

o/c

adani™

AMPTPL/ECR/CPCB/2016-17/03

Date - 04.07.2016

To
The Additional Principal Chief Conservator of Forests (C),
Ministry of Environment, Forest & Climate Change
Regional Office (SZ)
Kendriya Sadan, 4th Floor, E&F Wing, 17th Main Road,
II Block Koramangala, Bengaluru-560034
E-mail: cosz.bng-mef@nic.in

Dear Sir,

Sub : Half yearly Compliance report of Environment and CRZ clearance for the period from **October, 2015 to March, 2016**

Ref : Environmental and CRZ clearance for modernization of Berth No. 7 for coal handling granted to M/s Mormugao Port Trust vide letter dated 30th December, 2013 bearing F. No. 10-39/2009-IA.III

Adani Mormugao Port Terminal Private Limited (AMPTPL) is concessionaire of M/s. Mormugao Port Trust for Berth No. 7. Please find enclosed herewith point wise compliance reports for the period from October, 2015 to March, 2016 in hard copy as well as in a CD for conditions stipulated in Environment clearance.

Thank you,
Yours Faithfully,
For **M/s Adani Mormugao Port Terminal Private Limited**

(H.R.Venkatesh)
Director

Encl: As above

Adani Mormugao Port Terminal Pvt Ltd. Tel: - +91 832 2594253
Ground Floor Fax: - +91 832 2594253
Port Users Complex info @adani.com
Mormugao Harbour 403 803 www.adani.com
Goa, India

Registered Office: Adani House, Nr Mithakhali Circle, Navrangpura, Ahmedabad 380 009, Gujarat, India

K
8/7/16
प्रेषणकर्ता
DESPATCHER
पर्यावरण वन एवं जलवायु परिवर्तन विभाग
Ministry of Environment, Forests & Climate Change
क्षेत्रीय कार्यालय, दक्षिण क्षेत्र
Regional Office, Southern Zone
केन्द्रीय सदन, 4th Floor, कोरामंगला
Kendriya Sadan, 4th Floor, Koramangala
बैंगलूरु/Bengaluru-560 034

o/c
adaniTM

AMPTPL/ECR/CPCB /2016-17/03

Date - 18.05.2016

To
The Director (Monitoring -IA Division),
Ministry of Environment, Forests & Climate Change,
Indira Paryavaran Bhawan, Jor Bagh Road,
New Delhi-110003.

Dear Sir,

Sub : Half yearly Compliance report of Environment and CRZ clearance for the period from **October,2015 to March, 2016**
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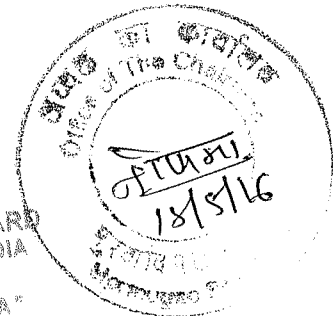
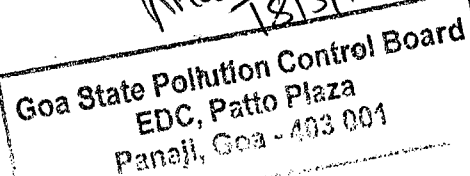

(H.R. Venkatesh)
Director

Encl: As above
Copy to:

1. The Regional Officer, Central Pollution Control Board, 1st & 2nd Floor, Nisaraga bhawan, A Block, Thimmaiah Main Road, 7th D Cross, Shivanagar, opposite Pushpanjali theatre, Bengaluru - 560010
2. The Member Secretary, Goa State Pollution Control board, Dempo Towers, 1st Floor, EDC Patto Plaza, Panji, Goa-403001
3. The Chairman, Mormugao Port trust, Administrative Office, Headlan Sada, Mormugao, Goa - 403804

Adani Mormugao Port Terminal Pvt Ltd.
Ground Floor
Port Users Complex
Mormugao Harbour 403 803
Goa, India

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www.adani.com

adani™	Adani Mormugao Port Terminal Pvt.Ltd.	From : Oct 2015 To : March 2016
Status of conditions stipulated in Environmental and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Mormugao Port, Goa

Sr. No.	Conditions	Compliance
6	Specific Conditions	
i	"Consent for Establishment" shall be obtained from Goa Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.	Complied. Consent to Establish (CtE) has been obtained from Goa Pollution Control Board vide letter No. 5/356/10-PCB/Vol. IV 8363 dated 02 nd March, 2012 and subsequently amendment in CtE vide letter No. 5/356/10-PCB/Vol. IV/379 dated 17 th April, 2012. Copies already submitted with six monthly compliance reports dated 25 th November, 2014
ii	The project proponent shall provide lining for collection of run off from coal stockyard and the leachate shall be treated before disposal.	Complied. Runoff from Coal Stock Yard is being collected in dump pond consisting of impervious liner and collected water is reused for dust suppression.
iii	The project proponent shall provide dry fog and sprinkling systems for effective dust suppression.	Complied. <ul style="list-style-type: none"> • 14 Numbers dry fog dust suppression system has been provided in conveyor system and all transfer points. • 45 Numbers Sprinklers have been provided at coal stock yard for dust suppression. • 02 Numbers Mist Canon (one mobile & one fixed) provided.
iv	Entire transportation of coal shall be in closed conveyor.	Complied. The coal is being transported through closed conveyor from jetty to silo/stock yard. We have developed 2700 meters long closed conveyor system from jetty to silos including 11 transfer points.
v	There shall be no washing of conveyor belt	Noted and complying with.
vi	The project proponent shall provide wind screen min 15 m height fabric HDPE all along the periphery. The height shall be designed taking into account the wind velocity modelling etc. Also explore creepers in consultation with forest department.	Complied. Wind screen of MS structure along with HDPE fabric/perforated sheet of 15 meters height have been provided all along coal stacking yard facility. Green belt is being developed with in the port premises.
vii	Coal shall be kept under moist conditions using water sprinklers. Transportation shall be in closed conveyors with water spray.	Complying. The coal is being stored under the moist condition; sufficient number of sprinklers are provided. Coal is being transported through closed conveyors with dry fog dust suppression system.

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Sr. No.	Conditions	Compliance
viii	All the conditions stipulated by Goa Coastal Zone Management Authority (GCZMA) vide letter No. GCZMA/S/13-14/09/360 dated 07.06.2013, shall be complied with.	Being Complied.
ix	Periodical study on shore line changes shall be conducted and mitigation carried out if necessary. The details shall be submitted along with the six monthly monitoring reports.	Not applicable as the said activity does not involve creation of new waterfront and is within the existing MPT port premises.
x	Oil spills if any shall be properly collected and disposed as per the Rules. Proper Oil Contingency Management Plan shall be put in place.	Being Complied. AMPTPL is handling dry cargo only such as coal. However, the AMPTPL is abiding by the Oil spill Contingency Management Plan prepared by M/s MPT.
xi	All the conditions stipulated in the earlier Clearances including the recommendations of Environment Management Plan, Disaster Management Plan shall be strictly complied with	Noted and being complied. All recommendations made in the Environment Management Plan as contained in the Environment Impact Assessment of the project are covered and effectively implemented.
xii	Cargo shall be unloaded directly into hopper from the ship and transported to the stack yards through closed conveyor system only. Inbuilt dust suppression systems shall be provided at hoppers and all the transfer points / storage yards. Cargo shall not be unloaded directly onto the Berth. Water meters shall be provided at different locations to record the consumption of water used for dust suppression and daily log shall be maintained.	Complying. <ul style="list-style-type: none"> • The coal unloading is being done through closed conveyor system with inbuilt dust suppression system in Hoppers and all transfer points. Water sprinklers have been provided along Storage yards. • Coal is not being unloaded directly on berth. • AMPTPL has installed water meters and log sheet maintained to record water consumption in dust suppression system.
xiii	At least 15 m width of green belt along the periphery and 15 m width along the stockyard shall be undertaken including plantation of mangroves in consultation with Forest Department.	Complying, green belt development along the periphery and coal stock yard is in progress. Currently around 11233 plants are planted in port premises. There is no mangrove in the vicinity of Berth No. 7
xiv	The dredge material shall be reused for low level rising wherever possible and excess shall be dumped into sea at the designated dumping areas identified based on mathematical model studies.	Complied, construction of the project is completed and currently in operation.

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Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Mormugao Port, Goa

Sr. No.	Conditions	Compliance
xv	To prevent discharge of sewage and other liquid wastes including ballast into marine environment, adequate system for collection, treatment and disposal of liquid wastes must be provided.	Being Complied. <ul style="list-style-type: none"> • The sewage is being collected in septic tank and then disposed-off by the Mormugao Municipal corporation tanker to their STP located at Baina. • There is no discharge from M/s AMPTPL in marine environment. • Ballast is not being taken by M/s AMPTPL
xvi	Necessary arrangements for the treatment of the effluents and solid wastes must be made and it must be ensured that the untreated effluents and solid wastes are not discharged into the water or on the beach; and no effluent or solid wastes shall be discharged on the beach.	Complying, the generated domestic effluent is being sent to MPT STP for treatment and municipal solid waste to Goa Municipal solid waste bins.
xvii	The quality of treated effluents, solid wastes, emissions and noise levels and the like, from project are must confirm to the standards laid down by the competent authorities including the Central or State Pollution Control Board under the Environment (Protection) Act 1986	Complying, regular Environmental Monitoring to assess the quality of treated effluents from STP, Ambient Air Quality, Noise level are being monitored through NABL accredited laboratory. Copy of the monitoring report for the current period is enclosed as Annexure -1
xviii	All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF along with half yearly compliance report to MoEF-RO	Complying, status of the mitigation measures is enclosed as Annexure – 2
xix	The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purpose.	Complying, AMPTPL has kept separate budget earmarked for Environment Management Plan. The allocated budget for Environment Cell for the year 2016 – 17 is approx. Rs. 26.35 Lakhs.
xx	The project proponent shall set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive	Complying, AMPTPL have well structured Environment Cell staffed with qualified manpower for implementation of the Environmental Management Plan.

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Status of conditions stipulated in Environmental and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Mormugao Port, Goa

Sr. No.	Conditions	Compliance
7. General Conditions		
i	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Complied, construction activities are completed and project is in operation phase.
ii	Full support shall be extended to the officers of this Ministry/Regional Office at Bangalore by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	Complying, full support is always extended to the officers of Ministry/Regional Office, MoEF as well as officers of Central and State Pollution Control Board during visits.
iii	A six-monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry at Bangalore regarding the implementation of the stipulated conditions.	Complying, six monthly monitoring reports for the period from October, 2015 to March, 2016 are enclosed as Annexure – 1
iv	Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	Noted.
v	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.	Noted.
vi	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.	Noted.
vii	The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Financial Closure Date: 14 th May, 2010 Concession agreement date with MPT: 22 nd September, 2009

Status of conditions stipulated in Environmental and CRZ clearance.
Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Mormugao Port, Goa

Sr. No.	Conditions	Compliance
viii	A copy of the clearance letter shall be marked to concerned Panchayat/local NGO, if any, from whom any suggestion/representation has been made received while processing the proposal.	Noted.
ix	Goa State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Center and Collector's Office/Tehsildar's office for 30 days.	Noted.
8.	These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 1994, including the amendments and rules made thereafter.	Noted.
9.	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	Complied, all applicable clearances from the concerned authorities have been obtained.

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Sr. No.	Conditions	Compliance
10.	The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental and CRZ Clearance and copies of clearance letters are available with the Goa State Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests at http://www.envfor.nic.in . The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bangalore.	Complied, MPT has given advertisement on 11 th January, 2014 in the newspapers mentioned below. 1) Sunaparant 2) Times of India, Goa.
11.	The Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004 as may be applicable to this project.	Noted.
12.	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.	Complied, AMPTPL is regularly uploading the status of compliance on Link www.adaniports.com/mormugao_infrastructure_berths.aspx
13.	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted
14.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisaad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any were received while processing the proposal. The clearance letter shall also be put on the website of the company by proponent.	Noted.

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Sr. No.	Conditions	Compliance
15.	The proponent shall upload the status of compliance of the stipulated Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	Complying, AMPTPL is regularly uploading the status of compliance and monitoring results on its website. The same can be viewed on www.adaniports.com/mormugao_infrastructure_berths.aspx
16.	The environmental statement for each financial year ending 31 st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of Clearance conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	Complying, Form V of environment statement is submitted to Goa Pollution Control Board for the year FY 15-16 on 6 th -May-2016 Copy of the same is available on the following web address. www.adaniports.com/mormugao_infrastructure_berths.aspx

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ANNEXURE 2 – STATUS OF THE MITIGATION MEASURES SUGGESTED IN EIA

Sr. No	Measures	Status
1	Proposed roads in coal terminal shall be black topped to avoid entrainment of fugitive dust	Complied. All the roads in port are paved.
2	The Municipal waste generated at the terminal is to be disposed along with the solid waste being disposed at present by the MPT.	Being complied with and taken care off. Dispatch register is maintained.
3	Adequate numbers Toilets shall be constructed in terminal office and office area. The sewage shall be treated in septic tank. The treated sewage from septic tank shall be disposed into existing sewage network of MPT.	Complied. Toilet has been constructed at berth, office and workshop area. Sewage from the septic tank is transported by sewage tankers to MPT Sewage Treatment plant.
4	Drinking water facilities and waste disposal facilities shall be located away from each other.	Complied
5	The water Effluent from coal stock yard to Be settled in a settling tank	Complied. Port has been constructed three water dump ponds. Water effluent from coal stock yard is collected & settled in these dump ponds.
6	Efficient pollution control technique for dust control to be utilized at open stock piles, conveyor transfer points, dump hopper loading points and other such dust generation locations.	<ul style="list-style-type: none"> • Dry fog dust suppression system has been provided in conveyor and 11 numbers of transfer points. • 45 Numbers water sprinklers have been provided at coal stock yard for dust suppression. • 2 Numbers of Mist Canon systems (one mobile & one fixed) provided.
7	The stacker can operate from distance with boom to keep the stack pile surface to a minimum.	Complied.
8	All the regularly used roadways at site must be swept daily with a tank mounted road sweeper and washed by a truck mounted cart.	Being Complied. Water tanker equipped with mist cannon arrangement is used to spray water on road to minimize the entrapment of fugitive emission.
9	All the transport shall be properly covered at the bottom and top with perfect sealing of plastic/tarpaulin sheets.	Complied.
10	The stock yard should be covered with screens/ wall of height of at least 7 to 8 mtr	Complied. Screens/ wall of height of 15 mtr. is provided along stock yard.

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11	The will be properly covered with tarpaulin and overloading will not allowed to avoid spillage of loose material on the roads. Regular maintenance and washing of wheel to be done.	Being complied. All the loaded trucks are covering with tarpaulin. Truck wheel washing arrangement is made inside the port to minimize dust emission.
12	Ambient noise level due to vehicular traffic to be controlled by developing green belt.	Green belt development and plantation completed
13	Noise level from air compressor to be reduced by fitting exhaust muffler and intake mufflers	Air compressor is kept in an acoustic enclosure to minimize noise from these machines. Exposures of workers to high noise level are minimized by job rotation and use of ear muff.
14	Green belt development.	Green belt development completed
15	For controlling fire from coal stock following measures to be adopted. 1. 3 No. of mobile fire tender to be placed at coal stock pile area. 2. Autogenous combustion of coal stock to be prevented by limiting stock height not more than 6 M. 3. Lump size of coal to be restricted to 20mm which will not lead to formation of air voids, eliminating the possibility of combustion	1. Complied. 2. Complied 3. Complied Also there are around 18 No. Single hydrants and 15 No. of water monitors are provided around coal stock area.
16	Implementation of Environmental Monitoring Programme.	Being complied. Environmental Monitoring to access the quality of treated effluents from STP, Ambient Air quality, Noise level are being monitored through NABL accredited laboratory M/s Pollucon Laboratories Pvt Ltd. Regularly and confirming the standards. CAAQMS Installed & commissioned from 02 nd Feb-2016.

ANNEXURE - 1



Environmental Auditors, Consultants & Analysts.
Cleaner Production / Waste Minimization Facilitator

Recognised by MoEF, New Delhi Under Sec. 12 of Environmental (Protection) Act-1986

TEST CERTIFICATE FOR SEA SEDIMENT

Location Number	: 1		
Name of Location	: Near Moving Dolphin	Longitude	: N 15° 24.748'
Type of Sample	: Sediment Sample	Latitude	: E 073° 47.938'
Sampling Date	: 09/10/2015	Quantity/No. of Sample	: 10 Kg/One
Sample Receipt Date	: 13/10/2015	Lab ID	: AG/1510/03
Date of Starting of Test	: 13/10/2015	Date of Completion	: 28/10/2015

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	TEST/SAMPLING METHOD
			SEDIMENT	
1	Organic Matter	%	0.909	FCO: 2006
2	Phosphorus as P	mg/kg	168	APHA(22 nd Edi) 4500 C
3	Texture	--	Sandy	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	PLPL-TPH
5	Heavy Metals			
5.1	Aluminum as Al	%	4.49	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	0.413	AAS 3111B
5.3	Manganese as Mn	mg/kg	706	AAS APHA 3111 B
5.4	Iron as Fe	%	1.91	AAS APHA(22 nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	32.64	AAS APHA(22 nd Edi)3111 B
5.6	Copper as Cu	mg/kg	49.22	AAS APHA(22 nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	52.78	AAS APHA(22 nd Edi)3111 B
5.8	Lead as Pb	mg/kg	0.814	AAS APHA(22 nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	AAS APHA- 3112 B
6	Benthic Organisms			
6.1	Macrobenthos (No and name of groups present, No and name of species of each group present)	--	Echinoderms	APHA (22 nd Edi) 10500-C
			Decapods	
			Mysids	
			Chaetognaths	
6.2	MeioBenthos (No and name of groups present, No and name of species of each group present)	--	Hydrozoa	APHA (22 nd Edi) 10500-C
			Copepods	
			Foraminiferans	
6.3	Population	no/m ²	440	APHA (22 nd Edi) 10500-C

Note: BDL*: Below Detection Limit, Minimum Detection Limit, Mercury as Hg: 0.00025 mg/L, Petroleum Hydrocarbon: 5 mg/kg

Authorized Signatory



POLLUCON LABORATORIES PVT. LTD.

Environmental Auditors, Consultants & Analysts.
Cleaner Production / Waste Minimization Facilitator

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AMBIENT AIR QUALITY MONITORING TEST CERTIFICATE

Authorized Signatory



Environmental Auditors, Consultants & Analysts.
Cleaner Production / Waste Minimization Facilitator

Recognised by MoEF, New Delhi Under Sec. 12 of Environmental (Protection) Act-1986

TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number	: 1		
Name of Location	: Fire Station	Longitude	: N 15° 24.523'
Type of Sample	: Ambient Air Quality Monitoring	Latitude	: E 073° 47.800'
Sampling Duration	: 24 Hrs.		

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLING METHOD
		01/10/ 2015	05/10/ 2015	08/10/ 2015	12/10/ 2015	15/10/ 2015	19/10/ 2015	22/10/ 2015	26/10/ 2015	29/10/ 2015		
Lab ID (AGA/1510) [A - H]		1	4	7	10	13	16	19	22	25		
Particulate Matter (PM ₁₀)	µg/m ³	93.71	68.60	91.49	81.58	95.49	64.51	77.81	86.71	72.62	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	51.11	36.33	48.58	43.51	54.30	30.41	42.66	47.31	40.55	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.49	0.36	0.19	0.30	0.46	0.40	0.29	0.52	0.44	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	40.44	35.52	42.69	28.68	38.45	30.63	46.60	36.50	24.70	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	15.48	18.35	20.50	16.56	19.55	12.32	21.39	13.68	17.39	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	33.48	28.47	30.53	39.31	31.18	22.08	34.64	27.28	25.02	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) ^{\$}	µg/m ³	18.51	27.08	21.68	25.63	22.29	28.27	23.53	29.32	26.64	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2

Authorized Signatory

544, Belgium Towers, Ring Road, Opp. Linear Bus Stand, SURAT-395003. (Guj.). Tele-Fax: (0261)2455751, 2601106, 2601224.

E-Mail: pollucon@gmail.com. Website: www.pollucon.com



Environmental Auditors, Consultants & Analysts.
Cleaner Production / Waste Minimization Facilitator

Recognised by MoEF, New Delhi Under Sec. 12 of Environmental (Protection) Act-1986

TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number	: 2		
Name of Location	: Near Security Tower	Longitude	: N 15° 24.438'
Type of Sample	: Ambient Air Quality Monitoring	Latitude	: E 073° 47.967'
Sampling Duration	: 24 Hrs.		

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLING METHOD
		01/10/ 2015	05/10/ 2015	08/10/ 2015	12/10/ 2015	15/10/ 2015	19/10/ 2015	22/10/ 2015	26/10/ 2015	29/10/ 2015		
Lab ID (AGA/1510) [A - H]		2	5	8	11	14	17	20	23	26		
Particulate Matter (PM ₁₀)	µg/m ³	86.53	75.52	80.52	73.60	89.52	58.68	85.66	68.50	79.42	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	39.18	42.26	33.20	38.23	48.62	24.70	49.59	37.51	35.35	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.45	0.31	0.32	0.24	0.53	0.21	0.48	0.25	0.38	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	34.52	17.57	32.36	22.12	29.28	18.54	38.71	30.51	19.52	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	17.48	13.73	19.52	11.68	14.45	8.62	16.60	15.63	22.42	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	37.61	33.88	24.75	31.60	38.44	32.51	28.63	30.46	34.45	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [§]	µg/m ³	28.19	22.50	25.40	23.44	20.40	26.63	27.49	21.56	24.36	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number	: 3		
Name of Location	: Sada Village	Longitude	: N 15° 24.755'
Type of Sample	: Ambient Air Quality Monitoring	Latitude	: E 073° 47.942'
Sampling Duration	: 24 Hrs.		

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLING METHOD
		01/10/ 2015	05/10/ 2015	08/10/ 2015	12/10/ 2015	15/10/ 2015	19/10/ 2015	22/10/ 2015	26/10/ 2015	29/10/ 2015		
Lab ID (AGA/1510) [A - H]		3	6	9	12	15	18	21	24	27		
Particulate Matter (PM ₁₀)	µg/m ³	77.22	56.51	72.39	64.50	76.40	52.59	70.62	80.40	58.42	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	31.83	18.60	27.70	35.56	39.69	20.67	38.45	42.58	22.33	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.37	0.22	0.14	0.17	0.39	0.13	0.34	0.23	0.33	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	27.68	14.33	24.42	16.04	23.75	11.72	26.37	18.51	12.34	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	13.38	8.70	17.46	6.56	11.45	5.70	10.67	7.46	14.62	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	29.57	25.74	17.31	21.58	24.55	16.56	22.50	18.50	15.53	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [§]	µg/m ³	22.38	20.38	17.64	21.48	18.58	23.49	19.42	26.31	28.49	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2

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NOISE MONITORING TEST CERTIFICATE

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TEST CERTIFICATE FOR NOISE MONITORING

Type of Sample	: Noise Monitoring	Test Method	: IS:11702
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Day Time Monitoring Report

Sampling Time	Fire Station	Near Security Tower	Sada Village	Adani Site Office Near Gate No.02
Longitude	N 15° 24.523'	N 15° 24.438'	N 15° 24.755'	N 15° 24.607'
Latitude	E 073° 47.800'	E 073° 47.967'	E 073° 47.942'	E 073° 47.819'
Date of Monitoring	11/11/2015	14/11/2015	17/11/2015	20/11/2015
6:00-7:00	40.2	45.8	42.8	43.3
7:00-8:00	45.4	42.6	42.4	44.2
8:00-9:00	43.1	46.7	44.3	45.6
9:00-10:00	43.8	50.6	46.6	52.3
10:00-11:00	44.9	51.6	48.5	56.4
11:00-12:00	46.5	48.2	50.8	47.2
12:00-13:00	52.8	45.9	51.7	50.4
13:00-14:00	52.2	44.1	49.6	55.8
14:00-15:00	51.8	43.6	47.9	40.3
15:00-16:00	50.3	42.0	48.8	45.3
16:00-17:00	44.7	49.5	49.0	45.0
17:00-18:00	47.8	47.3	44.0	52.0
18:00-19:00	47.5	46.2	45.7	48.0
19:00-20:00	44.8	50.0	48.3	47.7
20:00-21:00	44.6	48.1	46.3	45.1
21:00-22:00	45.2	43.7	51.3	46.0
Maximum	52.8	51.6	51.7	56.4
Minimum	40.2	42.0	42.4	40.3

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TEST CERTIFICATE FOR NOISE MONITORING

Type of Sample	: Noise Monitoring	Test Method	: IS:11702
----------------	--------------------	-------------	------------

Night Time Monitoring Report

Sampling Time	Fire Station	Near Security Tower	Sada Village	Adani Site Office Near Gate No.02
Longitude	N 15° 24.523'	N 15° 24.438'	N 15° 24.755'	N 15° 24.607'
Latitude	E 073° 47.800'	E 073° 47.967'	E 073° 47.942'	E 073° 47.819'
Date of Monitoring	11/11/2015 & 12/11/2015	14/11/2015 & 15/11/2015	17/11/2015 & 18/11/2015	20/11/2015 & 21/11/2015
22:00-23:00	43.7	45.2	48.4	44.3
23:00-00:00	44.1	51.0	46.3	45.0
00:00-01:00	42.2	48.1	44.4	48.2
01:00-02:00	40.9	42.6	43.6	45.3
02:00-03:00	45.7	48.7	42.7	48.0
03:00-04:00	46.2	45.9	45.1	48.3
04:00-05:00	44.2	43.8	42.5	43.3
05:00-06:00	44.7	42.9	42.8	44.0
Maximum	46.2	51.0	48.4	48.3
Minimum	40.9	42.6	42.5	43.3

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MONITORING OF SEWAGE WATER (INLET & OUTLET) MONTHLY TEST CERTIFICATE

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TEST CERTIFICATE FOR SEWAGE WATER

Location Number	: 1	Quantity/No. of Samples	: 02 Lit/Two
Name of Location	: Near MPT Quarter STP	Sampling Procedure	: Grab
Type of Sample	: Sewage Water	Lab ID	: AG/1511/01 & 02
Date of Sampling	: 20/11/2015	Date of Starting of Test	: 24/11/2015
Date of Sample Receipt	: 24/11/2015	Date of Completion	: 30/11/2015

RESULT TABLE

TEST PARAMETER	UNIT	RESULTS		TEST/SAMPLING METHOD
Sample Source		INLET	OUTLET	
pH	--	7.12	7.68	IS3025(P11)83Re.02
Total Suspended Solids	mg/L	95	28	IS3025(P17)84Re.02
BOD (3 Days @ 27 °C)	mg/L	44	19	IS3025 P44)1993Re.03Edition2.1
COD	mg/L	140	46	APHA(22 nd Edi) 5520-D Open Reflux
Oil & Grease	mg/L	1.9	BDL*	APHA(22 nd Edi)5520D
Residual Free Chlorine	mg/L	< 0.1	0.5	APHA(22 nd Edi)4500 Cl
Not: BDL*: Below Detection Limit: Minimum Detection Limit, Oil & Grease: 1.0 mg/L				

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MONITORING OF DUMP POND DISCHARGE QUARTERLY TEST CERTIFICATE

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TEST CERTIFICATE FOR DUMP POND DISCHARGE WATER

Location Number	: 1	Quantity/No. of Samples	: 05 Lit/One
Name of Location	: Dump Pond - 1 Near CT - 8	Sampling Procedure	: Grab
Type of Sample	: Dump Pond Discharge water	Lab ID	: AG/1511/06
Date of Sampling	: 21/11/2015	Date of Starting of Test	: 25/11/2015
Sample Receipt Date	: 25/11/2015	Date of Completion	: 02/12/2015

RESULT TABLE

TEST PARAMETER	UNIT	RESULTS	TEST/SAMPLING METHOD
pH	--	7.22	IS3025(P11)83Re.02
Total Dissolved Solids	mg/L	210	IS3025(P16)84Re.02
Total Suspended Solids	mg/L	10	IS3025(P17)84Re.02
Turbidity	NTU	10.76	APHA 2130-B
BOD (3 Days @ 27 °C)	mg/L	66	IS 3025 (P44)1993 Re.03Edition2.1
Dissolved Oxygen	mg/L	4.8	IS3025(P38)89Re.99
COD	mg/L	274	APHA(22 nd Edi) 5520-D Open Reflux
Salinity	ppt	0.077	APHA 2550 B
Oil & Grease	mg/L	BDL*	APHA(22 nd Edi)5520D
Total Hardness as CaCO ₃	mg/L	114	IS3025(P-21) 84EDTARE.02
Fluoride as F	mg/L	0.42	APHA(22 nd Edi) 4500 F D SPANDS
Chloride as Cl	mg/L	42.99	IS3025(P-32) 88Re.99Argentometric method
Zinc as Zn	mg/L	0.050	AAS- APHA (22ndEdition) 3111 B
Cadmium as Cd	mg/L	BDL*	AAS- APHA (22nd Edition) 3111 B
Lead as Pb	mg/L	0.021	AAS- APHA (22nd Edition) 3111 B
Mercury as Hg	mg/L	BDL*	AAS-APHA 22 Edition 3112 B

Note: BDL*: Below Detection Limit, Minimum Detection Limit, Cadmium as Cd: 0.001 mg/L, Mercury as Hg: 0.00025 mg/L

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TEST CERTIFICATE FOR DUMP POND DISCHARGE WATER

Location Number	: 2	Quantity/No. of Samples	: 05 Lit/One
Name of Location	: Dump Pond - 2 Near Pump House	Sampling Procedure	: Grab
Type of Sample	: Dump Pond Discharge water	Lab ID	: AG/1511/07
Date of Sampling	: 21/11/2015	Date of Starting of Test	: 25/11/2015
Sample Receipt Date	: 25/11/2015	Date of Completion	: 02/12/2015

RESULT TABLE

TEST PARAMETER	UNIT	RESULTS	TEST/SAMPLING METHOD
pH	--	7.08	IS3025(P11)83Re.02
Total Dissolved Solids	mg/L	380	IS3025(P16)84Re.02
Total Suspended Solids	mg/L	8	IS3025(P17)84Re.02
Turbidity	NTU	4.86	APHA 2130-B
BOD (3 Days @ 27 °C)	mg/L	28	IS 3025 (P44)1993 Re.03Edition2.1
Dissolved Oxygen	mg/L	4.6	IS3025(P38)89Re.99
COD	mg/L	114	APHA(22 nd Edition) 5520-D Open Reflux
Salinity	ppt	0.099	APHA 2550 B
Oil & Grease	mg/L	BDL*	APHA(22 nd Edition)5520D
Total Hardness as CaCO ₃	mg/L	152	IS3025(P-21) 84EDTARe.02
Fluoride as F	mg/L	0.63	APHA(22 nd Edition) 4500 F D SPANDS
Chloride as Cl	mg/L	54.99	IS3025(P-32) 88Re.99Argentometric method
Zinc as Zn	mg/L	0.030	AAS- APHA (22 nd Edition) 3111 B
Cadmium as Cd	mg/L	BDL*	AAS- APHA (22 nd Edition) 3111 B
Lead as Pb	mg/L	0.029	AAS- APHA (22 nd Edition) 3111 B
Mercury as Hg	mg/L	BDL*	AAS-APHA 22 Edition 3112 B

Note: BDL*: Below Detection Limit, Minimum Detection Limit, Cadmium as Cd: 0.001 mg/L, Mercury as Hg: 0.00025 mg/L, Oil & Grease: 1.0 mg/L

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Movement Type : 201 - GI for cost center				Contractor Code :				
Plant : 2601 - AMPTPL-MURMUGAO-OPERATIONS				Contractor Name :				
Cost Center : AM2652010 - AMPTPL-ES-COMMON				Order No. :				
Fund Center : X				Goods Recipient / SO NO : 7H O&M				
WBS Element :				Unloading Point : 7H Mechanical				
Project Name :				Cost Center (Location) : .				
Asset Number : -								
SrNo.	Item Code Legacy Code/MRP Type MRP Cont/Reqmt.Dt.	Description Part No Remarks / Long Text	UM D/C	Requested Qty Batch No	Issued Qty	Bal.Qty	S_Loc S_Bin	Stock Project Stock
0001	8705650103 /ND / 14.05.2016	FUEL,DIESEL For LOCO Railway Engine.	L H	1,000.000	0.000	1,000.000	CS01 CSBACKSHED	600.000 0.000

Requested by
Gajanan Banavalikar

Approved by

Issued by

Authorized by



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"ENVIRONMENTAL MONITORING REPORT"

FOR

adaniTM

**ADANI MURMUGAO PORT TERMINAL PVT. LTD. (AMPTPL)
GROUND FLOOR, PORT USERS COMPLEX,
NEAR STATE BANK OF INDIA,
MORMUGAO HARBOUR,
GOA – 403 803, INDIA
TEL NO. 832-2594253**

DECEMBER 2015

PREPARED BY:

Pollucon

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GOA – 403 803, INDIA
TEL NO. 832-2594253**

For and on behalf of Pollucon Laboratories Pvt. Ltd., Surat

Approved by : Dr. Arun Kumar Bajpai

Signed

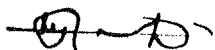
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Designation

: Lab Manager (Q)



This report is prepared by Pollucon laboratories Pvt. Ltd. with all reasonable skills, care and diligence, incorporating our General Terms and Conditions of Business and taking account of the resources devoted. Name of the sampling location / sample identity details – provided by client itself.



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INDEX

SR. NO.	TITLE	PAGE NO.
1	MARINE ECOLOGICAL SURVEY	4
A	SEA WATER TEST CERTIFICATE	5
B	SEDIMENT TEST CERTIFICATE	7
2	AMBIENT AIR QUALITY MONITORING TEST CERTIFICATE	8
3	NOISE MONITORING TEST CERTIFICATE	12
4	MONITORING OF SEWAGE WATER (INLET & OUTLET) TEST CERTIFICATE	15
5	SOIL QUALITY MONITORING TEST CERTIFICATE	17

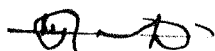
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MARINE ECOLOGICAL SURVEY

A. SEA WATER ANALYSIS

&

B. SEDIMENT ANALYSIS



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TEST CERTIFICATE FOR SEA WATER

Page: 1 of 2

Location Number	: 1	Longitude	: N 15° 24.748'
Name of Location	: Near Moving Dolphin	Latitude	: E 073° 47.938'
Type of Sample	: Marine Water Sample	Quantity/No. of Sample	: 10 Lit/Two
Sampling Date	: 08/12/2015	Lab ID	: AG/1512/01 & 02
Sample Receipt Date	: 11/12/2015	Date of Completion	: 31/12/2015
Date of Starting of Test	: 11/12/2015		

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT		TEST/SAMPLING METHOD
			SURFACE	BOTTOM	
1	pH	--	7.93	8.08	IS3025 (P11)83Re.02
2	Temperature	°C	28	29	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	66	78	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	IS 3025 (P44)1993 Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.6	4.4	IS3025(P38)89Re.99
6	Salinity	ppt	43.2	44.1	APHA 2550 B
7	Oil & Grease	mg/L	0.4	BDL*	APHA(22 nd Edi)5520D
8	Nitrate as NO ₃	mg/L	0.58	0.73	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.08	0.06	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.55	0.79	IS3025(P34)88Cla.2.3
11	Phosphates as PO ₄	mg/L	1.98	2.20	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	1.21	1.58	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	0.6	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	44280	45620	IS3025(P16)84Re.02
15	COD	mg/L	24	19	APHA(22 nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.71	0.43	SOP – PLPL - 06
A	Flora and Fauna				
17.1	Primary Productivity	mgC/L/day	1.463	0.225	APHA (22 nd Edi) 10200-J
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TEST CERTIFICATE FOR SEA WATER

Page: 2 of 2

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT		TEST/SAMPLING METHOD
			SURFACE	BOTTOM	
B	Phytoplankton				
18.1	Chlorophyll	mg/m ³	2.27	0.614	APHA (22 nd Edi) 10200-H
18.2	Phaeophytin	mg/m ³	BDL*	1.27	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	201	32	APHA (22 nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae <i>Asterionella sp.</i> <i>Navicula sp.</i> <i>Coscinodiscus sp.</i> <i>Nitzschia sp.</i> <i>Rhizosolenia sp.</i> <i>Thalassionema sp.</i> <i>Skeletonema sp.</i> Green Algae <i>Chlorella sp.</i> <i>Spirogyra sp.</i> <i>Scenedesmus sp.</i> Cyanophyceae <i>Oscillatoria sp.</i> <i>Anabaena sp.</i> <i>Microcystis sp.</i>	Bacillariophyceae <i>Synedra sp.</i> <i>Navicula sp.</i> <i>Fragillaria sp.</i> <i>Pinnularia sp.</i> <i>Nitzschia sp.</i> Green Algae <i>Chlorella sp.</i> Cyanophyceae <i>Oscillatoria sp.</i> <i>Spirulina sp.</i> -- -- -- --	APHA (22 nd Edi) 10200-H
C	Zooplanktons				
19.1	Abundance (Population)	no/m ²	150	63	APHA (22 nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	Polychaete worms Isopods Bryozoans Decapods Crustaceans Molluscans Cyclops	Isopods Decapods Crustaceans -- -- --	APHA (22 nd Edi) 10200-G
19.3	Total Biomass	ml/100 m ³	96.3	5.7	APHA (22 nd Edi) 10200-G
D	Microbiological Parameters				
20.1	Total Bacterial Count	CFU/ml	1580	1320	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	APHA(22ndEdi)9221-D
20.3	E.coli	/ml	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)
20.4	Enterococcus species	/ml	Absent	Absent	IS:15186:2002
20.5	Salmonella species	/ml	Absent	Absent	IS:5887(P-3)
20.6	Shigella species	/ml	Absent	Absent	IS:1887(P-7)
20.7	Vibrio species	/ml	Absent	Absent	IS:5887(P-5)

Note: BDL*: Below Detection Limit, Minimum Detection Limit, BOD: 10 mg/L, Oil & Grease: 1.0 mg/L, Petroleum Hydrocarbon: 10 µg/L



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TEST CERTIFICATE FOR SEA SEDIMENT

Location Number	: 1	Longitude	: N 15° 24.748'
Name of Location	: Near Moving Dolphin	Latitude	: E 073° 47.938'
Type of Sample	: Sediment Sample	Quantity/No. of Sample	: 10 Kg/One
Sampling Date	: 08/12/2015	Lab ID	: AG/1512/03
Sample Receipt Date	: 11/12/2015	Date of Completion	: 31/12/2015
Date of Starting of Test	: 11/12/2015		

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	TEST/SAMPLING METHOD
			SEDIMENT	
1	Organic Matter	%	0.54	FCO: 2006
2	Phosphorus as P	mg/kg	146	APHA(22 nd Edi) 4500 C
3	Texture	--	Sandy	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	PLPL-TPH
5	Heavy Metals			
5.1	Aluminum as Al	%	5.28	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	0.397	AAS 3111B
5.3	Manganese as Mn	mg/kg	696	AAS APHA 3111 B
5.4	Iron as Fe	%	2.06	AAS APHA(22 nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	30.34	AAS APHA(22 nd Edi)3111 B
5.6	Copper as Cu	mg/kg	52.04	AAS APHA(22 nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	58.49	AAS APHA(22 nd Edi)3111 B
5.8	Lead as Pb	mg/kg	0.885	AAS APHA(22 nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	AAS APHA- 3112 B
6	Benthic Organisms			
6.1	Macrobenthos (No and name of groups present, No and name of species of each group present)	--	Isopods	APHA (22 nd Edi) 10500-C
			Decapods	
			Mysids	
			Ostracods	
6.2	MeioBenthos (No and name of groups present, No and name of species of each group present)	--	Nematodes	APHA (22 nd Edi) 10500-C
			Foraminiferans	
6.3	Population	no/m ²	337	APHA (22 nd Edi) 10500-C

Note: BDL*: Below Detection Limit, Minimum Detection Limit, Mercury as Hg: 0.00025 mg/L, Petroleum Hydrocarbon: 5 mg/kg

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AMBIENT AIR QUALITY MONITORING TEST CERTIFICATE

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number	: 1		
Name of Location	: Fire Station	Longitude	: N 15° 24.523'
Type of Sample	: Ambient Air Quality Monitoring	Latitude	: E 073° 47.800'
Sampling Duration	: 24 Hrs.		

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLING METHOD
		03/12/ 2015	07/12/ 2015	10/12/ 2015	14/12/ 2015	17/12/ 2015	21/12/ 2015	24/12/ 2015	28/12/ 2015	31/12/ 2015		
Lab ID (AGA/1512) [A - H]		1	4	7	10	13	16	19	22	25		
Particulate Matter (PM ₁₀)	µg/m ³	85.18	98.52	122	106	84.50	94.60	82.27	97.79	86.81	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	36.75	52.38	66.32	58.29	53.45	46.04	39.71	56.60	41.40	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	BDL*	0.64	BDL*	BDL*	0.58	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	BDL*	10.82	BDL*	BDL*	11.27	BDL*	BDL*	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.40	0.63	0.55	0.32	0.53	0.61	0.46	0.71	0.37	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	46.62	27.70	37.15	29.33	44.64	35.85	26.40	27.37	41.37	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	11.45	20.67	12.67	19.75	15.59	18.36	13.53	14.40	21.75	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	27.56	21.61	34.15	30.47	36.31	33.39	40.20	31.14	29.32	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [§]	µg/m ³	24.61	22.44	25.47	28.43	26.82	23.15	29.60	30.35	27.21	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number : 2
Name of Location : Near Security Tower Longitude : N 15° 24.438'
Type of Sample : Ambient Air Quality Monitoring Latitude : E 073° 47.967'
Sampling Duration : 24 Hrs.

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLING METHOD
		03/12/ 2015	07/12/ 2015	10/12/ 2015	14/12/ 2015	17/12/ 2015	21/12/ 2015	24/12/ 2015	28/12/ 2015	31/12/ 2015		
Lab ID (AGA/1512) [A - H]		2	5	8	11	14	17	20	23	26		
Particulate Matter (PM ₁₀)	µg/m ³	70.48	90.08	84.54	98.82	77.56	85.53	71.90	89.72	76.50	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	31.51	46.57	47.43	56.52	43.64	39.60	34.49	48.72	36.62	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	BDL*	0.56	BDL*	BDL*	0.52	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	BDL*	10.20	BDL*	BDL*	10.17	BDL*	BDL*	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.22	0.56	0.24	0.47	0.45	0.42	0.31	0.68	0.29	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	40.37	21.57	16.33	34.16	38.71	27.33	18.54	22.81	30.90	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	14.43	17.72	11.76	16.40	13.47	12.71	18.63	9.43	15.68	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	31.39	36.57	30.52	39.38	30.53	28.59	35.71	38.41	25.57	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [§]	µg/m ³	27.46	25.53	26.53	23.52	29.45	20.23	24.27	28.51	30.04	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2**Authorized Signatory**

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number : 3
Name of Location : Sada Village Longitude : N 15° 24.755'
Type of Sample : Ambient Air Quality Monitoring Latitude : E 073° 47.942'
Sampling Duration : 24 Hrs.

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLING METHOD
		03/12/ 2015	07/12/ 2015	10/12/ 2015	14/12/ 2015	17/12/ 2015	21/12/ 2015	24/12/ 2015	28/12/ 2015	31/12/ 2015		
Lab ID (AGA/1512) [A - H]		3	6	9	12	15	18	21	24	27		
Particulate Matter (PM ₁₀)	µg/m ³	78.98	62.70	77.12	59.20	69.41	73.78	56.81	82.62	67.30	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	27.70	35.56	38.45	28.94	25.63	34.32	21.50	39.69	31.42	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.14	0.44	0.30	0.17	0.33	0.34	0.23	0.41	0.16	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	31.58	15.95	26.37	19.43	24.99	22.83	12.37	16.66	18.82	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	5.39	10.33	8.66	14.36	9.53	7.44	11.57	6.56	13.77	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	18.57	15.55	30.89	26.35	23.48	25.70	31.53	27.81	22.57	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [§]	µg/m ³	22.50	19.62	17.72	20.15	24.22	18.59	21.41	25.19	23.58	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2**Authorized Signatory**

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NOISE MONITORING TEST CERTIFICATE

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TEST CERTIFICATE FOR NOISE MONITORING

Type of Sample	: Noise Monitoring	Test Method	: IS:11702
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Day Time Monitoring Report

Sampling Time	Fire Station	Near Security Tower	Sada Village	Adani Site Office Near Gate No.02
Longitude	N 15° 24.523'	N 15° 24.438'	N 15° 24.755'	N 15° 24.607'
Latitude	E 073° 47.800'	E 073° 47.967'	E 073° 47.942'	E 073° 47.819'
Date of Monitoring	26/12/2015	18/12/2015	12/12/2015	15/12/2015
6:00-7:00	45.1	42.0	44.6	50.1
7:00-8:00	42.7	45.9	45.2	48.2
8:00-9:00	44.3	42.6	43.5	47.8
9:00-10:00	45.4	48.3	46.6	44.2
10:00-11:00	48.0	51.3	45.3	50.4
11:00-12:00	50.2	46.5	48.9	52.5
12:00-13:00	42.2	47.0	45.6	48.4
13:00-14:00	46.1	49.4	44.4	46.4
14:00-15:00	48.6	50.5	46.3	47.2
15:00-16:00	52.7	48.4	45.7	54.2
16:00-17:00	56.8	49.2	43.6	50.9
17:00-18:00	53.2	44.9	47.7	49.0
18:00-19:00	48.7	45.0	52.4	53.5
19:00-20:00	49.6	46.2	49.5	48.8
20:00-21:00	46.7	51.1	50.7	55.2
21:00-22:00	43.8	48.1	51.6	53.6
Maximum	56.8	51.3	52.4	55.2
Minimum	42.2	42.0	43.5	44.2

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TEST CERTIFICATE FOR NOISE MONITORING

Type of Sample	: Noise Monitoring	Test Method	: IS:11702
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Night Time Monitoring Report

Sampling Time	Fire Station	Near Security Tower	Sada Village	Adani Site Office Near Gate No.02
Longitude	N 15° 24.523'	N 15° 24.438'	N 15° 24.755'	N 15° 24.607'
Latitude	E 073° 47.800'	E 073° 47.967'	E 073° 47.942'	E 073° 47.819'
Date of Monitoring	26/12/2015 & 27/12/2015	18/12/2015 & 19/12/2015	12/12/2015 & 13/12/2015	15/12/2015 & 16/12/2015
22:00-23:00	40.6	42.4	46.6	50.6
23:00-00:00	38.5	40.3	48.7	48.8
00:00-01:00	38.4	39.3	48.2	41.6
01:00-02:00	40.7	38.2	47.4	37.2
02:00-03:00	42.7	40.9	46.3	40.8
03:00-04:00	43.5	41.7	45.5	39.5
04:00-05:00	42.5	42.2	44.4	40.4
05:00-06:00	45.6	42.8	43.2	48.6
Maximum	45.6	42.8	48.7	50.6
Minimum	38.4	38.2	43.2	37.2

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MONITORING OF SEWAGE WATER (INLET & OUTLET) MONTHLY TEST CERTIFICATE

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TEST CERTIFICATE FOR SEWAGE WATER

Location Number	: 1	Quantity/No. of Samples	: 02 Lit/Two
Name of Location	: Near MPT Quarter STP	Sampling Procedure	: Grab
Type of Sample	: Sewage Water	Lab ID	: AG/1512/04 & 05
Date of Sampling	: 09/12/2015	Date of Starting of Test	: 12/12/2015
Date of Sample Receipt	: 12/12/2015	Date of Completion	: 18/12/2015

RESULT TABLE

RESULT TABLE

TEST PARAMETER	UNIT	RESULTS		TEST/SAMPLING METHOD
		INLET	OUTLET	
Sample Source				
pH	--	6.98	7.55	IS3025(P11)83Re.02
Total Suspended Solids	mg/L	110	26	IS3025(P17)84Re.02
BOD (3 Days @ 27 °C)	mg/L	48	12	IS3025 P44)1993Re.03Edition2.1
COD	mg/L	173	51	APHA(22 nd Edi) 5520-D Open Reflux
Oil & Grease	mg/L	1.6	BDL*	APHA(22 nd Edi)5520D
Residual Free Chlorine	mg/L	< 0.1	0.7	APHA(22 nd Edi)4500 Cl
Not: BDL*: Below Detection Limit: Minimum Detection Limit, Oil & Grease: 1.0 mg/L				

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SOIL QUALITY MONITORING QUARTERLY TEST CERTIFICATE

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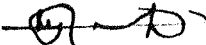
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TEST CERTIFICATE FOR SOIL

Location Number	: 1	Quantity/No. of Samples	: 05 Kg/One
Name of Location	: Near CT-1	Sampling Procedure	: Grab
Longitude	: N 15° 24.448'	Latitude	: E 073° 47.587'
Type of Sample	: Soil Sample	Lab ID	: AG/1512/11
Date of Sampling	: 28/12/2015	Date of Starting of Test	: 01/01/2016
Sample Receipt Date	: 01/01/2016	Date of Completion	: 12/01/2016

RESULT TABLE

TEST PARAMETER	UNIT	RESULTS
Type	--	Brown
Gravel	%	0.6
Coarse Sand	%	2.6
Medium Sand	%	10
Fine Sand	%	15
Total Sand	%	36.2
Silt & Clay	%	64.8
pH (1:5)	--	8.63
Electricity Conductivity	µmho/cm	458
Alkali matter	mg/kg	636
Cation Exchange Capacity	meq/100 gm	7.44
Sodium Absorption Ratio	--	13.15
Organic Matter	mg/kg	0.30
Available Nitrogen	meq/100 gm	0.348
Available Potassium	mg/kg	3.14
Available Phosphorus	mg/kg	0.164
Available Sodium	%	0.96
Permeability	%	0.56


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TEST CERTIFICATE FOR SOIL

Location Number	: 2	Quantity/No. of Samples	: 05 Kg/One
Name of Location	: Near Adani Site	Sampling Procedure	: Grab
Longitude	: N 15° 24.613'	Latitude	: E 073° 47.848'
Type of Sample	: Soil Sample	Lab ID	: AG/1512/12
Date of Sampling	: 28/12/2015	Date of Starting of Test	: 01/01/2016
Sample Receipt Date	: 01/01/2016	Date of Completion	: 12/01/2016

RESULT TABLE

TEST PARAMETER	UNIT	RESULTS
Type	--	Brown
Gravel	%	0.7
Coarse Sand	%	3.2
Medium Sand	%	13
Fine Sand	%	20
Total Sand	%	30.6
Silt & Clay	%	68.2
pH (1:5)	--	8.91
Electricity Conductivity	µmho/cm	478
Alkali matter	mg/kg	662
Cation Exchange Capacity	meq/100 gm	7.72
Sodium Absorption Ratio	--	14.93
Organic Matter	mg/kg	0.36
Available Nitrogen	meq/100 gm	0.334
Available Potassium	mg/kg	3.22
Available Phosphorus	mg/kg	0.170
Available Sodium	%	0.97
Permeability	%	0.63

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"ENVIRONMENTAL MONITORING REPORT"

FOR

adaniTM

**ADANI MURMUGAO PORT TERMINAL PVT. LTD. (AMPTPL)
GROUND FLOOR, PORT USERS COMPLEX,
NEAR STATE BANK OF INDIA,
MORMUGAO HARBOUR,
GOA – 403 803, INDIA
TEL NO. 832-2594253**

JANUARY 2016

PREPARED BY:

Pollucon

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ISO 14001:2004

OHSAS 18001:2007

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GOA – 403 803, INDIA
TEL NO. 832-2594253**

For and on behalf of Pollucon Laboratories Pvt. Ltd., Surat

Approved by : Dr. Arun Kumar Bajpai

Signed

: 

Designation

: Lab Manager (Q)



This report is prepared by Pollucon laboratories Pvt. Ltd. with all reasonable skills, care and diligence, incorporating our General Terms and Conditions of Business and taking account of the resources devoted. Name of the sampling location / sample identity details – provided by client itself.



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SR. NO.	TITLE	PAGE NO.
1	MARINE ECOLOGICAL SURVEY	4
A	SEA WATER TEST CERTIFICATE	5
B	SEDIMENT TEST CERTIFICATE	7
2	AMBIENT AIR QUALITY MONITORING TEST CERTIFICATE	8
3	NOISE MONITORING TEST CERTIFICATE	12
4	MONITORING OF SEWAGE WATER (INLET & OUTLET) TEST CERTIFICATE	15
5	WEATHER DATA TEST CERTIFICATE	17

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MARINE ECOLOGICAL SURVEY

A. SEA WATER ANALYSIS

&

B. SEDIMENT ANALYSIS

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TEST CERTIFICATE FOR SEA WATER

Page: 1 of 2

Location Number	: 1	Longitude	: N 15° 24.748'
Name of Location	: Near Moving Dolphin	Latitude	: E 073° 47.938'
Type of Sample	: Marine Water Sample	Quantity/No. of Sample	: 10 Lit/Two
Sampling Date	: 12/01/2016	Lab ID	: AG/1601/01 & 02
Sample Receipt Date	: 16/01/2016	Date of Completion	: 28/01/2016
Date of Starting of Test	: 16/01/2016		

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT		TEST/SAMPLING METHOD
			SURFACE	BOTTOM	
1	pH	--	7.56	7.66	IS3025 (P11)83Re.02
2	Temperature	°C	28	29	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	72	84	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	IS 3025 (P44)1993 Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.6	4.8	IS3025(P38)89Re.99
6	Salinity	ppt	39.8	40.6	APHA 2550 B
7	Oil & Grease	mg/L	0.6	BDL*	APHA(22 nd Edi)5520D
8	Nitrate as NO ₃	mg/L	0.44	0.65	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.038	0.049	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.30	0.40	IS3025(P34)88Cla.2.3
11	Phosphates as PO ₄	mg/L	0.99	1.08	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	0.778	1.099	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	BDL*	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	45536	47150	IS3025(P16)84Re.02
15	COD	mg/L	19	14	APHA(22 nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.68	0.34	SOP – PLPL - 06
A	Flora and Fauna				
17.1	Primary Productivity	mgC/L/day	2.25	0.675	APHA (22 nd Edi) 10200-J
Continue...					

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TEST CERTIFICATE FOR SEA WATER

Page: 2 of 2

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT		TEST/SAMPLING METHOD
			SURFACE	BOTTOM	
B	Phytoplankton				
18.1	Chlorophyll	mg/m ³	2.93	0.72	APHA (22 nd Edi) 10200-H
18.2	Phaeophytin	mg/m ³	BDL*	1.16	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	222	62	APHA (22 nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae	Bacillariophyceae	APHA (22 nd Edi) 10200-H
			<i>Asterionella sp.</i>	<i>Fragillaria sp.</i>	
			<i>Coscinodiscus sp.</i>	<i>Navicula sp.</i>	
			<i>Gyrosigma sp.</i>	<i>Nitzschia sp.</i>	
			<i>Pinnularia sp.</i>	<i>Coscinodiscus sp.</i>	
			<i>Cyclotella sp.</i>	Green Algae	
			<i>Nitzschia sp.</i>	<i>Chlorella sp.</i>	
			<i>Synedra sp.</i>	<i>Pediastrum sp.</i>	
			Green Algae	Cyanophyceae	
			<i>Spirogyra sp.</i>	<i>Oscillatoria sp.</i>	
			<i>Chlorella sp.</i>	--	
			<i>Pandorina sp.</i>	--	
			Cyanophyceae	--	
			<i>Oscillatoria sp.</i>	--	
			<i>Spirulina sp.</i>	--	
C	Zooplanktons				
19.1	Abundance (Population)	no/m ²	190	60	APHA (22 nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	Molluscans	Gastropods	APHA (22 nd Edi) 10200-G
			Decapods	Isopods	
			Echinoderms	Foraminiferans	
			Mysids	--	
			Gastropods	--	
			Ostracods	--	
19.3	Total Biomass	ml/100 m ³	103	25.2	APHA (22 nd Edi) 10200-G
D	Microbiological Parameters				
20.1	Total Bacterial Count	CFU/ml	1240	1060	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	APHA(22ndEdi)9221-D
20.3	E.coli	/ml	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)
20.4	Enterococcus species	/ml	Absent	Absent	IS:15186:2002
20.5	Salmonella species	/ml	Absent	Absent	IS:5887(P-3)
20.6	Shigella species	/ml	Absent	Absent	IS:1887(P-7)
20.7	Vibrio species	/ml	Absent	Absent	IS:5887(P-5)
Note: BDL*: Below Detection Limit, Minimum Detection Limit, BOD: 10 mg/L, Oil & Grease: 1.0 mg/L, Petroleum Hydrocarbon: 10 µg/L					

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TEST CERTIFICATE FOR SEA SEDIMENT

Location Number	: 1		
Name of Location	: Near Moving Dolphin	Longitude	: N 15° 24.748'
Type of Sample	: Sediment Sample	Latitude	: E 073° 47.938'
Sampling Date	: 12/01/2016	Quantity/No. of Sample	: 10 Kg/One
Sample Receipt Date	: 16/01/2016	Lab ID	: AG/1601/03
Date of Starting of Test	: 16/01/2016	Date of Completion	: 28/01/2016

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	TEST/SAMPLING METHOD
			SEDIMENT	
1	Organic Matter	%	0.68	FCO: 2006
2	Phosphorus as P	mg/kg	200	APHA(22 nd Edi) 4500 C
3	Texture	--	Sandy	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	PLPL-TPH
5	Heavy Metals			
5.1	Aluminum as Al	%	4.86	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	0.40	AAS 3111B
5.3	Manganese as Mn	mg/kg	748	AAS APHA 3111 B
5.4	Iron as Fe	%	1.54	AAS APHA(22 nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	20.88	AAS APHA(22 nd Edi)3111 B
5.6	Copper as Cu	mg/kg	48.79	AAS APHA(22 nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	62.91	AAS APHA(22 nd Edi)3111 B
5.8	Lead as Pb	mg/kg	0.713	AAS APHA(22 nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	AAS APHA- 3112 B
6	Benthic Organisms			
6.1	Macrobenthos (No and name of groups present, No and name of species of each group present)	--	Polychaete worms	APHA (22 nd Edi) 10500-C
			Echinoderms	
			Isopods	
6.2	MeioBenthos (No and name of groups present, No and name of species of each group present)	--	Copepods	APHA (22 nd Edi) 10500-C
			Foraminiferans	
6.3	Population	no/m ²	377	APHA (22 nd Edi) 10500-C

Note: BDL*: Below Detection Limit, Minimum Detection Limit, Mercury as Hg: 0.00025 mg/L, Petroleum Hydrocarbon: 5 mg/kg

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AMBIENT AIR QUALITY MONITORING TEST CERTIFICATE

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number	: 1		
Name of Location	: Fire Station	Longitude	: N 15° 24.523'
Type of Sample	: Ambient Air Quality Monitoring	Latitude	: E 073° 47.800'
Sampling Duration	: 24 Hrs.		

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING								LIMIT #	TEST/SAMPLING METHOD
		04/01/ 2016	07/01/ 2016	11/01/ 2016	14/01/ 2016	18/01/ 2016	21/01/ 2016	25/01/ 2016	28/01/ 2016		
Lab ID (AGA/1601) [A - H]		1	4	7	10	13	16	19	22		
Particulate Matter (PM ₁₀)	µg/m ³	104	80.47	95.83	82.70	116	76.70	124	84.48	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	54.49	46.47	58.29	49.42	65.33	37.59	71.39	38.44	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	0.62	BDL*	0.54	BDL*	0.64	BDL*	0.69	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	2.14	BDL*	BDL*	BDL*	2.24	BDL*	2.46	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	10.52	BDL*	BDL*	BDL*	11.54	BDL*	10.83	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.27	0.36	0.55	0.45	0.54	0.39	0.47	0.31	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	25.62	38.78	23.14	37.47	29.33	20.86	41.38	55.72	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	21.37	12.70	24.51	17.41	20.34	14.70	10.49	23.50	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	33.39	30.37	38.44	31.25	36.42	41.52	29.32	39.55	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [§]	µg/m ³	29.38	25.88	23.99	28.33	24.21	30.15	26.68	27.57	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number	: 2		
Name of Location	: Near Security Tower	Longitude	: N 15° 24.438'
Type of Sample	: Ambient Air Quality Monitoring	Latitude	: E 073° 47.967'
Sampling Duration	: 24 Hrs.		

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING								LIMIT #	TEST/SAMPLING METHOD
		04/01/ 2016	07/01/ 2016	11/01/ 2016	14/01/ 2016	18/01/ 2016	21/01/ 2016	25/01/ 2016	28/01/ 2016		
Lab ID (AGA/1601) [A - H]		2	5	8	11	14	17	20	23		
Particulate Matter (PM ₁₀)	µg/m ³	78.69	69.48	58.40	65.59	82.58	54.60	92.53	63.32	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	26.46	22.74	32.66	23.98	44.65	20.67	39.69	28.94	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.15	0.11	0.38	0.29	0.30	0.19	0.25	0.14	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	16.28	27.35	13.68	21.28	19.43	10.49	31.58	26.84	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	15.73	5.71	11.36	14.42	8.59	12.61	6.44	16.74	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	28.94	17.60	23.59	26.35	31.53	21.54	18.58	24.62	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [‡]	µg/m ³	21.58	23.77	20.82	25.62	19.50	22.75	18.21	24.10	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number	: 3		
Name of Location	: Sada Village	Longitude	: N 15° 24.755'
Type of Sample	: Ambient Air Quality Monitoring	Latitude	: E 073° 47.942'
Sampling Duration	: 24 Hrs.		

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING								LIMIT #	TEST/SAMPLING METHOD
		04/01/ 2016	07/01/ 2016	11/01/ 2016	14/01/ 2016	18/01/ 2016	21/01/ 2016	25/01/ 2016	28/01/ 2016		
Lab ID (AGA/1601) [A - H]		3	6	9	12	15	18	21	24		
Particulate Matter (PM ₁₀)	µg/m ³	97.87	76.52	84.33	73.78	104	68.32	109	72.68	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	48.55	39.24	45.71	41.56	58.60	32.37	46.57	35.79	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	0.56	BDL*	BDL*	BDL*	0.57	BDL*	0.63	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	2.08	BDL*	2.12	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	10.12	BDL*	BDL*	BDL*	10.28	BDL*	10.78	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.40	0.18	0.48	0.33	0.37	0.26	0.21	0.24	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	29.28	33.59	18.80	44.57	23.75	15.94	48.80	37.29	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	18.71	15.64	21.50	24.72	17.58	22.56	13.60	20.45	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	40.35	35.60	29.56	38.49	26.30	30.64	37.54	32.45	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [§]	µg/m ³	24.82	29.90	26.20	23.44	21.18	25.67	28.32	30.18	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2

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NOISE MONITORING TEST CERTIFICATE

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TEST CERTIFICATE FOR NOISE MONITORING

Type of Sample	: Noise Monitoring	Test Method	: IS:11702
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Day Time Monitoring Report

Sampling Time	Fire Station	Near Security Tower	Sada Village	Adani Site Office Near Gate No.02
Longitude	N 15° 24.523'	N 15° 24.438'	N 15° 24.755'	N 15° 24.607'
Latitude	E 073° 47.800'	E 073° 47.967'	E 073° 47.942'	E 073° 47.819'
Date of Monitoring	04/01/2016	08/01/2016	19/01/2016	18/01/2016
6:00-7:00	45.0	43.2	40.1	45.3
7:00-8:00	48.3	46.0	42.0	48.0
8:00-9:00	45.6	48.9	44.5	50.1
9:00-10:00	55.3	50.0	47.9	53.5
10:00-11:00	53.8	55.2	49.2	55.8
11:00-12:00	55.9	58.9	51.3	58.0
12:00-13:00	58.2	52.4	55.0	59.2
13:00-14:00	58.3	47.0	52.6	56.0
14:00-15:00	56.1	48.6	48.4	51.9
15:00-16:00	58.1	52.0	48.2	50.6
16:00-17:00	50.9	53.1	46.5	48.7
17:00-18:00	51.5	49.7	50.2	48.1
18:00-19:00	49.8	47.4	52.8	48.5
19:00-20:00	47.7	48.8	49.0	49.9
20:00-21:00	46.6	50.7	46.1	47.8
21:00-22:00	50.5	46.2	44.3	50.4
Maximum	58.3	58.9	55.0	59.2
Minimum	45.0	43.2	40.1	45.3

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TEST CERTIFICATE FOR NOISE MONITORING

Type of Sample	: Noise Monitoring	Test Method	: IS:11702
----------------	--------------------	-------------	------------

Night Time Monitoring Report

Sampling Time	Fire Station	Near Security Tower	Sada Village	Adani Site Office Near Gate No.02
Longitude	N 15° 24.523'	N 15° 24.438'	N 15° 24.755'	N 15° 24.607'
Latitude	E 073° 47.800'	E 073° 47.967'	E 073° 47.942'	E 073° 47.819'
Date of Monitoring	04/01/2016 & 05/01/2016	08/01/2016 & 09/01/2016	19/01/2016 & 20/01/2016	18/01/2016 & 19/01/2016
22:00-23:00	51.7	45.3	40.8	44.2
23:00-00:00	49.0	42.0	38.7	45.0
00:00-01:00	47.9	40.9	37.5	42.3
01:00-02:00	48.4	42.5	34.7	39.7
02:00-03:00	45.1	43.1	35.0	38.2
03:00-04:00	43.8	40.1	36.5	41.0
04:00-05:00	40.7	42.8	38.9	43.3
05:00-06:00	44.0	43.0	38.1	44.1
Maximum	51.7	45.3	40.8	45.0
Minimum	40.7	40.1	34.7	38.2

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**MONITORING OF SEWAGE WATER
(INLET & OUTLET)
MONTHLY TEST CERTIFICATE**

Authorized Signatory

544, Belgium Towers, Ring Road, Opp. Linear Bus Stand, SURAT-395003. (Guj.).Tele-Fax: (0261)2455751, 2601106, 2601224.
E-Mail: pollucon@gmail.com. Website: www.pollucon.com

TEST CERTIFICATE FOR SEWAGE WATER

Location Number	: 1	Quantity/No. of Samples	: 02 Lit/Two
Name of Location	: Near MPT Quarter STP	Sampling Procedure	: Grab
Type of Sample	: Sewage Water	Lab ID	: AG/1601/04 & 05
Date of Sampling	: 13/01/2016	Date of Starting of Test	: 16/01/2016
Date of Sample Receipt	: 16/01/2016	Date of Completion	: 22/01/2016

RESULT TABLE

TEST PARAMETER	UNIT	RESULTS		TEST/SAMPLING METHOD
Sample Source		INLET	OUTLET	
pH	--	7.22	7.86	IS3025(P11)83Re.02
Total Suspended Solids	mg/L	98	22	IS3025(P17)84Re.02
BOD (3 Days @ 27 °C)	mg/L	46	11	IS3025 P44)1993Re.03Edition2.1
COD	mg/L	190	45	APHA(22 nd Edi) 5520-D Open Reflux
Oil & Grease	mg/L	1.2	BDL*	APHA(22 nd Edi)5520D
Residual Free Chlorine	mg/L	< 0.1	0.8	APHA(22 nd Edi)4500 Cl
Not: BDL*: Below Detection Limit: Minimum Detection Limit, Oil & Grease: 1.0 mg/L				

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WEATHER DATA MONITORING MONTHLY TEST CERTIFICATE

Authorized Signatory

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Date	Avg wind Speed (m/s)	Avg wind Direction (deg)	Temperature (°C)	RH %
01/01/2016	1.15	105.37	28	35.7
02/01/2016	1.64	62.44	28	34.2
03/01/2016	0.98	86.52	26	36.9
04/01/2016	1.25	122.63	26	40.4
05/01/2016	0.84	78.60	26	32.5
06/01/2016	2.10	60.86	27	38.2
07/01/2016	0.97	94.24	26	34.5
08/01/2016	0.71	81.83	26	37.6
09/01/2016	1.13	150.22	27	39.3
10/01/2016	1.28	133.00	28	32.7
11/01/2016	0.71	127.92	26	38.9
12/01/2016	0.60	72.32	27	38.6
13/01/2016	1.23	86.20	27	41.5
14/01/2016	0.87	22.67	26	41.2
15/01/2016	0.37	84.27	26	39.5
16/01/2016	1.16	88.92	27	36.6
17/01/2016	1.44	53.19	27	35.2
18/01/2016	0.63	74.75	27	35.5
19/01/2016	0.61	158.25	28	32.8
20/01/2016	2.30	73.36	26	36.8
21/01/2016	1.03	102.92	26	40.6
22/01/2016	1.62	86.34	26	40.9
23/01/2016	1.30	43.78	27	43.7
24/01/2016	1.82	108.96	27	41.4
25/01/2016	2.17	49.77	28	34.5
26/01/2016	1.64	57.20	27	33.3
27/01/2016	2.04	47.98	26	35.9
28/01/2016	0.96	57.05	26	35.9
29/01/2016	0.74	94.29	25	37.4
30/01/2016	0.99	78.76	26	36.7
31/01/2016	0.87	105.67	27	34.6

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"ENVIRONMENTAL MONITORING REPORT"

FOR

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**ADANI MURMUGAO PORT TERMINAL PVT. LTD. (AMPTPL)
GROUND FLOOR, PORT USERS COMPLEX,
NEAR STATE BANK OF INDIA,
MORMUGAO HARBOUR,
GOA – 403 803, INDIA
TEL NO. 832-2594253**

FEBRUARY 2016

PREPARED BY:

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"ENVIRONMENTAL MONITORING REPORT"

702

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GOA – 403 803, INDIA
TEL NO. 832-2594253**

For and on behalf of Pollucon Laboratories Pvt. Ltd., Surat

Approved by : Dr. Arun Kumar Bajpai

Signed

:

Designation

: Lab Manager (Q)



This report is prepared by Pollucon laboratories Pvt. Ltd. with all reasonable skills, care and diligence, incorporating our General Terms and Conditions of Business and taking account of the resources devoted. Name of the sampling location / sample identity details – provided by client itself.

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INDEX

SR. NO.	TITLE	PAGE NO.
1	MARINE ECOLOGICAL SURVEY	4
A	SEA WATER TEST CERTIFICATE	5
B	SEDIMENT TEST CERTIFICATE	7
2	AMBIENT AIR QUALITY MONITORING TEST CERTIFICATE	8
3	NOISE MONITORING TEST CERTIFICATE	12
4	MONITORING OF SEWAGE WATER (INLET & OUTLET) TEST CERTIFICATE	15
5	WEATHER DATA TEST CERTIFICATE	17

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MARINE ECOLOGICAL SURVEY

A. SEA WATER ANALYSIS

&

B. SEDIMENT ANALYSIS

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TEST CERTIFICATE FOR SEA WATER

Page: 1 of 2

Location Number	: 1	Longitude	: N 15° 24.748'
Name of Location	: Near Moving Dolphin	Latitude	: E 073° 47.938'
Type of Sample	: Marine Water Sample	Quantity/No. of Sample	: 10 Lit/Two
Sampling Date	: 17/02/2016	Lab ID	: AG/1602/01 & 02
Sample Receipt Date	: 22/02/2016	Date of Completion	: 02/03/2016
Date of Starting of Test	: 22/02/2016		

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT		TEST/SAMPLING METHOD
			SURFACE	BOTTOM	
1	pH	--	7.63	8.02	IS3025 (P11)83Re.02
2	Temperature	°C	28	29	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	65	76	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	IS 3025 (P44)1993 Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.6	4.4	IS3025(P38)89Re.99
6	Salinity	ppt	43.28	44.12	APHA 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	APHA(22 nd Edi)5520D
8	Nitrate as NO ₃	mg/L	0.57	0.73	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.083	0.063	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.55	0.78	IS3025(P34)88Cla.2.3
11	Phosphates as PO ₄	mg/L	1.95	2.00	APHA(22 nd Edi) 4500 C
12	Total Nitrogen	mg/L	1.20	1.57	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	0.6	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	44320	45580	IS3025(P16)84Re.02
15	COD	mg/L	24	19	APHA(22 nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.70	0.44	SOP – PLPL - 06
A	Flora and Fauna				
17.1	Primary Productivity	mgC/L/day	2.36	0.338	APHA (22 nd Edi) 10200-J
Continue...					

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TEST CERTIFICATE FOR SEA WATER

Page: 2 of 2

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT		TEST/SAMPLING METHOD
			SURFACE	BOTTOM	
B	Phytoplankton				
18.1	Chlorophyll	mg/m ³	2.36	0.338	APHA (22 nd Edi) 10200-H
18.2	Phaeophytin	mg/m ³	2.643	2.71	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	329	78	APHA (22 nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae	Bacillariophyceae	APHA (22 nd Edi) 10200-H
			<i>Skeletonema sp.</i>	<i>Fragillaria sp.</i>	
			<i>Coscinodiscus sp.</i>	<i>Navicula sp.</i>	
			<i>Gyrosigma sp.</i>	<i>Nitzsa sp.</i>	
			<i>Pinnularia sp.</i>	<i>Coscinodiscus sp.</i>	
			<i>Cyclotella sp.</i>	Green Algae	
			<i>Nitzschia sp.</i>	<i>Chlorella sp.</i>	
			<i>Synedra sp.</i>	<i>Pediastrum sp.</i>	
			Green Algae	Cyanophyceae	
			<i>Spirogyra sp.</i>	<i>Oscillatoria sp.</i>	
			<i>Chlorella sp.</i>	--	
			<i>Pandorina sp.</i>	--	
			Cyanophyceae	--	
			<i>Oscillatoria sp.</i>	--	
			<i>Spirulina sp.</i>	--	
C	Zooplanktons				
19.1	Abundance (Population)	no/m ²	200	125	APHA (22 nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	Decapods	Gastropods	APHA (22 nd Edi) 10200-G
			Echinoderms	Isopods	
			Mysids	Foraminiferans	
			Gastropods	--	
			Ostracods	--	
19.3	Total Biomass	ml/100 m ³	63	12	APHA (22 nd Edi) 10200-G
D	Microbiological Parameters				
20.1	Total Bacterial Count	CFU/ml	1570	1310	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	APHA(22ndEdi)9221-D
20.3	E.coli	/ml	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)
20.4	Enterococcus species	/ml	Absent	Absent	IS:15186:2002
20.5	Salmonella species	/ml	Absent	Absent	IS:5887(P-3)
20.6	Shigella species	/ml	Absent	Absent	IS:1887(P-7)
20.7	Vibrio species	/ml	Absent	Absent	IS:5887(P-5)

Note: BDL*: Below Detection Limit, Minimum Detection Limit, BOD: 10 mg/L, Oil & Grease: 1.0 mg/L, Petroleum Hydrocarbon: 10 µg/L

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TEST CERTIFICATE FOR SEA SEDIMENT

Location Number	: 1	Longitude	: N 15° 24.748'
Name of Location	: Near Moving Dolphin	Latitude	: E 073° 47.938'
Type of Sample	: Sediment Sample	Quantity/No. of Sample	: 10 Kg/One
Sampling Date	: 17/02/2016	Lab ID	: AG/1602/03
Sample Receipt Date	: 22/02/2016	Date of Completion	: 02/03/2016
Date of Starting of Test	: 22/02/2016		

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	TEST/SAMPLING METHOD
			SEDIMENT	
1	Organic Matter	%	0.562	FCO: 2006
2	Phosphorus as P	mg/kg	146.40	APHA(22 nd Edi) 4500 C
3	Texture	--	Sandy	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	PLPL-TPH
5	Heavy Metals			
5.1	Aluminum as Al	%	5.28	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	0.397	AAS 3111B
5.3	Manganese as Mn	mg/kg	696	AAS APHA 3111 B
5.4	Iron as Fe	%	2.08	AAS APHA(22 nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	30.34	AAS APHA(22 nd Edi)3111 B
5.6	Copper as Cu	mg/kg	52.11	AAS APHA(22 nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	58.47	AAS APHA(22 nd Edi)3111 B
5.8	Lead as Pb	mg/kg	0.884	AAS APHA(22 nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	AAS APHA- 3112 B
6	Benthic Organisms			
6.1	Macrobenthos (No and name of groups present, No and name of species of each group present)	--	Mysids	APHA (22 nd Edi) 10500-C
			Echinoderms	
			Isopods	
6.2	MeioBenthos (No and name of groups present, No and name of species of each group present)	--	Copepods	APHA (22 nd Edi) 10500-C
6.3	Population	no/m ²	385	APHA (22 nd Edi) 10500-C

Note: BDL*: Below Detection Limit, Minimum Detection Limit, Mercury as Hg: 0.00025 mg/L, Petroleum Hydrocarbon: 5 mg/kg

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AMBIENT AIR QUALITY MONITORING TEST CERTIFICATE

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number : 1
Name of Location : Fire Station Longitude : N 15° 24.523'
Type of Sample : Ambient Air Quality Monitoring Latitude : E 073° 47.800'
Sampling Duration : 24 Hrs.

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLING METHOD
		01/02/ 2016	04/02/ 2016	08/02/ 2016	11/02/ 2016	15/02/ 2016	18/02/ 2016	22/02/ 2016	25/02/ 2016	29/02/ 2016		
Lab ID (AGA/1602) [A - H]		1	4	7	10	13	16	19	22	25		
Particulate Matter (PM ₁₀)	µg/m ³	79.48	107	86.28	96.49	88.52	97.51	77.79	112	92.52	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	33.79	64.63	49.42	52.38	47.51	56.60	41.82	58.72	50.69	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	0.72	BDL*	0.62	BDL*	BDL*	BDL*	0.68	0.56	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	2.50	BDL*	2.35	BDL*	2.23	BDL*	2.76	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	10.79	BDL*	11.26	BDL*	10.40	BDL*	10.57	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.45	0.56	0.52	0.34	0.64	0.38	0.41	0.60	0.50	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	25.01	35.19	48.88	29.98	41.71	65.17	47.58	28.02	43.53	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	15.70	22.58	11.39	23.47	16.63	25.48	13.61	27.41	19.52	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	34.62	31.70	24.55	28.67	38.37	33.35	26.29	32.46	39.51	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [‡]	µg/m ³	27.56	21.36	24.40	29.50	26.65	19.53	23.48	28.55	25.51	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit #: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2**Authorized Signatory**

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number	: 2		
Name of Location	: Near Security Tower	Longitude	: N 15° 24.438'
Type of Sample	: Ambient Air Quality Monitoring	Latitude	: E 073° 47.967'
Sampling Duration	: 24 Hrs.		

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLIN G METHOD
		01/02/ 2016	04/02/ 2016	08/02/ 2016	11/02/ 2016	15/02/ 2016	18/02/ 2016	22/02/ 2016	25/02/ 2016	29/02/ 2016		
Lab ID (AGA/1602) [A - H]		2	5	8	11	14	17	20	23	26		
Particulate Matter (PM ₁₀)	µg/m ³	62.86	85.08	74.56	87.92	79.96	66.86	71.93	90.53	86.53	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	29.38	48.72	43.55	45.72	40.73	32.37	36.65	51.31	37.48	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	0.64	BDL*	0.52	BDL*	BDL*	BDL*	0.56	0.51	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	2.33	BDL*	2.18	BDL*	BDL*	BDL*	BDL*	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	10.61	BDL*	10.91	BDL*	BDL*	BDL*	BDL*	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.33	0.42	0.27	0.46	0.58	0.30	0.25	0.54	0.40	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	18.80	27.74	58.25	37.41	22.77	52.70	40.01	21.57	32.53	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	25.61	19.60	14.50	20.72	11.76	22.64	17.40	24.45	12.60	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	26.68	22.79	38.56	34.54	29.41	25.31	30.35	36.29	35.45	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [‡]	µg/m ³	23.96	28.90	30.28	24.53	22.73	27.27	29.68	18.27	21.67	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number : **3**
Name of Location : **Sada Village** Longitude : **N 15° 24.755'**
Type of Sample : **Ambient Air Quality Monitoring** Latitude : **E 073° 47.942'**
Sampling Duration : **24 Hrs.**

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLING METHOD
		01/02/ 2016	04/02/ 2016	08/02/ 2016	11/02/ 2016	15/02/ 2016	18/02/ 2016	22/02/ 2016	25/02/ 2016	29/02/ 2016		
Lab ID (AGA/1602) [A - H]		3	6	9	12	15	18	21	24	27		
Particulate Matter (PM ₁₀)	µg/m ³	50.12	77.49	65.71	72.33	69.38	57.50	64.49	82.52	78.29	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	19.43	29.35	36.38	40.52	32.66	20.67	21.50	30.59	22.74	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.26	0.18	0.31	0.23	0.37	0.22	0.14	0.24	0.36	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	12.37	22.79	35.49	19.43	13.57	32.70	26.70	16.66	23.44	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	13.60	16.40	7.37	17.63	8.69	18.64	6.61	12.47	9.57	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	18.38	27.61	16.22	23.39	20.31	19.57	15.57	21.45	31.26	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) ^{\$}	µg/m ³	21.19	19.27	28.31	22.45	20.76	25.47	27.30	26.23	18.88	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2**Authorized Signatory**

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NOISE MONITORING TEST CERTIFICATE

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TEST CERTIFICATE FOR NOISE MONITORING

Type of Sample	: Noise Monitoring	Test Method	: IS:11702
----------------	--------------------	-------------	------------

Day Time Monitoring Report

Sampling Time	Fire Station	Near Security Tower	Sada Village	Adani Site Office Near Gate No.02
Longitude	N 15° 24.523'	N 15° 24.438'	N 15° 24.755'	N 15° 24.607'
Latitude	E 073° 47.800'	E 073° 47.967'	E 073° 47.942'	E 073° 47.819'
Date of Monitoring	09/02/2016	12/02/2016	19/02/2016	16/02/2016
6:00-7:00	46.6	43.6	37.9	44.9
7:00-8:00	48.1	49.4	43.0	49.5
8:00-9:00	48.9	48.8	41.5	47.1
9:00-10:00	58.2	46.8	50.7	52.9
10:00-11:00	55.5	57.4	46.2	57.9
11:00-12:00	59.2	58.4	54.5	55.8
12:00-13:00	56.0	49.2	58.5	60.3
13:00-14:00	55.4	44.1	55.7	55.6
14:00-15:00	57.6	47.2	45.9	52.6
15:00-16:00	57.7	53.8	51.1	50.0
16:00-17:00	49.0	54.7	49.7	47.4
17:00-18:00	51.9	51.5	46.7	49.3
18:00-19:00	49.9	44.7	52.1	50.3
19:00-20:00	50.5	49.1	46.9	47.0
20:00-21:00	50.1	47.8	44.8	50.6
21:00-22:00	50.4	44.4	41.1	49.8
Maximum	59.2	58.4	58.5	60.3
Minimum	46.6	43.6	37.9	44.9

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TEST CERTIFICATE FOR NOISE MONITORING

Type of Sample	: Noise Monitoring	Test Method	: IS:11702
----------------	--------------------	-------------	------------

Night Time Monitoring Report

Sampling Time	Fire Station	Near Security Tower	Sada Village	Adani Site Office Near Gate No.02
Longitude	N 15° 24.523'	N 15° 24.438'	N 15° 24.755'	N 15° 24.607'
Latitude	E 073° 47.800'	E 073° 47.967'	E 073° 47.942'	E 073° 47.819'
Date of Monitoring	09/02/2016 & 10/02/2016	12/02/2016 & 13/02/2016	19/02/2016 & 20/02/2016	16/02/2016 & 17/02/2016
22:00-23:00	53.3	43.7	39.6	44.4
23:00-00:00	50.3	44.2	38.3	44.9
00:00-01:00	49.1	38.4	35.1	45.1
01:00-02:00	46.7	39.4	34.3	42.3
02:00-03:00	43.9	45.7	33.5	40.0
03:00-04:00	45.8	42.9	37.8	38.7
04:00-05:00	42.0	41.0	35.6	40.6
05:00-06:00	47.4	45.5	40.5	43.0
Maximum	53.3	45.7	40.5	45.1
Minimum	42.0	38.4	33.5	38.7

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**MONITORING OF SEWAGE WATER
(INLET & OUTLET)
MONTHLY TEST CERTIFICATE**

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TEST CERTIFICATE FOR SEWAGE WATER

Location Number	: 1	Quantity/No. of Samples	: 02 Lit/Two
Name of Location	: Near MPT Quarter STP	Sampling Procedure	: Grab
Type of Sample	: Sewage Water	Lab ID	: AG/1602/04 & 05
Date of Sampling	: 18/02/2016	Date of Starting of Test	: 22/02/2016
Date of Sample Receipt	: 22/02/2016	Date of Completion	: 29/02/2016

RESULT TABLE

TEST PARAMETER	UNIT	RESULTS		TEST/SAMPLING METHOD
Sample Source		INLET	OUTLET	
pH	--	7.19	7.27	IS3025(P11)83Re.02
Total Suspended Solids	mg/L	106	26	IS3025(P17)84Re.02
BOD (3 Days @ 27 °C)	mg/L	54	16	IS3025 P44)1993Re.03Edition2.1
COD	mg/L	212	60	APHA(22 nd Edi) 5520-D Open Reflux
Oil & Grease	mg/L	1.6	BDL*	APHA(22 nd Edi)5520D
Residual Free Chlorine	mg/L	< 0.1	0.7	APHA(22 nd Edi)4500 Cl
Not: BDL*: Below Detection Limit: Minimum Detection Limit, Oil & Grease: 1.0 mg/L				

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MONITORING OF DUMP POND DISCHARGE QUARTERLY TEST CERTIFICATE

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TEST CERTIFICATE FOR DUMP POND DISCHARGE WATER

Location Number	: 1	Quantity/No. of Samples	: 05 Lit/One
Name of Location	: Dump Pond - 1 Near CT - 8	Sampling Procedure	: Grab
Type of Sample	: Dump Pond Discharge water	Lab ID	: AG/1602/06
Date of Sampling	: 19/02/2016	Date of Starting of Test	: 23/02/2016
Sample Receipt Date	: 23/02/2016	Date of Completion	: 29/02/2015

RESULT TABLE

TEST PARAMETER	UNIT	RESULTS	TEST/SAMPLING METHOD
pH	--	7.43	IS3025(P11)83Re.02
Total Dissolved Solids	mg/L	188	IS3025(P16)84Re.02
Total Suspended Solids	mg/L	14	IS3025(P17)84Re.02
Turbidity	NTU	8.72	APHA 2130-B
BOD (3 Days @ 27 °C)	mg/L	56	IS 3025 (P44)1993 Re.03Edition2.1
Dissolved Oxygen	mg/L	4.6	IS3025(P38)89Re.99
COD	mg/L	222	APHA(22 nd Edition) 5520-D Open Reflux
Salinity	ppt	0.076	APHA 2550 B
Oil & Grease	mg/L	BDL*	APHA(22 nd Edition)5520D
Total Hardness as CaCO ₃	mg/L	102	IS3025(P-21) 84EDTARE.02
Fluoride as F	mg/L	0.38	APHA(22 nd Edition) 4500 F D SPANDS
Chloride as Cl	mg/L	40.48	IS3025(P-32) 88Re.99Argentometric method
Zinc as Zn	mg/L	0.046	AAS- APHA (22 nd Edition) 3111 B
Cadmium as Cd	mg/L	ND	AAS- APHA (22 nd Edition) 3111 B
Lead as Pb	mg/L	0.018	AAS- APHA (22 nd Edition) 3111 B
Mercury as Hg	mg/L	ND	AAS-APHA 22 Edition 3112 B

Note: BDL*: Below Detection Limit, Minimum Detection Limit, Cadmium as Cd: 0.001 mg/L, Mercury as Hg: 0.00025 mg/L

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TEST CERTIFICATE FOR DUMP POND DISCHARGE WATER

Location Number	: 2	Quantity/No. of Samples	: 05 Lit/One
Name of Location	: Dump Pond - 2 Near Pump House	Sampling Procedure	: Grab
Type of Sample	: Dump Pond Discharge water	Lab ID	: AG/1602/07
Date of Sampling	: 19/02/2016	Date of Starting of Test	: 23/02/2016
Sample Receipt Date	: 23/02/2016	Date of Completion	: 29/02/2015

RESULT TABLE

TEST PARAMETER	UNIT	RESULTS	TEST/SAMPLING METHOD
pH	--	7.10	IS3025(P11)83Re.02
Total Dissolved Solids	mg/L	390	IS3025(P16)84Re.02
Total Suspended Solids	mg/L	10	IS3025(P17)84Re.02
Turbidity	NTU	5.02	APHA 2130-B
BOD (3 Days @ 27 °C)	mg/L	30	IS 3025 (P44)1993 Re.03Edition2.1
Dissolved Oxygen	mg/L	4.8	IS3025(P38)89Re.99
COD	mg/L	90	APHA(22 nd Edition) 5520-D Open Reflux
Salinity	ppt	0.106	APHA 2550 B
Oil & Grease	mg/L	BDL*	APHA(22 nd Edition)5520D
Total Hardness as CaCO ₃	mg/L	156	IS3025(P-21) 84EDTARE.02
Fluoride as F	mg/L	0.68	APHA(22 nd Edition) 4500 F D SPANDS
Chloride as Cl	mg/L	58.19	IS3025(P-32) 88Re.99Argentometric method
Zinc as Zn	mg/L	0.34	AAS- APHA (22 nd Edition) 3111 B
Cadmium as Cd	mg/L	BDL*	AAS- APHA (22 nd Edition) 3111 B
Lead as Pb	mg/L	0.31	AAS- APHA (22 nd Edition) 3111 B
Mercury as Hg	mg/L	BDL*	AAS-APHA 22 Edition 3112 B

Note: BDL*: Below Detection Limit, Minimum Detection Limit, Cadmium as Cd: 0.001 mg/L, Mercury as Hg: 0.00025 mg/L, Oil & Grease: 1.0 mg/L

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WEATHER DATA MONITORING MONTHLY TEST CERTIFICATE

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Date	Avg wind Speed (m/s)	Avg wind Direction (deg)	Temperature (°C)	RH %
01/02/2016	1.43	94.8	26	38.2
02/02/2016	0.94	107.7	27	34.8
03/02/2016	1.23	116.8	27	40.2
04/02/2016	0.86	82.6	26	39.5
05/02/2016	1.14	100.8	26	38.0
06/02/2016	0.76	98.4	26	36.8
07/02/2016	0.68	124.9	26	36.1
08/02/2016	1.08	186.5	26	37.1
09/02/2016	0.96	118.2	26	41.5
10/02/2016	1.22	98.2	26	41.2
11/02/2016	1.58	88.6	27	38.3
12/02/2016	1.34	68.3	26	39.9
13/02/2016	1.94	104.5	26	38.0
14/02/2016	1.16	206.2	28	36.4
15/02/2016	1.68	156.8	26	40.6
16/02/2016	0.85	82.6	25	36.9
17/02/2016	1.12	96.7	27	37.8
18/02/2016	2.25	50.2	27	37.9
19/02/2016	2.08	143.7	27	39.8
20/02/2016	1.66	155.8	29	43.6
21/02/2016	1.42	208.6	25	39.3
22/02/2016	1.25	74.7	26	36.8
23/02/2016	0.98	56.2	28	33.0
24/02/2016	0.60	109.9	26	35.1
25/02/2016	1.55	56.3	27	35.4
26/02/2016	2.38	47.3	25	37.6
27/02/2016	0.81	114.8	27	38.0
28/02/2016	1.02	92.8	27	42.2
29/02/2016	1.29	104.6	29	42.3

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"ENVIRONMENTAL MONITORING REPORT"

FOR

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MARCH 2016

PREPARED BY:

Pollucon

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"ENVIRONMENTAL MONITORING REPORT"

FOR

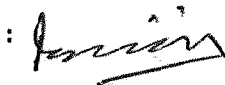
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GOA – 403 803, INDIA
TEL NO. 832-2594253**

For and on behalf of Pollucon Laboratories Pvt. Ltd., Surat

Approved by : Dr. Arun Kumar Bajpai

Signed

: 

Designation : Lab Manager (Q)



This report is prepared by Pollucon laboratories Pvt. Ltd. with all reasonable skills, care and diligence, incorporating our General Terms and Conditions of Business and taking account of the resources devoted. Name of the sampling location / sample identity details – provided by client itself.



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INDEX

SR. NO.	TITLE	PAGE NO.
1	MARINE ECOLOGICAL SURVEY	4
A	SEA WATER TEST CERTIFICATE	5
B	SEDIMENT TEST CERTIFICATE	6
2	AMBIENT AIR QUALITY MONITORING TEST CERTIFICATE	8
3	NOISE MONITORING TEST CERTIFICATE	12
4	DG SET STACK MONITORING TEST CERTIFICATE	15
5	DG SET NOISE MONITORING TEST CERTIFICATE	18
6	MONITORING OF SEWAGE WATER (INLET & OUTLET) TEST CERTIFICATE	20
7	WEATHER DATA TEST CERTIFICATE	22

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MARINE ECOLOGICAL SURVEY

A. SEA WATER ANALYSIS

&

B. SEDIMENT ANALYSIS

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TEST CERTIFICATE FOR SEA WATER

Page: 1 of 2

Location Number	: 1	Longitude	: N 15° 24.748'
Name of Location	: Near Moving Dolphin	Latitude	: E 073° 47.938'
Type of Sample	: Marine Water Sample	Quantity/No. of Sample	: 10 Lit/Two
Sampling Date	: 16/03/2016	Lab ID	: AG/1603/09 & 10
Sample Receipt Date	: 19/03/2016	Date of Completion	: 29/03/2016
Date of Starting of Test	: 19/03/2016		

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT		TEST/SAMPLING METHOD
			SURFACE	BOTTOM	
1	pH	--	7.83	8.13	IS3025 (P11)83Re.02
2	Temperature	°C	29	30	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	30	48	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	BDL*	BDL*	IS 3025 (P44)1993 Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.0	5.2	IS3025(P38)89Re.99
6	Salinity	ppt	39.74	40.38	APHA 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	APHA(22 nd Edition)5520D
8	Nitrate as NO ₃	mg/L	0.51	0.69	IS3025(P34)88
9	Nitrite as NO ₂	mg/L	0.053	0.066	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH ₃	mg/L	0.42	0.56	IS3025(P34)88Cla.2.3
11	Phosphates as PO ₄	mg/L	1.86	2.04	APHA(22 nd Edition) 4500 C
12	Total Nitrogen	mg/L	0.983	1.316	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	BDL*	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	47080	47540	IS3025(P16)84Re.02
15	COD	mg/L	24	19	APHA(22 nd Edition) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.46	0.23	SOP – PLPL - 06
A	Flora and Fauna				
17.1	Primary Productivity	mgC/L/day	2.09	0.788	APHA (22 nd Edi) 10200-J
Continue...					

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TEST CERTIFICATE FOR SEA WATER

Page: 2 of 2

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT		TEST/SAMPLING METHOD
			SURFACE	BOTTOM	
B	Phytoplankton				
18.1	Chlorophyll	mg/m ³	3.39	0.935	APHA (22 nd Edi) 10200-H
18.2	Phaeophytin	mg/m ³	BDL*	0.897	APHA (22 nd Edi) 10200-H
18.3	Cell Count	Unit x 10 ³ /L	226	56	APHA (22 nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae	Bacillariophyceae	APHA (22 nd Edi) 10200-H
			<i>Amphora sp.</i>	<i>Fragillaria sp.</i>	
			<i>Synedra sp.</i>	<i>Navicula sp.</i>	
			<i>Coscinodiscus sp.</i>	<i>Pinnularia sp.</i>	
			<i>Cocconeis sp.</i>	<i>Rhizosolenia sp.</i>	
			<i>Gyrosigma sp.</i>	<i>Thalassionema sp.</i>	
			<i>Pinnularia sp.</i>	<i>Amphora sp.</i>	
			<i>Rhizosolenia sp.</i>	Cyanophyceae	
			<i>Tabellaria sp.</i>	<i>Oscillatoria sp.</i>	
			Cyanophyceae	<i>Microcystis sp.</i>	
			<i>Anabaena sp.</i>	--	
			<i>Oscillatoria sp.</i>	--	
			<i>Spirulina sp.</i>	--	
			Green Algae	--	
			<i>Pandorina sp.</i>	--	
			<i>Pediastrum sp.</i>	--	
			<i>Volvox sp.</i>	--	
C	Zooplanktons				
19.1	Abundance (Population)	no/m ²	220	120	APHA (22 nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	Copepods	Polychaete worms	APHA (22 nd Edi) 10200-G
			Decapods	Mysids	
			Chaetognathes	Crustaceans	
			Gastropods	Krill	
			Ctenophores	--	
			Snail	--	
19.3	Total Biomass	ml/100 m ³	102	18.9	APHA (22 nd Edi) 10200-G
D	Microbiological Parameters				
20.1	Total Bacterial Count	CFU/ml	1360	1180	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	APHA(22ndEdi)9221-D
20.3	E.coli	/ml	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)
20.4	Enterococcus species	/ml	Absent	Absent	IS:15186:2002
20.5	Salmonella species	/ml	Absent	Absent	IS:5887(P-3)
20.6	Shigella species	/ml	Absent	Absent	IS:1887(P-7)
20.7	Vibrio species	/ml	Absent	Absent	IS:5887(P-5)

Note: BDL*: Below Detection Limit, Minimum Detection Limit, BOD: 10 mg/L, Oil & Grease: 1.0 mg/L, Petroleum Hydrocarbon: 10 µg/L

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TEST CERTIFICATE FOR SEA SEDIMENT

Location Number	: 1	Longitude	: N 15° 24.748'
Name of Location	: Near Moving Dolphin	Latitude	: E 073° 47.938'
Type of Sample	: Sediment Sample	Quantity/No. of Sample	: 10 Kg/One
Sampling Date	: 16/03/2016	Lab ID	: AG/1603/11
Sample Receipt Date	: 19/03/2016	Date of Completion	: 29/03/2016
Date of Starting of Test	: 19/03/2016		

RESULT TABLE

SR. NO.	TEST PARAMETERS	UNIT	RESULT	TEST/SAMPLING METHOD
			SEDIMENT	
1	Organic Matter	%	0.814	FCO: 2006
2	Phosphorus as P	mg/kg	210	APHA(22 nd Edi) 4500 C
3	Texture	--	Sandy	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	PLPL-TPH
5	Heavy Metals			
5.1	Aluminum as Al	%	4.33	AAS APHA 3111 B
5.2	Total Chromium as Cr ⁺³	mg/kg	0.47	AAS 3111B
5.3	Manganese as Mn	mg/kg	733	AAS APHA 3111 B
5.4	Iron as Fe	%	1.43	AAS APHA(22 nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	22.28	AAS APHA(22 nd Edi)3111 B
5.6	Copper as Cu	mg/kg	50.76	AAS APHA(22 nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	60.67	AAS APHA(22 nd Edi)3111 B
5.8	Lead as Pb	mg/kg	0.634	AAS APHA(22 nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	AAS APHA- 3112 B
6	Benthic Organisms			
6.1	Macrobenthos (No and name of groups present, No and name of species of each group present)	--	Echinoderms	APHA (22 nd Edi) 10500-C
			Crabs	
			Mysids	
			Bivalves	
6.2	MeioBenthos (No and name of groups present, No and name of species of each group present)	--	Hydrozoa	APHA (22 nd Edi) 10500-C
6.3	Population	no/m ²	377	APHA (22 nd Edi) 10500-C

Note: BDL*: Below Detection Limit, Minimum Detection Limit, Mercury as Hg: 0.00025 mg/L, Petroleum Hydrocarbon: 5 mg/kg

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AMBIENT AIR QUALITY MONITORING TEST CERTIFICATE

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number	: 1		
Name of Location	: Fire Station	Longitude	: N 15° 24.523'
Type of Sample	: Ambient Air Quality Monitoring	Latitude	: E 073° 47.800'
Sampling Duration	: 24 Hrs.		

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLIN G METHOD
		03/03/ 2016	07/03/ 2016	10/03/ 2016	14/03/ 2016	17/03/ 2016	21/03/ 2016	24/03/ 2016	28/03/ 2016	31/03/ 2016		
Lab ID (AGA/1603) [A - H]		1	4	7	10	13	16	19	22	25		
Particulate Matter (PM ₁₀)	µg/m ³	96.42	114	89.49	108	86.51	126	94.52	105	87.49	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	48.58	58.29	42.66	62.52	38.60	66.32	43.51	52.38	47.73	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	0.58	0.74	BDL*	0.64	BDL*	0.78	BDL*	0.54	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	2.54	BDL*	2.36	BDL*	2.84	BDL*	2.08	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	10.56	BDL*	10.23	BDL*	10.89	BDL*	10.92	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.66	0.39	0.73	0.42	0.57	0.47	0.46	0.37	0.26	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	26.86	34.54	48.55	58.66	45.62	31.93	55.72	40.73	28.71	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	10.73	20.63	14.68	22.47	17.62	12.59	9.53	19.67	16.58	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	27.76	32.46	40.55	34.32	39.57	36.69	28.27	35.52	37.82	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [§]	µg/m ³	20.61	27.57	24.74	18.78	23.71	26.72	29.69	19.60	25.76	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.

BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number : 2
Name of Location : Near Security Tower Longitude : N 15° 24.438'
Type of Sample : Ambient Air Quality Monitoring Latitude : E 073° 47.967'
Sampling Duration : 24 Hrs.

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLIN G METHOD
		03/03/ 2016	07/03/ 2016	10/03/ 2016	14/03/ 2016	17/03/ 2016	21/03/ 2016	24/03/ 2016	28/03/ 2016	31/03/ 2016		
Lab ID (AGA/1603) [A - H]		2	5	8	11	14	17	20	23	26		
Particulate Matter (PM ₁₀)	µg/m ³	82.46	102	75.62	91.59	70.39	109	78.28	95.79	76.52	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	41.73	52.60	36.65	48.62	44.47	51.53	32.77	38.38	42.59	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	0.58	BDL*	0.54	BDL*	0.60	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	2.26	BDL*	2.08	BDL*	BDL*	BDL*	BDL*	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	10.23	BDL*	10.35	BDL*	BDL*	10.02	10.53	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.32	0.52	0.64	0.33	0.45	0.60	0.78	0.48	0.38	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	36.37	42.84	22.50	45.54	37.74	25.70	41.64	32.67	21.15	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	13.32	18.45	10.62	19.66	11.78	15.60	7.37	17.61	23.51	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	33.52	38.58	31.53	39.50	28.56	40.81	34.48	24.53	29.57	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [§]	µg/m ³	30.49	28.56	21.58	25.62	29.39	22.40	27.38	26.71	24.27	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2**Authorized Signatory**

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TEST CERTIFICATE FOR AMBIENT AIR QUALITY MONITORING

Location Number : 3
Name of Location : Sada Village Longitude : N 15° 24.755'
Type of Sample : Ambient Air Quality Monitoring Latitude : E 073° 47.942'
Sampling Duration : 24 Hrs.

RESULT TABLE

TEST PARAMETER	UNIT	DATE OF SAMPLING									LIMIT #	TEST/SAMPLING METHOD
		03/03/ 2016	07/03/ 2016	10/03/ 2016	14/03/ 2016	17/03/ 2016	21/03/ 2016	24/03/ 2016	28/03/ 2016	31/03/ 2016		
Lab ID (AGA/1603) [A - H]		3	6	9	12	15	18	21	24	27		
Particulate Matter (PM ₁₀)	µg/m ³	73.49	82.48	68.51	76.49	59.60	81.61	71.62	88.0	56.88	100	IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)
Particulate Matter (PM _{2.5})	µg/m ³	34.32	45.48	29.35	36.38	22.74	44.65	28.53	41.34	24.39	60	Gravimetric- CPCB - Method (Vol.I,May-2011)
Lead as Pb	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Benzo (a) Pyrene (BaP)- particulate phase only	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	1.0	CPCB Method (Vol.I,May-2011)
Arsenic as As	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	6.0	CPCB Method (Vol.I,May-2011)
Nickel as Ni	ng/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	20	CPCB Method (Vol.I,May-2011)
Carbon Monoxide as CO	mg/m ³	0.36	0.25	0.41	0.24	0.40	0.23	0.16	0.21	0.30	4.0	NDIR Digital Gas Analyzer
Benzene as C ₆ H ₆	µg/m ³	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	5.0	IS 5182 (Part XI):2006/CPCB Method
Ammonia (NH ₃)	µg/m ³	21.49	18.56	11.72	36.71	27.45	19.12	24.42	16.35	12.65	400	CPCB Method (Vol.I,May-2011)
Sulphur Dioxide (SO ₂)	µg/m ³	6.51	15.72	8.55	10.75	7.42	9.42	5.73	14.75	11.65	80	IS:5182(Part 2): Improved West and Gaeke
Oxides of Nitrogen (NO ₂)	µg/m ³	18.44	26.74	20.53	29.60	32.39	23.59	17.58	31.36	19.71	80	IS:5182(Part 6):Modified Jacob & Hochheiser (Na-Arsenite)
Ozone (O ₃) [§]	µg/m ³	25.73	20.29	18.48	26.67	21.38	23.55	24.35	17.42	19.47	180	IS 5182 (PART IX) 1974/CPCB Method (Vol.I,May-2011)

Note: Limit#: Industrial, Residential, Rural and other Area Notification Dated 16th Nov.2009 as per national Ambient Air Quality Standards, CPCB New Delhi.BDL*: Below Detection Limit, Minimum Detection Limit, Lead as Pb (µg/m³):0.5, Benzo (a) Pyrene (BaP) - particulate phase only (ng/m³): 0.5, Nickel as Ni (ng/m³):10, Arsenic as As (ng/m³):2, Benzene as C₆H₆ (µg/m³): 2**Authorized Signatory**

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NOISE MONITORING TEST CERTIFICATE

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TEST CERTIFICATE FOR NOISE MONITORINGType of Sample : **Noise Monitoring** Test Method : **IS:11702****Day Time Monitoring Report**

Sampling Time	Fire Station	Near Security Tower	Sada Village	Adani Site Office Near Gate No.02
Longitude	N 15° 24.523'	N 15° 24.438'	N 15° 24.755'	N 15° 24.607'
Latitude	E 073° 47.800'	E 073° 47.967'	E 073° 47.942'	E 073° 47.819'
Date of Monitoring	04/03/2016	08/03/2016	21/03/2016	11/03/2016
6:00-7:00	40.5	45.4	42.4	44.3
7:00-8:00	43.5	42.7	43.8	43.6
8:00-9:00	45.6	44.7	44.8	45.2
9:00-10:00	43.7	45.0	46.3	52.2
10:00-11:00	44.9	48.6	48.4	56.9
11:00-12:00	44.4	44.1	47.3	47.4
12:00-13:00	50.4	42.3	50.3	50.0
13:00-14:00	52.9	43.4	53.5	55.6
14:00-15:00	50.8	44.5	47.1	40.2
15:00-16:00	48.7	49.7	49.8	45.9
16:00-17:00	44.2	47.5	48.5	45.7
17:00-18:00	47.2	48.3	44.9	52.8
18:00-19:00	42.8	47.8	45.3	48.2
19:00-20:00	45.5	50.6	48.9	47.7
20:00-21:00	44.6	52.4	49.9	45.1
21:00-22:00	44.0	44.3	51.4	46.9
Maximum	52.9	52.4	53.5	56.9
Minimum	40.5	42.3	42.4	40.2

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TEST CERTIFICATE FOR NOISE MONITORING

Type of Sample : **Noise Monitoring** Test Method : **IS:11702**

Night Time Monitoring Report

Sampling Time	Fire Station	Near Security Tower	Sada Village	Adani Site Office Near Gate No.02
Longitude	N 15° 24.523'	N 15° 24.438'	N 15° 24.755'	N 15° 24.607'
Latitude	E 073° 47.800'	E 073° 47.967'	E 073° 47.942'	E 073° 47.819'
Date of Monitoring	04/03/2016 & 05/03/2016	08/03/2016 & 09/03/2016	21/03/2016 & 22/03/2016	11/03/2016 & 12/03/2016
22:00-23:00	43.6	45.0	48.7	44.9
23:00-00:00	45.1	51.0	42.1	45.7
00:00-01:00	48.3	48.8	42.8	43.7
01:00-02:00	47.9	42.7	45.2	43.2
02:00-03:00	45.6	48.1	44.8	48.5
03:00-04:00	48.4	45.5	43.1	49.0
04:00-05:00	44.0	50.4	45.8	45.9
05:00-06:00	43.9	48.9	42.6	44.5
Maximum	48.4	51.0	48.7	49.0
Minimum	43.6	42.7	42.1	43.2

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DG SET STACK MONITORING QUARTERLY TEST CERTIFICATE

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TEST CERTIFICATE FOR DG SET STACK MONITORING

Location Number	:	1			
Location of Sampling	:	DG Stack - 1 Cummins Sr. No.:25388675			
Date of Sampling	:	18/03/2016	Sampling Procedure	:	As per table
Sample Receipt Date	:	21/03/2016	Fuel Used	:	Diesel
Date of Starting of Test	:	21/03/2016	Lab ID	:	AG/1603/ 16 [A - E]
Date of Completion	:	23/03/2016	Time of Sampling in Hrs	:	13:20 to 14:00

RESULT TABLE

SR. NO.	TEST PARAMETER	UNIT	RESULTS	TEST/SAMPLING METHOD
1	Particulate Matter	mg/Nm ³	28.54	IS:11255 (Part-1) : 1985
2	Sulfur Dioxide as SO ₂	ppm	4.56	IS:11255 (Part-2) : 1985
3	Oxides of Nitrogen as NO _x	ppm	22.67	IS: 11255 (Part-7) : 2005
4	Non Methyl Hydro Carbon (NMHC)	mg/m ³	BDL*	Digital Gas Analyzer
5	Carbon Monoxide (CO)	mg/m ³	5.46	Digital Gas Analyzer

Note: BDL*: Below Detection Limit, Minimum Detection Limit, Non Methyl Hydro Carbon (NMHC): 75 mg/m³

Results on 15 % O₂ Correction when Oxygen is greater than 15 %

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TEST CERTIFICATE FOR DG SET STACK MONITORING

Location Number	: 2		
Location of Sampling	: DG Stack - 2 Cummins Sr. No.: 25390869		
Date of Sampling	: 18/03/2016	Sampling Procedure	: As per table
Sample Receipt Date	: 21/03/2016	Fuel Used	: Diesel
Date of Starting of Test	: 21/03/2016	Lab ID	: AG/1603/17 [A - E]
Date of Completion	: 23/03/2016	Time of Sampling in Hrs	: 14:15 to 15:10

RESULT TABLE

SR. NO.	TEST PARAMETER	UNIT	RESULTS	TEST/SAMPLING METHOD
1	Particulate Matter	mg/Nm ³	24.82	IS:11255 (Part-1) : 1985
2	Sulfur Dioxide as SO ₂	ppm	5.72	IS:11255 (Part-2) : 1985
3	Oxides of Nitrogen as NO _x	ppm	25.73	IS: 11255 (Part-7) : 2005
4	Non Methyl Hydro Carbon (NMHC)	mg/m ³	BDL*	Digital Gas Analyzer
5	Carbon Monoxide (CO)	mg/m ³	4.20	Digital Gas Analyzer

Note: BDL*: Below Detection Limit, Minimum Detection Limit, Non Methyl Hydro Carbon (NMHC): 75 mg/m³

Results on 15 % O₂ Correction when Oxygen is greater than 15 %

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DG SET NOISE MONITORING QUARTERLY TEST CERTIFICATE

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TEST CERTIFICATE FOR DG SET NOISE MONITORING

Type of Sample	: DG Set Noise Monitoring	Test Method	: IS:11702
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RESULT TABLE

SR. NO.	SAMPLING LOCATION	DATE OF SAMPLING	Noise Level Average Leq dB(A)
			Outside DG Room 1 m distance
1	DG Stack - 1 Cummins Sr. No.:25388675	18/03/2016	68.7
2	DG Stack - 2 Cummins Sr. No.:25390869	18/03/2016	66.9
Limit**			75 dB(A)

as per Noise limit for diesel generator sets (upto 1000 KVA) manufactured on or after the 1st January, 2005Authorized Signatory**

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**MONITORING OF SEWAGE WATER
(INLET & OUTLET)
MONTHLY TEST CERTIFICATE**

Authorized Signatory

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TEST CERTIFICATE FOR SEWAGE WATER

Location Number	: 1	Quantity/No. of Samples	: 02 Lit/Two
Name of Location	: Near MPT Quarter STP	Sampling Procedure	: Grab
Type of Sample	: Sewage Water	Lab ID	: AG/1603/07 & 08
Date of Sampling	: 15/03/2016	Date of Starting of Test	: 18/03/2016
Date of Sample Receipt	: 18/03/2016	Date of Completion	: 26/03/2016

RESULT TABLE

TEST PARAMETER	UNIT	RESULTS		TEST/SAMPLING METHOD
Sample Source		INLET	OUTLET	
pH	--	7.27	7.31	IS3025(P11)83Re.02
Total Suspended Solids	mg/L	110	28	IS3025(P17)84Re.02
BOD (3 Days @ 27 °C)	mg/L	60	15	IS3025 P44)1993Re.03Edition2.1
COD	mg/L	244	51	APHA(22 nd Edi) 5520-D Open Reflux
Oil & Grease	mg/L	1.54	BDL*	APHA(22 nd Edi)5520D
Residual Free Chlorine	mg/L	< 0.1	0.8	APHA(22 nd Edi)4500 Cl
Not: BDL*: Below Detection Limit: Minimum Detection Limit, Oil & Grease: 1.0 mg/L				

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WEATHER DATA MONITORING MONTHLY TEST CERTIFICATE

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Date	Avg wind Speed (m/s)	Avg wind Direction (deg)	Temperature (°C)	RH %
01/03/2016	1.35	154.6	25	43.5
02/03/2016	1.55	185.2	26	41.2
03/03/2016	2.38	219.5	27	39.1
04/03/2016	1.85	146.9	26	38.2
05/03/2016	1.85	164.4	26	39.1
06/03/2016	1.72	161.2	27	38.4
07/03/2016	2.33	67.9	26	34.4
08/03/2016	1.39	104.3	26	34.1
09/03/2016	2.02	110.2	27	36.7
10/03/2016	1.65	160.9	26	34.4
11/03/2016	1.10	156.3	26	38.6
12/03/2016	1.58	174.7	27	40.5
13/03/2016	1.26	125.8	27	35.6
14/03/2016	2.08	218.3	27	36.4
15/03/2016	1.64	82.7	26	39.4
16/03/2016	1.38	105.8	27	35.7
17/03/2016	3.10	23.0	27	37.9
18/03/2016	3.24	31.5	27	39.8
19/03/2016	1.65	159.5	27	39.7
20/03/2016	1.89	118.8	27	40.3
21/03/2016	1.46	133.9	27	40.3
22/03/2016	1.11	111.6	27	39.4
23/03/2016	0.96	110.9	27	34.8
24/03/2016	1.24	119.3	27	35.4
25/03/2016	1.38	134.1	26	35.8
26/03/2016	2.05	194.7	27	40.0
27/03/2016	0.86	235.7	26	41.8
28/03/2016	1.68	202.8	26	44.2
29/03/2016	1.95	158.3	24	47.2
30/03/2016	2.17	37.9	26	49.8
31/03/2016	2.08	47.9	26	45.5

Authorized Signatory