



Mangalore SEZ Limited

3rd Floor, MUDA Building, Ashoknagar,

Urwa Stores, Mangalore - 575 006

Phone: 0824-2452748 / 2452750

Fax: 0824-2452749

Website: www.mangaloresez.com

CIN: U45209KA2006PLC038590

28/12/2016


To,
Environmental Officer
KSPCB Mangalore,
Baikampady Industrial area
Mangalore-575011

Dear Sir,

Sub: Submission of Six monthly Compliance Report

With reference to above subject, we hereby submit the six monthly Compliance Report of Mangalore SEZ & OMPL for the months up to November 2016.

Thanks & Regards


Sr. General Manager
Civil & Environment
MSEZL

Received
28/12/2016

Received
28/12/16
RECEIVED OFFICE
Karnataka State Pollution Control Board
Plot No. 10 - B, Baikampady Industrial Area
MANGALORE - 575 011

Encl : Compliance Report
Copy to: MoEF Director, Bangalore



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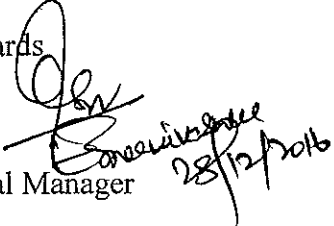
CIN: U45209KA2006PLC038590

	of Pollution) act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification,2006.	
(x)	Under the provisions of Environment (Protection) Act, 1986, legal action shall be initiated against the project proponent if it was found that construction of the project has been started without obtaining environmental clearance.	Noted.

The R&R Package is being implemented strictly as per Approved policy by State Government. In 1st PDF 1224 families out of 1235, In 2nd PDF 218 families out of 218 & In 3rd PDF 139 families out of 145 families has been compensated with R&R Packages. Totally 1599 families have vacated their houses and the process is in progress for the balance.

10 nos. R&R colonies developed - 1366 sites allotted (97.5%) to eligible Project Displaced Families so far. In the process of allotting balance 34 sites. 411 nominees of the displaced people given training at Karnataka Polytechnic (KPT) for diploma equivalent programs in Chemical, Mechanical & Electrical disciplines and 341 nominees have already been employed (83%). 1639 nominees would have been eligible for employment out of which 829 nominees have opted for "one time" compensation in lieu of job and balance 810 nominees opted for the jobs. 579 nos. PDF nominees (71%) have already got employment out of 810 nos. empanelled.

With Regards


Sr. General Manager

Civil & Environment

Mangalore SEZ Ltd.

Copy to: 1) Environmental Officer, Karnataka State Pollution Control Board, Mangalore.



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28 Dec, 2016

MSEZL/MNG/EN/2015-16

To,

**The Director,
Southern Region, Regional Office,
Ministry of Environment and Forests,
Kendriya Sadan, 4th Floor, E&F Wings,
17th Main Road, 1st Block, Koramangala,
Bangalore – 560 034**

Sir,

Sub: Six monthly Compliance Report.

Ref:

1. Environmental Clearance No: 21-383/2007-IA-III, dated 3rd April 2008.
2. Amendment to Environmental Clearance for setting up of Phase-I of Special Economic Zone at Mangalore by M/s Mangalore SEZ Ltd – regarding No: 21-383/2007-IA-III dated 13th July, 2012.
3. Amendment to Environmental Clearance for setting up of Phase-I of Special Economic Zone at Mangalore by M/s Mangalore SEZ Ltd date 27 Aug 2014.
4. Amendment to Environmental Clearance for development of Multi Product Units as Mangalore SEZ dated 18 June 2015

With reference to above, we would like to submit the compliance report as on date.

S. No.	A. SPECIFIC CONDITIONS	Compliance
(i)	No Objection Certificate from the Karnataka State Pollution Control Board shall be obtained before initiating the project.	Consent For Establishment from KSPCB obtained on 30 April 2008 and Extension of validity of Consent For Establishment obtained on 27 May 2013 and the copy was submitted to MoEF.
(ii)	The MSEZ project shall be restricted to the Phase-I of the project, proposed over 1,800 acres. The phase II of the project shall be considered by Ministry of Environment and Forests only after receipt of all requisite documents/information as laid down in the Environmental Impact Assessment Notification, 2006 and Coastal Regulation Zone Notification, 1991 as applicable.	Will be complied. MSEZL will approach MoEF with requisite documents as per EIA Notification, 2006 for Phase-2 expansions.
(iii)	All development in the Coastal Regulation Zone area shall be in accordance with the Coastal Regulation Zone Notification, 1991. No destruction of mangroves shall be undertaken except while undertaking the permissible activities in the Coastal Regulation Zone-I areas.	Will be complied.

1 | Reg. Office: Mangalore SEZ Ltd, Al-Latheef, 1st Floor, No.2, Union Street, Off. Infantry Road, Bangalore -560001

Received
Karnataka State Pollution Control Board
Plot No. 10 B, Balkampady Industrial Area
MANGALORE - 575 011
30/12/16



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S. No.	A. SPECIFIC CONDITIONS	Compliance
(iv)	The project proponent shall not take up any activity in 875 acres of Coastal Regulation Zone land, other than those permissible under the Coastal Regulation Zone Notification 1991 such as pipeline corridors, pipelines roads on stilts.	Will be complied.
(v)	<p>With regard to the containing the suspected contamination of the groundwater near Athurkodi area of Kuthethoor village, MRPL have given an undertaking vide their letter dated 19.3.2008 which is as follows:-</p> <p>a) Implementation of recommendation of NGPRI will be started by MRPL immediately after submission of their report.</p> <p>b) Depending upon the nature of their recommendations, we will make efforts to complete necessary actions within 6 months from the date of receipt of their report.</p> <p>c) In addition to above, a daily vigil is already in place to take samples from different places and to monitor any suspected oil leakage. This will continue till the problem is resolved.</p> <p>d) We are also in continuous contact with the residents in the surround areas with regard to any contamination.</p> <p>KSPCB and MRPL shall ensure that (a) to (d) above is implemented in a time bound manner and a monthly report on the progress of the activities provided to the Regional Office of this Ministry at Bangalore. For this purpose a separate budget would be allocated by MRPL.</p>	<p>This condition pertains to MRPL phase III expansion project.</p> <p>MRPL phase III expansion has been detached from MSEZ phase I project vide EC amendment dated 13th July 2012. MRPL shall be complying conditions relevant to them as part of their existing clearance.</p>
(vi)	The project proponent shall obtain a report from the Wildlife Department with regard to existence of wildlife in the proposed site as claimed by the public before implementing the project.	Report from the Forest Department is obtained and submitted to the MoEF dated June 5, 2008.
(vii)	The R&R package shall be strictly in accordance with the laid down norms of the State Government.	The R&R Package is being implemented strictly as per Approved policy by State Government. In 1 st PDF 1224 families out of 1235, In 2 nd PDF 218 families out of 218 & In 3 rd PDF 139 families out of 145 families has been compensated with R&R Packages. Totally 1599 families have vacated their houses and the process is in progress for the balance.
(viii)	A marine Environment Impact Assessment and Risk Assessment along with the Disaster Management Plan shall be prepared for the outfall facilities proposed in the	NIO has carried out EIA, Risk Assessment, DMP and Bathymetry survey along with Marine Outfall pipeline



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S. No.	A. SPECIFIC CONDITIONS	Compliance
	Coastal Regulation Zone and the marine areas.	alignment. The detailed design report of the Marine Outfall facility is prepared by Master planning consultants of MSEZ under the guidance of Department of Oceanography, IIT Chennai. The design report was also vetted by NIO, Goa. The detailed project report of the facility is submitted to MoEF during November 2009. MSEZ has taken up the implementation of the above facility and completed the work by July 2014. MSEZ obtained consent for operation of treated waste water discharge line from KSPCB dated 8 Oct 2015.
(ix)	Project proponent shall put up a dedicated website and a display panel to inform the public regarding the Ambient Air Quality along with SO ₂ NO _x and other parameters as prescribed as Central Pollution Control Board (CPCB).	MSEZL has dedicated website 'www.msezl.com', wherein Environment Monitoring Parameters are periodically uploaded and made available to the public. Installation of Continuous Ambient Air Quality Monitoring station is under progress and the work will be completed by end of Jan 2016. The locations of monitoring station are finalized in consultation with KSPCB
(x)	The gaseous emissions (SO ₂ , NO _x , HC, VOC and Benzene) from various process units shall conform to the standards prescribed by the concerned State Pollution Control Board. All the measures detailed in the EMP and response to the Public Hearing shall be taken to control the point/stack and fugitive gaseous emissions from the proposed facilities, processes 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.	Noted and will be complied for MSEZ units. MRPL phase III expansion has been detached From MSEZ phase I project vide EC amendment dated 13 th July 2012. MRPL shall be complying conditions relevant to them as part of their existing clearance.
(xi)	The emission levels of the other pollutants shall also remain within the permissible levels	Noted and will be complied.
(xii)	The industrial units in the SEZ and the associated facilities shall be strictly in accordance with the norms laid down by the Karnataka State Government and CPCB.	Will be adhered.
(xiii)	The project proponent shall ensure that the greenery of the area is maintained. Further, 33% of the project area shall be dedicated for green belt development of which at least 5% shall be for mangrove afforestation. The local Forest Department shall be associated for this purpose and	Since inception MSEZL has completed Green Belt development in 207 acres out of 272 acres . In the year 2015-16, 24,750 saplings are planted in 55 acres . Remaining 65 acres will be completed in



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S. No.	A. SPECIFIC CONDITIONS	Compliance
	requisite budget earmarked.	year of 2017-18. Green Belt operation & maintenance is for 2-3 years & plants are maintained as per the good package of practises to ensure 100% survival. Slope stabilisation in about 18 acres with vetiver grass has been completed.
(xiv)	The project proponent shall ensure that the water requirement of the Mangalore city does not get affected due to the SEZ operation. Adequate provision shall be made in the reservoirs to provide for the water requirement of the cities.	Noted.
(xv)	The project proponent shall ensure that during construction and operation of the project the traffic in the city is not affected.	Noted and will be complied.
(xvi)	All precautions of the highest standards shall be incorporated in the design of the project to ensure that there is no chance of emission/leakage of hazardous chemicals including Benzene. Detailed monitoring programme shall be designed and the information provided to the public through display and dedicated website by means of online monitoring.	Noted and will be complied.
(xvii)	Low Sulphur internal fuel oil and fuel gas shall be fired in process heaters and boilers.	Noted and will be complied.
(xviii)	Quarterly monitoring of fugitive emissions shall be carried out by Fugitive Emission Detectors (GMI Leak Surveyor). Guidelines of CPCB will be followed for monitoring fugitive emissions. For control of fugitive emissions, all unsaturated hydrocarbons shall be routed to the flare system. The flare system shall be designed for smokeless burning. Flare Gas Recovery System shall be installed for reduction of Hydrocarbon loss and emission of VOCs, NOx, N ₂ O, SOx & CO ₂ to the environment.	Noted and will be complied.
(xix)	Regular Ambient Air Quality Monitoring shall be carried out. The location and results of existing monitoring stations shall 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 shall be ensured that at least one monitoring station is set up in up-wind & in down-wind direction along with those in other directions.	Ambient Air Quality Monitoring is being carried out regularly in five locations and the locations of monitoring are selected in consultation with KSPCB. The reports of monitored data attached as Annexure-I .
(xx)	On-line data for air emissions shall be transferred to the CPCB and SPCB regularly. The instruments used for	After installation of CAAQM stations the



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S. No.	A. SPECIFIC CONDITIONS	Compliance
	ambient air quality monitoring shall be calibrated regularly. The monitoring protocol shall ensure continuous monitoring of all the parameters.	data will be transferred to CPCB & SPCB regularly. Presently installation work is under progress and will be completed by January 2017.
(xxi)	The practice of acoustic plant design shall be adopted to limit noise exposure for personnel to an 8 hr time weighted average of 90 dB (A).	Noted and will be complied.
(xxii)	All the pumps and other equipment's, where there is a likelihood of HC leakages, shall be provided with appropriate indicators and detectors. Provision for immediate isolation of such equipment, in case of a leakage shall also be made. The company shall adopt Leak Detection And Repair (LDAR) programme for quantification and control of fugitive emissions.	Noted and will be complied.
(xxiii)	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 shall be maintained	Noted and will be complied.
(xxiv)	The company shall ensure that no halogenated organic is sent to the flares. If any of the halogenated organic are present, then 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.	Noted and will be complied.
(xxv)	The new standards/norms that are being proposed by the CPCB for Petrochemical Plants and Refineries 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 standards and process vent standards for top priority chemicals. Regular monitoring will be carried out for VOC and HC and On-line monitors for VOC measurements may be installed.	Noted and will be complied.
(xxvi)	Regular monitoring of relevant parameters for the underground water in the surrounding areas shall be undertaken and the results shall be submitted to the relevant States Pollution Control Board.	Regular monitoring of ground water is being carried in 10 locations & the reports are attached as Annexure-I . The locations are finalized in consultation with KSPCB.
(xxvii)	Solid waste generated as Pretreater and Reformer Catalysts, Sulphur guard absorbent and Alumina Balls shall be disposed off as per the authorization from the State Pollution Control Board.	Noted and will be complied. During operation stage MSEZL will dispose the solid waste as per the directions of State Pollution Control Board.



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S. No.	A. SPECIFIC CONDITIONS	Compliance
(xxviii)	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 lined pit for disposal after treatment. The sludge shall be incinerated in the premises only.	Noted and will be complied.
(xxix)	The company shall strictly follow all the recommendations mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).	Noted and will be complied.
(xxx)	The Company shall 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.	Noted and will be complied.
(xxxii)	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.	Complied and copy is submitted.
(xxxiii)	The Company shall implement all the recommendations made in the Environmental Impact Assessment /EMP report and risk assessment report.	MSEZL has implemented most of the recommendations of EIA/EMP report and still some of the projects of MSEZL as per EIA/EMP recommendations are under way.
(xxxiii)	The company will undertake all relevant measures, as indicated during the Public Hearing for improving the Socio-economic conditions of the surrounding area.	MSEZL is undertaking all relevant measures for improving the Socio-economic condition of the surrounding area as indicated during the Public Hearing.
(xxxiv)	With regard to R&R colony the project proponent shall obtain all requisite clearances as prescribed by the concerned agencies.	The R&R Colonies are developed after obtaining the requisite clearances from the concerned Departments like MoEF, KSPCB, Mangalore Urban Development Authority etc.

S. No	B. GENERAL CONDITIONS	Compliance
(i)	The project authorities shall strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government.	Noted and will be complied.
(ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	MSEZ obtained amendment to EC 1. Dated 13 July 2012 2. 27 Aug 2014, this involves widening of existing public road towards river side adjacent to MSEZ



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S. No	B. GENERAL CONDITIONS	Compliance
		proposed pipeline cum road Corridor in Reach-II area. 3. 18 th June 2015 for development of Multi Product Units as Mangalore SEZ. Copy of amendments is submitted.
(iii)	At no time, the emissions shall be allowed to 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.	Noted and will be complied.
(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 for both surface and ground water.	The treated effluent parameters are measured through online measuring instruments installed at outlet line of Marine outfall pump house for the parameters like pH, DO, COD, TSS, and Conductivity. Further Ground water and surface water monitoring is carried out in the surrounding areas regularly & the reports are attached as Annexure-I . The locations are finalized in consultation with KSPCB.
(v)	Industrial wastewater shall be properly collected and treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 th May 1993 and 31 st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.	Noted and will be complied.
(vi)	The overall noise levels in and around the plant area shall be limited within the prescribed standards (85dBA) 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. 75dBA (day time) and 70dBA (night time).	Noted and will be complied.
(vii)	The project authorities shall 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. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.	Noted and will be complied. MRPL phase III expansion has been detached From MSEZ phase I project vide EC amendment dated 13 th July 2012. MRPL shall be complying conditions relevant to them as part of their existing clearance.



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S. No	B. GENERAL CONDITIONS	Compliance
(viii)	Authorization from the State Pollution Control Board must be obtained for collections/treatment/storage/disposal of hazardous wastes.	Noted and will be complied.
(ix)	The project authorities shall 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 shall not be diverted for any other purposes.	Noted and will be complied.
(x)	The stipulated conditions shall be monitored by the concerned Regional Office of this Ministry /Central Pollution Control Board/State Pollution Control Board. A six monthly compliance report and the monitored data shall be submitted to them regularly. It shall also be displayed on the Website of the Company.	Compliance report is being submitted to MoEF/KSPCB on regular basis for every six months along with Ambient Air Quality monitoring report, Noise monitoring report & Ground water monitoring report. Compliance report is also displayed in the Company website.
(xi)	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at 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.	The same was carried out and the information regarding this was submitted to Ministry and KSPCB.
(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 shall be informed to the Ministry and its Regional Office.	MSEZL has taken up the land development & infrastructure works from April 2011. MSEZL Board has approved the Business Plan for Infrastructure Development during Aug. 2012.
(xiii)	Proper Housekeeping and adequate occupational health programmes shall be taken up. Regular Occupational Health Surveillance Programme 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.	Noted and will be complied.



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S. No	B. GENERAL CONDITIONS	Compliance
(xiv)	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 a Senior Executive.	Sr. General Manager (Environment & Civil) & Environmental Engineer are in place to take care of Environmental issues. Horticulture Sr. Manager is appointed for development and maintenance of Green belt. The laboratory facilities will be set up before the Commission of the units taken up in MSEZ.

S. No	EC Amendment conditions dtd. 13 th July 2012	Compliance
(i)	Only the sector Specific shall be permitted in the SEZ & those units shall obtain separate Environmental Clearance as applicable.	MSEZL obtained amendment to EC for development of Multi Product units as Mangalore SEZ dated 18 th June 2015. Copy of the same is attached as Annexure-II .
(ii)	Proponent shall enhance the allocation for the CSR activities from 2.5 to 5 % of the total cost & item-wise details along with time bound action plan shall be prepared & submitted to the Ministry's Regional office at Bangalore. Implementation of such program shall be ensured accordingly in a time bound manner.	MSEZL has already taken up CSR activities and details of CSR activity is attached as Annexure- III .
(iii)	The green belt shall be 33% all along the periphery & width of the green belt shall be minimum 50 mts.	Noted and will be complied.



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S. No	EC Amendment conditions dtd. 27 th Sep 2014	Compliance
(i)	The project proponent while carrying out the road widening works towards river side should not cause any impact to the river water flow and should be clear of river water way.	Complied.
(ii)	The project proponent to take up the bank protection works like stone pitching etc to avoid soil erosion of the banks.	River bank protection works as directed by WRDO are carried out.
(iii)	The project proponent to take up all adequate measures to mitigate the dust pollution during the road widening works.	Noted and will be complied.
(iv)	The proponent shall not dump any construction wastes etc in the river portion.	Noted and will be complied.

With Regards

Sr. General Manager

Civil & Environment

Mangalore SEZ Ltd.

Encl.:

1. Monitoring reports for Air, Water & Noise Environment.
2. Environmental compliance report & Environmental Monitoring Reports from OMPL.

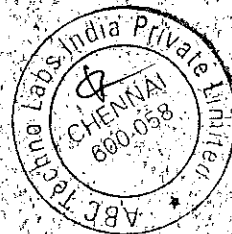
Copy to: Environmental Officer, Karnataka State Pollution Control Board, Mangalore.

ENVIRONMENTAL MONITORING REPORT
SPECIAL ECONOMIC ZONE LIMITED, MANGALORE



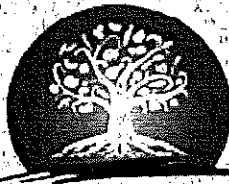
JUNE 2016

Prepared by:



ABC Techno Labs India Private Limited

An ISO : 9001:2008, ISO :14001:2004 & OHSAS : 18001:2007 Certified Company
(Accredited by NABL, NABET, MoEF)



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ENVIRONMENTAL MONITORING REPORT

1.0. Introduction:

Mangalore Special Economic Zone Limited is located 8 km aerially to North East of New Mangalore Port and is adjacent to the existing refinery of MRPL on its West. The Industrial estate of the District, namely Baikampady is located southwest of MSEZ. The Mangalore Airport is about 5 km South East of MSEZ.

1.1. Description of the Organization:

M/s. **ABC Techno Labs India Private Limited, Chennai**, an ISO 9001, ISO 14001 & OHSAS 18001 Certified Company has been accredited by,

- National Accreditation Board for Education and Training (NABET), a division of Quality Council of India (QCI).
- National Accreditation Board for Testing and Calibration Laboratories (NABL), an autonomous body under the Department of Science & Technology, Government of India.
- Recognized under EP Act, 1986 by Ministry of Environment and Forest.

The certificate of authorization is enclosed in the Annexure-I.

We offer the following services,

- Environmental Impact Assessment (EIA) & Environmental Management Plan (EMP) for Infrastructure & Industrial Projects.
- Social Impact Assessment Studies including Rehabilitation & Resettlement
- Environmental Monitoring
- Environmental Audits
- Capacity Building for Environmental Management
- Solid Waste Management
- Effective Management of Resources and Wastes
- Risk Assessment & Management Studies



1.2. Scope of Work:

The scope of the work is to conduct Environmental monitoring at Special Economic Zone, Mangalore, following the guidelines and regulations of MoEF/CPCB standards. The scope of the work for the month of June 2016 is to conduct ambient air quality monitoring at five locations, Ground water quality monitoring at eight locations, Noise level monitoring at two locations. Sampling Locations of each category is given in annexure - II.

2.0. Ambient Air Quality Monitoring Details:

Ambient air quality monitoring (AAQM) was carried out at five locations with due consideration to the meteorological conditions of the Project area. Ambient air quality monitoring was carried out at each location on 24 hourly basis on two consecutive days per month. The details of AAQ monitoring stations are given in **Table 1.1**.

Table - 1.1. Details of Ambient Air Monitoring Locations

STATION CODE	NAME OF THE LOCATIONS	GEOGRAPHICAL LOCATION
AAQ1	120 ML Water Reservoir	N-12°59'13.40" E-74°52'03.00"
AAQ2	MSEZ, Permude	N-12°59'54.00" E-74°52'53.60"
AAQ3	GSS3-10 ML Water Reservoir	N-12°58'57.70" E-74°51'30.10"
AAQ4	CETP Location	N-12°59'51.40" E-74°51'24.70"
AAQ5	Bajpe	N-12°58'32.80" E-74°52'10.40"

2.1.1. Method used for Air Quality Monitoring:

Respirable Dust Sampler and Fine Particulate Samplers were used for collecting Particulate Matter of size less than 10 µm (PM₁₀) and 2.5 µm (PM_{2.5}) respectively. Gaseous Samplers were used for sampling gaseous pollutants such as SO₂, NO_x Ammonia and Ozone (O₃). Organic vapour sampler



was used to sample Hydrocarbon. Gas analyzer was used to estimate Carbon monoxide (CO) level in ambient air.

The Analytical techniques used for ambient air quality monitoring and its minimum detectable limit for each parameter is tabulated in **Table 1.2**.

Table - 1.2. Analytical Techniques Used for Ambient Air Quality Monitoring

S.NO	PARAMETER	TECHNIQUE	MINIMUM DETECTABLE LIMIT
1	Particulate Matter PM ₁₀	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
2	Particulate Matter PM _{2.5}	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
3	Sulphur di Oxide	Modified West & Gaeke Method	5.0 µg/m ³
4	Nitrogen Oxide	Jacob and Hochheiser Method	5.0 µg/m ³
5	Carbon monoxide	Gas Analyser	0.1 ppm
6	Ammonia	Nessler's Method	5 µg/m ³
7	Ozone	KI Absorption and Colorimetric	5 µg/m ³
8	Benzene,	IS 5182: Pt 11: 2006	0.01 µg/m ³
9	Benzo[a]pyrene)	IS 5182: Pt 12: 1991	0.1 ng/m ³
10	Lead,	IS 5182 P 22: 2004	0.1 µg/m ³
11	Arsenic, Nickel	IS 5182 P 22: 2004	1 ng/m ³

2.1.2. Micro-Meteorology:

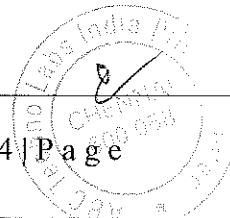
Wind Speed, Predominant Wind Direction, Temperature, Relative Humidity between 01-06-2016 and 30-06-2016 at MSEZ is given in Table 1.3.



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Table-1.3- Micro-Meteorology

DATE	TEMPERATURE (°C)		RELATIVE HUMIDITY (%)		WIND SPEED (Km/hr)		PREDOMINANT WIND DIRECTION
	MIN	MAX	MIN	MAX	MIN	MAX	
01-06-2016	23	32	20	94	5.6	22.2	West Northwest
02-06-2016	23	32	57	100	5.6	16.7	Southeast
03-06-2016	24	31	56	94	5.6	18.5	West Northwest
04-06-2016	24	31	65	100	5.6	18.5	West Northwest
05-06-2016	25	32	63	94	5.6	16.7	South Southeast
06-06-2016	24	31	65	100	5.6	11.1	West
07-06-2016	25	31	65	100	5.6	18.5	South Southeast
08-06-2016	25	27	85	100	5.6	18.5	South Southeast
09-06-2016	24	31	68	100	5.6	18.5	West Northwest
10-06-2016	24	30	69	97	9.3	18.5	North
11-06-2016	23	31	63	100	5.6	22.2	East
12-06-2016	23	31	61	94	5.6	29.6	Northwest
13-06-2016	23	30	73	100	5.6	14.8	Northwest
14-06-2016	23	30	59	100	5.6	20.4	North Northwest
15-06-2016	25	31	58	94	3.7	22.2	West Northwest
16-06-2016	23	29	72	94	5.6	20.4	North Northwest
17-06-2016	23	30	59	100	7.4	22.2	North
18-06-2016	22	28	79	95	5.6	29.6	East Northeast
19-06-2016	23	27	71	100	5.6	27.8	North
20-06-2016	23	27	70	100	5.6	16.7	North
21-06-2016	22	26	89	96	5.6	24.1	North
22-06-2016	23	27	79	100	5.6	22.2	South Southeast
23-06-2016	22	25	89	100	5.6	18.5	North
24-06-2016	21	26	83	100	5.6	14.8	North Northeast
25-06-2016	22	26	83	100	5.6	14.8	East Northeast
26-06-2016	22	28	83	95	5.6	14.8	Southeast
27-06-2016	22	25	91	100	5.6	16.7	Northeast
28-06-2016	23	27	84	100	5.6	24.1	Northwest
29-06-2016	23	25	89	100	5.6	22.2	North Northeast
30-06-2016	23	27	84	95	5.6	22.2	North Northwest





2.1.3. Wind Rose:

The wind roses diagram for the month of **June 2016** at Mangalore SEZ is depicted in Figure 1.1.

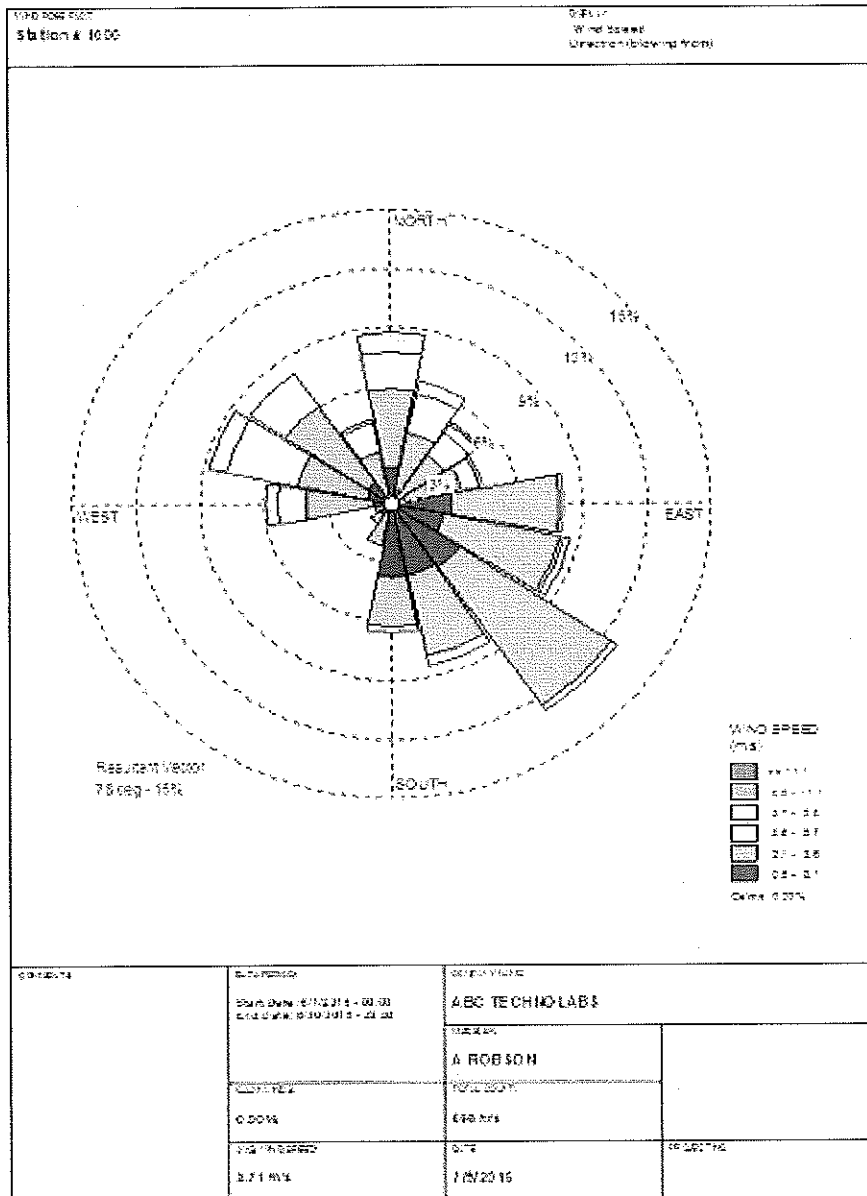
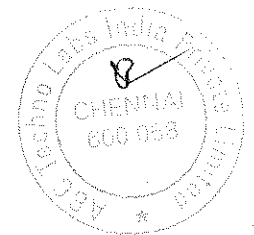
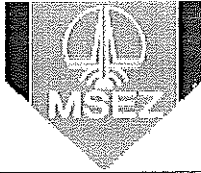


Figure 1.1. Wind Rose Diagram – June 2016





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2.1.4. AMBIENT AIR QUALITY RESULTS:

The 24 hourly average results of Ambient Air Quality Monitoring of two consecutive days for the month of **June 2016** are presented in Table-1.4(a), 1.4 (b), 1.4(c), 1.4(d), 1.4(e) and 1.4(f). The obtained results are compared with the standards prescribed by Central Pollution Control Board (CPCB) for “Industrial, Rural, Residential and other areas”.

Table 1.4 (a)- AMBIENT AIR QUALITY REPORT

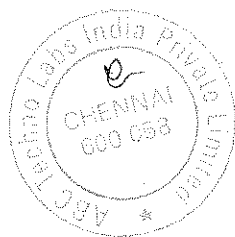
SAMPLE ID NO	ABC/MSEZ/27/AS/280616/A 596-597
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	28-06-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	07-07-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
1	CETP Location	2	19.2	45.5	6.85	13.3	BDL (<0.1)	BDL(<5)	11.2
2	MSEZ-GSS 3	2	21.7	49.2	8.11	14.7	BDL (<0.1)	BDL(<5)	12.3
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

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Table 1.4(b) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/27/AS/280616/A 596-597
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	28-06-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	07-07-2016

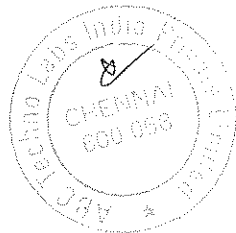
S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
1	CETP Location	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
2	MSEZ-GSS 3	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.15
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

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Table 1.4(c) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/27/AS/280616/A 598
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	28-06-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	07-07-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$							
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃	
3	Baipe	2	17.1	42.2	6.23	11.8	BDL (<0.1)	BDL (<5)	10.1	
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method	
CPCB STANDARDS										
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100	

BDL- Below Detection Limit

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Table 1.4(d) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/27/AS/280616/A 598
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	28-06-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	07-07-2016

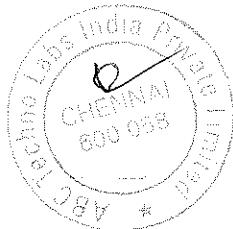
S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
3	Baipe	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

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Table 1.4(e) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/27/AS/280616/A 599-600
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	30-06-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	07-07-2016

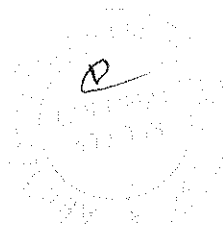
S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
4	120 ML, Water Reservoir	2	18.4	46.9	5.77	13.1	BDL (<0.1)	BDL (<5)	10.7
5	MSEZ, Permude	2	16.8	40.7	5.32	12.4	BDL (<0.1)	BDL (<5)	9.6
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

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Table 1.4(f) - AMBIENT AIR QUALITY REPORT

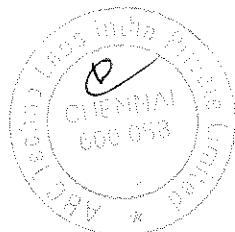
SAMPLE ID NO	ABC/MSEZ/27/AS/280616/A 599-600
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	30-06-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	07-07-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
4	120 ML, Water Reservoir	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.10
5	MSEZ, Permude	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

.....END OF REPORT.....

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3.0. Noise Level Monitoring:

The noise monitoring has been conducted for determination of noise levels at two locations in the project area. The noise levels at each location were recorded for 24 hours for two non-consecutive days for two weeks. The environmental setting of each Noise monitoring locations is given in Table -1.5 and day and night equivalent Noise Levels are tabulated in Table 1.6.

Table 1.5- Details of Noise Monitoring Locations

Station Code	Name of the Station	Geographical Location
N1	CETP location	N-12°59'51.40" E-74°51'24.70"
N2	120 ML water reservoir	N-12°59'13.40" E-74°52'03.00"

Table 1.6 - Ambient Noise Monitoring Results

Station Code	Date of Survey	Location	Leq Day [dB(A)]	Leq Night [dB(A)]
N1	28/06/2016	CETP	48.6	41.6
N2	28/06/2016	120 ML	50.6	42.3
N1	30/06/2016	CETP	49.6	41.7
N2	30/06/2016	120 ML	52.7	42.4
N1	02/07/2016	CETP	48.1	40.9
N2	02/07/2016	120 ML	51.6	43
N1	04/07/2016	CETP	48.8	41.5
N2	04/07/2016	120 ML	51.6	42.1

AMBIENT NOISE STANDARDS

AMBIENT NOISE STANDARDS	Lday [dB(A)]	Lnight [dB(A)]
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Silence Zone	50	40

Note: Day Time is reckoned between 6.0 A.M and 10.0 P.M.

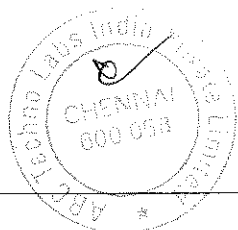
Night time is reckoned between 10.0 P.M to 6.0 A.M.

Leq [dB (A)] - Denotes the time weighted average of the level of sound in decibel on Scale A which is relatable to human hearing.

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4.0. Water Quality Monitoring

Water samples were collected at ten locations to establish baseline water quality in the study area. Water analysis was carried out for physical, chemical parameters as per the methods prescribed in IS and “Standard Methods for the Examination of Water and Wastewater (American Public Health Association)”.

4.1.1. Water Sampling Locations.

The details of the water sampling stations are presented in the Table 1.7

Table 1.7- Water Sampling Locations

Location Code	Date Sampled	Location	Type of water	Geographical Location
W1	30/06/2016	120 ML Water Storage	Ground water	N-12°58'57.70" E-74°51'30.10"
W2	30/06/2016	Stream -Permude	Surface water	N-12°59'51.40" E-74°51'24.70"
W3	30/06/2016	Near OMPL	Ground water	N-12°58'32.70" E-74°52'10.60"
W4	30/06/2016	Permude Bajpe Village Boundary	Ground water	N-12°59'54.00" E-74°52'53.60"
W5	30/06/2016	Road Cum Pipeline Corridor -Kalavar	Ground water	N-12°58'45.10" E-74°51'16.40"
W6	30/06/2016	Oddidakale- Bajpe	Ground water	N-12°58'32.80" E-74°52'10.40"
W7	30/06/2016	Chandrasaha Nagar	Ground water	N-12°58'44.90" E-74°51'16.50"
W8	30/06/2016	Permude	Ground water	N-12°59'12.50" E-74°52'34.30"
W9	30/06/2016	CETP Location	Ground water	N-12°59'51.40" E-74°51'24.70"
W10	30/06/2016	Shyanti Gudda-Bajpe	Ground water	N-12°59'54.00" E-74°52'53.40"

4.1.2. Water Quality Results

The physicochemical characteristics of water in the project area are presented in the Table 1.8(a) and Table 1.8(b) and are compared with the standards (IS 10500:2012) Indian Standards/Specifications for Drinking Water) reference values.



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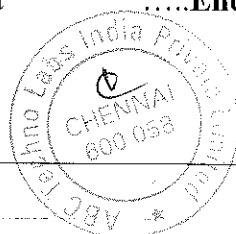
Table 1.8(a) - Ground water Quality Results

Sl. No	PARAMETERS	UNIT	LIMIT AS PER IS 10500 : 2012	W1	W2	W3	W4	W5
1	Colour	Pt-Co	5	1	1	Nil	Nil	Nil
2	Odour	-	Unobjectionable	No Odour Observed	No Odour Observed	No Odour Observed	No Odour Observed	No Odour Observed
3	pH at 25°C	-	6.5-8.5	7.07	6.62	7.74	6.51	6.60
4	Electrical Conductivity,	µS/cm	Not Specified	118	74	117	54	234
5	Turbidity	NTU	1	0.8	4.6	0.8	BDL(<0.5)	0.57
6	Total Dissolved Solids	mg/l	500	64	39	64	28	122
7	Total Hardness as CaCO ₃	mg/l	200	40	20	32	10	88
8	Total Alkalinity as CaCO ₃	mg/l	200	38	12	28	8	68
9	Chloride as Cl	mg/l	250	5	7.8	9	6.8	18
10	Sulphate as SO ₄	mg/l	200	6	4	5	BDL(<1)	14
11	Fluoride as F	mg/l	1	0.1	0.23	0.10	BDL(<0.1)	0.21
12	Nitrate as NO ₃	mg/l	45	1.5	1.1	1.89	4.4	9.07
13	Silica as SiO ₂	mg/l	Not Specified	9.3	8.8	10	6.2	11
14	Copper as Cu	mg/l	0.05	BDL(<0.03)	BDL(<0.03)	BDL(<0.03)	BDL(<0.03)	BDL(<0.03)
15	Zinc as Zn	mg/l	5	BDL(<0.005)	BDL(<0.005)	BDL(<0.005)	BDL(<0.005)	0.14
16	Manganese as Mn	mg/l	0.10	BDL(<0.02)	BDL(<0.02)	BDL(<0.02)	BDL(<0.02)	BDL(<0.02)
17	Sodium as Na	mg/l	Not Specified	7.2	5.7	12	2.8	14.8
18	Potassium as K	mg/l	Not Specified	1.3	2.1	1.6	1	1.9
19	Calcium as Ca	mg/l	75	12	5.6	12	2.4	13.6
20	Magnesium as Mg	mg/l	30	2	1.4	1	1	4.8
21	Iron as Fe	mg/l	0.3	0.14	1.33	0.11	BDL(<0.05)	BDL(<0.05)
22	Lead as Pb	mg/l	0.01	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
23	Mercury as Hg	mg/l	0.001	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
24	Cadmium as Cd	mg/l	0.003	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
25	Arsenic as As	mg/l	0.01	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
26	Chromium as Cr ⁶⁺	mg/l	0.05	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
27	Volatile Organic Compounds	mg/l	Not Specified	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)

BDL-Below Detection Limit

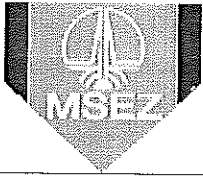
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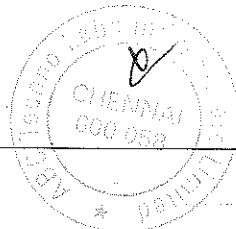
Table 1.8(b) - Ground water Quality Results

Sl. No	PARAMETERS	UNIT	LIMIT AS PER IS 10500 : 2012	W6	W7	W8	W9	W10
1	Colour	Pt-Co	5	Nil	1	1	Nil	Nil
2	Odour	-	Unobjectionable	No Odour Observed	No Odour Observed	No Odour Observed	No Odour Observed	No Odour Observed
3	pH at 25°C	-	6.5-8.5	6.66	7.21	7.50	7.59	6.54
4	Electrical Conductivity,	µS/cm	Not Specified	136	194	218	140	192
5	Turbidity	NTU	1	0.9	0.8	0.5	0.9	0.6
6	Total Dissolved Solids	mg/l	500	69	101	116	75	97
7	Total Hardness as CaCO ₃	mg/l	200	30	64	60	46	64
8	Total Alkalinity as CaCO ₃	mg/l	200	22	68	66	36	74
9	Chloride as Cl	mg/l	250	11.8	6	23	10	8.8
10	Sulphate as SO ₄	mg/l	200	5.6	18	11	4.4	4
11	Fluoride as F	mg/l	1	BDL(<0.1)	0.15	0.34	0.32	0.23
12	Nitrate as NO ₃	mg/l	45	12	1	BDL(<1)	BDL(<1)	BDL(<1)
13	Silica as SiO ₂	mg/l	Not Specified	9	48	61	53.6	34.6
14	Copper as Cu	mg/l	0.05	BDL(<0.05)	BDL(<0.03)	BDL(<0.03)	BDL(<0.03)	BDL(<0.03)
15	Zinc as Zn	mg/l	5	BDL(<0.005)	BDL(<0.005)	BDL(<0.005)	BDL(<0.005)	BDL(<0.005)
16	Manganese as Mn	mg/l	0.10	BDL(<0.05)	BDL(<0.05)	BDL(<0.05)	BDL(<0.05)	BDL(<0.05)
17	Sodium as Na	mg/l	Not Specified	7.1	6.3	18	13	9.6
18	Potassium as K	mg/l	Not Specified	1.8	1.1	3.1	2.7	3.7
19	Calcium as Ca	mg/l	75	10.4	12	11.2	9.6	12
20	Magnesium as Mg	mg/l	30	1	8.2	7.8	5.3	8.2
21	Iron as Fe	mg/l	0.3	0.17	0.14	0.20	0.15	0.21
22	Lead as Pb	mg/l	0.01	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
23	Mercury as Hg	mg/l	0.001	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
24	Cadmium as Cd	mg/l	0.003	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
25	Arsenic as As	mg/l	0.01	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
26	Chromium as Cr ⁶⁺	mg/l	0.05	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
27	Volatile Organic Compounds	mg/l	Not Specified	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)

BDL-Below Detection LimitEnd of Report.....

For ABC Techno Labs India Private Limited.,


 AUTHORIZED SIGNATORY



ENVIRONMENTAL MONITORING REPORT
SPECIAL ECONOMIC ZONE LIMITED, MANGALORE



JULY- 2016

Prepared by:

ABC Techno Labs India Private Limited

An ISO : 9001:2008, ISO :14001:2004 & OHSAS : 18001:2007 Certified Company
(Accrediated by NABL, NABET, MoEF)



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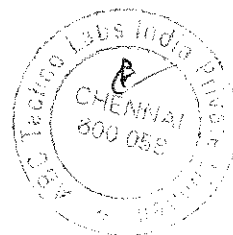
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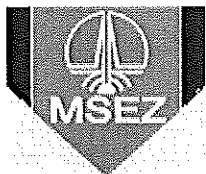
FIGURE

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ANNEXURE

Annexure -I	MoEF Certificate/NABL Certificate
Annexure -II	Sampling Location Map.





ENVIRONMENTAL MONITORING REPORT

1.0. Introduction:

Mangalore Special Economic Zone Limited is located 8 km aeri ally to North East of New Mangalore Port and is adjacent to the existing refinery of MRPL on its West. The Industrial estate of the District, namely Baikampady is located southwest of MSEZ. The Mangalore Airport is about 5 km South East of MSEZ.

1.1. Description of the Organization:

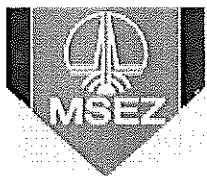
M/s. **ABC Techno Labs India Private Limited, Chennai**, an ISO 9001, ISO 14001 & OHSAS 18001 Certified Company has been accredited by,

- National Accreditation Board for Education and Training (NABET), a division of Quality Council of India (QCI).
- Recognized under EP Act, 1986 by Ministry of Environment and Forest.
- National Accreditation Board for Testing and Calibration Laboratories (NABL), an autonomous body under the Department of Science & Technology, Government of India.

The certificate of authorization is enclosed in the Annexure-I.

We offer the following services,

- Environmental Impact Assessment (EIA) & Environmental Management Plan (EMP) for Infrastructure & Industrial Projects.
- Social Impact Assessment Studies including Rehabilitation & Resettlement
- Environmental Monitoring
- Environmental Audits
- Capacity Building for Environmental Management
- Solid Waste Management
- Effective Management of Resources and Wastes
- Risk Assessment & Management Studies



1.2. Scope of Work:

The scope of the work is to conduct Environmental monitoring at Special Economic Zone, Mangalore, following the guidelines and regulations of MoEF/CPCB standards. The scope of the work for the month of July 2016 is to conduct ambient air quality monitoring at five locations. Sampling Locations are given in annexure - II.

2.0. Ambient Air Quality Monitoring Details:

Ambient air quality monitoring (AAQM) was carried out at five locations with due consideration to the meteorological conditions of the Project area. Ambient air quality monitoring was carried out at each location on 24 hourly basis on two consecutive days per month. The details of AAQ monitoring stations are given in **Table 1.1**.

Table - 1.1. Details of Ambient Air Monitoring Locations

STATION CODE	NAME OF THE LOCATIONS	GEOGRAPHICAL LOCATION
AAQ1	120 ML Water Reservoir	N-12°59'13.40" E-74°52'03.00"
AAQ2	MSEZ, Permude	N-12°59'54.00" E-74°52'53.60"
AAQ3	GSS3-10 ML Water Reservoir	N-12°58'57.70" E-74°51'30.10"
AAQ4	CETP Location	N-12°59'51.40" E-74°51'24.70"
AAQ5	Bajpe	N-12°58'32.80" E-74°52'10.40"

2.1.1. Method used for Air Quality Monitoring:

Respirable Dust Sampler and Fine Particulate Samplers were used for collecting Particulate Matter of size less than 10 μm (PM_{10}) and 2.5 μm ($\text{PM}_{2.5}$) respectively. Gaseous Samplers were used for sampling gaseous pollutants such as SO_2 , NO_x , Ammonia and Ozone (O_3). Organic vapour sampler was used to sample Hydrocarbon. Gas analyzer was used to estimate Carbon monoxide (CO) level in ambient air.



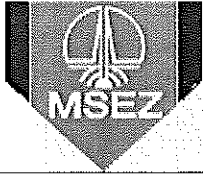
The Analytical techniques used for ambient air quality monitoring and its minimum detectable limit for each parameter is tabulated in Table 1.2.

Table - 1.2. Analytical Techniques Used for Ambient Air Quality Monitoring

2.1.2. Micro-Meteorology :

S.NO	PARAMETER	TECHNIQUE	MINIMUM DETECTABLE LIMIT
1	Particulate Matter PM ₁₀	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
2	Particulate Matter PM _{2.5}	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
3	Sulphur di Oxide	Modified West & Gaeke Method	5.0 µg/m ³
4	Nitrogen Oxide	Jacob and Hochheiser Method	5.0 µg/m ³
5	Carbon monoxide	Gas Analyser	0.1 ppm
6	Ammonia	Nessler's Method	5 µg/m ³
7	Ozone	KI Absorption and Colorimetric	5 µg/m ³
8	Benzene,	IS 5182: Pt 11: 2006	0.01 µg/m ³
9	Benzo[a]pyrene	IS 5182: Pt 12: 1991	0.1 ng/m ³
10	Lead,	IS 5182 P 22: 2004	0.1 µg/m ³
11	Arsenic, Nickel	IS 5182 P 22: 2004	1 ng/m ³

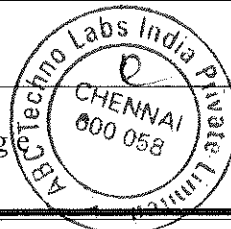
Wind Speed, Predominant Wind Direction, Temperature, Relative Humidity between 01-07-2016 and 31-07-2016 at MSEZ is given in Table 1.3.



Environmental Monitoring Report – Mangalore Special Economic Zone Limited, Mangalore.

Table-1.3- Micro-Meteorology

DATE	TEMPERATURE (°C)		RELATIVE HUMIDITY (%)		WIND SPEED (Km/hr)		PREDOMINANT WIND DIRECTION
	MIN	MAX	MIN	MAX	MIN	MAX	
01-07-2016	23	29	79	96	5.6	22.4	South Southwest
02-07-2016	24	30	68	94	5.6	27.8	Southwest
03-07-2016	22	29	79	100	5.6	18.5	West Southwest
04-07-2016	23	26	92	100	5.6	27.8	Southwest
05-07-2016	23	27	86	100	5.6	16.7	South Southwest
06-07-2016	23	27	86	100	5.6	14.8	South
07-07-2016	23	27	86	100	5.6	27.8	South
08-07-2016	23	27	79	94	5.6	22.2	West
09-07-2016	22	28	82	100	5.6	27.8	Southwest
10-07-2016	22	28	81	100	5.6	22.2	West
11-07-2016	23	28	84	100	3.7	22.2	West Southwest
12-07-2016	23	28	74	100	5.6	18.5	West Southwest
13-07-2016	23	28	80	100	5.6	18.5	West Southwest
14-07-2016	23	29	68	100	5.6	18.5	West Northwest
15-07-2016	23	30	68	100	5.6	18.5	West
16-07-2016	23	29	66	94	5.6	13	Northeast
17-07-2016	23	29	66	94	5.6	13	Northeast
18-07-2016	23	28	73	94	7.4	18.5	West Northwest
19-07-2016	22	30	68	94	5.6	14.8	Northeast
20-07-2016	22	30	83	94	5.6	22.2	North Northeast
21-07-2016	24	26	83	94	3.7	25.9	West
22-07-2016	22	28	74	100	5.6	27.8	Northeast
23-07-2016	22	26	83	100	3.7	11.1	North Northeast
24-07-2016	23	27	78	100	7.4	14.8	West Southwest
25-07-2016	22	28	73	95	5.6	14.8	West
26-07-2016	23	29	71	94	5.6	14.8	West
27-07-2016	23	28	78	94	5.6	20.4	Northwest
28-07-2016	23	30	73	94	5.6	18.9	West Northwest
29-07-2016	23	27	74	100	7.4	18.5	West Northwest
30-07-2016	22	28	73	100	5.6	11.1	West Northwest
31-07-2016	23	28	79	94	5.6	18.5	West Southwest





2.1.3. Wind Rose:

The wind roses diagram for the month of **July 2016** at Mangalore SEZ is depicted in Figure 1.1.

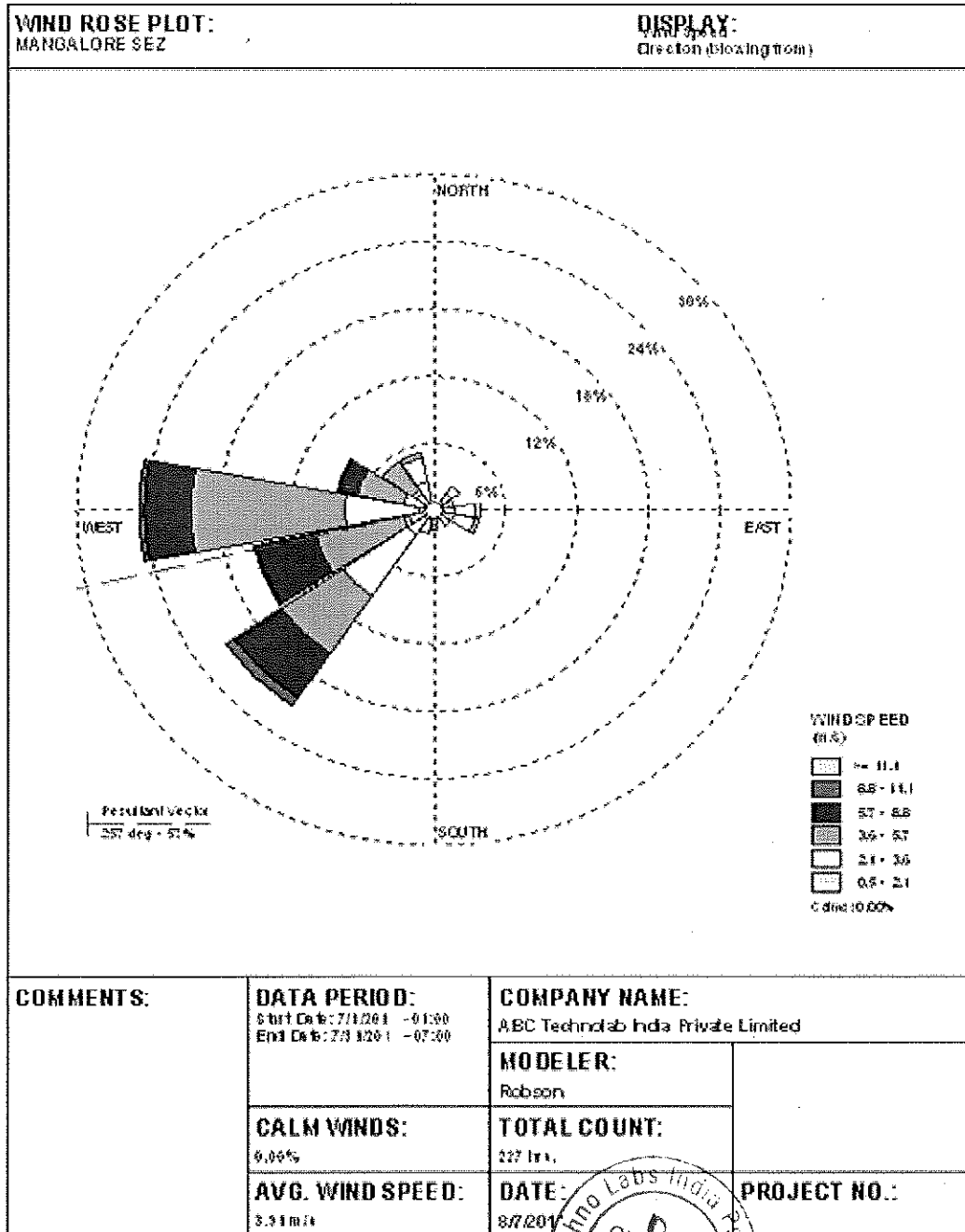
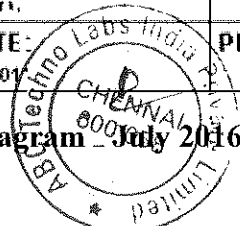


Figure 1.1. Wind Rose Diagram - July 2016





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2.1.4. AMBIENT AIR QUALITY RESULTS:

The 24 hourly average results of Ambient Air Quality Monitoring of two consecutive days for the month of **July 2016** are presented in Table-1.4(a), 1.4 (b), 1.4(c), 1.4(d), 1.4(e) and 1.4(f). The obtained results are compared with the standards prescribed by Central Pollution Control Board (CPCB) for "Industrial, Rural, Residential and other areas".

Table 1.4 (a)- AMBIENT AIR QUALITY REPORT

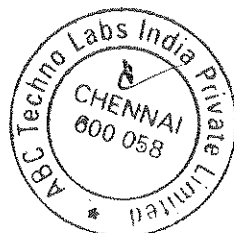
SAMPLE ID NO	ABC/MSEZ/28/AS/270716/A 858-859
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	27-07-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	12-08-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
1	CETP Location	2	16.1	41.4	8.02	12.1	BDL (<0.1)	BDL (<5)	9.1
2	MSEZ-GSS 3	2	18.8	48.7	9.1	15.2	BDL (<0.1)	BDL (<5)	10.3
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

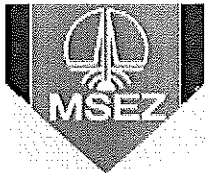
Contd.....

For ABC Techno Labs India Private Limited,



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Table 1.4(b) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/28/AS/270716/A 858-859
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	27-07-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	12-08-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
1	CETP Location	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
2	MSEZ-GSS 3	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.11
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

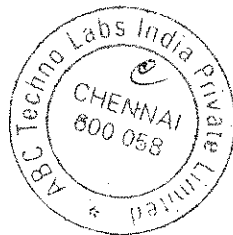
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Table 1.4(c) - AMBIENT AIR QUALITY REPORT


SAMPLE ID NO	ABC/MSEZ/28/AS/270716/A 860
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	27-07-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	12-08-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
3	Baipe	2	15.7	36.8	5.1	11.6	BDL (<0.1)	BDL(<5)	9.2
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

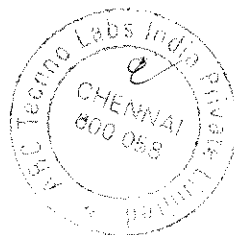
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Table 1.4(d) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/28/AS/270716/A 860
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	27-07-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	12-08-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
3	Baipe	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

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Table 1.4(e) - AMBIENT AIR QUALITY REPORT

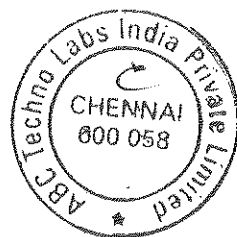
SAMPLE ID NO	ABC/MSEZ/28/AS/290716/A 861-862
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	29-07-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	12-08-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
4	120 ML, Water Reservoir	2	17.1	46.2	6.9	12.7	BDL (<0.1)	BDL (<5)	9.4
5	MSEZ, Permude	2	14.8	35.7	BDL (<5)	9.3	BDL (<0.1)	BDL (<5)	8.7
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

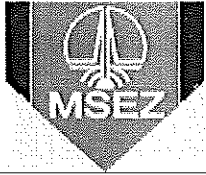
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Table 1.4(f) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/28/AS/290716/A 861-862
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	29-07-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	12-08-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
4	120 ML, Water Reservoir	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.10
5	MSEZ, Permude	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

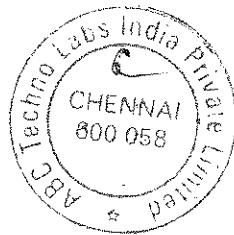
BDL- Below Detection Limit

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ENVIRONMENTAL MONITORING REPORT
SPECIAL ECONOMIC ZONE LIMITED, MANGALORE



August-2016

Prepared by:

ABC Techno Labs India Private Limited

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2.1.4	AMBIENT AIR QUALITY RESULTS	6

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1.2	TECHNIQUES USED FOR AMBIENT AIR QUALITY MONITORING	3
1.3	MICRO-METEOROLOGY	4
1.4(a)-1.4 (f)	AMBIENT AIR QUALITY RESULTS	6-11

FIGURE

S.No.	TITLE	PAGE NO.
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ANNEXURE

Annexure -I	MoEF Certificate/NABL Certificate
Annexure -II	Sampling Location Map.



ENVIRONMENTAL MONITORING REPORT

1.0. Introduction:

Mangalore Special Economic Zone Limited is located 8 km aerially to North East of New Mangalore Port and is adjacent to the existing refinery of MRPL on its West. The Industrial estate of the District, namely Baikampady is located southwest of MSEZ. The Mangalore Airport is about 5 km South East of MSEZ.

1.1. Description of the Organization:

M/s. **ABC Techno Labs India Private Limited, Chennai**, an ISO 9001, ISO 14001 & OHSAS 18001 Certified Company has been accredited by,

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1.2. Scope of Work:

The scope of the work is to conduct Environmental monitoring at Special Economic Zone, Mangalore, following the guidelines and regulations of MoEF/CPCB standards. The scope of the work for the month of August 2016 is to conduct ambient air quality monitoring at five locations. Sampling Locations are given in annexure - II.

2.0. Ambient Air Quality Monitoring Details:

Ambient air quality monitoring (AAQM) was carried out at five locations with due consideration to the meteorological conditions of the Project area. Ambient air quality monitoring was carried out at each location on 24 hourly basis on two consecutive days per month. The details of AAQ monitoring stations are given in **Table 1.1**.

Table - 1.1. Details of Ambient Air Monitoring Locations

STATION CODE	NAME OF THE LOCATIONS	GEOGRAPHICAL LOCATION
AAQ1	120 ML Water Reservoir	N-12°59'13.40" E-74°52'03.00"
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AAQ3	GSS3-10 ML Water Reservoir	N-12°58'57.70" E-74°51'30.10"
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Respirable Dust Sampler and Fine Particulate Samplers were used for collecting Particulate Matter of size less than 10 µm (PM₁₀) and 2.5 µm (PM_{2.5}) respectively. Gaseous Samplers were used for sampling gaseous pollutants such as SO₂, NO_x Ammonia and Ozone (O₃). Organic vapour sampler was used to sample Hydrocarbon. Gas analyzer was used to estimate Carbon monoxide (CO) level in ambient air.



The Analytical techniques used for ambient air quality monitoring and its minimum detectable limit for each parameter is tabulated in Table 1.2.

Table - 1.2. Analytical Techniques Used for Ambient Air Quality Monitoring

2.1.2. Micro-Meteorology :

S.NO	PARAMETER	TECHNIQUE	MINIMUM DETECTABLE LIMIT
1	Particulate Matter PM ₁₀	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
2	Particulate Matter PM _{2.5}	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
3	Sulphur di Oxide	Modified West & Gaeke Method	5.0 µg/m ³
4	Nitrogen Oxide	Jacob and Hochheiser Method	5.0 µg/m ³
5	Carbon monoxide	Gas Analyser	0.1 ppm
6	Ammonia	Nessler's Method	5 µg/m ³
7	Ozone	KI Absorption and Colorimetric	5 µg/m ³
8	Benzene,	IS 5182: Pt 11: 2006	0.1 µg/m ³
9	Benzo[a]pyrene	IS 5182: Pt 12: 1991	0.1 ng/m ³
10	Lead,	IS 5182 P 22: 2004	0.1 µg/m ³
11	Arsenic, Nickel	IS 5182 P 22: 2004	1 ng/m ³

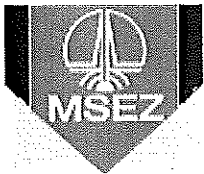
Wind Speed, Predominant Wind Direction, Temperature, Relative Humidity between 01-08-2016 and 31-08-2016 at MSEZ is given in Table 1.3.



Environmental Monitoring Report - Mangalore Special Economic Zone Limited, Mangalore.

Table-1.3- Micro-Meteorology

DATE	TEMPERATURE (°C)		RELATIVE HUMIDITY (%)		WIND SPEED (Km/hr)		PREDOMINANT WIND DIRECTION
	MIN	MAX	MIN	MAX	MIN	MAX	
01-08-2016	24	28	79	100	3.7	22.2	West
02-08-2016	23	29	67	89	5.6	27.8	West Southwest
03-08-2016	23	29	74	94	5.6	27.8	West Southwest
04-08-2016	23	28	74	100	5.6	22.2	West Southwest
05-08-2016	22	29	68	94	5.6	25.9	West
06-08-2016	25	29	69	94	5.6	22.2	West
07-08-2016	23	29	74	94	5.6	22.2	West
08-08-2016	22	29	74	95	7.4	22.2	West
09-08-2016	24	29	65	94	5.6	22.2	West
10-08-2016	23	29	62	94	5.6	22.2	West
11-08-2016	23	29	77	94	5.6	18.5	West Northwest
12-08-2016	22	28	74	100	5.6	22.2	West & West Northwest
13-08-2016	24	29	70	95	5.6	22.2	West
14-08-2016	24	29	75	89	5.6	25.9	West Northwest
15-08-2016	24	29	73	94	3.7	25.9	West Northwest
16-08-2016	24	29	74	100	7.4	25.9	West Northwest
17-08-2016	24	28	73	94	5.6	18.5	West Northwest
18-08-2016	23	27	79	94	5.6	16.7	North
19-08-2016	22	29	74	96	3.7	38.9	West Northwest
20-08-2016	24	30	67	100	5.6	18.5	West
21-08-2016	23	29	71	94	5.6	16.7	West Northwest
22-08-2016	23	29	71	94	5.6	16.7	West Northwest
23-08-2016	24	29	65	94	5.6	18.5	West
24-08-2016	23	30	69	100	5.6	18.5	West
25-08-2016	23	28	78	100	5.6	14.8	North
26-08-2016	23	28	73	94	5.6	18.5	West
27-08-2016	23	29	77	95	5.6	20.4	West Northwest
28-08-2016	23	27	81	94	5.6	11.1	Southeast
29-08-2016	23	27	79	95	5.6	18.5	Northwest
30-08-2016	23	26	86	100	5.6	18.5	North Northeast
31-08-2016	23	27	75	100	3.7	13	South Southeast



2.1.3. Wind Rose:

The wind roses diagram for the month of **August 2016** at Mangalore SEZ is depicted in Figure 1.1.

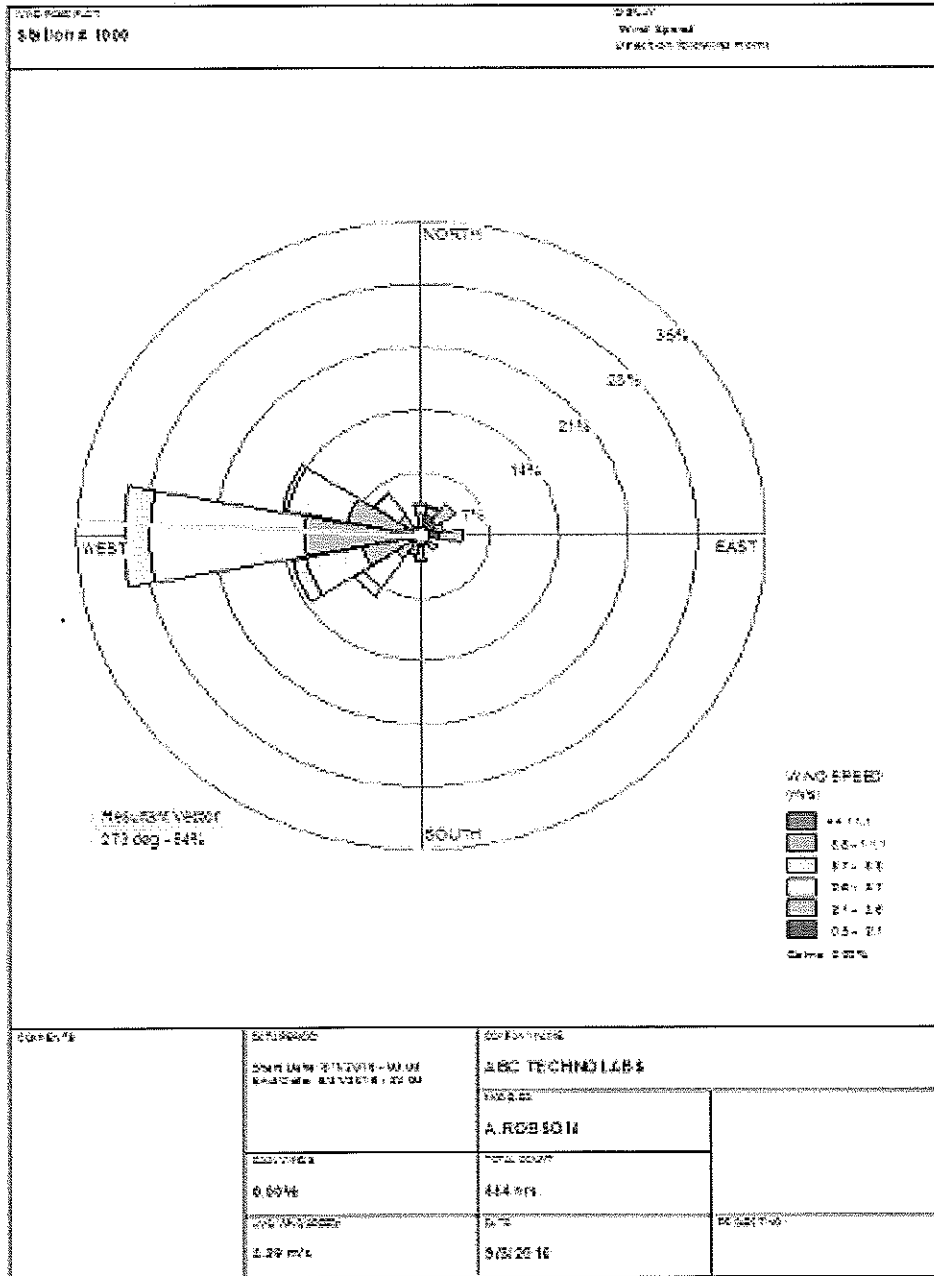
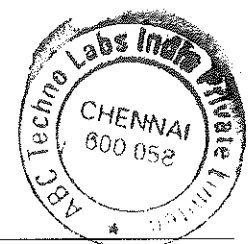
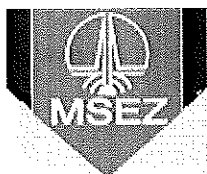


Figure 1.1. Wind Rose Diagram – August 2016





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2.1.4. AMBIENT AIR QUALITY RESULTS:

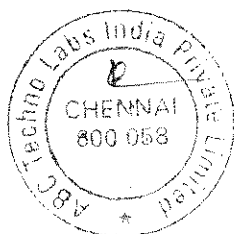
The 24 hourly average results of Ambient Air Quality Monitoring of two consecutive days for the month of **August 2016** are presented in Table-1.4(a), 1.4 (b), 1.4(c), 1.4(d), 1.4(e) and 1.4(f). The obtained results are compared with the standards prescribed by Central Pollution Control Board (CPCB) for "Industrial, Rural, Residential and other areas".

Table 1.4 (a)- AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/29/AS/240816/A 1001-1002
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	24-08-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	06-09-2016

S.No	Location	Height GL(m)	Pollutant Concentration in µg/m ³						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
1	CETP Location	2	18.5	45.1	7.93	13.1	BDL (<0.1)	BDL (<5)	10.6
2	MSEZ-GSS 3	2	20.6	47.9	8.71	14.7	BDL (<0.1)	BDL (<5)	11
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit



Contd.....

For ABC Techno Labs India Private Limited.,

[Signature]
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06/09/16

QUALITY MANAGER



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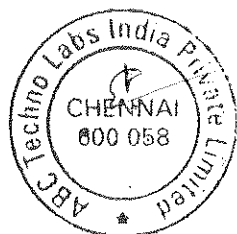
Table 1.4(b) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/29/AS/240816/A 1001-1002
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	24-08-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	06-09-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
1	CETP Location	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
2	MSEZ-GSS 3	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.10
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

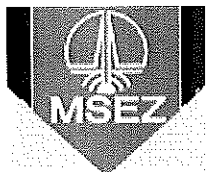
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Environmental Monitoring Report - Mangalore Special Economic Zone Limited, Mangalore.

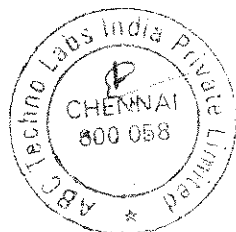
Table 1.4(c) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/29/AS/240816/A 1001-1002
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	24-08-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	06-09-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NOx	Pb	NH ₃	O ₃
3	Baipe	2	16.2	41.2	5.4	10.2	BDL (<0.1)	BDL(<5)	8.7
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

Contd.....



For ABC Techno Labs India Private Limited.,

J. J. [Signature]
 AUTHORIZED SIGNATORY 06/09/16

QUALITY MANAGER



Environmental Monitoring Report - Mangalore Special Economic Zone Limited, Mangalore.

Table 1.4(d) - AMBIENT AIR QUALITY REPORT

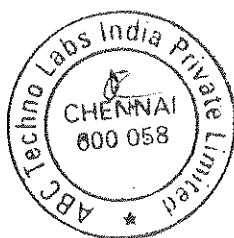
SAMPLE ID NO	ABC/MSEZ/29/AS/240816/A 1003
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	24-08-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	06-09-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
3	Baipe	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

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Environmental Monitoring Report – Mangalore Special Economic Zone Limited, Mangalore.

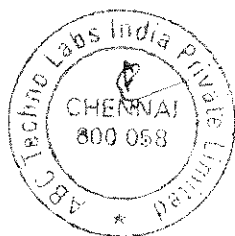
Table 1.4(e) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/29/AS/260816/A 1004-1005
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	26-08-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	06-09-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
4	120 ML, Water Reservoir	2	19	43.6	7.4	13.3	BDL (<0.1)	BDL (<5)	10.5
5	MSEZ, Permude	2	14	36.7	BDL (<5)	8.8	BDL (<0.1)	BDL (<5)	8.1
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

Contd.....



For ABC Techno Labs India Private Limited.,

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Environmental Monitoring Report - Mangalore Special Economic Zone Limited, Mangalore.

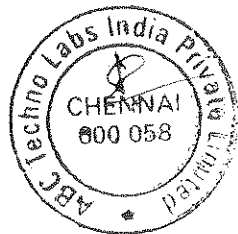
Table 1.4(f) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/29/AS/260816/A 1004-1005
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	26-08-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	06-09-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
4	120 ML, Water Reservoir	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.10
5	MSEZ, Permude	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

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.....END OF REPORT.....



For ABC Techno Labs India Private Limited.,

[Signature]
AUTHORIZED SIGNATORY 06/09/16

QUALITY MANAGER

ENVIRONMENTAL MONITORING REPORT
SPECIAL ECONOMIC ZONE LIMITED, MANGALORE



September- 2016

Prepared by:

ABC Techno Labs India Private Limited

An ISO : 9001:2008, ISO :14001:2004 & OHSAS : 18001:2007 Certified Company
(Accredited by NABL, NABET, MoEF)

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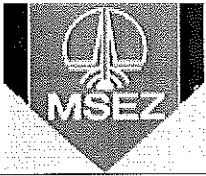
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FIGURE

S.No.	TITLE	PAGE NO.
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ANNEXURE

Annexure -I	MoEF Certificate/NABL Certificate
Annexure -II	Sampling Location Map.



ENVIRONMENTAL MONITORING REPORT

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AAQ2	MSEZ, Permude	N-12°59'54.00" E-74°52'53.60"
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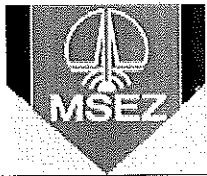
The Analytical techniques used for ambient air quality monitoring and its minimum detectable limit for each parameter is tabulated in Table 1.2.

Table - 1.2. Analytical Techniques Used for Ambient Air Quality Monitoring

2.1.2. Micro-Meteorology :

S.NO	PARAMETER	TECHNIQUE	MINIMUM DETECTABLE LIMIT
1	Particulate Matter PM ₁₀	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
2	Particulate Matter PM _{2.5}	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
3	Sulphur di Oxide	Modified West & Gaeke Method	5.0 µg/m ³
4	Nitrogen Oxide	Jacob and Hochheiser Method	5.0 µg/m ³
5	Carbon monoxide	Gas Analyser	0.1 ppm
6	Ammonia	Nessler's Method	5 µg/m ³
7	Ozone	KI Absorption and Colorimetric	5 µg/m ³
8	Benzene,	IS 5182: Pt 11: 2006	0.1 µg/m ³
9	Benzo[a]pyrene	IS 5182: Pt 12: 1991	0.1 ng/m ³
10	Lead,	IS 5182 P 22: 2004	0.1 µg/m ³
11	Arsenic, Nickel	IS 5182 P 22: 2004	1 ng/m ³

Wind Speed, Predominant Wind Direction, Temperature, Relative Humidity between 01-09-2016 and 30-09-2016 at MSEZ is given in Table 1.3.



Environmental Monitoring Report - Mangalore Special Economic Zone Limited, Mangalore.

Table-1.3- Micro-Meteorology

DATE	TEMPERATURE (°C)		RELATIVE HUMIDITY (%)		WIND SPEED (Km/hr)		PREDOMINANT WIND DIRECTION
	MIN	MAX	MIN	MAX	MIN	MAX	
01-09-2016	21	29	67	100	5.6	14.8	West
02-09-2016	22	26	66	100	5.6	14.8	West
03-09-2016	22	29	67	94	5.6	18.5	Northwest
04-09-2016	23	29	66	97	5.6	14.8	North Northwest
05-09-2016	22	29	71	100	5.6	22.2	Northwest
06-09-2016	22	28	75	94	5.6	22.2	Northwest
07-09-2016	24	28	71	94	5.6	14.8	Northwest
08-09-2016	21	28	72	94	5.6	16.7	Northwest
09-09-2016	22	29	65	94	5.6	20.4	North Northeast
10-09-2016	24	30	57	94	5.6	18.5	North Northeast & Northeast
11-09-2016	23	30	62	89	3.7	5.6	North
12-09-2016	23	30	60	94	5.6	20.4	North
13-09-2016	23	29	70	100	5.6	18.5	North
14-09-2016	20	29	77	95	5.6	22.2	North
15-09-2016	25	29	76	94	5.6	29.6	North
16-09-2016	23	29	72	96	3.7	16.7	Northwest
17-09-2016	23	29	70	94	5.6	18.5	North Northwest
18-09-2016	23	29	67	94	5.6	22.2	Northwest
19-09-2016	22	29	72	94	5.6	18.5	North
20-09-2016	24	29	69	94	7.4	27.8	North
21-09-2016	23	28	74	97	5.6	18.5	North Northeast
22-09-2016	22	28	79	97	5.6	18.5	Northeast
23-09-2016	23	28	72	94	5.6	18.5	North
24-09-2016	22	28	75	100	5.6	22.2	Northeast
25-09-2016	22	28	67	100	7.4	20.4	North
26-09-2016	23	29	70	94	7.4	22.2	North
27-09-2016	24	29	74	94	5.6	22.2	Northeast
28-09-2016	24	29	74	94	5.6	20.4	North Northwest
29-09-2016	23	28	71	94	7.4	24.1	North Northwest
30-09-2016	24	30	65	94	5.6	22.2	West Northwest



2.1.3. Wind Rose:

The wind roses diagram for the month of **September 2016** at Mangalore SEZ is depicted in Figure 1.1.

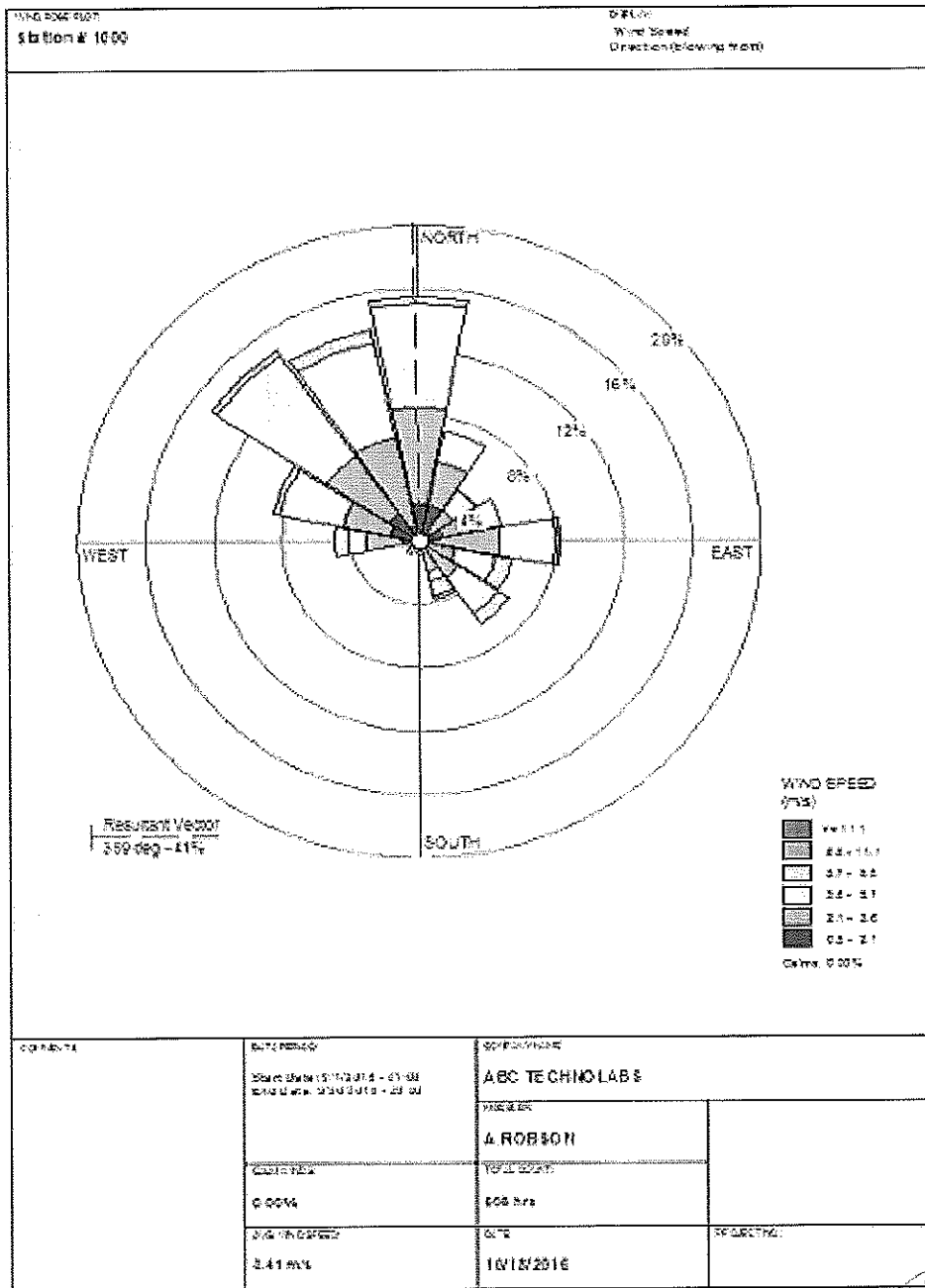
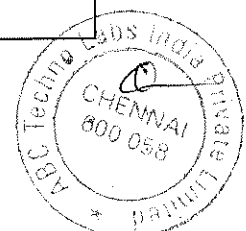
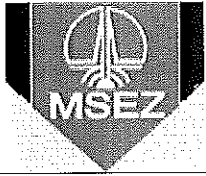


Figure 1.1. Wind Rose Diagram - September 2016





Environmental Monitoring Report – Mangalore Special Economic Zone Limited, Mangalore.

2.1.4. AMBIENT AIR QUALITY RESULTS:

The 24 hourly average results of Ambient Air Quality Monitoring of two consecutive days for the month of **September 2016** are presented in Table-1.4(a), 1.4 (b), 1.4(c), 1.4(d), 1.4(e) and 1.4(f). The obtained results are compared with the standards prescribed by Central Pollution Control Board (CPCB) for “Industrial, Rural, Residential and other areas”.

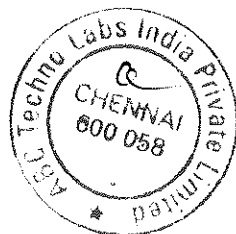
Table 1.4 (a)- AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/30/AS/280916/A 1200-1201
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	28-09-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	08-10-2016

S.No	Location	Height GL(m)	Pollutant Concentration in µg/m ³						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
1	CETP Location	2	22.2	51.8	8.05	14.2	BDL (<0.1)	BDL (<5)	12.1
2	MSEZ-GSS 3	2	24.1	56.4	9.11	17.5	BDL (<0.1)	BDL (<5)	13.6
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

Contd.....



For ABC Techno Labs India Private Limited.,

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AUTHORIZED SIGNATORY

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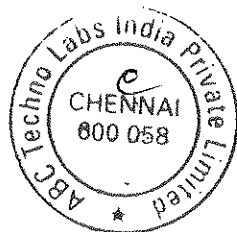
Table 1.4(b) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/30/AS/280916/A 1200-1201
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	28-09-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	08-10-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
1	CETP Location	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
2	MSEZ-GSS 3	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.14
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

Contd.....



For ABC Techno Labs India Private Limited.,

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Table 1.4(c) - AMBIENT AIR QUALITY REPORT

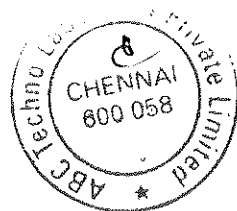
SAMPLE ID NO	ABC/MSEZ/30/AS/280916/A 1202
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	28-09-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	08-10-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
3	Baipe	2	19.7	45.3	5.68	11.8	BDL (<0.1)	BDL(<5)	11.4
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

Contd.....

For ABC Techno Labs India Private Limited.,



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Table 1.4(d) - AMBIENT AIR QUALITY REPORT

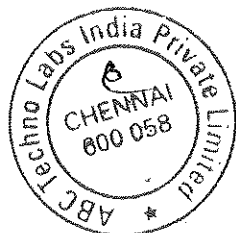
SAMPLE ID NO	ABC/MSEZ/30/AS/280916/A 1202
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	28-09-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	08-10-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
3	Baipe	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

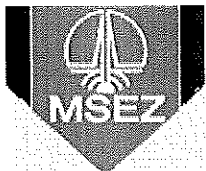
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For ABC Techno Labs India Private Limited,



[Signature]
AUTHORIZED SIGNATORY

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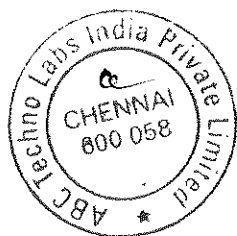
Table 1.4(e) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/30/AS/300916/A 1203-1204
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	30-09-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	08-10-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
4	120 ML, Water Reservoir	2	22.4	49.8	7.64	15.8	BDL (<0.1)	BDL (<5)	13.1
5	MSEZ, Permude	2	18.8	42.8	BDL (<5)	10.7	BDL (<0.1)	BDL (<5)	10.8
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

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For ABC Techno Labs India Private Limited.,

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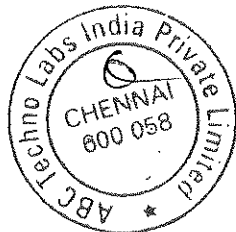
Table 1.4(f) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/30/AS/300916/A 1203-1204
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	30-09-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	08-10-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
4	120 ML, Water Reservoir	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.10
5	MSEZ, Permude	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

.....END OF REPORT.....



For ABC Techno Labs India Private Limited.,

J. Jimmy Chinn
AUTHORIZED SIGNATORY

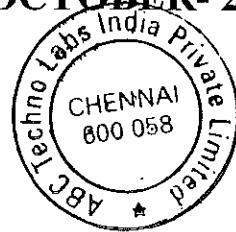
QUALITY MANAGER

ENVIRONMENTAL MONITORING REPORT
SPECIAL ECONOMIC ZONE LIMITED, MANGALORE



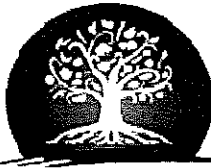
OCTOBER- 2016

Prepared by:



ABC Techno Labs India Private Limited

An ISO : 9001:2008, ISO :14001:2004 & OHSAS : 18001:2007 Certified Company
(Accrediated by NABL, NABET, MoEF)



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FIGURE

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ANNEXURE

Anneure -I	MoEF Certificate
Anneure -II	Sampling Location Map.



ENVIRONMENTAL MONITORING REPORT

1.0. Introduction:

Mangalore Special Economic Zone Limited is located 8 km aerially to North East of New Mangalore Port and is adjacent to the existing refinery of MRPL on its West. The Industrial estate of the District, namely Baikampady is located southwest of MSEZ. The Mangalore Airport is about 5 km South East of MSEZ.

1.1. Description of the Organization:

M/s. **ABC Techno Labs India Private Limited, Chennai**, an ISO 9001, ISO 14001 & OHSAS 18001 Certified Company has been accredited by,

- National Accreditation Board for Education and Training (NABET), a division of Quality Council of India (QCI).
- National Accreditation Board for Testing and Calibration Laboratories (NABL), an autonomous body under the Department of Science & Technology, Government of India.
- Recognized under EP Act, 1986 by Ministry of Environment and Forest.

The certificate of authorization is enclosed in the Annexure-I.

We offer the following services,

- Environmental Impact Assessment (EIA) & Environmental Management Plan (EMP) for Infrastructure & Industrial Projects.
- Social Impact Assessment Studies including Rehabilitation & Resettlement
- Environmental Monitoring
- Environmental Audits
- Capacity Building for Environmental Management
- Solid Waste Management
- Effective Management of Resources and Wastes
- Risk Assessment & Management Studies



1.2. Scope of Work:

The scope of the work is to conduct Environmental monitoring at Special Economic Zone, Mangalore, following the guidelines and regulations of MoEF/CPCB standards. The scope of the work for the month of October 2016 is to conduct ambient air quality monitoring at five locations, Ground water quality monitoring at eight locations, Noise level monitoring at two locations. Sampling Locations of each category is given in annexure - II.

2.0. Ambient Air Quality Monitoring Details:

Ambient air quality monitoring (AAQM) was carried out at five locations with due consideration to the meteorological conditions of the Project area. Ambient air quality monitoring was carried out at each location on 24 hourly basis on two consecutive days per month. The details of AAQ monitoring stations are given in Table 1.1.

Table - 1.1. Details of Ambient Air Monitoring Locations

STATION CODE	NAME OF THE LOCATIONS	GEOGRAPHICAL LOCATION
AAQ1	120 ML Water Reservoir	N-12°59'13.40" E-74°52'03.00"
AAQ2	MSEZ, Permude	N-12°59'54.00" E-74°52'53.60"
AAQ3	GSS3-10 ML Water Reservoir	N-12°58'57.70" E-74°51'30.10"
AAQ4	CETP Location	N-12°59'51.40" E-74°51'24.70"
AAQ5	Bajpe	N-12°58'32.80" E-74°52'10.40"

2.1.1. Method used for Air Quality Monitoring:

Respirable Dust Sampler and Fine Particulate Samplers were used for collecting Particulate Matter of size less than 10 μm (PM_{10}) and 2.5 μm ($\text{PM}_{2.5}$) respectively. Gaseous Samplers were used for sampling gaseous pollutants such as SO_2 , NO_x Ammonia and Ozone (O_3). Organic vapour sampler



was used to sample Hydrocarbon. Gas analyzer was used to estimate Carbon monoxide (CO) level in ambient air.

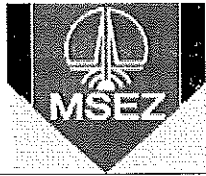
The Analytical techniques used for ambient air quality monitoring and its minimum detectable limit for each parameter is tabulated in Table 1.2.

Table - 1.2. Analytical Techniques Used for Ambient Air Quality Monitoring

S.NO	PARAMETER	TECHNIQUE	MINIMUM DETECTABLE LIMIT
1	Particulate Matter PM ₁₀	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
2	Particulate Matter PM _{2.5}	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
3	Sulphur di Oxide	Modified West & Gaeke Method	5.0 µg/m ³
4	Nitrogen Oxide	Jacob and Hochheiser Method	5.0 µg/m ³
5	Carbon monoxide	Gas Analyser	0.1 ppm
6	Ammonia	Nessler's Method	5 µg/m ³
7	Ozone	KI Absorption and Colorimetric	5 µg/m ³
8	Benzene,	IS 5182: Pt 11: 2006	0.01 µg/m ³
9	Benzo[a]pyrene)	IS 5182: Pt 12: 1991	0.1 ng/m ³
10	Lead,	IS 5182 P 22: 2004	0.1 µg/m ³
11	Arsenic, Nickel	IS 5182 P 22: 2004	1 ng/m ³

2.1.2. Micro-Meteorology:

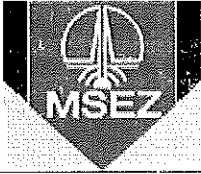
Wind Speed, Predominant Wind Direction, Temperature, Relative Humidity between 01-10-2016 and 30-10-2016 at MSEZ is given in Table 1.3.



Environmental Monitoring Report - Mangalore Special Economic Zone Limited, Mangalore.

Table-1.3- Micro-Meteorology

DATE	TEMPERATURE (°C)		RELATIVE HUMIDITY (%)		WIND SPEED (Km/hr)		PREDOMINANT WIND DIRECTION
	MIN	MAX	MIN	MAX	MIN	MAX	
01-10-2016	22	29	64	94	5.6	18.5	West Southwest
02-10 -2016	22	29	63	100	3.7	20.4	West
03-10 -2016	22	30	62	100	5.6	18.5	West
04-10 -2016	23	30	54	100	11.1	18.5	West
05-10 -2016	23	30	67	94	5.6	22.2	West
06-10 -2016	22	30	56	94	5.6	18.5	West Northwest
07-10 -2016	21	29	64	94	5.6	18.5	East
08-10 -2016	22	30	61	94	5.6	18.5	Northwest
09-10 -2016	22	30	61	94	5.6	22.2	West
10-10 -2016	22	30	56	100	5.6	20.4	West
11-10 -2016	23	29	68	94	5.6	22.2	Southwest
12-10 -2016	23	30	67	100	5.6	18.5	Southeast
13-10 -2016	24	30	74	94	5.6	18.5	North
14-10 -2016	23	30	68	94	7.4	16.7	West
15-10 -2016	22	32	55	94	5.6	18.5	West
16-10 -2016	23	32	56	94	5.6	16.7	West
17-10 -2016	23	31	60	95	5.6	14.8	West
18-10 -2016	22	30	66	100	5.6	18.5	West
19-10 -2016	22	30	61	94	5.6	16.7	West
20-10 -2016	24	31	53	94	5.6	18.5	West Northwest
21-10 -2016	23	31	54	94	5.6	16.7	West Northwest
22-10 -2016	23	31	52	94	5.6	16.7	West
23-10 -2016	23	31	54	94	5.6	16.7	West
24-10 -2016	24	31	60	94	5.6	18.5	Northwest
25-10 -2016	23	31	55	94	5.6	14.8	West
26-10 -2016	23	31	59	94	7.4	18.5	West
27-10 -2016	23	31	51	100	5.6	16.7	West
28-10 -2016	23	31	49	94	5.6	18.5	West
29-10 -2016	24	32	50	94	5.6	18.5	East
30-10 -2016	22	31	49	89	5.6	18.5	West



Environmental Monitoring Report – Mangalore Special Economic Zone Limited, Mangalore.

2.1.3. Wind Rose:

The wind roses diagram for the month of **October 2016** at Mangalore SEZ is depicted in Figure 1.1.

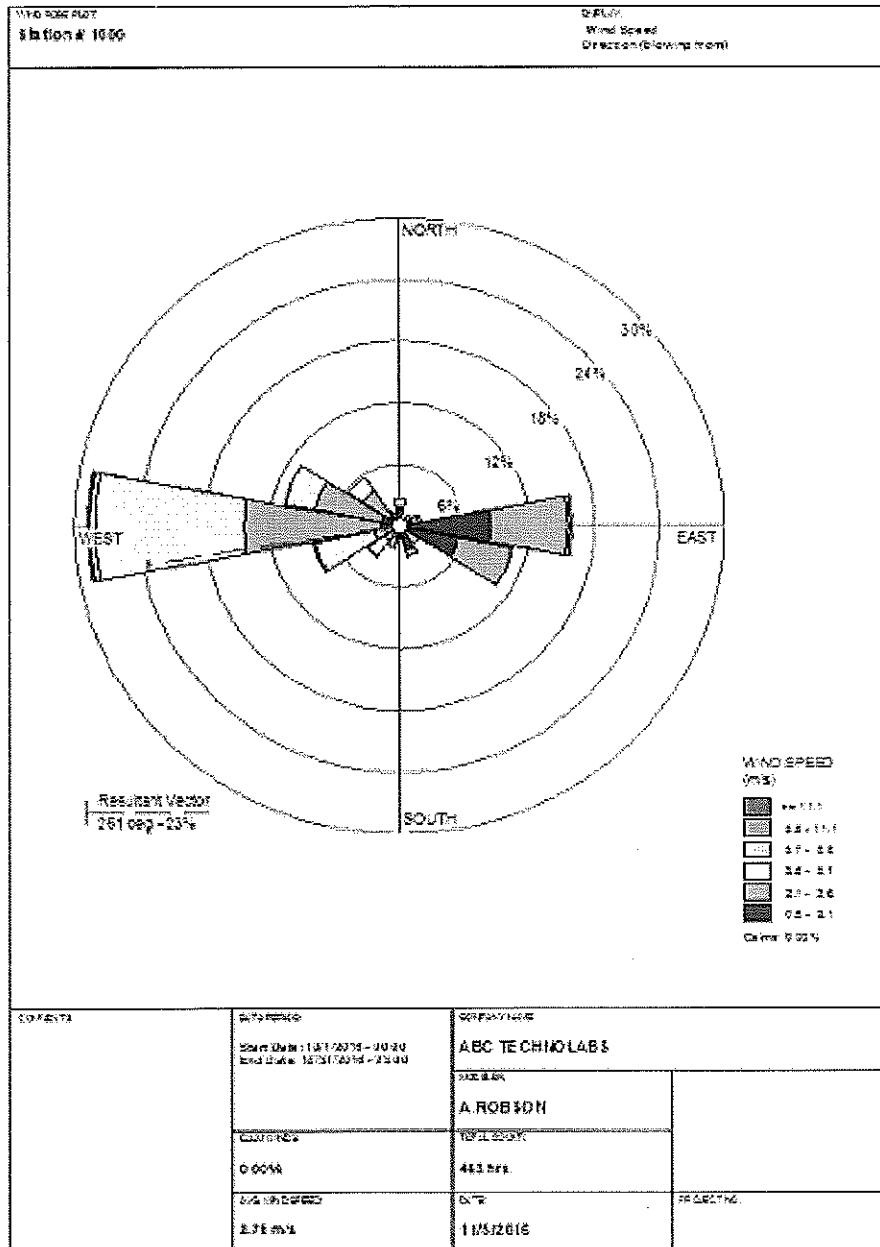
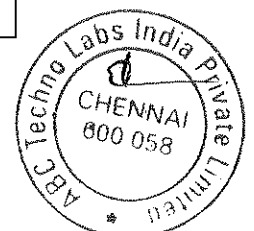


Figure 1.1. Wind Rose Diagram – October 2016





Environmental Monitoring Report - Mangalore Special Economic Zone Limited, Mangalore.

2.1.4. AMBIENT AIR QUALITY RESULTS:

The 24 hourly average results of Ambient Air Quality Monitoring of two consecutive days for the month of **October 2016** are presented in Table-1.4(a), 1.4 (b), 1.4(c), 1.4(d), 1.4(e) and 1.4(f). The obtained results are compared with the standards prescribed by Central Pollution Control Board (CPCB) for "Industrial, Rural, Residential and other areas".

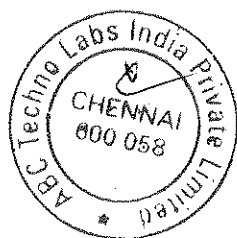
Table 1.4 (a)- AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/31/AS/191016/A 1343-1344
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	19-10-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-11-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
1	CETP Location	2	23.9	52.8	7.54	15.6	BDL (<0.1)	BDL(<5)	12.9
2	MSEZ-GSS 3	2	26.8	60.4	8.74	16.8	BDL (<0.1)	BDL(<5)	13.1
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorpti on Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

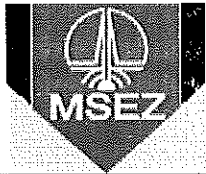
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Table 1.4(b) - AMBIENT AIR QUALITY REPORT

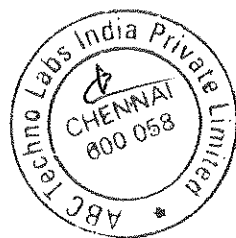
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SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	19-10-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-11-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
1	CETP Location	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
2	MSEZ-GSS 3	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.18
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

Contd.....

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Table 1.4(c) - AMBIENT AIR QUALITY REPORT

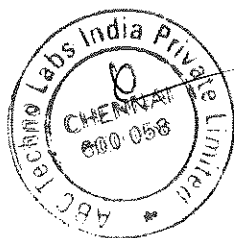
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SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	19-10-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-11-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
3	Baipe	2	19.6	45.9	6.11	12.6	BDL (<0.1)	BDL (<5)	11.4
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

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Table 1.4(d) - AMBIENT AIR QUALITY REPORT

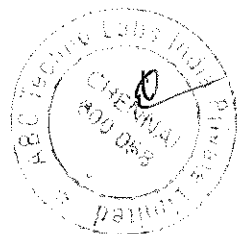
SAMPLE ID NO	ABC/MSEZ/31/AS/191016/A 1345
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	19-10-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-11-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
3	Baipe	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

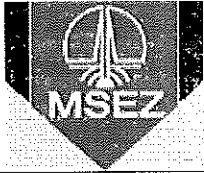
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J. J. Chinn
05/11/16
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Table 1.4(e) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/31/AS/211016/A 1346 -1347
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	21-10-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-11-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
4	120 ML, Water Reservoir	2	21.7	55.2	6.56	14.8	BDL (<0.1)	BDL (<5)	12.8
5	MSEZ, Permude	2	18.5	44.6	5.14	11.7	BDL (<0.1)	BDL (<5)	11
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

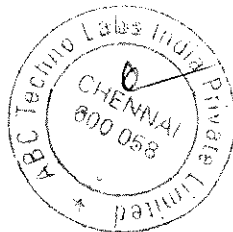
BDL- Below Detection Limit

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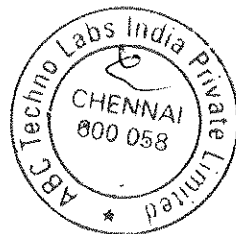
Table 1.4(f) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/31/AS/211016/A 1346 -1347
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	21-10-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-11-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
4	120 ML, Water Reservoir	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.14
5	MSEZ, Permude	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

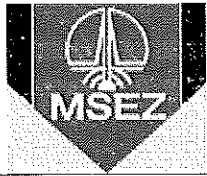
.....END OF REPORT.....



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3.0. Noise Level Monitoring:

The noise monitoring has been conducted for determination of noise levels at two locations in the project area. The noise levels at each location were recorded for 24 hours for two non-consecutive days for two weeks. The environmental setting of each Noise monitoring locations is given in Table -1.5 and day and night equivalent Noise Levels are tabulated in Table 1.6.

Table 1.5- Details of Noise Monitoring Locations

Station Code	Name of the Station	Geographical Location
N1	CETP location	N-12°59'51.40" E-74°51'24.70"
N2	120 ML water reservoir	N-12°59'13.40" E-74°52'03.00"

Table 1.6 - Ambient Noise Monitoring Results

Station Code	Date of Survey	Location	Leq Day [dB(A)]	Leq Night [dB(A)]
N1	19/10/2016	CETP	49.1	40.8
N2	19/10/2016	120 ML	51.4	42.7
N1	21/10/2016	CETP	48.5	40.3
N2	21/10/2016	120 ML	52	41.7
N1	24/10/2016	CETP	48.8	41.1
N2	24/10/2016	120 ML	52.1	42.9
N1	27/10/2016	CETP	47.5	40.8
N2	27/10/2016	120 ML	52.4	43.6

AMBIENT NOISE STANDARDS

AMBIENT NOISE STANDARDS	Lday [dB(A)]	Lnight [dB(A)]
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Silence Zone	50	40

Note: Day Time is reckoned between 6.0 A.M and 10.0 P.M.

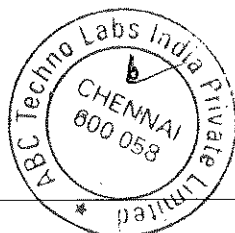
Night time is reckoned between 10.0 P.M to 6.0 A.M.

Leq [dB (A)] - Denotes the time weighted average of the level of sound in decibel on Scale A which is relatable to human hearing.

.....End of Report

For ABC Techno Labs India Priyate Limited,

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4.0. Water Quality Monitoring

Water samples were collected at ten locations to establish baseline water quality in the study area. Water analysis was carried out for physical, chemical parameters as per the methods prescribed in IS and “Standard Methods for the Examination of Water and Wastewater (American Public Health Association)”.

4.1.1. Water Sampling Locations.

The details of the water sampling stations are presented in the Table 1.7

Table 1.7- Water Sampling Locations

Location Code	Date Sampled	Location	Type of water	Geographical Location
W1	21/10/2016	120 ML Water Storage	Ground water	N-12°58'57.70" E-74°51'30.10"
W2	21/10/2016	Near OMPL	Ground water	N-12°58'32.70" E-74°52'10.60"
W3	21/10/2016	Permude Bajpe Village Boundary	Ground water	N-12°59'54.00" E-74°52'53.60"
W4	21/10/2016	Road Cum Pipeline Corridor -Kalavar	Ground water	N-12°58'45.10" E-74°51'16.40"
W5	21/10/2016	Oddidakale- Bajpe	Ground water	N-12°58'32.80" E-74°52'10.40"
W6	21/10/2016	Chandrasahsa Nagar	Ground water	N-12°58'44.90" E-74°51'16.50"
W7	21/10/2016	Permude	Ground water	N-12°59'12.50" E-74°52'34.30"
W8	21/10/2016	CETP Location	Ground water	N-12°59'51.40" E-74°51'24.70"
W9	21/10/2016	Shyanti Gudda-Bajpe	Ground water	N-12°59'54.00" E-74°52'53.40"

4.1.2. Water Quality Results

The physicochemical characteristics of water in the project area are presented in the Table 1.8(a) and Table 1.8(b) and are compared with the standards (IS 10500:2012) Indian Standards/Specifications for Drinking Water) reference values.



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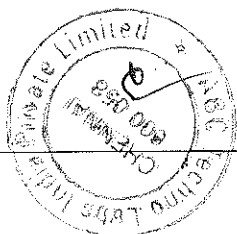
Table 1.8(a) - Ground water Quality Results

Sl. No	PARAMETERS	UNIT	LIMIT AS PER IS 10500 : 2012	W1	W2	W3	W4	W5
1	Colour	Pt-Co	5	2	Nil	Nil	Nil	Nil
2	Odour	-	Unobjectionable	No Odour Observed	No Odour Observed	No Odour Observed	No Odour Observed	No Odour Observed
3	pH at 25°C	-	6.5-8.5	6.58	7.11	6.95	6.62	6.57
4	Electrical Conductivity,	µS/cm	Not Specified	216	254	155	202	95
5	Turbidity	NTU	1	0.8	0.9	0.5	BDL(<0.5)	0.7
6	Total Dissolved Solids	mg/l	500	112	132	84	107	49
7	Total Hardness as CaCO ₃	mg/l	200	78	66	50	72	26
8	Total Alkalinity as CaCO ₃	mg/l	200	68	76	52	68	16
9	Chloride as Cl	mg/l	250	13	21	14	18	12
10	Sulphate as SO ₄	mg/l	200	6	8	7	4	BDL(<1)
11	Fluoride as F	mg/l	1	0.18	0.18	0.13	BDL(<0.1)	0.11
12	Nitrate as NO ₃	mg/l	45	2.2	3.4	BDL(<1)	1.1	8.7
13	Silica as SiO ₂	mg/l	Not Specified	15.7	11	9.7	5.8	4.8
14	Copper as Cu	mg/l	0.05	BDL(<0.03)	BDL(<0.03)	BDL(<0.03)	BDL(<0.03)	BDL(<0.03)
15	Zinc as Zn	mg/l	5	BDL(<0.005)	BDL(<0.005)	BDL(<0.005)	BDL(<0.005)	0.17
16	Manganese as Mn	mg/l	0.10	BDL(<0.02)	BDL(<0.02)	BDL(<0.02)	BDL(<0.02)	BDL(<0.02)
17	Sodium as Na	mg/l	Not Specified	10.7	22	13	11.8	6.7
18	Potassium as K	mg/l	Not Specified	1	1.7	1	1.6	1
19	Calcium as Ca	mg/l	75	19.4	18.2	13.1	15.2	7.2
20	Magnesium as Mg	mg/l	30	7.1	5	4.1	8.2	1.9
21	Iron as Fe	mg/l	0.3	0.16	0.05	0.07	BDL(<0.05)	BDL(<0.05)
22	Lead as Pb	mg/l	0.01	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
23	Mercury as Hg	mg/l	0.001	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
24	Cadmium as Cd	mg/l	0.003	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)
25	Arsenic as As	mg/l	0.01	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
26	Chromium as Cr ⁶⁺	mg/l	0.05	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
27	Volatile Organic Compounds	mg/l	Not Specified	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)

BDL-Below Detection Limit

.....End of Report.....

For ABC Techno Labs India Private Limited.,



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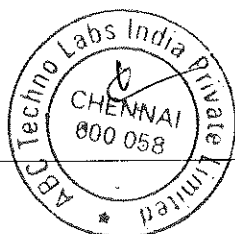
Table 1.8(b) - Ground water Quality Results

Sl. No	PARAMETERS	UNIT	LIMIT AS PER IS 10500 : 2012	W6	W7	W8	W9
1	Colour	Pt-Co	5	Nil	1	1	Nil
2	Odour	-	Unobjectionable	No Odour Observed	No Odour Observed	No Odour Observed	No Odour Observed
3	pH at 25°C	-	6.5-8.5	6.63	6.52	7.33	6.89
4	Electrical Conductivity,	µS/cm	Not Specified	225	90	153	160
5	Turbidity	NTU	1	BDL(<0.5)	0.7	0.8	0.6
6	Total Dissolved Solids	mg/l	500	115	46	81	86
7	Total Hardness as CaCO ₃	mg/l	200	60	23	53	51
8	Total Alkalinity as CaCO ₃	mg/l	200	52	20	52	44
9	Chloride as Cl	mg/l	250	23	12	14	18
10	Sulphate as SO ₄	mg/l	200	9	BDL(<1)	8	5
11	Fluoride as F	mg/l	1	0.28	0.28	0.41	0.27
12	Nitrate as NO ₃	mg/l	45	10.3	3.9	BDL(<1)	BDL(<1)
13	Silica as SiO ₂	mg/l	Not Specified	11.6	14.8	26.8	31.6
14	Copper as Cu	mg/l	0.05	BDL (<0.05)	BDL (<0.03)	BDL (<0.03)	BDL (<0.03)
15	Zinc as Zn	mg/l	5	BDL (<0.005)	BDL (<0.005)	BDL (<0.005)	BDL (<0.005)
16	Manganese as Mn	mg/l	0.10	BDL (<0.05)	BDL (<0.05)	BDL (<0.05)	BDL (<0.05)
17	Sodium as Na	mg/l	Not Specified	17.8	6.7	12.2	14
18	Potassium as K	mg/l	Not Specified	1.8	BDL (<1)	2.1	1.5
19	Calcium as Ca	mg/l	75	17	8	12	9.4
20	Magnesium as Mg	mg/l	30	4.2	1	5.7	6.6
21	Iron as Fe	mg/l	0.3	BDL (<0.05)	0.11	0.08	0.05
22	Lead as Pb	mg/l	0.01	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
23	Mercury as Hg	mg/l	0.001	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)
24	Cadmium as Cd	mg/l	0.003	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)
25	Arsenic as As	mg/l	0.01	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
26	Chromium as Cr ⁶⁺	mg/l	0.05	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)
27	Volatile Organic Compounds	mg/l	Not Specified	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)

BDL-Below Detection Limit

.....End of Report.....

For ABC Techno Labs India Private Limited.,



J. D. Ram Chandra
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QUALITY MANAGER



ENVIRONMENTAL MONITORING REPORT
SPECIAL ECONOMIC ZONE LIMITED, MANGALORE

Vinay
Chandrashekar
16/11/16



November - 2016

Prepared by:



ABC Techno Labs India Private Limited

An ISO : 9001:2008, ISO :14001:2004 & OHSAS : 18001:2007 Certified Company
(Accrediated by NABL, NABET, MoEF)



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Environmental Monitoring Report – Mangalore Special Economic zone Limited, Mangalore.

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2.1.2	MICRO-METEOROLOGY	3
2.1.3	WIND ROSE	5
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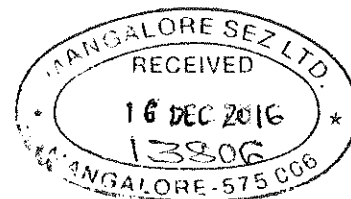
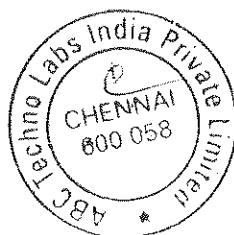
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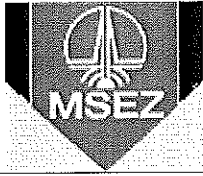
FIGURE

S.No.	TITLE	PAGE NO.
1.1	Wind Rose	5

ANNEXURE

Annexure -I	MoEF Certificate/NABL Certificate
Annexure -II	Sampling Location Map.





ENVIRONMENTAL MONITORING REPORT

1.0. Introduction:

Mangalore Special Economic Zone Limited is located 8 km aerielly to North East of New Mangalore Port and is adjacent to the existing refinery of MRPL on its West. The Industrial estate of the District, namely Baikampady is located southwest of MSEZ. The Mangalore Airport is about 5 km South East of MSEZ.

1.1. Description of the Organization:

M/s. ABC Techno Labs India Private Limited, Chennai, an ISO 9001, ISO 14001 & OHSAS 18001 Certified Company has been accredited by,

- National Accreditation Board for Education and Training (NABET), a division of Quality Council of India (QCI).
- Recognized under EP Act, 1986 by Ministry of Environment and Forest.
- National Accreditation Board for Testing and Calibration Laboratories (NABL), an autonomous body under the Department of Science & Technology, Government of India.

The certificate of authorization is enclosed in the Annexure-I.

We offer the following services,

- Environmental Impact Assessment (EIA) & Environmental Management Plan (EMP) for Infrastructure & Industrial Projects.
- Social Impact Assessment Studies including Rehabilitation & Resettlement
- Environmental Monitoring
- Environmental Audits
- Capacity Building for Environmental Management
- Solid Waste Management
- Effective Management of Resources and Wastes
- Risk Assessment & Management Studies



1.2. Scope of Work:

The scope of the work is to conduct Environmental monitoring at Special Economic Zone, Mangalore, following the guidelines and regulations of MoEF/CPCB standards. The scope of the work for the month of November 2016 is, to conduct ambient air quality monitoring at five locations. Sampling Locations are given in annexure - II.

2.0. Ambient Air Quality Monitoring Details:

Ambient air quality monitoring (AAQM) was carried out at five locations with due consideration to the meteorological conditions of the Project area. Ambient air quality monitoring was carried out at each location on 24 hourly basis on two consecutive days per month. The details of AAQ monitoring stations are given in **Table 1.1**.

Table - 1.1. Details of Ambient Air Monitoring Locations

STATION CODE	NAME OF THE LOCATIONS	GEOGRAPHICAL LOCATION
AAQ1	120 ML Water Reservoir	N-12°59'13.40" E-74°52'03.00"
AAQ2	MSEZ, Permude	N-12°59'54.00" E-74°52'53.60"
AAQ3	GSS3-10 ML Water Reservoir	N-12°58'57.70" E-74°51'30.10"
AAQ4	CETP Location	N-12°59'51.40" E-74°51'24.70"
AAQ5	Bajpe	N-12°58'32.80" E-74°52'10.40"

2.1.1. Method used for Air Quality Monitoring:

Respirable Dust Sampler and Fine Particulate Samplers were used for collecting Particulate Matter of size less than 10 µm (PM₁₀) and 2.5 µm (PM_{2.5}) respectively. Gaseous Samplers were used for sampling gaseous pollutants such as SO₂, NO_x Ammonia and Ozone (O₃). Organic vapour sampler was used to sample Hydrocarbon. Gas analyzer was used to estimate Carbon monoxide (CO) level in ambient air.



The Analytical techniques used for ambient air quality monitoring and its minimum detectable limit for each parameter is tabulated in Table 1.2.

Table - 1.2. Analytical Techniques Used for Ambient Air Quality Monitoring

2.1.2. Micro-Meteorology :

S.NO	PARAMETER	TECHNIQUE	MINIMUM DETECTABLE LIMIT
1	Particulate Matter PM ₁₀	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
2	Particulate Matter PM _{2.5}	Fine Particulate Sampler (Gravimetric method)	5.0 µg/m ³
3	Sulphur di Oxide	Modified West & Gaeke Method	5.0 µg/m ³
4	Nitrogen Oxide	Jacob and Hochheiser Method	5.0 µg/m ³
5	Carbon monoxide	Gas Analyser	0.1 ppm
6	Ammonia	Nessler's Method	5 µg/m ³
7	Ozone	KI Absorption and Colorimetric	5 µg/m ³
8	Benzene,	IS 5182: Pt 11: 2006	0.1 µg/m ³
9	Benzo[a]pyrene	IS 5182: Pt 12: 1991	0.1 ng/m ³
10	Lead,	IS 5182 P 22: 2004	0.1 µg/m ³
11	Arsenic, Nickel	IS 5182 P 22: 2004	1 ng/m ³

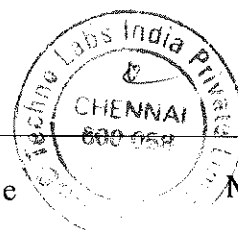
Wind Speed, Predominant Wind Direction, Temperature, Relative Humidity between 01-11-2016 and 30-11-2016 at MSEZ is given in Table 1.3.



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Table-1.3- Micro-Meteorology

DATE	TEMPERATURE (°C)		RELATIVE HUMIDITY (%)		WIND SPEED (Km/hr)		PREDOMINANT WIND DIRECTION
	MIN	MAX	MIN	MAX	MIN	MAX	
01-11-2016	24	33	55	94	5.4	20.6	West
02-11-2016	22	32	58	94	5.6	16.7	West
03-11-2016	24	32	49	100	5.6	14.8	East & West
04-11-2016	25	31	61	100	5.6	16.7	West
05-11-2016	23	31	46	94	5.6	14.8	North
06-11-2016	20	32	32	89	5.6	14.8	West Northwest
07-11-2016	19	32	31	88	5.6	11.1	East
08-11-2016	20	33	31	94	3.7	16.7	East
09-11-2016	21	33	23	89	5.6	18.5	East & Southwest
10-11-2016	21	33	17	94	5.6	16.7	East
11-11-2016	21	32	40	94	5.6	14.8	East
12-11-2016	21	32	42	94	5.6	14.8	West
13-11-2016	17	23	40	89	5.6	14.8	Southeast
14-11-2016	23	33	44	94	5.6	25.9	West
15-11-2016	22	34	47	94	5.6	18.5	Southeast
16-11-2016	22	34	39	89	5.6	16.7	West Northwest
17-11-2016	24	34	36	94	5.6	16.7	West Northwest
18-11-2016	24	35	37	89	3.7	16.7	East
19-11-2016	23	34	24	94	5.6	16.7	East Southeast
20-11-2016	22	34	32	94	5.6	16.7	East & East Southeast
21-11-2016	22	34	35	94	5.6	14.8	East Southeast
22-11-2016	21	35	32	94	5.6	18.5	West
23-11-2016	21	34	25	94	5.6	116.7	West
24-11-2016	20	35	22	94	5.6	14.8	West
25-11-2016	21	34	19	94	5.6	14.8	West
26-11-2016	20	33	38	88	5.6	14.8	East & west
27-11-2016	20	34	44	94	3.7	14.8	East Southeast
28-11-2016	20	33	32	94	5.6	16.7	West Southwest
29-11-2016	21	32	53	94	5.6	16.7	East Southeast
30-11-2016	21	31	52	94	3.7	14.8	West





2.1.3. Wind Rose:

The wind roses diagram for the month of **November 2016** at Mangalore SEZ is depicted in Figure 1.1.

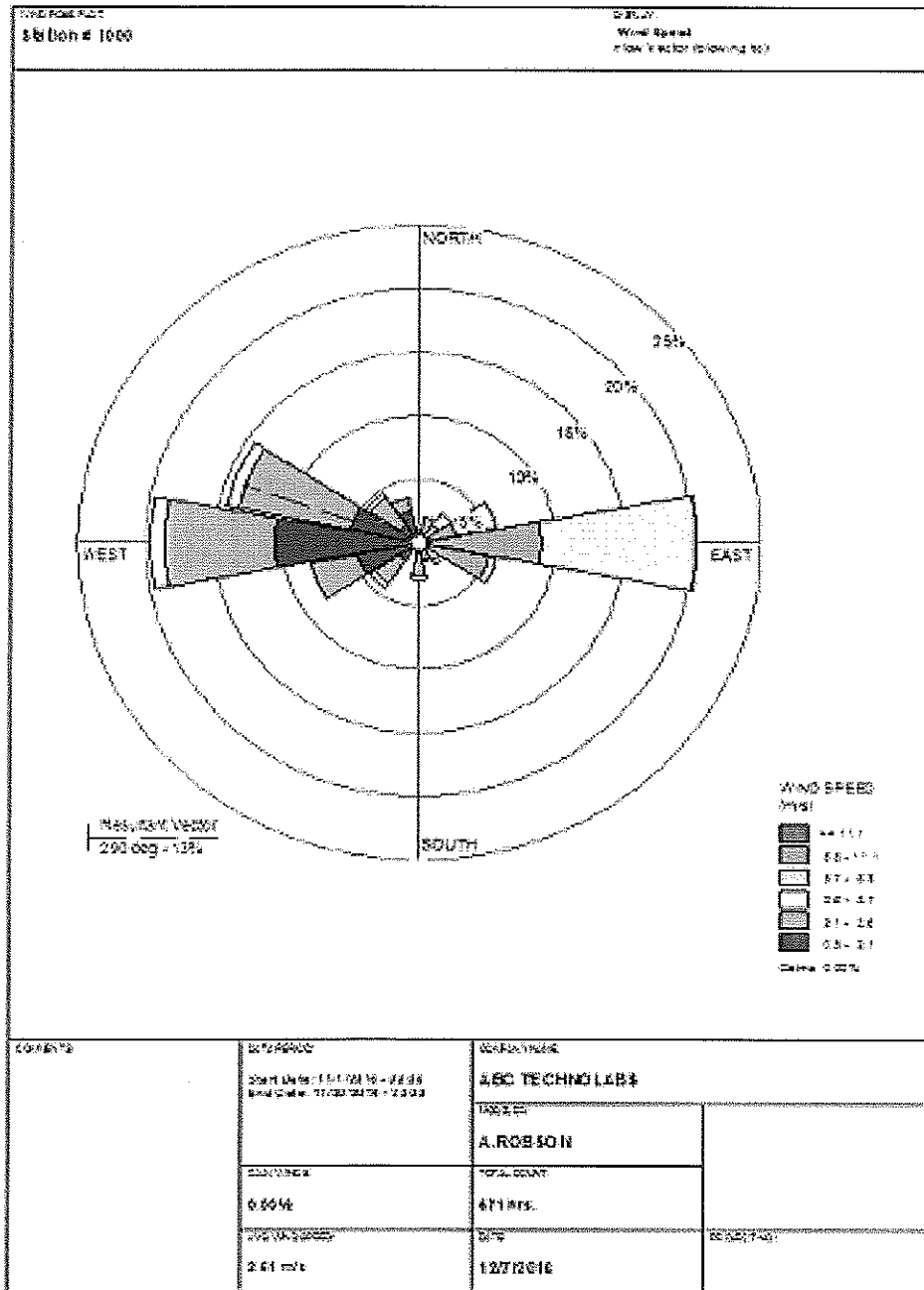


Figure 1.1. Wind Rose Diagram – November 2016



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2.1.4. AMBIENT AIR QUALITY RESULTS:

The 24 hourly average results of Ambient Air Quality Monitoring of two consecutive days for the month of **November 2016** are presented in Table-1.4(a), 1.4 (b), 1.4(c), 1.4(d), 1.4(e) and 1.4(f). The obtained results are compared with the standards prescribed by Central Pollution Control Board (CPCB) for “Industrial, Rural, Residential and other areas”.

Table 1.4 (a)- AMBIENT AIR QUALITY REPORT

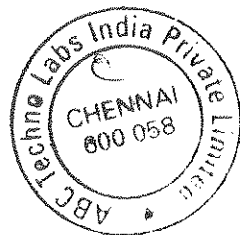
SAMPLE ID NO	ABC/MSEZ/32/AS/231116/A 1562-1563
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	23-11-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-12-2016


S.No	Location	Height GL(m)	Pollutant Concentration in µg/m ³						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
1	CETP Location	2	25.2	54.2	6.92	15.1	BDL (<0.1)	BDL (<5)	13
2	MSEZ-GSS 3	2	27.9	60.5	8.17	18.6	BDL (<0.1)	BDL (<5)	15.1
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

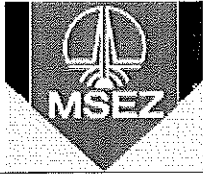
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For ABC Techno Labs India Private Limited.,




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Table 1.4(b) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/32/AS/231116/A 1562-1563
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	23-11-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-12-2016

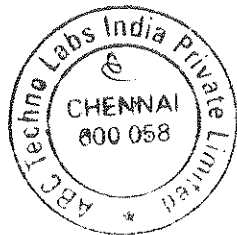
S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
1	CETP Location	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
2	MSEZ-GSS 3	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.17
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

BDL- Below Detection Limit

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Table 1.4(c) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/32/AS/231116/A 1564
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	23-11-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-12-2016

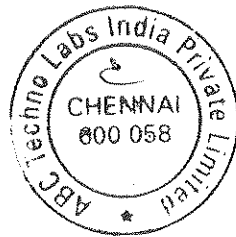
S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
3	Baipe	2	18.5	43.1	6.05	13.5	BDL (<0.1)	BDL(<5)	12.1
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

Contd.....

For ABC Techno Labs India Private Limited,


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Table 1.4(d) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/32/AS/231116/A 1564
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	23-11-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-12-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
3	Baipe	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

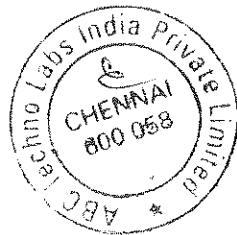
BDL- Below Detection Limit

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For ABC Techno Labs India Private Limited.,

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AUTHORIZED SIGNATORY 03/12/16

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Table 1.4(e) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/32/AS/251116/A 1565-1566
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	25-11-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	02-12-2016

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu\text{g}/\text{m}^3$						
			PM _{2.5}	PM ₁₀	SO ₂	NO _x	Pb	NH ₃	O ₃
4	120 ML, Water Reservoir	2	23.7	52.8	7.64	16.7	BDL (<0.1)	BDL (<5)	12.3
5	MSEZ, Permude	2	17.1	41.8	BDL (<5)	12.2	BDL (<0.1)	BDL (<5)	10.4
Test Method			EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
CPCB STANDARDS									
Industrial /Residential / Rural and Other Area			60	100	80	80	1	400	100

BDL- Below Detection Limit

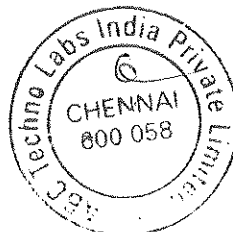
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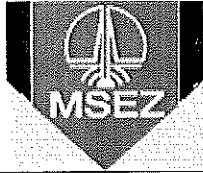
For ABC Techno Labs India Private Limited.,

AUTHORIZED SIGNATORY

02/12/16

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Table 1.4(f) - AMBIENT AIR QUALITY REPORT

SAMPLE ID NO	ABC/MSEZ/32/AS/251116/A 1565-1566
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED, MANGALORE
DATE SAMPLED	25-11-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	02-12-2016

S.No	Location	Pollutant Concentration				CO, mg/m ³
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	
4	120 ML, Water Reservoir	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.13
5	MSEZ, Permude	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
Test Method		IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
CPCB STANDARDS						
Industrial /Residential / Rural and Other Area		5	1	6	20	2

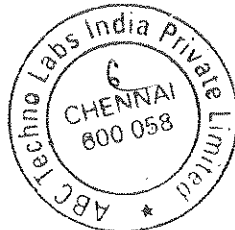
BDL- Below Detection Limit

.....END OF REPORT.....

For ABC Techno Labs India Private Limited.,

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ANNEXURE-I





भारत का राजपत्र

The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii)

PART II—Section 3—Sub-section (ii)

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

सं. 1573]

नई दिल्ली, बुधवार, अगस्त 6, 2014/श्रावण 15, 1936

No.1573]

NEW DELHI, WEDNESDAY, AUGUST 6, 2014/SHRAVANA 15, 1936

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 6 अगस्त, 2014

का.आ. 2003(अ).— केन्द्रीय सरकार, पर्यावरण (संरक्षण) नियमावली, 1986 के नियम 10 के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 12 की उप-धारा (1) के खंड (ख) और धारा 13 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, भारत सरकार के पर्यावरण और वन मंत्रालय की अधिसूचना संख्यांक का.आ.1174(अ), तारीख 18 जुलाई, 2007 में निम्नलिखित और संशोधन करती है, अर्थात् :—

2. उक्त अधिसूचना से उपाबद्ध सारणी में,

(क) क्रम संख्यांक 120 और उससे संबंधित प्रविष्टियों के पश्चात् निम्नलिखित क्रम संख्यांक और प्रविष्टियां अंतःस्थापित की जाएंगी अर्थात् :—

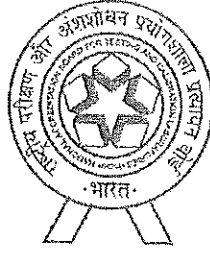
(1)	(2)	(3)	(4)
" 121	मैसर्स एबीसी टक्नो लैब्स इंडिया प्राइवेट लिमिटेड, सं० 95-डी/3, इंडस्ट्रियल एस्टेट, अम्बतूर, चेन्नई - 600058 (तमिलनाडु)	(1) डॉ० जी सुंदर (2) श्री पी० सैथिल कुमार (3) श्री ए० रॉबसन चिन्नदुरै	06.08.2014 से 05.08.2019
122	मैसर्स एडवर्ड फुड रिसर्च एंड एनैलसिस सेन्टर, सुभाष नगर, पी०ओ० नीलगंज बाजार, पी०एस० बारासात, जिला० नार्थ 24 पीजीएस, कोलकाता - 700121 (पश्चिम बंगाल)	(1) डॉ० देवोतम बनर्जी (2) श्री अलोके कुमार दत्ता (3) श्री सुरेश कुमार मंडल	06.08.2014 से 05.08.2019
123	मैसर्स कीवी ईको लेबोरेटरीज प्राइवेट लिमिटेड, प्लॉट सं० 19, एसवाई सं० 343, एलिप, इंडस्ट्रियल एस्टेट, गजुलरमरम गाँव, कुथुल्लपुर (एमडी), जिला रंगारेड्डी, (तेलंगाना)	(1) डॉ० रजनी कुमारी (2) श्री एन०पी० विश्वनाथ (3) डॉ० पी० सरिता	06.08.2014 से 05.08.2019
124	मैसर्स नवेगा इवायरो इंजीनियर्स एंड कन्सल्टेंट, रवि चैंबर्स, प्लॉट नं० 100/1, मकान सं० 1-96/100, कवुरि हिल्स, मधापुर, हैदराबाद - 500033 (तेलंगाना)	(1) श्री चेल्लि चिरंजीवी (2) श्री चलापथी कोदैंअह गिरी (3) सुश्री अश्वनीदेवी कोमारी रेड्डी	06.08.2014 से 05.08.2019
125	मैसर्स कल्याणी लेबोरेटरीज प्राइवेट लिमिटेड, प्लॉट सं० 841 - ए, रसुलगढ़, भुवनेश्वर - 751010 (ओडिशा)	(1) डॉ० देबाशीष बिस्वाल (2) डॉ० रेखा नायक	06.08.2014 से

	(Telangana)	(3) Ms. Aswinidevi Kommireddy	
125	M/s. Kalyani Laboratories Private Limited, Plot No. 841-A, Rasulgarh Bhubaneswar-751010 (Odisha)	(1) Dr. Debasis Biswal (2) Dr. Rekha Nayak (3) Mr. Digambar Arukha	06.08.2014 to 05.08.2019
126	M/s. Bharuch Enviro Infrastructure Limited (BEIL), Analytical Research Laboratory, Plot No. 9701-16, GIDC, Ankleshwar, District-Bharuch – 393002 (Gujarat)	(1) Dr. Hitendra Kumar Jani (2) Mr. Narendra B. Patel (3) Mr. Dharmesh I. Patel	06.08.2014 to 05.08.2019. "

[F. No. Q.15018/23/2013-CPW]

Dr. RASHID HASAN, Advisor

Note.—The principal notification was published in the Gazette of India, Extraordinary *vide* number S.O. 1174 (E), dated the 18th July, 2007 and subsequently amended *vide* notification numbers S.O. 1539 (E), dated the 13th September, 2007, S.O.1811(E), dated the 24th October, 2007, S.O.55(E), dated the 9th January, 2008, S.O.428(E), dated the 4th March, 2008, S.O.865(E) dated the 11th April, 2008, S.O.1894(E), dated the 31st July, 2008, S.O.2728(E), dated the 25th November, 2008, S.O.1356(E), dated the 27th May, 2009, S.O.1802(E), dated the 22nd July, 2009, S.O. 2399(E), dated the 18th September, 2009, S.O.3122(E), dated the 7th December, 2009, S.O.3123(E), dated the 7th December, 2009, No. S.O. 142(E), dated the 21st January, 2010, S.O.619(E), dated the 19th March, 2010, S.O.1662(E) dated the 13th July, 2010, S.O.2390(E), dated the 30th September, 2010, S.O.2904(E), dated the 8th December, 2010, S.O.181(E), dated the 28th January, 2011, S.O. 692(E), dated the 5th April, 2011, S.O.1537(E), dated the 6th July, 2011, S.O.1754(E), dated the 28th July, 2011, S.O. 2609 (E) dated the 22nd November, 2011, S.O.264 (E), dated the 13th February, 2012, S.O.1150(E), dated the 22nd May, 2012, S.O. 2039(E), dated the 5th September, 2012, S.O. 2802(E), dated the 27th November, 2012, S.O. 2850(E), dated the 7th December, 2012, S.O. 592 (E), dated the 8th March, 2013, S.O.945(E), dated the 8th April, 2013, S.O.2287(E), dated the 27th July, 2013, S.O.2288(E), dated the 27th July, 2013, S.O.3489(E) dated the 26th November, 2013, S.O.21(E), dated 3rd January, 2014, S.O.561(E), the 26th February, 2014, S.O.1205(E), dated the 5th May, 2014, S.O.1190(E), dated the 2nd May, 2014 and S.O.1680(E), dated the 2nd July, 2014.



NABL

National Accreditation Board for Testing and Calibration Laboratories

(An Autonomous Body under Department of Science & Technology, Govt. of India)

CERTIFICATE OF ACCREDITATION

ABC TECHNO LABS INDIA PRIVATE LIMITED

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2005

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

No. 95, D/3, Industrial Estate, Ambattur, Chennai, Tamil Nadu

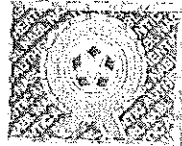
in the discipline of

CHEMICAL TESTING

(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Certificate Number T-1586

Issue Date 08/10/2015



Valid Until 07/10/2017

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the additional requirements of NABL.

Signed for and on behalf of NABL

N. Venkateswaran
Program Manager

Anil Relia
Director

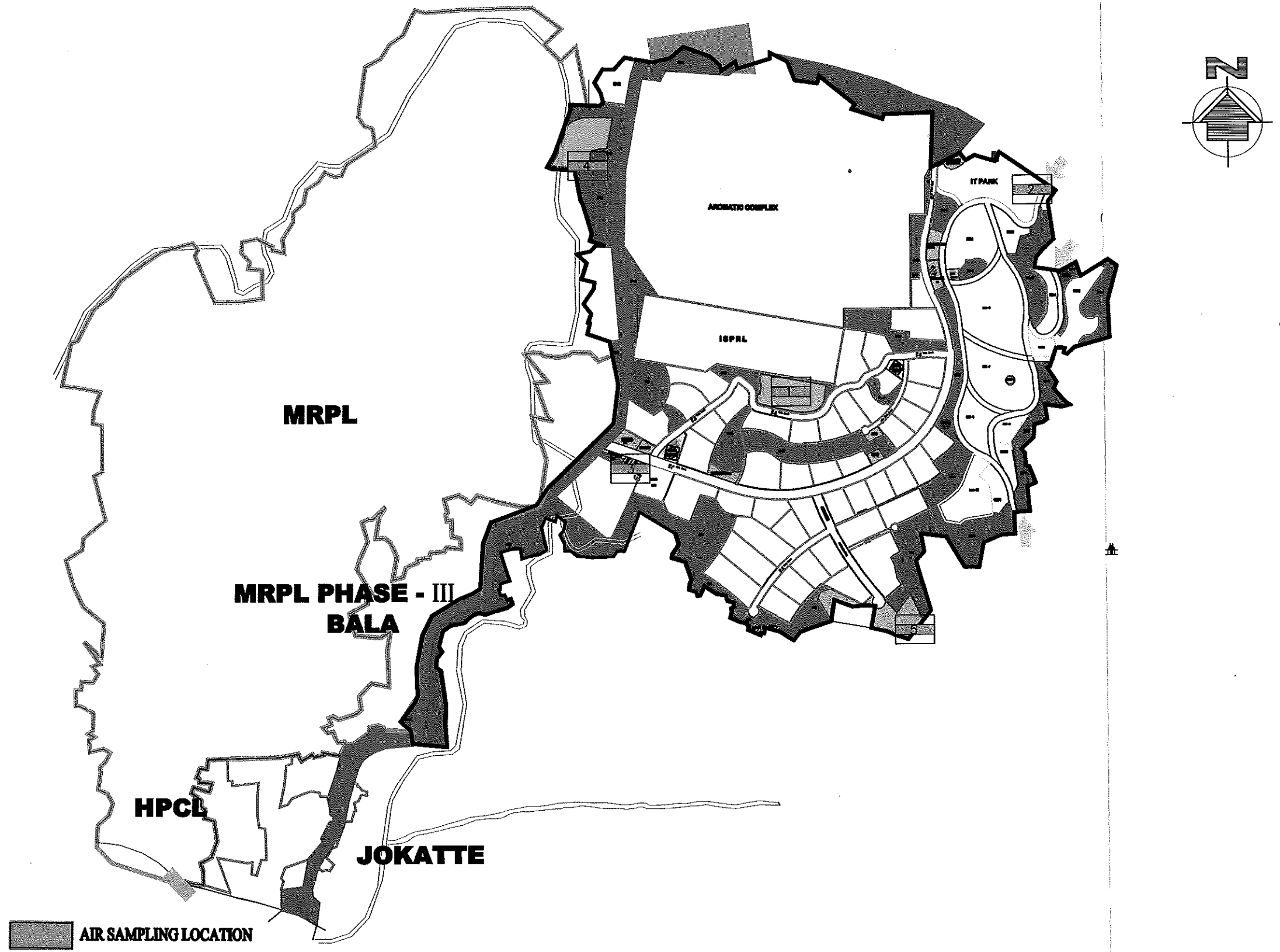
Prof. S. K. Joshi
Chairman



ANNEXURE-II



MSEZ Phase I - ENVIRONMENT MONITORING LOCATIONS



Mangalore S E Z Ltd.
3rd Floor, M U D A Building
Urwa store, Mangalore



F.No.21-383/2007-IA.III

Government of India
Ministry of Environment, Forest & Climate Change
(IA-III Section)

Indira Paryavaran Bhawan,
Jor Bagh Road
New Delhi - 110 003

Dated: 18th June, 2015

To
The Managing Director,
M/s Mangalore SEZ Ltd.,
No.16, Pranava Park, 3rd Floor,
Infantry Road, Bangalore – 560 001

Subject: Development of Multi Product Units as Mangalore SEZ is presently notified as Multi Product SEZ, Mangalore, Karnataka by M/s Mangalore SEZ Ltd. - Amendment to the Environmental Clearance dated 03.04.2008 - Reg.

Sir,

This has reference to your letter No. MSEZL/BG/06/EC/2014 dated 02.09.2014 and subsequent letter dated 12.11.2014 seeking amendment to the Environmental Clearance dated 03.04.2008.

2. M/s Mangalore SEZ Ltd. was accorded Environmental Clearance for the setting up of Phase-I of SEZ at Mangalore, Karnataka by the Ministry of Environment & Forest (MoEF) vide letter No. 21-383/2007-IA-III dated 03.04.2008. Two subsequent amendments were issued to the project vide even no. dated 13.07.2012 and 27.08.2014.

3. The Ministry of Environment, Forest & Climate Change has considered the application. It is noted that the present proposal is for amendment to the Environmental Clearance dated 03.04.2008 for setting up of Multi-Product Units along with Downstream Petroleum/Petrochemical units.

4. The project was examined by the Expert Appraisal Committee (EAC) in its 141st meeting held on 26th – 28th November, 2014. The project proponent informed that:

- i. The EAC in its meeting held in October, 2014 suggested to the Ministry to examine whether amendment to the EC can be considered after 5 years from the date of clearance.
- ii. The project has been commenced based on the clearance within 5 years from the date of issue.
- iii. The Olefin complex which was permitted in original clearance was shelved and clearance obtained for downstream/ petrochemical units on 13th July, 2012. Present proposal is for allowing Multi Product Units along with Petrochemical and Downstream Petrochemicals as MSEZ is currently notified as Multi Product SEZ by Ministry of Commerce & Industry (MoCI).

- iv. The total estimated pollution load will not increase beyond the earlier levels, however, the individual units proposed to come up within the SEZ will obtain separate EC.
5. EAC sought additional information such as comparative statement on the possible pollutants from the proposed activity with the already approved/operational components and compliance of conditions of the granted EC.
6. The proposal was again considered by the Expert Appraisal Committee (EAC), in its 146th meeting held on 9th – 11th March, 2015. The project proponent informed that:
- i. The Project Proponent (PP) has appointed M/s Hubert Enviro Care systems Pvt. Ltd., with NABET certificate No.NABET/ EIA/ 1013/ 041 to carry out the assessment of the list and limits of the pollutants from the various proposed Multi Product Units in MSEZ.
 - ii. Based on the study by M/s Huber Enviro Care Systems, MSEZL has submitted the list and limits of possible pollutants from the Proposed Multi Product Units and six monthly statements related to compliances to EC conditions to Ministry vide MSEZL letter dated 21st January 2015.
 - iii. Assessment of pollution loads from the proposed Multi Product Units were made for the following scenarios and a comparison with approved pollution loads was done
 - a. Scenario-1: considering 90% Petrochemical industries & 10% Downstream industries
 - b. Scenario-2: considering 70% Petrochemical & 30% Downstream industries
 - c. Scenario-3: considering 45% Petrochemical & 55% Downstream industries
 - iv. The objective of the study is to determine the locations for maximum ground level concentrations (GLC) for various air pollutants which could potentially be generated from the proposed various industrial units in the Mangalore Special Economic Zone (MSEZ) through air dispersion modelling technique.
 - v. The Air quality modelling for predicting GLC of various pollutants like SPM, SO₂ and NO_X was computed using AERMOD Modelling software system and AERMET software.
 - vi. AERMOD Software Version 7.5.0 was used for air dispersion modelling and is applicable to a wide range of buoyant or neutrally buoyant emissions up to a range of 50 km. In addition to more straight forward cases, AERMOD is also suitable for complex terrain and urban dispersion scenarios.
 - vii. The earlier approved MSEZ Phase-I project consists of three major units namely MRPL Phase-III refinery, Aromatic Complex and Olefin complex. Instead of olefin complex, Multiproduct industries are proposed which are considered as 3 scenarios mainly of Naphtha fuel consumption, LNG fuel consumption and Mix of Naphtha & LNG mixed fuel consumption respectively.

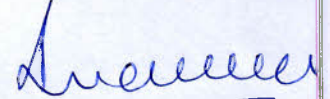
viii. Forecast from different scenarios of proposed Multi Product units is expected to be within the approved Environment Pollution loads of Olefin Complex.

7. The EAC, after deliberation, recommended the project for granting amendment to the Environmental Clearance dated 03.04.2008 for setting up of Multi-Product Units along with Downstream Petroleum/Petrochemical units. The Ministry of Environment, Forest & Climate Change hereby accords amendment to the Environmental Clearance dated 03.04.2008 for setting up of Multi-Product Units along with Downstream Petroleum/Petrochemical units, under the provisions of the EIA Notification, 2006 and amendments thereto and Circulars issued thereon and stipulates the following conditions:

(i) The individual industries shall obtain prior Environmental Clearance as required under EIA Notification, 2006. The Project Proponent shall only allow the projects that have obtained the requisite Environmental Clearance.

8. All the conditions stipulated in the Environmental Clearance vide letter no. 21-383/2007-IA-III dated 03.04.2008 and subsequent amendments vide letter even no. dated 13.07.2012 and 27.08.2014, shall remain unchanged.

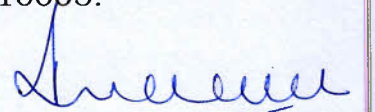
Yours faithfully,



(Dr. Ranjini Warriar)
Director

Copy to:

- (1) The Secretary, Department of Environment, Government of Karnataka, Bangalore.
- (2) The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 110 032.
- (3) The Member Secretary, Karnataka State Pollution Control Board, "Parisara Bhavan, 4th & 5th Floor, # 49, Church Street, Bangalore-560 001.
- (4) Additional Principal CCF (C), Ministry of Environment, Forests and Climate Change, Regional Office (SZ), Kendriya Sadan, 4th Floor, E&F Wing, 17th Main Road, Koramangala II Block, Bangalore - 560034.
- (5) IA - Division, Monitoring Cell, MOEF, New Delhi - 110003.
- (6) Guard file.



(Dr. Ranjini Warriar)
Director

Item wise Details of CSR Activities and Proposed time bound Action Plan

5% of Approved MSEZL Phase I project Cost (Rs 1527.5 Crores) - Rs 76.375 Crores

S. No.	Description	Proposed CSR Expenses	Amount Incd. in Project Cost	Expenses till Oct 2012	Expenses till Oct 2012-Feb 2014	Expenses till Feb 2014-March-2015	Expenses till March 2015-April-2016	Total expense till Date	Balance	Expenses till			
										2016-17	2017-18	2018-19	2019-2020
1	Water Supply Facilities RCC Over Head water tanks including main supply pipeline in Perumde, Balje & Kulai Villages & 48 Acre Drain work b/w HPCL colony & ODC road Drinking Water facilities for neighboring Villages, 6 acres & 9.58 Acres R&R Colony c. Provision of bore wells in Perumde & Balje Villages	2.00	1.00	0.85	0.99	0.145	0.110	2.10	0.000	-	-	-	-
2	Sanitation facilities a. Development of Under Ground Drainage b. Skid mounted STPs for Kulai & Balje Villages	4.09	4.09	2.60	1.08	0.00	0.13	3.81	0.28	-	-	-	-
		0.60	0.60	0.17	0.00	0.235	0.077	0.48	0.12	-	0.21	0.060	0.010
											0.07	0.05	-
3	Community facilities a. Creation of self employment facilities by provision of suitable shops in Kulai & Perumde villages Sponsoring of Community facilities including Primary Health Centre, Play ground, Primary School, Post Office, Gray yard, compound wall, temple, Drain work near Bajana mandir, jokatte, road repair near swayamlingeshwara temple Balje etc etc	0.11	0.11	0.11	0.00	0.00	0.00	0.11	0.00	-	-	-	-
4	Educational Sponsorship a. Up gradation of Skills & Technical training facilities for local youth.	0.50	0.50	0.00	0.00	0.500	0.000	0.50	0.00	-	-	-	-
		6.00	6.00	5.53	0.00	0.260	0.002	5.79	0.21	0.10	0.10	0.11	-
5	Bypass Road for connectivity between Suratkal to Balje for Public use.	36.98	36.98	17.84	7.26	0.00	0.00	25.10	11.88	4.00	4.00	3.88	-
6	Events Sponsorship Improvement of facilities for various Religious places for local communities and sponsoring traditional ceremonies of local communities.	2.00	1.37	1.37	0.00	0.530	0.000	1.90	0.10	0.05	0.05	-	-
		2.00	0.95	0.95	0.00	0.903	0.129	1.98	0.02	0.00	0.00	0.02	-
7	Sponsoring education and cultural activities to local fishermen Community	2.97	2.93	1.27	1.36	0.40	0.21	3.24	-0.27	0.00	0.00	-	-
8	Development roads in surrounding villages & Panchayat roads in Kattel, Perumde & Kuththoor Villages and villages enroute River water Pipeline	12.93	2.79	2.79	9.54	0.402	0.085	12.82	0.11	0.11	-	-	-
Total		76.38	63.52	34.85	24.34	4.10	0.745	64.04	12.45	4.54	4.29	3.89	0.00

Handwritten signature and text:

 S. S. S. S. S.
 M. S. S.



ONGC Mangalore Petrochemicals Limited

(A Subsidiary of Mangalore Refinery & Petrochemicals Ltd.)

Mangalore Special Economic Zone, Permude, Mangaluru - 574 509

CIN : U40107KA2006PLC041258 Website : www.ompl.co.in

Phone : +91-824 2881518 Fax +91-824 2881539

Ref.: OMPL/MoEF/SP/2016-17/

Date: 29.11.2016

To:

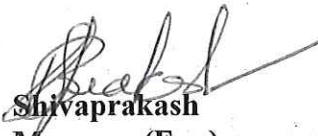
The Head- Technical
MSEZL, Mangalore

Dear Sir,

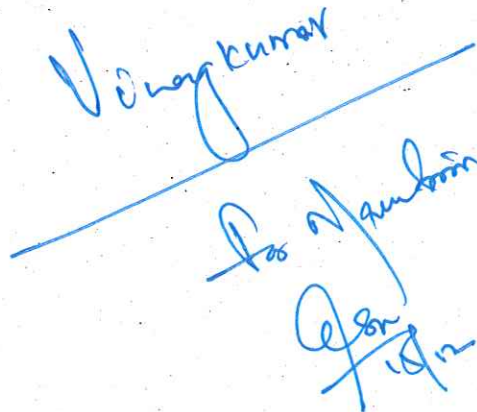
Sub: Submission of Half Yearly Compliance Reports of OMPL under Environmental Clearance for Phase-I, MSEZ project, (Including Aromatic Complex) for the period from April, 2016 to September, 2016

With reference to the above, please find enclosed herewith, Half Yearly Compliance Reports of OMPL, for compilation at your end and submission to the concerned Authority under intimation to our office.

Thanking You,


Shivaprakash
Manager (Env)




V. Jay Kumar
For Mangalore
15/12

Cc:- CEO, OMPL, for info

Compliance to Environmental Clearance

issued by MoEF vide letter No. 21-383/2007-IA-III dated 3rd April, 2008

Sl. No.	Consent Condition	Compliance
2	<p>The Mangalore Special Economic Zone (MSEZ) Phase-I involves a) MRPL Phase -III Refinery b) Aromatic Complex and e) Olefin Complex are proposed to be developed by the anchor promoter of MSEZ I.e M/s ONGC-MRPL in the already acquired land of about 1800 acres. The proposed MSEZ is planned adjacent to the existing MRPL refinery complex on north & eastern sides and proposed to connect NMPT with a dedicated 70/100 meter wide road-cum-pipeline (total approx. 15 km long) corridor for movement of cargo, crude and products between New Mangalore Port and MSEZ. The proposed layout has one main entry from the proposed Mangalore MSEZ corridor connected to the existing New Mangalore Port & National Highway (NH-17). The primary, Secondary and Tertiary roads are planned to give access to the industries falling in the MSEZ Phase -I. Industrial Zones for locating the olefin complex, aromatic complex, D/S Petrochemicals, ISPRCL underground crude oil storage and land for MRPL Phase-III Refinery are effectively placed in the central and southwest part of the proposed MSEZ premises. Further, the SEZ will have necessary road alignment between NMPT, SEZ and network of roads within, including service roads for inspection of pipelines on elevated corridors. The pipelines shall be built at elevated corridor locations. Pipelines will be laid on sleepers and pipe racks with sufficient ground clearance. The preferred corridor alignment avoids Coastal Regulation Zone -I & II portion along the Gurupur River and it will have elevated roadway over structures (railways / minor bridges) and reinforced earth walls. However the corridor passes over CRZ-III zone along the banks of the Kudumbur rivulet (South of ELF gas) in the form of a bridge. The proposed industrial units in MSEZ phase -1</p>	<i>info.</i>
II	<p>To meet the objective of producing paraxylene, aromatic complex has been considered. To maximize paraxylene, broad cut heavy naptha streams are selected as feedstock to NHT/ CCR. Aromatics precursors to new reformer include constituents that produce toluene, C8-aromatics mix & C9+ aromatics. Whereas a xylene isomerization unit has been considered to convert other C8 - aromatics into paraxylene, a transalkylation & disproportionation (TADP) unit has also been included to convert toluene & C9+ aromatics into C8-aromatics mix. simulated moving bed adsorption for paraxylene recovery (PAREX) has been incorporated.</p>	<i>info.</i>
1	NHT/ CCR- 0.95 MMTPA	<i>Complied</i>
2	Isomerization Unit (ISOMER)-3.16 MMTPA	<i>Complied</i>
3	Transalkylation & Disproportionation Unit (TADP)-1.71 MMTPA	<i>Complied</i>
4	Paraxylene Recovery (PXREC)- 4.07 MMTPA	<i>Complied</i>
5	Xylene Fractionation Unit- 4.64 MMTPA	<i>Complied</i>
6	Aromatics Extraction Unit- 0.79 MMTPA	<i>Complied</i>
7	Benzzene Toluene Fractionation Unit- 2.2 MMTPA	<i>Complied</i>
8	Captive Power Plant (CPP)	<i>Please note that normal requirement will be in the range of 40 MW, but Gas Turbine is more prone to Maintenance requirements & hence to ensure continuous supply of power to the plant, installed capacity is 72 MW</i>
3. A Specific Conditions:-		

1	No objection Certificate from the Karnataka State Pollution Control Board shall be obtained before initiating the project	<i>Please note that MZEZ has obtained Consent for Establishment (CFE) from the Karnataka State Pollution Control Board (KSPCB) letter No. CFE-CELL/MSEZ/EIA-574/08/20 dated 30th April, 2008 And OMPL on its part has obtained CFE from the KSPCB, vide letter No. PCB/559/CFE/08/252 dated 12th August, 2008 & also obtained Extension of validity of CFE vide letter No. PCB/HPI/245/2013-14/1002 dated 5th October, 2013 upto 10.8.2014 from KSPCB, Bangalore</i>
2	The MSEZ project shall be restricted to the Phase -I of the project, proposed over 1,800 acres. The phase-II of the project shall be considered by Ministry of Environment & Forests only after receipt of all requisite documents\ information as laid down in the Environment Impact Assessment Notification, 2006 and Coastal Regulation Zone Notification, 1991 as applicable	NA
3	All development in the Coastal Regulation Zone area shall be in accordance with coastal regulation zone notification, 1991. No destruction of mangroves shall be undertaken except while undertaking the permissible activities in the coastal regulation zone-I areas	NA
4	The project proponent shall not take up any activity in 875 acres of coastal regulation zone land, other than those permissible under the coastal regulation zone notification 1991 such as pipeline corridors, pipelines roads on stilts	NA
5	With regard to the containing the suspected contamination of the groundwater near Athurkodi area of Kuthethoor village, MRPL has given an undertaking vide letter dated 19.3.2008 which is as follows:-	NA
6	The project proponent shall obtain a report from the wildlife department with regard to existence of wildlife in the proposed site as claimed by the public before implementing the project	<i>Please note report from Wildlife Department was submitted to the MoEF by MSEZ</i>
7	The R & R package shall be strictly in accordance with the laid down norms of the state Government	<i>NA. However, OMPL has recruited around 302 displaced people and provided employment, as on 30th September, 2016</i>
8	A marine Environment Impact Assessment and Risk Assessment along with the Disaster Management Plan shall be prepared for the outfall facilities proposed in the Coastal Regulation Zone and the marine areas	NA
9	Project proponent shall put up a dedicated website and a display panel to inform the public regarding the Ambient Air Quality along with SO ₂ , Nox and other parameters as prescribed by central Pollution Control Board (CPCB)	<i>OMPL has a dedicated website 'www.ompl.co.in', wherein Environment Monitoring Parameters are periodically uploaded and made available to the public</i>
10	The gaseous emissions from various process units shall conform to the standards prescribed by the concerned State Pollution Control Board. All the measures detailed in the EMP and response to the Public Hearing shall be taken to control the point / stack and fugitive gaseous emissions from the proposed facilities, processes 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	<i>Please note as required in CFE, online Monitoring Instruments of relevant parameters such as Nox & SO_x, are installed for stacks and the readings are made available at DCS. Corrective action will be taken for any deviation. Plant is being operated as per Standard Operating Process (SOP), considering, Standards prescribed by the Regulatory Body. Further Online detectors are available for detecting Hydrocarbon & benzene leaks. 'Containment work' and 'Repair work' are taken up, as ongoing process, on detection of leak, on priority basis.</i>
11	The emission levels of the other pollutants shall also remain within the permissible levels	<i>Please note apart from the relevant parameters as from Sl. No. '10', online analysers such as CO & SPM are also installed to all Process Heater stacks, so as to ensure other pollutants are also within the permissible limits</i>
12	The industrial units in the SEZ and the associated facilities shall be strictly in accordance with the norms laid down by the Karnataka State Government and CPCB	Agreed

13	The project proponent shall ensure that the greenery of the area is maintained. Further, 33 % of the project area shall be dedicated for green belt development of which atleast 5 % shall be for mangrove afforestation. The local Forest Department shall be associated for this purpose and requisite budget earmarked	Please note that OMPL has reserved 33 % of Project area for Green Belt Development. Forest Dept. is lined up for this purpose., work order dated 31st March, 2016 for developing 45 acres of land under Green Belt by march, 2020. The species selected for Green Belt are having good amount of 'Crown Width' as recommended in EIA by NEERI, that was subsequently approved by MoEF while giving Environment Clearance. Development & Maintenance phase of GBD is approximately 4 years. Some of the species recommended in NEERI are, <i>Acacia ferruginea</i> DC (Mimosaceae), <i>Acacia nilotica</i> * (Mimosaceae), <i>Ailanthus excelsa</i> * (Simaroubiaceae), <i>Albizia amara</i> (Mimosaceae) <i>Albizia labbeck</i> * (Mimosaceae), <i>Albizia doratissima</i> (Mimosaceae), <i>Alstonia scholaris</i> * (Apocynaceae) <i>Annona latifolia</i> (Combretaceae), <i>Artocarpus integrifolia</i> (Moraceae), <i>Artocarpus lacucha</i> (Moraceae), <i>Azadirachta indica</i> # (Meliaceae), <i>Bauhinia malabarica</i> (Fabaceae), <i>Bauhinia racemosa</i> * (Caesalpiniaceae), <i>Butea monosperma</i> (Fabaceae), <i>Caesalpinia pulcherrima</i> * (Caesalpiniaceae), <i>Calophyllum tomentosum</i> , <i>Cane sp.</i> (Palmae), <i>Canna orientalis</i> (Cannaceae) <i>Cassia fistula</i> # (Caesalpiniaceae), <i>Cassia siamea</i> (Caesalpiniaceae), <i>Casuarina equisetifolia</i> # (Casurinaceae), <i>Chlorophytum tuberosum</i> (Liliaceae) <i>Dalbergia sissoo</i> (Fabaceae), <i>Dalbergia latifolia</i> # (Fabaceae)
14	The project proponent shall ensure that the water requirement of the Mangalore city does not get affected due to the SEZ operation. Adequate provision shall be made in the reservoirs to provide for the water requirement of the cities	Please note, OMPL, on its part has taken up following measures to conserve water. 1.. The complex Cooling Tower system is designed to use STP water from MSEZ, as make up for CT, apart from the river water. 2.. Chemical Treatment Program with Modern Technology has been institutionalised to save water during Cooling Tower operations 3. Condensate Recovery unit is installed to conserve water and resources, such as chemicals 4. OMPL has under taken rain water harvesting measures for its buildings The current ~ Average water consumption is 207.4 m3/ hr as against design of 571 m3/ hr
15	The project proponent shall ensure that during construction and operation of the project the traffic in the city is not affected	Please note OMPL site is at a distance of ~ 15 KM from the Highway. Hence inconvenience to traffic movement in the city doesn't arise

16	All precautions of the highest standards shall be incorporated in the design of the project to ensure that there is no chance of emission/ leakage of hazardous chemicals including Benzene. Detailed monitoring programme shall be designed and the information provided to the public through display and dedicated website by means of online monitoring	<p>Please note following measures are taken to have a check on Emission/ leakage as,</p> <p><i>*All heaters are installed with LOW NOx Burners</i></p> <p><i>*Heaters stacks are fitted with following Online analyzers</i></p> <p>Carbon monoxide.</p> <p>Sulphur Dioxide</p> <p>Nitrogen Oxides</p> <p>Suspended Particulate matters (SPM)</p> <p><i>*Benzene Tanks – Internal Floating Roof Tank with Nitrogen Blanket</i></p> <p><i>*Paraffinic Raffinate (Volatile material) designed with Vapor recovery unit to recover vapor</i></p> <p><i>*Dispersion Model Analysis was done by Bell Energy India and following Online detectors are being installed</i></p> <p>Benzene Detectors 27</p> <p>H2S Detector 21</p> <p>Hydrocarbon Detectors 193</p> <p>Hydrogen Detectors 68</p> <p>Fire Detectors (In case of Fire) 26</p> <p><i>*Sample Points are closed system to stop local venting and draining</i></p> <p><i>*Hydrocarbons drains are connected to closed Blow down system to recover hydrocarbon.</i></p> <p><i>* OMPL has a dedicated website 'www.ompl.co.in', wherein Environment Monitoring Parameters are periodically uploaded and available to the public</i></p>
17	Low sulphur internal fuel oil and fuel gas shall be fired in process heaters and boilers	OMPL has gone for Low Sulphur fuels in LSHS, HSD & Fuel gas. Please note 'SO2' emission from EIA report for the project is estimated as 13.68 TPD. Avg SOx emission per day is 5.8 TPD
18	Quarterly monitoring of fugitive emissions shall be carried out by Fugitive Emission Detectors (GMI) Leak Surveyor. Guidelines of CPCB will be followed for monitoring fugitive emissions. For control of fugitive emissions, all unsaturated hydrocarbons shall be routed to the flare system. The flare system shall be designed for smokeless burning. Flare gas recovery system shall be installed for reduction of Hydrocarbon loss and emission of VOCs, NOx, N2O, SOx & CO2 to the environment	<p>Please note Quarterly monitoring of fugitive emissions is being carried out. Further, Dispersion Model Analysis was done by Bell Energy India and following Online detectors are installed</p> <p>Benzene Detectors 27</p> <p>Hydrocarbon Detectors 193</p> <p><i>*Flare system is designed for smokeless burning by M/s AirOil</i></p> <p><i>*Study on Flare gas recovery will be looked into.</i></p>
19	Regular Ambient Air Quality Monitoring shall be carried out. The Location and results of existing monitoring stations shall 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 shall be ensured that at least one monitoring station is set up in up-wind & in Down - wind direction along with those in other directions	AAQM monitoring is carried out as per NAAQM rules, 2009 at 5 locations, at a frequency of weekly twice, at a location, all the year round and Monitoring is done for all parameters as per the rules, as suggested by KSPCB & Monthly Reports are submitted to KSPCB . The values are found to be within the NAAQM Norms.
20	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	on-line data for air emissions is being uploaded to the CPCB, since April, 2016. OMPL has dedicated Instrumentation. Team and would ensure calibration of Instruments, as required
21	The practise of acoustic plant design shall be adopted to limit noise exposure for personnel to an 8 hour time weighted average of 90 db(A)	<p>Please note, as a first step, OMPL project group, identified the sources of noise & taken up Attenuation measures, at the design stage itself</p> <p><u>Sources:</u></p> <p>Pumps, Compressors & Turbines.</p> <p><u>Attenuation measures:</u> It is ensured at design stage that Noise level at a distance of 1 mt from the equipment is < 90 db (A) & at plant boundary, it is less than 75 dB in daytime & 70 dB in night time as per the Legal requirement.</p>

22	All the pumps and other equipments, where there is a likelihood of HC leakages, shall be provided with appropriate indicators and detectors. Provision for immediate isolation of such equipment, in case of a leakage shall also be made. The company shall adopt leak detection and repair (LDAR) programme for quantification and control of fugitive emissions	Please note OMPL, as a first step in leak prevention, hired Bell Energy India, who carried out Dispersion Model Analysis and recommended following Online detectors which are installed at site such as, Benzene Detectors 27 nos Hydrocarbon Detectors 193 nos * In case of leak, the first step is to contain the leak & simultaneously leak arresting work is executed LDAR program is ongoing process since July, 2016 *
23	The product loading gantry shall be connected to the product sphere in closed circuit through the vapor arm connected to the tanker. Data on fugitive emissions shall be regularly monitored and records shall be maintained	NA
24	The company shall ensure that no halogenated organic is sent to the flares. If any of the halogenated organic are present, then 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	Halogenated organic is used only for chloride dispersion on platinum catalyst and consumed. Halogenated compound is not sent to Flare Stack Chimney. Used catalyst will be disposed to KSPCB authorised recyclers
25	The new standards/ norms that are being proposed by the CPCB for Petrochemical Plants and Refineries 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 standards and process vent standards for top priority chemicals. Regular monitoring will be carried out for VOC and HC and on line monitors for VOC measurements may be installed	The new standards/ norms that are being proposed by the CPCB for Petrochemical Plants and Refineries are complied. 1. Online Monitoring system is provided to heater stacks 2. Online Detectors of HC, Benzene are installed, to check any fugitive emissions 3. The process vents are connected to flares through safety pop-up valves 4. HC sampling points closed loop systems 5. Storage of HC is in Floating roof tanks (as applicable) with double mechanical seals and Nitrogen blanketing
26	Regular monitoring of relevant parameters for the under ground water in the surrounding areas shall be undertaken and the results shall be submitted to the relevant States Pollution Control Board	Please note Regular monitoring of groundwater is carried out at four locations in & around the plant as advised by KSPCB & the reports are submitted to KSPCB. The frequency of sampling is once in a month, all the year round, at a location & compared with WHO Drinking Water Standards/ IS 10500 Norms. The values are found to be within Drinking water standards/ Norms.
27	Solid Waste generated as pretreater and Reformer catalysts, Sulphur guard absorbent and alumina Balls shall be disposed off as per the authorization from the State Pollution Control Board	Please note that the industry has in place proper Solid Waste handling system to collect, treat and dispose off all solid waste generated from the process including Hazardous wastes and the basic Engineering by TOYO Engineering Corporation. Please note OMPL has obtained 'Authorization under Handling Hazardous Wastes' and will be disposed accordingly. Temporary Waste Storage facility is constructed of about ~ 2000 m2 area with impervious surface, closed shed and leachate collection (for any washings) & transfer (to ETP) system
28	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 lined pit for disposal after treatment. The sludge shall be incinerated in the premises only	No oily sludge is handled in OMPL
29	The company shall strictly follow all the recommendations mentioned in the charter on Corporate Responsibility for Environmental Protection (CREP)	Please refer compliance details for CREP enclosed herewith (ref.: Annexure- 1)
30	The company shall 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	Rain water harvesting system is implemented for rooftop buildings. During initial project stage, surface rain water was collected into open wells and the same was utilised for construction purpose

31	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act	<i>Complied and is ongoing process</i>
32	The company shall implement all the recommendations made in the Environmental Impact Assessment / EMP report and risk assessment report	<i>Complied</i>
33	The company will undertake all relevant measures, as indicated during the Public Hearing for improving the socio-economic conditions of the surrounding area	<i>Complied</i>
34	With regard to R & R colony the project proponent shall obtain all requisite clearances as prescribed by the concerned agencies	<i>NA</i>
B General Conditions :		
1	The project authorities shall strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government	<i>KSPCB stipulations will be adhered to</i>
2	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests	<i>Agreed</i>
3	At no time, the emissions shall be allowed to 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	<i>Agreed</i>
4	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 for both surface and ground water	<i>Complied</i>
5	Industrial Waste water 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	<i>Industrial Waste Water is collected in Slop Tank and then initially treated in EPTP plant to bring down Aromatics to < 20 ppm & Benzene to < 10 ppm, through Distillation & Adsorption processes. It is treated in ETP comprising of Physical, Chemical, Biological & Tertiary Treatment Section. Treated water will be recycled & the remaining after ensuring Conformance to MINAS standards, will be disposed to sea through MSEZ CETP collection & Disposal system.</i>
6	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)	<i>Sources: Pumps, Compressors & Turbines. Attenuation measures: It is ensured at design stage that Noise level at a distance of 1 mt from the equipment is < 90 db (A) by providing acoustic hoods, silencers, enclosures etc. as appropriate & at plant boundary is less than 75 dB in daytime & 70 dB in night time as per the Legal requirement</i>
7	The project authorities shall 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. Requisite On-site and Off - site Disaster Management Plans will be prepared and implemented	<i>Please note that necessary license/ clearance from statutory agencies have been taken such as Approval from Petroleum and Explosives Safety Organization, dated 16th June 2011, Clearance from Department of Factories of Karnataka, dated 19th June 2010. Requisite On-site and Off - site Disaster Management Plans will be adhered to as per Factories Act</i>

8	Authorization from the State Pollution Control Board must be obtained for collections/ treatment/ storage/ disposal of Hazardous wastes	<i>Please note OMPL has obtained 'Authorization under Handling Hazardous Wastes' and valid upto 30th June, 2018</i>
9	The project authorities shall 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 shall not be diverted for any other purposes	Agreed. Further the Amount spent/budgeted (Project) on Environment Management requirement RS 182 crores
10	The stipulated conditions shall be monitored by the concerned Regional office of this Ministry / Central Pollution Control Board / State Pollution Control Board. A six monthly compliance report and the monitored data shall be submitted to them regularly. It shall also be displayed on the website of the company	<i>Please note biannually compliance report is submitted on regular basis through MSEZ. The Environment monitored data are being uploaded in the OMPL website</i>
11	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at website of the MoEF at http://www.envfor.nic.in . This should be advertised within seven days from the date of issue of 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	<i>Please note, the same was ensured by MSEZ</i>
12	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 shall be informed to the Ministry and its Regional Office	NA
13	Proper House keeping and adequate occupational health programmes shall be taken up. Regular Occupational Health Surveillance Programme for the relevant diseases shall be carried out and the records shall be maintained properly for atleast 30-40 years. Sufficient preventive measures shall be adopted to avoid direct exposure to emission and other hydrocarbons etc..	<i>Agreed</i>
14	A separate environment management cell with full fledge laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive	<i>Complied</i>
15	The Ministry may revoke or suspend the clearance, if implementation of any of the above condition is not satisfactory	<i>info.</i>
16	The Ministry reserves the right to stipulate additional conditions if found necessary. The company shall implement these conditions in a time bound manner	<i>info.</i>
17	The above conditions will be enforced, inter - alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air Act, 1981, The Environment Act, 1986, The Public Liability Insurance Act, 1991, Hazardous Waste Rules 1989 and Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 along with their Amendments and Rules	<i>info.</i>

Compliance to Charter on Corporate Responsibility for Environmental Protection (CREP)

Sl. No.	Conditions	Compliance
1	Adoption of state-of-art technology State of Art technology will be adopted for both process technology as well sound engineering practices required for control of emission, at the stage of design itself in case of new plants	Please note Process technology is licensed from renowned expert in the field: UOP, America for NHT platforming units, High severity Cyclemax CCR unit for catalyst regeneration, Energy efficient column design for Xylene & BTF units, ISOMER & TADP units for getting high yield of paraxylene per unit of Naptha processed & an efficient, selective PAREX process for paraxylene recovery to get high purity product are considered in the design stage. Also Low NOx burner design for heaters, Low sulphur fuel including provision for usage of Natural Gas are considered.
2	Management of storm water For the storm water generated from process area and tank farm area during initial hours of rain. An arrangement will be made for collection and oil separation including further treatment as required. Such arrangement will include provision for buffer tank (holding tank) and monitoring of effluent quality. This will be accomplished by June 2003.	Please note OMPL has commissioned 2 numbers of collection tanks: one at ISBL area with capacity of 12,000 m3 & the other at OSBL area with 6000 m3 capacity for collection of initial hours of rain from process area & tank farm area respectively. This is then treated in ETP with an treatment capacity of 150 m3/ hr. The treatment section includes Physical treatment, chemical, Biological & Tertiary treatment sections
3	Effective detoxification and waste water treatment scheme In order to control high COD and persistent organic pollution including toxic constituents, the industry will select appropriate unit operations for pre-treatment of effluent within inside battery limit (ISBL) before sending to the biological treatment system(BTS) for better functioning of ETPs. Action plan for the same will be submitted within 6 months and implemented within one year (March,2004)	OMPL has installed Effluent Pre-Treatment Plant at a cost of RS 11.39 crores. The units consists of Distillation column & carbon adsorption beds to remove CODs, so that effluent entering BTS will be having Max. upto 20 ppm of aromatics
4	Control of emission from combustion The industry will submit an action plan within six months for improving thermal efficiency and control of Nox	OMPL has installed Low Nox burners for its heaters & flue gas is let out just above H2SO4 dew point after heating the incoming fuel, air or Steam production in HRSG as the case may be, for improving thermal inspection
5	Proper functioning of point source emission control systems The industry will make efforts for proper operation of pollution control system (mostly scrubbers) and attainment of desired efficiency within six months. The will include backup of power supply to the control equipment and arrangement for frequent sampling and analysis of all critical pollution in the tail gases	NA
6	Leak detection and repair (LDAR) programme As a good operating, the industry will adopt periodically leak detection and repair (LDAR) programme to check fugitive emissions within six months. The frequency of the programme will be proportionate to the risk potential of carrying fluid. Based on leak detection as per LDAR programme, action will be taken to eliminate fugitive emissions, this will be a continuous activity.	LDAR program is ongoing process since July, 2016. Please note OMPL as first step in leak prevention, hired Bell Energy India, who carried out Dispersion Model Analysis and recommended following Online detectors which are already installed at site such as, Benzene Detectors 27-nos, Hydrocarbon Detectors 193 nos
7	Handling of halogenated organics The industry will submit an action plan within 6 months to ensure that no halogenated organics is sent to the flares in order to avoid formation of persistent organic pollutants. All HAPs had halogenated organics will be routed to the incineration system having end-on pollution control facility.	Halogenated organic is used only for chloride dispersion on platinum catalyst and consumed. Used catalyst will be disposed to KSPCB authorised recyclers
8	Control of fugitive emissions of carcinogenic compounds Fugitive emission of carcinogenic compounds (e.g Benzene) will be controlled by closed vapor collection and recovery system. Measures will be taken to monitor health of the workers	Please note double mechanical seal is provided for the purpose & periodical health check up is being carried out as per the legal requirement through Occupational Health Centre, stagewise
9	Management of solid waste Proper facilities will be provided for handling and storage of hazardous waste with manifest system in case transported to other places. For incinerable waste, properly designed incinerator will be installed within the premises or as a common facility. The non-incinerable hazardous waste should be disposed of in a secure-land fill.	OMPL has installed Solid Waste Management facility at an estimated cost of RS 3.73 crore for handling and storage of hazardous waste until disposal & manifest system will be followed during disposal of Hazardous Wastes. Temporary Waste Storage facility is constructed of about ~ 2000 m2 area with impervious surface, closed shed and leachate collection (for any washings) & transfer (to ETP) system

10	Proper operation of incinerator Industry will check the design and will adopt sound engineering practices for proper operation of incinerators. Continuous monitoring will be done for operational parameters and specific parameters in tail gas to ensure the efficient functioning. This will be implemented within 3 months.	NA
11	Optimising the inventory of hazardous chemicals Efforts will be made to optimize the inventory, particularly of hazardous chemicals. Such information will be made available to the Regulatory Agencies (SBCBs) Inspector of Factory & District Collector	<i>Agreed. Further Petroleum & Explosives Safety Organization (PESO) approvals are being taken for bulk storage of Hazardous chemicals (Petroleum) wherein requirements of the MSIHC Rules, 1989 is considered</i>
12	Self- regulation by industry through monitoring and environmental auditing Industry will go for self-assessment and regulation by conducting environmental auditing regularly, besides having regular monitoring of pollutants in air emission, liquid effluent and receiving environment.	<i>Agreed</i>
13	Organizational restructuring and accreditation of environmental manager of industry. For self-evaluation, organizational restructuring will be done and the environmental manager of the industry will be accredited to bring professionalism in environmental management.	<i>Agreed</i>





ONGC Mangalore Petrochemicals Limited

(A Subsidiary of Mangalore Refinery & Petrochemicals Ltd.)

Mangalore Special Economic Zone, Permude, Mangaluru - 574 509

CIN : U40107KA2006PLC041258 Website : www.ompl.co.in

Phone : +91-824 2881518 Fax +91-824 2881539

REF: OMPL/PCB/SP/2016-17/

Date: 14/6/2016

To:
The Environmental Officer
Regional Office
KSPCB
Baikampady, Mangalore-11

Handwritten notes:
Gant, Jan
Anura
29/6/16

Dear Sir,

Sub: Submission of Environmental Monitoring Report for the Month of May, 2016, Returns Regarding Water Consumed for the Month of May 2016 & Production Report for May, 2016

Ref: CFO No. PCB/245/HPI/2015-16/881 dated 25th August, 2015

With respect to the above subject; we are herewith submitting the following Environmental Monitoring Reports, Returns Regarding Water Consumed in the Month of May, 2016 & Production reports respectively, enclosed herewith.

1. Ambient Air Quality Monitoring at 5 different locations in and around OMPL, enclosed as Annexure- A
2. Water Analysis Reports at 9 different locations in and around OMPL, as Annexure-B
3. Noise Level Monitoring Report at OMPL, as Annexure-C
4. Treated Effluent Analysis Report –Annexure D
5. Returns Regarding Water Consumed, for the Month of May 2016, as Annexure-E
6. Production Report as Annexure-F

Thanking You,

Signature of Shreeprakash
Shreeprakash
Manager (Env)

Handwritten notes:
Vinay Kumar
Checked / Done for any non compliance by OMPL
Jan
1/6/16

CC: Member Secretary, KSPCB, Bangalore
CC: Head (Technical), MSEZ
CC: CEO, OMPL for info

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL East Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore - 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler - APM 550
Respirable Dust Sampler - 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of May-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/05/

PARAMETERS	DAT	WK 66		WK 67		WK 68		WK 69	
		05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	24/05/2016
		CODE	1647	1759	1905	1954	2154	2268	2410
LIMITS									
PM ₁₀ ($\mu\text{g}/\text{m}^3$)	100	59	58	57	65	64	63	59	56
PM _{2.5} ($\mu\text{g}/\text{m}^3$)	60	15	15	15	20	17	19	16	14
SO ₂ ($\mu\text{g}/\text{m}^3$)	80	2.15	2.29	2.51	2.32	2.45	2.32	2.37	2.39
NO ₂ ($\mu\text{g}/\text{m}^3$)	80	3.82	3.14	3.49	3.47	3.21	3.26	3.69	3.37
CO (mg/m^3)	4	0.74	0.79	0.83	0.78	0.81	0.75	0.77	0.78
O ₃ ($\mu\text{g}/\text{m}^3$)	180	0.86	0.87	0.96	0.88	0.93	0.86	0.88	0.89


 Authorized Signatory

Test Report

PARAMETERS	DATE	WK 66		WK 67		WK 68		WK 69	
		05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	24/05/2016
	CODE	1647	1759	1905	1954	2154	2268	2410	2464
LIMITS									
NH ₃ (µg/m ³)	400	1.40	1.44	1.48	1.49	1.52	1.56	1.73	1.60
Lead (µg/m ³)	1	0.065	0.032	0.051	0.124	0.040	BDL	0.009	0.003
Arsenic (ng/m ³)	6	1.26	BDL	BDL	0.59	BDL	BDL	0.45	0.84
Nickel (ng/m ³)	20	1.13	0.75	1.01	0.79	1.13	0.06	0.21	0.22
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. **Name of the location** : Shantigudda
2. **Name of the industry** : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. **Sample Collected By** : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. **Particulars of Sample Collected** : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. **Date of Collection** : For the Month of May-2016 (Monitored for 24 hours)
6. **Sample Number** : EHSRDC/OMPL/A/16/05/

PARAMETERS	DATE	WK 66		WK 67		WK 68		WK 69		
		05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	24/05/2016	
		CODE	1646	1758	1904	1953	2153	2267	2409	2463
		LIMITS								
PM ₁₀ (µg/m ³)	100	67	55	66	58	58	55	64	58	
PM _{2.5} (µg/m ³)	60	20	14	20	15	14	14	19	16	
SO ₂ (µg/m ³)	80	2.45	2.37	2.35	2.19	2.33	2.23	2.29	2.45	
NO ₂ (µg/m ³)	80	3.14	3.26	3.57	3.77	3.72	3.14	3.21	3.19	
CO (mg/m ³)	4	0.76	0.81	0.76	0.71	0.78	0.71	0.71	0.74	
O ₃ (µg/m ³)	180	0.88	0.93	0.88	0.82	0.88	0.83	0.84	0.87	

Test Report

PARAMETERS	DATE	WK 66		WK 67		WK 68		WK 69	
		05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	24/05/2016
	CODE	1646	1758	1904	1953	2153	2267	2409	2463
	LIMITS								
NH ₃ (µg/m ³)	400	1.32	1.63	1.35	1.37	1.33	1.47	1.61	1.41
Lead (µg/m ³)	1	0.012	0.061	0.039	0.104	0.034	BDL	0.053	0.009
Arsenic (ng/m ³)	6	BDL	1.02	BDL	BDL	BDL	BDL	BDL	0.74
Nickel (ng/m ³)	20	BDL	1.12	1.34	1.04	0.89	0.82	1.92	0.72
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Tenka- Ekkar
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of May-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/05/

PARAMETERS	DATE	WK 66		WK 67		WK 68		WK 69	
		07/05/2016	08/05/2016	12/05/2016	13/05/2016	18/05/2016	19/05/2016	25/05/2016	26/05/2016
		CODE	1761	1826	2045	2091	2269	2271	2495
LIMITS									
PM ₁₀ (µg/m ³)	100	60	56	64	61	61	66	67	68
PM _{2.5} (µg/m ³)	60	16	15	18	16	18	20	20	18
SO ₂ (µg/m ³)	80	2.18	2.31	2.39	2.17	2.44	2.55	2.26	2.13
NO ₂ (µg/m ³)	80	3.72	3.67	3.72	3.67	3.49	3.42	3.72	3.24
CO (mg/m ³)	4	0.75	0.76	0.75	0.77	0.78	0.77	0.82	0.77
O ₃ (µg/m ³)	180	0.84	0.87	0.87	0.89	0.91	0.85	0.94	0.88

Test Report

PARAMETERS	DATE	WK 66		WK 67		WK 68		WK 69	
		07/05/2016	08/05/2016	12/05/2016	13/05/2016	18/05/2016	19/05/2016	25/05/2016	26/05/2016
	CODE LIMITS	1761	1826	2045	2091	2269	2271	2495	2533
NH ₃ (µg/m ³)	400	1.58	1.39	1.71	1.67	1.71	1.67	1.55	1.30
Lead (µg/m ³)	1	0.039	0.059	0.039	0.032	BDL	BDL	0.035	0.034
Arsenic (ng/m ³)	6	0.53	0.93	0.51	0.74	BDL	BDL	BDL	BDL
Nickel (ng/m ³)	20	0.09	1.35	0.74	0.21	0.26	0.80	1.34	1.47
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Permude
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of May-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/05/

PARAMETERS	DATE	WK 66		WK 67		WK 68		WK 69	
		07/05/2016	08/05/2016	12/05/2016	13/05/2016	18/05/2016	19/05/2016	26/05/2016	27/05/2016
		CODE	1760	1825	2044	2090	2270	2325	2532
LIMITS									
PM ₁₀ (µg/m ³)	100	64	63	59	68	58	60	66	59
PM _{2.5} (µg/m ³)	60	19	18	16	20	15	17	16	15
SO ₂ (µg/m ³)	80	2.44	2.11	2.25	2.46	2.39	2.25	2.09	2.30
NO ₂ (µg/m ³)	80	3.47	3.16	3.44	3.19	3.69	3.57	3.44	3.72
CO (mg/m ³)	4	0.83	0.84	0.84	0.80	0.80	0.74	0.80	0.75
O ₃ (µg/m ³)	180	0.92	0.96	0.96	0.91	0.93	0.81	0.84	0.86

Test Report

PARAMETERS	DATE	WK 66		WK 67		WK 68		WK 69	
		07/05/2016	08/05/2016	12/05/2016	13/05/2016	18/05/2016	19/05/2016	26/05/2016	27/05/2016
	CODE	1760	1825	2044	2090	2270	2325	2532	2649
LIMITS									
NH ₃ (µg/m ³)	400	1.36	1.68	1.56	1.36	1.56	1.47	1.45	1.81
Lead (µg/m ³)	1	0.026	0.205	0.012	0.010	0.007	BDL	0.005	0.004
Arsenic (ng/m ³)	6	BDL	BDL	BDL	BDL	BDL	BDL	0.74	0.008
Nickel (ng/m ³)	20	1.72	0.31	1.74	1.11	0.26	BDL	1.41	0.75
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL West Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of May-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/05/

PARAMETERS	DATE	WK 66		WK 67		WK 68		WK 69	
		05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	25/05/2016
		CODE	1645	1757	1903	1952	2152	2266	2408
	LIMITS								
PM ₁₀ (µg/m ³)	100	64	61	61	62	69	59	55	63
PM _{2.5} (µg/m ³)	60	17	18	17	17	19	17	13	18
SO ₂ (µg/m ³)	80	2.21	2.08	2.13	2.41	2.13	2.14	2.41	2.23
NO ₂ (µg/m ³)	80	3.67	3.67	3.26	3.24	3.49	3.34	3.42	3.54
CO (mg/m ³)	4	0.72	0.77	0.79	0.80	0.73	0.84	0.83	0.81
O ₃ (µg/m ³)	180	0.85	0.88	0.90	0.91	0.84	0.96	0.95	0.93

Test Report

PARAMETERS	DATE	WK 66		WK 67		WK 68		WK 69	
		05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	25/05/2016
	CODE	1645	1757	1903	1952	2152	2266	2408	2462
	LIMITS								
NH ₃ (µg/m ³)	400	1.58	1.74	1.66	1.26	1.70	1.23	1.37	1.80
Lead (µg/m ³)	1	0.052	0.041	0.021	0.011	0.011	0.019	0.037	0.008
Arsenic (ng/m ³)	6	0.75	0.50	BDL	BDL	BDL	BDL	1.26	BDL
Nickel (ng/m ³)	20	0.99	1.57	0.16	0.94	1.10	1.24	0.27	1.46
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

AN-13

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW1: Narayana GuruCommunityHall, Permude
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore SpecialEconomicZone,Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 23.05.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 24.05.2016
7. Sample Number : EHSRDC/OMPL/W/16/05/2372
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	Test Methods	Std. IS 10500:2012 (Second Revision)		Code
				DL	PL	
						GW1 11622
1.	pH	--	4500H+ B	6.5-8.5		8.40
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.63
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	180
7.	Total Hardness	mg/L	2340 C	200	600	42
8.	Calcium as Ca	mg/L	3500-Ca	75	200	9.6
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	4.37
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	2.67
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.09
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.09
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	18.72
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.06
15.	Alkalinity	mg/L	2320 B	200	600	47
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards
 have been specified were observed to be within the said standard.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW2; GagtelLabor Colony
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore SpécialEconomicZone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 23.05.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 24.05.2016
7. Sample Number : EHSRDC/OMPL/W/16/05/2373
8. Protocol : APHA, 22nd Edition/IS: Standard


Sl.No	PARAMETERS	UNIT	Test Methods	Std. IS 10500:2012 (Second Revision)		Code
				DL	PL	
1.	pH	--	4500H+ B	6.5-8.5		7.60
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.52
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	120
7.	Total Hardness	mg/L	2340 C	200	600	30
8.	Calcium as Ca	mg/L	3500-Ca	75	200	6.4
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	3.40
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	2.88
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.12
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.07
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	10.84
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.06
15.	Alkalinity	mg/L	2320 B	200	600	24
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards
 have been specified were observed to be within the said standard.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : OW1: Tenka-Ekkar
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Special Economic Zone, Perumde
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 23.05.2016
5. Particulars of Sample Collected : Open well water, Grab Sampling
6. Date of Sample Receipt : 24.05.2016
7. Sample Number : EHSRDC/OMPL/W/16/05/2374
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	Test Methods	Std. IS 10500:2012 (Second Revision)		Code
				DL	PL	
						OW1 11624
1.	pH	--	4500H ⁺ B	6.5-8.5		8.08
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.58
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	78
7.	Total Hardness	mg/L	2340 C	200	600	35
8.	Calcium as Ca	mg/L	3500-Ca	75	200	8.4
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	3.4
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	BDL
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.28
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		0.84
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	7.88
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.04
15.	Alkalinity	mg/L	2320 B	200	600	31
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
 Report Status:-The measured values for the above parameters for those standards
 have been specified were observed to be within the said standard.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : OW3: Shanthiguda Village
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Special Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 23.05.2016
5. Particulars of Sample Collected : Open well water, Grab Sampling
6. Date of Sample Receipt : 24.05.2016
7. Sample Number : EHSRDC/OMPL/W/16/05/2375
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl. No	PARAMETERS	UNIT	Test Methods	Std. IS 10500:2012 (Second Revision)		Code
				DL	PL	
						OW2 11625
	pH	--	4500H+ B	6.5-8.5		8.34
	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
	Turbidity	NTU	2130 B	1	5	0.62
	Total Dissolved Solids	mg/L	2540 C	500	2000	110
	Total Hardness	mg/L	2340 C	200	600	33
	Calcium as Ca	mg/L	3500-Ca	75	200	6.4
	Magnesium as Mg	mg/L	3500 Mg B	30	100	4.1
	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	3.70
	Fluoride as F	mg/L	4500F D	1	1.5	0.55
	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		0.96
	Chloride as Cl	mg/L	4500-Cl B	250	1000	20.20
	Iron as Fe	mg/L	3500-Fe B	0.3		0.09
	Alkalinity	mg/L	2320 B	200	600	28
	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : SW1: Near Flare Area, OMPL
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore SpécialEconomicZone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 23.05.2016.
5. Particulars of Sample Collected : Surface outlet water, Grab Sampling
6. Date of Sample Receipt : 24.05.2016
7. Sample Number : EHSRDC/OMPL/W/16/05/2376
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	Test Methods	Std. IS 10500:2012 (Second Revision)		Code
				DL	PL	
						SW1
						11626
1.	pH	--	4500H ⁺ B	6.5-8.5		7.15
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.05
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	274
7.	Total Hardness	mg/L	2340 C	200	600	125
8.	Calcium as Ca	mg/L	3500-Ca	75	200	34.4
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	9.4
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	49.88
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.87
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		4.08
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	20.69
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.18
15.	Alkalinity	mg/L	2320 B	200	600	84
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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***End of Report**

Authorized Signatory

See NOTE overleaf

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : SW2 : Near Central Warehouse, OMPL
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Special Economic Zone, Perumde
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 23.05.2016
5. Particulars of Sample Collected : Surface inlet water, Grab Sampling
6. Date of Sample Receipt : 24.05.2016
7. Sample Number : EHSRDC/OMPL/W/16/05/2377
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	Test Methods	Std. IS 10500:2012 (Second Revision)		Code
				DL	PL	SW2
						11627
1.	pH	--	4500H+ B	6.5-8.5		7.26
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.54
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	252
7.	Total Hardness	mg/L	2340 C	200	600	92
8.	Calcium as Ca	mg/L	3500-Ca	75	200	25.6
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	6.8
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	46.49
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.33
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		4.28
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	28.57
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.19
15.	Alkalinity	mg/L	2320 B	200	600	90
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards
have been specified were observed to be within the said standard.

End of Report

Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW3: L&T New Labor Colony
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 23.05.2016
5. Particulars of Sample Collected : Bore well water ,Grab Sampling
6. Date of Sample Receipt : 24.05.2016
7. Sample Number : EHSRDC/OMPL/W/16/05/2378
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	Test Methods	Std. IS 10500:2012 (Second Revision)		Code
				DL	PL	GW3
1.	pH	--	4500H ⁺ B	6.5-8.5		8.12
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.53
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	126
7.	Total Hardness	mg/L	2340 C	200	600	25
8.	Calcium as Ca	mg/L	3500-Ca	75	200	7.2
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	1.70
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	7.3
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.10
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.09
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	27.59
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.019
15.	Alkalinity	mg/L	2320 B	200	600	24
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),

Report Status:- The measured values for the above parameters for those standards
have been specified were observed to be within the said standard.

End of Report

Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : OW3: Permude Village
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 23.05.2016
5. Particulars of Sample Collected : Open well water, Grab Sampling
6. Date of Sample Receipt : 24.05.2016
7. Sample Number : EHSRDC/OMPL/W/16/05/2379
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	Test Methods	Std. IS 10500:2012 (Second Revision)		Code
				DL	PL	
						OW3
						11629
1.	pH	--	4500H+ B	6.5-8.5		8.14
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.39
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	42
7.	Total Hardness	mg/L	2340 C	200	600	14
8.	Calcium as Ca	mg/L	3500-Ca	75	200	4.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	0.48
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	BDL
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		0.98
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	6.89
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.10
15.	Alkalinity	mg/L	2320 B	200	600	31
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards
have been specified were observed to be within the said standard.

End of Report

Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW4: OMPL (Near ETP)
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Special Economic Zone, Perumde
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 23.05.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 24.05.2016
7. Sample Number : EHSRDC/OMPL/W/16/05/2380
8. Protocol : APHA, 22nd Edition/IS: Standard

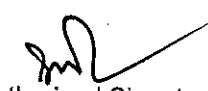
Sl.No	PARAMETERS	UNIT	Test Methods	Std. IS 10500:2012 (Second Revision)		Code
				DL	PL	
						GW4 11630
1.	pH	--	4500H* B	6.5-8.5		7.70
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.79
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	41
7.	Total Hardness	mg/L	2340 C	200	600	27
8.	Calcium as Ca	mg/L	3500-Ca	75	200	5.2
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	3.40
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	BDL
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.51
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.21
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	8.86
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.05
15.	Alkalinity	mg/L	2320 B	200	600	24
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards
have been specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

1. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Spécial Economic Zone,
Permude.Mangalore-574509.
2. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
3. Date of Collection : 21.05.2016
4. Particulars of Sample Collected : Ambient Noise Level collected through
Sound Level Meter C-390
5. Date of Sample Receipt : 23.05.2016
6. Sample Number : EHSRDC/OMPL/N/16/05/ 2326-2329
7. Method Adopted : Instrument Method

Code No	Sample Location	Parameters		Std.
		Day Time dB(A)	Night Time dB(A)	
2326	OMPL East Side Boundary	65.12	54.27	75.0 dB(A) Day
2327	OMPL West Side Boundary	68.33	58.99	
2328	OMPL North Side Boundary	67.20	54.66	70 dB(A) Night
2329	OMPL South Side Boundary	66.42	54.04	

Note :

- Day Time is reckoned between 6 A.M and 10 P.M
- Night Time is reckoned between 10 P.M and 6 A.M
- L_{eq} : It is energy mean of the noise level over a specified period.
- *dB (A) L_{eq} denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) L_{eq} , denotes the frequency weighting in the measurement of noise and corresponds to Frequency response characteristics of the human ear.

End of Report


 Authorized Signatory

AN-15

Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

1. Name of the Location : Guard pond Pump Discharge
2. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore – 560 010.
4. Date of Collection : 31.05.2016
5. Particulars of Sample Collected : ETP Guard Pond Discharge Treated Effluent, Grab Sampling
6. Date of Sample Receipt : 01.06.2016
7. Sample Number : EHSRDC/OMPL/ WW/16/05/2697
8. Analysis started on : 01.06.2016
9. Analysis Completed on : 04.06.2016
10. Page No. : 01 of 2
11. Report to be Sent : 04.06.2016
12. Protocol : APHA, 22nd Edition/IS Method

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
1.	pH	IS 3025(Part-11) :1983	-	7.52	6.0-8.5
2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be made to remove colour and unpleasant odour as for as practicable.
3.	Odour*	IS 3025(Part-5) :1983	--	Unobjectionable	
4.	Temperature	APHA 2550 B	°C	25	
5.	Particle Size of suspended solids*	-	-	Passes	(a)Settle able solids Max.850 microns
6.	B.O.D (3 days in 27°C)	5210 B	mg/L	13	15
7.	C.O.D	5220 B	mg/L	64	125
8.	Total Suspended Solids	2540 D	mg/L	14	20
9.	Phosphate as PO ₄	4500- P D	mg/L	0.25	3
10.	Total Kjeldahl Nitrogen	4500- Norg B	mg/L	14.56	40
11.	Oil & Grease	5520 B	mg/L	BDL	5
12.	Total residual chlorine	APHA 4500- Cl	mg/L	BDL	1
13.	Free ammonia*	IS 3025 (part 34)	mg/L	Not Detectable	5


 Authorized Signatory

Test Report

Sample Number: EHSRDC/OMPL/ WW/16/05/2697

Page No: 02 of 02

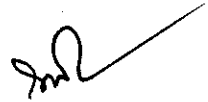
14.	Ammonical Nitrogen	4500- NH ₃ ,B,C	mg/L	0.74	15
15.	Hexavalent Chromium	3500- Cr B	mg/L	BDL	0.1
16.	Sulphide	IS 3025 (part 29): 1986	mg/L	0.96	1.0
17.	Fluoride as F	IS 3025(Part 60): 2008	mg/L	0.60	1.5
18.	Nitrate as NO ₃	IS 3025(Part 34) :1988	mg/L	12.38	20
19.	Iron as Fe	IS 3025(Part 53):2003	mg/L	1.31	3
20.	Mercury as Hg*	IS 3025(Part-48):1994	mg/L	BDL	0.01
21.	Lead as Pb*	IS 3025(Part 47):1994	mg/L	BDL	2
22.	Cadmium as Cd*	IS 3025(Part 41):1992	mg/L	BDL	0.1
23.	Selenium as Se*	IS 3025(Part 56):2003	mg/L	BDL	0.05
24.	Arsenic as As*	IS 3025(Part 37):1988	mg/L	BDL	0.2
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.045	5
26.	Copper as Cu*	IS 3025(Part-42):1992	mg/L	0.002	1
27.	Manganese as Mn*	3111 B	mg/L	0.145	2
28.	Vanadium*	3500 -V	mg/L	BDL	0.1
29.	Nickel as Ni*	IS13428:2005 (Annex L)	mg/L	0.024	1
30.	Total chromium*	IS 13428:2005(Annex.J)	mg/L	0.003	2
31.	Benzene*	APHA 6200 B	mg/L	BDL	0.1
32.	Benzo (a) pyrene*	APHA 6440	µg/l	BDL	0.2
33.	Bioassay*	IS 6582	% survivality	100%	90% survival of fish after 96 hrs, in 100% effluent
34.	Phenolic compounds	IS 3025 (part 43):1992	mg/L	BDL	0.35
35.	Cyanide	IS 3025 (Part 27):1986	mg/L	BDL	0.2

*are not accredited by NABL.

Note: BDL: Below Detectable Limit.

INFERENCE	As per Tolerance limit, Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


 Authorized Signatory

AN-E

Form-1 (Rule 4)
Returns Regarding Water Consumed during the Month of May, 2016

Name and address of the Consumer	Purpose for which water consumed	Reading at the beginning of the first day of the calendar month under report	Reading at the end of the last day of the calendar month under report	Quantity of Water Consumed in Kilo Letters	If the meter was out of order, the monthly average consumption of water for the previous 3 months of the working period	Quantity of water qualifying for rebate according to the assessee	Remarks
M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Permude, Mangalore -574 509	Industrial cooling, spraying in mine pits or boiler feed		19085	19085			
	Cooling Water	0	19085	19085			
	Boiler Feed Water	0	24625	24625			
	Fire Water	0	18457	18457			
	Domestic purpose						
	Drinking Water & Sanitation Processing whereby water gets polluted and the pollutants are easily bio-degradable				1762		Flow through Running hours of pumps recorded
Service Water						Subtracting total flow (by running hours of pumps) from BFW & CT consumption	
Total Consumption				810			
				64739			

Signature of the Consumer

Name

Address

Shivaprakash
Shivaprakash, Manager(Env)

M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Permude, Mangalore -574 509

ANN-F

ONGC Mangalore Petrochemicals Limited

Production Details for May- 2016

Net Naptha Processed – 35603 MT

Sl. No.	Name of the Product	Quantity, MT
1	Paraxylene (Product)	15279.3
2	Benzene (Co product)	4344.05



ONGC Mangalore Petrochemicals Limited

(A Subsidiary of Mangalore Refinery & Petrochemicals Ltd.)

Mangalore Special Economic Zone, Permude, Mangaluru - 574 509

CIN : U40107KA2006PLC041258 Website : www.ompl.co.in

Phone : +91-824 2881518 Fax +91-824 2881539

REF: OMPL/PCB/SP/2016-17/

Date: 14/7/2016

To:
The Environmental Officer
Regional Office
KSPCB
Baikampady, Mangalore-11



Dear Sir,


Sub: Submission of Environmental Monitoring Report for the Month of June, 2016, Returns Regarding Water Consumed for the Month of June 2016 & Production Report for June, 2016

Ref: CFO No. PCB/245/HPI/2015-16/881 dated 25th August, 2015

With respect to the above subject; we are herewith submitting the following Environmental Monitoring Reports, Returns Regarding Water Consumed in the Month of June, 2016 & Production reports respectively, enclosed herewith.

1. Ambient Air Quality Monitoring at 5 different locations in and around OMPL, enclosed as Annexure- A
2. Water Analysis Reports at 9 different locations in and around OMPL, as Annexure-B
3. Noise Level Monitoring Report at OMPL, as Annexure-C
4. Treated Effluent Analysis Report –Annexure D
5. Returns Regarding Water Consumed, for the Month of June 2016, as Annexure-E
6. Production Report as Annexure-F

Thanking You,


Shivaprakash
Manager (Env)

✓ CC: Member Secretary, KSPCB, Bangalore
CC: Head (Technical), MSEZ
CC: CEO, OMPL for info

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL East Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of June-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/06/

PARAMETERS	DATE	WK 70		WK 71		WK 72		WK 73	
		01/06/2016	02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
		CODE	2882	2885	2949	3026	3271	3290	3571
LIMITS									
PM ₁₀ (µg/m ³)	100	61	56	66	58	61	60	61	59
PM _{2.5} (µg/m ³)	60	17	13	20	17	18	17	17	15
SO ₂ (µg/m ³)	80	2.50	2.65	2.11	2.45	2.17	2.43	2.33	2.17
NO ₂ (µg/m ³)	80	3.16	3.47	3.69	3.67	3.24	3.21	3.59	3.21
CO (mg/m ³)	4	0.75	0.83	0.72	0.75	0.82	0.81	0.84	0.79
O ₃ (µg/m ³)	180	0.84	0.94	0.81	0.86	0.93	0.94	0.93	0.86

Test Report

PARAMETERS	DATE	WK 70		WK 71		WK 72		WK 73	
		01/06/2016	02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
	CODE	2882	2885	2949	3026	3271	3290	3571	3627
LIMITS									
NH ₃ (µg/m ³)	400	1.40	1.63	1.48	1.48	1.34	1.33	1.62	1.52
Lead (µg/m ³)	1	0.007	0.008	BDL	0.010	BDL	0.015	0.005	0.009
Arsenic (ng/m ³)	6	1.22	0.97	0.98	1.72	BDL	BDL	0.98	0.18
Nickel (ng/m ³)	20	1.65	0.31	1.96	1.29	1.23	2.41	1.05	1.66
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. **Name of the location** : Shantigudda
2. **Name of the industry** : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. **Sample Collected By** : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore - 560 010.
4. **Particulars of Sample Collected** : Ambient Air collected through
Fine Particulate Sampler - APM 550
Respirable Dust Sampler - 460NL,
CO & O₃ Analyzers.
5. **Date of Collection** : For the Month of June-2016 (Monitored for 24 hours)
6. **Sample Number** : EHSRDC/OMPL/A/16/06/

PARAMETERS	DATE	WK 70		WK 71		WK 72		WK 73	
		01/06/2016	02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
		CODE	2881	2884	2948	3025	3270	3289	3570
LIMITS									
PM ₁₀ (µg/m ³)	100	67	69	61	60	55	66	64	66
PM _{2.5} (µg/m ³)	60	19	21	18	18	14	19	19	20
SO ₂ (µg/m ³)	80	2.31	2.42	2.39	2.19	2.46	2.35	2.26	2.24
NO ₂ (µg/m ³)	80	3.47	3.54	3.14	3.82	3.49	3.80	3.92	3.64
CO (mg/m ³)	4	0.77	0.79	0.80	0.84	0.78	0.72	0.78	0.82
O ₃ (µg/m ³)	180	0.88	0.90	0.89	0.95	0.86	0.84	0.89	0.91

Test Report

PARAMETERS	DATE	WK 70		WK 71		WK 72		WK 73	
		01/06/2016	02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
	CODE	2881	2884	2948	3025	3270	3289	3570	3626
LIMITS									
NH ₃ (µg/m ³)	400	1.55	1.25	1.35	1.74	1.49	1.68	1.32	1.68
Lead (µg/m ³)	1	BDL	0.010	0.012	0.007	BDL	0.008	BDL	BDL
Arsenic (ng/m ³)	6	1.13	2.51	1.00	BDL	BDL	0.50	1.25	1.25
Nickel (ng/m ³)	20	1.32	0.50	1.51	1.26	BDL	BDL	1.77	1.51
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. **Name of the location** : Tenka- Ekkar
2. **Name of the industry** : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. **Sample Collected By** : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. **Particulars of Sample Collected** : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. **Date of Collection** : For the Month of June-2016 (Monitored for 24 hours)
6. **Sample Number** : EHSRDC/OMPL/A/16/06/

PARAMETERS	DATE	WK 70		WK 71		WK 72		WK 73	
		03/06/2016	04/06/2016	08/06/2016	09/06/2016	15/06/2016	16/06/2016	22/06/2016	23/06/2016
		CODE	2888	2890	3072	3108	3379	3426	3640
LIMITS									
PM ₁₀ (µg/m ³)	100	68	64	63	64	55	65	63	64
PM _{2.5} (µg/m ³)	60	20	17	16	20	15	18	18	19
SO ₂ (µg/m ³)	80	2.27	2.59	2.27	2.21	2.28	2.39	2.46	2.44
NO ₂ (µg/m ³)	80	3.34	3.90	3.34	3.77	3.59	3.82	3.59	3.42
CO (mg/m ³)	4	0.78	0.73	0.81	0.79	0.75	0.79	0.75	0.78
O ₃ (µg/m ³)	180	0.91	0.86	0.93	0.89	0.86	0.87	0.84	0.89

Test Report

PARAMETERS	DATE	WK 70		WK 71		WK 72		WK 73	
		03/06/2016	04/06/2016	08/06/2016	09/06/2016	15/06/2016	16/06/2016	22/06/2016	23/06/2016
	CODE	2888	2890	3072	3108	3379	3426	3640	3658
LIMITS									
NH ₃ (µg/m ³)	400	1.62	1.67	1.59	1.36	1.71	1.67	1.48	1.69
Lead (µg/m ³)	1	0.015	0.017	0.041	0.004	0.016	0.005	BDL	0.009
Arsenic (ng/m ³)	6	0.49	0.74	0.002	1.00	BDL	0.041	1.22	0.008
Nickel (ng/m ³)	20	1.78	1.18	1.71	1.50	1.76	BDL	1.32	1.50
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. **Name of the location** : Permude
2. **Name of the industry** : **M/s. ONGC Mangalore Petrochemicals Limited**
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. **Sample Collected By** : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. **Particulars of Sample Collected** : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. **Date of Collection** : For the Month of June-2016 (Monitored for 24 hours)
6. **Sample Number** : EHSRDC/OMPL/A/16/06/

PARAMETERS	DATE	WK 70		WK 71		WK 72		WK 73	
		03/06/2016	04/06/2016	09/06/2016	10/06/2016	16/06/2016	17/06/2016	23/06/2016	24/06/2016
		CODE	2887	2889	3107	3155	3425	3445	3657
	LIMITS								
PM ₁₀ (µg/m ³)	100	65	60	59	62	61	60	56	60
PM _{2.5} (µg/m ³)	60	18	16	17	17	16	16	14	16
SO ₂ (µg/m ³)	80	2.19	2.11	2.39	2.44	2.16	2.33	2.32	2.14
NO ₂ (µg/m ³)	80	3.01	3.72	3.21	3.52	3.42	3.75	3.11	3.69
CO (mg/m ³)	4	0.74	0.84	0.74	0.83	0.81	0.77	0.72	0.80
O ₃ (µg/m ³)	180	0.83	0.95	0.83	0.95	0.92	0.85	0.85	0.91

Test Report

PARAMETERS	DATE	WK 70		WK 71		WK 72		WK 73	
		03/06/2016	04/06/2016	09/06/2016	10/06/2016	16/06/2016	17/06/2016	23/06/2016	24/06/2016
	CODE	2887	2889	3107	3155	3425	3445	3657	3691
	LIMITS								
NH ₃ (µg/m ³)	400	1.34	1.48	1.47	1.55	1.56	1.76	1.47	1.38
Lead (µg/m ³)	1	0.038	0.013	0.006	0.039	0.005	0.015	0.008	0.006
Arsenic (ng/m ³)	6	0.27	1.24	0.50	0.85	1.28	BDL	1.74	0.50
Nickel (ng/m ³)	20	1.27	1.88	1.31	1.75	1.20	1.88	1.29	1.25
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL West Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of June-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/06/

PARAMETERS	DATE	WK 70		WK 71		WK 72		WK 73	
		01/06/2016	02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
		CODE	2880	2883	2947	3024	3269	3288	3569
LIMITS	2880	2883	2947	3024	3269	3288	3569	3625	
PM ₁₀ (µg/m ³)	100	59	57	57	55	59	57	58	57
PM _{2.5} (µg/m ³)	60	15	14	15	14	16	13	14	13
SO ₂ (µg/m ³)	80	2.10	2.16	2.28	2.33	2.32	2.12	2.12	2.45
NO ₂ (µg/m ³)	80	3.67	3.06	3.49	3.06	3.77	3.44	3.21	3.97
CO (mg/m ³)	4	0.81	0.71	0.76	0.79	0.75	0.78	0.71	0.74
O ₃ (µg/m ³)	180	0.92	0.82	0.85	0.87	0.84	0.87	0.83	0.85

Test Report

PARAMETERS	DATE	WK 70		WK 71		WK 72		WK 73	
		01/06/2016	02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
	CODE	2880	2883	2947	3024	3269	3288	3569	3625
	LIMITS								
NH ₃ (µg/m ³)	400	1.75	1.37	1.66	1.34	1.64	1.59	1.48	1.24
Lead (µg/m ³)	1	0.083	0.052	BDL	0.007	0.070	0.012	BDL	BDL
Arsenic (ng/m ³)	6	1.95	1.22	1.48	1.50	BDL	BDL	0.71	1.48
Nickel (ng/m ³)	20	0.74	0.24	1.46	1.25	1.35	1.38	1.92	0.63
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW1: Narayana Guru Community Hall, Permude
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 11.06.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 14.06.2016
7. Sample Number : EHSRDC/OMPL/W/16/06/3255
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						GW1 3255
1.	pH	--	4500H ⁺ B	6.5-8.5		8.17
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.88
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	387
7.	Total Hardness	mg/L	2340 C	200	600	54.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	12.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	5.83
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	6.27
11.	Fluoride as F	mg/L	4500F D	1	1.5	1.19
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.62
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	163.59
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.13
15.	Alkalinity	mg/L	2320 B	200	600	20.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		Not Detected
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report

Haveena
Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW2: Gagtel Labor Colony
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 11.06.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 14.06.2016
7. Sample Number : EHSRDC/OMPL/W/16/06/3256
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						GW2
						3256
						7.07
1.	pH	--	4500H* B		6.5-8.5	<1
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	Unobjectionable
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.25
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	596
7.	Total Hardness	mg/L	2340 C	200	600	48.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	10.4
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	5.34
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	3.49
11.	Fluoride as F	mg/L	4500F D	1	1.5	1.0
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		2.09
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	200.05
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.10
15.	Alkalinity	mg/L	2320 B	200	600	28.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		Not Detected
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those
standards have been specified were observed to be within the said standard.
End of Report

Praveen
Authorized Sign

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- | | |
|------------------------------------|--|
| 1. Name of the Location | : OW1: Tenka-Ekkar |
| 2. Name of the Industry | : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509. |
| 3. Sample Collected By | : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010. |
| 4. Date of Collection | : 11.06.2016 |
| 5. Particulars of Sample Collected | : Open well water, Grab Sampling |
| 6. Date of Sample Receipt | : 14.06.2016 |
| 7. Sample Number | : EHSRDC/OMPL/W/16/06/3257 |
| 8. Protocol | : APHA, 22 nd Edition/IS: Standard |

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	OW1 3257
1.	pH	--	4500H+ B	6.5-8.5		7.60
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.65
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	489
7.	Total Hardness	mg/L	2340 C	200	600	62.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	14.4
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	6.31
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	6.58
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.97
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		3.20
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	157.68
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.10
15.	Alkalinity	mg/L	2320 B	200	600	20.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		Not Detected
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:- The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report

Praveena
Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : OW3: Shanthiguda Village
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 11.06.2016
5. Particulars of Sample Collected : Open well water, Grab Sampling
6. Date of Sample Receipt : 14.06.2016
7. Sample Number : EHSRDC/OMPL/W/16/06/3258
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						OW2 3258
1.	pH	--	4500H ⁺ B	6.5-8.5		7.08
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.48
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	192
7.	Total Hardness	mg/L	2340 C	200	600	40.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	8.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	4.86
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	5.34
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.39
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		2.61
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	51.24
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.11
15.	Alkalinity	mg/L	2320 B	200	600	26.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		Not Detected
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status:-The measured values for the above parameters for those
standards have been specified were observed to be within the said standard.

End of Report

Praveena
Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : SW1: Near Flare Area, OMPL
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 11.06.2016
5. Particulars of Sample Collected : Surface outlet water, Grab Sampling
6. Date of Sample Receipt : 14.06.2016
7. Sample Number : EHSRDC/OMPL/W/16/06/3259
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	SW1 3259
1.	pH	--	4500H+ B	6.5-8.5		7.69
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	4.40
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	171
7.	Total Hardness	mg/L	2340 C	200	600	82.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	23.2
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	5.83
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	32.19
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.09
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		3.39
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	31.53
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.22
15.	Alkalinity	mg/L	2320 B	200	600	26.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		Not Detected
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status:-The measured values for the above parameters for those
standards have been specified were observed to be within the said standard.

***End of Report**

Praveena
Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : SW2 : Near Central Ware House, OMPL
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 11.06.2016
5. Particulars of Sample Collected : Surface inlet water, Grab Sampling
6. Date of Sample Receipt : 14.06.2016
7. Sample Number : EHSRDC/OMPL/W/16/06/3260
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	SW2
						3260
1.	pH	--	4500H+ B	6.5-8.5		7.11
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.04
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	198
7.	Total Hardness	mg/L	2340 C	200	600	68.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	20.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	4.37
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	31.16
11.	Fluoride as F	mg/L	4500F D	1	1.5	1.26
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		6.06
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	29.56
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.23
15.	Alkalinity	mg/L	2320 B	200	600	28.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		Not Detected
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those
standards have been specified were observed to be within the said standard.

End of Report

Paveena
Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW3: L&T New Labor Colony
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 11.06.2016
5. Particulars of Sample Collected : Bore well water ,Grab Sampling
6. Date of Sample Receipt : 14.06.2016
7. Sample Number : EHSRDC/OMPL/W/16/06/3261
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW3
						3261
1.	pH	--	4500H ⁺ B	6.5-8.5		7.80
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.34
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	221
7.	Total Hardness	mg/L	2340 C	200	600	42.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	10.4
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	3.8
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	5.34
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.47
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		4.17
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	68.98
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.16
15.	Alkalinity	mg/L	2320 B	200	600	28.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		Not Detected
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report

Khavena
Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. **Name of the Location** : OW3: Permude Village
2. **Name of the Industry** : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. **Sample Collected By** : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. **Date of Collection** : 11.06.2016
5. **Particulars of Sample Collected** : Open well water, Grab Sampling
6. **Date of Sample Receipt** : 14.06.2016
7. **Sample Number** : EHSRDC/OMPL/W/16/06/3262
8. **Protocol** : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	OW3 3262
1.	pH	--	4500H ⁺ B	6.5-8.5		6.52
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.72
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	387
7.	Total Hardness	mg/L	2340 C	200	600	52.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	11.2
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	5.83
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	6.58
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.71
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		2.36
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	106.43
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.16
15.	Alkalinity	mg/L	2320 B	200	600	26.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		Not Detected
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report

Haveena
Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW4: OMPL (Near ETP)
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 11.06.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 14.06.2016
7. Sample Number : EHSRDC/OMPL/W/16/06/3263
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW4 3263
1.	pH	--	4500H+ B	6.5-8.5		7.65
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.31
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	254
7.	Total Hardness	mg/L	2340 C	200	600	52.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	11.2
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	5.83
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	6.17
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.63
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.67
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	88.69
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.18
15.	Alkalinity	mg/L	2320 B	200	600	28.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		Not Detected
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those
standards have been specified were observed to be within the said standard.

End of Report

Haveena
Authorized Signatory

Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

1. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Spécial Economic Zone,
Permude.Mangalore-574509.
2. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
3. Date of Collection : 24.06.2016
4. Particulars of Sample : Ambient Noise Level collected through
Collected Sound Level Meter C-390
5. Date of Sample Receipt : 25.06.2016
6. Sample Number : EHSRDC/OMPL/N/16/06/ 3659-3662
7. Method Adopted : Instrument Method

Code No	Sample Location	Parameters		Std.
		Day Time dB(A)	Night Time dB(A)	
3659	OMPL East Side Boundary	65.97	52.84	75.0 dB(A) Day
3660	OMPL West Side Boundary	68.13	54.17	
3661	OMPL North Side Boundary	62.77	55.49	70 dB(A) Night
3662	OMPL South Side Boundary	68.65	53.95	

Note :

- Day Time is reckoned between 6 A.M and 10 P.M
- Night Time is reckoned between 10 P.M and 6 A.M
- L_{eq} : It is energy mean of the noise level over a specified period.
- *dB (A) L_{eq} denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) L_{eq} , denotes the frequency weighting in the measurement of noise and corresponds to Frequency response characteristics of the human ear.

End of Report

Praveena
Authorized Signatory

Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

1. Name of the Location : Guard pond Pump Discharge
2. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore – 560 010.
4. Date of Collection : 11.06.2016
5. Particulars of Sample Collected : ETP Guard Pond Discharge Treated Effluent, Grab Sampling
6. Date of Sample Receipt : 14.06.2016
7. Sample Number : EHSRDC/OMPL/ WW/16/06/3264
8. Analysis started on : 14.06.2016
9. Analysis Completed on : 02.07.2016
10. Page No. : 01 of 2
11. Report to be Sent : 02.07.2016
12. Protocol : APHA, 22nd Edition/IS Method

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
1.	pH	IS 3025(Part-11) :1983	-	7.29	6.0-8.5
2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be made to remove colour and unpleasant odour as far as practicable.
3.	Odour*	IS 3025(Part-5) :1983	--	Unobjectionable	
4.	Temperature	APHA 2550 B	°C	25	Shall not exceed 5°C above the receiving water temperature.
5.	Particle Size of suspended solids*	-	-	Passes	(a) Settleable solids Max. 850 microns
6.	B.O.D (3 days in 27°C)	5210 B	mg/L	Not Detected	15
7.	C.O.D	5220 B	mg/L	8.0	125
8.	Total Suspended Solids	2540 D	mg/L	13	20
9.	Phosphate as PO ₄	4500- P D	mg/L	0.35	3
10.	Total Kjeldahl Nitrogen	4500- Norg B	mg/L	14.0	40
11.	Oil & Grease	5520 B	mg/L	BDL	5
12.	Total residual chlorine	APHA 4500- Cl	mg/L	BDL	1
13.	Free ammonia*	IS 3025 (part 34)	mg/L	Not Detectable	5

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Test Report

Sample Number: EHSRDC/OMPL/ WW/16/06/3264

Page No: 02 of 02

14.	Ammonical Nitrogen	4500- NH ₃ ,B,C	mg/L	0.93	15
15.	Hexavalent Chromium	3500- Cr B	mg/L	BDL	0.1
16.	Sulphide	IS 3025 (part 29): 1986	mg/L	0.47	1.0
17.	Fluoride as F	IS 3025(Part 60): 2008	mg/L	1.10	1.5
18.	Nitrate as NO ₃	IS 3025(Part 34) :1988	mg/L	5.06	20
19.	Iron as Fe	IS 3025(Part 53):2003	mg/L	0.03	3
20.	Mercury as Hg*	IS 3025(Part-48):1994	mg/L	BDL	0.01
21.	Lead as Pb*	IS 3025(Part 47):1994	mg/L	0.002	2
22.	Cadmium as Cd*	IS 3025(Part 41):1992	mg/L	0.002	0.1
23.	Selenium as Se*	IS 3025(Part 56):2003	mg/L	BDL	0.05
24.	Arsenic as As*	IS 3025(Part 37):1988	mg/L	0.022	0.2
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.027	5
26.	Copper as Cu*	IS 3025(Part-42):1992	mg/L	0.008	1
27.	Manganese as Mn*	3111 B	mg/L	0.069	2
28.	Vanadium*	3500 -V	mg/L	BDL	0.1
29.	Nickel as Ni*	IS13428:2005 (Annex L)	mg/L	0.021	1
30.	Total chromium*	IS 13428:2005(Annex J)	mg/L	0.0003	2
31.	Benzene*	APHA 6200 B	mg/L	BDL	0.1
32.	Benzo (a) pyrene*	APHA 6440	µg/l	BDL	0.2
33.	Bioassay*	IS 6582	% survivality	100%	90% survival of fish after 96 hrs, in 100% effluent
34.	Phenolic compounds	IS 3025 (part 43):1992	mg/L	BDL	0.35
35.	Cyanide	IS 3025 (Part 27):1986	mg/L	BDL	0.2

*are not accredited by NABL.

Note: BDL: Below Detectable Limit.

INFERENCE	As per Tolerance limit, Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
------------------	--

End of Report

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ANNEXURE-15

Form-1 (Rule 4)
Returns Regarding Water Consumed during the Month of June, 2016

Name and address of the Consumer	Purpose for which water consumed	Reading at the beginning of the first day of the calendar month under report	Reading at the end of the last day of the calendar month under report	Quantity of Water Consumed in Kilo liters	If the meter was out of order, the monthly average consumption of water for the previous 3 months of the working period	Quantity of water qualifying for rebate according to the assessee	Remarks
M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Permude, Mangalore -574 509	Industrial cooling, spraying in mine pits or boiler feed	0	60079	60079			
	Cooling Water						
	Boiler Feed Water	0	71453	71453			
	Fire Water	0	8237.5	8237.5			
	Domestic purpose	0	2524	2524			
Drinking Water & Sanitation	Processing whereby water gets polluted and the pollutants are easily bio-degradable						
	Service Water			4410			Subtracting total flow from BFW, CT & Drinking water consumption
	Total Consumption			146703.5			

Signature of the Consumer

Name

Address

Shivaprakash, Manager(Env)

M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Permude, Mangalore -574 509

ONGC Mangalore Petrochemicals Limited

Production Details for June- 2016

Net Naptha Processed - 108073 MT

Sl. No.	Name of the Product	Quantity, MT
1	Paraxylene (Product)	60261
2	Benzene (Co product)	16590



ONGC Mangalore Petrochemicals Limited

(A Subsidiary of Mangalore Refinery & Petrochemicals Ltd.)

Mangalore Special Economic Zone, Permude, Mangaluru - 574 509

CIN : U40107KA2006PLC041258 Website : www.ompl.co.in

Phone : +91-824 2881518 Fax +91-824 2881539

REF: OMPL/PCB/SP/2016-17/

Date: 14/8/2016

To:
The Environmental Officer
Regional Office
KSPCB
Baikampady, Mangalore-11



Dear Sir,

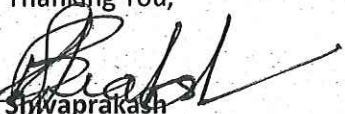
Sub: Submission of Environmental Monitoring Report for the Month of July 2016,
Production Report for July, 2016 & Returns Regarding Water Consumed for the
Month of July 2016

Ref: CFO.No. PCB/245/HPI//ONGC/2014-15/593 dated 18th August 2014

With respect to the above subject; we are herewith submitting the following Environmental Monitoring Reports, production reports & Returns Regarding Water Consumed in the Month of July 2016 respectively, enclosed herewith.

1. Ambient Air Quality Monitoring at 5 different locations in and around OMPL, enclosed as Annexure- A
2. Water Analysis Reports at 9 different locations in and around OMPL, as Annexure-B
3. Noise Level Monitoring Report at OMPL, as Annexure-C
4. Stack Monitoring Report as Annexure-D
5. Treated Effluent Analysis Report – E
6. Returns Regarding Water Consumed, for the Month of July 2016, as Annexure-F
7. Production Report as Annexure-G

Thanking You,


Shivaprakash
Manager (Env)

cc: CEO, OMPL
CC: Member Secretary, KSPCB, Bangalore ✓
CC: Head (Technical), MSEZ

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL East Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore - 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler - APM 550
Respirable Dust Sampler - 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of July-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/07/

PARAMETERS	DATE	WK 74		WK 75		WK 76		WK 77	
		4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
		CODE	3898	3957	4233	4267-C	4494	4598	4752
LIMITS									
PM ₁₀ (µg/m ³)	100	59	60	58	55	64	57	60	59
PM _{2.5} (µg/m ³)	60	15	16	17	14	19	15	17	16
SO ₂ (µg/m ³)	80	2.25	2.39	2.32	2.56	2.64	2.21	2.34	2.53
NO ₂ (µg/m ³)	80	3.75	3.59	3.33	3.62	3.49	3.58	3.27	3.37
CO (mg/m ³)	4	0.74	0.72	0.82	0.75	0.79	0.79	0.79	0.84
O ₃ (µg/m ³)	180	0.86	0.83	0.95	0.86	0.88	0.88	0.88	0.95


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Test Report

PARAMETERS	DATE	WK 74		WK 75		WK 76		WK 77	
		4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
	CODE	3898	3957	4233	4267-C	4494	4598	4752	4771
	LIMITS								
NH ₃ (µg/m ³)	400	1.59	1.33	1.48	1.62	1.31	1.55	1.46	1.66
Lead (µg/m ³)	1	0.050	0.002	0.009	0.005	0.042	0.012	0.015	0.013
Arsenic (ng/m ³)	6	BDL	0.82	0.92	0.70	1.43	0.72	1.50	BDL
Nickel (ng/m ³)	20	1.59	1.60	2.50	1.62	0.04	1.39	2.75	1.13
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Shantigudda
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of July-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/07/

PARAMETERS	DATE	WK 74		WK 75		WK 76		WK 77	
		4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
		CODE	3897	3956	4232	4267-B	4493	4597	4751
LIMITS									
PM ₁₀ (µg/m ³)	100	64	56	55	65	60	58	63	57
PM _{2.5} (µg/m ³)	60	17	14	15	19	17	16	18	14
SO ₂ (µg/m ³)	80	2.19	2.15	2.55	2.37	2.27	2.65	2.44	2.28
NO ₂ (µg/m ³)	80	3.28	3.26	3.45	3.58	3.24	3.42	3.74	3.62
CO (mg/m ³)	4	0.80	0.77	0.78	0.85	0.73	0.75	0.74	0.76
O ₃ (µg/m ³)	180	0.94	0.85	0.86	0.94	0.82	0.85	0.86	0.85


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Test Report

PARAMETERS	DATE	WK 74		WK 75		WK 76		WK 77	
		4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
	CODE	3897	3956	4232	4267-B	4493	4597	4751	4770
LIMITS									
NH ₃ (µg/m ³)	400	1.38	1.48	1.35	1.58	1.66	1.50	1.29	1.36
Lead (µg/m ³)	1	0.003	0.003	0.007	0.006	0.026	0.023	0.003	0.005
Arsenic (ng/m ³)	6	BDL	1.42	0.75	1.75	BDL	1.25	0.25	BDL
Nickel (ng/m ³)	20	1.25	1.95	2.05	1.50	2.11	1.66	1.36	2.98
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


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Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Tenka- Ekkar
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of July-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/07/

PARAMETERS	DATE	WK 74		WK 75		WK 76		WK 77	
		6/07/2016	7/07/2016	13/07/2016	14/07/2016	20/07/2016	21/07/2016	27/07/2016	28/07/2016
		CODE	3995	4054	4320	4385	4628	4637	4777
LIMITS									
PM ₁₀ (µg/m ³)	100	63	62	64	61	59	56	61	62
PM _{2.5} (µg/m ³)	60	17	18	19	18	15	14	17	18
SO ₂ (µg/m ³)	80	2.28	2.24	2.19	2.61	2.57	2.35	2.65	2.64
NO ₂ (µg/m ³)	80	3.47	3.48	3.82	3.52	3.77	3.27	3.62	3.45
CO (mg/m ³)	4	0.79	0.75	0.84	0.73	0.81	0.73	0.80	0.72
O ₃ (µg/m ³)	180	0.88	0.84	0.95	0.85	0.94	0.86	0.91	0.84


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Test Report

PARAMETERS	DATE	WK 74		WK 75		WK 76		WK 77	
		6/07/2016	7/07/2016	13/07/2016	14/07/2016	20/07/2016	21/07/2016	27/07/2016	28/07/2016
	CODE	3995	4054	4320	4385	4628	4637	4777	4788
	LIMITS								
NH ₃ (µg/m ³)	400	1.38	1.66	1.74	1.35	1.54	1.67	1.31	1.35
Lead (µg/m ³)	1	0.003	0.002	0.010	0.007	0.014	0.018	0.016	0.009
Arsenic (ng/m ³)	6	BDL	0.19	1.25	0.25	1.46	1.75	BDL	0.44
Nickel (ng/m ³)	20	2.75	1.40	1.99	1.50	2.72	1.25	2.45	1.67
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Permude
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of July-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/07/

PARAMETERS	DATE	WK 74		WK 75		WK 76		WK 77	
		7/07/2016	8/07/2016	14/07/2016	15/07/2016	21/07/2016	22/07/2016	28/07/2016	29/07/2016
		CODE	4053	4107	4384	4413	4636	4678	4787
LIMITS									
PM ₁₀ (µg/m ³)	100	56	57	58	63	60	55	64	61
PM _{2.5} (µg/m ³)	60	15	16	15	18	16	13	19	17
SO ₂ (µg/m ³)	80	2.36	2.64	2.37	2.54	2.25	2.69	2.44	2.55
NO ₂ (µg/m ³)	80	3.29	3.36	3.46	3.17	3.67	3.29	3.78	3.36
CO (mg/m ³)	4	0.81	0.76	0.79	0.80	0.84	0.82	0.82	0.75
O ₃ (µg/m ³)	180	0.93	0.87	0.88	0.91	0.95	0.94	0.96	0.83


 Authorized Signatory

Test Report

PARAMETERS	DATE	WK 74		WK 75		WK 76		WK 77	
		7/07/2016	8/07/2016	14/07/2016	15/07/2016	21/07/2016	22/07/2016	28/07/2016	29/07/2016
	CODE	4053	4107	4384	4413	4636	4678	4787	4789
	LIMITS								
NH ₃ (µg/m ³)	400	1.42	1.41	1.56	1.28	1.56	1.28	1.51	1.60
Lead (µg/m ³)	1	0.002	0.002	0.011	0.022	0.017	0.028	0.011	0.009
Arsenic (ng/m ³)	6	BDL	0.25	1.70	0.25	BDL	0.25	1.75	1.25
Nickel (ng/m ³)	20	2.36	1.72	2.55	2.64	1.22	1.25	2.08	1.81
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

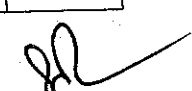

 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL West Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of July-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/07/

PARAMETERS	DATE	WK 74		WK 75		WK 76		WK 77	
		4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
		CODE	3896	3955	4231	4267-A	4492	4596	4750
LIMITS									
PM ₁₀ (µg/m ³)	100	67	62	66	58	62	60	56	65
PM _{2.5} (µg/m ³)	60	20	18	20	15	18	19	14	20
SO ₂ (µg/m ³)	80	2.31	2.27	2.28	2.62	2.44	2.46	2.25	2.60
NO ₂ (µg/m ³)	80	3.06	3.44	3.29	3.65	3.48	3.61	3.27	3.54
CO (mg/m ³)	4	0.76	0.84	0.72	0.77	0.84	0.81	0.82	0.79
O ₃ (µg/m ³)	180	0.89	0.96	0.80	0.86	0.95	0.92	0.95	0.87


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 74		WK 75		WK 76		WK 77	
		4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
	CODE	3896	3955	4231	4267-A	4492	4596	4750	4769
LIMITS									
NH ₃ (µg/m ³)	400	1.45	1.59	1.66	1.39	1.27	1.38	1.65	1.49
Lead (µg/m ³)	1	0.064	0.004	0.029	0.006	0.028	0.012	0.025	0.054
Arsenic (ng/m ³)	6	BDL	0.36	0.84	1.74	0.94	BDL	0.72	0.78
Nickel (ng/m ³)	20	2.40	1.69	2.82	2.78	1.93	1.88	1.08	1.22
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW1: Narayana Guru Community Hall, Permude
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 14.07.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 15.07.2016
7. Sample Number : EHSRDC/OMPL/W/16/07/4327
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						GW1 4327
1.	pH	--	4500H+ B	6.5-8.5		6.95
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.40
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	91
7.	Total Hardness	mg/L	2340 C	200	600	57
8.	Calcium as Ca	mg/L	3500-Ca	75	200	10
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	7.77
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	3.08
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.93
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.06
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	8.31
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.29
15.	Alkalinity	mg/L	2320 B	200	600	62
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY


1. Name of the Location : GW2: Gagnet Labor Colony
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 14.07.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 15.07.2016
7. Sample Number : EHSRDC/OMPL/W/16/07/4328
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW2
						4328
						7.23
1.	pH	--	4500H ⁺ B	6.5-8.5		<1
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.14
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	218
7.	Total Hardness	mg/L	2340 C	200	600	133
8.	Calcium as Ca	mg/L	3500-Ca	75	200	34.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	11.66
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	59.76
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.73
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.06
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	9.78
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.24
15.	Alkalinity	mg/L	2320 B	200	600	114
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : OW1: Tenka-Ekkar
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 14.07.2016
5. Particulars of Sample Collected : Open well water, Grab Sampling
6. Date of Sample Receipt : 15.07.2016
7. Sample Number : EHSRDC/OMPL/W/16/07/4329
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						OW1
						4329
					6.5-8.5	6.84
1.	pH	--	4500H ⁺ B	5	15	<1
2.	Colour	Hazen	IS 3025(Part-4):1983			
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.19
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	92
7.	Total Hardness	mg/L	2340 C	200	600	40
8.	Calcium as Ca	mg/L	3500-Ca	75	200	9.6
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	3.88
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	6.27
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.52
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E		45	5.66
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	25.43
14.	Iron as Fe	mg/L	3500-Fe B		0.3	0.17
15.	Alkalinity	mg/L	2320 B	200	600	27.0
16.	Chromium Hexavalent	mg/L	3500 Cr B		---	BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : OW3: Shanthiguda Village
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 14.07.2016
5. Particulars of Sample Collected : Open well water, Grab Sampling
6. Date of Sample Receipt : 15.07.2016
7. Sample Number : EHSRDC/OMPL/W/16/07/4330
8. Protocol : APHA, 22nd Edition/IS: Standard


Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						OW2
						4330
						7.03
1.	pH	--	4500H ⁺ B	6.5-8.5		<1
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	Unobjectionable
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Agreeable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.11
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	60
7.	Total Hardness	mg/L	2340 C	200	600	46
8.	Calcium as Ca	mg/L	3500-Ca	75	200	10
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	5.10
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	6.48
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.7
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	12.71
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.17
15.	Alkalinity	mg/L	2320 B	200	600	35
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status:-The measured values for the above parameters for those standards
have been specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : SW1: Near Flare Area, OMPL
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 14.07.2016
5. Particulars of Sample Collected : Surface outlet water, Grab Sampling
6. Date of Sample Receipt : 15.07.2016
7. Sample Number : EHSRDC/OMPL/W/16/07/4331
8. Protocol : APHA, 22nd Edition/ IS: Standard


Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	SW1
						4331
						6.85
1.	pH	--	4500H ⁺ B	6.5-8.5		<1
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	87.0
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.88
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	40
7.	Total Hardness	mg/L	2340 C	200	600	12.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	2.43
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	10.38
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	0.78
11.	Fluoride as F	mg/L	4500F D	1	1.5	5.81
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		14.67
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	0.19
14.	Iron as Fe	mg/L	3500-Fe B	0.3		21
15.	Alkalinity	mg/L	2320 B	200	600	BDL
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		Absent
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status:-The measured values for the above parameters for those standards
have been specified were observed to be within the said standard.

***End of Report**


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : SW2 : Near Central Ware House, OMPL
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 14.07.2016
5. Particulars of Sample Collected : Surface inlet water, Grab Sampling
6. Date of Sample Receipt : 15.07.2016
7. Sample Number : EHSRDC/OMPL/W/16/07/4332
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	SW2
						4332
1.	pH	--	4500H+ B	6.5-8.5		6.99
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.39
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	106
7.	Total Hardness	mg/L	2340 C	200	600	55
8.	Calcium as Ca	mg/L	3500-Ca	75	200	8.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	8.01
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	9.77
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.52
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		6.08
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	13.2
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.22
15.	Alkalinity	mg/L	2320 B	200	600	25
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards have
been specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW3: L&T New Labor Colony
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development Centre,
Bangalore - 560 010.
4. Date of Collection : 14.07.2016
5. Particulars of Sample Collected : Bore well water ,Grab Sampling
6. Date of Sample Receipt : 15.07.2016
7. Sample Number : EHSRDC/OMPL/W/16/07/4333
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW3
						4333
1.	pH	--	4500H* B	6.5-8.5		6.98
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.15
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	187
7.	Total Hardness	mg/L	2340 C	200	600	121
8.	Calcium as Ca	mg/L	3500-Ca	75	200	23.6
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	15.06
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	54.52
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.65
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		BDL
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	10.76
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.17
15.	Alkalinity	mg/L	2320 B	200	600	81
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note: BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status:-The measured values for the above parameters for those standards have been
specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- | | |
|------------------------------------|---|
| 1. Name of the Location | : OW3: Permude Village |
| 2. Name of the Industry | : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509. |
| 3. Sample Collected By | : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010. |
| 4. Date of Collection | : 14.07.2016 |
| 5. Particulars of Sample Collected | : Open well water, Grab Sampling |
| 6. Date of Sample Receipt | : 15.07.2016 |
| 7. Sample Number | : EHSRDC/OMPL/W/16/07/4334 |
| 8. Protocol | : APHA, 22 nd Edition/IS: Standard |

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	OW3
						4334
						6.82
1.	pH	--	4500H+ B	6.5-8.5		<1
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	Unobjectionable
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.24
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	112
7.	Total Hardness	mg/L	2340 C	200	600	60
8.	Calcium as Ca	mg/L	3500-Ca	75	200	18.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	3.64
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	5.04
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.40
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		5.61
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	29.84
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.24
15.	Alkalinity	mg/L	2320 B	200	600	.39
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note: BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards have been
specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW4: OMPL (Near ETP)
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 14.07.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 15.07.2016
7. Sample Number : EHSRDC/OMPL/W/16/07/4335
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW4
						4335
				6.5-8.5		6.82
1.	pH	--	4500H* B	5	15	<1
2.	Colour	Hazen	IS 3025(Part-4):1983	Unobjectionable		Unobjectionable
3.	Odour	--	IS 3025(Part-5):1983	Agreeable		Agreeable
4.	Taste	--	IS 3025(Part-8):1984	1	5	0.66
5.	Turbidity	NTU	2130 B	500	2000	131
6.	Total Dissolved Solids	mg/L	2540 C	200	600	58
7.	Total Hardness	mg/L	2340 C	75	200	10.8
8.	Calcium as Ca	mg/L	3500-Ca	30	100	7.53
9.	Magnesium as Mg	mg/L	3500 Mg B	200	400	18.7
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	1	1.5	0.77
11.	Fluoride as F	mg/L	4500F D	45		4.23
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	250	1000	26.41
13.	Chloride as Cl	mg/L	4500-Cl B	0.3		BDL
14.	Iron as Fe	mg/L	3500-Fe B	200	600	40
15.	Alkalinity	mg/L	2320 B	---		BDL
16.	Chromium Hexavalent	mg/L	3500 Cr B	Absent		Absent
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note: BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards
have been specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

1. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Spécial Economic Zone,
Permude.Mangalore-574509.
2. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
3. Date of Collection : 13.07.2016
4. Particulars of Sample Collected : Ambient Noise Level collected through
Sound Level Meter C-390
5. Date of Sample Receipt : 15.07.2016
6. Sample Number : EHSRDC/OMPL/N/16/07/ 4321-4324
7. Method Adopted : Instrument Method

Code No	Sample Location	Parameters		Std.
		Day Time dB(A)	Night Time dB(A)	
4321	OMPL East Side Boundary	69.70	51.22	75.0 dB(A) Day
4322	OMPL West Side Boundary	66.74	50.29	
4323	OMPL North Side Boundary	63.46	52.42	70.0 dB(A) Night
4324	OMPL South Side Boundary	64.78	54.90	

Note:

- Day Time is reckoned between 6 A.M and 10 P.M
- Night Time is reckoned between 10 P.M and 6 A.M
- L_{eq} : It is energy mean of the noise level over a specified period.
- *dB (A) L_{eq} denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) L_{eq} , denotes the frequency weighting in the measurement of noise and corresponds to Frequency response characteristics of the human ear.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : NHT Charge Heater
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 11.07.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 13.07.2016
7. Sample Number : EHSRDC/OMPL/S/16/07/4234
8. Report to be Sent : 15.07.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	11.07.2016
Ambient Temperature (°C)	24
Stack Temperature (°C)	235
Velocity (m/s)	5.68
Diameter (m)	1.94
Cross Sectional Area in meter square (m ²)	2.954
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	35338.28

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	3.85	5
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	10.71	250
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	8.54	50
Carbon Monoxide	EPA method (10)	mg/Nm ³	78.60	100

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
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End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : Tatory Charge Heater
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 11.07.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 13.07.2016
7. Sample Number : EHSRDC/OMPL/S/16/07/4235
8. Report to be Sent : 15.07.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	11.07.2016
Ambient Temperature (°C)	23
Stack Temperature (°C)	189
Velocity (m/s)	6.68
Diameter (m)	1.75
Cross Sectional Area in meter square (m ²)	2.404
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	37052.62

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	4.90	5
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	15.45	250
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	11.31	50
Carbon Monoxide	EPA method (10)	mg/Nm ³	70.40	100

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
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End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : ISOMER Charge Heater
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 11.07.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 13.07.2016
7. Sample Number : EHSRDC/OMPL/S/16/07/4236
8. Report to be Sent : 15.07.2016
9. Page No : 1 of 1

GENERAL DETAILS


Date of Monitoring	11.07.2016
Ambient Temperature (°C)	24
Stack Temperature (°C)	215
Velocity (m/s)	6.77
Diameter (m)	2.3
Cross Sectional Area in meter square (m ²)	4.153
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	61647.64

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	4.60	5
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	12.83	250
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	10.68	50
Carbon Monoxide	EPA Method (10)	mg/Nm ³	74.20	100

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
------------------	---

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : Xylene Column Reboiler Heater Part -A
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 12.07.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 13.07.2016
7. Sample Number : EHSRDC/OMPL/S/16/07/4237
8. Report to be Sent : 15.07.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	12.07.2016
Ambient Temperature (°C)	23
Stack Temperature (°C)	176
Velocity (m/s)	7.26
Diameter (m)	3.69
Cross Sectional Area in meter square (m ²)	10.689
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	184327.67

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	15.40	50
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	13.55	350
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	11.52	850
Carbon Monoxide	EPA method (10)	mg/Nm ³	60.50	150

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
------------------	--

End of Report


Authorized Signatory

ANNEXURE - C

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : Xylene Column Reboiler Heater Part- B
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 12.07.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 13.07.2016
7. Sample Number : EHSRDC/OMPL/S/16/07/4238
8. Report to be Sent : 15.07.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	12.07.2016
Ambient Temperature (°C)	22
Stack Temperature (°C)	175
Velocity (m/s)	6.32
Diameter (m)	3.69
Cross Sectional Area in meter square (m ²)	10.689
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	160262.96

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	17.90	50
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	10.93	350
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	8.0	850
Carbon Monoxide	EPA method (10)	mg/Nm ³	68.60	150

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
------------------	---

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : CPP Utility Boiler
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 14.07.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 15.07.2016
7. Sample Number : EHSRDC/OMPL/S/16/07/4325
8. Report to be Sent : 16.07.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	14.07.2016
Ambient Temperature (°C)	24
Stack Temperature (°C)	138
Velocity (m/s)	6.21
Diameter (m)	2.74
Cross Sectional Area in meter square (m ²)	5.893
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	95334.68

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	8.71	50
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	11.02	350
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	8.73	850
Carbon Monoxide	EPA method (10)	mg/Nm ³	51.80	150

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
------------------	--

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : Plat former Charge Heater
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 14.07.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 15.07.2016
7. Sample Number : EHSRDC/OMPL/S/16/07/4326
8. Report to be Sent : 16.07.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	14.07.2016
Ambient Temperature (°C)	25
Stack Temperature (°C)	338
Velocity (m/s)	9.18
Diameter (m)	4.10
Cross Sectional Area in meter square (m ²)	13.196
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	212888.19

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	3.40	5
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	13.09	250
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	10.47	50
Carbon Monoxide	EPA method (10)	mg/Nm ³	84.60	100

INFERENCE	As per KSPCB Standards, Report Status: - The measured value for above parameters is within the standard.
------------------	---

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : CPP (GTG + HRSG) -1
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 13.07.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 14.07.2016
7. Sample Number : EHSRDC/OMPL/S/16/07/4267-D
8. Report to be Sent : 20.07.2016
9. Page No : 1 of 1

GENERAL DETAILS


Date of Monitoring	13.07.2016
Ambient Temperature (°C)	25
Stack Temperature (°C)	210
Velocity (m/s)	6.52
Diameter (m)	2.8
Cross Sectional Area in meter square (m ²)	6.154
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	89219.27

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	15.7	50
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	11.29	350
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	8.00	850
Carbon Monoxide	EPA method (10)	mg/Nm ³	72.8	150

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
------------------	---

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : BTF(Benzene Toluene fractionation Column Reboiler
Heater)
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 13.07.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 14.07.2016
7. Sample Number : EHSRDC/OMPL/S/16/07/4267-E
8. Report to be Sent : 20.07.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	13.07.2016
Ambient Temperature (°C)	22
Stack Temperature (°C)	171
Velocity (m/s)	5.26
Diameter (m)	3.29
Cross Sectional Area in meter square (m ²)	8.497
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	107038.76

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	22.90	50
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	12.22	350
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	9.60	850
Carbon Monoxide	EPA method (10)	mg/Nm ³	66.50	150

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
------------------	--

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

1. Name of the Location : Guard Pond Pump Discharge
2. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 14.07.2016
5. Particulars of Sample Collected : ETP Guard Pond Discharge Treated Effluent, Grab Sampling
6. Date of Sample Receipt : 15.07.2016
7. Sample Number : EHSRDC/OMPL/ WW/16/07/4336
8. Analysis started on : 15.07.2016
9. Analysis Completed on : 20.07.2016
10. Page No. : 01 of 2
11. Report to be Sent : 20.07.2016
12. Protocol : APHA, 22nd Edition/IS Method

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
1.	pH	IS 3025(Part-11) :1983	-	6.74	6.0-8.5
2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be made to remove colour and unpleasant odour as for as practicable.
3.	Odour*	IS 3025(Part-5) :1983	--	Unobjectionable	
4.	Temperature	APHA 2550 B	°C	25	Shall not exceed 5°C above the receiving water temperature.
5.	Particle Size of suspended solids*	-	-	Passes	(a)Settleable solids Max.850 microns
6.	B.O.D (3 days in 27°C)	5210 B	mg/L	3.2	15
7.	C.O.D	5220 B	mg/L	46	125
8.	Total Suspended Solids	2540 D	mg/L	7.0	20
9.	Phosphate as PO ₄	4500- P D	mg/L	0.035	3
10.	Total Kjeldahl Nitrogen	4500- Norg B	mg/L	30.24	40
11.	Oil & Grease	5520 B	mg/L	BDL	5
12.	Total residual chlorine	APHA 4500- Cl	mg/L	BDL	1
13.	Free ammonia*	IS 3025 (Part 34)	mg/L	Not Detected	5


Authorized Signatory

Test Report

Sample Number: EHSRDC/OMPL/ WW/16/07/4336
Page No: 02 of 02

14.	Ammonical Nitrogen	4500- NH ₃ ,B,C	mg/L	4.10	15
15.	Hexavalent Chromium	3500- Cr B	mg/L	BDL	0.1
16.	Sulphide	IS 3025 (Part 29): 1986	mg/L	0.8	1.0
17.	Fluoride as F	IS 3025(Part 60): 2008	mg/L	1.13	1.5
18.	Nitrate as NO ₃	IS 3025(Part 34) :1988	mg/L	8.91	20
19.	Iron as Fe	IS 3025(Part 53):2003	mg/L	0.02	3
20.	Mercury as Hg*	IS 3025(Part-48):1994	mg/L	BDL	0.01
21.	Lead as Pb*	IS 3025(Part 47):1994	mg/L	0.007	2
22.	Cadmium as Cd*	IS 3025(Part 41):1992	mg/L	BDL	0.1
23.	Selenium as Se*	IS 3025(Part 56):2003	mg/L	BDL	0.05
24.	Arsenic as As*	IS 3025(Part 37):1988	mg/L	BDL	0.2
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.070	5
26.	Copper as Cu*	IS 3025(Part-42):1992	mg/L	0.009	1
27.	Manganese as Mn*	3111 B	mg/L	0.165	2
28.	Vanadium*	3500 -V	mg/L	BDL	0.1
29.	Nickel as Ni*	IS13428:2005 (Annex L)	mg/L	0.007	1
30.	Total Chromium*	IS 13428:2005(Annex J)	mg/L	0.004	2
31.	Benzene*	APHA 6200 B	mg/L	BDL	0.1
32.	Benzo (a) pyrene*	APHA 6440	µg/l	BDL	0.2
33.	Bioassay*	IS 6582	% survivality	100%	90% survival of fish after 96 hrs, in 100% effluent
34.	Phenolic compounds	IS 3025 (part 43):1992	mg/L	BDL	0.35
35.	Cyanide	IS 3025 (Part 27):1986	mg/L	BDL	0.2

*are not accredited by NABL. Note: BDL: Below Detectable Limit.

INFERENCE	As per Tolerance limit, Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
------------------	---

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

1. Name of the Location : Guard Pond Pump Discharge
2. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 25.07.2016
5. Particulars of Sample Collected : ETP Guard Pond Discharge Treated Effluent, Grab Sampling
6. Date of Sample Receipt : 26.07.2016
7. Sample Number : EHSRDC/OMPL/ WW/16/07/4703
8. Analysis started on : 26.07.2016
9. Analysis Completed on : 31.07.2016
10. Page No. : 01 of 2
11. Report to be Sent : 31.07.2016
12. Protocol : APHA, 22nd Edition/IS Method

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
1.	pH	IS 3025(Part-11) :1983	-	7.28	6.0-8.5
2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be made to remove colour and unpleasant odour as for as practicable.
3.	Odour*	IS 3025(Part-5) :1983	--	Unobjectionable	
4.	Temperature	APHA 2550 B	°C	25	Shall not exceed 5°C above the receiving water temperature.
5.	Particle Size of suspended solids*	-	-	Passes	(a) Settleable solids Max. 850 microns
6.	B.O.D (3 days in 27°C)	5210 B	mg/L	9.0	15
7.	C.O.D	5220 B	mg/L	41.6	125
8.	Total Suspended Solids	2540 D	mg/L	6.0	20
9.	Phosphate as PO ₄	4500- P D	mg/L	0.029	3
10.	Total Kjeldahl Nitrogen	4500- Norg B	mg/L	15.68	40
11.	Oil & Grease	5520 B	mg/L	BDL	5
12.	Total residual chlorine	APHA 4500- Cl	mg/L	BDL	1
13.	Free ammonia*	IS 3025 (Part 34)	mg/L	2.56	5


Authorized Signatory

Test Report

Sample Number: EHSRDC/OMPL/ WW/16/07/4703

Page No: 02 of 02

14.	Ammonical Nitrogen	4500- NH ₃ ,B,C	mg/L	7.28	15
15.	Hexavalent Chromium	3500- Cr B	mg/L	BDL	0.1
16.	Sulphide	IS 3025 (Part 29): 1986	mg/L	0.8	1.0
17.	Fluoride as F	IS 3025(Part 60): 2008	mg/L	BDL	1.5
18.	Nitrate as NO ₃	IS 3025(Part 34) :1988	mg/L	5.99	20
19.	Iron as Fe	IS 3025(Part 53):2003	mg/L	1.19	3
20.	Mercury as Hg*	IS 3025(Part-48):1994	mg/L	BDL	0.01
21.	Lead as Pb*	IS 3025(Part 47):1994	mg/L	0.003	2
22.	Cadmium as Cd*	IS 3025(Part 41):1992	mg/L	BDL	0.1
23.	Selenium as Se*	IS 3025(Part 56):2003	mg/L	BDL	0.05
24.	Arsenic as As*	IS 3025(Part 37):1988	mg/L	0.005	0.2
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.088	5
26.	Copper as Cu*	IS 3025(Part-42):1992	mg/L	0.003	1
27.	Manganese as Mn*	3111 B	mg/L	0.074	2
28.	Vanadium*	3500 -V	mg/L	BDL	0.1
29.	Nickel as Ni*	IS13428:2005 (Annex L)	mg/L	0.007	1
30.	Total Chromium*	IS 13428:2005(Annex J)	mg/L	0.007	2
31.	Benzene*	APHA 6200 B	mg/L	0.00026	0.1
32.	Benzo (a) pyrene*	APHA 6440	µg/l	BDL	0.2
33.	Bioassay*	IS 6582	% survivality	100%	90% survival of fish after 96 hrs, in 100% effluent
34.	Phenolic compounds	IS 3025 (part 43):1992	mg/L	BDL	0.35
35.	Cyanide	IS 3025 (Part 27):1986	mg/L	BDL	0.2

*are not accredited by NABL. Note: BDL: Below Detectable Limit.

INFERENCE	As per Tolerance limit, Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
------------------	--

End of Report


Authorized Signatory

ANNEXURE - F

Form-1 (Rule 4)
Returns Regarding Water Consumed during the Month of July, 2016

Name and address of the Consumer	Purpose for which water consumed	Reading at the beginning of the first day of the calendar month under report	Reading at the end of the last day of the calendar month under report	Quantity of Water Consumed in Kilo Letters	If the meter was out of order, the monthly average consumption of water for the previous 3 months of the working period	Quantity of water qualifying for rebate according to the assessee	Remarks
M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Permude, Mangalore -574 509	Industrial cooling, spraying in mine pits or boiler feed	0	53651	53651			
	Cooling Water						
	Boiler Feed Water	0	94596	94596			
	Fire Water	0	7343	7343			
	Domestic purpose Drinking Water & Sanitation Processing whereby water gets polluted and the pollutants are easily bio-degradable	0	1542	1542			
	Service Water						Subtracting total flow from BFW, CT & Drinking water consumption
	Total Consumption			3850			
				160982			


Shivaprakash, Manager(Env)

Signature of the Consumer

Name

Address

M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Permude, Mangalore -574 509

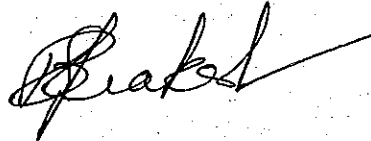
ANNEXURE - G.

ONGC Mangalore Petrochemicals Limited

Production Details for July- 2016

Net Naptha Processed -114259 MT

Sl. No.	Name of the Product	Quantity, MT
1	Paraxylene (Product)	60586
2	Benzene (Co product)	17146





ONGC Mangalore Petrochemicals Limited

(A Subsidiary of Mangalore Refinery & Petrochemicals Ltd.)

Mangalore Special Economic Zone, Permude, Mangaluru - 574 509

CIN : U40107KA2006PLC041258 Website : www.ompl.co.in

Phone : +91-824 2881518 Fax +91-824 2881539

REF: OMPL/PCB/SP/2016-17/

Date: 14/9/2016

To:
The Environmental Officer
Regional Office
KSPCB
Baikampady, Mangalore-11



Dear Sir,

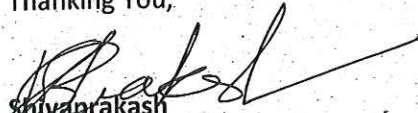
Sub: Submission of Environmental Monitoring Report for the Month of August 2016, Production Report for August, 2016 & Returns Regarding Water Consumed for the Month of August 2016

Ref: CFO No. PCB/245/HPI//ONGC/2014-15/593 dated 18th August 2014

With respect to the above subject; we are herewith submitting the following Environmental Monitoring Reports, production reports & Returns Regarding Water Consumed in the Month of August 2016 respectively, enclosed herewith.

1. Ambient Air Quality Monitoring at 5 different locations in and around OMPL, enclosed as Annexure- A
2. Water Analysis Reports at 9 different locations in and around OMPL, as Annexure-B
3. Noise Level Monitoring Report at OMPL, as Annexure-C
4. Treated Effluent Analysis Report – D
5. Returns Regarding Water Consumed, for the Month of August 2016, as Annexure-E
6. Production Report as Annexure-F

Thanking You,


Shivaprakash
Manager (Env)

CC: Member Secretary, KSPCB, Bangalore

CC: Head (Technical), MSEZ

CC: CEO, OMPL for info

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL East Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of August-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/08/

PARAMETERS	DATE	WK 78		WK 79		WK 80		WK 81	
		01/08/2016	02/08/2016	08/08/2016	09/08/2016	15/08/2016	16/08/2016	22/08/2016	24/08/2016
		CODE	4910	4993	5138	5332	5451	5503	5781
	LIMITS								
PM ₁₀ (µg/m ³)	100	64	59	57	61	66	60	55	58
PM _{2.5} (µg/m ³)	60	19	17	15	18	20	16	14	16
SO ₂ (µg/m ³)	80	2.47	2.60	2.27	2.56	2.37	2.44	2.68	2.24
NO ₂ (µg/m ³)	80	3.18	3.56	3.45	3.74	3.23	3.36	3.65	3.78
CO (mg/m ³)	4	0.78	0.77	0.80	0.84	0.79	0.78	0.84	0.71
O ₃ (µg/m ³)	180	0.89	0.85	0.92	0.91	0.87	0.89	0.95	0.84


 Authorized Signatory

Test Report

PARAMETERS	DATE	WK 78		WK 79		WK 80		WK 81	
		01/08/2016	02/08/2016	08/08/2016	09/08/2016	15/08/2016	16/08/2016	22/08/2016	24/08/2016
	CODE	4910	4993	5138	5332	5451	5503	5781	5784
LIMITS									
NH ₃ (µg/m ³)	400	1.31	1.66	1.48	1.56	1.11	1.43	1.56	1.22
Lead (µg/m ³)	1	0.008	0.046	0.010	0.009	0.018	0.034	0.011	0.014
Arsenic (ng/m ³)	6	0.73	1.57	1.72	0.73	2.94	2.19	1.88	2.08
Nickel (ng/m ³)	20	2.92	2.86	3.12	3.19	2.64	2.55	2.33	3.15
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Shantigudda
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of August-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/08/

PARAMETERS	DATE	WK 78		WK 79		WK 80		WK 81	
		01/08/2016	02/08/2016	08/08/2016	09/08/2016	15/08/2016	16/08/2016	22/08/2016	23/08/2016
		CODE	4909	4992	5137	5331	5450	5502	5780
	LIMITS								
PM ₁₀ (µg/m ³)	100	58	65	61	56	58	63	65	59
PM _{2.5} (µg/m ³)	60	15	20	17	13	15	19	20	16
SO ₂ (µg/m ³)	80	2.65	2.32	2.40	2.21	2.64	2.65	2.38	2.56
NO ₂ (µg/m ³)	80	3.46	3.65	3.81	3.35	3.45	3.67	3.89	3.27
CO (mg/m ³)	4	0.74	0.85	0.78	0.76	0.74	0.71	0.72	0.73
O ₃ (µg/m ³)	180	0.85	0.96	0.88	0.85	0.82	0.86	0.83	0.81


 Authorized Signatory

Test Report

PARAMETERS	DATE	WK 78		WK 79		WK 80		WK 81	
		01/08/2016	02/08/2016	08/08/2016	09/08/2016	15/08/2016	16/08/2016	22/08/2016	23/08/2016
	CODE	4909	4992	5137	5331	5450	5502	5780	5783
LIMITS									
NH ₃ (µg/m ³)	400	1.55	1.28	1.35	1.68	1.38	1.76	1.69	1.42
Lead (µg/m ³)	1	BDL	0.011	0.010	0.012	0.007	0.008	0.017	0.035
Arsenic (ng/m ³)	6	BDL	1.57	2.39	0.73	BDL	2.93	1.98	2.24
Nickel (ng/m ³)	20	BDL	1.77	2.46	2.49	3.98	3.13	2.53	3.44
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Tenka- Ekkar
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of August-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/08/

PARAMETERS	DATE	WK 78		WK 79		WK 80		WK 81		
		03/08/2016	04/08/2016	10/08/2016	11/08/2016	17/08/2016	18/08/2016	24/08/2016	25/08/2016	
		CODE	4994	5091	5333	5372	5549	5583	5863	5877
		LIMITS								
PM ₁₀ (µg/m ³)	100	57	60	64	64	58	62	55	64	
PM _{2.5} (µg/m ³)	60	15	16	19	20	17	16	13	18	
SO ₂ (µg/m ³)	80	2.54	2.66	2.40	2.28	2.75	2.29	2.57	2.49	
NO ₂ (µg/m ³)	80	3.37	3.65	3.21	3.74	3.42	3.18	3.89	3.71	
CO (mg/m ³)	4	0.80	0.82	0.73	0.77	0.85	0.79	0.83	0.80	
O ₃ (µg/m ³)	180	0.91	0.95	0.81	0.85	0.97	0.90	0.96	0.91	


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 78		WK 79		WK 80		WK 81	
		03/08/2016	04/08/2016	10/08/2016	11/08/2016	17/08/2016	18/08/2016	24/08/2016	25/08/2016
	CODE	4994	5091	5333	5372	5549	5583	5863	5877
LIMITS									
NH ₃ (µg/m ³)	400	1.57	1.32	1.75	1.68	1.17	1.67	1.67	1.45
Lead (µg/m ³)	1	0.011	0.011	0.005	0.034	0.007	0.034	0.036	0.004
Arsenic (ng/m ³)	6	2.50	1.50	1.25	0.49	BDL	0.50	1.75	2.25
Nickel (ng/m ³)	20	3.00	4.00	1.50	3.84	2.29	3.34	3.67	2.25
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Permude
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of August-2016 (Monitored for 24
hours)
6. Sample Number : EHSRDC/OMPL/A/16/08/

PARAMETERS	DATE	WK 78		WK 79		WK 80		WK 81	
		04/08/2016	05/08/2016	11/08/2016	12/08/2016	18/08/2016	19.08.2016	25/08/2016	26/08/2016
	CODE	5090	5106	5371	5413	5582	5645	5876	5926
	LIMITS								
PM ₁₀ (µg/m ³)	100	66	56	59	62	66	58	60	57
PM _{2.5} (µg/m ³)	60	20	14	16	18	19	15	17	14
SO ₂ (µg/m ³)	80	2.58	2.34	2.68	2.26	2.16	2.72	2.51	2.25
NO ₂ (µg/m ³)	80	3.71	3.18	3.45	3.17	3.89	3.51	3.36	3.45
CO (mg/m ³)	4	0.79	0.72	0.73	0.83	0.74	0.80	0.75	0.78
O ₃ (µg/m ³)	180	0.88	0.86	0.80	0.95	0.88	0.94	0.88	0.86


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 78		WK 79		WK 80		WK 81	
		04/08/2016	05/08/2016	11/08/2016	12/08/2016	18/08/2016	19.08.2016	25/08/2016	26/08/2016
	CODE	5090	5106	5371	5413	5582	5645	5876	5926
	LIMITS								
NH ₃ (µg/m ³)	400	1.78	1.45	1.29	1.67	1.56	1.75	1.66	1.16
Lead (µg/m ³)	1	0.008	0.006	0.085	0.076	0.012	0.011	0.007	0.010
Arsenic (ng/m ³)	6	BDL	BDL	BDL	BDL	0.74	2.02	1.73	1.29
Nickel (ng/m ³)	20	1.78	2.05	3.22	2.16	1.54	2.74	2.97	1.61
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report



 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL West Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of August-2016 (Monitored for 24
hours)
6. Sample Number : EHSRDC/OMPL/A/16/08/

PARAMETERS	DATE	WK 78		WK 79		WK 80		WK 81	
		01/08/2016	02/08/2016	08/08/2016	09/08/2016	15/08/2016	16/08/2016	22/08/2016	23/08/2016
		CODE	4908	4991	5136	5330	5449	5501	5779
LIMITS									
PM ₁₀ (µg/m ³)	100	60	56	64	59	61	55	60	62
PM _{2.5} (µg/m ³)	60	17	15	21	16	17	14	18	19
SO ₂ (µg/m ³)	80	2.54	2.41	2.19	2.65	2.74	2.55	2.42	2.26
NO ₂ (µg/m ³)	80	3.62	3.48	3.36	3.24	3.56	3.75	3.40	3.33
CO (mg/m ³)	4	0.81	0.73	0.79	0.75	0.81	0.75	0.77	0.81
O ₃ (µg/m ³)	180	0.90	0.84	0.87	0.84	0.90	0.84	0.86	0.92


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 78		WK 79		WK 80		WK 81	
		01/08/2016	02/08/2016	08/08/2016	09/08/2016	15/08/2016	16/08/2016	22/08/2016	23/08/2016
	CODE	4908	4991	5136	5330	5449	5501	5779	5782
LIMITS									
NH ₃ (µg/m ³)	400	1.25	1.56	1.66	1.47	1.28	1.57	1.73	1.38
Lead (µg/m ³)	1	0.007	0.028	0.011	0.031	0.023	0.032	0.018	0.018
Arsenic (ng/m ³)	6	2.23	1.24	1.16	BDL	1.25	1.24	1.67	1.96
Nickel (ng/m ³)	20	2.2	3.19	2.77	2.09	3.25	1.95	2.12	3.20
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW1: Narayana Guru Community Hall, Permude
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited., Mangalore Special Economic Zone, Permude, Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development Centre, Bangalore - 560 010.
4. Date of Collection : 05.08.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 08.08.2016
7. Sample Number : EHSRDC/OMPL/W/16/08/5092
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
1.	pH	--	4500H+ B	6.5-8.5		GW1 5092
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.02
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	266
7.	Total Hardness	mg/L	2340 C	200	600	44.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	12.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	2.91
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	5.24
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.37
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.28
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	152.76
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.08
15.	Alkalinity	mg/L	2320 B	200	600	68.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.

End of Report

Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW2: Gagnet Labor Colony
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 05.08.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 08.08.2016
7. Sample Number : EHSRDC/OMPL/W/16/08/5093
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW2
1.	pH	--	4500H+ B	6.5-8.5		7.88
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.94
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	281
7.	Total Hardness	mg/L	2340 C	200	600	44.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	11.2
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	3.88
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	4.73
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.41
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.46
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	11.31
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.02
15.	Alkalinity	mg/L	2320 B	200	600	52.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : OW1: Tenka-Ekkar
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 05.08.2016
5. Particulars of Sample Collected : Open well water, Grab Sampling
6. Date of Sample Receipt : 08.08.2016
7. Sample Number : EHSRDC/OMPL/W/16/08/5094
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	OW1
						5094
1.	pH	--	4500H+ B	6.5-8.5		8.09
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.68
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	592
7.	Total Hardness	mg/L	2340 C	200	600	44.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	12.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	2.88
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	6.99
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.53
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	15.08
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.05
15.	Alkalinity	mg/L	2320 B	200	600	476
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
 Report Status:-The measured values for the above parameters for those standards
 have been specified were observed to be within the said standard.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : OW3: Shanthiguda Village
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 05.08.2016
5. Particulars of Sample Collected : Open well water, Grab Sampling
6. Date of Sample Receipt : 08.08.2016
7. Sample Number : EHSRDC/OMPL/W/16/08/5095
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						OW2
						5095
1.	pH	--	4500H ⁺ B	6.5-8.5		7.80
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.37
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	51.0
7.	Total Hardness	mg/L	2340 C	200	600	12.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	2.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	1.70
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	2.67
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.60
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		5.95
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	2.35
14.	Iron as Fe	mg/L	3500-Fe B	0.3		BDL
15.	Alkalinity	mg/L	2320 B	200	600	12.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : SW1: Near Flare Area, OMPL
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 05.08.2016
5. Particulars of Sample Collected : Surface outlet water, Grab Sampling
6. Date of Sample Receipt : 08.08.2016
7. Sample Number : EHSRDC/OMPL/W/16/08/5096
8. Protocol : APHA, 22nd Edition/IS: Standard


Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	SW1
						5096
1.	pH	--	4500H+ B	6.5-8.5		7.75
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.61
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	169
7.	Total Hardness	mg/L	2340 C	200	600	88.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	16.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	11.66
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	13.16
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.39
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.25
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	28.28
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.08
15.	Alkalinity	mg/L	2320 B	200	600	68.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
 Report Status:-The measured values for the above parameters for those standards
 have been specified were observed to be within the said standard.

***End of Report**


 Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : SW2 : Near Central Ware House, OMPL
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 05.08.2016
5. Particulars of Sample Collected : Surface inlet water, Grab Sampling
6. Date of Sample Receipt : 08.08.2016
7. Sample Number : EHSRDC/OMPL/W/16/08/5097
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	SW2
						5097
1.	pH	--	4500H ⁺ B	6.5-8.5		8.10
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.91
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	208
7.	Total Hardness	mg/L	2340 C	200	600	92.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	19.2
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	10.69
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	22.42
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.75
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		3.25
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	45.26
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.08
15.	Alkalinity	mg/L	2320 B	200	600	72.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW3: L&T New Labor Colony
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone,PermuDe,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development Centre,
Bangalore - 560 010.
4. Date of Collection : 05.08.2016
5. Particulars of Sample Collected : Bore well water ,Grab Sampling
6. Date of Sample Receipt : 08.08.2016
7. Sample Number : EHSRDC/OMPL/W/16/08/5098
8. Protocol : APHA, 22nd Edition/IS: Standard


Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW3
						5098
1.	pH	--	4500H ⁺ B	6.5-8.5		7.61
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.27
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	387
7.	Total Hardness	mg/L	2340 C	200	600	60.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	16.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	4.86
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	6.27
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.43
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.39
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	224.42
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.04
15.	Alkalinity	mg/L	2320 B	200	600	36.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note: BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : OW3: Permude Village
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 05.08.2016
5. Particulars of Sample Collected : Open well water, Grab Sampling
6. Date of Sample Receipt : 08.08.2016
7. Sample Number : EHSRDC/OMPL/W/16/08/5099
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	OW3 5099
1.	pH	--	4500H+ B	6.5-8.5		7.73
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.13
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	258.0
7.	Total Hardness	mg/L	2340 C	200	600	60.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	9.6
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	8.74
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	16.25
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.30
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.93
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	71.66
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.02
15.	Alkalinity	mg/L	2320 B	200	600	132
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note: BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- | | | |
|----|---------------------------------|---|
| 1. | Name of the Location | : GW4: OMPL (Near ETP) |
| 2. | Name of the Industry | : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509. |
| 3. | Sample Collected By | : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010. |
| 4. | Date of Collection | : 05.08.2016 |
| 5. | Particulars of Sample Collected | : Bore well water, Grab Sampling |
| 6. | Date of Sample Receipt | : 08.08.2016 |
| 7. | Sample Number | : EHSRDC/OMPL/W/16/08/5100 |
| 8. | Protocol | : APHA, 22 nd Edition/IS: Standard |

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW4
						5100
1.	pH	--	4500H+ B	6.5-8.5		7.60
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.26
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	166
7.	Total Hardness	mg/L	2340 C	200	600	64.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	22.4
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	1.94
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	19.23
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.35
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		0.85
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	28.28
14.	Iron as Fe	mg/L	3500-Fe B	0.3		BDL
15.	Alkalinity	mg/L	2320 B	200	600	48.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


 Authorized Signatory

Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

1. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Spécial Economic Zone,
Permude.Mangalore-574509.
2. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
3. Date of Collection : 24.08.2016
4. Particulars of Sample Collected : Ambient Noise Level collected through
Sound Level Meter C-390
5. Date of Sample Receipt : 25.08.2016
6. Sample Number : EHSRDC/OMPL/N/16/08/ 5785-5788
7. Method Adopted : Instrument Method

Code No	Sample Location	Parameters		Std.
		Day Time Leq dB(A)	Night Time Leq dB(A)	
5785	OMPL East Side Boundary	67.42	56.64	75.0 dB(A) Day
5786	OMPL West Side Boundary	66.0	53.69	
5787	OMPL North Side Boundary	69.24	55.36	70.0 dB(A) Night
5788	OMPL South Side Boundary	64.86	52.15	

Note :

- Day Time is reckoned between 6 A.M and 10 P.M
- Night Time is reckoned between 10 P.M and 6 A.M
- Leq: It is energy mean of the noise level over a specified period.
- *dB (A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to Frequency response characteristics of the human ear.

End of Report



Authorized Signatory

Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

1. Name of the Location : Guard Pond Pump Discharge
2. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 24.08.2016
5. Particulars of Sample Collected : ETP Guard Pond Discharge Treated Effluent, Grab Sampling
6. Date of Sample Receipt : 25.08.2016
7. Sample Number : EHSRDC/OMPL/ WW/16/08/5795
8. Analysis started on : 25.08.2016
9. Analysis Completed on : 31.08.2016
10. Page No. : 01 of 2
11. Report to be Sent : 01.09.2016
12. Protocol : APHA,22nd Edition/IS Method

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
1.	pH	IS 3025(Part-11) :1983	-	8.37	6.0-8.5
2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be made to remove colour and unpleasant odour as for as practicable.
3.	Odour*	IS 3025(Part-5) :1983	--	Unobjectionable	
4.	Temperature	APHA 2550 B	°C	25	
5.	Particle Size of suspended solids*	-	-	Passes	(a)Settleable solids Max.850 microns
6.	B.O.D (3 days in 27°C)	5210 B	mg/L	6.0	15
7.	C.O.D	5220 B	mg/L	36.0	125
8.	Total Suspended Solids	2540 D	mg/L	15	20
9.	Phosphate as PO ₄	4500- P D	mg/L	0.14	3
10.	Total Kjeldahl Nitrogen	4500- Norg B	mg/L	20.16	40
11.	Oil & Grease	5520 B	mg/L	BDL	5
12.	Total residual chlorine	APHA 4500- Cl	mg/L	BDL	1
13.	Free ammonia*	IS 3025 (Part 34)	mg/L	0.09	5


Authorized Signatory

Test Report

Sample Number: EHSRDC/OMPL/ WW/16/08/5795

Page No: 02 of 02

14.	Ammonical Nitrogen	4500- NH ₃ ,B,C	mg/L	2.52	15
15.	Hexavalent Chromium	3500- Cr B	mg/L	BDL	0.1
16.	Sulphide	IS 3025 (Part 29): 1986	mg/L	0.4	1.0
17.	Fluoride as F	IS 3025(Part 60): 2008	mg/L	BDL	1.5
18.	Nitrate as NO ₃	IS 3025(Part 34) :1988	mg/L	10.64	20
19.	Iron as Fe	IS 3025(Part 53):2003	mg/L	1.62	3
20.	Mercury as Hg*	IS 3025(Part-48):1994	mg/L	BDL	0.01
21.	Lead as Pb*	IS 3025(Part 47):1994	mg/L	0.022	2
22.	Cadmium as Cd*	IS 3025(Part 41):1992	mg/L	0.002	0.1
23.	Selenium as Se*	IS 3025(Part 56):2003	mg/L	BDL	0.05
24.	Arsenic as As*	IS 3025(Part 37):1988	mg/L	0.002	0.2
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.077	5
26.	Copper as Cu*	IS 3025(Part-42):1992	mg/L	0.006	1
27.	Manganese as Mn*	3111 B	mg/L	0.129	2
28.	Vanadium*	3500 -V	mg/L	BDL	0.1
29.	Nickel as Ni*	IS13428:2005 (Annex L)	mg/L	0.008	1
30.	Total Chromium*	IS 13428:2005(Annex J)	mg/L	0.008	2
31.	Benzene*	APHA 6200 B	mg/L	BDL	0.1
32.	Benzo (a) pyrene*	APHA 6440	µg/l	BDL	0.2
33.	Bioassay*	IS 6582	% survivality	100%	90% survival of fish after 96 hrs, in 100% effluent
34.	Phenolic compounds	IS 3025 (part 43):1992	mg/L	BDL	0.35
35.	Cyanide	IS 3025 (Part 27):1986	mg/L	BDL	0.2

*are not accredited by NABL. Note: BDL: Below Detectable Limit.

INFERENCE	As per Tolerance limit, Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

1. Name of the Location : Guard Pond Pump Discharge
2. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 05.08.2016
5. Particulars of Sample Collected : ETP Guard Pond Discharge Treated Effluent, Grab Sampling
6. Date of Sample Receipt : 08.08.2016
7. Sample Number : EHSRDC/OMPL/ WW/16/08/5101
8. Analysis started on : 08.08.2016
9. Analysis Completed on : 13.08.2016
10. Page No. : 01 of 2
11. Report to be Sent : 13.08.2016
12. Protocol : APHA, 22nd Edition/IS Method

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
1.	pH	IS 3025(Part-11) :1983	-	6.52	6.0-8.5
2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be made to remove colour and unpleasant odour as for as practicable.
3.	Odour*	IS 3025(Part-5) :1983	--	Unobjectionable	
4.	Temperature	APHA 2550 B	°C	25	Shall not exceed 5°C above the receiving water temperature.
5.	Particle Size of suspended solids*		-	Passes	(a)Settleable solids Max.850 microns
6.	B.O.D (3 days in 27°C)	5210 B	mg/L	Not Detected	15
7.	C.O.D	5220 B	mg/L	16.0	125
8.	Total Suspended Solids	2540 D	mg/L	13.0	20
9.	Phosphate as PO ₄	4500- P D	mg/L	0.30	3
10.	Total Kjeldahl Nitrogen	4500- Norg B	mg/L	33.6	40
11.	Oil & Grease	5520 B	mg/L	BDL	5
12.	Total residual chlorine	APHA 4500- CI	mg/L	BDL	1
13.	Free ammonia*	IS 3025 (Part 34)	mg/L	Not Detected	5


Authorized Signatory

Test Report

Sample Number: EHSRDC/OMPL/ WW/16/08/5101

Page No: 02 of 02

14.	Ammonical Nitrogen	4500- NH ₃ ,B,C	mg/L	1.4	15
15.	Hexavalent Chromium	3500- Cr B	mg/L	BDL	0.1
16.	Sulphide	IS 3025 (Part 29): 1986	mg/L	0.64	1.0
17.	Fluoride as F	IS 3025(Part 60): 2008	mg/L	BDL	1.5
18.	Nitrate as NO ₃	IS 3025(Part 34) :1988	mg/L	8.59	20
19.	Iron as Fe	IS 3025(Part 53):2003	mg/L	1.16	3
20.	Mercury as Hg*	IS 3025(Part-48):1994	mg/L	BDL	0.01
21.	Lead as Pb*	IS 3025(Part 47):1994	mg/L	0.002	2
22.	Cadmium as Cd*	IS 3025(Part 41):1992	mg/L	BDL	0.1
23.	Selenium as Se*	IS 3025(Part 56):2003	mg/L	BDL	0.05
24.	Arsenic as As*	IS 3025(Part 37):1988	mg/L	0.002	0.2
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.039	5
26.	Copper as Cu*	IS 3025(Part-42):1992	mg/L	0.013	1
27.	Manganese as Mn*	3111 B	mg/L	0.063	2
28.	Vanadium*	3500 -V	mg/L	BDL	0.1
29.	Nickel as Ni*	IS13428:2005 (Annex L)	mg/L	0.016	1
30.	Total Chromium*	IS 13428:2005(Annex J)	mg/L	0.012	2
31.	Benzene*	APHA 6200 B	mg/L	0.0011	0.1
32.	Benzo (a) pyrene*	APHA 6440	µg/l	BDL	0.2
33.	Bioassay*	IS 6582	% survivality	100%	90% survival of fish after 96 hrs, in100% effluent
34.	Phenolic compounds	IS 3025 (part 43):1992	mg/L	BDL	0.35
35.	Cyanide	IS 3025 (Part 27):1986	mg/L	BDL	0.2

*are not accredited by NABL. Note: BDL: Below Detectable Limit.

INFERENCE	As per Tolerance limit, Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

ANNEXURE - B

Form-1 (Rule 4)
Returns Regarding Water Consumed during the Month of August, 2016

Name and address of the Consumer	Purpose for which water consumed	Reading at the beginning of the first day of the calendar month under report	Reading at the end of the last day of the calendar month under report	Quantity of Water Consumed in Kilo Letters	If the meter was out of order, the monthly average consumption of water for the previous 3 months of the working period	Quantity of water qualifying for rebate according to the assessee	Remarks
M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Perumde, Mangalore -574 509	Industrial cooling, spraying in mine pits or boiler feed	0	61251	61251			
	Cooling Water	0	72968	72968			
	Boiler Feed Water	0	11469	11469			
	Fire Water	0	3250	3250			
	Domestic purpose Drinking Water & Sanitation Processing whereby water gets polluted and the pollutants are easily bio-degradable	0					
Service Water		4424	4424	4424			Subtracting total flow from BFW, CT & Drinking water consumption
Total Consumption				153362			

Shivaprakash
Shivaprakash, Manager(Erv)

Signature of the Consumer

Name

Address

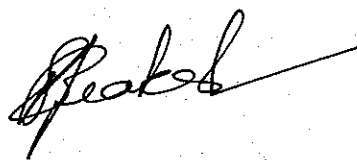
M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Perumde, Mangalore -574 509

ONGC Mangalore Petrochemicals Limited

Production Details for August- 2016

Net Naptha Processed -102153 MT

Sl. No.	Name of the Product	Quantity, MT
1	Paraxylene (Product)	56871
2	Benzene (Co product)	13764





1970

ONGC Mangalore Petrochemicals Limited

(A Subsidiary of Mangalore Refinery & Petrochemicals Ltd.)

Mangalore Special Economic Zone, Permude, Mangaluru - 574 509

CIN : U40107KA2006PLC041258 Website : www.ompl.co.in

Phone : +91-824 2881518 Fax +91-824 2881539

REF: OMPL/PCB/SP/2016-17/

Date: 14/10/2016

To:

The Environmental Officer

Regional Office

KSPCB

Baikampady, Mangalore-11



18/10/16

Vijay Kumar
Chief District
19/10

Dear Sir,

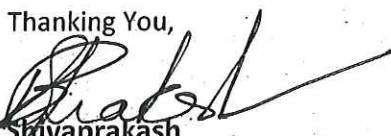
Sub: Submission of Environmental Monitoring Report for the Month of September 2016, Production Report for September, 2016 & Returns Regarding Water Consumed for the Month of September 2016

Ref: CFO No. PCB/245/HPI//ONGC/2014-15/593 dated 18th August 2014

With respect to the above subject; we are herewith submitting the following Environmental Monitoring Reports, Production Reports & Returns Regarding Water Consumed in the Month of September 2016 respectively, enclosed herewith.

- Ambient Air Quality Monitoring at 5 different locations in and around OMPL, enclosed as Annexure- A
- Water Analysis Reports at 9 different locations in and around OMPL, as Annexure-B
- Noise Level Monitoring Report at OMPL, as Annexure-C
- Stack Monitoring Report as Annexure-D
- Treated Effluent Analysis Report - E
- Returns Regarding Water Consumed, for the Month of September 2016, as Annexure-F
- Production Report as Annexure-G

Thanking You,


Shivaprakash
Manager (Env)

CC: Member Secretary, KSPCB, Bangalore

CC: Head (Technical), MSEZ

CC: CEO, OMPL for info

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL East Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
- 5 Date of Collection : For the Month of September-2016 (Monitored for 24
hours)
6. Sample Number : EHSRDC/OMPL/A/16/09/

PARAMETERS	DATE	WK 82		WK 83		WK 84		WK 85	
		05/09/2016	06/09/2016	12/09/2016	13/09/2016	19/09/2016	20/09/2016	26/09/2016	28/09/2016
		CODE	6218	6375	6525	6529	6902	6911	7204
LIMITS									
PM ₁₀ (µg/m ³)	100	57	61	64	58	54	57	61	67
PM _{2.5} (µg/m ³)	60	15	18	19	16	14	15	18	21
SO ₂ (µg/m ³)	80	2.68	2.28	2.37	2.40	2.64	2.71	2.37	2.54
NO ₂ (µg/m ³)	80	3.45	3.80	3.67	3.21	3.58	3.42	3.74	3.30
CO (mg/m ³)	4	0.82	0.75	0.77	0.76	0.77	0.82	0.76	0.73
O ₃ (µg/m ³)	180	0.91	0.83	0.89	0.88	0.85	0.93	0.84	0.85


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 82		WK 83		WK 84		WK 85	
		05/09/2016	06/09/2016	12/09/2016	13/09/2016	19/09/2016	20/09/2016	26/09/2016	28/09/2016
	CODE	6218	6375	6525	6529	6902	6911	7204	7226
LIMITS									
NH ₃ (µg/m ³)	400	1.76	1.27	1.48	1.67	1.87	1.55	1.45	1.78
Lead (µg/m ³)	1	0.014	0.014	BDL	0.007	BDL	0.010	0.002	BDL
Arsenic (ng/m ³)	6	0.73	0.22	BDL	BDL	BDL	BDL	BDL	BDL
Nickel (ng/m ³)	20	0.25	0.63	BDL	BDL	0.55	0.46	0.75	BDL
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report



 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Shantigudda
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of September-2016 (Monitored for 24
hours)
6. Sample Number : EHSRDC/OMPL/A/16/09/

PARAMETERS	DATE	WK 82		WK 83		WK 84		WK 85	
		05/09/2016	06/09/2016	12/09/2016	13/09/2016	19/09/2016	20/09/2016	26/09/2016	28/09/2016
		6	6	6	6	6	6	6	6
	CODE	6217	6374	6524	6528	6901	6910	7203	7225
	LIMITS								
PM ₁₀ (µg/m ³)	100	64	60	57	62	64	66	57	55
PM _{2.5} (µg/m ³)	60	20	17	15	17	19	20	15	13
SO ₂ (µg/m ³)	80	2.44	2.54	2.74	2.34	2.56	2.47	2.82	2.17
NO ₂ (µg/m ³)	80	3.62	3.36	3.78	3.48	3.16	3.36	3.59	3.77
CO (mg/m ³)	4	0.79	0.72	0.74	0.80	0.85	0.76	0.75	0.82
O ₃ (µg/m ³)	180	0.84	0.84	0.86	0.92	0.96	0.84	0.82	0.90


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 82		WK 83		WK 84		WK 85	
		05/09/2016	06/09/2016	12/09/2016	13/09/2016	19/09/2016	20/09/2016	26/09/2016	28/09/2016
	CODE	6217	6374	6524	6528	6901	6910	7203	7225
	LIMITS								
NH ₃ (µg/m ³)	400	1.32	1.65	1.35	1.46	1.65	1.39	1.85	1.52
Lead (µg/m ³)	1	0.034	0.005	0.006	0.010	0.004	0.005	0.041	0.005
Arsenic (ng/m ³)	6	0.32	0.69	BDL	BDL	BDL	BDL	BDL	BDL
Nickel (ng/m ³)	20	0.32	0.46	BDL	BDL	0.33	0.93	0.51	BDL
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Tenka- Ekkar
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of September-2016 (Monitored for 24
6. Sample Number : hours)
EHSRDC/OMPL/A/16/09/

PARAMETERS	DATE	WK 82		WK 83		WK 84		WK 85		
		07/09/2016	08/09/2016	14/09/2016	15/09/2016	20/09/2016	22/09/2016	28/09/2016	29/09/2016	
		CODE	6376	6378	6636	6734	6912	7016	7247	7309
		LIMITS								
PM ₁₀ (µg/m ³)	100	64	56	60	68	59	55	64	62	
PM _{2.5} (µg/m ³)	60	19	15	16	20	16	13	19	17	
SO ₂ (µg/m ³)	80	2.44	2.56	2.76	2.57	2.09	2.34	2.57	2.46	
NO ₂ (µg/m ³)	80	3.67	3.77	3.42	3.71	3.27	3.52	3.64	3.67	
CO (mg/m ³)	4	0.76	0.73	0.76	0.82	0.79	0.84	0.80	0.79	
O ₃ (µg/m ³)	180	0.85	0.82	0.88	0.91	0.88	0.97	0.92	0.93	


 Authorized Signatory

Test Report

PARAMETERS	DATE	WK 82		WK 83		WK 84		WK 85	
		07/09/2016	08/09/2016	14/09/2016	15/09/2016	20/09/2016	22/09/2016	28/09/2016	29/09/2016
	CODE	6376	6378	6636	6734	6912	7016	7247	7309
	LIMITS								
NH ₃ (µg/m ³)	400	1.46	1.78	1.67	1.80	1.22	1.67	1.42	1.47
Lead (µg/m ³)	1	0.004	0.007	0.007	0.005	0.009	0.052	0.016	0.014
Arsenic (ng/m ³)	6	0.42	0.62	BDL	BDL	BDL	BDL	BDL	BDL
Nickel (ng/m ³)	20	0.37	0.79	BDL	BDL	0.68	0.44	BDL	BDL
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Permude
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of September-2016 (Monitored for 24
hours)
6. Sample Number : EHSRDC/OMPL/A/16/09/

PARAMETERS	DATE	WK 82		WK 83		WK 84		WK 85		
		08/09/2016	09/09/2016	15/09/2016	16/09/2016	22/09/2016	23/09/2016	29/09/2016	30/09/2016	
		CODE	6377	6522	6733	6750	7015	7089	7308	7310
		LIMITS								
PM ₁₀ (µg/m ³)	100	58	61	65	64	57	60	63	58	
PM _{2.5} (µg/m ³)	60	16	18	15	17	14	16	18	13	
SO ₂ (µg/m ³)	80	2.33	2.57	2.73	2.71	2.46	2.19	2.54	2.28	
NO ₂ (µg/m ³)	80	3.16	3.80	3.56	3.56	3.18	3.45	3.48	3.52	
CO (mg/m ³)	4	0.74	0.79	0.80	0.79	0.78	0.74	0.81	0.78	
O ₃ (µg/m ³)	180	0.81	0.86	0.88	0.88	0.91	0.85	0.86	0.89	



 Authorized Signatory

Test Report

PARAMETERS	DATE	WK 82		WK 83		WK 84		WK 85	
		08/09/2016	09/09/2016	15/09/2016	16/09/2016	22/09/2016	23/09/2016	29/09/2016	30/09/2016
	CODE	6377	6522	6733	6750	7015	7089	7308	7310
	LIMITS								
NH ₃ (µg/m ³)	400	1.32	1.66	1.53	1.45	1.56	1.36	1.69	1.20
Lead (µg/m ³)	1	0.012	0.010	0.005	0.003	0.056	BDL	0.008	0.006
Arsenic (ng/m ³)	6	0.84	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nickel (ng/m ³)	20	0.78	BDL	BDL	BDL	0.37	BDL	BDL	BDL
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

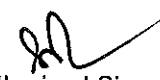

 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL West Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of September-2016 (Monitored for 24
hours)
6. Sample Number : EHSRDC/OMPL/A/16/09/

PARAMETERS	DATE	WK 82		WK 83		WK 84		WK 85	
		05/09/2016	06/09/2016	12/09/2016	13/09/2016	19/09/2016	20/09/2016	26/09/2016	28/09/2016
		CODE	LIMITS	6216	6373	6523	6527	6900	6909
PM ₁₀ (µg/m ³)	100	62	59	67	56	63	61	59	56
PM _{2.5} (µg/m ³)	60	18	16	20	14	18	17	16	14
SO ₂ (µg/m ³)	80	2.37	2.76	2.42	2.62	2.29	2.78	2.51	2.43
NO ₂ (µg/m ³)	80	3.30	3.65	3.52	3.86	3.49	3.11	3.86	3.61
CO (mg/m ³)	4	0.77	0.84	0.84	0.82	0.73	0.81	0.80	0.77
O ₃ (µg/m ³)	180	0.86	0.96	0.95	0.93	0.87	0.90	0.91	0.85


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 82		WK 83		WK 84		WK 85	
		05/09/2016	06/09/2016	12/09/2016	13/09/2016	19/09/2016	20/09/2016	26/09/2016	28/09/2016
	CODE LIMITS	6216	6373	6523	6527	6900	6909	7202	7224
NH ₃ (µg/m ³)	400	1.45	1.82	1.66	1.31	1.82	1.47	1.38	1.62
Lead (µg/m ³)	1	0.008	0.015	0.001	0.018	0.049	0.015	0.003	0.013
Arsenic (ng/m ³)	6	0.32	0.62	BDL	BDL	BDL	BDL	BDL	BDL
Nickel (ng/m ³)	20	0.31	0.44	BDL	BDL	BDL	0.53	0.74	BDL
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW1: Narayana Guru Community Hall, Permude
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 12.09.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 15.09.2016
7. Sample Number : EHSRDC/OMPL/W/16/09/6530
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						GW1 6530
1.	pH	--	4500H+ B	6.5-8.5		7.12
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.39
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	102
7.	Total Hardness	mg/L	2340 C	200	600	42.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	10.4
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	3.88
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	0.92
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.46
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		2.33
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	18.38
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.18
15.	Alkalinity	mg/L	2320 B	200	600	41.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent


Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),

Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW2: Gagnet Labor Colony
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 12.09.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 15.09.2016
7. Sample Number : EHSRDC/OMPL/W/16/09/6531
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW2 6531
1.	pH	--	4500H* B	6.5-8.5		7.69
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	3.19
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	96.0
7.	Total Hardness	mg/L	2340 C	200	600	40.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	11.6
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	2.67
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	BDL
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.25
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.61
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	21.21
14.	Iron as Fe	mg/L	3500-Fe B	0.3		BDL
15.	Alkalinity	mg/L	2320 B	200	600	35.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW3: L&T New Labor Colony
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 12.09.2016
5. Particulars of Sample Collected : Bore well water ,Grab Sampling
6. Date of Sample Receipt : 15.09.2016
7. Sample Number : EHSRDC/OMPL/W/16/09/6532
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW3
						6532
1.	pH	--	4500H+ B	6.5-8.5		7.76
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.61
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	300.0
7.	Total Hardness	mg/L	2340 C	200	600	35.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	6.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	4.37
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	2.46
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		3.63
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	128.24
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.13
15.	Alkalinity	mg/L	2320 B	200	600	133
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- | | |
|------------------------------------|--|
| 1. Name of the Location | : OW3: Permude Village |
| 2. Name of the Industry | : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509. |
| 3. Sample Collected By | : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010. |
| 4. Date of Collection | : 12.09.2016 |
| 5. Particulars of Sample Collected | : Open well water, Grab Sampling |
| 6. Date of Sample Receipt | : 15.09.2016 |
| 7. Sample Number | : EHSRDC/OMPL/W/16/09/6533 |
| 8. Protocol | : APHA, 22 nd Edition/IS: Standard |

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	OW3
						6533
1.	pH	--	4500H* B	6.5-8.5		8.40
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.27
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	159
7.	Total Hardness	mg/L	2340 C	200	600	40.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	8.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	4.86
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	0.30
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.70
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.79
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	37.71
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.20
15.	Alkalinity	mg/L	2320 B	200	600	66.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

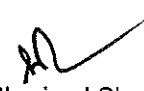
1. Name of the Location : OW3: Shanthiguda Village
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 12.09.2016
5. Particulars of Sample Collected : Open well water, Grab Sampling
6. Date of Sample Receipt : 15.09.2016
7. Sample Number : EHSRDC/OMPL/W/16/09/6534
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						OW2
						6534
1.	pH	--	4500H ⁺ B	6.5-8.5		7.97
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.22
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	347
7.	Total Hardness	mg/L	2340 C	200	600	52.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	14.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	3.64
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	1.95
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.60
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		3.34
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	124.47
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.19
15.	Alkalinity	mg/L	2320 B	200	600	77.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- | | |
|------------------------------------|--|
| 1. Name of the Location | : OW1: Tenka-Ekkar |
| 2. Name of the Industry | : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509. |
| 3. Sample Collected By | : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010. |
| 4. Date of Collection | : 12.09.2016 |
| 5. Particulars of Sample Collected | : Open well water, Grab Sampling |
| 6. Date of Sample Receipt | : 15.09.2016 |
| 7. Sample Number | : EHSRDC/OMPL/W/16/09/6535 |
| 8. Protocol | : APHA, 22 nd Edition/IS: Standard |

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						OW1
						6535
1.	pH	--	4500H ⁺ B	6.5-8.5		7.32
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.50
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	212
7.	Total Hardness	mg/L	2340 C	200	600	43.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	10.4
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	4.13
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	BDL
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.76
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.68
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	82.98
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.25
15.	Alkalinity	mg/L	2320 B	200	600	40.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- | | |
|------------------------------------|---|
| 1. Name of the Location | : SW1: Near Flare Area, OMPL |
| 2. Name of the Industry | : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509. |
| 3. Sample Collected By | : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010. |
| 4. Date of Collection | : 12.09.2016 |
| 5. Particulars of Sample Collected | : Surface outlet water, Grab Sampling |
| 6. Date of Sample Receipt | : 15.09.2016 |
| 7. Sample Number | : EHSRDC/OMPL/W/16/09/6536 |
| 8. Protocol | : APHA, 22 nd Edition/IS: Standard |

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	SW1
1.	pH	--	4500H ⁺ B	6.5-8.5		8.17
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	3.11
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	157
7.	Total Hardness	mg/L	2340 C	200	600	94.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	26.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	6.56
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	17.69
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.63
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		2.40
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	28.28
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.14
15.	Alkalinity	mg/L	2320 B	200	600	80.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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***End of Report**


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : SW2 : Near Central Ware House, OMPL
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 12.09.2016
5. Particulars of Sample Collected : Surface inlet water, Grab Sampling
6. Date of Sample Receipt : 15.09.2016
7. Sample Number : EHSRDC/OMPL/W/16/09/6537
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	SW2
						6537
1.	pH	--	4500H ⁺ B	6.5-8.5		7.15
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	3.16
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	137
7.	Total Hardness	mg/L	2340 C	200	600	83.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	26.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	3.88
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	17.69
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.84
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		2.87
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	29.23
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.21
15.	Alkalinity	mg/L	2320 B	200	600	62.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- | | |
|------------------------------------|--|
| 1. Name of the Location | : GW4: OMPL (Near ETP) |
| 2. Name of the Industry | : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509. |
| 3. Sample Collected By | : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010. |
| 4. Date of Collection | : 12.09.2016 |
| 5. Particulars of Sample Collected | : Bore well water, Grab Sampling |
| 6. Date of Sample Receipt | : 15.09.2016 |
| 7. Sample Number | : BHSRDC/OMPL/W/16/09/6538 |
| 8. Protocol | : APHA, 22 nd Edition/IS: Standard |

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW4
						6538
1.	pH	--	4500H ⁺ B	6.5-8.5		6.64
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.13
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	78.0
7.	Total Hardness	mg/L	2340 C	200	600	39.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	7.6
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	4.86
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	2.05
11.	Fluoride as F	mg/L	4500F D	1	1.5	1.06
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		2.07
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	17.44
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.16
15.	Alkalinity	mg/L	2320 B	200	600	26.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

1. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Spécial Economic Zone,
Permude.Mangalore-574509.
2. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
3. Date of Collection : 21.09.2016
4. Particulars of Sample Collected : Ambient Noise Level collected through
Sound Level Meter C-390
5. Date of Sample Receipt : 23.09.2016
6. Sample Number : EHSRDC/OMPL/N/16/09/ 6913-6916
7. Method Adopted : Instrument Method

Code No	Sample Location	Parameters		Std.
		Day Time Leq dB(A)	Night Time Leq dB(A)	
6913	OMPL East Side Boundary	65.1	58.8	75.0 dB(A) Day
6914	OMPL West Side Boundary	67.4	54.0	
6915	OMPL North Side Boundary	66.14	53.7	70.0 dB(A) Night
6916	OMPL South Side Boundary	60.6	56.5	

Note :

- Day Time is reckoned between 6 A.M and 10 P.M
- Night Time is reckoned between 10 P.M and 6 A.M
- L_{eq} : It is energy mean of the noise level over a specified period.
- *dB (A) L_{eq} denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) L_{eq} , denotes the frequency weighting in the measurement of noise and corresponds to Frequency response characteristics of the human ear.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : NHT Charge Heater
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 19.09.2016
5. Particulars of Sample : Emissions from stack collected through
Collected Stack Sampler VSS1
6. Date of Sample Receipt : 23.09.2016
7. Sample Number : EHSRDC/OMPL/S/16/09/6903
8. Report to be Sent : 26.09.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	19.09.2016
Ambient Temperature (°C)	34
Stack Temperature (°C)	242
Velocity (m/s)	6.04
Diameter (m)	1.94
Cross Sectional Area in meter square (m ²)	2.954
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	38318.73

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	4.66	5
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	14.98	250
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	11.82	50
Carbon Monoxide	EPA method (10)	mg/Nm ³	87.6	100

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
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End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : Xylene column ReboilerHeater Part -A
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 19.09.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 23.09.2016
7. Sample Number : EHSRDC/OMPL/S/16/09/6904
8. Report to be Sent : 26.09.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	19.09.2016
Ambient Temperature (°C)	32
Stack Temperature (°C)	188
Velocity (m/s)	7.8
Diameter (m)	3.69
Cross Sectional Area in meter square (m ²)	10.689
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	198814.31

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	12.6	50
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	11.09	350
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	9.89	850
Carbon Monoxide	EPA method (10)	mg/Nm ³	65.86	150

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : Xylene column Reboiler Heater Part- B
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 19.09.2016
5. Particulars of Sample : Emissions from stack collected through
Collected Stack Sampler VSS1
6. Date of Sample Receipt : 23.09.2016
7. Sample Number : EHSRDC/OMPL/S/16/09/6905
8. Report to be Sent : 26.09.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	19.09.2016
Ambient Temperature (°C)	30
Stack Temperature (°C)	183
Velocity (m/s)	6.72
Diameter (m)	3.69
Cross Sectional Area in meter square (m ²)	10.689
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	171984.41

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	15.10	50
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	14.6	350
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	11.89	850
Carbon Monoxide	EPA method (10)	mg/Nm ³	61.5	150

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : CPP Utility Boiler
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 20.09.2016
5. Particulars of Sample : Emissions from stack collected through
Collected Stack Sampler VSSI
6. Date of Sample Receipt : 23.09.2016
7. Sample Number : EHSRDC/OMPL/S/16/09/6906
8. Report to be Sent : 26.09.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	20.09.2016
Ambient Temperature (°C)	30
Stack Temperature (°C)	125
Velocity (m/s)	7.05
Diameter (m)	2.74
Cross Sectional Area in meter square (m ²)	5.89
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	113903.21

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	13.5	50
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	11.25	350
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	10.67	850
Carbon Monoxide	EPA method (10)	mg/Nm ³	57.10	150

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
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End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : Platformer Charge Heater
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 20.09.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSSI
6. Date of Sample Receipt : 23.09.2016
7. Sample Number : EHSRDC/OMPL/S/16/09/6907
8. Report to be Sent : 26.09.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	20.09.2016
Ambient Temperature (°C)	34
Stack Temperature (°C)	352
Velocity (m/s)	10.45
Diameter (m)	4.10
Cross Sectional Area in meter square (m ²)	13.196
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	243985.39

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	3.87	5
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	15.6	250
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	12.8	50
Carbon Monoxide	EPA method (10)	mg/Nm ³	97.9	100

INFERENCE	As per KSPCB Standards, Report Status: - The measured value for above parameters is within the standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : CPP (GTG + HRSG) -1
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 20.09.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 23.09.2016
7. Sample Number : EHSRDC/OMPL/S/16/09/6908
8. Report to be Sent : 26.09.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	20.09.2016
Ambient Temperature (°C)	32
Stack Temperature (°C)	152
Velocity (m/s)	7.28
Diameter (m)	2.8
Cross Sectional Area in meter square (m ²)	6.154
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	115865.77

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	20.7	50
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	12.12	350
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	9.6	850
Carbon Monoxide	EPA method (10)	mg/Nm ³	51.8	150

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : Tatory charge Heater
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.T
4. Date of Collection : 21.09.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSS1
6. Date of Sample Receipt : 23.09.2016
7. Sample Number : EHSRDC/OMPL/S/16/09/6917
8. Report to be Sent : 26.09.2016
9. Page No : 1 of 1

GENERAL DETAILS

Date of Monitoring	21.09.2016
Ambient Temperature (°C)	32
Stack Temperature (°C)	210
Velocity (m/s)	7.04
Diameter (m)	1.75
Cross Sectional Area in meter square (m ²)	2.404
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	38527.93

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	4.36	5
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	12.24	250
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	9.06	50
Carbon Monoxide	EPA method (10)	mg/Nm ³	82.1	100

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : ISOMER Charge Heater
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 21.09.2016
5. Particulars of Sample : Emissions from stack collected through
Collected Stack Sampler VSS1
6. Date of Sample Receipt : 23.09.2016
7. Sample Number : EHSRDC/OMPL/S/16/09/6918
8. Report to be Sent : 26.09.2016
9. Page No : 1 of 1

GENERAL DETAILS


Date of Monitoring	21.09.2016
Ambient Temperature (°C)	33
Stack Temperature (°C)	235
Velocity (m/s)	7.17
Diameter (m)	2.3
Cross Sectional Area in meter square (m ²)	4.153
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	64638.91

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	3.97	5
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	14.14	250
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	13.3	50
Carbon Monoxide	EPA Method (10)	mg/Nm ³	85.6	100

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
2. Stack ID : BTF(Benzene Toluene fractionation Column Reboiler
Heater)
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 21.09.2016
5. Particulars of Sample Collected : Emissions from stack collected through
Stack Sampler VSSI
6. Date of Sample Receipt : 23.09.2016
7. Sample Number : EHSRDC/OMPL/S/16/09/6919
8. Report to be Sent : 26.09.2016
9. Page No : 1 of 1

GENERAL DETAILS


Date of Monitoring	21.09.2016
Ambient Temperature (°C)	30
Stack Temperature (°C)	181
Velocity (m/s)	6.40
Diameter (m)	3.29
Cross Sectional Area in meter square (m ²)	8.497
Quantity of flue gas discharged into atmosphere (Nm ³ /h)	130788.13

RESULTS

Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	25.1	50
Nitrogen Dioxide	IS: 11255 (P7)	mg/ Nm ³	10.82	350
Sulphur Dioxide	IS: 11255, (P2)	mg/ Nm ³	8.57	850
Carbon Monoxide	EPA method (10)	mg/Nm ³	60.7	150

INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above parameters are within the standard. *
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

1. Name of the Location : Guard Pond Pump Discharge
2. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 12.09.2016
5. Particulars of Sample Collected : ETP Guard Pond Discharge Treated Effluent, Grab Sampling
6. Date of Sample Receipt : 15.09.2016
7. Sample Number : EHSRDC/OMPL/ WW/16/09/6539
8. Analysis started on : 15.09.2016
9. Analysis Completed on : 21.09.2016
10. Page No. : 01 of 2
11. Report to be Sent : 21.09.2016
12. Protocol : APHA,22nd Edition/IS Method

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
1.	pH	IS 3025(Part-11) :1983	-	7.52	6.0-8.5
2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be made to remove colour and unpleasant odour as for as practicable.
3.	Odour*	IS 3025(Part-5) :1983	--	Unobjectionable	
4.	Temperature	APHA 2550 B	°C	25	Shall not exceed 5°C above the receiving water temperature.
5.	Particle Size of suspended solids*	-	-	Passes	(a)Settleable solids Max.850 microns
6.	B.O.D (3 days in 27°C)	5210 B	mg/L	7.0	15
7.	C.O.D	5220 B	mg/L	40.0	125
8.	Total Suspended Solids	2540 D	mg/L	8.0	20
9.	Phosphate as PO ₄	4500- P D	mg/L	0.35	3
10.	Total Kjeldahl Nitrogen	4500- Norg B	mg/L	28.28	40
11.	Oil & Grease	5520 B	mg/L	BDL	5
12.	Total residual chlorine	APHA 4500- Cl	mg/L	BDL	1
13.	Free ammonia*	IS 3025 (Part 34)	mg/L	BDL	5


Authorized Signatory

Test Report

Sample Number: EHSRDC/OMPL/ WW/16/09/6539

Page No: 02 of 02

14.	Ammonical Nitrogen	4500- NH ₃ ,B,C	mg/L	1.96	15
15.	Hexavalent Chromium	3500- Cr B	mg/L	BDL	0.1
16.	Sulphide	IS 3025 (Part 29): 1986	mg/L	0.8	1.0
17.	Fluoride as F	IS 3025(Part 60): 2008	mg/L	0.91	1.5
18.	Nitrate as NO ₃	IS 3025(Part 34):1988	mg/L	3.53	20
19.	Iron as Fe	IS 3025(Part 53):2003	mg/L	1.37	3
20.	Mercury as Hg*	IS 3025(Part-48):1994	mg/L	BDL	0.01
21.	Lead as Pb*	IS 3025(Part 47):1994	mg/L	BDL	2
22.	Cadmium as Cd*	IS 3025(Part 41):1992	mg/L	BDL	0.1
23.	Selenium as Se*	IS 3025(Part 56):2003	mg/L	BDL	0.05
24.	Arsenic as As*	IS 3025(Part 37):1988	mg/L	BDL	0.2
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.0508	5
26.	Copper as Cu*	IS 3025(Part-42):1992	mg/L	0.0131	1
27.	Manganese as Mn*	3111 B	mg/L	0.0133	2
28.	Vanadium*	3500 -V	mg/L	BDL	0.1
29.	Nickel as Ni*	IS13428:2005 (Annex L)	mg/L	BDL	1
30.	Total Chromium*	IS 13428:2005(Annex J)	mg/L	BDL	2
31.	Benzene*	APHA 6200 B	mg/L	BDL	0.1
32.	Benzo (a) pyrene*	APHA 6440	µg/l	BDL	0.2
33.	Bioassay*	IS 6582	% survivality	100%	90% survival of fish after 96 hrs, in100% effluent
34.	Phenolic compounds	IS 3025 (part 43):1992	mg/L	BDL	0.35
35.	Cyanide	IS 3025 (Part 27):1986	mg/L	BDL	0.2

*are not accredited by NABL. Note: BDL: Below Detectable Limit.

INFERENCE	As per Tolerance limit, Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
------------------	--

End of Report



 Authorized Signatory

Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

1. Name of the Location : Guard Pond Pump Discharge
2. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 28.09.2016
5. Particulars of Sample Collected : ETP Guard Pond Discharge Treated Effluent, Grab Sampling
6. Date of Sample Receipt : 29.09.2016
7. Sample Number : EHSRDC/OMPL/ WW/16/09/7227
8. Analysis started on : 29.09.2016
9. Analysis Completed on : 05.10.2016
10. Page No. : 01 of 2
11. Report to be Sent : 05.10.2016
12. Protocol : APHA,22nd Edition/IS Method

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
1.	pH	IS 3025(Part-11) :1983	-	7.13	6.0-8.5
2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be made to remove colour and unpleasant odour as for as practicable.
3.	Odour*	IS 3025(Part-5) :1983	--	Unobjectionable	
4.	Temperature	APHA 2550 B	°C	25	Shall not exceed 5 ⁰ above the receiving water temperature.
5.	Particle Size of suspended solids*	-	-	Passes	(a) Settleable solids Max.850 microns
6.	B.O.D (3 days in 27°C)	5210 B	mg/L	13	15
7.	C.O.D	5220 B	mg/L	112	125
8.	Total Suspended Solids	2540 D	mg/L	18.0	20
9.	Phosphate as PO ₄	4500- P D	mg/L	0.29	3
10.	Total Kjeldhal Nitrogen	4500- Norg B	mg/L	39.2	40
11.	Oil & Grease	5520 B	mg/L	BDL	5
12.	Total residual chlorine	APHA 4500- Cl	mg/L	BDL	1
13.	Free ammonia*	IS 3025 (Part 34)	mg/L	0.07	5


Authorized Signatory

Test Report

Sample Number: EHSRDC/OMPL/ WW/16/09/7227

Page No: 02of 02

14.	Ammonical Nitrogen	4500- NH ₃ ,B,C	mg/L	2.33	15
15.	Hexavalent Chromium	3500- Cr B	mg/L	BDL	0.1
16.	Sulphide	IS 3025 (Part 29): 1986	mg/L	0.2	1.0
17.	Fluoride as F	IS 3025(Part 60): 2008	mg/L	0.82	1.5
18.	Nitrate as NO ₃	IS 3025(Part 34) :1988	mg/L	4.96	20
19.	Iron as Fe	IS 3025(Part 53):2003	mg/L	0.56	3
20.	Mercury as Hg*	IS 3025(Part-48):1994	mg/L	BDL	0.01
21.	Lead as Pb*	IS 3025(Part 47):1994	mg/L	BDL	2
22.	Cadmium as Cd*	IS 3025(Part 41):1992	mg/L	BDL	0.1
23.	Selenium as Se*	IS 3025(Part 56):2003	mg/L	BDL	0.05
24.	Arsenic as As*	IS 3025(Part 37):1988	mg/L	BDL	0.2
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.147	5
26.	Copper as Cu*	IS 3025(Part-42):1992	mg/L	0.233	1
27.	Manganese as Mn*	3111 B	mg/L	BDL	2
28.	Vanadium*	3500 -V	mg/L	BDL	0.1
29.	Nickel as Ni*	IS13428:2005 (Annex L)	mg/L	0.0595	1
30.	Total Chromium*	IS 13428:2005(Annex J)	mg/L	BDL	2
31.	Benzene*	APHA 6200 B	mg/L	0.0002	0.1
32.	Benzo (a) pyrene*	APHA 6440	µg/l	BDL	0.2
33.	Bioassay*	IS 6582	% survivality	100%	90% survival of fish after 96 hrs, in100% effluent
34.	Phenolic compounds	IS 3025 (part 43):1992	mg/L	BDL	0.35
35.	Cyanide	IS 3025 (Part 27):1986	mg/L	BDL	0.2

*are not accredited by NABL. Note: BDL: Below Detectable Limit.

INFERENCE	As per Tolerance limit, Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
------------------	--

End of Report


Authorized Signatory

Form-1 (Rule 4)
Returns Regarding Water Consumed during the Month of September, 2016

Name and address of the Consumer	Purpose for which water consumed	Reading at the beginning of the first day of the calendar month under report	Reading at the end of the last day of the calendar month under report	Quantity of Water Consumed in Kilo Letters	If the meter was out of order, the monthly average consumption of water for the previous 3 months of the working period	Quantity of water qualifying for rebate according to the assessee	Remarks
M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Permude, Mangalore -574 509	Industrial cooling, spraying in mine pits or boiler feed	0	67137	67137			
	Cooling Water	0	70048	70048			
	Boiler Feed Water	0	12760	12760			
	Fire Water	0	2466	2466			
	Domestic purpose Drinking Water & Sanitation Processing whereby water gets polluted and the pollutants are easily bio-degradable	0	2466	2466			
Service Water		2614	2614	2614			Subtracting total flow from BFW, CT & Drinking water consumption
Total Consumption				155025			

Signature of the Consumer

 Shivprakash, Manager(Env)

M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Permude, Mangalore -574 509

ANNEXURE - G.

ONGC Mangalore Petrochemicals Limited

Production Details for September- 2016

Net Naptha Processed -89924 MT

Sl. No.	Name of the Product	Quantity, MT
1	Paraxylene (Product)	50243
2	Benzene (Co product)	12760



ONGC Mangalore Petrochemicals Limited

(A Subsidiary of Mangalore Refinery & Petrochemicals Ltd.)

Mangalore Special Economic Zone, Permude, Mangaluru - 574 509

CIN : U40107KA2006PLC041258 Website : www.ompl.co.in

Phone : +91-824 2881518 Fax +91-824 2881539

REF: OMPL/PCB/SP/2016-17/

Date: 15/11/2016

To:
The Environmental Officer
Regional Office
KSPCB
Baikampady, Mangalore-11



Dear Sir,


Sub: Submission of Environmental Monitoring Report for the Month of October 2016, Production Report for October, 2016 & Returns Regarding Water Consumed for the Month of October 2016

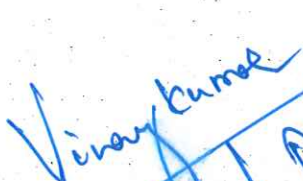

Ref: CFO No. PCB/245/HPI//ONGC/2014-15/593 dated 18th August 2014 .

With respect to the above subject; we are herewith submitting the following Environmental Monitoring Reports, Production Reports & Returns Regarding Water Consumed in the Month of October 2016 respectively, enclosed herewith.

1. Ambient Air Quality Monitoring at 5 different locations in and around OMPL, enclosed as Annexure- A
2. Water Analysis Reports at 9 different locations in and around OMPL, as Annexure-B
3. Noise Level Monitoring Report at OMPL, as Annexure-C
4. Treated Effluent Analysis Report – D
5. Returns Regarding Water Consumed, for the Month of October 2016, as Annexure-E
6. Production Report as Annexure-F

Thanking You,


Shiyaprakash
Manager (Env)


Vinay Kumar
Chief / D.Sent.

23/11

CC: Member Secretary, KSPCB, Bangalore

CC: Head (Technical), MSEZ

CC: CEO, OMPL for info

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL East Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of October-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/10/

PARAMETERS	DATE	WK 86		WK 87		WK 88		WK 89	
		03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
		CODE	7442	7549	7734	7793	7950	8038	8276
	LIMITS								
PM ₁₀ (µg/m ³)	100	61	58	65	62	57	58	64	66
PM _{2.5} (µg/m ³)	60	18	16	19	16	15	16	19	20
SO ₂ (µg/m ³)	80	2.41	2.76	2.14	2.41	2.68	2.48	2.26	2.87
NO ₂ (µg/m ³)	80	3.90	3.56	3.41	3.70	3.61	3.23	3.66	3.86
CO (mg/m ³)	4	0.79	0.79	0.74	0.79	0.80	0.84	0.80	0.77
O ₃ (µg/m ³)	180	0.88	0.88	0.87	0.83	0.91	0.86	0.92	0.89


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 86		WK 87		WK 88		WK 89	
		03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
	CODE	7442	7549	7734	7793	7950	8038	8276	8349
LIMITS									
NH ₃ (µg/m ³)	400	1.50	1.76	1.48	1.75	1.58	1.53	1.31	1.67
Lead (µg/m ³)	1	0.023	0.028	0.012	0.015	0.14	0.020	0.002	0.006
Arsenic (ng/m ³)	6	BDL	BDL	BDL	BDL	BDL	BDL	0.16	0.48
Nickel (ng/m ³)	20	BDL	0.72	BDL	1.20	0.55	BDL	0.68	0.85
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Shantigudda
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of October-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/10/

PARAMETERS	DATE	WK 86		WK 87		WK 88		WK 89	
		03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
	CODE	7441	7548	7733	7792	7949	8037	8275	8348
LIMITS									
PM ₁₀ (µg/m ³)	100	59	62	67	59	55	66	61	59
PM _{2.5} (µg/m ³)	60	16	18	19	15	14	20	17	16
SO ₂ (µg/m ³)	80	2.67	2.45	2.43	2.11	2.76	2.17	2.60	2.45
NO ₂ (µg/m ³)	80	3.18	3.67	3.79	3.52	3.22	3.60	3.48	3.79
CO (mg/m ³)	4	0.75	0.80	0.70	0.76	0.72	0.82	0.81	0.72
O ₃ (µg/m ³)	180	0.86	0.91	0.87	0.79	0.84	0.88	0.91	0.83


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 86		WK 87		WK 88		WK 89	
		03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
	CODE	7441	7548	7733	7792	7949	8037	8275	8348
	LIMITS								
NH ₃ (µg/m ³)	400	1.71	1.46	1.35	1.63	1.30	1.61	1.72	1.49
Lead (µg/m ³)	1	0.074	0.007	0.020	0.026	0.005	0.001	0.002	0.004
Arsenic (ng/m ³)	6	BDL	BDL	BDL	BDL	BDL	BDL	0.62	0.75
Nickel (ng/m ³)	20	BDL	0.66	BDL	BDL	BDL	BDL	0.58	0.96
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report



Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Tenka- Ekkar
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of October-2016 (Monitored for 24 hours)
6. Sample Number : EHSRDC/OMPL/A/16/10/

PARAMETERS	DATE	WK 86		WK 87		WK 88		WK 89	
		05/10/2016	06/10/2016	12/10/2016	13/10/2016	19/10/2016	20/10/2016	26/10/2016	27/10/2016
		CODE	7550	7603	7794	7796	8082	8144	8401
LIMITS									
PM ₁₀ (µg/m ³)	100	57	60	58	62	52	60	65	67
PM _{2.5} (µg/m ³)	60	14	16	14	17	13	16	18	21
SO ₂ (µg/m ³)	80	2.68	2.19	2.49	2.31	2.51	2.79	2.41	2.88
NO ₂ (µg/m ³)	80	3.48	3.27	3.49	3.69	3.31	3.82	3.54	3.77
CO (mg/m ³)	4	0.83	0.81	0.75	0.78	0.75	0.76	0.74	0.84
O ₃ (µg/m ³)	180	0.95	0.90	0.85	0.86	0.81	0.84	0.85	0.96


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 86		WK 87		WK 88		WK 89	
		05/10/2016	06/10/2016	12/10/2016	13/10/2016	19/10/2016	20/10/2016	26/10/2016	27/10/2016
	CODE	7550	7603	7794	7796	8082	8144	8401	8444
LIMITS									
NH ₃ (µg/m ³)	400	1.75	1.59	1.59	1.83	1.66	1.67	1.81	1.29
Lead (µg/m ³)	1	0.002	0.034	0.019	0.019	0.001	BDL	0.005	0.005
Arsenic (ng/m ³)	6	BDL	BDL	BDL	BDL	BDL	BDL	0.58	0.75
Nickel (ng/m ³)	20	1.49	0.90	BDL	BDL	BDL	BDL	0.57	1.51
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report



Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : Permude
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of October-2016 (Monitored for 24
hours)
6. Sample Number : EHSRDC/OMPL/A/16/10/

PARAMETERS	DATE	WK 86		WK 87		WK 88		WK 89	
		06/10/2016	07/10/2016	13/10/2016	14/10/2016	20/10/2016	21/10/2016	27/10/2016	28/10/2016
		CODE	7602	7617	7795	7841	8143	8219	8443
	LIMITS								
PM ₁₀ (µg/m ³)	100	63	55	60	61	56	58	62	65
PM _{2.5} (µg/m ³)	60	18	14	15	19	14	15	15	19
SO ₂ (µg/m ³)	80	2.57	2.80	2.43	2.39	2.89	2.67	2.26	2.51
NO ₂ (µg/m ³)	80	3.84	3.51	3.60	3.38	3.76	3.57	3.22	3.66
CO (mg/m ³)	4	0.78	0.75	0.83	0.75	0.83	0.79	0.73	0.82
O ₃ (µg/m ³)	180	0.85	0.82	0.84	0.82	0.94	0.87	0.81	0.94


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 86		WK 87		WK 88		WK 89	
		06/10/2016	07/10/2016	13/10/2016	14/10/2016	20/10/2016	21/10/2016	27/10/2016	28/10/2016
	CODE	7602	7617	7795	7841	8143	8219	8443	8517
LIMITS									
NH ₃ (µg/m ³)	400	1.81	1.32	1.67	1.47	1.56	1.84	1.54	1.44
Lead (µg/m ³)	1	0.015	0.004	0.007	0.019	BDL	0.017	0.002	0.020
Arsenic (ng/m ³)	6	BDL	BDL	BDL	BDL	BDL	BDL	0.75	0.87
Nickel (ng/m ³)	20	0.67	BDL	BDL	BDL	BDL	BDL	0.88	1.05
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report



 Authorized Signatory

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the location : OMPL West Side
2. Name of the industry : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509
3. Sample Collected By : M/s. Environmental Health & Safety Research and
Development Centre, Bangalore – 560 010.
4. Particulars of Sample Collected : Ambient Air collected through
Fine Particulate Sampler – APM 550
Respirable Dust Sampler – 460NL,
CO & O₃ Analyzers.
5. Date of Collection : For the Month of October-2016 (Monitored for 24
hours)
6. Sample Number : EHSRDC/OMPL/A/16/10/

PARAMETERS	DATE	WK 86		WK 87		WK 88		WK 89	
		03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
		CODE	7440	7547	7732	7791	7948	8036	8274
	LIMITS								
PM ₁₀ (µg/m ³)	100	65	60	58	63	60	63	69	56
PM _{2.5} (µg/m ³)	60	20	17	16	17	18	17	21	15
SO ₂ (µg/m ³)	80	2.55	2.37	2.30	2.36	2.82	2.58	2.41	2.70
NO ₂ (µg/m ³)	80	3.45	3.14	3.60	3.31	3.54	3.49	3.73	3.28
CO (mg/m ³)	4	0.81	0.77	0.88	0.80	0.77	0.78	0.85	0.83
O ₃ (µg/m ³)	180	0.90	0.84	0.92	0.91	0.89	0.82	0.94	0.94


Authorized Signatory

Test Report

PARAMETERS	DATE	WK 86		WK 87		WK 88		WK 89	
		03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
	CODE	7440	7547	7732	7791	7948	8036	8274	8347
LIMITS									
NH ₃ (µg/m ³)	400	1.89	1.62	1.66	1.49	1.76	1.71	1.54	1.16
Lead (µg/m ³)	1	0.022	0.100	0.067	0.017	0.065	0.169	BDL	0.024
Arsenic (ng/m ³)	6	BDL	BDL	BDL	BDL	BDL	BDL	0.84	0.76
Nickel (ng/m ³)	20	BDL	1.56	1.88	BDL	1.08	1.54	BDL	0.16
Benzene (µg/m ³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m ³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report


 Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESHWATER QUALITY

1. Name of the Location : GW1: Narayana GuruCommunityHall, Permude
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore SpecialEconomicZone,Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 07.10.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 12.10.2016
7. Sample Number : EHSRDC/OMPL/W/16/10/7604
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						GW1 7604
1.	pH	--	4500H+ B	6.5-8.5		8.19
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.74
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	131.0
7.	Total Hardness	mg/L	2340 C	200	600	20.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	4.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	1.94
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	BDL
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.05
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		13.0
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	9.99
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.19
15.	Alkalinity	mg/L	2320 B	200	600	100.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESHWATER QUALITY

- | | | |
|------------------------------------|---|---|
| 1. Name of the Location | : | GW2: GagtelLabor Colony |
| 2. Name of the Industry | : | M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore SpecialEconomicZone,Permude,
Mangalore-574509. |
| 3. Sample Collected By | : | M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010. |
| 4. Date of Collection | : | 07.10.2016 |
| 5. Particulars of Sample Collected | : | Bore well water, Grab Sampling |
| 6. Date of Sample Receipt | : | 12.10.2016 |
| 7. Sample Number | : | EHSRDC/OMPL/W/16/10/7605 |
| 8. Protocol | : | APHA, 22 nd Edition/IS: Standard |


Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW2
1.	pH	--	4500H ⁺ B	6.5-8.5		7.03
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.48
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	126.0
7.	Total Hardness	mg/L	2340 C	200	600	45.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	12.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	3.16
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	4.45
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.09
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		2.64
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	36.99
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.24
15.	Alkalinity	mg/L	2320 B	200	600	37.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards
have been specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESHWATER QUALITY

1. Name of the Location : GW3: L&T New Labor Colony
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Perumde,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 07.10.2016
5. Particulars of Sample Collected : Bore well water ,Grab Sampling
6. Date of Sample Receipt : 12.10.2016
7. Sample Number : EHSRDC/OMPL/W/16/10/7606
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW3
						7606
1.	pH	--	4500H+ B	6.5-8.5		7.46
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.88
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	129.0
7.	Total Hardness	mg/L	2340 C	200	600	52.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	16.4
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	2.43
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	5.80
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		2.90
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	43.99
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.23
15.	Alkalinity	mg/L	2320 B	200	600	42.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),

Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESHWATER QUALITY

1. Name of the Location : OW3: Permude Village
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 07.10.2016
5. Particulars of Sample Collected : Open well water, Grab Sampling
6. Date of Sample Receipt : 12.10.2016
7. Sample Number : EHSRDC/OMPL/W/16/10/7607
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						OW3
						7607
1.	pH	--	4500H* B	6.5-8.5		7.26
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.44
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	37.0
7.	Total Hardness	mg/L	2340 C	200	600	19.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	4.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	1.70
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	0.53
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.32
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		8.68
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	8.49
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.23
15.	Alkalinity	mg/L	2320 B	200	600	20.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESHWATER QUALITY

- | | | | |
|----|---------------------------------|---|--|
| 1. | Name of the Location | : | OW3: Shanthiguda Village |
| 2. | Name of the Industry | : | M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Permude,
Mangalore-574509. |
| 3. | Sample Collected By | : | M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010. |
| 4. | Date of Collection | : | 07.10.2016 |
| 5. | Particulars of Sample Collected | : | Open well water, Grab Sampling |
| 6. | Date of Sample Receipt | : | 12.10.2016 |
| 7. | Sample Number | : | EHSRDC/OMPL/W/16/10/7608 |
| 8. | Protocol | : | APHA, 22 nd Edition/IS: Standard |

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						OW2
						7608
1.	pH	--	4500H ⁺ B	6.5-8.5		8.44
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	3.02
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	201.0
7.	Total Hardness	mg/L	2340 C	200	600	36.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	6.4
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	4.86
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	3.99
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		3.57
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	5.99
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.26
15.	Alkalinity	mg/L	2320 B	200	600	188.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- | | |
|------------------------------------|--|
| 1. Name of the Location | : OW1: Tenka-Ekkar |
| 2. Name of the Industry | : M/s. ONGC Mangalore Petrochemicals Limited.,
Mangalore Special Economic Zone, Perumde,
Mangalore-574509. |
| 3. Sample Collected By | : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010. |
| 4. Date of Collection | : 07.10.2016 |
| 5. Particulars of Sample Collected | : Open well water, Grab Sampling |
| 6. Date of Sample Receipt | : 12.10.2016 |
| 7. Sample Number | : EHSRDC/OMPL/W/16/10/7609 |
| 8. Protocol | : APHA, 22 nd Edition/IS: Standard |

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	
						OW1
						7609
1.	pH	--	4500H ⁺ B	6.5-8.5		8.20
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.81
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	48.0
7.	Total Hardness	mg/L	2340 C	200	600	19.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	6.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	0.97
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	BDL
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		1.77
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	8.99
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.16
15.	Alkalinity	mg/L	2320 B	200	600	29.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE	As per IS 10500:2012(Second Revision), Report Status:-The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- | | |
|------------------------------------|---|
| 1. Name of the Location | : SW1: Near Flare Area, OMPL |
| 2. Name of the Industry | : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509. |
| 3. Sample Collected By | : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010. |
| 4. Date of Collection | : 07.10.2016 |
| 5. Particulars of Sample Collected | : Surface outlet water, Grab Sampling |
| 6. Date of Sample Receipt | : 12.10.2016 |
| 7. Sample Number | : EHSRDC/OMPL/W/16/10/7610 |
| 8. Protocol | : APHA, 22 nd Edition/IS: Standard |

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	SW1 7610
1.	pH	--	4500H* B	6.5-8.5		7.44
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.6
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	300.0
7.	Total Hardness	mg/L	2340 C	200	600	208.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	64.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	11.66
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	95.38
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.38
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		0.97
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	17.99
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.18
15.	Alkalinity	mg/L	2320 B	200	600	116.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status:-The measured values for the above parameters for those standards
have been specified were observed to be within the said standard.

***End of Report**


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : SW2 : Near Central Ware House, OMPL
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Permude,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and
Development Centre, Bangalore - 560 010.
4. Date of Collection : 07.10.2016
5. Particulars of Sample Collected : Surface inlet water, Grab Sampling
6. Date of Sample Receipt : 12.10.2016
7. Sample Number : EHSRDC/OMPL/W/16/10/7611
8. Protocol : APHA, 22nd Edition/IS: Standard


Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	SW2
						7611
1.	pH	--	4500H ⁺ B	6.5-8.5		7.07
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	2.57
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	199.0
7.	Total Hardness	mg/L	2340 C	200	600	92.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	16.0
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	12.63
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	77.14
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		2.09
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	83.97
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.20
15.	Alkalinity	mg/L	2320 B	200	600	39.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards have
been specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1. Name of the Location : GW4: OMPL (Near ETP)
2. Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Special Economic Zone, Perumde,
Mangalore-574509.
3. Sample Collected By : M/s. Environmental Health and Safety Research and Development
Centre, Bangalore - 560 010.
4. Date of Collection : 07.10.2016
5. Particulars of Sample Collected : Bore well water, Grab Sampling
6. Date of Sample Receipt : 12.10.2016
7. Sample Number : EHSRDC/OMPL/W/16/10/7612
8. Protocol : APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
				DL	PL	GW4
						7612
						6.95
1.	pH	--	4500H+ B	6.5-8.5		6.95
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour	--	IS 3025(Part-5):1983	Unobjectionable		Unobjectionable
4.	Taste	--	IS 3025(Part-8):1984	Agreeable		Agreeable
5.	Turbidity	NTU	2130 B	1	5	1.64
6.	Total Dissolved Solids	mg/L	2540 C	500	2000	141.0
7.	Total Hardness	mg/L	2340 C	200	600	54.0
8.	Calcium as Ca	mg/L	3500-Ca	75	200	12.8
9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	5.34
10.	Sulphate as SO ₄	mg/L	4500-SO ₄ ²⁻	200	400	4.44
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO ₃ E	45		3.16
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	29.99
14.	Iron as Fe	mg/L	3500-Fe B	0.3		0.20
15.	Alkalinity	mg/L	2320 B	200	600	38.0
16.	Chromium Hexavalent	mg/L	3500 Cr B	---		BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

Note:- BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.

INFERENCE

As per IS 10500:2012(Second Revision),
Report Status: - The measured values for the above parameters for those standards
have been specified were observed to be within the said standard.

End of Report


Authorized Signatory

Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

1. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited,
Mangalore Spécial Economic Zone,
Permude.Mangalore-574509.
2. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
3. Date of Collection : 22.10.2016
4. Particulars of Sample Collected : Ambient Noise Level collected through
Sound Level Meter C-390
5. Date of Sample Receipt : 26.10.2016
6. Sample Number : EHSRDC/OMPL/N/16/10/ 8277-8280
7. Method Adopted : Instrument Method

Code No	Sample Location	Parameters		Std.
		Day Time Leq dB(A)	Night Time Leq dB(A)	
8277	OMPL South Side Boundary	64.2	54.9	75.0 dB(A) Day
8278	OMPL North Side Boundary	66.1	57.8	
8279	OMPL East Side Boundary	61.8	51.8	70.0 dB(A) Night
8280	OMPL West Side Boundary	63.2	52.4	

Note :

- Day Time is reckoned between 6 A.M and 10 P.M
- Night Time is reckoned between 10 P.M and 6 A.M
- Leq. It is energy mean of the noise level over a specified period.
- *dB (A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to Frequency response characteristics of the human ear.

End of Report

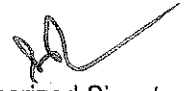

 Authorized Signatory

Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

1. Name of the Location : Guard Pond Pump Discharge
2. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 24.10.2016
5. Particulars of Sample Collected : ETP Guard Pond Discharge Treated Effluent, Grab Sampling
6. Date of Sample Receipt : 26.10.2016
7. Sample Number : EHSRDC/OMPL/ WW/16/10/8281
8. Analysis started on : 26.10.2016
9. Analysis Completed on : 04.11.2016
10. Page No. : 01 of 2
11. Report to be Sent : 04.11.2016
12. Protocol : APHA,22nd Edition/IS Method

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
1.	pH	IS 3025(Part-11) :1983	-	6.73	6.0-8.5
2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be made to remove colour and unpleasant odour as far as practicable.
3.	Odour*	IS 3025(Part-5) :1983	--	Unobjectionable	
4.	Temperature	APHA 2550 B	°C	25	Shall not exceed 5°C above the receiving water temperature.
5.	Particle Size of suspended solids*	-	-	Passes	(a)Settleable solids Max.850 microns
6.	B.O.D (3 days in 27°C)	5210 B	mg/L	13.0	15
7.	C.O.D	5220 B	mg/L	105.6	125
8.	Total Suspended Solids	2540 D	mg/L	18.0	20
9.	Phosphate as PO ₄	4500- P D	mg/L	0.35	3
10.	Total Kjeldahl Nitrogen	4500- Norg B	mg/L	27.16	40
11.	Oil & Grease	5520 B	mg/L	BDL	5
12.	Total residual chlorine	APHA 4500- Cl	mg/L	BDL	1
13.	Free ammonia*	IS 3025 (Part 34)	mg/L	0.19	5


Authorized Signatory

Test Report

Sample Number: EHSRDC/OMPL/ WW/16/10/8281

Page No: 02 of 02

14.	Ammonical Nitrogen	4500- NH ₃ ,B,C	mg/L	2.89	15
15.	Hexavalent Chromium	3500- Cr B	mg/L	BDL	0.1
16.	Sulphide	IS 3025 (Part 29): 1986	mg/L	0.8	1.0
17.	Fluoride as F	IS 3025(Part 60): 2008	mg/L	0.79	1.5
18.	Nitrate as NO ₃	IS 3025(Part 34) :1988	mg/L	6.28	20
19.	Iron as Fe	IS 3025(Part 53):2003	mg/L	0.54	3
20.	Mercury as Hg*	IS 3025(Part-48):1994	mg/L	BDL	0.01
21.	Lead as Pb*	IS 3025(Part 47):1994	mg/L	BDL	2
22.	Cadmium as Cd*	IS 3025(Part 41):1992	mg/L	BDL	0.1
23.	Selenium as Se*	IS 3025(Part 56):2003	mg/L	BDL	0.05
24.	Arsenic as As*	IS 3025(Part 37):1988	mg/L	0.004	0.2
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.092	5
26.	Copper as Cu*	IS 3025(Part-42):1992	mg/L	0.052	1
27.	Manganese as Mn*	3111 B	mg/L	0.072	2
28.	Vanadium*	3500 -V	mg/L	BDL	0.1
29.	Nickel as Ni*	IS13428:2005 (Annex L)	mg/L	BDL	1
30.	Total Chromium*	IS 13428:2005(Annex J)	mg/L	BDL	2
31.	Benzene*	APHA 6200 B	mg/L	BDL	0.1
32.	Benzo (a) pyrene*	APHA 6440	µg/l	BDL	0.2
33.	Bioassay*	IS 6582	% survivality	100%	90% survival of fish after 96 hrs, in 100% effluent
34.	Phenolic compounds	IS 3025 (part 43):1992	mg/L	BDL	0.35
35.	Cyanide	IS 3025 (Part 27):1986	mg/L	BDL	0.2

*are not accredited by NABL. Note: BDL: Below Detectable Limit.

INFERENCE	As per Tolerance limit, Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


Authorized Signatory

Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

1. Name of the Location : Guard Pond Pump Discharge
2. Name of the Project : M/s. ONGC Mangalore Petrochemicals Limited
Mangalore Spécial Economic Zone, Permude
Mangalore-574509.
3. Sample Collected by : M/s. Environmental Health and Safety Research &
Development Centre, Bangalore - 560 010.
4. Date of Collection : 07.10.2016
5. Particulars of Sample Collected : ETP Guard Pond Discharge Treated Effluent, Grab Sampling
6. Date of Sample Receipt : 12.10.2016
7. Sample Number : EHSRDC/OMPL/ WW/16/10/7613
8. Analysis started on : 12.10.2016
9. Analysis Completed on : 18.10.2016
10. Page No. : 01 of 2
11. Report to be Sent : 18.10.2016
12. Protocol : APHA, 22nd Edition/IS Method

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
1.	pH	IS 3025(Part-11) :1983	-	7.59	6.0-8.5
2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be made to remove colour and unpleasant odour as for as practicable.
3.	Odour*	IS 3025(Part-5) :1983	--	Unobjectionable	
4.	Temperature	APHA 2550 B	°C	25	Shall not exceed 5°C above the receiving water temperature.
5.	Particle Size of suspended solids*	-	-	Passes	(a)Settleable solids Max.850 microns
6.	B.O.D (3 days in 27°C)	5210 B	mg/L	6.0	15
7.	C.O.D	5220 B	mg/L	12.8	125
8.	Total Suspended Solids	2540 D	mg/L	13.0	20
9.	Phosphate as PO ₄	4500- P D	mg/L	0.57	3
10.	Total Kjeldahl Nitrogen	4500- Norg B	mg/L	35.84	40
11.	Oil & Grease	5520 B	mg/L	BDL	5
12.	Total residual chlorine	APHA 4500- Cl	mg/L	BDL	1
13.	Free ammonia*	IS 3025 (Part 34)	mg/L	BDL	5


Authorized Signatory

Test Report

Sample Number: EHSRDC/OMPL/ WW/16/10/7613

Page No: 02 of 02

14.	Ammonical Nitrogen	4500- NH ₃ ,B,C	mg/L	3.36	15
15.	Hexavalent Chromium	3500- Cr B	mg/L	BDL	0.1
16.	Sulphide	IS 3025 (Part 29): 1986	mg/L	BDL	1.0
17.	Fluoride as F	IS 3025(Part 60): 2008	mg/L	BDL	1.5
18.	Nitrate as NO ₃	IS 3025(Part 34) :1988	mg/L	6.80	20
19.	Iron as Fe	IS 3025(Part 53):2003	mg/L	1.12	3
20.	Mercury as Hg*	IS 3025(Part-48):1994	mg/L	BDL	0.01
21.	Lead as Pb*	IS 3025(Part 47):1994	mg/L	0.29	2
22.	Cadmium as Cd*	IS 3025(Part 41):1992	mg/L	0.0062	0.1
23.	Selenium as Se*	IS 3025(Part 56):2003	mg/L	BDL	0.05
24.	Arsenic as As*	IS 3025(Part 37):1988	mg/L	BDL	0.2
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.046	5
26.	Copper as Cu*	IS 3025(Part-42):1992	mg/L	0.036	1
27.	Manganese as Mn*	3111 B	mg/L	BDL	2
28.	Vanadium*	3500 -V	mg/L	BDL	0.1
29.	Nickel as Ni*	IS13428:2005 (Annex L)	mg/L	0.022	1
30.	Total Chromium*	IS 13428:2005(Annex J)	mg/L	BDL	2
31.	Benzene*	APHA 6200 B	mg/L	BDL	0.1
32.	Benzo (a) pyrene*	APHA 6440	µg/l	BDL	0.2
33.	Bioassay*	IS 6582	% survivality	100%	90% survival of fish after 96 hrs, in 100% effluent
34.	Phenolic compounds	IS 3025 (part 43):1992	mg/L	BDL	0.35
35.	Cyanide	IS 3025 (Part 27):1986	mg/L	BDL	0.2

*are not accredited by NABL. Note: BDL: Below Detectable Limit.

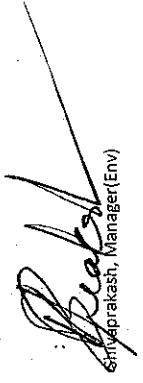
INFERENCE	As per Tolerance limit, Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.
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End of Report


 Authorized Signatory

Form-1 (Rule 4)
Returns Regarding Water Consumed during the Month of October, 2016

Name and address of the Consumer	Purpose for which water consumed	Reading at the beginning of the first day of the calendar month under report	Reading at the end of the last day of the calendar month under report	Quantity of Water Consumed in Kilo Letters	If the meter was out of order, the monthly average consumption of water for the previous 3 months of the working period	Quantity of water qualifying for rebate according to the assessee	Remarks
M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Permude, Mangalore -574 509	Industrial cooling, spraying in mine pits or boiler feed	0	63096	63096			
	Boiler Feed Water	0	79372	79372			
	Fire Water	0	16545	16545			
	Domestic purpose	0	3169	3169			
	Drinking Water & Sanitation Processing whereby water gets polluted and the pollutants are easily bio-degradable	0	3169	3169			
Service Water			3158	3158			Subtracting total flow from BFW, CT & Drinking water consumption
Total Consumption				165340			


Shri Prakash, Manager (Env)

Signature of the Consumer
Name
Address

M/s ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Permude, Mangalore -574 509

ANNEXURE-F

ONGC Mangalore Petrochemicals Limited

Production Details for October- 2016

Net Naptha Processed -125173 MT

Sl. No.	Name of the Product	Quantity, MT
1	Paraxylene (Product)	64205
2	Benzene (Co product)	17623

