

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

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Encl : Compliance Report Copy to: MoEF Director, Bangalore





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	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.	

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 Regar Sr. General Manager

Civil & Environment Mangalore SEZ Ltd.

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



Mangalore SEZ Limited

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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:

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- 1. Environmental Clearance No: 21-383/2007-IA-III, dated 3rd April 2008.
- 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.

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ON.	A ODECTERC CONDEPTONS	Compliance
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)	 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:- a) Implementation of recommendation of NGPRI will be started by MRPL immediately after submission of their report. 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. 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. d) We are also in continuous contact with the residents in the surround areas with regard to any contamination. 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. 	This condition pertains to MRPL phase III expansion project. 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.
(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.	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.	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	Assessment, DMP and Bathymetry survey

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S. No.	A. SPECIFIC CONDITIONS	Compliance
		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 NOx 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 (SO2, NOx, 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	Green Belt development in 207 acres out of 272 acres. In the year 2015-16, 24,750 saplings are planted in 55 acres.



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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	

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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.	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.	operation stage MSEZL will dispose the

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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.	
(xxxi)	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.	
(xxxii)	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.		

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.	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

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	CIN: U45209KA2006PLC0385	
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.	
(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.	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 fledge 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

(Accrediated by NABL, NABET, MoEF)

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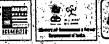
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ANNEXURE

Anneure –I	MoEF Certificate
	Sampling Location Map.



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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**.

STATION CODE	NAME OF THE LOCATIONS	GEOGRAPHICAL LOCATION	
AAQ1	120 ML Water Reservoir	N-12°59'13.40"	
AAQI	120 ML water Reservoir	E-74°52'03.00"	
A A O 2	MSEZ, Permude	N-12°59'54.00"	
AAQ2	MSEZ, remude	E-74°52'53.60"	
AAQ3	GSS3-10 ML Water Reservoir	N-12°58'57.70"	
AAQJ	USSS-10 IVIL Water Reservoir	E-74°51'30.10"	
4404	CETP Location	N-12°59'51.40"	
AAQ4	CETT Location	E-74°51'24.70"	
AAQ5	Baine	N-12°58'32.80"	
AAQS	Bajpe	E-74°52'10.40"	

Table - 1.1. Details of Ambient Air Monitoring Locations

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 μ m (PM₁₀) and 2.5 μ m (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/m³	
2	Particulate Matter PM _{2.5}	Fine Particulate Sampler (Gravimetric method)	5.0 μg/m³	
3	Sulphur di Oxide	Modified West & Gaeke Method	5.0 μg/m ³	
4	Nitrogen Oxide	Jacob and Hochheiser Method	5.0 μg/m³	
5	Carbon monoxide	Gas Analyser	0.1 ppm	
6	Ammonia	Ammonia Nessler's Method		
7	Ozone	Dzone KI Absorption and Colorimetric		
8	Benzene,	Benzene, IS 5182: Pt 11: 2006		
9	Benzo[a]pyrene)	enzo[a]pyrene) IS 5182: Pt 12: 1991		
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.





DATE	TEMPERATURE (°C)		RELATIVE HUMIDITY (%)		WIND SPEED (Km/hr)		PREDOMINANT WIND	
	MIN	MAX	MIN	MAX	MIN	MAX	DIRECTION	
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	

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2.1.3. Wind Rose:

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

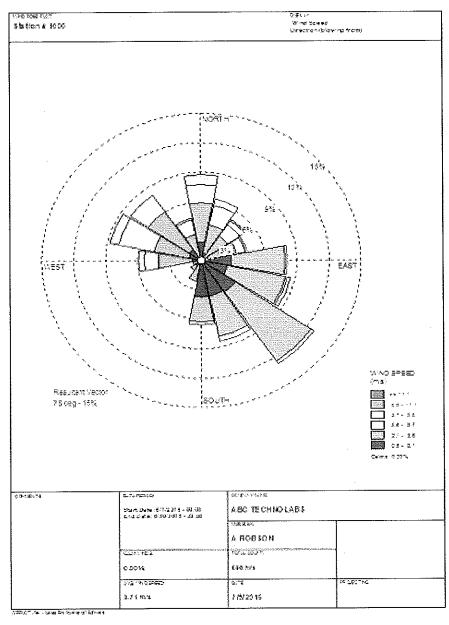


Figure 1.1. Wind Rose Diagram - June 2016







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
	MANGALORE SPECIAL ECONOMIC ZONE LIMITED,
NAME OF THE CLIENT	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 μ g/m ³						
			PM _{2.5}	PM ₁₀	SO ₂	NOx	Pb	NH3	03
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 Absorpti on Method
				CPCB STAI	NDARDS				
Indus	strial /Residentia and Other Are	-	60	100	80	80	1	400	100

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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		

	Location					
S.No		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m³	CO, mg/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 STANDARD	S		1
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 $\mu g/m^3$						
			PM _{2.5}	PM10	SO ₂	NOx	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	l	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 ST	ANDARDS				
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

ABC/MSEZ/27/AS/280616/A 598
AMBIENT AIR QUALITY MONITORING.
ABC Techno Labs India Private Limited
MANGALORE SPECIAL ECONOMIC ZONE LIMITED,
MANGALORE
28-06-2016 (Monitoring duration 24hrs/day for 2 days)
07-07-2016

S.No	Location					
		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	CO, mg/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 STANDARD	S		
Industrial /Residential / Rural and Other Area		5	1	6	20	2
BD	L- Below Detection	Limit				1

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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	Pollutant Concentration in µg/m ³						
		GL(m)	PM _{2,5}	PM10	SO2	NOx	Pb	NH ₃	03
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

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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,
NAME OF THE CLIENT	MANGALORE
DATE SAMPLED	30-06-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	07-07-2016

<u></u>	Location					
S.No		Benzene μg/m ³	Benzo[a]pyrene ng/m³	Arsenic ng/m ³	Nickel ng/m ³	CO, mg/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
		1 1	CPCB STANDARD	S		•
Industrial /Residential / Rural and Other Area		5	1	6	20	2

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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.

Station Code	Name of the Station	Geographical Location
NI	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 1.5- Details of Noise Monitoring Locations

Station Code	Date of Survey	Location	Leq Day [dB(A)]	Leq Night [dB(A)]
N1	28/06/2016	СЕТР	48.6	41.6
N2	28/06/2016	120 ML	50.6	42.3
N1	30/06/2016	СЕТР	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

Table 1.6 - Ambient Noise Monitoring Results

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.

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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

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"		
		8		E-74°51'30.10"		
W2	30/06/2016	Stream -Permude	Surface water	N-12°59'51.40"		
	50/00/2010	Stream -1 ennude	Surface water	E-74°51'24.70"		
W3	30/06/2016	Near OMPL	Ground water	N-12°58'32.70"		
	50/00/2010		Oround water	E-74°52'10.60"		
W4	30/06/2016	Permude Bajpe Village	Cassie 1 to a	N-12°59'54.00"		
¥Y - T		Boundary	Ground water	E-74°52'53.60"		
W5	30/06/2016	Road Cum Pipeline	0. 1.	N-12°58'45.10"		
γγ <u>3</u>		Corridor -Kalavar	Ground water	E-74°51'16.40"		
W6	30/06/2016	Oddidakale- Bajpe	Cuarried	N-12°58'32.80"		
	50/00/2010	Ouuluakale- Dajpe	Ground water	E-74°52'10.40"		
W7	30/06/2016	Chandrahasa Nagar	Crowned	N-12°58'44.90"		
** /	50/00/2010	Chandranasa Nagai	Ground water	E-74°51'16.50"		
W8	30/06/2016	Permude	Constant	N-12°59'12.50"		
	50/00/2010	I CIIIIude	Ground water	E-74°52'34.30"		
W9	30/06/2016	CETP Location	Crossed	N-12°59'51.40"		
	50/00/2010		Ground water	E-74°51'24.70"		
W10	30/06/2016	Shyanti Gudda-Bajpe	Crossed	N-12°59'54.00"		
W 10	50/00/2010	snyanu Guuua-Бајре	Ground water	E-74°52'53.40"		

Table 1.7- Water Sampling Locations

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.





SI. 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 Odou 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 SO₄	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
	Iron as Fe	mg/l	0.3	0.14	1.33	0.11	BDL(<0.05)	BDL(<0.0
22	Lead as Pb	mg/l	0.01	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL.(<0.0
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)
	Arsenic as As	mg/l	0.01	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01
	Chromium as Cr ⁶⁺	mg/l	0.05	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.0*
	Volatile Organic Compounds	mg/l	Not Specified	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01

Table 1.8(a) - Ground water Quality Results

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	T	L	Fable 1.8(b) - G	round wate	<u>r Quanty F</u>	csuits		
SI. 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				
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)
	Zinc as Zn	mg/l	5	BDL (<0.005)	BDL (<0.005)	BDL (<0.005)	BDL (<0.005)	BDL (<0.005)
	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)
	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)
	Chromium as Cr ⁶⁺	mg/l	0.05	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)
	Volatile Organic Compounds	mg/l	Not Specified	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)

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ENVIRONMENTAL MONITORING REPORT SPECIAL ECONOMIC ZONE LIMITED, MANGALORE

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JULY-2016

Prepared by:

ABC Techno Labs India Private Limited

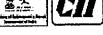
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ANNEXURE

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Annexure -II	Sampling Location Map.





JULY - 2016



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.

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- 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**.

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"

Table - 1.1. Details of Ambient Air Monitoring Locations

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 μ m (PM₁₀) and 2.5 μ m (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/m³
4	Nitrogen Oxide	Jacob and Hochheiser Method	5.0 μg/m³
5	Carbon monoxide	Gas Analyser	0.1 ppm
6	Ammonia	Nessler's Method	5 μg/m³
7	Ozone	KI Absorption and Colorimetric	5 μg/m³
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.





Table-1.3-	Micro-Meteorology

		RATURE °C)		ATIVE ITY (%)		SPEED 1/hr)	PREDOMINANT WIND
DATE	MIN	MAX	MIN	MAX	MIN	MAX	DIRECTION
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	23	28	73	100	5.6	11.1	West Northwest
31-07-2016	23	28	79	94	5.6	18.5	West Southwest
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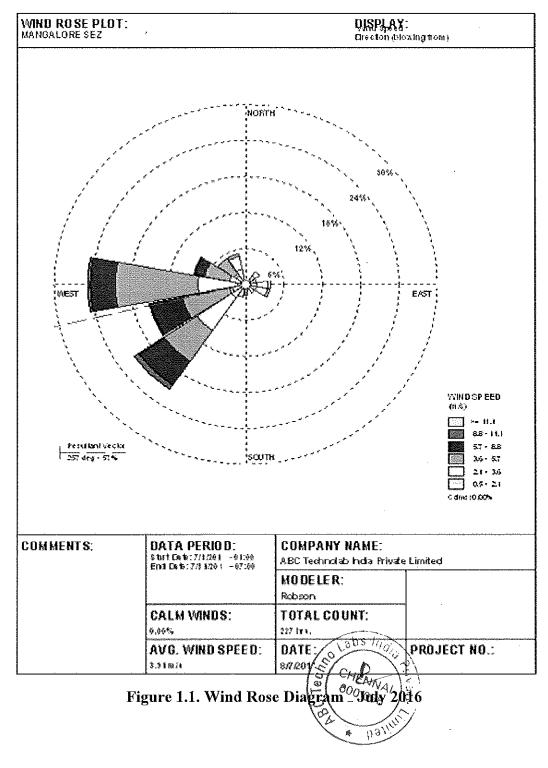




2.1.3. Wind Rose:

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

Figure 1.1.







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 µg/m ³							
			PM _{2.5}	PM10	SO ₂	NOx	Pb	NH3	03	
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							
		Benzene µg/m³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m³	CO, mg/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		

BDL- Below Detection Limit

Contd.....

For ABC Techno Labs India Private Limited.,

AUTHORIZED SIGNATORY

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QUALITY MANAGER







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,
NAME OF THE CLIENT	MANGALORE
DATE SAMPLED	27-07-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	12-08-2016

S.N	o Location	n Height GL(m)	Pollutant Concentration in μ g/m ³						
			PM _{2.5}	PM ₁₀	SO2	NOx	Pb	NH3	03
3	Baipe	2	15.7	36.8	5.1	11.6	BDL (<0.1)	BDL(<5)	9.2
ĺ	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								
Ind	ustrial /Residen and Other A		60	100	80	80	1	400	100

BDL- Below Detection Limit

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For ABC Techno Jabs India Private Limited.,

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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

	Location					
S.No		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m ³	CO, mg/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 STANDARD	S I		· · ·
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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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	Pollutant Concentration in μ g/m ³							
		GL(m)	PM _{2.5}	PM ₁₀	SO2	NOx	Pb	NH3	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			60	100	80	80	1	400	100	

BDL- Below Detection Limit

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JULY - 2016



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
	MANGALORE SPECIAL ECONOMIC ZONE LIMITED,
NAME OF THE CLIENT	MANGALORE
DATE SAMPLED	29-07-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	12-08-2016

S.No								
	Location	Benzene μg/m ³	Benzo[a]pyrene ng/m ³			CO, mg/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.,

AUTHORIZED SIGNATORY

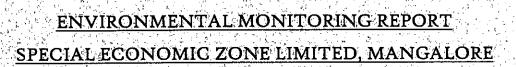
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FIGURE

S.No.	TITLE	PAGE NO.
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ANNEXURE

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



August - 2016



ENVIRONMENTAL MONITORING REPORT

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		E-74°51'30.10" N-12°59'51.40"
AAQ4	CETP Location	E-74°51'24.70" N-12°58'32.80"
AAQ5	Bajpe	E-74°52'10.40"

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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/m³
7	Ozone	KI Absorption and Colorimetric	5 μg/m³
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.





Table-1.3- Micro-Meteorology

			ATIVEWIND SPEEDITY (%)(Km/hr)		PREDOMINANT WIND			
DATE	MIN	МАХ	MIN	MAX	MIN	MAX	DIRECTION	
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 Northwes	
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	

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

2.1.3. Wind Rose:

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

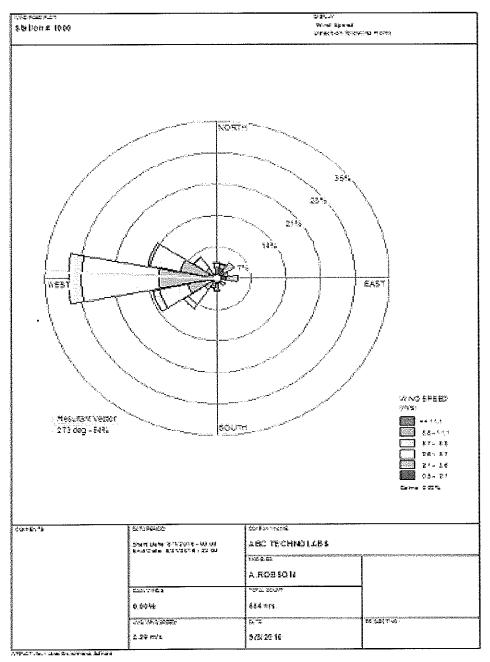


Figure 1.1. Wind Rose Diagram _ August 2016





August - 2016



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".

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,
NAME OF THE CLIENT	MANGALORE
DATE SAMPLED	24-08-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	06-09-2016

Table 1.4 (a)- AMBIENT AIR QUALITY REPORT

S.No	Location	ation Height GL(m)	Pollutant Concentration in $\mu g/m^3$						
	1	<u>un</u> ()	PM _{2.5}	PM ₁₀	SO ₂	NOx	Pb	NH3	03
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 STAI	NDARDS				
Indus	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/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	

	Location					
S.No		Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m³	CO, mg/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 STANDARD	S		4
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/29/AS/240816/A 1001-1002
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY ABC Techno Labs India Private Limited	
MAME OF THE CLIENT	MANGALORE SPECIAL ECONOMIC ZONE LIMITED,
NAME OF THE CLIENT	MANGALORE
DATE SAMPLED	24-08-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	06-09-2016

S.No	Location	Height	Pollutant Concentration in $\mu g/m^3$							
		GL(m)	PM _{2.5}	PM10	SOz	NOx	РЪ	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	Kl Absorption Method	
		I		CPCB ST	TANDARDS					
Industrial /Residential / Rura 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/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	

			5				
S.No	Location	Benzene μg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m³	CO, mg/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 STANDARD	S			
Industrial /Residential / Rural and Other Area		5	1	6	20	2	

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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	Pollutant Concentration in $\mu g/m^3$						
UNITO	2000000	GL(m)	PM _{2.5}	PM10	SO ₂	NOx	Pb	$\rm NH_3$	03
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
Tost Mathod			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 ST	ANDARDS	· · ·	<u></u>	3	•
Industrial /Residential / Rural and Other Area			1 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/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			

CN-	T /						
S.No	Location	Benzene µg/m³	C		Nickel ng/m ³	CO, mg/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	
		I	CPCB STANDARD	S			
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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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 (Accrediated by NABL, NABET, MoEF)



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1.2	SCOPE OF WORK	2
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2.1.2	MICRO-METEOROLOGY	3
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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,

- 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 | Page



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 September 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**.

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	Вајре	N-12°58'32.80" E-74°52'10.40"

Table - 1.1. Details of Ambient Air Monitoring Locations

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 μ m (PM₁₀) and 2.5 μ m (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/m³
7	Ozone	KI Absorption and Colorimetric	5 μg/m³
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.





Table-1.3- Micro-Meteorology

		RATURE C)	•	RELATIVE HUMIDITY (%)		SPEED /hr)	PREDOMINANT WIND
DATE	MIN	МАХ	MIN	МАХ	MIN	МАХ	DIRECTION
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



SEPTEMBER - 2016

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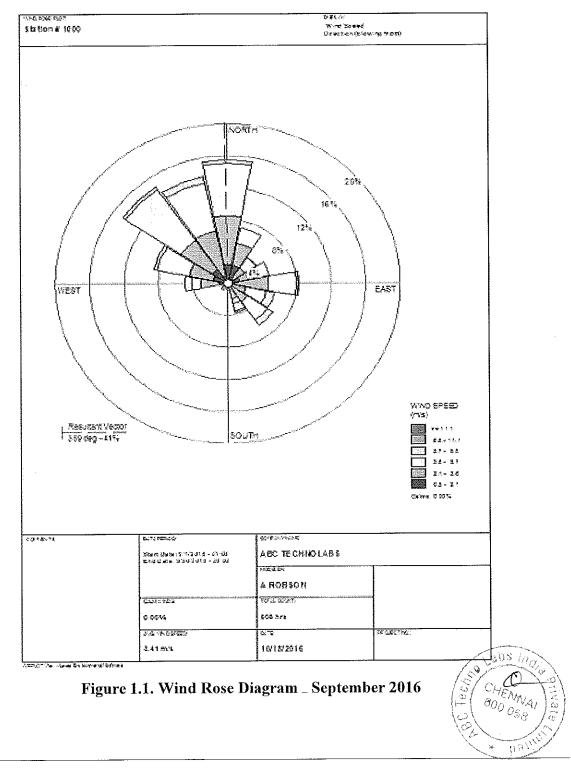
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2.1.3. Wind Rose:

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







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

r I	S.No	Location	Height GL(m)		р	ollutant C	oncentration ir	n μg/m³		
				PM _{2.5}	PM ₁₀	SO ₂	NOx	Pb	NH3	03
	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 STAI	NDARDS				
	Indus	trial /Residentia and Other Are	-	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/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	Benzene μg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m³	CO, mg/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 STANDARD	S			
	strial /Residential / ral 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/30/AS/280916/A 1202
SAMPLE DESCRIPTION	AMBIENT AIR QUALITY MONITORING.
SAMPLE DRAWN BY	ABC Techno Labs India Private Limited
NAME OF THE CLUTHE	MANGALORE SPECIAL ECONOMIC ZONE LIMITED,
NAME OF THE CLIENT	MANGALORE
DATE SAMPLED	28-09-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	08-10-2016

S.No	Location	Height	Pollutant Concentration in µg/m ³						
5110		GL(m)	PM _{2.5}	PM10	SO2	NOx	Pb	NH3	03
3	Baipe	2	19.7	45.3	5.68	11.8	BDL (<0.1)	BDL(<5)	11.4
	Test Method	1	EPA- 40 CFR Part 50	IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method
		I		CPCB S	FANDARDS				
Indus	trial /Residen and Other A	•	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/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

	Location					
S.No		Benzene μg/m ³	Benzo[a]pyrene ng/m³	Arsenic ng/m ³	Nickel ng/m³	CO, mg/m ³
3	Baipe	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
r	Fest Method	IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
			CPCB STANDARD	S		
	rial /Residential / l and Other Area	5	1	6	20	2
	DL- Below Detection	Limit				

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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	No	o Location	on Height GL(m)	Pollutant Concentration in µg/m ³						
				PM _{2.5}	PM10	SO2	NOx	Pb	NH3	03
4	4	120 ML, Water Reservoir	2	22.4	49.8	7.64	15.8	BDL (<0.1)	BDL (<5)	13.1
Ę	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										
In	Industrial /Residential / Rural and Other Area			1 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/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		

		Pollutant Concentration					
S.No	Location	Benzene μg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m³	CO, mg/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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ENVIRONMENTAL MONITORING REPORT SPECIAL ECONOMIC ZONE LIMITED, MANGALORE



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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Anneure –I	MoEF Certificate	
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ABC Techno Labs	1384 * 13 E139 800 13	OCTOBER 2016



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



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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 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**.

STATION CODE	NAME OF THE LOCATIONS	GEOGRAPHICAL LOCATION		
CODE		LOCATION		
AAQ1	120 ML Water Reservoir	N-12°59'13.40"		
		E-74°52'03.00"		
4402	MSEZ, Permude	N-12°59'54.00"		
AAQ2		E-74°52'53.60"		
4402	GSS3-10 ML Water Reservoir	N-12°58'57.70"		
AAQ3		E-74°51'30.10"		
4404	CETP Location	N-12°59'51.40"		
AAQ4		E-74°51'24.70"		
44.05	Daina	N-12°58'32.80"		
AAQ5	Bajpe	E-74°52'10.40"		

Table - 1.1. Details of Ambient Air Monitoring Locations

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 μ m (PM₁₀) and 2.5 μ m (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/m³
2	Particulate Matter PM _{2.5}	Fine Particulate Sampler (Gravimetric method)	5.0 μg/m³
3	Sulphur di Oxide	Modified West & Gaeke Method	5.0 μg/m³
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/m³
7	Ozone	KI Absorption and Colorimetric	5 μg/m³
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.





Table-1.3- Micro-Meteorology

DATE	TEMPERATURE (°C)			RELATIVE HUMIDITY (%)		SPEED /hr)	PREDOMINANT WIND	
	MIN	МАХ	MIN	MAX	MIN	МАХ	DIRECTION	
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	



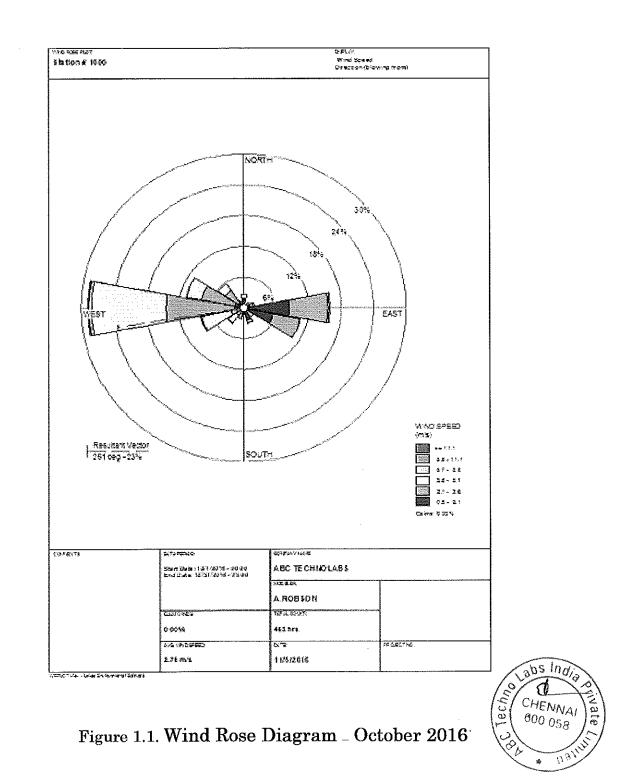
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2.1.3. Wind Rose:

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







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".

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

Table 1.4 (a)- AMBIENT AIR QUALITY REPORT

S.No	Location	Height GL(m)	Pollutant Concentration in $\mu g/m^3$							
		on(iii)	PM _{2.5}	PM ₁₀	SO2	NOx	Pb	NH ₃	03	
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	L	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 STAI	NDARDS					
Industrial /Residential / Rural and Other Area		60	100	80	80	1	400	100		

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Table 1.4(b) - 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	BenzeneBenzo[a]pyreneArsenicμg/m³ng/m³ng/m³			Nickel ng/m ³	CO, mg/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 STANDARD	Ś		.I	
	dustrial / 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/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	Height	Pollutant Concentration in $\mu g/m^3$							
		GL(m)	PM _{2.5}	PM ₁₀	SO2	NOx	Pb	NH3	03	
3	Baipe	2	19.6	45.9	6.11	12.6	BDL (<0.1)	BDL (<5)	11.4	
	Test Method C			IS 5182 Pt.23 : 2006	West & Gaeke	Jacob & Hochheister	IS 5182 P 22	Nessler's Method	Kl Absorption Method	
		I		CPCB ST	ANDARDS					
Industrial /Residential / Rural and Other Area			l 60	100	80	80	1	400	100	

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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					
		Benzene μg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m³	CO, mg/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 STANDARD	S S		
Industrial /Residential / Rural and Other Area		· · · · · · · · · · · · · · · · · · ·		6	20	2

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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 µg/m ³							
			PM _{2.5}	PM10	SO ₂	NOx	РЪ	NH3	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 Mathed EPA- 40 IS 5182 West & Jacob &			Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method			
				CPCB ST	ANDARDS	, 1				
Indus	Industrial / Residential / Rural and Other Area 60			100	80	80	1	400	100	

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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
DA'TE SAMPLED	21-10-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-11-2016

C N -	T					
S.No	Location	BenzeneBenzo[a]pyreneArsenicμg/m³ng/m³ng/m³		Nickel ng/m ³	CO, mg/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 STANDARD	is in the second s		1.
Industrial /Residential / Rural and Other Area		5	1	6	20	2

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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.

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 1.5- Details of Noise Monitoring Locations

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	СЕТР	48.8	41.1
N2	24/10/2016	120 ML	52.1	42.9
N1	27/10/2016	СЕТР	47.5	40.8
N2	27/10/2016	120 ML	52.4	43.6

Table 1.6 - Ambient Noise Monitoring Results

AMBIENT NOISE STANDARDS

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

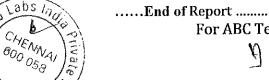
Note: Day Time is reckoned between 6.0 A.M and 10.0 P.M.

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

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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 Samping Locations								
Location Code	Date Sampled	Location	Type of water	Geographical Location				
	0.1.10.100.1.C		C 1	N-12°58'57.70"				
W1	21/10/2016	120 ML Water Storage	Ground water	E-74°51'30.10"				
	21/10/2016		<u>Ourses</u> 1	N-12°58'32.70"				
W2	21/10/2016	Near OMPL	Ground water	E-74°52'10.60"				
11/2		Permude Bajpe Village	Current existent	N-12°59'54.00"				
W3 21/10/2016		Boundary	Ground water	E-74°52'53.60"				
1174	21/10/2017	Road Cum Pipeline	Ground water	N-12°58'45.10"				
W4	21/10/2016	Corridor -Kalavar	Ground water	E-74°51'16.40"				
1175	01/10/001/	Oddidahala Daina	Ground water	N-12°58'32.80"				
W5	21/10/2016	Oddidakale- Bajpe	Ground water	E-74°52'10.40"				
TT IC	21/10/2016	Chandrahaga Nagar	Ground water	N-12°58'44.90"				
W6	21/10/2016	Chandrahasa Nagar	Ground water	E-74°51'16.50"				
11/7	21/10/2016	Permude	Ground water	N-12°59'12.50"				
W7 21/10/2016		Permude	Olouliu water	E-74°52'34.30"				
W/0	21/10/2016	CETP Location	Ground water	N-12°59'51.40"				
W8	21/10/2016		Olouliu watel	E-74°51'24.70"				
WO	21/10/2016	Shuanti Gudda Baina	Ground water	N-12°59'54.00"				
W9	21/10/2016	Shyanti Gudda-Bajpe	Oloullu water	E-74°52'53.40"				

Table 1.7- Water Sampling Locations

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.





Table 1.8(a) -	Ground	water	Quality	Results

SI. 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 Odou 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 SO₄	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(<0.0
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(<0.0
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(<0.0
22	Lead as Pb	mg/l	0.01	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.0
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(<0.0
26	Chromium as Cr ⁶⁺	mig/l	0.05	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.0
27	Volatile Organic Compounds	mg/l	Not Specified	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	BDL(<0.0

BDL-Below Detection Limit

.End of Report...... For ABC Techno Labs India Private Limited.,

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SI. No	PARAMETERS	UNIT	E 1.8(b) - Groui LIMIT AS PER IS 10500 : 2012	W6	W7	W8	W9
1	Colour	Pt-Co	5	Nil	<u>1</u>	- 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 CaCO₃	mg/l	200	52	20	52	44
9	Chloride as Cl	mg/l	250	23	12	14	18
10	Sulphate as SO₄	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)

Table 1.8(b) - Ground water Quality Results

BDL-Below Detection Limit

.....End of Report...... For ABC Techno Labs India Private Limited.,

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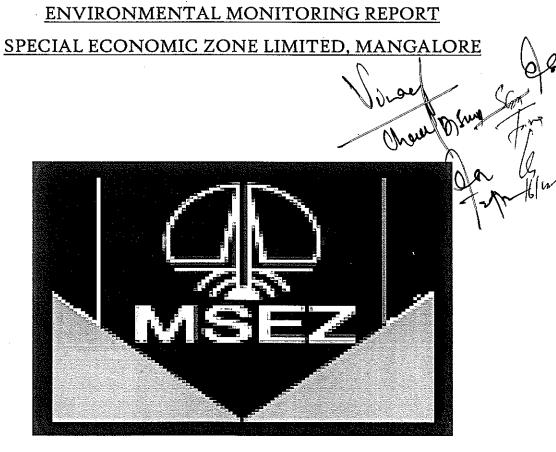
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Prepared by:

ABC Techno Labs India Private Limited

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

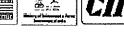


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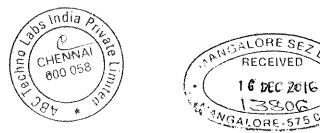
S.No.	TITLE	PAGE NO.
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ANNEXURE

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





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NOVEMBER - 2016



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).
- 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**.

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"

Table - 1.1. Details of Ambient Air Monitoring Locations

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 μ m (PM₁₀) and 2.5 μ m (PM_{2.5}) respectively. Gaseous Samplers were used for sampling gaseous pollutants such as SO₂, NO_× 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/m³
2	Particulate Matter PM _{2.5}	Fine Particulate Sampler (Gravimetric method)	5.0 μg/m ³
3	Sulphur di Oxide	Sulphur di Oxide Modified West & Gaeke Method	
4	Nitrogen Oxide	litrogen Oxide Jacob and Hochheiser Method	
5	Carbon monoxide	arbon monoxide Gas Analyser	
6	Ammonia	Nessler's Method	5 μg/m³
7	Ozone	KI Absorption and Colorimetric	5 μg/m³
8	Benzene, IS 5182: Pt 11: 2006		0.1 μg/m ³
9	Benzo[a]pyrene	Benzo[a]pyrene IS 5182: Pt 12: 1991	
10	Lead,	ead, IS 5182 P 22: 2004	
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.





ABC Techno Labs

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

Table-1.3- Micro-Meteorology

		RATURE °C)	1	ATIVE DITY (%)	1) SPEED n/hr)	PREDOMINANT WIND	
DATE	MIN	MAX	MIN	MAX	MIN	MAX	DIRECTION	
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	



NOVEMBER - 2016



2.1.3. Wind Rose:

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

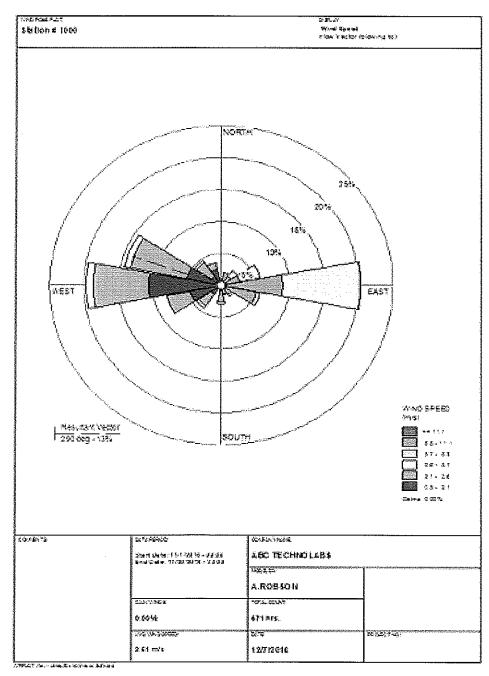


Figure 1.1. Wind Rose Diagram _ November 2016



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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".

<u>Table 1.4 (a)- AMBIENT AIR QUALITY REPORT</u>
--

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,
NAME OF THE CLIENT	MANGALORE
DATE SAMPLED	23-11-2016 (Monitoring duration 24hrs/day for 2 days)
REPORT DATE	03-12-2016

S.No	Location	ocation GL(m)		Р	ollutant (Concentration in	ι µg/m³		
			PM _{2.5}	PM ₁₀	SO ₂	NOx	Pb	NH3	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
			<u>,</u>	CPCB STAI	NDARDS				
Indus	strial /Residentia and Other Are	•	60	100	80	80	1	400	100
DI	DI Dalour Dotor			I	l	1		1	1

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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						
		Location Benzene µg/m ³		Arsenic ng/m ³	Nickel ng/m ³	CO, mg/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 STANDARD	S		•
	strial /Residential / al 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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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			
	MANGALORE SPECIAL ECONOMIC ZONE LIMITED,		
NAME OF THE CLIENT	MANGALORE		
DATE SAMPLED	23-11-2016 (Monitoring duration 24hrs/day for 2 days)		
REPORT DATE	03-12-2016		

S.No Location	Height	Pollutant Concentration in µg/m ³							
	5.110 Location		PM _{2.5}	PM10	SO2	NOx	Pb	NH3	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 ST	randards		•		
Indust	rial /Residen and Other A	•	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(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

C N				:				
S.No	Location	Benzene µg/m ³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m³	CO, mg/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 STANDARD	S				
	rial /Residential / l and Other Area	. 5	1	6	20	2		

BDL- Below Detection Limit

Contd.....

For ABC Techro Labs India Private Limited.,

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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								
	hotation	GL(m)	PM _{2.5}	PM ₁₀	SO ₂	NOx	Pb	NH3	03	
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			Test Method EPA- 40 CFR Part 50			Jacob & Hochheister	IS 5182 P 22	Nessler's Method	KI Absorption Method	
				CPCB ST	ANDARDS	•				
Indus	trial /Resident and Other A	·	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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NOVEMBER - 2016



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

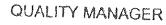
S.No	Location	Benzene µg/m³	Benzo[a]pyrene ng/m ³	Arsenic ng/m ³	Nickel ng/m³	CO, mg/m ³
4	120 ML, Water Reservoir	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	0.13
5	MSEZ, Permude	BDL (<0.01)	BDL (<0.1)	BDL (<1)	BDL (<1)	BDL(<0.1)
	Test Method	IS 5182: Pt 11: 2006	IS 5182: Pt 12: 1991	IS 5182 P 22	IS 5182 P 22	Gas Analyser
	***************************************	<u> </u>	CPCB STANDARD	S		
	strial /Residential / al 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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NOVEMBER - 2016



ANNEXURE-I



<u>रजिस्ट्री सं० डी॰ एल०-33004/99</u>

REGD, NO. D. L.-33004/99



SHILLING 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

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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, सं0 95-डी/3,	(1) डॉ0 जी सुंदर	06.08.2014
	इंडस्ट्रियल एस्टेट, अम्बतूर, चेन्नई - 600058 (तमिलनाडु)	(2) श्री पी0 सेंथिल कुमार	से
		(3) श्री ए० रॉबसन चिन्नदुरै	05.08.2019
122	मैसर्स एडवर्ड फुड रिसर्च एंड एनैलसस सेन्टर, सुभाष नगर, पी0ओ0	(1) डॉ0 देवोतम बनर्जी	06.08.2014
	नीलगंज बाजार, पी0एस0 बारासात, जिला0 नार्थ 24	(2) श्री अलोके कुमार दत्ता	से
	पीजीएस,कोलकाता - 700121 (पश्चिम बंगाल)	(3) श्री सुरेश कुमार मंडल	05.08.2019
123	मैसर्स कीवी ईको लेबोरेटरिज प्राइवेट लिमिटेड, प्लॉट सं0 19,	(1) डॉ0 रजनी कुमारी	06.08.2014
	एसवाई सं0 343, एलिप, इंडस्ट्रियल एस्टेट, गजुलरमरम गाँव,	(2) श्री एन0पी0 विश्वनाथ	से
	कुथ्बुल्लपुर (एमडी), जिला रंगारेइडी, (तेलॅंगाना)	(3) डॉ0 पी0 सरिता	05.08.2019
124	मैसर्स नवेगा इंवायरो इंजीनियर्स एंड कन्सल्टेन्ट, रवि चैंबर्स, प्लॉट	(1) श्री चेल्लि चिरंजीवी	06.08.2014
	नं० १००/१, मकान सं० १-९६/१००, कवुरि हिल्स, मधापुर,	(2) श्री चलापथी कोदैअह गिरी	से
	हैदराबाद - 500033 (तेलॅंगाना)	(3) सुश्री अश्वनीदेवी कोमारी रेड्डी	05.08.2019
125	मैसर्स कल्याणी लेबोरेटरीज प्राइवेट लिमिटेड, प्लॉट सं० ८४१ - ए,	(1) डॉ0 देबाशीष बिस्वाल	06.08.2014
	रसुलगढ़ , भुवनेश्वर - 751010 (ओडिशा)	(2) डॉ0 रेखा नायक	से

3113 GI/2014

भारत का राजपत्र : असाधारण

	(Thelangana)	(3) Ms. Aswinidevi Kommireddy	
125	M/s. Kalyani Laboratories Private Limited, Plot	(1) Dr. Debasis Biswal	06 .08. 2014
	No. 841-A, Rasulgarh Bhubaneswar-751010	(2) Dr. Rekha Nayak	to
	(Odisha)	(3) Mr. Digambar Arukha	05.08. 2019
126	M/s. Bharuch Enviro Infrastructure Limited	(1) Dr. Hitendra Kumar Jani	06 .08. 2014
	(BEIL), Analytical Research Laboratory, Plot No.	(2) Mr. Narendra B. Patel	to
	9701-16, GIDC, Ankleshwar, District-Bharuch –	(3) Mr. Dharmesh I. Patel	05.08. 2019.
	393002 (Gujarat)		п

[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, 2013, S.O.2287(E), dated the 27th July, 2013, S.O.2288(E), dated the 26th November, 2013, S.O.214 and S.O.1680(E), dated the 26th November, 2013, S.O.216(E), dated the 20th May, 2014, S.O.1190(E), dated the 20th May, 2014 and S.O.1680(E), dated the 20th July, 2014.



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

Ireneution

N. Venkateswaran Program Manager

Printe State

Anil Relia Director

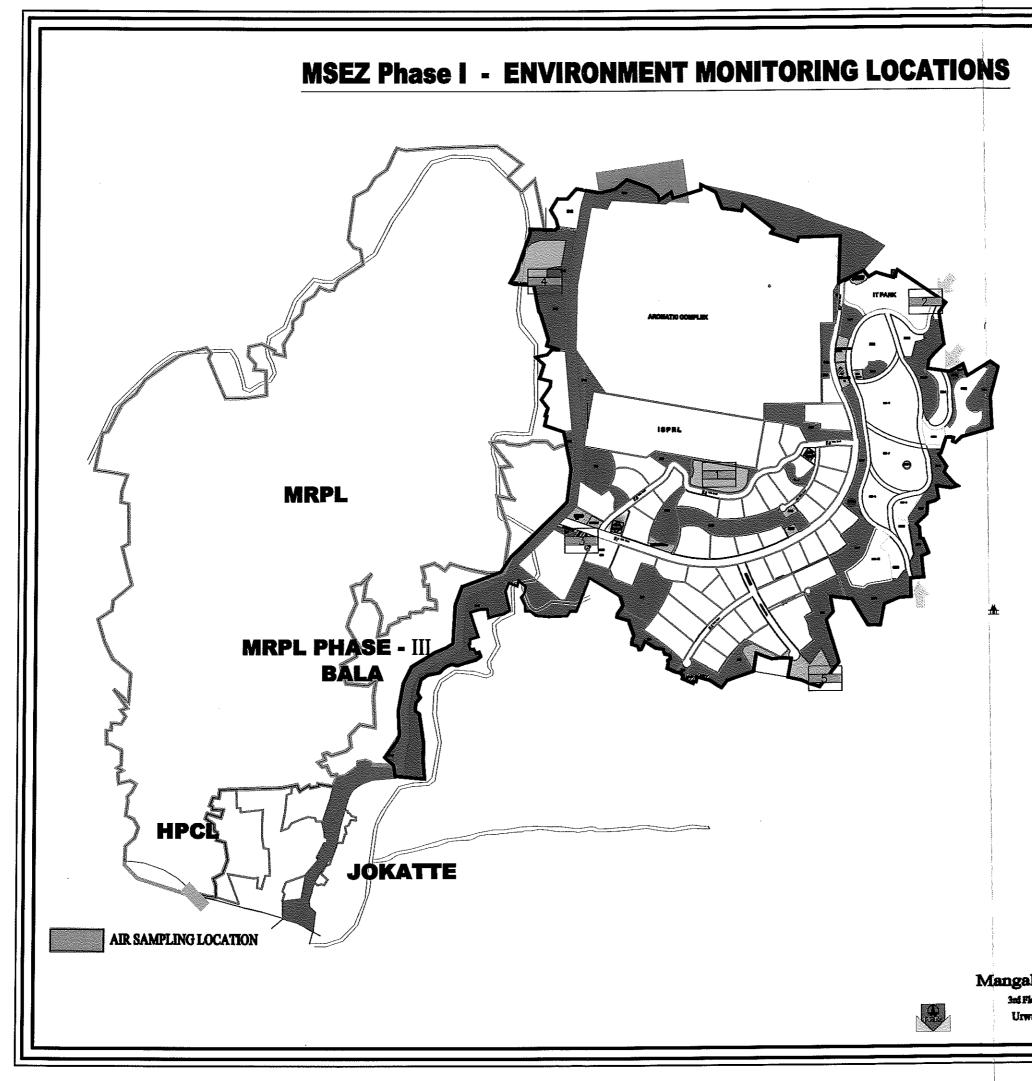
Six. Josh

Prof. S. K. Joshi Çhairman





ANNEXURE-II



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va 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 141^{st} meeting held on $26^{th} - 28^{th}$ 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).

EC _Amend_MSEZL

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Page 1 of 3

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 $9^{th} - 11^{th}$ 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.
- 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 NOX 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,

reller

(Dr. Ranjini Warrier) Director

Copy to:

- (1) The Secretary, Department of Environment, Government of Karnataka, Bangalore.
- (2) The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBDcum-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.

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(Dr. Ranjini Warrier) Director

Page 3 of 3

CSR
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April
2016

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	Total	Development roads in sorrounding villages & Panchayat roads in Kateel, Permude & Kuthethoor Villages and villages enroute River water Pipeline		Sponsoring education and cultural activities to local fishermen community				Events Sponsorship	Bypass Road for connectivity between Suratkal to Bajpe for Public use.			Educational Sponsorship	Any Miscellenous Developement works to Local communities	Sponsoring of Community facilities including Primary Health Centre, Play ground, Primary School, Post Office, gravy yard, compound wall, temple,Drain work near Bajana mandir jokatte, road repair near swayamlingeshwara temple bajpe etc etc	Creation of self employment facilities by provision of sultable shops in Kulai & Permude villages	Community facilities	Skid mounted STPs for Kulai & Bajpe Villages	Development of Under Ground Drainage	Sanitation facilities	R&R Colony	Drinking Water facilities for neighboring Villages,6 acres & 9.58 Acers	RCC Over Head water tanks including main supply pipeline in Permude, Bajpe & Kulai Villages & 48 Acre,Drain work b/w HPCL colony & DOC read	Water Somety Facilities	Description		
	76.38	12.93		2.97		2.00	2.00		36.98		6.00		0.50	4.00	0.11		0.60	4.09		0 70	1.50	2.00		Proposed CSR Expenses	5% of Ap	Item wise
	63.52	2.79		2.93		2.95	1.37		36.98		6.00		0.50	4.00	0.11		0.60	4.09		- 2.20	د د د	1.00		Amount incl. Expenses in Project Cost till Oct 2012	proved MSEZ	e Details of C
\mathbf{O}	34.85	2.79		1.27		0,95	1.37		17.84		5,53		0.00	0.00	0.11		0.17	. 2.60		0.17	1.20	0.85		Expenses till Oct 2012	5% of Approved MSEZL Phase I project Cost (Rs 1527.5 Crores)- Rs 76.37!	SR Activiti
E E	24.34	9.54		1.36		0.00	0.00		7.26		0.00		0.00	3 88 95	0.00		0.00	1.08		0.00	0.26	66.0		Expenses till Oct2012-Feb 2014	oject Cost (Rs	es and Prop
-	4.10	0,402		0.40		0.903	0.530		0.00		0.260		0,500	0.150	0,00		0.235	0.00		0.530	0.04	0.145		Expenses till Feb 2014- March-2015	1527.5 Crore	losed time
	0.745	0,085		0.21		0,129	0.000		0.00		0.002		0,000	0.000	0.00		0.077	0,13		0.000	0.00	0.110		Expenses till March 2015- April- 2016	expeņse	Item wise Details of CSR Activities and Proposed time bound Action Plan
	64.04	12.82	0,00	3.24	0.00	1.98	1.90	0.00	25.10	0.00	5.79	0.00	0.50	4.00	0.11	0.00	0.48	3,81	0.00	0.70	1.50	2.10		Total expense till Date		
	12.45	0.11		-0.27		0.02	0.10		11.88		0.21	-	0.00	0.00	0,00		0.12	0.28		0,00	0.00	0.000		Balance		
	4.54	0.11		0.00		0,00	0.05		4.00		0,10		1		,		0.07	0.21		,	,	•		2016-17		
	4.29			0.00		0.02	0.05		4.00		0.11		'				0.05	0.060		-	•			2017-18		
	3.89	:		-			-		3.88		,		,	1			-	0.010	-	-	a	(2018-19		
	0.00												-	ſ	\$,	•	+		,	•		2019-2020		



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

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,

Manager (Env)

NGALORE SEZ RECEIVED **DEC 2015** 1 NGALORE -5

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Cc:- CEO, OMPL, for info

Compliance to Environmental Clearance

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

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SI. No.	Consent Condition	Compliance				
	The Mangalore Special Economic Zone (MSEZ) Phase-I involves a)	info.				
	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					
2	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					
		info				
	To meet the objective of producing paraxylene, aromatic complex has	ngo.				
	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					
11	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.					
1		Complied				
1	NHT/ CCR- 0.95 MMTPA					
2	Isomerization Unit (ISOMER)-3.16 MMTPA	Complied				
3	Transalkylation & Disproportionation Unit (TADP)-1.71 MMTPA	Complied				
·		Course for al				
4	Paraxylene Recovery (PXREC)- 4.07 MMTPA	Complied				
5	Xylene Fractionation Unit- 4.64 MMTPA	Complied				
6	Aromatics Extraction Unit- 0.79 MMTPA	Complied				
7	Benzzene Toluene Fractionation Unit- 2.2 MMTPA	Complied				
	Captive Power Plant (CPP)	Please note that normal requirement will be in the range of				
		40 MW, but Gas Turbine is more prone to Maintainance				
8		requirements & hence to ensure continuous supply of powe				
~		to the plant, installed capacity is 72 MW				

1 of 7

1	No objection Certificate from the Karnataka State Pollution Control	Please note that MZEZ has obtained Consent for		
1	Board shall be obtained before initiating the project	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		
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			
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-l 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	Please note report from Wildlife Department was submitted to the MoEF by MSEZ		
7	The R & R package shall be strictly in accordance with the laid down norms of the state Government	NA. However, OMPL has recruited around 302 displaced people and provided employment,as on 30th September, 2016		
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 SO2, Nox and other parameters as prescribed by central Pollution Control Board (CPCB)	OMPL has a dedicated website 'www.ompl.co.in', wherein Environment Monitoring Parameters are periodically uploaded and made available to the public		
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	Please note as required in CFE, online Monitoring Instruments of relevant parameters such as Nox & SOX, 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.		
11	The emission levels of the other pollutants shall also remain within the permissible levels	Please note apart from the relevant parameters as from SI. 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		
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		

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13	The project proponent shall ensure that the greenery of the area is	Please note that OMPL has reserved 33 % of Project area for
- 	maintained. Further, 33 % of the project area shall be dedicated for	Green Belt Development. Forest Dept. is lined up for this
	green belt development of which atleast 5 % shall be for mangrove	purpose., work order dated 31st March, 2016 for developing
	afforestation. The local Forest Department shall be associated for this	45 acres of land under Green Belt by march, 2020. The
	purpose and requisite budget earmarked	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, Acacia ferruginea DC (Mimosaceae), Acacia
		nilotica* (Mimosaceae), Ailanthus excelsa*
		(Simaroubiaceae), Albizia amara (Mimosaceae)
		Albizia labbeck* (Mimosaceae), Albizia
		doratissima(Mimosaceae), Alstonia scholaris*
		(Apocynaceae)
		Annogeissus latifolia (Combretaceae), Artocarpus
		integrifolia (Moraceae), Artocarpus lacucha (Moraceae), Azadirachta indica# (Meliaceae), Bauhinia malabarica
		(Fabaceae), Bauhinia racemosa* (Caesalpiniaceae), Butea
		monosperma (Fabaceae), Caesalpinia pulcherrima*
		(Caesalpiniaceae), Calophylum tomentosum, Cane sp.
		(Palmae), Canna orientalis (Cannaceae)
		Cassia fistula# (Caesalpiniaceae), Cassia
		siamea(Caesalpiniaceae), Casuarina equisetifolia#
		(Casurinaceae), Chlorophytum tuberosum (Liliaceae)
		Dalbergia sissoo (Fabaceaae), Dalbergia latifolia#
		(Fabaceaae)
14	The project proponent shall ensure that the water requirement of the	Please note, OMPL, on its part has taken up following
	Mangalore city does not get affected due to the SEZ operation.	measures to conserve water.
		1 The complex Cooling Tower system is designed to use
	water requirement of the cities	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
		 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	Please note OMPL site is at a distance of ~ 15 KM from the
	operation of the project the traffic in the city is not affected	Highway. Hence inconvenience to traffic movement in the
		city doesn't arise

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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/	Please note following measures are taken to have a check on Emission/ leakage as, *All heaters
	leakage of hazardous chemicals including Benzene. Detailed	are installed with LOW NOx Burners
	monitoring programme shall be designed and the information	*Heaters stacks are fitted with following Online analyzers
		·
	provided to the public through display and dedicated website by	Carbon monoxide.
	means of online monitoring	Sulphur Dioxide
		Nitrogen Oxides
		Suspended Particulate matters (SPM)
		*Benzene Tanks – Internal Floating Roof Tank with Nitrogen Blanket
		*Paraffinic Raffinate (Volatile material) designed with Vapor recovery unit to recover vapor
		*Dispersion Model Analysis was done by Bell Energy India
		and following Online detectors are being installed Benzene Detectors 27
		H2S Detector 21
		Hydrocarbon Detectors 193
		Hydrogen Detectors 68
		Fire Detectors (In case of Fire) 26
		*Sample Points are closed system to stop local venting and
		draining
		*Hydrocarbons drains are connected to closed Blow down
		system to recover hydrocarbon.
		* OMPL has a dedicated website 'www.ompl.co.in', wherein
		Environment Monitoring Parameters are periodically
	· · · · · · · · · · · · · · · · · · ·	uploaded and available to the public
17	Low sulphur internal fuel oil and fuel gas shall be fired in process	OMPL has gone for Low Sulphur fuels in LSHS, HSD & Fuel
	heaters and boilers	gas. Please note 'SO2' emmission from EIA report for the
		project is estimated as 13.68 TPD. Avg SOx emmission per
		day is <u>5.8 TPD</u>
18	Quarterly monitoring of fugitive emissions shall be carried out by	Please note Quarterly monitoring of fugitive emissions is
	Fugitive Emision Detectors (GMI) leak Surveyor. Guidelines of CPCB	being carried out. Further, Dispersion Model Analysis was
	will be followed for monitoring fugitive emissions. For control of	done by Bell Energy India and following Online detectors are
	fugitive emissions, all unsaturated hydrocarbons shall be routed to	installed
	the flare system. The flare system shall be designed for smokeless	Benzene Detectors 27
. *		Hydrocarbon Detectors 193
	burning. Flare gas recovery system shall be installed for reduction of	
	Hydrocarbon loss and emission of VOCs, NOx, N2O, SOx & CO2 to the	*Flare system is designed for smokeless burning by M/s
	environment	AirOil *Study
		on Flare gas recovery will be looked into.
19	Regular Ambient Air Quality Monitoring shall be carried out. The	AAQM monitoring is carried out as per NAAQM rules, 2009
	Location and results of existing monitoring stations shall be reviewed	at 5 locations, at a frequency of weekly twice, at a location,
	in consultation with the concerned State Pollution Control Board	all the year round and Monitoring is done for all parameter
	based on the occurance of maximum ground level concentration and	as per the rules, as suggested by KSPCB & Monthly Reports
	downwingd direction of wind. Additional stations shall be set up, if	are submitted to KSPCB . The values are found to be within
	required. It shall be ensured that at least one monitoring station is set	the NAAOM Norms.
	up in up-wind & in Down - wind direction along with those in other	
	directions	
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20	on-line data for air emissions shall be transferred to the CPCB and	on-line data for air emissions is being uploaded to the CPCB,
	SPCB regularly. The instruments used for ambient air quality	since April, 2016. OMPL has dedicated Instrumentation
		Team and would ensure calibration of instruments, as
	monitoring shall be calibrated regularly. The monitoring protocol shall	
	monitoring shall be calibrated regularly. The monitoring protocol shall ensure continuous monitoring of all the parameters	required
· · ·		
21	ensure continuous monitoring of all the parameters The practise of acoustic plant design shall be adopted to limit noise	required Please note, as a first step, OMPL project group, identified
21	ensure continuous monitoring of all the parameters	required
21	ensure continuous monitoring of all the parameters The practise of acoustic plant design shall be adopted to limit noise exposure for personnel to an 8 hour time weighted average of 90	required Please note, as a first step, OMPL project group, identified
21	ensure continuous monitoring of all the parameters The practise of acoustic plant design shall be adopted to limit noise	required Please note, as a first step, OMPL project group, identified the sources of noise & taken up Attenuation measures, at the design stage itself <u>Sources:</u>
21	ensure continuous monitoring of all the parameters The practise of acoustic plant design shall be adopted to limit noise exposure for personnel to an 8 hour time weighted average of 90	required Please note, as a first step, OMPL project group, identified the sources of noise & taken up Attenuation measures, at the design stage itself <u>Sources:</u> Pumps, Compressors & Turbines.
21	ensure continuous monitoring of all the parameters The practise of acoustic plant design shall be adopted to limit noise exposure for personnel to an 8 hour time weighted average of 90	required Please note, as a first step, OMPL project group, identified the sources of noise & taken up Attenuation measures, at the design stage itself <u>Sources:</u> Pumps, Compressors & Turbines. <u>Attenuation measures:</u> It is ensured at design stage that
21	ensure continuous monitoring of all the parameters The practise of acoustic plant design shall be adopted to limit noise exposure for personnel to an 8 hour time weighted average of 90	required Please note, as a first step, OMPL project group, identified the sources of noise & taken up Attenuation measures, at the design stage itself <u>Sources:</u> Pumps, Compressors & Turbines. <u>Attenuation measures:</u> It is ensured at design stage that Noise level at a distance of 1 mt from the equipment is < 90
21	ensure continuous monitoring of all the parameters The practise of acoustic plant design shall be adopted to limit noise exposure for personnel to an 8 hour time weighted average of 90	required Please note, as a first step, OMPL project group, identified the sources of noise & taken up Attenuation measures, at the design stage itself <u>Sources:</u> Pumps, Compressors & Turbines. <u>Attenuation measures:</u> It is ensured at design stage that

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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 expanson 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.
	guard absorbent and alumina Balls shall be disposed off as per the authorization from the State Polllution 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
·	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
	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)
***	storm water drains to recharge the ground water and use the same	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

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31	Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act	Complied and is ongoing process				
32	The company shall implement all the recommendations made in the Environmental Impact Assessment / EMP report and risk assessment report	Complied				
33	The company will undertake all relevant measures, as indicated during the Public Hearing for improving the socio-economic conditions of the surrounding area	Complied				
34	With regard to R & R colony the project proponent shall obtain all requisite clearences as prescribed by the concerned agencies	NA				
B Genera	I Conditions :	· · · · · · · · · · · · · · · · · · ·				
1	The project authorities shall strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government	KSPCB stipulations will be adhered to				
2	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests	Agreed				
3	At no time, the emisions shall be allowed to go beyond the precribed 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	Agreed				
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					
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	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.				
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)	Sources: Pumps, Compressors & Turbines. <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) by providing acoustic hoods, silencers, enclosures etc. as appropriate & at plant boundry is less than 75 dB in daytime & 70 dB in night time as per the Legal requirement				
. 7	The project authorities shall strictly cmply with the provisions made in manufacture, storage and import of Hazardous chemicals rules 1989 as amended in 2000 for handling of hazardous chemicals etcNecessary 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	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				

8	Authorization from the State Pollution Control Board must be obtained for collections/ treatment/ storage/ disposal of Hazardous wastes	Please note OMPL has obtained 'Authorization under Handling Hazardous Wastes' and valid upto 30th June, 2018
9	The project authorities shall provide adequate funds both recuring 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	Please note biannually compliance report is submitted on regular basis through MSEZ. The Environment monitored data are being uploaded in the OMPL website
	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearence 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	
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	Agreed .
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	Complied
15	The Ministry may revoke or suspend the clearence, if implementation of any of the above condition is not satisfactory	info.
16	The Ministry reserves the right to stipulate additional conditions if found necessary. The company shall implement these conditions in a time bound manner	info.
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	info.

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ANNEXURE-1

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

Sl. No.	Conditions	Compliance
1	Adoption of state-of- art technology	Please note Process technology is licensed from renowned
	State of Art technology will be adopted for both process technology	expert in the field: UOP, America for NHT platforming
	as well sound engineering practices required for control of emission,	units, High severity Cyclemax CCR unit for catalyst
	at the stage of design itself in case of new plants	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.
<u>```</u>		Please note OMPL has commissioned 2 numbers of
2	Management of storm water	-
	For the storm water generated from process area and tank farm area	collection tanks: one at ISBL area with capacity of 12,000
	during initial hours of rain. An arrangement will be made for	m3 & the other at OSBL area with 6000 m3 capacity for
	collection and oil separation including further treatment as required.	collection of initial hours of rain from process area & tank
	Such arrangement will include provision for buffer tank (holding	farm area respectively. This is then treated in ETP with an
	tank) and monitoring of effluent quality. This will be accomplished	treatment capacity of 150 m3/ hr. The treatment section
	by June 2003.	Includes Physical treatment, chemical, Biological &
	by June 2003.	Tertiary treatment sections
		rentially repainent sections
-		OMOL has installed Effluent Dra Transmant Direct at
3	Effective detoxification and waste water treatment scheme	OMPL has installed Effluent Pre-Treatment Plant at a cost
	In order to control high COD and persistent organic pollution	of RS 11.39 crores. The units consists of Distillation column
	including toxic constituents, the industry will select appropriate unit	& carbon adsorption beds to remove CODs, so that
	operations for pre-treatment of effluent within inside battery limit	effluent entering BTS will be having Max. upto 20 ppm of
	(ISBL) before sending to the biological treatment system(BTS) for better	aromatics
	functioning of ETPs. Action plan for the same will be submitted	
	within 6 months and implemented within one year (March,2004)	OMBL has installed low New humans for its heaters P. flue
4	Control of emission from combustion	OMPL has installed Low Nox burners for its heaters & flue
	The industry will submit an action plan within six months for	gas is let out just above H2SO4 dew point after heating the
	improving thermal efficiency and control of Nox	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	NA
5	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	
6	Leak detection and repair (LDAR) programme	LDAR program is ongoing process since July, 2016. Please
	As a good operating, the industry will adopt periodically leak	note OMPL as first step in leak prevention, hired Bell
	detection and repair (LDAR) programme to check fugitive emissions	Energy India, who carried out Dispersion Model Analysis
	within six months. The frequency of the programme will be	and recommended following Online detectors which are
	proportionate to the risk potential of carrying fluid. Based on leak	already installed at site such as, Benzene Detectors 27 nos
	detection as per LDAR programme, action will be taken to eliminate	Hydrocarbon Detectors 193 nos
	fugitive emissions, this will be a continuous activity.	
7	Handling of halogenated organics	Halogenated organic is used only for chloride dispersion
	The industry will submit an action plan within 6 months to ensure	on platinum catalyst and consumed. Used catalyst will be
		disposed to KSPCB authorised recyclers
	that no halogenated organics is sent to the flares in order to avoid	approved to war on antionised recyclers
	formation of persistent organic pollutants. All HAPs had	
	formation of persistent organic pollutants. All HAPs had halongenated organics will be routed to the incineration system	
8	halongenated organics will be routed to the incineration system	Please note double mechanical seal is provided for the
8	halongenated organics will be routed to the incineration system having end-on pollution control facility. Control of fugitive emissions of carcinogenic compounds	Please note double mechanical seal is provided for the purpose & periodical health check up is being carried out
8	halongenated organics will be routed to the incineration system having end-on pollution control facility. Control of fugitive emissions of carcinogenic compounds Fugitive emission of carcinogenic compounds (e.g. Benzene) will be	purpose & periodical health check up is being carried out
8	halongenated organics will be routed to the incineration system having end-on pollution control facility. 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	purpose & periodical health check up is being carried out as per the legal requirement through Occupational Health
8	halongenated organics will be routed to the incineration system having end-on pollution control facility. Control of fugitive emissions of carcinogenic compounds Fugitive emission of carcinogenic compounds (e.g. Benzene) will be	purpose & periodical health check up is being carried out
	halongenated organics will be routed to the incineration system having end-on pollution control facility. 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	purpose & periodical health check up is being carried out as per the legal requirement through Occupational Health Centre, stagewise
8	halongenated organics will be routed to the incineration system having end-on pollution control facility. 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 Management of solid waste	purpose & periodical health check up is being carried out as per the legal requirement through Occupational Health Centre, stagewise OMPL has installed Solid Waste Management facility at an
	halongenated organics will be routed to the incineration system having end-on pollution control facility. 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	purpose & periodical health check up is being carried out as per the legal requirement through Occupational Health Centre, stagewise OMPL has installed Solid Waste Management facility at an
	halongenated organics will be routed to the incineration system having end-on pollution control facility. 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 Management of solid waste Proper facilities will be provided for handling and storage of	purpose & periodical health check up is being carried out as per the legal requirement through Occupational Health Centre, stagewise OMPL has installed Solid Waste Management facility at an estimated cost of RS 3.73 crore for handling and storage
	halongenated organics will be routed to the incineration system having end-on pollution control facility. 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 Management of solid waste Proper facilities will be provided for handling and storage of hazardous waste with manifest system in case transported to other	purpose & periodical health check up is being carried out as per the legal requirement through Occupational Health Centre, stagewise OMPL has installed Solid Waste Management facility at ar estimated cost of RS 3.73 crore for handling and storage of hazardous waste until disposal & manifest system will
	halongenated organics will be routed to the incineration system having end-on pollution control facility. 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 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	purpose & periodical health check up is being carried out as per the legal requirement through Occupational Health Centre, stagewise OMPL has installed Solid Waste Management facility at ar estimated cost of RS 3.73 crore for handling and storage of hazardous waste until disposal & manifest system will be follwed during disposal of Hazardous Wastes.
	halongenated organics will be routed to the incineration system having end-on pollution control facility. 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 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-	purpose & periodical health check up is being carried out as per the legal requirement through Occupational Health Centre, stagewise OMPL has installed Solid Waste Management facility at ar estimated cost of RS 3.73 crore for handling and storage of hazardous waste until disposal & manifest system will be follwed during disposal of Hazardous Wastes. Temporary Waste Storage facility is constructed of about
	halongenated organics will be routed to the incineration system having end-on pollution control facility. 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 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	purpose & periodical health check up is being carried out as per the legal requirement through Occupational Health Centre, stagewise OMPL has installed Solid Waste Management facility at ar estimated cost of RS 3.73 crore for handling and storage of hazardous waste until disposal & manifest system will be follwed during disposal of Hazardous Wastes. Temporary Waste Storage facility is constructed of about 2000 m2 area with impervious surface, closed shed and
	halongenated organics will be routed to the incineration system having end-on pollution control facility. 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 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-	purpose & periodical health check up is being carried out as per the legal requirement through Occupational Health Centre, stagewise OMPL has installed Solid Waste Management facility at ar estimated cost of RS 3.73 crore for handling and storage of hazardous waste until disposal & manifest system will be follwed during disposal of Hazardous Wastes. Temporary Waste Storage facility is constructed of about

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10	Proper operation of incinerator	NA
	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.	
11	Optimising the inventory of hazardous chemicals	Agreed. Further Petroleum & Explosives Safety
	Efforts will be made to optimize the inventory, particularly of	Organization (PESO) approvals are being taken for bulk
	hazardous chemicals. Such information will be made available to the	storage of Hazardous chemicals (Petroleum) wherein
	Regulatory Agencies (SBCBs) Inspector of Factory & District Collector	requirements of the MSIHC Rules, 1989 is considered
12	Self- regulation by industry through monitoring and environmental	Agreed
	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.	
13	Organizational restructuring and accreditation of environmental manager of industry.	Agreed
	For self-evaluation, organizational restructuring will be done and the	
	environmental manager of the industry will be accredited to bring	
	professionalism in environmental management.	

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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

Dear Sir,

Sub: <u>Submission of Environmental Monitoring Report for the Month of May, 2016, Returns</u> Regarding Water Consumed for the <u>Month of May 2016</u> <u>Production Report for May, 2016</u>

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

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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

Viney Euror Aren An any www.

6. Production Report as Annexure-F

Thanking You,

brakash

Manager (Env)

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



ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel: 080-23012100/ 121/122 Fax: 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

- Name of the location 1.
- **OMPL East Side** •
- Name of the industry 2.
- M/s. ONGC Mangalore Petrochemicals Limited :

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- Sample Collected By 3.
- **Particulars of Sample** 4. Collected

Date of Collection

Sample Number

5

6.

- Mangalore Spécial Economic Zone, Permude Mangalore-574509. M/s. Environmental Health & Safety Research and : Development Centre, Bangalore - 560 010. Ambient Air collected through 1
- Fine Particulate Sampler APM 550 Respirable Dust Sampler - 460NL, CO & O3 Analyzers.
- For the Month of May-2016 (Monitored for 24 hours) 1
- EHSRDC/OMPL/A/16/05/

		·							
	<u></u>	w	K 66	WK	67	WI	< 68	W	K 69
PARAMETERS	DAT	05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	24/05/2016
PAF	CODE	1647	1759	1905	1954	1954 2154	2268	2410	2464
	LIMITS	1047	1759	1705					
PM10 (ug/m ³)	100	59	58	57	65	64	63	59	56
ΡM2.5 (μg/m ³)	60	15	15	15	20	17	19	16	14
SO2 (μg/m ³)	80	2.15	2.29	2.51	2.32	2.45	2.32	2.37	2.39
NO₂ (µg/m³)	80	3.82	3.14	3.49	3.47	3.21	3.26	3.69	3.37
CO (mg/m³)	4	0.74	0.79	0.83	0.78	0.81	0.75	0.77	0.78
О₃ (µg/m³)	180	0.86	0.87	0.96	0.88	0.93	0.86	0.88	0.89

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No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

Test Report

:		WI	K 66	WF	K 67	WK 68		WI	K 69
PARAMETERS	DATE	05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	24/05/2016
PAR	CODE		. 4750	400-					
	LIMITS	1647	1759	1905	1954	2154	2268	2410	2464
NH3 (μg/m ³)	400	1.40	1.44	1.48	1.49	1.52	1.56	1.73	1.60
Lead (µg/m³)	1	0.065	0.032	0.051	0.124	0.040	BDL	0.009	0.003
Arsenic (ng/m³)	6	1.26	BDL	BDL	0.59	BDL	BDL.	0.45	0.84
Nickel (ng/m³)	20	1.13	0.75	1.01	0.79	1.13	0.06	0.21	0.22
Benzene (µg/m³)	5	BDL							
B(a)P (ng/m³)	1	BDL							

Note: BDL: Below Detectable Limit.

End of Report

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ISO 9001 : 2008

ISO 14001 : 2004

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No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel: 080-23012100/ 121/122 Fax: 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

Test Report

ANALYSIS REPORT OF AMBIENT AIR OUALITY

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	:	Ambient Air collected through
	Collected		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/

		W	K 66	WK	57	WK	68	WK	69 ·
PARAMETERS	DATE	05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	24/05/2016
PA	CODE	1646	1758	1904	1953	2153	2267	2409	2463
	LIMITS	1040	1/38	1704	1955	2155	2207	2409	2403
ΡM10 (µg/m³)	100	67	55	66	58	58	55	64	58
PM2.5 (µg/m³)	60	20	14	20	15	14	14	19	16
SO2 (µg/m³)	80	2.45	2.37	2,35	2.19	2.33	2.23	2.29	2.45
NO₂ (µg/m³)	80	3.14	3.26	3.57	3,77	3.72	3.14	3,21	3.19
CO (mg/m³)	4	0.76	0.81	0.76	0.71	0.78	0.71	0.71	0.74
O₃ (µg/m³)	180	0.88	0.93	0.88	0.82	. 0.88	0.83	0.84	0.87

Authorized Signatory



ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

Test Report

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		W	K 66	WF	67	WK	68	WK	69
PARAMETERS	DATE	05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	24/05/2016
PAR	CODE		1	1004	1050	0150	00/7		
-	LIMITS	1646	1758	1904	1953	2153	2267	2409	2463
NH₃ (µg/m³)	400	1.32	1.63	1.35	1.37	1.33	1.47	1.61	1.41
Lead (µg/m³)	1	0.012	0.061	0.039	0.104	0.034	BDL	0.053	0.009
Arsenic (ng/m³)	6	BDL	1.02	BDL	BDL	BDL	BDL	BDL	0.74
Nickel (ng/m³)	20	BDL	1.12	1.34	1.04	0.89	0.82	1.92	0.72
Benzene (µg/m³)	5	BDL							
B(a)P (ng/m³)	1	BDL							

Note: BDL: Below Detectable Limit.

End of Report

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ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

Test Report

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel: 080-23012100/ 121/122 Fax: 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

ANALYSIS REPORT OF AMBIENT AIR OUALITY

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	:	Ambient Air collected through
	Collected		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	· .	FHSRDC/OMPL/A/16/05/

- Sample Number
- EHSKDC/OMPL/A/16/05/

		WK	66	WI	< 67	WK	68	WK	69
PARAMETERS	DATE	07/05/2016	08/05/2016	12/05/2016	13/05/2016	18/05/2016	19/05/2016	25/05/2016	26/05/2016
ΡA	CODE	1761	1826	2045	2091	2269	2271	2495	2533
	LIMITS	1/01	1620	2045	2091	2209		2493	2555
PM10 (μg/m³)	100	60	56	64	61	61	66	67	68
ΡM2.5 (μg/m ³)	60	16	15	18	16	18	20	20	18
SO₂ (µg/m³)	80	2.18	2.31	2.39	2.17	2.44	2.55	2.26	2.13
NO2 (µg/m³)	80	3.72	3.67	3.72	3.67	3.49	3.42	3.72	3.24
CO (mg/m³)	4	0.75	0.76	0.75	0.77	0.78	.0.77	0.82	0.77
O3 (µg/m³)	180	0.84	0.87	0.87	0.89	0.91	0.85	0.94	0.88

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ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

Test Report

· ·		WI	K 66	WK	67	W	K 68	ŴI	K 69
PARAMETERS	DATE	07/05/2016	08/05/2016	12/05/2016	13/05/2016	18/05/2016	19/05/2016	25/05/2016	26/05/2016
PAR/	CODE	4-54	1000						0700
	LIMITS	1761	1826	2045	2091	2269	227 <u>1</u>	2495	2533
NH₃ (µg/m³)	400	1.58	1,39	1.71	1.67	1.71	1.67	1.55	1.30
Lead (µg/m³)	1	0.039	0.059	0.039	0.032	BDL	BDL	0.035	0.034
Arsenic (ng/m³)	6	0.53	0.93	0.51	0.74	BDL	BDL	BDL	BDL
Nickel (ng/m³)	20	0.09	1.35	0,74	0.21	0.26	0.80	1.34	1.47
Benzene (µg/m³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

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ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

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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	:	Ambient Air collected through
	Collected		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/

									
		W	K 66	WI	C 67	WK	68	WK	69
PARAMETERS	DATE	07/05/2016	08/05/2016	12/05/2016	13/05/2016	18/05/2016	19/05/2016	26/05/2016	27/05/2016
PA	CODE	1760	1825	2044	2090	2270	0005	0500	0(40
	LIMITS	1/00	1825	2044	2090	2270	2325	2532	2649
PM10 (µg/m³)	100	64	63	59	68	58	60	66	59
PM2.5 (µg/m³)	60	19	18	16	20	15	17	16	15
SO2 (µg/m³)	80	2.44	2.11	2.25	2.46	2.39	2.25	2.09	2.30
NO₂ (µg/m³)	80	3.47	3.16	3.44	3.19	3.69	3.57	3.44	3.72
CO (mg/m³)	. 4	0.83	0.84	0.84	0.80	0.80	0.74	0.80	0.75
O3 (µg/m³)	180	0.92	0.96	0.96	0.91	0.93	0.81	0.84	0.86

Authorized Signatory



ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

Test Report

		Ŵĸ	66	WK	67	W	K 68	WK	69
PARAMETERS	DATE	07/05/2016	08/05/2016	12/05/2016	13/05/2016	18/05/2016	19/05/2016	26/05/2016	27/05/2016
PAB	CODE	15/0	1005	0044	0000	0070	8005	0500	2040
	LIMITS	1760	1825	2044	2090	2270	2325	2532	2649
NH3 (μg/m³)	400	1.36	1.68	1.56	1.36	1.56	1.47	1.45	1.81
Lead (µg/m³)	1	0.026	0.205	0.012	0.010	0.007	BDL	0.005	0.004
Arsenic (ng/m³)	6	BDL	BDL	BDL	BDL	BDL	BDL	0.74	0.008
Nickel (ng/m³)	20	1.72	0.31	1.74	1.11	0.26	BDL	1.41	0.75
Benzene (µg/m³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory



ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

Test Report

ANALYSIS REPORT OF AMBIENT AIR OUALITY

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	:	Ambient Air collected through
	Collected		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/

		WB	66	WK	67	WK	68	WK	69
PARAMETERS	DATE	05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	25/05/2016
PAR	CODE								
	LIMITS	1645	1757	1903	1952	2152	2266	2408	2462
PM10 (μg/m³)	100	64	61	61	62	69	59	55	63
PM2.5 (μg/m³)	60	17	18	17	17	19	17	13	18
SO2 (μg/m³)	80	2.21	2.08	2.13	2.41	2.13	2.14	2.41	2.23
NO₂ (µg/m³)	80	3.67	3.67	3.26	3.24	3.49	3.34	3.42	3.54
CO (mg/m³)	4	0.72	0.77	0.79	0.80	0.73	0.84	0.83	0.81
O3 (µg/m³)	180	0.85	0.88	0.90	0.91	0.84	0.96	0.95	0.93

Authorized Signatory



ISO 9001 : 2008

ISO 14001 : 2004

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No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com

Website : www.ehsrdc.in

Test Report

	T	1						· · ·	
		WK	66	w:	K 67	WK	68	. WI	(69 ^{- 1}
PARAMETERS	DATE	05/05/2016	06/05/2016	10/05/2016	11/05/2016	16/05/2016	17/05/2016	23/05/2016	25/05/2016
PAR	CODE						· .		
	LIMITS	1645	1757	1903	1952	2152	2266	2408	2462
NH₃ (µg/m³)	400	1.58	1.74	1.66	1.26	1.70	1.23	1.37	1.80
Lead (µg/m³)	1	0.052	0.041	0.021	0.011	0.011	0.019	0.037	0.008
Arsenic (ng/m³)	6	0.75	0.50	BDL	BDL	BDL	BDL	1.26	BDL
Nickel (ng/m³)	20	0.99	1.57	0.16	0.94	1.10	1.24	· 0.27	1.46
Benzene (µg/m³)	5	BDL							
B(a)P (ng/m³)	1	BDL							

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory



ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

Test Report

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com

Website : www.ehsrdc.in

11

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, 22 nd Edition/IS: Standard

				ş	10500:2012 l Revision)	Code
SI.No	PARAMETERS	UNIT	Test Methods	DL	PL	GW1
	·		:		· FL	11622
1.	рН		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	Unobj	ectionable	Unobjectionable
4,	Taste		IS 3025(Part-8):1984	Ag	reeable	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 SO4	mg/L	4500-SO42-	200	400	2.67
11	Fluoride as F	mg/L	4500F D	1	1.5	0.09
12	Nitrate as NO3	mg/L	4500-NO3 E		45	1.09
13	Chloride as Cl	mg/L	4500-CI 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	A	bsent	Absent
	Total Coliform	CFU/100ml	IS15185:2002	A	bsent ·	Absent
Note-: BDL	- Below Detectable Limit, DL -	Desirable Limit,	PL - Permissible Limit.			

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

Authorized Signatory



ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

Test Report

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel: 080-23012100/ 121/122 Fax: 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

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			10500:2012 Revision)	Code
	I ANAME I LAS	UNII	Test Methods	DL	PL	GW2
						11623
. 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	Unobje	ctionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Agr	eeable	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 SO4	mg/L	4500-SO42-	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-CI 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	Ab	sent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Ab	sent	Absent
ote-: BI	DL-Below Detectable Limit,	DL – Desirable Limi	t, PL – Permissible Limit.		L.	

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

Authorized Signatory



ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

Test Report

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

ANALYSIS REPORT OF FRESH WATER QUALITY

- 1. Name of the Location
- 2. Name of the Industry
- 3. Sample Collected By
- 4. Date of Collection
- 5. Particulars of Sample Collected
- 6. Date of Sample Receipt
- 7. Sample Number
- 8. Protocol

- : OW1: Tenka-Ekkar
- : M/s. ONGC Mangalore Petrochemicals Limited Mangalore SpecialEconomic Zone, Permude Mangalore-574509
- : M/s. Environmental Health and Safety Research and Development Centre, Bangalore - 560 010.
- : 23.05.2016
- : Open well water, Grab Sampling
- : 24.05.2016
- : EHSRDC/OMPL/W/16/05/2374
- : APHA, 22nd Edition/IS: Standard

01.51	DADAL (PADD C		m		0500:2012 Revision)	Code
Sl.No	PARAMETERS	UNIT	Test Methods	DL	БТ	OW1
				DL	PL	11624
1.	рН		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	Unobjec	tionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Agre	eeable	Agreeable
5.	Turbidity	NTU	2130 B	1	- 5	0.58
б.	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-SO42-	200	400	BDL
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.28
12.	Nitrate as NO3	mg/L	4500-NO3 E	4	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	Ab	sent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Ab	sent	Absent

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.

Authorized Signatory



ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

Test Report

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel: 080-23012100/ 121/122 Fax: 080-23012111 E-mail : ehsrdc2010@gmail.com

Website : www.ehsrdc.in

ANALYSIS REPORT OF FRESH WATER QUALITY

- 1. Name of the Location
- 2. Name of the Industry

- OW3: Shanthiguda Village :
- Sample Collected By 3.
- Date of Collection 4.
- Particulars of Sample Collected 5.
- 6. **Date of Sample Receipt**
- 7. Sample Number
- 8. Protocol

- M/s. ONGC Mangalore Petrochemicals Limited : Mangalore SpecialEconomic Zone, Permude Mangalore-574509
- M/s. Environmental Health and Safety Research and : Development Centre, Bangalore - 560 010.
 - 23.05.2016
- Open well water, Grab Sampling •
- 24.05.2016
- EHSRDC/OMPL/W/16/05/2375
- APHA, 22nd Edition/IS: Standard

SI. N	PARAMETERS	UNIT	Test Methods	(S	10500:2012 econd vision)	Code
0				DL	PL	OW2
					FL	11625
	рН		4500H+ B	6	5.5-8.5	8.34
	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
	Odour		IS 3025(Part-5):1983	Unob	jectionable	Unobjectionable
	Taste		IS 3025(Part-8:1984	Ag	greeable	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-SO42-	200	400	3.70
	Fluoride as F	mg/L	4500F D	1	1.5	0.55
	Nitrate as NO3	mg/L	4500-NO3 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	Ā	Absent	Absent
	Total Coliform	CFU/100ml	IS15185:2002	A	Absent	Absent

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





ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1.	Name of the Location	;	SWI: 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, 22 nd Edition/IS: Standard

il.No	PARAMETERS	UNIT	Test Methods		10500:2012 Revision)	Code
/		UNIT	i est methous	DL	PL	SW1
						11626
1.	рН		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	Unobje	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Agı	reeable	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-SO42-	200	400	49.88
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.87
12.	Nitrate as NO3	mg/L	4500-NO3 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	A	osent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Al	osent	Absent

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.	

Authorized Signatory



ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel: 080-23012100/ 121/122 Fax: 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

APHA, 22nd Edition/IS: Standard

1.	Name of the Location	:	SW2 : Near Central Warehouse, OMPL
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	:	Surface inlet water, Grab Sampling
6.	Date of Sample Receipt	:	24.05.2016
·7.	Sample Number	:	EHSRDC/OMPL/W/16/05/2377

:

8. Protocol

	DADAN (FERRING				10500:2012 I Revision)	Code
SI.No	PARAMETERS	UNIT	Test Methods			SW2
				DL	PL	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	Unobj	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Ag	reeable	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-SO42	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-NO3 E		45	4.28
13.	Chloride as Cl	mg/L	4500-CI 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	A	bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent

As per IS 10500:2012(Second Revision),

INFERENCE 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



ISO 9001 ; 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

Test Report

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

ANALYSIS REPORT OF FRESH WATER QUALITY

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

	PARAMETERS		Test Methods	Std. IS 10	500:2012	Code
Sl.No		UNIT		(Second Revision)		GW3
			:	DL	PL	11628
1.	pН		4500H+ B	6.5-	8.5	8.12
	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
2.	Odour	Tiazen	IS 3025(Part-5):1983	Unobjec		Unobjectionable
3.						•
4.	Taste		IS 3025(Part-8):1984	Agre	eable	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 SO4	mg/L	4500-SO42-	200	400	7.3
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.10
12.	Nitrate as NO3	mg/L	4500-NO3 E	4	5 .	1,09
13.	Chloride as Cl	mg/L	4500-CI 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	Abs	sent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Abs	sent	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.

Authorized Signatory



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Recognised by Ministry of Environment & Forests (MoEF), Govt. of India, New Delhi, Dated : 28-07-2011 to 27-07-2016

ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

Test Report

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel: 080-23012100/ 121/122 Fax: 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

ANALYSIS REPORT OF FRESH WATER QUALITY

.1 . 3 7:11

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, 22 nd Edition	•	10500:2012	Code	
					Revision)	Code	
Sl.No	PARAMETERS	UNIT	Test Methods	DI	. DI	OW3	
				DL	PL	11629	
1.	рН		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	Unobje	ectionable	Unobjectionable	
4.	Taste		IS 3025(Part-8):1984	Agı	reeable	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	7 5	200	4.8	
· 9.	Magnesium as Mg	mg/L	3500 Mg B	30	100	0.48	
10.	Sulphate as SO₄	mg/L	4500-SO42-	200	400	BDL	
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL	
12.	Nitrate as NO3	mg/L	4500-NO3 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	A	bsent	Absent	
18,	Total Coliform	CFU/100ml	IS15185:2002			Absent	

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

As per IS 10500:2012(Second Revision), INFERENCE 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



ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

Test Report

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel: 080-23012100/ 121/122 Fax: 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

ANALYSIS REPORT OF FRESH WATER QUALITY Name of the Location 1. GW4: OMPL (Near ETP) : 2. Name of the Industry M/s. ONGC Mangalore Petrochemicals Limited **1** - -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 Particulars of Sample Collected 5. Bore well water, Grab Sampling : 6. **Date of Sample Receipt** 24.05.2016 : · 7. Sample Number EHSRDC/OMPL/W/16/05/2380 1

8. Protocol

- APHA, 22nd Edition/IS: Standard

SI.No	PARAMETERS	UNIT	Test Methods		10500:2012 Revision)	Code	
	TARAWEIERS	UNII	rest methous	DL	PL	GW4	
					£ L	11630	
1.	pН		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	Unobje	ctionable	Unobjectionable	
4.	Taste		IS 3025(Part-8):1984	Agr	eeable	Agreeable	
5.	Turbidity	NTU	2130 B	1	5	0.79	
6.	Total Dissolved Solids	lids 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 SO4	mg/L	4500-SO4 ²⁻	200	400	BDL	
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.51	
12.	Nitrate as NO3	mg/L	4500-NO3 E	<u>.</u>	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	ل س		BDL	
. 17.	E-Coli	CFU/100ml	IS15185:2002	At	sent .	Absent	
18.	Total Coliform	CFU/100ml	IS15185:2002	At	sent	Absent	

As per IS 10500:2012(Second Revision), INFERENCE 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



ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com

Website : www.ehsrdc.in

4N-C

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. : M/s. Environmental Health and Safety Research & 2. Sample Collected by Development Centre, Bangalore - 560 010. Date of Collection 3. 21.05.2016 : **Particulars of Sample** 4. Ambient Noise Level collected through Collected Sound Level Meter C-390 5, Date of Sample Receipt 23.05.2016 : Sample Number 6. EHSRDC/OMPL/N/16/05/ 2326-2329 7. Method Adopted Instrument Method

Code No		Para	Std.	
	Sample Location	• Day Time dB(A)	Night Time dB(A)	75.0 dB(A)
2326	OMPL East Side Boundary	65.12	54,27	Day
2327	OMPL West Side Boundary	· 68.33	58.99	
2328	OMPL North Side Boundary	67.20	54.66	70
2329	OMPL South Side Boundary	66.42	54.04	dB(A) Night

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.

Authorized Signatory



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Name

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ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

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3 , ser

Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

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

SI.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
-3.	Odour*	IS 3025(Part-5) :1983		Unobjectionable	and unpleasant odour and unpleasant odour as for as practicable.
4.	Temperature	APHA 2550 B	°C	25	Shall not exceed 5 ⁰ Cabove the receiving water temperature.
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

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Test Report

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

Page No: 02of 02 14. Ammonical Nitrogen 4500- NH3,B,C 0.74 mg/L 15 15. Hexavalent Chromium 3500- Cr B BDL mg/L 0.1 16. Sulphide IS 3025 (part 29): 1986 0.96 mg/L 1.0 17. Fluoride as F IS 3025(Part 60): 2008 mg/L 0.60 1.5 Nitrate as NO3 18. 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 BDL mg/L 2 22. Cadmium as Cd* IS 3025(Part 41):1992 mg/L BDL 0.1 Selenium as Se* 23. IS 3025(Part 56):2003 mg/L BDL 0.05 24. Arsenic as As* IS 3025(Part 37):1988 BDL mg/L 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 Benzo (a) pyrene* 32. APHA 6440 $\mu g/l$ BDL 0.2 33. Bioassay* IS 6582 90% survival of % survivality 100% 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 BDI 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 standa	
	been specified were observed to be within the said standard.

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

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

Signature of the Consumer

Name Address

Shiva rakash, Manager(Env)

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

N-IC Ĥ

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

GALORE SE

JUL 231

Date: 14/7/2016

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

The Environmental Officer Regional Office KSPCB Baikampady, Mangalore-11

Dear Sir,

To:

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

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,

Manager (Env)

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



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Test Report

ANNISTON old, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel: 080-23012100/ 121/122 Fax: 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

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

- 5
- EHSRDC/OMPL/A/16/06/
- Sample Number 6.

	-	WK 70		wк	71	WF	(72	WI	C 73
PARAMETERS	DATE	01/06/2016	02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
PAI	CODE	2882	· 2885	2949	3026	3271	3290	3571	3627
	LIMITS	2002	2005	2717	5020	5271	5290	5571	5027
ΡM10 (µg/m³)	100	61	56	66	58	61	60	61	59
PM2.5 (μg/m ³)	60	17	13	20	17	18	17	17	15
SO2 (µg/m³)	80	2.50	2.65	⁻ 2.11	2.45	2.17	2.43	2.33	2.17
NO2 (μg/m ³)	80	3.16	3.47	3.69	3.67	3.24	3.21	3.59	3.21
CO (mg/m³)	4	0.75	0.83	0.72	0.75	0.82	0.81	0.84	0.79
O3 (µg/m³)	180	0.84	0.94	0.81	0.86	0.93	0.94	0.93	0.86



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Website : www.ehsrdc.in

Test Report

		WF	WK 70		/1	WK	72	WK	. 73
PARAMETERS	DATE	91/06/2016	02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
PAR	CODE		0995	2949	3026	3271	3290	3571	3627
	LIMITS	2882	2885	2949	5020	52/1		3571	5027
NH₃ (µg/m³)	400	1.40	. 1.63	1.48	1.48	1.34	1.33	1.62	1.52
Lead (µg/m³)	1	0.007	0.008	BDL	0.010	BDL	0.015	0.005	0.009
Arsenic (ng/m³)	6	· 1.22	0.97	0.98	1.72	BDL	BDL	0.98	0.18
Nickel (ng/m³)	20	1.65	0.31	1.96	1.29	1.23	2.41	1.05	1.66
Benzene (µg/m³)	5	BDL							
B(a)P (ng/m³)	1	BDL	BDL	BDL.	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

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ISO 9001 : 2008

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Test Report

ANALYSIS REPORT OF AMBIENT AIR OUALITY

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	: Ambient Air collected through
	Collected	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/

			•	-					
		wi	C 70	WK	WK 71		72	W	< 73
PARAMETERS	DATE	01/06/2016	02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
PAF	CODE			2040	3025	3270	2200	3570	3626
	LIMITS	2881	2884	2948	3025	3270	3289	3570	5020
ΡΜ10 (μg/m ³)	100	67	69	61	60	55	66 _.	64	66
PM2.5 (μg/m³)	60	19	21	18	18	- 14	19	19	20
SO2 (µg/m³)	80	2.31	2.42	2.39	2.19	2.46	2.35	2.26	2.24
NO₂ (µg/m³)	80	3.47	3.54	3.14	3.82	3.49	3.80	3.92	3.64
CO (mg/m³)	4	· 0.77	0.79	0.80	0.84	0.78	0.72	0.78	0.82
O₃ (µg/m³)	180	0.88	0.90	0.89	0.95	0.86	0.84	0.89	0.91

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Website : www.ehsrdc.in

Test Report

		WK	70	WK	(71	WK	72	WI	K 73
PARAMETERS	DATE	01/06/2016	02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
PAR	CODE	2881	2884	2948	3025	3270	3289	3570	3626
	LIMITS	2001	2004	2740	5025	3270	3269		5020
NH₃ (µg/m³)	400	1.55	1.25	1.35	1.74	1.49	1.68	1.32	1.68
Lead (µg/m³)	1	BDL	0.010	0.012	0.007	BDL	0.008	BDL	BDL
Arsenic (Ng/m³)	6	1.13	2.51	1.00	BDL	BDL	0.50	1.25	1.25
Nickel (ng/m³)	20	1.32 -	0.50	1.51	1.26	BDL .	BDL	1.77	- 1.51
Benzene (µg/m³)	5	BDL							
B(a)P (ng/m³)	1	BDL							

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory



PM2.5

(µg/m³)

 \mathbf{SO}_2

(µg/m³)

 NO_2

(µg/m³)

co

(mg/m³)

O3

(µg/m³)

20

2.27

3.34

0.78

0.91

60

80

80

4

180

17

2.59

3.90

0.73

0.86

16

2.27

3.34

0.81

0.93

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ISO 14001 : 2004

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				Test R									
		ANALYS	<u>SIS REP</u>	ORT OF A	MBIENT	<u>AIR OU</u>	<u>ALITY</u>						
1.]	Name of the	e location	:	Tenka- El	kar								
2.	Name of the	e industry	:	M/s. ONG	GC Mang	galore Pet	rochemic	als Limited	l				
				Mangalor	e Spécial	l Economi	c Zone, P	ermude					
				Mangalore-574509.									
3.	Sample Col	lected By	:	M/s. Envi	ronment	al Health	& Safety I	Research ar	ıd				
	•	·		Developn	nent Cen	tre, Banga	alore – 560	010.					
4.	Particulars (of Sample	:	Ambient	Air colle	cted thro	ugh	•					
	Collected			Fine Parti	culate Sa	mpler – A	APM 550						
				Respirabl		-							
				CO & O3.		•							
5	Date of Col	lection	:		-		(Monitor	ed for 24 h	ours)				
	Sample Nu	mber	:	EHSRDC									
				· · ·			. '						
		WK	70	WК	71	Wŀ	5 72	WK	73				
S			<u>s</u>		وي.	. 9	e		 •				
ER	DATE	016	04/06/2016	38/06/2016	09/06/2016	15/06/2016	16/06/2016	22/06/2016	23/06/2016				
IEI)6/2	.90	96/2	,00/	/90,	,90	/90,	/90,				
AN	•	03/06/2016	04/	08/	/60	15/	16/	2	ลี				
PARAMETERS	· · · ·					•							
<u>н</u>	CODE						10404	.	8750				
-	TIME	2888	2890	3072	3108	3379	3426	. 3640	3658				
	LIMITS												
PM10	100						(5		~				
(µg/m³)	100	68	64	63	64	55	65	63	64				
· •	}				[l	1					

20

2.21

3.77

0.79

0.89

15

2.28

3.59

0.75

0.86

18

2.39

3.82

0.79

0.87

18

2.46

3.59

0.75

0.84

19

2.44

3,42

0.78

0.89

See NOTE overleaf



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Test Report

						l		1	
		WF	C 70	WK	WK 71		K 72	W	K 73
PARAMETERS	DATE	03/06/2016	04/06/2016	08/06/2016	09/06/2016	15/06/2016	16/06/2016	22/06/2016	23/06/2016
PAR	CODE	8 000							
	LIMITS	2888	2890	3072	3108	3379	3426	3640	3658
NH₃ (µg/m³)	400	1.62	1.67	1.59	1.36	1.71	1.67	1.48	1.69
Lead (µg/m³)	1	0.015	0.017	0.041	0.004	0.016	0.005	BDL	0.009
Arsenic (ng/m³)	6	0.49	0.74	0.002	1.00	BDL.	0.041	1.22	0.008
Nickel (ng/m³)	20	1.78	1.18	1.71	1.50	1.76	BDL	1.32	1:50
Benzene (µg/m³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m³)	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	:	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	:	Ambient Air collected through
	Collected		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/

		WK 70		WK	(71	w	K 72	W	(73
PARAMETERS	DATE	03/06/2016	04/06/2016	09/06/2016	10/06/2016	16/06/2016	17/06/2016	23/06/2016	24/06/2016
PAI	CODE	2887	2889	3107	3155	3425	3445	3657	3691
	LIMITS	2007	2009	5107	5155	5425	. 0440		3091
PM10 (µg/m³)	100	65	60	. 59	62	61	60	56	60
PM2.5 ⁻ (μg/m ³)	60	18	16	17	17	16	16	14	16
SO2 (μg/m³)	80	2.19	2.11	2.39	2.44	2.16	2.33	2,32	2.14
NO2 (μg/m ³)	80	3.01	3.72	3.21	3.52	3.42	3.75	3.11	3.69
CO (mg/m³)	4	0.74	0.84	0.74	0.83	0.81	0.77	0.72	0.80
Ο3 (µg/m³)	180	0.83	0.95	0.83	0.95	0.92	0.85	. 0.85	0.91

Authorized Signatory



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ISO 14001 ÷ 2004

BS OHSAS 18001 : 2007

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Website : www.ehsrdc.in

Test Report

		WK 70		Wł	WK 71		WK 72		č 73
PARAMETERS	DATE	03/06/2016	04/06/2016	09/06/2016	10/06/2016	16/06/2016	17/06/2016	23/06/2016	24/06/2016
PAF	CODE	2887	. 2889	3107	3155	3425	3445	3657	3691
	LIMITS	2007	• 2009	3107	3135	3423	3443	3037	3091
NH3 (µg/m³)	400	1.34	1.48	1.47	1.55	1.56	1.76	1.47	1.38
Lead (µg/m³)	1	0.038	0.013	0.006	0.039	0.005	0.015	0.008	0.006
Arsenic (Ng/m³)	6	0.27	1.24	0.50	0.85	1.28	BDL	1.74	0.50
Nickel (ng/m³)	20	1.27	1.88	1.31	1.75	1.20	1.88	1 .29	1.25
Benzene (µg/m³)	5	BDL	BDL						
B(a)P (ng/m³)	1	BDL	BDL						

Note: BDL: Below Detectable Limit.

End of Report

Pravena Authorized Signatory



Recognised by Ministry of Er Govt. of India, New Delhi, Date	
150 0001 + 2009	

ISO 14001 : 2004 -

BS OHSAS 18001 : 2007

Test Report

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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	:	Ambient Air collected through
	Collected		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/

									· · · · · · · · · · · · · · · · · · ·
		WI	C 70	WK	71	Wł	C 72	WI	(73
PARAMETERS	DATE	01/06/2016	02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
PA	CODE				-				
	LIMITS	2880	2883	2947	3024	3269	3288	3569	3625
PM10 (µg/m³)	100	59	. 57	57	55	59	57	58	57
PM2.5 (μg/m³)	60	15	14	15	14	16	13	- 14	13
SO₂ ΄ (μg/m³)	80	2.10	2.16	2.28	2.33	2.32	2.12	2.12	2.45
NO₂ (µg/m³)	80	3.67	3.06	3.49	3.06	3.77	3.44	3.21	3.97
CO (mg/m³)	4	0.81	0.71	0.76	0.79	0.75	0.78	0.71	0.74
O₃ (µg/m³)	180	0.92	0.82	0.85	0.87	0.84	0.87	0.83	0.85



Recognised by Ministry of Environment & Forests (MoEF), Govt. of India, New Delhi, Dated : 28-07-2011 to 27-07-2016

ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

Test Report

		WK	70	WK 71		WK 72		WK 73	
PARAMETERS	S DATE		02/06/2016	06/06/2016	07/06/2016	13/06/2016	14/06/2016	20/06/2016	21/06/2016
PAR/	CODE	n 000	2883	2947	3024	3269	3288	3569	3625
	LIMITS	2880	2003	2747	5024		0200		
NH₃ (µg/m³)	400	1.75	1.37	1.66	1.34	1.64	1.59	1.48	1.24
Lead (µg/m³)	1	·0.083	0.052	BDL	0.007	0.070	0.012	BDL	BDL
Arsenic (ng/m³)	6	1.95	1.22	1.48	1.50	BDL	BDL	0.71	1.48
Nickel (ng/m³)	20	0.74	0.24	1.46	1.25	1.35	1.38	1.92	0.63
Benzene (µg/m³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

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ISO 9001 : 2008	inc امT

No. 13/2, Tst Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

BS OHSAS 18001 : 2007

ISO 14001 : 2004

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, 22 nd Edition/IS: Standard	

SI.No PARAMETERS UN		UNIT	UNIT TEST METHODS		10500:2012 I Revision)	CODE
01.140	I AKAMILI EKJ	UNII	TEST WEINODS	DL	PL	GW1
						3255
1.	pН		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	Unobj	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Ag	reeable	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-SO42-	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-NO3 E		45	1.62
13.	Chloride as Cl	mg/L	4500-CI 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	A	bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	A	bsent	Absent
Note-: B	DL- 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



Recognised by Ministry of Environment & Forests (WOEF), Govt. of India, New Delhi, Dated : 28-07-2011 to 27-07-2016	
ISO 9001 : 2008	-

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BS OHSAS 18001 : 2007

ISO 14001 : 2004

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY GW2: Gagtel Labor Colony

Mangalore-574509.

- Name of the Location
- 1. Name of the Industry 2.
- Sample Collected By 3.
- Date of Collection 4. Particulars of Sample Collected
- Development Centre, Bangalore 560 010. 11.06.2016
- Bore well water, Grab Sampling
- 14.06.2016

:

:

:

- 5. Date of Sample Receipt 6.
- Sample Number 7.
- Protocol Q

EHSRDC/OMPL/W/16/06/3256 APHA, 22nd Edition/IS: Standard

.rr)

M/s. ONGC Mangalore Petrochemicals Limited.,

M/s. Environmental Health and Safety Research and

Mangalore Special Economic Zone, Permude,

8. Pro	10001			Std. IS 1)500:2012	CODE			
			TEST METHODS	(Second	Revision)	GW2			
CI No	PARAMETERS	UNIT	TEST METHODS	DL	PL	3256			
Sl.No				6.5-8.5		7.07			
			4500H+ B	5	15	<1 ·			
1.	pH	Hazen	IS 3025(Part-4):1983		ctionable	Unobjectionable			
2.	Colour		IS 3025(Part-5):1983		andla	Agreeable			
3.	Odour		IS 3025(Part-8):1984	1	eeable	2.25			
4.	Taste	NTU	2130 B	1	2000	596			
5.	Turbidity	the second s	2540 C	500		48.0			
6.	Total Dissolved Solids	mg/L	2340 C	200	600	10.4			
7.	Total Hardness	mg/L	3500-Ca	75	200	5.34			
8.	Calcium as Ca	mg/L	3500 Mg B	30	100	3.49			
9.	- Mg	mg/L	4500-SO42-	200	400	1.0			
10	co	mg/L	4500F D	1	1.5	2.09			
1		mg/L	4500-NO3 E		45	200.05			
	NO	mg/L	4500-Cl B	250	1000				
1		mg/L	3500-Fe B		0.3	0.10			
		mg/L	2320 B	200	600	28.0			
		mg/L				Not Detected			
· · · · ·	 Alkalinity Chromium Hexavalent 	mg/L	3500 Cr B		Absent	Absent			
· · i		CFU/100ml	IS15185:2002		Absent	Absent			
	17. E-Coli		IS15185:2002	hla Limit					
ļ	18. Total Coliform DL – Desirable Limit, PL – Permissible Limit.								
Not	17. E-Con CFU/100ml Estimation 18. Total Coliform CFU/100ml Estimation 18. Total Coliform Desirable Limit, PL - Permissible Limit. Note-: BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit.								

		As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those Report Status: - The measured were observed to be within the said standard.
F		As per IS 10500:2012(occont levelues for the above parameters for theory
1	INFERENCE	As per 15 10000.2010 (Report Status: - The measured values for the above parameters and standard. standards have been specified were observed to be within the said standard.
	INFERENCE	Report Status.
1		1 La havia heen succinica more
. 1		standards have been of Report***

Authorized Sign



Recognised by Ministry of Environment & Forests (M	IOEF)
Govt. of India, New Delhi, Dated : 28-07-2011 to 27-07-2	016

SO 9001 : 2008	SO	9001	:	2008
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ISO 14001 : 2004

BS OHSAS 18001 : 2007

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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- 1. Name of the Location
- 2. Name of the Industry
- 3. Sample Collected By
- 4. Date of Collection
- 5. Particulars of Sample Collected
- 6. Date of Sample Receipt
- 7. Sample Number
- 8. Protocol

- : OW1: Tenka-Ekkar
- : M/s. ONGC Mangalore Petrochemicals Limited., Mangalore Special Economic Zone,Permude, Mangalore-574509.
- : M/s. Environmental Health and Safety Research and Development Centre, Bangalore 560 010.
- : 11.06.2016
- : Open well water, Grab Sampling
- : 14.06.2016
- : EHSRDC/OMPL/W/16/06/3257
- : APHA, 22nd Edition/IS: Standard

CINC		LINIT		Std. IS 10500:2012 (Second Revision)		CODE
Sl.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	OW1
				DL	FL	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	Unobje	ctionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Agre	eable	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 SO4	mg/L	4500-SO42-	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-NO3 E	4	15	. 3.20
13.	Chloride as Cl	mg/L	4500-C1 B	250	1000	157.68 .
14.	Iron as Fe	mg/L	3500-Fe B	C),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	Ab	sent	Absent .
18.	Total Coliform	CFU/100ml	IS15185:2002	l	sent	Absent
ote-: BD	L- Below Detectable Limi	t, DL - Desiral	ole Limit, PL – Permissi	ble 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.

Kaveens Authorized Signatory



Recognised b	y Ministry of	Environment 8	k Forests (Mol	EF)
Govt. of India,	New Delhi, Da	nted : 28-07-201	1 to 27-07-201	6

ISO	9001	: 2008		
ISO	14001	: 200	4	

BS OHSAS 18001 : 2007

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com Website : www.ehsrdc.in

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- 1. Name of the Location
- 2. Name of the Industry
- 3. Sample Collected By
- 4. Date of Collection
- 5. Particulars of Sample Collected
- 6. Date of Sample Receipt
- 7. Sample Number
- 8. Protocol

- : OW3: Shanthiguda Village
- : M/s. ONGC Mangalore Petrochemicals Limited., Mangalore Special Economic Zone,Permude, Mangalore-574509.
- : M/s. Environmental Health and Safety Research and Development Centre, Bangalore 560 010.
- : 11.06.2016
- : Open well water, Grab Sampling
- : 14.06.2016
- : EHSRDC/OMPL/W/16/06/3258
- : APHA, 22nd Edition/IS: Standard

01 N 7			TECT METHODO	1	10500:2012 Revision)	CODE
Sl.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	OW2
				DL	fL	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	Unobje	ctionable	Unobjectionable
4.	Taste		IS 3025(Part-8:1984	Agr	eeable	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 SO4	mg/L	4500-SO4 ²⁻	200	400	5.34
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.39
12.	Nitrate as NO3	mg/L	4500-NO3 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	Al	bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Al	bsent	Absent
Note-: B	DL- Below Detectable Lir	nit, DL – Desiral	ble Limit, PL - Permissib	le 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



Recognised by Ministry Govt. of India, New Delh		
ISO 9001 : 2008	 	•
ISO 14001 : 2004	2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	

BS OHSAS 18001 : 2007

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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	:	Surface outlet water, Grab Sampling
	Collected		
6.	Date of Sample Receipt	:	14.06.2016
7.	Sample Number	:	EHSRDC/OMPL/W/16/06/3259

8. Protocol

APHA, 22nd Edition/IS: Standard

CI NI-	DADAMETEDO	UNIT	TEST METHODS		10500:2012 d Revision)	CODE
SI.No	PARAMETERS	UNII	TEST METHODS	DL	PL	SW1
				DL	ГL,	3259
1.	pН		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	Unobj	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Ag	reeable	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 SO4	mg/L	4500-SO42-	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-NO3 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	А	bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	А	bsent	Absent
te-: BDL	- Below Detectable Limit, I	OL – Desirable Lir	nit, PL – Permissible Lim	it.		

As per IS 10500:2012(Second Revision), INFERENCE 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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Govt. of India, New Delhi, Dated : 28-07-2011 to 27-07-20	16″

ISO 9001 : 2008	
ISO 14001 : 2004	

BS OHSAS 18001 : 2007

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com

Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

	1. Name of the Location	- :	SW2: Near Central War	re House, (OMPL	
	2. Name of the Industry	•	M/s. ONGC Mangalore	Petrochei	nicals Limite	ed.,
			Mangalore Special Econ	omic Zone	e,Permude,	• •
	· · · · · · · · · ·		Mangalore-574509.			
	3. Sample Collected By	:	M/s. Environmental He		•	h and
			Development Centre, Ba	angalore –	560 010.	
	4. Date of Collection	:	11.06.2016			
	5. Particulars of Sample Collected	:	Surface inlet water, Gral	b Sampling	5	
	6. Date of Sample Recei	pt :	14.06.2016			
	 Sample Number 	рі і і	EHSRDC/OMPL/W/16	5/06/3260		•
	8. Protocol	•	APHA, 22 nd Edition/IS:			•
		•	ATTIA, 22 Edition/ 15.	r		CODE
					10500:2012	CODE
SI.No	PARAMETERS	UNIT	TEST METHODS	(Second	Revision)	
	· · · · · · · · · · · · · · · · · · ·				·	SW2
				DL	PL	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	Unobje	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Agı	reeable	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-SO4 ²⁻	200	400	31.16
11.	Fluoride as F	mg/L	4500F D	1	· 1.5	1.26
12.	Nitrate as NO3	mg/L	4500-NO3 E		45	6.06
13.	Chloride as Cl	mg/L	4500-CI 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	A	bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	A	bsent	Absent
		1	1			1

INFERENCE	As per IS 10500:2012(Second Revision),	
INTERENCE	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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	ated : 28-07-2011 to 27-07-2016

ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

.1.	Name of the Location	:	GW3: L&T New LaborColony	
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

: EHSKDC/OMPL/W/16/06/320

: APHA, 22nd Edition/IS: Standard

					0500:2012	CODE	
Sl.No	PARAMETERS	UNIT	TEST METHODS	(Second Revision)		GW3	
			•		DL	PL	3261
1.	pН	L.		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	Unobjec	tionable	Unobjectionable
4.	Taste		•	IS 3025(Part-8):1984	Agre	eable	Agreeable
5.	Turbidity		NTU	2130 B	1	5	1.34
6.	Total Disso	lved Solids	mg/L	2540 C	500	2000	221
7.	Total Hard	ness	mg/L	2340 C	200	600	42.0
8.	Calcium as	Ca	mg/L	3500-Ca	75	200	10.4
9.	Magnesiun	n as Mg	mg/L	3500 Mg B	30	100	3.8
10.	Sulphate as	SO4	mg/L	4500-SO42-	200	400	5.34
11.	Fluoride as	F	mg/L	4500F D	1	1.5	0.47
12.	Nitrate as I	NO3	mg/L	4500-NO3 E	4	5	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	Abs	sent	Absent
18.	Total Colife	ərm	CFU/100ml	IS15185:2002	Abs	sent	Absent
ote-: BI)L- Below D	etectable Lim	iit, DL – Desiral	ole Limit, PL – Permissi	ble Limit.		· · · · · · · · · · · · · · · · · · ·

RENCE 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



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Govt. of India, New Delhi, Dated : 28-07-2011 to 27-07-	2016
· · · · · · · · · · · · · · · · · · ·	

ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

Name of the Location	:	OW3: Permude Village
Name of the Industry	:	M/s. ONGC Mangalore Petrochemicals Limited.,
·		Mangalore Special Economic Zone, Permude,
		Mangalore-574509.
Sample Collected By	:	M/s. Environmental Health and Safety Research and
· ·		Development Centre, Bangalore - 560 010.
Date of Collection	:	11.06.2016
Particulars of Sample Collected	:	Open well water, Grab Sampling
Date of Sample Receipt	:	14.06.2016
Sample Number	:	EHSRDC/OMPL/W/16/06/3262
· · · · · · · · · · · · · · · · · · ·		

8. Protocol

: APHA, 22nd Edition/IS: Standard

. ·				Std. IS 10500:2012		CODE
CIN.	DADAMETERC	TINIT	TECT METHODO	(Second	l Revision)	-
Sl.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	OW3
-				DL	FL	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	Unobj	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Ag	reeable -	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-SO42-	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-NO3 E	· ·	45	2.36
13.	Chloride as Cl	mg/L	4500-CI 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	A	bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	A	bsent	Absent

	INFERENCE	As per IS 10500:2012(Second Revision),	
1 11		Report Status: - The measured values for the above parameters for those standards	·
	5.	have been specified were observed to be within the said standard.	
1			

End of Report

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ISO 14001: 2004

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Test Report

	<u>ANALYSIS R</u>	<u>REPORT C</u>	DF 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, 22 nd Edition/IS: Standard

					10500:2012 Revision)	CODE
Sl.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	GW4
		-			11.	3263
1.	pН		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	Unobj	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Agi	reeable	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 SO4	mg/L	4500-SO42-	200	400	6.17
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.63
12.	Nitrate as NO3	mg/L	4500-NO3 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	P		Not Detected
17.	É-Coli	CFU/100ml	IS15185:2002	A	bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	A	bsent	Absent

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						

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Recognised by Ministry of Environment & Forests (MoEF),	No. 13
Govt. of India, New Delhi, Dated : 28-07-2011 to 27-07-2016	Industr

ISO 9001 : 2008

ISO 14001 : 2004

BS OHSAS 18001 : 2007

Test Report

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AMBIENT NOISE LEVEL MONITORING REPORT

Name of the Project 1. : M/s. ONGC Mangalore Petrochemicals Limited, Mangalore Spécial Economic Zone, Permude. Mangalore-574509. Sample Collected by M/s. Environmental Health and Safety Research & 2. : Development Centre, Bangalore - 560 010. Date of Collection 3. 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 :

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

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) 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

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	ANNEXURA
ecognised by Ministry of Environ	ment & Forests (MoEF),
iovt. of India, New Delhi, Dated : 28	-07-2011 to 27-07-2016

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Test Report

VOIC DEDODT OF FEET LIENT

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

SI.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
3.	Odour*	IS 3025(Part-5) :1983		Unobjectionable	 made to remove colour and unpleasant odour as for as practicable.
4.	Temperature	АРНА 2550 В	°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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ISO 9001 : 2008

ISO 14001 : 2004

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Test Report

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Sample Number: EHSRDC/OMPL/ WW/16/06/3264 Page No: 02of 02

					Page No:
14.	Ammonical Nitrogen	4500- NH3,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, 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,
INCENCE	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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ANNERURE 15

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

Name and address of the Consumer		Reading at the begining of the first day of the calendar month under report	i at the begining Reading at the end of Quantity of Water rest day of the the last day of the Consumed in Kilo r month under calendar month under Leters		If the meter was out of order, the monthly average consumption of water for the previous 3 months of the working period	0 5	Remarks
	Industrial cooling, spraying in mine pits or boiler feed					nie assessee	
	Cooling Water	0	60079	60079			7.5
	Boiler Feed Water	0	71453	71453			
	· · ·						
M/s ONGC Mangalore Petrochemicals	Fire Water	c	3 CC0			-	
Zone Permide Mandalore Special Economic	Domestic purpose		C'/C70	8237.5			
	Drinking Water & Sanitation	0	2524	2524		· · · · ·	
	I recessing whereby water gets polluted and the pollutants are easily bio- degradable						
·							Subtracting total flow from
	Service Water			4410			BFW , CT & Drinking water consumption
Total C	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

ANNEXURE -1=

ONGC Mangalore Petrochemicals Limited

Production Details for June- 2016

Net Naptha Processed - 108073 MT

SI. 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

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GALORE SE

0 AUG 2015

ALORE-575

Date: 14/8/2016

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

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

Dear Sir,

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

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,

Manager (Env)

ec: e戻O, oHPL CC: Member Secretary, KSPCB, Bangalore し CC: Head (Technical), MSEZ



ANNEXURE - A ISO 9001 : 2008, 14001 : 2004 BS-OHSAS 18001 : 2007 & ISO 17025:2005(NABL) Accredited Laboratory



Test Report

	ANALY	SIS R	EPORT 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	:	Ambient Air collected through
	Collected		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/

		w	K 74	W	K 75	w	K 76	W	K 77
PARAMETERS	DATE	4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
PAI	CODE	3898	2057				4500		
	LIMITS		3957	4233	4267-C	4494	4598	4752	4771
ΡM10 (µg/m³)	100	59	60	58	. 55	64	57	60	59
PM2.5 (μg/m³)	60	15	16	17	14	. 19	15	17	16
SO2 (μg/m³)	80	2.25	2.39	2.32	2.56	2.64	2.21	2.34	2.53
NO2 (μg/m³)	80	3.75	3.59	3.33	3.62	3.49	3.58	3.27	3,37
CO (mg/m³)	4	0.74	0.72	0.82	0.75	0.79	0.79	0.79	0.84
Оз (µg/m³)	180	0.86	0.83	0.95	0.86	0.88	0.88	0.88	0.95

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Test Report

		WK	\$ 74	WK	75	WK	76	WK	(77
PARAMETERS	DATE	4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
PAR	CODE		0055	4000	4267-C	4494	4598	4752	4771
	LIMITS	3898	3957	4233	4207-C	4474	4370	4/52	4//1
NH₃ (µg/m³)	400	1.59	1.33	1.48	1.62	1.31	1.55	1.46	1.66
Lead (µg/m³)	1	0.050	0.002	0.009	0.005	0.042	0.012	0.015	0.013
Arsenic (ng/m³)	6	BDL	0.82	0.92	0.70	1.43	0.72	1.50	BDL
Nickel (ng/m³)	20	1.59	1.60	2.50	1.62	0.04	1.39	2.75	1.13
Benzene (µg/m³)	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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See NOTE overleaf



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Test Report

	ANALYSI	S REPORT OF AMBIENT AIR QUALITY
1.	Name of the location	: Shantigudda
2.	Name of the industry	: M/s. ONGC Mangalore Petrochemicals Limited
<u> </u>		Mangalore Spécial Economic Zone, Permude
		Mangalore-574509.
3.	Sample Collected By	: M/s. Environmental Health & Safety Research and
01		Development Centre, Bangalore – 560 010.
4.	Particulars of Sample	: Ambient Air collected through
.	Collected	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/

· · · · · · · · · · · · · · · · · · ·		WK	74	WK	75	WK	76	WK	77
PARAMETERS	DATE	4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
PAR	CODE LIMITS	3897	3956	4232	4267-B	4493	4597	4751	4770
ΡΜ10 (µg/m³)	100	64	56	55	65	60	58	63	57
ΡΜ2.5 (μg/m ³)	60	17	14	15	19	17	16	18	14
SO2 (μg/m³)	80	2.19	2.15	2.55	2.37	2.27	2.65	2.44	2.28
NO2 (μg/m ³)	80	3.28	3.26	3.45	3.58	3.24	3.42	3.74	3.62
CO (mg/m³)	4	0.80	0.77	0.78	0.85	0.73	0.75	0.74	0.76
O₃ (µg/m³)	180	0.94	0.85	0.86	0.94	0.82	0.85	0.86	Ó.85

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See NOTE overleaf



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Test Report

		WK	74	WK	75	WK	76	WK	. 77
PARAMETERS	DATE	4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
PARA	CODE	2007	3956	4232	4267-B	4493	4597	4751	4770
	LIMITS	3897	3950	4202					
NH₃ (µg/m³)	400	1.38	1.48	1.35	1.58	1.66	1.50	1.29	1.36
Lead (µg/m³)	1	0.003	0.003	0.007	0.006	0.026	0.023	0.003	0.005
Arsenic (ng/m³)	6	BDL	1.42	0.75	1.75	BDL	1.25	0.25	BDL
Nickel (ng/m³)	20	1.25	1.95	2.05	1.50	2.11	1.66	1.36	2.98
Benzene (µg/m³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in



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Test Report ANALYSIS REP ORT OF AMBIENT AIR OUALITY 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. M/s. Environmental Health & Safety Research and 3. Sample Collected By : Development Centre, Bangalore - 560 010. Ambient Air collected through 4. **Particulars of Sample** : Collected Fine Particulate Sampler - APM 550 Respirable Dust Sampler - 460NL, CO & O3 Analyzers. For the Month of July-2016 (Monitored for 24 hours) 5 Date of Collection :

- 6 Sample Number
- EHSRDC/OMPL/A/16/07/ :

•		WK	74	WK	75	WK	76	WK	77
PARAMETERS	DATE	6/07/2016	7/07/2016	13/07/2016	14/07/2016	20/07/2016	21/07/2016	27/07/2016	28/07/2016
PAI	CODE	****		4000	4005	-	4637	4777	4788
	LIMITS	3995	4054	4320	4385	4628	4637	4777	4/00
PM10 (μg/m³)	100	63	62	64	61	59	56	61	62
PM2.5 (μg/m ³)	60	17	18	19	18	15	14	17	18
SO2 (μg/m³)	80	2.28	2.24	2.19	2.61	2.57	2.35	2.65	2.64
NO2 (µg/m³)	80	3.47	3.48	3.82	3.52	3.77	3.27	3.62	3.45
CO (mg/m³)	4	0.79	0.75	0.84	0.73	0.81	0.73	0.80	0.72
O₃ (µg/m³)	180	0.88	0.84	0.95	0.85	0.94	0.86	0.91	0.84

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, _Website : www.ehsrdc.in



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ISO 9001 : 2008, 14001 : 2004



Test Report

		WK	74	WK 75		W	K 76	WK 77	
PARAMETERS	DATE	6/07/2016	7/07/2016	13/07/2016	14/07/2016	20/07/2016	21/07/2016	27/07/2016	28/07/2016
PAR	CODE		10.54			4600	4688	4555	4800
	LIMITS	3995	4054	4320	4385	4628	4637	4777	4788
NH₃ (μg/m³)	400	1.38	1.66	1.74	1.35	1.54	1.67	1.31	1.35
Lead (µg/m³)	1	0.003	0.002	0.010	0.007	0.014	0.018	0.016	0.009
Arsenic (ng/m³)	6	BDL	0.19	1.25	0.25	1.46	1.75	BDL	0.44
Nickel (ng/m³)	20	2.75	1.40	1.99	1.50	2.72	1.25	2.45	1.67
Benzene (µg/m³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m³)	. 1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

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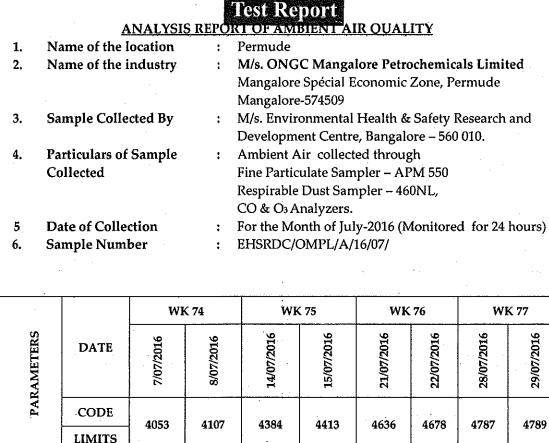
See NOTE overleaf

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ENVIRONMENTAL HEALTH AND SAFETY RESEARCH & DEVELOPMENT CENTRE at at 200

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PARAMETERS	DATE	7/07/2016	8/07/2016	14/07/2016	15/07/2016	21/07/2016	22/07/2016	28/07/2016	29/07/2016
[¥ď.	CODE	4053	4107	4384	4413	4636	4678	4787	4789
	LIMITS		4107		4410	4000	4070	4/0/	4707
PM10 (μg/m³)	100	56	57	58	.63	60	55	64	61
ΡM2.5 (μg/m ³)	60	15	16	15	18	16	13	19	17
SO2 (µg/m³)	80	2,36	2.64	2.37	2.54	2.25	2.69	2.44	2.55
NO2 (µg/m³)	80	3.29	3.36	3.46	3.17	3.67	3.29	3.78	3.36
CO (mg/m³)	4	0.81	0.76	0.79	0.80	0.84	0.82	0.82	0.75
O3 (µg/m³)	180	0.93	0.87	0.88	0.91	0.95	0.94	0.96	0.83

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Test Report

PARAMETERS		WK 74		WK 75		WK 76		WK 77	
	DATE	7/07/2016	8/07/2016	14/07/2016	15/07/2016	21/07/2016	22/07/2016	28/07/2016	29/07/2016
PAI	CODE	4050	4107	4004					
	LIMITS	4053	4107	4384	4413	4636	4678	4787	4789
NH3 (µg/m³)	400	1.42	1.41	1.56	1.28	1.56	1.28	1.51	1.60
Lead (µg/m³)	1	0.002	0.002	0.011	0.022	0.017	0.028	0.011	0.009
Arsenic (ng/m³)	6	BDL	0.25	1.70	0.25	BDL	0.25	1.75	1.25
Nickel (ng/m³)	20	2.36	1.72	2.55	2.64	1.22	1.25	2.08	1.81
Benzene (µg/m³)	5	BDĻ	BDL	BDL	BDL	BDL	BDL	BDL	BDL,
B(a)P (ng/m³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

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See NOTE overleaf



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Test Report

ANALYSIS REPORT OF AMBIENT AIR OUALITY

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

		WK 74		WK 75		WK 76		WK 77	
PARAMETERS	DATE	4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
PAI	CODE		*0.5.5	4231	4267-A	4492	4596	4750	4769
	LIMITS	3896	3955	4231	3207-73	1172			<u> </u>
ΡΜ10 (μg/m ³)	100	67	62	66	58	62	60	56	65
PM2.5 (μg/m³)	60	20	18	20	15	18	19	14	20
SO2 (μg/m ³)	80	2.31	2.27	2.28	2.62	2.44	2.46	2.25	2.60
NO2 (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
Ο ₃ (μg/m ³)	180	0.89	0.96	0.80	0.86	0.95	0.92	0.95	0.87

Authorized Signatory

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				Fest R	eport				1
		WK 74		WK	75	WK 76		WK 77	
PARAMETERS	DATE	4/07/2016	5/07/2016	11/07/2016	12/07/2016	18/07/2016	19/07/2016	25/07/2016	26/07/2016
PARA	CODE	3896	3955	4231	4267-A	4492	4596	4750	4769
	LIMITS	3690	0,00						
NH3 (μg/m ³)	400	1.45	1.59	1.66	1.39	1.27	1.38	1.65	1.49
Lead (µg/m³)	1	0.064	0.004	0.029	0.006	0.028	0.012	0.025	0.054
Arsenic (ng/m³)	6	BDL	0.36	0:84	1.74	0.94	BDL	0.72	0.78
Nickel (ng/m³)	20	2.40	1.69	2.82	2.78	1.93	1.88	1.08	1.22
Benzene (µg/m³)	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

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INBXURE-B



Test Report

Mangalore-574509.

ANALYSIS REPORT OF FRESH WATER QUALITY

- Name of the Location 1.
- Name of the Industry 2.
- GW1: Narayana Guru Community Hall, Permude ŝ M/s. ONGC Mangalore Petrochemicals Limited., Mangalore Special Economic Zone, Permude,

M/s. Environmental Health and Safety Research and Development

- Sample Collected By 3.
- Date of Collection 4.
- Particulars of Sample Collected 5. Date of Sample Receipt
- Bore well water, Grab Sampling 15.07.2016

14.07.2016

EHSRDC/OMPL/W/16/07/4327 1

Centre, Bangalore - 560 010.

- 7. Sample Number Protocol 8.
- APHA, 22nd Edition/IS: Standard

6.

Std. IS 10500:2012

					I Revision)	CODE	
SI.No	PARAMETERS	UNIT	TEST METHODS		PL	GW1	
:				DL	FL.	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	Únobj	ectionable	Unobjectionable	
4.	Taste		IS 3025(Part-8):1984	Ag	reeable	Agreeable	
4 , 5.	Turbidity	NTU	2130 B	1	5	1.40	
<u> </u>	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	
<u> </u>	Magnesium as Mg	mg/L	3500 Mg B	30	100	7.77	
<u> </u>	Sulphate as SO ₄	mg/L	4500-SO42-	200	400	3.08	
<u>10.</u> 11.	Fluoride as F	mg/L	4500F D	1	1.5	0.93	
11.	Nitrate as NO ₃	mg/L	4500-NO3 E		45	1.06	
12.	Chloride as Cl	mg/L	4500-Cl B	250	1000	8.31	
<u> </u>	Iron as Fe	mg/L	3500-Fe B		0.3	0.29	
15.	Alkalinity	mg/L	2320 B	200	600	62	
15.	Chromium Hexavalent	mg/L	3500 Cr B			BDL.	
10.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent	
17.	Total Coliform	CFU/100ml	IS15185:2002	Ĭ	Absent	Absent	
Note-: Bl	DL- Below Detectable Limit, D	L – Desirable Lim	it, PL – Permissible Limit.		· · · · ·	· · · · · · · · · · · · · · · · · · ·	

As per IS 10500:2012(Second Revision),

INFERENCE 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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in

See NOTE overleaf



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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- Name of the Location 1.
- Name of the Industry 2.

- GW2: Gagtel Labor Colony
- :
 - M/s. ONGC Mangalore Petrochemicals Limited., Mangalore Special Economic Zone, Permude, Mangalore-574509.

- Sample Collected By 3.
- **Date of Collection** 4.
- Particulars of Sample Collected 5.
- Date of Sample Receipt 6.
- Sample Number 7.
- Protocol 8.

Centre, Bangalore - 560 010. 14.07.2016

M/s. Environmental Health and Safety Research and Development

- Bore well water, Grab Sampling
- 15.07.2016
- EHSRDC/OMPL/W/16/07/4328
- APHA, 22nd Edition/IS: Standard

		<u></u>			0500:2012 Revision)	CODE
SI.No	PARAMETERS	UNIT	TEST METHODS			GW2
				DL	PL	4328
1.	pH	<u> </u>	4500H+ B	6.5	5-8.5	7.23
2.	Colour	Hazen	IS 3025(Part-4):1983	· 5 ·	15	<1
3.	Odour		IS 3025(Part-5):1983	Unobje	ctionable	Unobjectionable
4	Taste		IS 3025(Part-8):1984	Agr	eeable	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-SO42-	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-NO3 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		bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002		bsent	Absent
Note-: B	DL- Below Detectable Limit, D	L – Desirable Limit	, PL – Permissible Limit.			

		As per IS 10500:2012(Second Revision),
INFERENCE		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



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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY OW1: Tenka-Ekkar ÷

÷

- Name of the Location 1.
- Name of the Industry 2.
- Sample Collected By 3.

Date of Collection

Sample Number

Date of Sample Receipt

Particulars of Sample Collected

- Mangalore Special Economic Zone, Permude, Mangalore-574509.
- M/s. Environmental Health and Safety Research and Development Centre, Bangalore - 560 010.

M/s. ONGC Mangalore Petrochemicals Limited.,

- 14.07.2016
- Open well water, Grab Sampling
- 15.07.2016
- EHSRDC/OMPL/W/16/07/4329
- APHA, 22nd Edition/IS: Standard

Protocol 8.

4.

5.

6.

7.

	·			Std. IS 10 (Second 1)500:2012 Revision)	CODE
SI.No	PARAMETERS	UNIT	TEST METHODS	· · · · · · · · · · · · · · · · · · ·		OW1
91100		-		DL	PL	4329
			4500H+ B	6.5	-8.5	6.84
1.	рН		IS 3025(Part-4):1983	5	15	<1
2.	Colour	Hazen		Unobier	tionable	Unobjectionable
3.	Odour		IS 3025(Part-5):1983		eable	Agreeable
4.	Taste		IS 3025(Part-8):1984		5	1.19
5.	Turbidity	NTU	2130 B	500	2000	92
6.	Total Dissolved Solids	mg/L	2540 C	200	600	40
7.	Total Hardness	mg/L	2340 C	75	200	9.6
8.	Calcium as Ca	mg/L	3500-Ca	30	100	3.88
9.	Magnesium as Mg	· mg/L	3500 Mg B		400	6.27
10.	Sulphate as SO ₄	mg/L	4500-SO42-	200	1.5	0.52
11	Fluoride as F	mg/L	4500F D		<u> </u>	5,66
12	Nitrate as NO ₃	mg/L	4500-NO3 E		1000	25.43
13.	Chloride as Cl	mg/L	4500-Cl B	250		0.17
14.	Iron as Fe	mg/L	3500-Fe B		0.3	27.0
15.	Alkalinity	mg/L	2320 B	200		BDL
16.	Chromium Hexavalent	mg/L	3500 Cr B			Absent
10.		CFU/100ml	IS15185:2002		bsent	Absent
10	C. i. 1 Callifaring	CFU/100ml	IS15185:2002		bsent	Absent
IO.	L- Below Detectable Limit, I	DL – Desirable Li	imit, PL – Permissible Lir	nit,		

As per IS 10500:2012(Second Revision),

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

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel: 080-23012100/ 121/122 Fax: 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in

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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

Name of the Location 1.

ENVIRONMENTAL HEALTH AND SAFETY RESEARCH & DEVELOPMENT CENTRE

4.

5.

- :
- Name of the Industry 2.

- OW3: Shanthiguda Village :
 - M/s. ONGC Mangalore Petrochemicals Limited., Mangalore Special Economic Zone,Permude, Mangalore-574509. M/s. Environmental Health and Safety Research and

Sample Collected By 3.

- Development Centre, Bangalore 560 010.
 - 14.07.2016
 - Open well water, Grab Sampling

Date of Sample Receipt 6.

Date of Collection

Particulars of Sample Collected

- Sample Number 7.
- Protocol 8.

- 15.07.2016
- EHSRDC/OMPL/W/16/07/4330
- APHA, 22nd Edition/IS: Standard

					.0500:2012 Revision)	CODE
CI No.	PARAMETERS	UNIT	TEST METHODS			OW2
SI.No	IAMAMETERS			DL	PL	4330
		,	4500H+ B	6.	5-8.5	7.03
1.	pH		IS 3025(Part-4):1983	5	15	<1
2.	Colour	Hazen	IS 3025(Part-5):1983	Unobie	ctionable	Unobjectionable
3.	Odour		IS 3025(Part-8:1984		eeable	Agreeable
4.	Taste		2130 B	1	5	2.11
5.	Turbidity	NTU	2130 D	500	2000	60
6.	Total Dissolved Solids	mg/L	2340 C	200	600	46
7.	Total Hardness	mg/L		75	200	10
8.	Calcium as Ca	mg/L	3500-Ca	30	100	5.10
9.	Magnesium as Mg	mg/L	3500 Mg B	200	400	6.48
10.	Sulphate as SO ₄	mg/L	4500-SO42-	1	1.5	BDL
11.	Fluoride as F	mg/L	4500F D		45	1.7
12	Nitrate as NO ₃	mg/L	4500-NO3 E		1000	12.71
·	Chloride as Cl	mg/L	4500-Cl B	250	1000	1
13.			3500-Fe B	0.3		0.17
14.	Iron as Fe	mg/L	2320 B	200	600	35
15.	Alkalinity .	mg/L	3500 Cr B	Absent		BDL
16.	Chromium Hexavalent	mg/L				Absent
17.	È-Coli	CFU/100ml	IS15185:2002			Absent
	Total Coliform	CFU/100ml	IS15185:2002		1000111	<u></u>
Note-: B	DL- Below Detectable Limit,	DL – Desirable Lin	nit, PL – Permissible Limit			<u> </u>

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

horized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in

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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- Name of the Location 1.
 - Name of the Industry
- SW1: Near Flare Area, OMPL :
- M/s. ONGC Mangalore Petrochemicals Limited., : Mangalore Special Economic Zone, Permude, Mangalore-574509. M/s. Environmental Health and Safety Research and
- Sample Collected By 3.
- **Date of Collection** 4.
- Particulars of Sample Collected 5.
- Date of Sample Receipt 6.
- Sample Number 7.
- Protocol 8.

2.

- Development Centre, Bangalore 560 010. 14.07.2016
- Surface outlet water, Grab Sampling
- 15.07.2016

:

- EHSRDC/OMPL/W/16/07/4331
- APHA, 22nd Edition/IS: Standard

	La terra d'unera	,			10500:2012 Revision)	CODE
01 ° T-	PARAMETERS	UNIT	TEST METHODS			SW1
SI.ivo	TANAMETERS			DL	PL	4331
_			4500H+ B	6.	5-8.5	6.85
1.	pH		IS 3025(Part-4):1983	5	15	<1
2.	Colour	Hazen		Unchi	ectionable	Unobjectionable
3.	Odour		IS 3025(Part-5):1983			Agreeable
	Taste		IS 3025(Part-8):1984		reeable 5	1.88
<u></u> . 5.	Turbidity	NTU	2130 B		2000	87.0
<u>6.</u>	Total Dissolved Solids	mg/L	2540 C	500	600	40
7.	Total Hardness	mg/L	2340 C	200		12.0
<u></u> 8.	Calcium as Ca	mg/L	3500-Ca	75	200	2.43
<u> </u>	Magnesium as Mg	mg/L	3500 Mg B	30	100	10.38
<u></u> 10.	Sulphate as SO4	mg/L	4500-SO42-	200	400	0.78
	Fluoride as F	mg/L	4500F D	1	1.5	5.81
	Nitrate as NO ₃	mg/L	4500-NO3 E		45	14.67
12	Chloride as Cl	mg/L	4500-Cl B	250	1000	······································
13.		mg/L	3500-Fe B	0.3		0.19
14.	Iron as Fe	mg/L	2320 B	200	600	21
15.	Alkalinity	mg/L	3500 Cr B			BDL
16.	Chromium Hexavalent	CFU/100ml	IS15185:2002	Absent		Absent
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform - Below Detectable Limit, DL	Desirable Limit P	Permissible Limit.			

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

***End of Report**

Authorized Signatory



ISO 9001 : 2008, 14001 : 2004

BS-OHSAS 18001 : 2007 &

ISO 17025:2005(NABL) Accredited Laboratory



Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

	ANAL	YSIS <u>REPOR</u>	OF FRESH WATER	<u>v</u> oner.		
		;	SW2 · Near Central Wa	re House, O	MPL	
1.		•	M/s. ONGC Mangalor	e Petrochem	icals Limited	•
2.	Name of the mutany		Mangalore Special Eco	nomic Zone,	Permude,	
			Mangalore-574509.			
-		:	M/s. Environmental H	ealth and Sa	fety Research	and
3	. Sample Collected By	•	Development Centre, E	Sangalore – 5	560 010.	
			14.07.2016	-		
4		lastad	Surface inlet water, Gr	ab Sampling	5	
- 5		letteu ·				
6		:	15.07.2016	16/07/1222		
7	. Sample Number	:	EHSRDC/OMPL/W/			
. 8	. Protocol	•	APHA, 22 nd Edition/I	5: Standard	·	CODE
				Std. IS 1	0500:2012	
					Revision)	
Sl.No	PARAMETERS	UNIT	TEST METHODS	, r		SW2
91.100			i -	DL	PL	
	- -		·			<u>4332</u> 6.99
1.	pH		4500H+ B	L	5-8.5	<1
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	
	Odour		IS 3025(Part-5):1983		ectionable	Unobjectionable
3.	Taste		IS 3025(Part-8):1984		reeable	Agreeable
4.	Turbidity	NTU	2130 B	1	5	1.39
5.	Total Dissolved Solids	mg/L	2540 C	500	2000	106
6.		mg/L mg/L	2340 C	200	600	55
7.	Total Hardness	1	3500-Ca	75	200	8.8
8.	Calcium as Ca	mg/L	3500 Mg B	30	100	8.01
9.	Magnesium as Mg	mg/L		200	400	9.77
10.	Sulphate as SO4	mg/L	4500-SO42.		1.5	0.52
11.	Fluoride as F	mg/L	4500F D	1		6.08
12.	Nitrate as NO ₃	mg/L	4500-NO3 E	670	45	13.2
13.	Chloride as Cl	mg/L	4500-Cl B	250	0.3	0.22
<u>⊢14.</u>	Iron as Fe	mg/L	3500-Fe B	200	600	25
15.	Alkalinity	mg/L	2320 B	200		BDL
16.	Chromium Hexavalent	mg/L	3500 Cr B			Absent
17.	E-Coli	CFU/100ml	IS15185:2002		Absent Absent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002		Ausent	Abbent
		Desimable Lis	mit PL - Permissible Limi	t.		

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

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

End of Report

Authorized Signatory



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Test Report

ANALYSIS	REPORT	OF FRESH WATER QUALITY
THILDIOID	ILLI VALL	OT THEORY IS A

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.
- : M/s. Environmental Health and Safety Research and Development Centre, Bangalore - 560 010.
- : 14.07.2016
- : Bore well water ,Grab Sampling
- 6. Date of Sample Receipt

Particulars of Sample Collected

Sample Collected By

Date of Collection

- 7. Sample Number
- 8. Protocol

3.

4.

5.

: 15.07.2016 : EHSRDC/OMPL

- EHSRDC/OMPL/W/16/07/4333
- APHA, 22nd Edition/IS: Standard

				Std. IS 10	0500:2012	CODE
SI.No	PARAMETERS	UNIT	TEST METHODS	(Second	Revision)	GW3
			•	DL	PL	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	Unobjec	tionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Agre	eable	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-SO42-	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-NO3 E	4	15	BDL
13.	Chloride as Cl	mg/L	4500-C1 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	Ab	sent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002		sent	Absent
ote-: BE	L- Below Detectable Limit,	DL - Desirable Li	mit, PL – Permissible Lin	nit.		

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

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

8. Protocol CODE Std. IS 10500:2012 (Second Revision) OW3 TEST METHODS **UNIT** PARAMETERS PL SI.No DL 4334 6.82 6.5-8.5 4500H+ B -pH 1. <1 15 5 IS 3025(Part-4):1983 Hazen Unobjectionable Colour 2. Unobjectionable IS 3025(Part-5):1983 --Agreeable Odour Agreeable 3. IS 3025(Part-8):1984 1.24 Taste 4. 1 5 2130 B NTU 112 Turbidity 2000 5. 500 2540 C mg/L Total Dissolved Solids 60 600 6. 200 2340 C mg/L **Total Hardness** 18.0 7. 200 75 3500-Ca mg/L Calcium as Ca 3,64 100 8. 30 3500 Mg B mg/L Magnesium as Mg 5.04 9. 400 200 4500-SO42mg/L Sulphate as SO4 0.40 10. 1.5 1 4500F D mg/L Fluoride as F 5.61 11. 45 4500-NO3 E mg/L Nitrate as NO3 29.84 1000 12 250 4500-Cl B mg/L Chloride as Cl 0.24 13. 0.3 3500-Fe B mg/L Iron as Fe 39 600 14. 200 2320 B mg/L Alkalinity BDL 15. ____ 3500 Cr B mg/L **Chromium Hexavalent** Absent 16. Absent IS15185:2002 CFU/100ml E-Coli Absent 17. Absent IS15185:2002 CFU/100ml **Total Coliform** Note-: BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit. 18. As per IS 10500:2012(Second Revision),

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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in See

See NOTE overleaf



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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

Name of the Location 1. 2.

- GW4: OMPL (Near ETP) :
- Name of the Industry
- Sample Collected By 3.
- Date of Collection 4.
- Particulars of Sample Collected 5.
- Date of Sample Receipt 6.
- Sample Number 7.
- Protocol 8.

- M/s. ONGC Mangalore Petrochemicals Limited., Mangalore Special Economic Zone, Permude, Mangalore-574509.
- M/s. Environmental Health and Safety Research and Development ÷ Centre, Bangalore - 560 010.
- 14.07.2016

1

- Bore well water, Grab Sampling
 - 15.07.2016
- EHSRDC/OMPL/W/16/07/4335
- APHA, 22nd Edition/IS: Standard

					0500:2012 Revision)	CODE
	PARAMETERS	UNIT	TEST METHODS			GW4
51.No	TARAMETERS			DL	PL	4335
			4500H+ B	6.	5-8.5	6.82
1.	рН		IS 3025(Part-4):1983	5	15	<1
2.	Colour	Hazen	IS 3025(Part-5):1983	Unobje	ectionable	Unobjectionable
3.	Odour		IS 3025(Part-8):1984	Ag	reeable	Agreeable
4.	Taste		2130 B	1 1	5	0.66
5.	Turbidity	NTU	2130 D	500	2000	131
6.	Total Dissolved Solids	mg/L	2340 C	200	600	58
7.	Total Hardness	mg/L	3500-Ca	75	200	10.8
8.	Calcium as Ca	mg/L	3500-Ca	30	100	7.53
9.	Magnesium as Mg	mg/L	4500-SO42-	200	400	18.7
10	Sulphate as SO4	mg/L		1	1.5	0.77
11		mg/L	4500F D		45	4.23
112		mg/L	4500-NO3 E		45	26.41
12		mg/L	4500-Cl B	250		BDL
		mg/L	3500-Fe B		0.3	40
14		mg/L	2320 B	200	600	BDL
15		mg/L	3500 Cr B	<u> </u>		Absent
16		CFU/100ml	IS15185:2002		Absent	
17	1	CFU/100ml	IS15185:2002	· . 4	Absent	Absent
18	3. Total Coliform BDL- Below Detectable Lim	uit DI - Desirable Li				
Note-:						
	INFERENCE	As per IS 10500:2012 Report Status: - The	(Second Revision), measured values for the ab were observed to be within	ove parame the said stat	ters for those ndard	standards

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

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

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

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Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1,	Name of the Industry	 M/s. ONGC Mangalore Petrochemicals Limite Mangalore Spécial Economic Zone, Permude 	ed .
	· · · .	Mangalore-574509.	
2.	Stack ID	: NHT Charge Heater	
3.	Sample Collected by	: M/s. Environmental Health and Safety Research &	
	0	Development Centre, Bangalore - 560 010.	
4.	Date of Collection	: 11.07.2016	
5.	Particulars of Sample	: Emissions from stack collected through	
	Collected	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	
	0	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

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.

End of Report

Authorized Signatory





Test Report

ANALYSIS REPORT FOR SOURCE EMISSION

1.	ANAL19191 Name of the Industry	 M/s. ONGC Mangalore Petrochemicals Limited Mangalore Spécial Economic Zone, Permude Mangalore-574509.
2. 3.	Stack ID Sample Collected by	 Tatory Charge Heater M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560 010.
4. 5. 6. 7. 8. 9.	Date of Collection Particulars of Sample Collected Date of Sample Receipt Sample Number Report to be Sent Page No	 11.07.2016 Emissions from stack collected through Stack Sampler VSS1 13.07.2016 EHSRDC/OMPL/S/16/07/4235 15.07.2016 1 of 1 GENERAL DETAILS
Da	te of Monitoring	11.07.2016
Ar	nbient Temperature (°C)	23

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

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

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

End of Report

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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. 3.	Stack ID Sample Collected by	 Mangaiore-074507. ISOMER Charge Heater M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560 010. 			
4. 5. 6. 7. 8. 9.	Date of Collection Particulars of Sample Collected Date of Sample Receipt Sample Number Report to be Sent Page No	 11.07.2016 Emissions from stack collected through Stack Sampler VSS1 13.07.2016 EHSRDC/OMPL/S/16/07/4236 15.07.2016 1 of 1 GENERAL DETAILS 			

	11.07.2016
Date of Monitoring	
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	61647.64
(Nm³/h)	

REDUEID				
Parameters	Protocol	Unit	Result	Standard
Particulate Matter	IS: 11255(P1)	mg/Nm ³	4.60	5
	IS: 11255 (P7)	mg/ Nm ³	12.83	250
Nitrogen Dioxide		mg/Nm^3	10.68	50
Sulphur Dioxide	IS: 11255, (P2)		74.20	100
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***

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ANALYSIS REPORT EMISSION

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

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

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

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

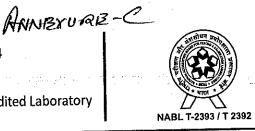
***End of Report

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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. 3.	Stack ID Sample Collected by	 Xylene Column Reboiler Heater Part- B M/s. Environmental Health and Safety Research & Development Centre, Bangalore – 560 010.
4. 5.	Date of Collection Particulars of Sample Collected	 12.07.2016 Emissions from stack collected through Stack Sampler VSS1
6. 7.	Date of Sample Receipt Sample Number	: 13.07.2016 : EHSRDC/OMPL/S/16/07/4238 : 15.07.2016
8. 9.	Report to be Sent 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

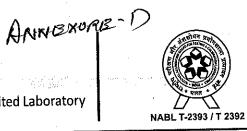
No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in

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Test Report

	ANALYSIS	REP	ORT 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 &
5.	Sumpre Contenta - y		Development Centre, Bangalore - 560 010.
4.	Date of Collection	:	14.07.2016
5.	Particulars of Sample	:	Emissions from stack collected through
2.	Collected		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
		1	

GENERAL DETAILS

14.07.2016
24
138
6.21
2.74
5.893
95334.68
-

<u>RESULIS</u>				
Protocol	Unit	Result	Standard	
IS: 11255(P1)	mg/Nm ³	8.71	50	
	mg/ Nm ³	11.02	350	
	mg/ Nm ³	8.73	850	
	mg/Nm ³	51.80	150	
		Protocol Unit IS: 11255(P1) mg/Nm ³ IS: 11255 (P7) mg/ Nm ³ IS: 11255, (P2) mg/ Nm ³	Protocol Unit Result IS: 11255(P1) mg/Nm ³ 8.71 IS: 11255 (P7) mg/ Nm ³ 11.02 IS: 11255, (P2) mg/ Nm ³ 8.73	

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

End of Report

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Test Report ANALYSIS REPORT FOR SOURCE EMISSION M/s. ONGC Mangalore Petrochemicals Limited Name of the Industry : 1. Mangalore Spécial Economic Zone, Permude Mangalore-574509. Plat former Charge Heater : 2. Stack ID M/s. Environmental Health and Safety Research & Sample Collected by : 3. Development Centre, Bangalore - 560 010. 14.07.2016 : **Date of Collection** 4. Emissions from stack collected through **Particulars of Sample** 5. Stack Sampler VSS1 Collected 15.07.2016 **Date of Sample Receipt** : 6. EHSRDC/OMPL/S/16/07/4326 Sample Number : 7. 16.07.2016 **Report to be Sent** 8. 1 of 1 1

9. Page No

ENVIRONMENTAL HEALTH AND SAFET

RESEARCH & DEVELOPMENT CENTRE

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	212888.19
(Nm ³ /h)	

RESULTS

<u>RECORD</u>				
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
	EPA method (10)	mg/Nm ³	84.60	100
Carbon Monoxide	EPA method (10)	mg/ tvm-	01.00	

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

Authorized Signatory



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Test Report

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

Date of Monitoring	13.07.2016
Ambient Temperature (°C)	25
	210
Stack Temperature (°C)	6.52
Velocity (m/s)	2.8
Diameter (m)	6.154
Cross Sectional Area in meter square (m ²)	
Quantity of flue gas discharged into atmosphere	07217.27
(Nm³/h)	

RESULTS

RESOLID Detail Unit Result Standard			
Protocol	Unit	Kesult	Stanuaru
	mg/Nm ³	15.7	50
· · · · · · · · · · · · · · · · · · ·		11.29	350
		+	850
IS: 11255, (P2)	mg/ Nm ³		
EPA method (10)	mg/Nm ³	72.8	150
	Protocol IS: 11255(P1) IS: 11255 (P7) IS: 11255, (P2)	Protocol Unit IS: 11255(P1) mg/Nm ³ IS: 11255 (P7) mg/ Nm ³ IS: 11255, (P2) mg/ Nm ³	Protocol Unit Result IS: 11255(P1) mg/Nm³ 15.7 IS: 11255 (P7) mg/Nm³ 11.29 IS: 11255, (P2) mg/Nm³ 8.00

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

End of Report

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Test Report ANALYSIS REPORT FOR SOURCE EMISSION

ENVIRONMENTAL HEALTH AND SAFETY RESEARCH & DEVELOPMENT CENTRE

		: M/s. ONGC Mangalore Petrochemicals Limited
1.	Name of the Industry	: M/s. UNGC Mangalore renochemican Emineer
		Mangalore Spécial Economic Zone, Permude
·		Mangalore-574509.
		propries Talicone fractionation Column Reboiler
2.	Stack ID	
		Heater)
3.	Sample Collected by	: M/s. Environmental Health and Safety Research &
<i>у</i> .	Sample Contents y	Development Centre, Bangalore – 560 010.
	Data of Collection	: 13.07.2016
4.		
5.	Particulars of Sample	
	Collected	Stack Sampler VSS1
6		: 14.07.2016
		• FHSRDC/OMPL/S/16/07/4267-E
7.		
8.	Report to be Sent	: 20.07.2016
9.	—	: 1 of 1
2.		GENERAL DETAILS
6. 7.	Date of Collection Particulars of Sample Collected Date of Sample Receipt Sample Number Report to be Sent Page No	 Emissions from stack collected through Stack Sampler VSS1 14.07.2016 EHSRDC/OMPL/S/16/07/4267-E 20.07.2016

D. t. C.M. withwing	13.07.2016
Date of Monitoring	
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	107038.76
(Nm ³ /h)	

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

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

End of Report

Authorized Signatory



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Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

1. 2.	Name of the Location Name of the Project	 Guard Pond Pump Discharge 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. 5. 6. 7.	Date of Collection Particulars of Sample Collected Date of Sample Receipt Sample Number	 14.07.2016 ETP Guard Pond Discharge Treated Effluent, Grab Sampling 15.07.2016 EHSRDC/OMPL/ WW/16/07/4336
8. 9. 10. 11. 12.	Analysis started on Analysis Completed on Page No. Report to be Sent Protocol	 15.07.2016 20.07.2016 01 of 2 20.07.2016 APHA,22nd Edition/IS Method

S1.No	Parameters	Test Methods	Unit	Result	Tolerance limit
Unit to		IS 3025(Part-11) :1983		6.74	6.0-8.5
1.	рН		Lingon	<1	All efforts should be
2	Colour*	IS 3025(Part-4) :1983	Hazen		made to remove colour
3.	Odour*	IS 3025(Part-5) :1983		Unobjectionable	and unpleasant odour as for as practicable.
4.	Temperature	АРНА 2550 В	0C	25	Shall not exceed 5ºCabove the receiving water temperature.
5.	Particle Size of suspended		-	Passes	(a)Settleable solids Max.850 microns
1	solids*		mg/L	3.2	15
6.	B.O.D (3 days in 27°C)	5210 B		46	125
7.	C.O.D	5220 B	mg/L	7.0	20
8.	Total Suspended Solids	2540 D	mg/L	0:035	3
9.	Phosphate as PO ₄	4500- P D	mg/L	30.24	40
10.	Total Kjeldahl Nitrogen	4500- Norg B	mg/L	BDL	5
11.	Oil & Grease	5520 B	mg/L		+
11.	Total residual chlorine	APHA 4500- Cl	mg/L	BDL	5
12.		IS 3025 (Part 34)	mg/L	Not Detected	

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Test Report

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

			-	Pa	ige No: 020f 02
		4500- NH3,B,C	mg/L	4.10	15
14.	Ammonical Nitrogen		mg/L	BDL	0.1
15.	Hexavalent Chromium	3500- Cr B		0.8	1.0
16.	Sulphide	IS 3025 (Part 29): 1986	mg/L	1.13	1.5
17.	Fluoride as F	IS 3025(Part 60): 2008	mg/L		20
17.	Nitrate as NO ₃	IS 3025(Part 34) :1988	mg/L	8.91	3
	Iron as Fe	IS 3025(Part 53):2003	mg/L	0.02	0.01
19.	Mercury as Hg*	IS 3025(Part-48):1994	mg/L	BDL	2
20.		IS 3025(Part 47):1994	mg/L	0.007	
21.	Lead as Pb*	IS 3025(Part 41):1992	mg/L	BDL	0.1
22.	Cadmium as Cd*	IS 3025(Part 56):2003	mg/L	BDL	0.05
23.	Selenium as Se*	IS 3025(Part 37):1988	mg/L	BDL	0.2
24.	Arsenic as As*	IS 3025(Part 49):1994	mg/L	0.070	5
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.009	1
26.	Copper as Cu*	IS 3025(Part-42):1992		0.165	2
27.	Manganese as Mn*	3111 B	mg/L	BDL	0.1
28.	Vanadium*	3500 -V	mg/L	0.007	1
29.	Nickel as Ni*	IS13428:2005 (Annex L)	mg/L	0.007	2
30.	Total Chromium*	IS 13428:2005(Annex J)	mg/L		
31.	Benzene*	APHA 6200 B	mg/L	BDL	0.2
		APHA 6440	μg/1	BDL	
32.	Benzo (a) pyrene*	IS 6582	% survivality	100%	90% survival of fist
33.	Bioassay*				after 96 hrs, in100% effluent
		TO 2005 (mg/L	BDL	0.35
34.	Phenolic compounds	IS 3025 (part 43):1992		BDL	0.2
35.	Cyanide	IS 3025 (Part 27):1986	mg/L		

*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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Test Report

ANALYSIS REPORT OF EFFLUENT QUALITY

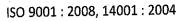
1. 2.	Name of the Location Name of the Project	 Guard Pond Pump Discharge M/s. ONGC Mangalore Petrochemicals Limited Mangalore Spécial Economic Zone, Permude Mangalore-574509.
3.	Sample Collected by	: M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560 010.
4. 5. 6. 7.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

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
	pH	IS 3025(Part-11) :1983	-	7.28	6.0-8.5
1. 2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be made to remove colour
3.	Odour*	IS 3025(Part-5) :1983		Unobjectionable	and unpleasant odour as for as practicable.
4.	Temperature	АРНА 2550 В	°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
÷ ,	B.O.D (3 days in 27°C)	5210 B	mg/L	9.0	15
<u> </u>	C,O.D	5220 B	mg/L	41.6	125
7.	Total Suspended Solids	2540 D	mg/L	6.0	20
8.	Phosphate as PO ₄	4500- P D	mg/L	0.029	3
9.	Total Kjeldahl Nitrogen	4500- Norg B	mg/L	15.68	40
10.		5520 B	mg/L	BDL	5
11.	Oil & Grease	APHA 4500- CI	mg/L	BDL	1
12. 13.	Total residual chlorine Free ammonia*	IS 3025 (Part 34)	mg/L	2.56	5

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No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in

See NOTE overleaf



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Test Report

ENVIRONMENTAL HEALTH AND SAFETY RESEARCH & DEVELOPMENT CENTRE

> Sample Number: EHSRDC/OMPL/ WW/16/07/4703 Page No: 02of 02

		1			Tuge Tite and
	int Nitrogen	4500- NH3,B,C	mg/L	7.28	15
14.	Ammonical Nitrogen	3500- Cr B	mg/L	BDL	0.1
15.	Hexavalent Chromium	IS 3025 (Part 29): 1986	mg/L	0.8	1.0
16.	Sulphide	IS 3025(Part 60): 2008	mg/L	BDL	1.5
17.	Fluoride as F	IS 3025(Part 34) :1988	mg/L	5.99	20
18.	Nitrate as NO ₃		mg/L	1.19	3
19.	Iron as Fe	IS 3025(Part 53):2003	mg/L mg/L	BDL	0.01
20.	Mercury as Hg*	IS 3025(Part-48):1994		0.003	2
21.	Lead as Pb*	IS 3025(Part 47):1994	mg/L	BDL	0.1
22.	Cadmium as Cd*	IS 3025(Part 41):1992	mg/L.	BDL	0.05
23.	Selenium as Se*	IS 3025(Part 56):2003	mg/L		0.2
24.	Arsenic as As*	IS 3025(Part 37):1988	mg/L	0.005	5
25.	Zinc as Zn*	IS 3025(Part 49):1994	mg/L	0.088	1
26.	Copper as Cu*	IS 3025(Part-42):1992	mg/L	0.003	·
27.	Manganese as Mn*	3111 B	mg/L	0.074	2
	Vanadium*	3500 -V	mg/L	BDL	0.1
20	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
	Benzene*	APHA 6200 B	mg/L	0.00026	0.1
31.		APHA 6440	µg/1	BDL	0.2
32.	Benzo (a) pyrene*	IS 6582	% survivality	100%	90% survival of fish
33.	Bioassay*	15 6582	,0 Suittening		after 96 hrs, in100%
					effluent
34.	Phenolic compounds	IS 3025 (part 43):1992	mg/L	BDL	0.35
		IS 3025 (Part 27):1986	mg/L	BDL	0.2
35.	Cyanide	10 0020 (1 411 21)1200		······································	

*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

See NOTE overleaf

ır which water consumed cooling, spraying in mine pits eed ater J Water	Reading at the begining of the first day of the catendar month under report 0 0	Reading at the end of Quantity of Water the last day of the Consumed in Kilo calendar month under Consumed in Kilo report Eeters 53651 5365 94596 9459	Quantity of Water Consumed in Kilo Letters 53651 94596	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 the assessee the assessee	Remarks
	0 0	53651 94596	53651 94596			
	0 0	53651 94596	53651 94596			
	0	94596	94596			
		· - ·				
		-				
	0	7343	7343	· .		
Drinking Water & Sanitation	0	1542	1542			
and the pollutants are easily bio- degradable	-					
						Subtracting total flow from BFW , CT & Drinking water
Service Water			3850	-		consumption
Total Consumption			160982			

Signature of the Consumer

Affect & Shivaprakash, Manager(Env)

Address Name

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

ANNETURIS - F

ANNEXURE - GI.

BERGEREN BER

sala manganta ang kanalan ka

ONGC Mangalore Petrochemicals Limited

المتقرفية الجور أسفاله

Production Details for July-2016

Net Naptha Processed –114259 MT

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

Glabel



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

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4 SEP 2013

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alour

RECEIVED

MANGALORE

Date: 14/9/2016

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

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

Dear Sir,

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

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,

shivapraka Manager (Env)

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



ANNEXURE - A



Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

- 1. Name of the location
- **OMPL East Side** :
- Name of the industry 2.

Mangalore-574509.

- M/s. ONGC Mangalore Petrochemicals Limited
- : Mangalore Spécial Economic Zone, Permude
- 3. Sample Collected By
- 4. Particulars of Sample Collected
- M/s. Environmental Health & Safety Research and : Development Centre, Bangalore - 560 010. Ambient Air collected through : Fine Particulate Sampler - APM 550
 - Respirable Dust Sampler 460NL, CO & O3 Analyzers.

- Date of Collection 5
- Sample Number 6:
- For the Month of August-2016 (Monitored for 24 hours) :
- EHSRDC/OMPL/A/16/08/ 1

			WK 78	WI	K 79	W	K 80	w	< 81
PARAMETERS	DATE	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	5990	EAEA	7500	E 201	
	LIMITS	4910	4770	5130	5332	5451	5503	5781	5784
PM10 (µg/m ³)	100	64	59	57	61	66	60	55	58
ΡM2.5 (μg/m ³)	60	19	17	15	18	20	16	14	16
SO2 (µg/m³)	80	2.47	2.60	2.27	2.56	2.37	2.44	2.68	2.24
NO2 (μg/m³)	80	3.18	3.56	3.45	3.74	3.23	3.36	3.65	3.78
CO (mg/m³)	4	0.78	0.77	0.80	0.84	0.79	0.78	0.84	0.71
O3 (µg/m³)	180	0.89	0.85	0.92	0.91	0.87	0.89	0.95	0.84

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Test Report

		WK	(78	WK	79	WK	80	WK	. 81
PARAMETERS	DATE	01/08/2016	02/08/2016	08/08/2016	09/08/2016	15/08/2016	16/08/2016	22/08/2016	24/08/2016
PAR	CODE	4010	4993	5138	5332	5451	5503	5781	5784
	LIMITS	4910	4993	5130	5552	5451	5505	0/01	
NH₃ (µg/m³)	400	1.31	1.66	1.48	1.56	1.11	1.43	1.56	1.22
Lead (µg/m³)	1	0.008	0.046	0.010	0.009	0.018	0.034	0.011	0.014
Arsenic (ng/m³)	6	0.73	1.57	1.72	0.73	2.94	2.19	1.88	2.08
Nickel (ng/m³)	20	2.92	2.86	3.12	3.19	2.64	2.55	· 2.33	3.15
Benzene (µg/m³)	5 [`]	BDL							
B(a)P (ng/m³)	1	BDL							

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in



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Test Report

ANALYSIS REPORT C	F AMPTENT ATD	
	AMDIEN I AIN	<u>QUALITY</u>

- 1. Name of the location
- Shantigudda :
- 2. Name of the industry

Sample Collected By

Particulars of Sample Collected

- M/s. ONGC Mangalore Petrochemicals Limited : Mangalore Spécial Economic Zone, Permude Mangalore-574509.
- M/s. Environmental Health & Safety Research and : Development Centre, Bangalore - 560 010.
- Ambient Air collected through : Fine Particulate Sampler – APM 550 Respirable Dust Sampler - 460NL, CO & O3 Analyzers.
- 5 **Date of Collection**
- 6. Sample Number

3.

4.

- For the Month of August-2016 (Monitored for 24 hours) :
- EHSRDC/OMPL/A/16/08/ :

		W	'К 78	w	K 79	W	K 80	V	VK 81
PARAMETERS	DATE	01/08/2016	02/08/2016	08/08/2016	09/08/2016	15/08/2016	16/08/2016	22/08/2016	23/08/2016
PA	CODE					· · · · · · · · · · · · · · · · · · ·			
	LIMITS	4909	4992	5137	5331	5450	5502	5780	5783
ΡΜ10 (μg/m ³)	100	58	65	61	56	58	63	65	59
ΡM2.5 (μg/m³)	60	15	20	17	13	15	19	20	16
SO2 (μg/m³)	80	2.65	2.32	2.40	2.21	2.64	2.65	2.38	2.56
NO2 (μg/m³)	80	3.46	3.65	3.81	3.35	3.45	3.67	3.89	3.27
CO (mg/m³)	4	0.74	0.85	0.78	0.76	0.74	0.71	0.72	0.73
O₃ (µg/m³)	180	0.85	0.96	0.88	0.85	0.82	0.86	0.83	0.81





Test Report

		WK	78	WK	79	WK	80	WI	(81
PARAMETERS	DATE	01/08/2016	02/08/2016	08/08/2016	09/08/2016	15/08/2016	16/08/2016	22/08/2016	23/08/2016
PARA	CODE	4000	4000	5137	5331	5450	550 2	5780	5783
	LIMITS	4909	4992	5137		5430	3302	5700	
NH₃ (µg/m³)	400	1.55	1.28	1.35	1.68	1.38	1.76	1.69	1.42
Lead (µg/m³)	1	BDL	0.011	0.010	0.012	0.007	0.008	0.017	0.035
Arsenic (ng/m³)	6	BDL	1.57	2.39	0.73	BDL	2.93	1.98	2.24
Nickel (ng/m³)	20	BDL	1.77	2.46	2.49	3.98	3.13	2.53	3.44
Benzene (µg/m³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

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ISO 9001 : 2008, 14001 : 2004 BS-OHSAS 18001 : 2007 &

ISO 17025:2005(NABL) Accredited Laboratory



Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

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

		- -							•
		WK	78	WK	. 79	W	K 80	WF	(81
PARAMETERS	DATE	03/08/2016	04/08/2016	10/08/2016	11/08/2016	17/08/2016	18/08/2016	24/08/2016	25/08/2016
ΡA	CODE LIMITS	4994	5091	5333	5372	5549	5583	5863	5877
ΡΜ10 (μg/m³)	100	- 57	60	64	64	58	62	55	64
РМ2.5 (µg/m ³)	60	15	16	19	20	17	16	13	18
SO2 (µg/m³)	8 0	2.54	2.66	2.40	2.28	2.75	2.29	2.57	2,49
NO2 (μg/m ³)	80	3.37	3.65	3.21	3.74	3.42	3.18	3.89	3.71
CO (mg/m³)	•4	0.80	0.82	0.73	0.77	0.85	0.79	0.83	0.80
O₃ (µg/m³)	180	0.91	0.95	0.81	0.85	0.97	0.90	0.96	0.91

Authorized Signatory





Test Report

		WK	78	WK	79	W	K 80	WI	K 81
PARAMETERS	DATE	03/08/2016	04/08/2016	10/08/2016	11/08/2016	17/08/2016	18/08/2016	24/08/2016	25/08/2016
PAR	CODE								
	LIMITS	4994	5091	5333	5372	5549	5583	5863	5877
NH3 (µg/m³)	400	1.57	1.32	1.75	1.68	1.17	1.67	1.67	1.45
Lead (µg/m³)	1	0.011	0.011	0.005	0.034	0.007	0.034	0.036	0.004
Arsenic (ng/m³)	6	2.50	1.50	1.25	0.49	BDL	0.50	1.75	2.25
Nickel (ng/m³)	20	3.00	4.00	1.50	3.84	2.29	3.34	3.67	2.25
Benzene (µg/m³)	5	BDL							
B(a)P (ng/m³)	1	BDL							

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory



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Test Report

	<u>ANALYSIS REPO</u>	<u>)KT</u>	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/

		wi	K 78	WK	5 79	WK	80	WI	K 81
PARAMETERS	DATE	04/08/2016	05/08/2016	11/08/2016	12/08/2016	18/08/2016	19.08.2016	25/08/2016	26/08/2016
PA	CODE	5090	5106	5371	5413	5582	5645	5876	5926
	LIMITS	3090	5100	5571	5410	0002	0040	5070	.0720
PM10 (μg/m³)	100	66	_ 56	59	62	66	58	60	57
ΡM2.5 (μg/m ³)	60	20	14	16	18	19	15	17	14
SO2 (μg/m³)	80	2.58	2.34	2.68	2.26	2.16	2.72	2.51	2.25
NO₂ (μg/m³)	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
O₃ (µg/m³)	180	0.88	0.86	0.80	0.95	0.88	0.94	0.88	0.86

Authorized Signatory

See NOTE overleaf





Test Report

		WF	C 78	wi	(79	WK	80	WF	(81
PARAMETERS	DATE	04/08/2016	05/08/2016	11/08/2016	12/08/2016	18/08/2016	19.08.2016	25/08/2016	26/08/2016
PAI	CODE	F00 Å	E400	5051	F 440		ECAE	5050	5004
	LIMITS	5090	5106	5371	5413	5582	5645	5876	5926
NH₃ (µg/m³)	400	1.78	1.45	1.29	1.67	1.56	1.75	1.66	1.16
Lead (µg/m³)	1	0.008	0.006	0.085	0.076	0.012	0.011	0.007	0.010
Arsenic (ng/m³)	6	BDL	BDL	BDL	BDL	0.74	2.02	1.73	1.29
Nickel (ng/m³)	20	1.78	2.05	3.22	2.16	1,54	2.74	2.97	1.61
Benzene (µg/m³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m³)	. 1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory



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Test Report

	ANALYSI	S REP	<u>ORT OF AMBIENT AIR QUALITY</u>
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	:	Ambient Air collected through
	Collected		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/
	-		

		WI	K 78	WI	K 79	WI	< 80	Wł	(81
PARAMETERS	DATE	01/08/2016	02/08/2016	08/08/2016	09/08/2016	15/08/2016	16/08/2016	22/08/2016	23/08/2016
PA	CODE						****		
	LIMITS	4908	4991	5136	5330	5449	5501	577 9	5782
РМ10 (µg/m ³)	100	60	56	64	59	61	55	60	62
PM2.5 (μg/m ³)	60	17	15	21	16	17	14	18	19
SO2 (μg/m³)	80	2.54	2.41	2.19	2.65	2.74	2.55	2.42	2.26
NO2 (µg/m³)	80	3.62	3.48	3.36	3.24	3.56	3.75	3.40	. 3.33
CO (mg/m³)	. 4	0.81	0.73	0.79	0.75	0.81	0.75	0.77	0.81
O₃ (µg/m³)	180	0.90	0.84	0.87	0.84	0.90	0.84	0.86	0.92

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





Test Report

	·	WK	. 78	W	K 79	W	K 80	W	K 81
PARAMETERS	DATE	01/08/2016	02/08/2016	08/08/2016	09/08/2016	15/08/2016	16/08/2016	22/08/2016	23/08/2016
PAR	CODE	1000	4004						
	LIMITS	4908	4991	5136	5330	5449	5501	5779	5782
NH₃ (µg/m³)	400	1.25	1.56	1.66	1.47	1.28	1.57	1.73	1.38
Lead (µg/m³)	1	0.007	0.028	0.011	0.031	0.023	0.032	0.018	0.018
Arsenic (ng/m³)	6	2.23	1.24	1.16	BDL	1.25	1.24	1.67	1.96
Nickel (⊓g/m³)	20	2.2	3.19	2.77	2.09	3.25	1.95	2.12	3.20
Benzene (µg/m³)	5	BDL							
B(a)P (ng/m³)	1	BDL							

Note: BDL: Below Detectable Limit.

End of Report

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4NNBXURE=5



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. Sample Collected By 3. M/s. Environmental Health and Safety Research and Development : Centre, Bangalore - 560 010. 4. **Date of Collection** 05.08.2016 Bore well water, Grab Sampling 5. Particulars of Sample Collected : 6. **Date of Sample Receipt** 1 08.08.2016 7. Sample Number EHSRDC/OMPL/W/16/08/5092 : 8. Protocol APHA, 22nd Edition/IS: Standard 1 Std. IS 10500:2012 CODE (Second Revision) Sl.No PARAMETERS UNIT **TEST METHODS** GW1 DL PL 5092 1. pН 4500H+ B 6.5-8.5 8.13 2. Colour Hazen IS 3025(Part-4):1983 5 15 <1 3. Odour IS 3025(Part-5:1983 --Unobjectionable Unobjectionable Taste 4. IS 3025(Part-8):1984 --Agreeable Agreeable 5. Turbidity NTU 2130 B 1 1.02 5 Total Dissolved Solids 6. mg/L 2540 C 500 2000 266 7. **Total Hardness** 2340 C mg/L 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 SO₄ mg/L 4500-SO42-200 400 5.24 11. Fluoride as F mg/L 4500F D 1 1.5 0.37 12. Nitrate as NO3 mg/L 4500-NO3 E 45 1.28 13. Chloride as Cl mg/L 4500-CI B 250 1000 152.76 14. Iron as Fe mg/L 3500-Fe B 0.3 0.08 Alkalinity 15. mg/L 2320 B 200 600 68.0 Chromium Hexavalent 16. 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



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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- 1. Name of the Location
- 2. Name of the Industry
- GW2: Gagtel Labor Colony :

- : M/s. ONGC Mangalore Petrochemicals Limited., Mangalore Special Economic Zone, Permude, Mangalore-574509.

- 3. Sample Collected By
- 4. **Date of Collection**
- 5. Particulars of Sample Collected
- 6. **Date of Sample Receipt**
- 7. Sample Number
- 8. Protoco1

- M/s. Environmental Health and Safety Research and Development Centre, Bangalore - 560 010.
- 05.08.2016
- Bore well water, Grab Sampling
- 08.08.2016
- EHSRDC/OMPL/W/16/08/5093
- APHA, 22nd Edition/IS: Standard 2

CI M-				Std. IS 10500:2012 (Second Revision)		CODE
SI.No	PARAMETERS	UNIT	TEST METHODS	DL	DT	GW2
-					PL	5093
1.	рН		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	Unobje	ctionable	Unobjectionable
4.	Taste	**	IS 3025(Part-8):1984	Agr	eeable	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 SO4	mg/L	4500-SO42-	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-NO3 E	.	15	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	Ab	sent	Absent
	DL- Below Detectable Limit, I VFERENCE As per IS 105	DL – Desirable Limit, 500:2012(Second Rev		•		

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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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY :

- Name of the Location 1.
- Name of the Industry 2.
- Sample Collected By 3.
- **Date of Collection** 4.
- Particulars of Sample Collected 5.
- **Date of Sample Receipt** 6.
- 7. Sample Number
- Protocol 8.

- OW1: Tenka-Ekkar
- M/s. ONGC Mangalore Petrochemicals Limited., : Mangalore Special Economic Zone, Permude, Mangalore-574509.

M/s. Environmental Health and Safety Research and Development Centre, Bangalore - 560 010.

05.08.2016 :

:

:

Open well water, Grab Sampling ÷

- 08.08.2016 :
 - EHSRDC/OMPL/W/16/08/5094
 - APHA, 22nd Edition/IS: Standard

			· · · · · · · · · · · · · · · · · · ·		0500:2012 Revision)	CODE
Sl.No	PARAMETERS	UNIT	TEST METHODS	DI	PL	OW1
		-		DL	rL .	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	Unobje	tionable	Unobjectionable
<u> </u>	Taste		IS 3025(Part-8):1984	Agre	eable	Agreeable
5.	Turbidity	NTU	2130 B	1	5	0.68
6.	Total Dissolved Solids	mg/L	2540 C	500	2.000	592
	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-SO42-	200	400 ·	6.99
	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO3 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		osent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002		sent	Absent
ote-: BD	L- Below Detectable Limit, D	L – Desirable Li	mit, PL – Permissible Lim	it.		· · · · · · · · · · · · · · · · · · ·

As per IS 10500:2012(Second Revision),

INFERENCE 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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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

:

:

: OW3: Shanthiguda Village

2. Name of the Industry

Name of the Location

- 3. Sample Collected By
- 4. Date of Collection
- 5. Particulars of Sample Collected
- 6. Date of Sample Receipt
- 7. Sample Number
- 8. Protocol

1.

- : M/s. ONGC Mangalore Petrochemicals Limited.,
 - Mangalore Special Economic Zone,Permude, Mangalore-574509.
- M/s. Environmental Health and Safety Research and Development Centre, Bangalore 560 010.
- : 05.08.2016

: Open well water, Grab Sampling

- : 08.08.2016
- EHSRDC/OMPL/W/16/08/5095
- APHA, 22nd Edition/IS: Standard

01 N -				Std. IS 10500:2012 (Second Revision)		CODE
Sl.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	OW2
				06	10	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	Unobje	ctionable	Unobjectionable
4.	Taste		IS 3025(Part-8:1984	Agı	eeable	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-SO42-	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-NO3 E	•	45	5.95
13.	Chloride as Cl	mg/L	4500-CI 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/100m1	IS15185:2002	Ał	sent	Absent
Note-: BI	DL- Below Detectable Limit, D	L – Desirable Limi	t, 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.	
-	tttDad of Donoutttt	

End of Report

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Test Report

<u>ANALYSIS</u>	REPORT OF FRESH WATER QUALITY
Hon	• SW1: Near Flare Area OMPL

- Name of the Location 1.
- Name of the Industry 2

3.

4.

5.

6.

7.

8.

Sample Collected By

Date of Sample Receipt

Date of Collection

Sample Number

Protocol

Particulars of Sample Collected

- lare Area, OMPL
 - M/s. ONGC Mangalore Petrochemicals Limited., Mangalore Special Economic Zone, Permude, Mangalore-574509.
 - M/s. Environmental Health and Safety Research and : Development Centre, Bangalore - 560 010.
 - 05.08.2016 :
 - Surface outlet water, Grab Sampling 1
- 08.08.2016 ŝ

:

:

- EHSRDC/OMPL/W/16/08/5096
- APHA, 22nd Edition/IS: Standard

				Std. IS 10500:2012 (Second Revision)		CODE
Sl.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	SW1
					L	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	Unobj	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Ag	reeable	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 SO4	mg/L	4500-SO42-	200	400	13.16
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.39
12.	Nitrate as NO3	mg/L	4500-NO3 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
Jote-: BDL-	Below Detectable Limit, DL -	Desirable Limit, PL	. – Permissible Limit.			

Desirable Limit, PL Detectable Limit, I As per IS 10500:2012(Second Revision),

INFERENCE 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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel: 080-23012100/ 121/122 Fax: 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in



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Test Report

	ANA	LYSIS REPO	RT OF FRESH WATH	ER QUAI	ITY			
	1. Name of the Location		: SW2 : Near Central Ware House, OMPL					
2. Name of the Industry			: M/s. ONGC Mangalore Petrochemicals Limited.,					
			Mangalore Special Ec	onomic Zoi	ne,Permude,			
			Mangalore-574509.					
	3. Sample Collected By		: M/s. Environmental		•	h and		
			Development Centre,	Bangalore	- 560 010.			
	4. Date of Collection		: 05.08.2016					
	5. Particulars of Sample Co	llected	: Surface inlet water, G	rab Sampli	ng			
	6. Date of Sample Receipt		: 08.08.2016					
	7. Sample Number		: EHSRDC/OMPL/W,	/16/08/509	7			
	8. Protocol		: APHA, 22 nd Edition/	IS: Standard	1			
		1. · ·				CODE		
		- -			10500:2012	· ·		
Sl.No	PARAMETERS	UNIT	TEST METHODS	(Secon	d Revision)	SW2		
				DL	PL	5112		
						5097		
1.	pH		4500H+ B	6	5.5-8.5	8.10		
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1		
3.	Odour		IS 3025(Part-5):1983	and the second s	ectionable	Unobjectionable		
4	Taste		IS 3025(Part-8):1984	Ag	reeable	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-SO42-	200	400	22.42		
11.	Fluoride as F	mg/L	4500F D	. 1	1.5	0.75		
12.	Nitrate as NO3	mg/L	4500-NO3 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		

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

mg/L

CFU/100ml

CFU/100ml

Chromium Hexavalent

16.

17.

18.

E-Coli

Total Coliform

 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.

3500 Cr B

IS15185:2002

IS15185:2002

End of Report

Authorized Signatory

BDL

Absent

Absent

Absent

Absent

See NOTE overleaf



Total Coliform

Chromium Hexavalent

Iron as Fe

Alkalinity

E-Coli

INFERENCE

14.

15.

16.

17.

18.

ISO 9001 : 2008, 14001 : 2004

BS-OHSAS 18001 : 2007 &

ISO 17025:2005(NABL) Accredited Laboratory



Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

	<u>manu10</u>		I INDOM FUTUR V					
1 . l	Name of the Location : GW3: L&T New Labor Colony							
2. 1	Name of the Industry : M/s. ONGC Mangalore Petrochemicals Limited.,							
	-	Ma	angalore Special Economic	Zone,Permu	de,			
		Mangalore-574509.						
3. 5	Sample Collected By	: M/	s. Environmental Health ar	nd Safety Res	earch and E	Development Centre,		
	*	Ban	galore – 560 010.	2		-		
4. I	Date of Collection		8.2016					
5. I	Particulars of Sample Collecte	d: Bor	e well water ,Grab Samplin	ıg				
	Date of Sample Receipt		8.2016	•				
	Sample Number		SRDC/OMPL/W/16/08/5	008				
	Protocol		HA, 22 nd Edition/IS: Standa					
0. 1	1010001	· Ar	-1A, 22 ¹⁴ Euluony 15. Stande					
				Std. IS 10500:2012 (Second Revision)		CODE		
	· · ·							
SI.No	PARAMETERS	UNIT	TEST METHODS			GW3		
				DL	PL			
			(20011) 7	ļ	0 F	5098		
1.	pH		4500H+ B	6.5- 5		7.61		
2.	Colour	Hazen	IS 3025(Part-4):1983	-	15	<1		
3.	Odour		IS 3025(Part-5):1983	Unobjec		Unobjectionable		
4.	Taste		IS 3025(Part-8):1984	Agre		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-SO42-	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	4		1.39		
13.	Chloride as Cl	mg/L	4500-CLB	250	1000	224.42		

3500-Fe B

2320 B

3500 Cr B

IS15185:2002

IS15185:2002

Report Status:-The measured values for the above parameters for those standards have been

End of Report

0.3

Absent

Absent

600

200

Authorized Signatory

0.04

36.0

BDL

Absent

Absent

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in

mg/L

mg/L

mg/L

specified were observed to be within the said standard.

CFU/100ml

CFU/100ml

Note-: BDL- Below Detectable Limit, DL - Desirable Limit, PL - Permissible Limit. As per IS 10500:2012(Second Revision),



BS-OHSAS 18001 : 2007 &

ISO 17025:2005(NABL) Accredited Laboratory



Test Report

	ANALYS	SIS REPORT	OF FF	RESH WATER OU	ALITY				
1.	Name of the Location		:	OW3: Permude Villag	ge				
2.	Name of the Industry		. :	M/s. ONGC Mangalo	ore Petroc	hemicals Limite	d.,		
	-			Mangalore Special Ec	onomic Ze	one,Permude,			
				Mangalore-574509.					
3.	Sample Collected By		:	M/s. Environmental	Health and	d Safety Researc	h and		
•			•	Development Centre, Bangalore - 560 010.					
4.	Date of Collection Particulars of Sample Collected			•					
5.									
6.	Date of Sample Receip	pt	:	08.08.2016					
7.	Sample Number		:						
8.	Protocol		:	APHA, 22 nd Edition/	IS: Standa	rd			
	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		-		10500:2012 d Revision)	CODE		
	PARAMETERS UNIT		נ	EST METHODS	DL		OW3		
						PL -	5099		

	1			1		
Sl.No	PARAMETERS	UNIT	TEST METHODS			OW3
			. :	DL	PL	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	Unob	ectionable	Unobjectionabl
4.	Taste		IS 3025(Part-8):1984	Ag	reeable	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-SO42-	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-NO3 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	A	bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Absent		Absent
	- Below Detectable Limit, DL	– Desirable Limit, I	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

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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

- 1. Name of the Location
- 2. Name of the Industry

Sample Collected By

- GW4: OMPL (Near ETP)
- M/s. ONGC Mangalore Petrochemicals Limited., 1
 - Mangalore Special Economic Zone, Permude, Mangalore-574509.
 - M/s. Environmental Health and Safety Research and Development Centre, Bangalore - 560 010.
 - 05.08.2016

:

Bore well water, Grab Sampling

6. **Date of Sample Receipt**

Particulars of Sample Collected

Date of Collection

- 7. Sample Number
- 8. Protocol

3.

4.

5.

- 08.08.2016
- EHSRDC/OMPL/W/16/08/5100
- APHA, 22nd Edition/IS: Standard

				Std. IS 10500:2012 (Second Revision)		CODE
SI.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	GW4
	-		•		ГL	5100
1.	рН		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	Unobje	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Agı	reeable	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 SO4	mg/L	4500-SO42-	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-NO3 E		45	0.85
13.	Chloride as Cl	mg/L	4500-C1 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	A	bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	A	bsent	Absent

INFERENCE	As Re
-----------	----------

s per IS 10500:2012(Second Revision),

eport 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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in

ENVIRONMENTAL HEALTH AND SAFET RESEARCH & DEVELOPMENT CENTRE

ANNEXURE -C



Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

1.	Name of the Project	:	M/s. ONGC Mangalore Petrochemicals Limited, Mangalore Spécial Economic Zone, Parmuda Mangalore 574500
•			Permude.Mangalore-574509. M/s. Environmental Health and Safety Research &
2.	Sample Collected by	:	Development Centre, Bangalore – 560 010.
3.	Date of Collection	:	24.08.2016
4.	Particulars of Sample	:	Ambient Noise Level collected through
	Collected		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

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

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) 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

ANNERURE-D





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,22 nd 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
3.	Odour*	IS 3025(Part-5) :1983		Unobjectionable	and unpleasant odour as for as practicable.
4.	Temperature	APHA 2550 B	٥C	25	Shall not exceed 5ºCabove 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	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

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Test Report

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

			-		Page No: 02of 02
14.	Ammonical Nitrogen	4500- NH3,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 NO3	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/1	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



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ISO 17025:2005(NABL) Accredited Laboratory



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,22 nd Edition/IS Method
	· · · ·		· · ·

Sl.No	Parameters	Test Methods	Unit	Result	Tolerance limit
1.	рН	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
3.	Odour*	IS 3025(Part-5) :1983		Unobjectionable	and unpleasant odour as for as practicable.
4.	Temperature	APHA 2550 B	٥C	25	Shall not exceed 5ºCabove 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

			oumpie i tumber. Erk	• •	Page No: 02of 02
14.	Ammonical Nitrogen	4500- NH3,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 NO3	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/1	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

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

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

	As per Tolerance limit,
INFERENCE	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 August, 2016

			· · · · · · · · · · · · · · · · · · ·					flow from ing water		
Remarks								Subtracting total flow from BFW , CT & Drinking water consumption		
Quantity of water qualifying for rebate according to the assessee										
 If the meter was out of order, the monthly average consumption of water for the previous 3 months of the working period		-								
If the meter w monthly ave of water fo months of th				•						
		61251	72968	11469		3250		4747	153362	
Reading at the end of Quantity of Water the last day of the Consumed in Kilo calendar month under Leters report		61251	72968	11469		3250		4424		
Reading at the begining of the first day of the calendar month under report		.0	0	0		0				
	Industrial cooling, spraying in mine pits or boiler feed		ater		pose	r & Sanitation	Processing whereby water gets polluted and the pollutants are easily bio- degradable			· · · · ·
Purpose for w	Industrial coo or boiler feed	Cooling Water	Boiler Feed Water	Fire Water	Domestic purpose	Drinking Water & Sanitation	Processing w and the pollu degradable	Service Water	Total Consumption	
Name and address of the Consumer				M/s ONGC Mangalore Petrochemicals	Limited, Mangalore Special Economic. Zone: Permiste, Mangalore -574 500				Total C	

Signature of the Consumer

Name

Address

Shivaprakash, Manager(Env)

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

ANNERVAR -B

ANNEXURIE-7

ONGC Mangalore Petrochemicals Limited

Production Details for August- 2016

Net Naptha Processed -- 102153 MT

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

Realed



970

Date: 14/10/2016

Curran

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

RECEIVED

8 GCT 2018

MANGALORE-57500

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

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

Dear Sir,

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

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

101

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.

a. Ambient Air Quality Monitoring at 5 different locations in and around OMPL, enclosed as Annexure- A

b. Water Analysis Reports at 9 different locations in and around OMPL, as Annexure-B

c. Noise Level Monitoring Report at OMPL, as Annexure-C

d. Stack Monitoring Report as Annexure-D

- e. Treated Effluent Analysis Report E
- f. Returns Regarding Water Consumed, for the Month of September 2016, as Annexure-F
- g. Production Report as Annexure-G

Thanking You,

Manager (Env)

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



HNNISXURIE - H ISO 9001 : 2008, 14001 : 2004 BS-OHSAS 18001 : 2007 &

ISO 17025:2005(NABL) Accredited Laboratory



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/

		W	'K 82	wi	K 83	· wi	K 84	wi	K 85
PARAMETERS	DATE	05/09/2016	06/09/2016	12/09/2016	13/09/2016	19/09/2016	20/09/2016	26/09/2016	28/09/2016
PAL	CODE	(010	()775	(FOF	(7.00	(000	(011	7004	5000
	LIMITS	6218	6375	6525	6529	6902	6911	7204	7226
PM10 (μg/m³)	100	57	61	64	58	54	57	61	67
PM2.5 (µg/m³)	60	, 15	18	19	16	14	15	18	21
SO2 (μg/m³)	80	2.68	2.28	2.37	2.40	2.64	2.71	2.37	2.54
NO₂ (µg/m³)	80	3.45	3.80	3.67	3.21	3.58	3.42	3.74	3.30
CO (mg/m³)	4	0.82	0.75	0.77	0.76	0.77	0.82	0.76	0.73
Ο3 (µg/m ³)	· 180	0.91	0.83	0.89	0.88	0.85	0.93	0.84	0.85

Authorized Signatory





Test Report

		Wł	< 82	WК	83	WK	84	WF	C 85
PARAMETERS	DATE	05/09/2016	06/09/2016	12/09/2016	13/09/2016	19/09/2016	20/09/2016	26/09/2016	28/09/2016
PAR	CODE	(010	(075	(505	(500	(000	(011	500.4	
	LIMITS	6218	6375	6525	6529	6902	6911	7204	7226
NH3 (μg/m³)	400	1.76	1.27	1.48	1.67	1.87	1.55	1.45	1.78
Lead (µg/m³)	1	0.014	0.014	BDL	0.007	BDL	0.010	0.002	BDL
Arsenic (ng/m³)	6	0.73	0.22	BDL	BDL	BDL	BDL	BDL.	BDL
Nickel (ng/m³)	20	0.25	0.63	BDL	BDL	0.55	0.46	0.75	BDL
Benzene (µg/m³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P _(ng/m³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





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
- 4. Particulars of Sample Collected
- M/s. Environmental Health & Safety Research and Development Centre, Bangalore - 560 010.
 Ambient Air collected through
 - 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/

		w	K 82	WK	83	WK	84	w	K 85
PARAMETERS	DATE	05/09/201 6	06/09/201 6	12/09/201 6	13/09/201 6	19/09/201 6	20/09/201 6	26/09/201 6	28/09/201 6
PAR	CODE	(045	(054	(80)					
	LIMITS	6217	6374	6524	6528	6901	6910	7203	7225
PM10 (μg/m ³)	100	64	60	57	62	64	66	57	55
PM2.5 (μg/m ³)	60	20	17 .	15	17	19	20	15	13
SO2 (μg/m ³)	80	2.44	2.54	2.74	2.34	2.56	2.47	2,82	2,17
NO2 (µg/m³)	80	3.62	3.36	3.78	3.48	3.16	3.36	3.59	3.77
CO (mg/m³)	4	0.79	0.72	. 0.74	0.80	0.85	0.76	0.75	0.82
Ο₃ (μg/m³)	180	0.84	0.84	0.86	0.92	0.96	0.84	0.82	0.90

Authorized Signatory





Test Report

		WK	C 82	WI	K 83	WК	84	W	K 85
PARAMETERS	DATE	05/09/2016	06/09/2016	12/09/2016	13/09/2016	19/09/2016	20/09/2016	26/09/2016	28/09/2016
PAR	CODE	(04=		(=0.1	CER 0	6004	(0.10		
	LIMITS	6217	6374	6524	6528	6901	6910	7203	7225
NH₃ (µg/m³)	400	1.32	1.65	1.35	1.46	1.65	1.39	1.85	1.52
Lead (µg/m³)	1	0.034	0.005	0.006	0.010	0.004	0.005	0.041	0.005
Arsenic (ng/m³)	6	0.32	0.69	BDL	BDL	BDL	BDL	BDL	BDL
Nickel (ng/m³)	20	0.32	0.46	BDL	BDL	0.33	0.93	0.51	BDL
Benzene (µg/m³)	5.	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m³)	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**
- 6 Sample Number
- For the Month of September-2016 (Monitored for 24 : : hours)

EHSRDC/OMPL/A/16/09/

		WK	82	WK	83	W	K 84	WF	C 85
PARAMETERS	DATE	07/09/2016	08/09/2016	14/09/2016	15/09/2016	20/09/2016	22/09/2016	28/09/2016	29/09/2016
PA	CODE	())	(350)						
	LIMITS	6376	6378	6636	6734	6912	7016	7247	7309
ΡM10 (µg/m ³)	100	64	56	60	68	59	55	64	62
PM2.5 (μg/m³)	60	19	15	16	20	16	13	19	17
SO2 (µg/m³)	80	2.44	2.56	2.76	2.57	2.09	2.34	2.57	2.46
NO2 (µg/m³)	80	3.67	3.77	3.42	3.71	3.27	3.52	3.64	3.67
CO (mg/m³)	4	0.76	0.73	0.76	0.82	0.79	0.84	0.80	0.79
O3 (µg/m³)	180	0.85	0.82	0.88	0.91	0.88	0.97	0.92	0.93

Authorized Signatory





Test Report

	-	WK	82	WK	C 83	w	K 84	w	K 85	
PARAMETERS	DATE	07/09/2016	08/09/2016	14/09/2016	15/09/2016	20/09/2016	22/09/2016	28/09/2016	29/09/2016	
PAR/	CODE									
	LIMITS	6376	6378	6636	6734	6912	7016	7247	7309	
NH3 (μg/m³)	400	1.46	1.78	1.67	1.80	1.22	1.67	1.42	1.47	
Lead (µg/m³)	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/m³)	20	0.37	0.79	BDL	BDL	0.68	0.44	BDL	BDL	1
Benzene (µg/m³)	5	BDL	1							
B(a)P (ng/m³)	1	BDL								

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in



ISO 9001 : 2008, 14001 : 2004 BS-OHSAS 18001 : 2007 &

ISO 17025:2005(NABL) Accredited Laboratory



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/

		wı	K 82	WI	C 83	WK	C 84	wi	K 85
PARAMETERS	DATE	08/09/2016	09/09/2016	15/09/2016	16/09/2016	22/09/2016	23/09/2016	29/09/2016	30/09/2016
PA	CODE	6377	6522	6733	6750	7015	7089	7308	7310
	LIMITS				0700	/010	1007	7000	7010
PM10 (μg/m³)	100	58	61	65	64	57	60	63	58
PM2,5 (μg/m³)	60	16	18	15	17	14	16	18	13
SO2 (μg/m ³)	80	2.33	2.57	2.73	2.71	2.46	2.19	2.54	2.28
NO₂ (µg/m³)	80	3.16	3.80	3.56	3.56	3.18	3.45	3.48	3.52
CO (mg/m³)	. 4	0.74	0.79	0.80	0.79	0.78	0.74	0.81	0.78
O₃ (µg/m³)	180	0.81	0.86	0.88	0.88	0.91	0.85	0.86	0.89

Authorized Signatory





Test Report

		WI	K 82	WF	(83	WK	84	WI	C 85
PARAMETERS	DATE	08/09/2016	09/09/2016	15/09/2016	16/09/2016	22/09/2016	23/09/2016	29/09/2016	30/09/2016
PAF	CODE	()77	(522	(722	(750	7015	7000	7200	7010
	LIMITS	6377	6522	6733	6750	7015	7089	7308	7310
NH₃ (µg/m³)	400	1.32	1.66	1.53	1.45	1.56	1.36	1.69	1.20
Lead (µg/m³)	1	0.012	0.010	0.005	0.003	0.056	BDL	0.008	0.006
Arsenic (ng/m³)	6	0.84	BDL						
Nickel (ng/m³)	20	0.78	BDL.	BDL	BDL	0.37	BDL	BDL	BDL
Benzene (µg/m³)	5	BDL							
B(a)P (ng/m³)	1	BDL							

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

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Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

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

- 6. Sample Number
- EHSRDC/OMPL/A/16/09/

		· WI	K 82	W	K 83	W	K 84	WI	K 85
PARAMETERS	DATE	05/09/2016	06/09/2016	12/09/2016	13/09/2016	19/09/2016	20/09/2016	26/09/2016	28/09/2016
PA	LIMITS n ³) 100								
	LIMITS	6216	6373	6523	6527	6900	6909	7202	. 7224
PM10 (µg/m ³)	100	62	59	67	56	63	61	59	. 56
PM2.5 (µg/m ³)	60	18	16	20	14	· 18	17	16	14
SO2 (μg/m ³)	80	2.37	2.76	2.42	2.62	2.29	2.78	2.51	2.43
NO2 (μg/m ³)	80	3.30	3.65	3.52	3.86	3.49	3.11	3.86	3.61
CO (mg/m³)	4	0.77	0.84	0.84	0.82	0.73	0.81	0.80	0.77
O3 (µg/m³)	180	0.86	0.96	0.95	0.93	0.87	0.90	0.91	0.85

Authorized Signatory





Test Report

		WK 82		WK 83		WK 84		WK 85	
PARAMETERS	DATE	05/09/2016	06/09/2016	12/09/2016	13/09/2016	19/09/2016	20/09/2016	26/09/2016	28/09/2016
PAR	CODE	(01)	(070	(500	(505	(000	6000		
	LIMITS	6216	6373	6523	6527	6900	6909	7202	7224
NH₃ (µg/m³)	400	1.45	1.82	1.66	1.31	1.82	1.47	1.38	1.62
Lead (µg/m³)	1	0.008	0.015	0.001	0.018	0.049	0.015	0.003	0.013
Arsenic (ng/m³)	6	032	0.62	BDL	BDL	BDL	BDL	BDL	BDL
Nickel (ng/m³)	20	0.31	0.44	BDL	BDL	BDL	0.53	0.74	BDL
Benzene (µg/m³)	5	BDL							
B(a)P (ng/m³)	1	BDL							

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

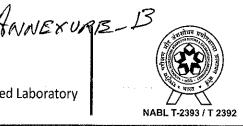
No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in



ISO 9001 : 2008, 14001 : 2004 BS-OHSAS 18001 : 2007 &

ISO 17025:2005(NABL) Accredited Laboratory

GW1: Narayana Guru Community Hall, Permude



Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

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 Develo	opment
		Centre, Bangalore - 560 010.	-

4. Date of Collection

1.

- 5. Particulars of Sample Collected
- 6. Date of Sample Receipt

Name of the Location

- 7. Sample Number
- 8. Protocol

- : 12.09.2016 : Bore well water, Grab Sampling
- : 15.09.2016
- : EHSRDC/OMPL/W/16/09/6530

:

: APHA, 22nd Edition/IS: Standard

CLMa	DADAMETERO	LINIPP	TECT METHODS		10500:2012 d Revision)	CODE
Sl.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	GW1
					IL	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	Unobj	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Ag	reeable	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-SO42-	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-NO3 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	A	bsent	Absent
Note-: BI	DL- Below Detectable Limit, DL	. – Desirable Limi	t, 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

ized 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	:	12.09.2016
	5.	Particulars of Sample Collected	:	Bore well water, Grab Sampling
-	6.	Date of Sample Receipt	:	15.09.2016

- 7. Sample Number
- 8. Protocol

- : EHSRDC/OMPL/W/16/09/6531
- : APHA, 22nd Edition/IS: Standard

			· .			0500:2012 Revision)	CODE
Sl.No	PARAN	AETERS	UNIT	TEST METHODS	DY		GW2
					DL	PL	6531
1.	pН			4500H+ B	6.5	5-8.5	7.69
2.	Colour		Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour			IS 3025(Part-5):1983	Unobje	ctionable	Unobjectionable
4.	Taste			IS 3025(Part-8):1984	Agr	eeable	Agreeable
5.	Turbidity		NTU	2130 B	1	5	3.19
6.	Total Dissolv	ed Solids	mg/L	2540 C	· 500 ·	2000	96.0
7.	Total Hardne	ss	mg/L	2340 C	200	600	40.0
8.	Calcium as Ca	1	mg/L	3500-Ca	75	200	11.6
9.	Magnesium a	s Mg	mg/L	3500 Mg B	30	100	2.67
10.	Sulphate as S	D ₄	mg/L	4500-SO42-	200	400	BDL
11.	Fluoride as F		mg/L	4500F D	1	1.5	0.25
12.	Nitrate as NC		mg/L	4500-NO3 E	45		1.61
13.	Chloride as C	1	mg/L	4500-Cl B	250	1000	21.21
14.	Iron as Fe		mg/L	3500-Fe B	().3	BDL
15.	Alkalinity		mg/L	2320 B	200	600	35.0
16.	6. Chromium Hexavalent		mg/L	3500 Cr B			BDL
17.	17. E-Coli		CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliforn		CFU/100ml	IS15185:2002	Ab	sent	Absent
Note-: Bl	DL- Below Dete	ctable Limit, D	L – Desirable Limit, I	PL – Permissible Limit.			-
I	NFERENCE	*	00:2012(Second Rev	ision), ues for the above paramet	ore for the	o standarda	

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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

1, Name of the Location GW3: L&T New Labor Colony : Name of the Industry 2. 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 Date of Sample Receipt 6. 15.09.2016 : 7. Sample Number EHSRDC/OMPL/W/16/09/6532 : Protocol 8. ÷ APHA, 22nd Edition/IS: Standard CODE Std. IS 10500:2012 (Second Revision) SI.No PARAMETERS UNIT **TEST METHODS** GW3 DL PL 6532 pН 4500H+ B 1. 6.5-8.5 7.76 --Colour Hazen IS 3025(Part-4):1983 5 15 <1 2. Odour IS 3025(Part-5):1983 3. Unobjectionable --Unobjectionable Taste IS 3025(Part-8):1984 4. --Agreeable Agreeable 5. Turbidity NTU 2130 B 1 5 1.61 Total Dissolved Solids 2540 C mg/L 2000 6. 500 300.0 **Total Hardness** 2340 C 200 35.0 mg/L 600 7. 8. Calcium as Ca 3500-Ca 75 mg/L 200 6.8 9. Magnesium as Mg 3500 Mg B 30 mg/L 100 4.37 10. Sulphate as SO4 4500-SO42-200 mg/L 400 2.46 Fluoride as F 11. mg/L 4500F D 1.5 BDL 1 12. Nitrate as NO₃ mg/L 4500-NO3 E 45 3.63 13. Chloride as Cl 4500-Cl B 250 1000 mg/L 128.24 Iron as Fe 14. mg/L 3500-Fe B 0.3 0.13 15. Alkalinity mg/L 2320 B 200 600 133 Chromium Hexavalent 16. mg/L 3500 Cr B BDL 17. E-Coli CFU/100ml IS15185:2002 Absent Absent **Total Coliform** 18. 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

ed Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





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				
		Std. IS 10500:2012 CODE				

				1	10500:2012 1 Revision)	CODE
SI.No	PARAMETERS	UNIT	TEST METHODS			OW3
				DL	PL	6533
1.	рН		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	Unobj	ectionable	Unobjectionab
4.	Taste	[IS 3025(Part-8):1984	Ag	reeable	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 SO4	mg/L	4500-SO42-	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-NO3 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	ļ	سدد	BDL
17.	E-Coli	CFU/100ml	IS15185:2002	Absent		Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	A	bsent	Absent

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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





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, 22 nd Edition/IS: Standard

01 11				1	10500:2012 Revision)	CODE
Sl.No	PARAMETERS	UNIT	TEST METHODS	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	Unobje	ctionable	Unobjectionable
4.	Taste		IS 3025(Part-8:1984	Agr	eeable	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-SO42-	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-NO3 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/100m1	IS15185:2002	At	sent	Absent
Note-: BD	L- Below Detectable Limit, I)L – Desirable Limi	it, 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

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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

÷

- Name of the Location 1.
- Name of the Industry 2.
- Sample Collected By 3.
- 4. **Date of Collection**
- **Particulars of Sample Collected** 5.
- 6. Date of Sample Receipt
- Sample Number 7.
- Protocol 8.

- OW1: Tenka-Ekkar :
- M/s. ONGC Mangalore Petrochemicals Limited., : Mangalore Special Economic Zone, Permude, Mangalore-574509.
- M/s. Environmental Health and Safety Research and ŝ Development Centre, Bangalore - 560 010.
- 12.09.2016 :
- Open well water, Grab Sampling :
- 15.09.2016 :
- EHSRDC/OMPL/W/16/09/6535 :
 - APHA, 22nd Edition/IS: Standard

			•		0500:2012 Revision)	CODE		
SI.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	OW1		
					11,	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	Unobjec	tionable	Unobjectionable		
4.	Taste		IS 3025(Part-8):1984	Agre	eable	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 SO4	mg/L	4500-SO42-	200	400	BDL		
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.76		
12.	Nitrate as NO ₃	mg/L	4500-NO3 E	4	15	1.68		
13.	Chloride as Cl	mg/L	4500-CI 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	Ab	sent	Absent		
18.	18. Total Coliform CFU/100ml IS15185:2002 Absent Absent							
lote -: BDI	Below Detectable Limit, D	L – Desirable Lir	nit, PL – Permissible Limi	t.	<u> </u>			

As per IS 10500:2012(Second Revision),

INFERENCE 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
- 2. Name of the Industry

3.

4.

5.

6.

7.

8.

Sample Collected By

Date of Collection

Sample Number

Protocol

Date of Sample Receipt

Particulars of Sample Collected

: M/s. ONGC Mangalore Petrochemicals Limited.,

:

Mangalore Special Economic Zone, Permude,

SW1: Near Flare Area, OMPL

- Mangalore-574509.
- : M/s. Environmental Health and Safety Research and Development Centre, Bangalore 560 010.
- : 12.09.2016
- : Surface outlet water, Grab Sampling
- : 15.09.2016
 - : EHSRDC/OMPL/W/16/09/6536
- : APHA, 22nd Edition/IS: Standard

				Std. IS 10500:2012 (Second Revision)		CODE
SI.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	SW1
					12	6536
1.	pН		4500H+ B	6	5.5-8.5	8.17
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour		IS 3025(Part-5):1983	Unob	jectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	A.g	greeable	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 SO4	mg/L	4500-SO42-	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-NO3 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	A	bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	A	bsent	Absent
e-: 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

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Test Report

	ANALYSIS RE	PORT	<u>OF FRESH WATER QUALITY</u>	
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 a	nd
			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, 22 nd Edition/IS: Standard	
			Std. IS 10500:2012	CODE

SI.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		
				DL	PL	
1.	pH		4500H+ B		5.5-8.5	6537 7.15
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour				1	
	· · · · · · · · · · · · · · · · · · ·		IS 3025(Part-5):1983		ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	reeable	Agreeable
5.	Turbidity	NTU	2130 B	1		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 SO4	mg/L	4500-SO42-	200 400		17.69
11.	Fluoride as F	mg/L	4500F D	1 1.5		0.84
12.	Nitrate as NO3	mg/L	4500-NO3 E	45		2.87
13.	Chloride as Cl	mg/L	4500-CI 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

 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

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ISO 9001 : 2008, 14001 : 2004 BS-OHSAS 18001 : 2007 &

ISO 17025:2005(NABL) Accredited Laboratory



Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

:

:

:

1. Name of the Location

: GW4: OMPL (Near ETP)

Mangalore-574509.

2. Name of the Industry

 M/s. ONGC Mangalore Petrochemicals Limited., Mangalore Special Economic Zone,Permude,

M/s. Environmental Health and Safety Research and Development

- 3. Sample Collected By
- 4. Date of Collection
- 5. Particulars of Sample Collected
- 6. Date of Sample Receipt
- 7. Sample Number
- 8. Protocol

: 15.09.2016

12.09.2016

: EHSRDC/OMPL/W/16/09/6538

Bore well water, Grab Sampling

Centre, Bangalore - 560 010.

: APHA, 22nd Edition/IS: Standard

Sl.No	PARAMETERS	UNIT	TEST METHODS	Std. IS 10500:2012 (Second Revision)		CODE
		UNII	TEST METHODS	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	Unobje	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Agı	reeable	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-SO42-	200	400	2.05
11.	Fluoride as F	mg/L	4500F D	1	1.5	1.06
12.	Nitrate as NO3	mg/L	4500-NO3 E	45		2.07
13.	Chloride as Cl	mg/L	4500-CI 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
Jote-: E	DL- Below Detectable Limit,	DL – Desirable Lin	nit, PL – Permissible Limit.	•		* ***********************************

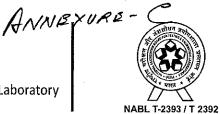
 INFERENCE
 As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standard.

End of Report

Authorized Signatory

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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. 6. 7.	Date of Sample Receipt Sample Number Method Adopted	: : :	23.09.2016 EHSRDC/OMPL/N/16/09/ 6913-6916 Instrument Method

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

Note:

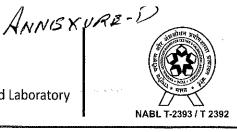
- Day Time is reckoned between 6 A.M and 10 P.M
- Night Time is reckoned between 10 P.M and 6 A.M
- L_{eq}:It is energy mean of the noise level over a specified period.
- *dB (A) L_{eq} denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- 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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





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 (Nm³/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.

End of Report

Authorized Signatory

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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	:	Emissions from stack collected through
	Collected		Stack Sampler VSS1
6.	Date of Sample Receipt	:	23.09.2016
7.	Sample Number	:	EHSRDC/OMPL/S/16/09/6904
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.

End of Report

Authorized Signatory

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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 (⁰ 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	171984.41
(Nm³/h)	

<u>RESULTS</u>					
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.

End of Report

Authorized Signatory

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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 VSS1
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

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

End of Report

Authorized Signatory

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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	:	Emissions from stack collected through
	Collected		Stack Sampler VSS1
6.	Date of Sample Receipt	:	23.09.2016
7.	Sample Number	:	EHSRDC/OMPL/S/16/09/6907
8.	Report to be Sent	:	26.09.2016
9.	Page No	:	1 of 1

GENERAL DETAILS

Date of Monitoring	20.09.2016
Ambient Temperature (⁰ 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/Nm³	97.9	100			

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

End of Report

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





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	:	Emissions from stack collected through
	Collected		Stack Sampler VSS1
6.	Date of Sample Receipt	:	23.09.2016
7.	Sample Number	:	EHSRDC/OMPL/S/16/09/6908
~			

- 8. Report to be Sent
- 9. Page No
- : 26.09.2016 : 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	115865.77
(Nm ³ /h)	

n	DOL	TX 1	TO
к	LOU	л.	15

<u>KEOU/10</u>							
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,
INTERENCE	Report Status: - The measured values for above parameters are within the standard.
	х

End of Report

Authorized Signatory

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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	:	Emissions from stack collected through
	Collected		Stack Sampler VSS1
6.	Date of Sample Receipt	:	23.09.2016
7.	Sample Number	:	EHSRDC/OMPL/S/16/09/6917
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		

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

End of Report

Authorized Signatory

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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 (Nm³/h)	64638.91
DECIIITE	·····

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.

End of Report

Authorized Signatory

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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	: Emissions from stack collected through
	Collected	Stack Sampler VSS1
6.	Date of Sample Receipt	: 23.09.2016
7.	Sample Number	: EHSRDC/OMPL/S/16/09/6919
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 (ºC)	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	130788.13
(Nm³/h)	

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		

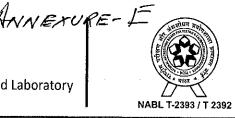
INFERENCE	As per KSPCB Standards, Report Status: - The measured values for above paramet	ers are within the standard.
· .	*	•

End of Report

Authorized Signatory

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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	1	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,22 nd Edition/IS Method
	-		· · · · · · · · · · · · · · · · · · ·

SI.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	
3.	Odour*	IS 3025(Part-5) :1983		Unobjectionable	and unpleasant odour as for as practicable.	
4.	Temperature	APHA 2550 B	0C	25	Shall not exceed 5 ⁰ Cabove 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 & Gréase	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	

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Test Report

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

				Р	age No: 02of 02
14.	Ammonical Nitrogen	4500- NH3,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

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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
3.	Sample Collected by	:	Mangalore Spécial Economic Zone, Permude Mangalore-574509. 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,22 nd Edition/IS Method

Sl.No	Parameters	Parameters Test Methods		Result	Tolerance limit	
1.	рН	IS 3025(Part-11) :1983	-	7.13	6.0-8.5	
2.	Colour*	IS 3025(Part-4) :1983	Hazen	<1	All efforts should be	
3.	Odour*	IS 3025(Part-5) :1983		Unobjectionable	 made to remove colour and unpleasant odour as for as practicable. 	
4.	Temperature	APHA 2550 B	٥C	25	Shall not exceed 5ºCabove 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

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ISO 9001 : 2008, 14001 : 2004 BS-OHSAS 18001 : 2007 &

ISO 17025:2005(NABL) Accredited Laboratory



Test Report

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

					Page No: 02of 02
14.	Ammonical Nitrogen	4500- NH3,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
<u>21</u> .	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,
INFERENCE	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

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Subtracting total flow from BFW , CT & Drinking water Remarks consumption rebate according to Quantity of water qualifying for the assessee If the meter was out of order, the monthly average consumption months of the working period of water for the previous 3 2614 67137 70048 2466 12760 155025 Reading at the begining Reading at the end of Quantity of Water calendar month under Consumed in Kilo Leters Returns Regarding Water Consumed during the Month of September, 2016 the last day of the 67137 70048 12760 2614 2466 report of the first day of the calendar month under 0 0 ¢ report Drinking Water & Sanitation Processing whereby water gets polluted and the pollutants are easily bioindustrial cooling, spraying in mine pits Purpose for which water consumed Domestic purpose Boller Feed Water or boiler feed Cooling Water Service Water degradable Total Consumption Fire Water Mis ONGC Mangalore Petrochemicals Limited, Mangalore Special Economic Zone, Permude, Mangalore -574 509 Name and address of the Consumer

Form-1 (Rule 4)

Signature of the Consumer :

Kash, Manager(Env) Shivapr Progenic

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

Address

Name

ANNEXURE-F

ANNIEYURE - GI.

ONGC Mangalore Petrochemicals Limited

Production Details for September-2016

Net Naptha Processed –89924 MT

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

Date: 15/11/2016

Dear Sir,

Sub: <u>Submission of Environmental Monitoring Report for the Month of October 2016,</u> <u>Production Report for October, 2016 & Returns Regarding Water Consumed for the</u> 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.

 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

Treated Effluent Analysis Report – D

5. Returns Regarding Water Consumed, for the Month of October 2016, as Annexure-E

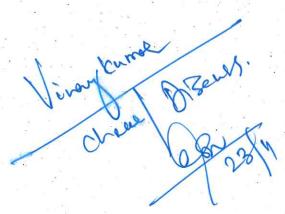
6. Production Report as Annexure-F

Thanking You,

Shiyaprakash

Manager (Env)

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





Name of the location

1.

NEXURE-H : 2004 ISO 9001 : 2008, 14001 BS-OHSAS 18001 : 2007 & ISO 17025:2005(NABL) Accredited Laboratory



Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY OMPL East Side

	 Name of the industry Sample Collected By 					Mangal Mangal M/s. En	lore Spécia lore-57450 ivironmen	tal Health	ic Zone, I & Safety	Permude Research		
	4. Particulars of Sample Collected				llected :	 Development Centre, Bangalore – 560 010. Ambient Air collected through Fine Particulate Sampler – APM 550 Respirable Dust Sampler – 460NL, CO & O₃ Analyzers. 						
	5	Date	of Collect	ion	:		-		2016 (Mor	itored for	r 24 hours))
	6.	Samı	ole Numb	er	:		OC/OMPL/				,	,
ſ	WK 86				K 86	W	K 87	WF	K 88	WH	(89	
		TERS	DATE	2016	2016	2016	2016	2016	2016	2016	2016	

;

		W	K 86	WI	K 87	Wł	C 88	WK	89
PARAMETERS	DATE	03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
PA	CODE	7442	7549	7734	7793	7950	8038	8276	8349
	LIMITS								
PM10 (μg/m³)	100	61	. 58	65	62	57	58	64	. 66
PM2.5 (μg/m ³)	60	18	16	19	16	15	16	19	20
SO2 (μg/m³)	80	2.41	2.76	2.14	2.41	2.68	2.48	2.26	2.87
NO2 (µg/m³)	80	3.90	3.56	3.41	3.70	3.61	3.23	3.66	3.86
CO (mg/m³)	4	0.79	0.79	0.74	0.79	0.80	0.84	0.80	0.77
O₃ (µg/m³)	180	0.88	0.88	0.87	0.83	0.91	0.86	0.92	0.89

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Test Report

		WB	K 86	WK	87	WK	88	WF	(89
PARAMETERS	DATE	03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
PAR	CODE	E 440	7540	7724	7793	7950	8038	8276	8349
	LIMITS	7442	7549	7734	7793	7950	0036	8276	8349
NH3 (μg/m ³)	400	1.50	1.76	1.48	1.75	1.58	1.53	1.31	1.67
Lead (µg/m³)	1	0.023	0.028	0.012	0.015	0.14	0.020	0.002	0.006
Arsenic (ng/m³)	6	BDL	BDL	BDL	BDL	BDL ·	BDL	0.16	0.48
Nickel (ng/m³)	20	BDL	0.72	BDL	1.20	0.55	BDL	0.68	0.85
Benzene (µg/m³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

- 2. Name of the industry
- : Shantigudda
- : M/s. ONGC Mangalore Petrochemicals Limited Mangalore Spécial Economic Zone, Permude Mangalore-574509.
- 3. Sample Collected By
- 4. Particulars of Sample Collected
- : M/s. Environmental Health & Safety Research and Development Centre, Bangalore 560 010.
 - Ambient Air collected through Fine Particulate Sampler – APM 550 Respirable Dust Sampler – 460NL, CO & O3 Analyzers.

- 5 Date of Collection
 6. Sample Number
- For the Month of October-2016 (Monitored for 24 hours)
- EHSRDC/OMPL/A/16/10/

			K 86	WK	87	WK	88	WI	K 89
PARAMETERS	DATE	03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
PAI	CODE				•				
	LIMITS	7441	7548	7733	7792	7949	8037	8275	8348
ΡM10 (μg/m³)	100	59	62	67	59	55	66	61	59
PM2.5 (μg/m³)	60	. 16	18	19	15	14	20	17	16
SO2 (µg/m³)	80	2.67	2.45	2.43	2.11	2.76	2.17	2.60	2.45
NO2 (μg/m ³)	80	3.18	3.67	3.79	3.52	3.22	3.60	3.48	3.79
CO (mg/m³)	4	0.75	0.80	0.70	0.76	0.72	0.82	0.81	0.72
O₃ (µg/m³)	180	0.86	0.91	0.87	0.79	0.84	0.88	0.91	0.83





Test Report

		WK	86	WF	C 87	WK	88	W	K 89
PARAMETERS	DATE	03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
PAR	AR CODE		#F 40	5500	7700	5040	0007	0075	0040
	LIMITS	7441	7548	7733	7792	7949	8037	8275	8348
NH₃ (µg/m³)	400	1.71	1.46	1.35	1.63	1.30	1.61	1.72	1.49
Lead (µg/m³)	1	0.074	0.007	0.020	0.026	0.005	0.001	0.002	0.004
Arsenic (ng/m³)	6	BDL	BDL	BDL	BDL .	BDL	BDL	0.62	0.75
Nickel (ng/m³)	20	BDL	0.66	BDL	BDL	BDL	BDL	0.58	0.96
Benzene (µg/m³)	5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B(a)P (ng/m³)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

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

		WK	86	WK	WK 87		WK 88		89 .
PARAMETERS	DATE	05/10/2016	06/10/2016	12/10/2016	13/10/2016	19/10/2016	20/10/2016	26/10/2016	27/10/2016
PA	CODE LIMITS	7550	7603	7794	77.96	8082	8144	8401	8444
ΡM10 (μg/m ³)	100	57		58	62	52	60	65	.67
PM2.5 (μg/m ³)	60	14	16	14	17	13	16	18	21
SO ₂ (μg/m³)	80	2.68	2.19	2.49	2.31	2.51	2.79	2.41	2.88
NO2 (μg/m ³)	80	3.48	3.27	3.49	3.69	3.31	3.82	3.54	3.77
CO (mg/m³)	4	0.83	0.81	0.75	0.78	0.75	0.76	0.74	0.84
O3 (µg/m³)	180	0.95	0.90	0.85	0.86	0.81	0.84	0.85	0.96

Authorized Signatory

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Test Report

		WK	86	WK	87	w	K 88	WI	K 89
PARAMETERS	DATE	05/10/2016	06/10/2016	12/10/2016	13/10/2016	19/10/2016	20/10/2016	26/10/2016	27/10/2016
PAR	CODE				·				
	LIMITS	7550	7603	7794	7796	8082	8144	8401	8444
NH3 (μg/m³)	400	1.75	1.59	1.59	1.83	1.66	1.67	1.81	1.29
Lead (µg/m³)	1	0.002	0.034	0.019	0.019	0.001	BDL	0.005	0.005
Arsenic (ng/m³)	6	BDL ·	BDL	BDL	BDL	BDL	BDL.	0.58	0.75
Nickel (ng/m³)	20	1.49	0.90	BDL	BDL	BDL	BDL	0.57	1.51
Benzene (µg/m³)	5	BDL							
B(a)P (ng/m³)	1	BÐL	BDL						

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





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	Cample Number		

6. Sample Number

EHSRDC/OMPL/A/16/10/

		WI	K 86	WK	C 87	WK	88	w	K 89
PARAMETERS	DATE	06/10/2016	07/10/2016	13/10/2016	14/10/2016	20/10/2016	21/10/2016	27/10/2016	28/10/2016
PA	CODE	7602	7617	7795	7841	8143	8219	8443	8517
PM10 (μg/m ³)	LIMITS 100	63	55	60	61	56	58	62	65
PM2.5 (μg/m ³)	60	18	14	15	19	14	15	15	19
SO2 (μg/m ³)	80	2.57	2.80	2.43	2.39	2.89	2.67	2.26	2.51
NO2 (μg/m ³)	80	3.84	3.51	3.60	3.38	3.76	3.57	3.22	⁻ 3.66
CO (mg/m³)	• 4	0.78	0.75	0.83	0.75	0.83	0.79	0.73	0.82
O3 (µg/m³)	180	0.85	0.82	0.84	0.82	0.94	0.87	0.81	0.94

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





Test Report

		WK 86		WK 87		WK	88	WK 89	
PARAMETERS	DATE	06/10/2016	07/10/2016	13/10/2016	14/10/2016	20/10/2016	21/10/2016	27/10/2016	28/10/2016
PAF	CODE	Ħ(00	HCAH	7705	2041	0145	0010	0440	0545
	LIMITS	7602	7617	7795	7841	8143	8219	8443	8517
NH3 (μg/m ³)	400	1.81	1.32	1.67	1.47	1.56	1.84	1.54	1.44
Lead (µg/m³)	1	0.015	0,004	0.007	0.019	BDL	0.017	0.002	0.020
Arsenic (ng/m³)	6	BDL	BDL	BDL	BDL	BDL	BDL	0.75	0.87
Nickel (ng/m³)	20	0.67	BDL	BDL	BDL	BDL	BDL -	0.88	1.05
Benzene (µg/m³)	5	BDL							
B(a)P (ng/m³)	1	BDL							

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory





Test Report

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

		W	K 86	WI	K 87	Wł	K 88	WI	< 89
PARAMETERS	DATE	03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
PA	CODE LIMITS	7440	7547	7732	7791	7948	8036	8274	8347
PM10 (μg/m ³)	100	65	60	58 ⁻	63	60	63	69	56
ΡM2.5 (μg/m ³)	60	20	17	16	17	18	17	21	15
SO2 (μg/m³)	80	2.55	2.37	2.30	2.36	2.82	2.58	2.41	2.70
NO2 (μg/m³)	80	3.45	3.14	3.60	3.31	3.54	3.49	3.73	3.28
CO (mg/m³)	. 4	0,81	0.77	0.88	0.80	0.77	0.78	0.85	0.83
O3 (µg/m³)	180	0.90	0.84	0.92	0.91	0.89	0.82	0.94	0.94

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





Test Report

		WK	86	WI	K 87	WK	88	WK 89	
PARAMETERS	DATE	03/10/2016	04/10/2016	10/10/2016	11/10/2016	17/10/2016	18/10/2016	24/10/2016	25/10/2016
PAR	CODE LIMITS					70.40	0000		
		7440	7547	7732	7791	7948	8036	8274	8347
NH₃ (µg/m³)	400	1.89	1.62	1.66	1.49	1.76	1.71	1.54	1.16
Lead (µg/m³)	1	0.022	0.100	0,067	0.017	0.065	0.169	ŖDL	0.024
Arsenic (ng/m³)	6	BDL	BDL	BDL	BDL	BDL	BDL	0.84	0.76
Nickel (ng/m³)	20	BDL	1.56	1.88	BDL	1.08	1.54	BDL	0.16
Benzene (µg/m³)	5	BDL	BDL .						
B(a)P (ng/m³)	1	BDL							

Note: BDL: Below Detectable Limit.

End of Report

Authorized Signatory

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

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

APHA, 22nd Edition/IS: Standard

					10500:2012 d Revision)	CODE
Sl.No	PARAMETERS	UNIT	TEST METHODS	БІ	PL	GW1
				DL	f L	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	Unobj	ectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Ag	reeable	Agreeable
5.	Turbidity	NTÚ	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-SÒ42-	200	400	BDL
11.	Fluoride as F	mg/L	4500F D	1	1.5	0.05
12.	Nitrate as NO ₃	mg/L	4500-NO3 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	A	bsent	Absent
lote-: Bl	DL- Below Detectable Limit, I	DL – Desirable Limi	t, PL – Permissible 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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

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

: APHA, 22nd Edition/IS: Standard

,		· ·			Std. IS 10500:2012 (Second Revision)		CODE
Sl.No	PARÁN	1ETERS	UNIT	TEST METHODS		DT	GW2
					DL	PL	7605
1.	1. pH			4500H+ B	6.5	5-8.5	7.03
2.	Colour		Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour			IS 3025(Part-5):1983	Unobje	ctionable	Unobjectionable
4.	Taste			IS 3025(Part-8):1984	Agr	eeable	Agreeabie
5.	Turbidity		NTU	2130 B	1	5	2.48
6.	Total Dissolve	ed Solids	mg/L	2540 C	500	2000	126.0
7.	Total Hardnes	55	mg/L	2340 C	200	600	45.0
8,	Calcium as Ca	1	mg/L ·	3500-Ca	75	200	12.8
9.	Magnesium a	s Mg	mg/L	3500 Mg B	30	100	3.16
10.	Sulphate as S		mg/L	4500-SO42-	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-NO3 E		45	2.64
13,	Chloride as C	1	mg/L	4500-CI B	250	1000	36.99
14.	Iron as Fe		mg/L	3500-Fe B	· ().3	0.24
15.	Alkalinity		mg/L	2320 B	200	600	37.0
. 16.	Chromium H	exavalent	mg/L	3500 Cr B			BDL
17.	17. E-Coli 18. Total Coliform		CFU/100ml	IS15185:2002	Al	osent	Absent
18.			CFU/100ml	IS15185:2002	Al	osent	Absent
Note-: I	BDL- Below Dete	ectable Limit, D	L – 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

	ANALYSI	SREP	ORT 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 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
- 7. Sample Number
- 8. Protocol

12.10.2016 EHSRDC/OMPL/W/16/10/7606 :

APHA, 22nd Edition/IS: Standard

			•	Std. IS 10500:2012 (Second Revision)		CODE
SI.No	PARAMETERS	ÚNIT	TEST METHODS			GW3
				DL	PL	7606
1.	рН		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	Unobjec	tionable	Unobjectionable
· 4.	Taste		IS 3025(Part-8):1984	Agre	eable	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-SO42-	200	400	5.80
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO3 E	4	5	· 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	Abs	sent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Abs	sent	Absent
Note-: BD	L- Below Detectable Limit,	DL - Desirable Li	mit, PL – Permissible Lim	it.		

As per IS 10500:2012(Second Revision), INFERENCE

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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





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 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	:	Open well water, Grab Sampling
6.	Date of Sample Receipt	:	12.10.2016
7.	Sample Number	:	EHSRDC/OMPL/W/16/10/7607

Sample Number

Protocol

8.

APHA, 22nd Edition/IS: Standard

				1	10500:2012 I Revision)	CODE
SI.No	PARAMETERS	UNIŢ	TEST METHODS			OW3
				DL	PL	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	Unobj	ectionable	Unobjectionable
4.	Taste	·	IS 3025(Part-8):1984	Ag	reeable	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-SO42-	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-NO3 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	A	bsent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	A	bsent	Absent
ote-: BDI	Below Detectable Limit, DL -	- Desirable Limit, I S 10500:2012(Seco				

INFERENCE 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: Shanthiguda Village M/s. ONGC Mangalore Petrochemicals Limited., 2. Name of the Industry Mangalore SpecialEconomicZone,Permude, Mangalore-574509. M/s. Environmental Health and Safety Research and Sample Collected By 3. Development Centre, Bangalore - 560 010. 07.10.2016 **Date of Collection** 4.
- Particulars of Sample Collected 5.
- 6. **Date of Sample Receipt**
- 7. Sample Number
- Protocol 8.

- Open well water, Grab Sampling
- 12.10.2016
- EHSRDC/OMPL/W/16/10/7608 :
- APHA, 22nd Edition/IS: Standard :

				Std. IS 10500:2012 (Second Revision)		CODE
Sl.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	OW2
					r L	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	Unobje	ctionable	Unobjectionable
4.	Taste		IS 3025(Part-8:1984	Agr	eeable	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-SO42-	200	400	3.99
11	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO3	mg/L	4500-NO3 E	-	45	3.57
13.	Chloride as Cl	mg/L	4500-Cl B	250	1000	5.99
14.	Iron as Fe	. mg/Ĺ	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	Al	osent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Al	osent	Absent
Note-: Bl	DL- Below Detectable Limit, I)L – Desirable Limi	it, PL – Permissible Limit.			

As per IS 10500:2012(Second Revision), INFERENCE 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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY

:

- Name of the Location 1.
- 2. Name of the Industry

Sample Collected By

Date of Sample Receipt

Particulars of Sample Collected

Date of Collection

Sample Number

3.

4.

5.

6.

7.

- OW1: Tenka-Ekkar :
- M/s. ONGC Mangalore Petrochemicals Limited., : Mangalore SpecialEconomicZone,Permude, Mangalore-574509.
- M/s. Environmental Health and Safety Research and : Development Centre, Bangalore - 560 010.
- 07.10.2016 :
- Open well water, Grab Sampling :
- 12.10.2016 ;
 - EHSRDC/OMPL/W/16/10/7609
- APHA, 22nd Edition/IS: Standard

8. Pro	otocol		: APHA, 22 nd Ed	ition/IS: Sta	ndard	•
				+)500:2012 Revision)	CODE
Sl.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	OW1
				DL	11,	7609
1.	pН		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	Unobjec	tionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Agre	eable	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 SO4	mg/L	4500-SO42-	200	400	BDL
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL
12.	Nitrate as NO ₃	mg/L	4500-NO3 E	4	5	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	Ab	sent	Absent
18.	Total Coliform	CFU/100ml	IS15185:2002	Ab	sent	Absent
ote-: BD	L- Below Detectable Limit, L	DL - Desirable Li	mit, PL – Permissible Lim	it.		

As per IS 10500:2012(Second Revision), INFERENCE 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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





Test Report

ANALYSIS REPORT OF FRESHWATER QUALITY

- SW1: Near Flare Area, OMPL Name of the Location 1. : M/s. ONGC Mangalore Petrochemicals Limited., 2. Name of the Industry : Mangalore SpecialEconomicZone,Permude, Mangalore-574509. M/s. Environmental Health and Safety Research and Sample Collected By 3. Development Centre, Bangalore - 560 010. 07.10.2016 Date of Collection 4. Particulars of Sample Collected Surface outlet water, Grab Sampling 5. : 6. Date of Sample Receipt 12.10.2016 : :
 - Sample Number 7.
 - Protocol 8.

- EHSRDC/OMPL/W/16/10/7610
- APHA, 22nd Edition/IS: Standard

					10500:2012 d Revision)	CODE
SI.No	PARAMETERS	UNIT	TEST METHODS	DL	PL	SW1
				DL	IL	7610
1.	pH		4500H+ B	6	5.5-8.5	7.44
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1
3.	Odour -		IS 3025(Part-5):1983	Unob	jectionable	Unobjectionable
4.	Taste		IS 3025(Part-8):1984	Aş	greeable	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-SO42-	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		جدب	BDL
17.	E-Coli	CFU/100ml	IS15185:2002		Absent	- Absent
18.	Total Coliform	CFU/100ml	IS15185:2002		Absent	Absent
te-: BDL-	Below Detectable Limit, DL	- Desirable Limit, PI	. – Permissible Limit.			

As per IS 10500:2012(Second Revision),

INFERENCE 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

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Test Report

		ANALYSIS REPO	ORT OF FRESHWATER C	UALITY	·			
-	1. Name of the Location	:	: SW2 : Near Central Ware House, OMPL					
:	2. Name of the Industry	. :	: M/s. ONGC Mangalore Petrochemicals Limited.,					
	-		Mangalore SpecialEco	nomicZone	Permude,			
			Mangalore-574509.					
	3. Sample Collected By	:	M/s. Environmental H	lealth and S	Safety Research	n and		
	• •		Development Centre,	Bangalore –	560 010.			
	4. Date of Collection		07.10.2016	-				
	5. Particulars of Sample Col	lected	: Surface inlet water, Gr	ab Samplin	g			
	6. Date of Sample Receipt	:	12.10.2016	_				
	7. Sample Number	:	EHSRDC/OMPL/W/	16/10/761	L			
:	8. Protocol		: APHA, 22 nd Edition/I	S: Standard				
						CODE		
		-			10500:2012			
Sl.No	PARAMETERS	UNIT	TEST METHODS	(Second	l Revision)	014/0		
01/1 10			· · · ·			SW2		
•			•	DL	PL	7611		
1.	рН		4500H+ B		.5-8.5	7.07 .		
2.	Colour	Hazen	IS 3025(Part-4):1983	5	15	<1		
3.	Odour	 •	IS 3025(Part-5):1983		ectionable	Unobjectionable		
4,	Taste		IS 3025(Part-8):1984	Ag	reeable	Agreeable		
5.	Turbidity	NTU	2130 B	1		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 SO4	mg/L	4500-SO42	200	400	77.14		
11.	Fluoride as F	mg/L	4500F D	1	1.5	BDL		
12.	Nitrate as NO ₃	mg/L	4500-NO3 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	A	bsent	Absent		
Note- B	DL - Below Detectable Limit, DI	- Desirable Lin	nit. PL – Permissible Limit.					

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

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Test Report

ANALYSIS REPORT OF FRESH WATER QUALITY GW4: OMPL (Near ETP) 1. Name of the Location : M/s. ONGC Mangalore Petrochemicals Limited., Name of the Industry 2. : Mangalore SpecialEconomicZone,Permude, Mangalore-574509. M/s. Environmental Health and Safety Research and Development Sample Collected By 3. Centre, Bangalore - 560 010. 07.10.2016 **Date of Collection** 4.

÷

- 5. **Particulars of Sample Collected**
- Date of Sample Receipt 6. 7. Sample Number
- Protocol 8.

- Bore well water, Grab Sampling 12.10.2016 1
- ÷ EHSRDC/OMPL/W/16/10/7612

APHA, 22nd Edition/IS: Standard :

			Std. IS 10500:2012 (Second Revision)		CODE
ARAMETERS	UNIT	TEST METHODS	DL	PL	GW4
	· ·	· · ·		11	7612
		4500H+ B	6.	5-8.5	6.95
	Hazen	IS 3025(Part-4):1983	5	15	<1
		IS 3025(Part-5):1983	Unobj	ectionable	Unobjectionable
	·	IS 3025(Part-8):1984	Ag	reeable	Agreeable
ty	NTU	2130 B	1	5	1.64
issolved Solids	mg/L	2540 C	500	2000	141.0
ardness	mg/L	2340 C	200	600 ·	54.0
ı as Ca	mg/L	3500-Ca	75	200	12.8
ium as Mg	mg/L	3500 Mg B	30	100	5.34
e as SO4	mg/L	4500-SO42-	200	400	4.44
e as F	mg/L	· 4500F D	1 .	1.5	BDL
as NO ₃	mg/L	4500-NO3 E		45	3.16
e as Cl	mg/L	4500-CI B	250	1000	29.99
Fe	mg/L	3500-Fe B		0.3	0.20
ity	mg/L	2320 B	200	600	38.0
um Hexavalent	mg/L	3500 Cr B			BDL
	CFU/100ml	IS15185:2002	A	bsent	Absent
oliform	CFU/100ml	IS15185:2002	A	bsent	Absent
oli	form	CFU/100ml form CFU/100ml	CFU/100ml IS15185:2002	CFU/100ml IS15185:2002 A iform CFU/100ml IS15185:2002 A	CFU/100ml IS15185:2002 Absent iform CFU/100ml IS15185:2002 Absent

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	:	Ambient Noise Level collected through
	Collected		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

		Para	meters	Std.
Code No	Sample Location	Day Time Leq dB(A)	Night Time Leq dB(A)	75.0 dB(A)
8277	OMPL South Side Boundary	64.2	54.9	Day
8278	OMPL North Side Boundary	66.1	57.8	
8279	OMPL East Side Boundary	61.8	51.8	70.0 dB(A)
8280	OMPL West Side Boundary	63.2	52.4	Night

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 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,22 nd 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
3.	Odour*	IS 3025(Part-5) :1983		Unobjectionable	and unpleasant odour as for as practicable.
4.	Temperature	АРНА 2550 В	°C	25	Shall not exceed 5ºCabove 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

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Test Report

Sample Number: EHSRDC/OMPL/ WW/16/10/8281

		•		·]	Page No: 02of 02
14.	Ammonical Nitrogen	4500- NH3,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/1	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,
INFERENCE	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

No. 13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. Tel : 080-23012100/ 121/122 Fax : 080-23012111 E-mail : ehsrdc2010@gmail.com, Website : www.ehsrdc.in





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

SI.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
3.	Odour*	IS 3025(Part-5) :1983		Unobjectionable	made to remove colour and unpleasant odour as for as practicable.
4.	Temperature	АРНА 2550 В	0C .	25	Shall not exceed 5ºCabove 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

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Test Report

				Р	age No: 02of 02
14.	Ammonical Nitrogen	4500- NH3,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/1	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

Sample Number: EHSRDC/OMPL/ WW/16/10/7613

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

INFERENCE	As per Tolerance limit,
INTERENCE	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

	Returns Regarding Wa	Returns Regarding Water Consumed during the Month of October, 2016	Month of October, 2016				
Name and address of the Consumer	Purpose for which water consumed	Reading at the begining Reading at the end of Quantity of Water of the first day of the the last day of the Consumed in Kilo calendar month under calendar month under Leters report	Reading at the end of Quantity of Water the last day of the calendar month under report	Quantity of Water Consumed in Kilo Leters	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
-	Industrial cooling, spraying in mine pits or boiler feed						
	Cooling Water	0	63096	63096			
	Boiler Feed Water	0	79372	79372			
		•					
M/s ONGC Mangalore Petrochemicals	Fire Water	0	16545	16545			
Zone Permitide Mannalore .574 500	Domestic purpose				į		
	Drinking Water & Sanitation	0	3169	3169			-
·	Processing whereby water gets polluted and the pollutants are easily bio- degradable						
							Subtracting total flow from BFW , CT & Drinking water
	Service Water		3158	3158			consumption
Total C	Total Consumption	-		165340			

ager(Env)

Signature of the Consumer

Name . Address

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

Form-1 (Rule 4)

ANNEXURIS-F

Beach

ONGC Mangalore Petrochemicals Limited

Production Details for October-2016

Net Naptha Processed -125173 MT

Name of the Product	Quantity, MT
1 Paraxylene (Product)	64205
Benzene (Co product)	17623
	Paraxylene (Product)