - 10800	Ash Content (% by Wt.) - 0.01
		Sulphur Content (% by Wt.) - 0.2
9.(a)	Permanent ladder & platform	No
	(b) Pollution Control Device	: Nil

B. RESULTS OF SAMPLING

SL. NO.	PARAMETERS	METHOD NO.	RESULTS
1.	Flue Gas Temperature (°C)	IS : 11255 (Part 1)	: 138.0
2.	Barometric Pressure (mm of Hg.)	--	: 759.0
3.	Velocity of Gas flow (m/s)	IS : 11255 (Part 3)	: 14.51
4.	Quantity of Gas flow (Nm ³ /hr.)	IS : 11255 (Part 3)	: 688.06
5.	Concentration of SO ₂ (mg/Nm ³)	IS 11255 (Part 2)	: 16.50
6.	Concentration of CO ₂ % (v/v)	IS 13270	: 7.2
7.	Concentration of CO % (V/V)	IS 13270	: <1.0
8.	Concentration of Particulate Matter (mg/Nm ³)	IS 11255 (Part - 1) & ASTM D 3685/D 3685M	: 18.50

Remarks : All the information under column A are supplied by the respective industry.
 : During monitoring temporary ladder and platform were provided.

Date : 30.04.2016

Authorised Signatory :

Dr. Ajoy Paul
 (Scientist)

AMBIENT AIR ANALYSIS REPORT

1.	Name of the Industry	: ONGC (Regional Lab)
2.	Address	: Parbatpur, Jhoria Jharkhand
3.	Date of sampling	: 20.04.2016 – 21.04.2016
4.	Report No.	: 13/EC/M/TR(A)/VIII/16-17
5.	Analysis completed on	: 26.04.2016
6.	Reporting Date	: 30.04.2016

A] GENERAL INFORMATION

1.	Location of Sampling	: At JH # 3 (Bokaro)
2.	Duration of Sampling	: 24 hrs. (11:00 a.m. – 11:00 a.m.)

B] METEOROLOGICAL INFORMATION

1.	Average Temperature (°C)	: 46.0
2.	Average Relative Humidity (%)	: 42.0
3.	Barometric Pressure (mm of Hg)	: 759.0
4.	Smell or Odour	: No Remarkable Smell
5.	Weather Condition	: Clear sky

C] RESULTS

SL. NO.	PARAMETERS	METHOD NO.	RESULTS
1.	Concentration of PM _{2.5} (µg/m ³)	USEPA 1997a, 40 CFR Part 50, Appendix L	: 50.10
2.	Concentration of PM ₁₀ (µg/m ³)	IS 5182 (Part 23)	: 90.50
3.	Concentration of SO ₂ (µg/m ³)	IS 5182 (Part 2) & ASTM D 2914-01	: 6.50
4.	Concentration of NO _x (µg/m ³)	IS 5182 (Part 6) & ASTM D 1607-91	: 30.0
5.	Concentration of CO (mg/m ³)	IS 5182 (Part 10) & ASTM D 3162-94	: 0.35
6.	Concentration of Pb (µg/m ³)	IS 5182 (Part 22) & ASTM D 4185-06	: <0.01
7.	Benzo (a) Pyrene (BaP) (ng/m ³)	IS 5182 (Part 12) 2004 & ASTM D 6209-98	: <0.36
8.	Benzene (C ₆ H ₆) (µg/m ³)	IS 5182 (Part 11) 2006 & ASTM D 5466-01	: <0.74
9.	Ozone (O ₃) (µg/m ³)	IS 5182 (Part-IX)	: <10.0
10.	Ammonia (NH ₃) (mg/m ³)	NIOSH Manual of Analytical Method, 4 th Edition 1994, Method 6015	: <0.15
11.	Nickel (Ni) (ng/m ³)	IS 5182 (Part-22) 2004 & ASTM D 4185-06	: <0.02
12.	Arsenic (As) (ng/m ³)	IS 5182 (Part 22) 2004 & ASTM D 4185-06	: <0.01
13.	Methane (µg/m ³)	--	: 650.0
14.	Non-Methane Hydrocarbon (µg/m ³)	--	: <1.60

Date : 30.04.2016

Authorised Signatory :

Dr. Ajoy Paul
(Scientist)

AMBIENT AIR ANALYSIS REPORT

1.	Name of the Industry	: ONGC (Regional Lab)
2.	Address	: Parbatpur, Jhoria Jharkhand
3.	Date of sampling	: 20.04.2016 – 21.04.2016
4.	Report No.	: 13/EC/M/TR(A)/IX/16-17
5.	Analysis completed on	: 26.04.2016
6.	Reporting Date	: 30.04.2016

A] GENERAL INFORMATION

1.	Location of Sampling	: At JH # 2 (Bokaro)
2.	Duration of Sampling	: 24 hrs. (11:20 a.m. – 11:20 a.m.)

B] METEOROLOGICAL INFORMATION

1.	Average Temperature (°C)	: 46.0
2.	Average Relative Humidity (%)	: 42.0
3.	Barometric Pressure (mm of Hg)	: 759.0
4.	Smell or Odour	: No Remarkable Smell
5.	Weather Condition	: Clear sky

C] RESULTS

SL. NO.	PARAMETERS	METHOD NO.	RESULTS
1.	Concentration of PM _{2.5} (µg/m ³)	USEPA 1997a, 40 CFR Part 50, Appendix L	: 53.20
2.	Concentration of PM ₁₀ (µg/m ³)	IS 5182 (Part 23)	: 116.50
3.	Concentration of SO ₂ (µg/m ³)	IS 5182 (Part 2) & ASTM D 2914-01	: 6.50
4.	Concentration of NO _x (µg/m ³)	IS 5182 (Part 6) & ASTM D 1607-91	: 25.0
5.	Concentration of CO (mg/m ³)	IS 5182 (Part 10) & ASTM D 3162-94	: 0.45
6.	Concentration of Pb (µg/m ³)	IS 5182 (Part 22) & ASTM D 4185-06	: <0.01
7.	Benzo (a) Pyrene (BaP) (ng/m ³)	IS 5182 (Part 12) 2004 & ASTM D 6209-98	: <0.36
8.	Benzene (C ₆ H ₆) (µg/m ³)	IS 5182 (Part 11) 2006 & ASTM D 5466-01	: <0.74
9.	Ozone (O ₃) (µg/m ³)	IS 5182 (Part-IX)	: <10.0
10.	Ammonia (NH ₃) (mg/m ³)	NIOSH Manual of Analytical Method, 4 th Edition 1994, Method 6015	: <0.15
11.	Nickel (Ni) (ng/m ³)	IS 5182 (Part-22) 2004 & ASTM D 4185-06	: <0.02
12.	Arsenic (As) (ng/m ³)	IS 5182 (Part 22) 2004 & ASTM D 4185-06	: <0.01
13.	Methane (µg/m ³)	--	: 680.0
14.	Non-Methane Hydrocarbon (µg/m ³)	--	: <1.60

Date : 30.04.2016

Authorised Signatory :

Dr. Ajoy Paul
(Scientist)

AMBIENT AIR ANALYSIS REPORT

1.	Name of the Industry	: ONGC (Regional Lab)
2.	Address	: Parbatpur, Jhoria Jharkhand
3.	Date of sampling	: 21.04.2016 – 22.04.2016
4.	Report No.	: 13/EC/M/TR(A)/X/16-17
5.	Analysis completed on	: 26.04.2016
6.	Reporting Date	: 30.04.2016

A] GENERAL INFORMATION

1.	Location of Sampling	: At JH # 1 (Bokaro)
2.	Duration of Sampling	: 24 hrs. (11:20 a.m. – 11:20 a.m.)

B] METEOROLOGICAL INFORMATION

1.	Average Temperature (°C)	: 46.0
2.	Average Relative Humidity (%)	: 42.0
3.	Barometric Pressure (mm of Hg)	: 759.0
4.	Smell or Odour	: No Remarkable Smell
5.	Weather Condition	: Clear sky

C] RESULTS

SL. NO.	PARAMETERS	METHOD NO.	RESULTS
1.	Concentration of PM _{2.5} (µg/m ³)	USEPA 1997a, 40 CFR Part 50, Appendix L	: 45.10
2.	Concentration of PM ₁₀ (µg/m ³)	IS 5182 (Part 23)	: 92.52
3.	Concentration of SO ₂ (µg/m ³)	IS 5182 (Part 2) & ASTM D 2914-01	: 5.0
4.	Concentration of NO _x (µg/m ³)	IS 5182 (Part 6) & ASTM D 1607-91	: 20.0
5.	Concentration of CO (mg/m ³)	IS 5182 (Part 10) & ASTM D 3162-94	: 0.25
6.	Concentration of Pb (µg/m ³)	IS 5182 (Part 22) & ASTM D 4185-06	: <0.01
7.	Benzo (a) Pyrene (BaP) (ng/m ³)	IS 5182 (Part 12) 2004 & ASTM D 6209-98	: <0.36
8.	Benzene (C ₆ H ₆) (µg/m ³)	IS 5182 (Part 11) 2006 & ASTM D 5466-01	: <0.74
9.	Ozone (O ₃) (µg/m ³)	IS 5182 (Part-IX)	: <10.0
10.	Ammonia (NH ₃) (mg/m ³)	NIOSH Manual of Analytical Method, 4 th Edition 1994, Method 6015	: <0.15
11.	Nickel (Ni) (ng/m ³)	IS 5182 (Part-22) 2004 & ASTM D 4185-06	: <0.02
12.	Arsenic (As) (ng/m ³)	IS 5182 (Part 22) 2004 & ASTM D 4185-06	: <0.01
13.	Methane (µg/m ³)	--	: 720.0
14.	Non-Methane Hydrocarbon (µg/m ³)	--	: <1.60

Date : 30.04.2016

Authorised Signatory :

Dr. Ajoy Paul
(Scientist)

AMBIENT AIR ANALYSIS REPORT

1.	Name of the Industry	: ONGC (Regional Lab)
2.	Address	: Parbatpur, Jhoria Jharkhand
3.	Date of sampling	: 21.04.2016 – 22.04.2016
4.	Report No.	: 13/EC/M/TR(A)/XI/16-17
5.	Analysis completed on	: 26.04.2016
6.	Reporting Date	: 30.04.2016

A] GENERAL INFORMATION

1.	Location of Sampling	: At JH # 4 (Bokaro)
2.	Duration of Sampling	: 24 hrs. (10:10 a.m. – 10:10 a.m.)

B] METEOROLOGICAL INFORMATION

1.	Average Temperature (°C)	: 46.0
2.	Average Relative Humidity (%)	: 42.0
3.	Barometric Pressure (mm of Hg)	: 759.0
4.	Smell or Odour	: No Remarkable Smell
5.	Weather Condition	: Clear sky

C] RESULTS

SL. NO.	PARAMETERS	METHOD NO.	RESULTS
1.	Concentration of PM _{2.5} (µg/m ³)	USEPA 1997a, 40 CFR Part 50, Appendix L	: 48.50
2.	Concentration of PM ₁₀ (µg/m ³)	IS 5182 (Part 23)	: 95.10
3.	Concentration of SO ₂ (µg/m ³)	IS 5182 (Part 2) & ASTM D 2914-01	: 5.0
4.	Concentration of NO _x (µg/m ³)	IS 5182 (Part 6) & ASTM D 1607-91	: 21.50
5.	Concentration of CO (mg/m ³)	IS 5182 (Part 10) & ASTM D 3162-94	: 0.20
6.	Concentration of Pb (µg/m ³)	IS 5182 (Part 22) & ASTM D 4185-06	: <0.01
7.	Benzo (a) Pyrene (BaP) (ng/m ³)	IS 5182 (Part 12) 2004 & ASTM D 6209-98	: <0.36
8.	Benzene (C ₆ H ₆) (µg/m ³)	IS 5182 (Part 11) 2006 & ASTM D 5466-01	: <0.74
9.	Ozone (O ₃) (µg/m ³)	IS 5182 (Part-IX)	: <10.0
10.	Ammonia (NH ₃) (mg/m ³)	NIOSH Manual of Analytical Method, 4 th Edition 1994, Method 6015	: <0.15
11.	Nickel (Ni) (ng/m ³)	IS 5182 (Part-22) 2004 & ASTM D 4185-06	: <0.02
12.	Arsenic (As) (ng/m ³)	IS 5182 (Part 22) 2004 & ASTM D 4185-06	: <0.01
13.	Methane (µg/m ³)	--	: 620.0
14.	Non-Methane Hydrocarbon (µg/m ³)	--	: <1.60

Date : 30.04.2016

Authorised Signatory :

Dr. Ajoy Paul
(Scientist)