APSEZ/EnvCell/2018-19/053 **Date:** 23.11.2018

To
Additional Principal Chief Conservator of Forests (C),
Ministry of Environment, Forest and Climate Change,
Regional Office (WZ), E-5, Kendriya
Paryavaran Bhawan, Arera Colony,
Link Road No. – 3, Bhopal – 462 016.
E-mail: rowz.bpl-mef@nic.in

Sub : Half yearly Compliance report of Environment Clearance of "Single Point Mooring (SPM), Crude Oil Terminal (COT) and connecting pipes at Mundra Port, District Kachchh by M/s. Adani Ports & SEZ Limited"

Ref : Environment clearance granted to M/s Adani Ports & SEZ Ltd. vide letter dated 21st July, 2004 bearing no. J-16011/30/2003-IA-III.

Dear Sir,

Please refer to the above cited reference for the said subject matter. In connection to the same, it is to state that copy of the compliance report for the Environmental and CRZ Clearance for the period of April – 2018 to September – 2018 is enclosed here for your records. The stated information is also provided in form of a CD (soft copy).

Thank you,
Yours Faithfully,
For, **M/s Adani Ports and Special Economic Zone Limited**

Avinash Rai
Chief Executive Officer
Mundra & Tuna Port

Encl: As above
Copy to:

1) The Director (IA Division), Ministry of Environment, Forests & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi-110003
2) Zonal Officer, Regional Office, CPCB – Western Region, Parivesh Bhawan, Opp. VMC Ward Office No. 10, Subhanpura, Vadodara – 390 023
3) Member Secretary, GPCB – Head Office, Paryavaran Bhavan, Sector 10 A, Gandhi Nagar – 382 010
4) Deputy Secretary, Forests & Environment Department, Block – 14, 8th floor, Sachivalaya, Gandhi Nagar – 382 010
5) Regional Officer, Regional Office GPCB (Kutch-East), Gandhidham, 370201

Adani Ports and Special Economic Zone Ltd
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Mundra, Kutch 370 421
Gujarat, India

Tel +91 2838 25 5000
Fax +91 2838 25 51110
info@adani.com
www.adani.com

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

Environmental Clearance Compliance Report

of

SPM, Crude Oil Terminal and Connecting Pipes

at

Mundra Port,
Dist. Kutch, Gujarat

of

Adani Ports and SEZ Limited

Period:

April-2018 to September-2018

Index

Compliance Report of Environmental and CRZ Clearance

adani	**Adani Ports and SEZ Limited**	**From : Apr'18** **To : Sep'18**
Status of the conditions stipulated in Environment Clearance		

Half yearly Compliance report of Environment and CRZ Clearance of "Single Point Mooring (SPM), Crude Oil Terminal (COT) and connecting pipes at Mundra Port, District Kutch issued by MoEF vide letter no. J-16011/30/2003-IA.III dated 21st July 2004.

Sr. No.	Conditions	Compliance Status as on 30-09-2018
A.	**Specific Condition**	
1.	Mangrove afforestation in 25 ha of area, suitably identified in consultation with State Forest Department. The GAPL shall bear the cost of the said land as well as the cost of the plantation of mangroves and its sustenance and implant within 6 months from the date of clearance of this letter. Further, it shall be ensured that mangroves in the vicinity of the salt works are not affected due to the project.	Complied. 25 hectare of mangrove plantation with a cost of 10 Lakh is already completed near railway yard in consultation with Dr. Maity, Mangrove consultant of India. There are no salt works within the project area. It may be noted that to enhance the marine biodiversity, till date APSEZ has carried out mangrove afforestation in more than 2800 ha. area across the coast of Gujarat. Total expenditure for the same till date is INR 782 lakh. Details on mangroves afforestation & Green belt development carried out by APSEZ till date is annexed as **Annexure – 1**.
2.	In addition to the mangrove plantation, GAPL should also take up massive green belt developments in 30 acres of land in and around the project in consultation with the Forest Department. Detailed plan indicating the area identified for the mangrove plantation as indicated at (i) above and for green belt development along with the financial outplay shall be provided to this ministry within 6 months from the date of receipt of this letter.	Complied. During the course of development of the project, green belt was developed in 6.18 Hectares of land. Total 7607 trees were planted with the density of 1230 trees per hectare at a cost of Rs. 25.00 Lakh. This plantation was done in consultation with Gujarat Ecological Commission (as they are one of the authorized agencies of Dept. of Forest & Env. Dept., Govt. of Gujarat). In addition to this, various activities on green belt development and mangrove plantation are being carried out on regular basis by horticulture department. Total expenditures of the horticulture dept. for the financial year of 2018-19 (Till Sep'18) have been INR 299 lakh. It may be noted that, APSEZ has developed more than 450 ha. area as greenbelt with plantation of more than 8.0 Lacs saplings within the APSEZ area. Details on mangroves afforestation & Green belt development carried out by APSEZ till date is annexed as **Annexure – 1**.

adani	**Adani Ports and SEZ Limited**	**From : Apr'18** **To : Sep'18**
Status of the conditions stipulated in Environment Clearance		

Sr. No.	Conditions	Compliance Status as on 30-09-2018
3.	No dredging activity shall be carried out.	Complied. Construction activities are completed & project is in operation stage. SPM is approximately 8.6 km inside the open sea from the shore where 30 m of draft is naturally available. Hence no dredging is required.
4.	No ground water should be tapped at the project site / within CRZ area.	Complied. No ground water is tapped at the project site. Water requirement is not on regular basis. However during operation and maintenance activity, approximately 100 liters per day water is being consumed for drinking purpose only.
5.	Adequate facilities as listed in National Oil spill Disaster Contingency Plan for the Mundra Port which includes firefighting equipment of 1200 cum/hr. spray capacity with 2 monitor fitted with the dolphin 2, 3, 4 and 5 oil spill dispersant foam liquid etc. should be maintained and put into operation immediately in case of oil spills.	Complied. Oil spill contingency plan is in place to handle Tier 1 level oil spills considering different accident scenarios, and the vulnerable areas are identified and mitigation plan is prepared. The OSCRP updated on 29.08.2017 is in place and implemented. An acknowledgement letter on updates in OSCRP by coast guard along with a copy of the updated plan was submitted as a part of compliance report for the duration of Apr'17 to Sep'17. Based on the oil spill modeling study, it has been observed that crude oil spill of 700 tons (Tier-I) will spread over an area having radius of around 400 m within 4hr. APSEZ already has facilities for combating a Tier-1 spill. Some of them are mentioned below: • 11 Tugs are fitted with Oil Spill Dispersant boom and proportionate pump to mix OSD and Sea water as required. • 10 Tugs are fitted with a fire curtain and remote controlled fire monitors. • Dolphin 11 has firefighting system of 1200 m^3/hr. along with 20 ton lifting "A" frame and diving support facility. • The equipment are being kept in working condition. Routine inspection, maintenance and testing is performed as per the stipulated requirements.
6.	The duration of construction phase of the project should be kept to a maximum of 8 months to avoid impact on marine environment	Already complied. Not applicable at present. Construction activity is already completed and the project is in operation.

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2018</th></tr>
<tr><td></td><td>and birds as suggested by NIO.</td><td></td></tr>
<tr><td>7.</td><td>It shall be ensured that there is no displacement of people, houses or fishing activity as a result of the project.</td><td>Not Applicable
Location of SPM is unmanned (approximately 8.6 km inside the open sea from the shore) hence, there is no displacement of people, houses or fishing activity as a result of the project.</td></tr>
<tr><td>8.</td><td>The project proponents must make necessary arrangements for disposal of solid wastes and for the treatment of effluents / liquid wastes. It must be ensured that the effluents / liquid wastes are not discharged into the seawater.</td><td>Complied.
Used oil/Spent oil generated is sold to registered recyclers time to time.

No other type of solid waste as well as no effluent or liquid waste are generated from operation of SPM or discharged into the sea water.

In order to analyzed marine water quality, marine sampling is being carried out at a location nearby SPM by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the same for duration from Apr'18 to Sep'18 is mentioned below.

Sampling Locations & Frequency: 9 Nos. (Monthly)
<table>
<tr><th rowspan="2">Parameter</th><th rowspan="2">Unit</th><th colspan="2">Surface</th><th colspan="2">Bottom</th></tr>
<tr><th>Max</th><th>Min</th><th>Max</th><th>Min</th></tr>
<tr><td>pH</td><td>--</td><td>8.26</td><td>8.01</td><td>8.27</td><td>7.95</td></tr>
<tr><td>TSS</td><td>mg/L</td><td>348</td><td>190</td><td>390</td><td>130</td></tr>
<tr><td>BOD (3 Days @ 27 °C)</td><td>mg/L</td><td>5</td><td>2</td><td>5.2</td><td>1</td></tr>
<tr><td>DO</td><td>mg/L</td><td>8</td><td>5.6</td><td>6.6</td><td>5.2</td></tr>
<tr><td>Salinity</td><td>mg/L</td><td>36</td><td>33.8</td><td>36</td><td>33.4</td></tr>
<tr><td>TDS</td><td>ppt</td><td>37940</td><td>34210</td><td>37110</td><td>34096</td></tr>
</table>

The results depict that there is no damage to the marine ecology. Please refer Annexure – 2 for detailed analysis reports. Approx. INR 12.5 Lakh is spent for all environmental monitoring activities during the FY 2018-19 (Till Sep'18).</td></tr>
<tr><td>9.</td><td>The camps of labor shall be kept outside the Coastal Regulation Zone area. Proper arrangements for cooking fuel shall be made for the labor during construction phase so as to ensure</td><td>Complied. Not applicable at present.

Construction activities are completed and project is in operational phase.</td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2018</th></tr>
<tr><td></td><td>that mangroves are not cut / destroyed for this purpose.</td><td></td></tr>
<tr><td>10.</td><td rowspan="2">Regular drills should be conducted to check the effectiveness of the on-site Disaster Management Plan. The recommendations made in the Environmental Management Plan and Disaster Management Plan, as contained in the Environmental Impact Assessment and Risk analysis reports of the project, shall be effectively implemented.</td><td>Complied.

Disaster Management plan is in place and implemented. Updated DMP was submitted to the MoEF & CC along with half yearly compliance report for the period from Apr – 2016 to Sep – 2016 and there is no further change in that.

All the recommendations given in the report of NIO and Tata AIG Risk Management Services are implemented. Few examples are provided below.
Few Marine EIA recommendations:
<table>
<tr><td>Temporary colonies of workforce should be located sufficiently away from the HTL with proper sanitation. Adequate arrangement of fuel supply to the workers should be made to discourage them from using mangroves for firewood.</td><td>Construction activity is already completed.
Most of the construction labours were residing in the nearby villages where all basic facilities are easily available. However, for those residing near the construction site, infrastructure facilities such as water supply, fuel, sanitation, first aid, ambulance etc. were provided by APSEZL.</td></tr>
<tr><td>As a step towards improvement in marine environment quality, mangrove afforestation of intertidal mudflats should be encouraged through adequate institutional support.</td><td>25 hectare of mangrove plantation with a cost of 10 Lakh is already completed near railway yard in consultation with Dr. Maity, Mangrove consultant of India.
Details on mangroves afforestation & Green belt development carried out by APSEZ till date is annexed as Annexure – 1.</td></tr>
<tr><td>The prevailing traffic control management of deep-sea ships navigating through the gulf needs thorough review and introduction of state of the art VTS should be considered.</td><td>APSEZ is practicing well defined traffic control procedure.

A VTS service for Gulf of Kutch is provided by the VTS Gulf of Kutch, operated by Directorate General of Lighthouses and Lightships (DGLL), Govt. of India.
Marine Control of APSEZ provides traffic update to vessels in Mundra Port Limit on VHF Channel- 77.</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2018</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td></td><td>Arrival and departure information before arrival and departure respectively in Gulf of Kutch is provided to VTS information cell through agent or by directly sending mail to vtsmanagergulfofkutch@yahoo.com and vtsgok@yahoo.com</td></tr>
</table>
Few Tata AIG Risk Assessment Recommendations:
<table>
<tr><td>There should be facilities of boom, skimmer, dispersant, diving suits, firefighting equipment and excellent communication facilities.</td><td>11 Dolphin tugs fitted with Oil Spill Dispersant boom and proportionate pump to mix OSD and Sea water as required; out of them 10 Dolphin Tugsare fitted with a fire curtain and remote controlled fire monitors.</td></tr>
<tr><td>In the event of oil spillage the oil slick normally will be carried away by water current and wind. It is very difficult to identify oil slick patches by boats/vessels, hence it is suggested that GAPL may take help from coast guard/Navy for aerial surveillance in order to identify and monitor oil slick movement.</td><td>Oil spill contingency plan is in place to handle Tier 1 level oil spills considering different accident scenarios, and the vulnerable areas are identified and mitigation plan is prepared. Oil spill contingency plan updated & approved by coast guard was submitted as a part of compliance report for the duration of Apr'17 to Sep'17.</td></tr>
</table>
</td></tr>
<tr><td>11.</td><td>The entire stretch of the pipelines shall be buried underground except at the booster pumping station, which will be properly fenced and the station would be manned round the clock. The buried lines will be protected with anticorrosive coal tar based coating. The coating will be tested by high voltage detector in accordance with prescribed standards.</td><td>Complied.

Entire SPM pipeline is buried underground. Total pipeline length is 15.4 km including 8.6 km inside the open sea and 6.8 km on landward side.

Booster pump is not provided throughout the pipeline. However the material is transferred by using pumping system of respective vessels berthed at SPM.

Anticorrosive 3 LPE coating is provided to the portion of onshore pipeline while offshore pipeline is also protected by concrete coating.

For offshore pipeline, Cathodic Potential (CP) survey is being done once in five years. Last CP inspection of offshore pipeline done in Oct'2017 and report for the same was</td></tr>
</table>

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2018</th></tr>
<tr><td></td><td></td><td>provided along with EC compliance report submission for the period of Apr'17 to Sep'17. For onshore pipeline also CP survey is being done by APSEZ on monthly bases. Details of the same were submitted along with last EC compliance report submission for the period of Oct'17 to Mar'18.</td></tr>
<tr><td>12.</td><td>Markers shall be installed at every 30 m to indicate the position of the line. Regular patrolling of the pipelines needs to be done. This will help in identifying any activity that have the potential to cause pipeline damage or to identify small leaks whose effects are too small to be detected by instrument.</td><td>Complied.
Markers are installed at every 30 m to indicate position of pipeline. Photograms of the same were submitted as part of the compliance report for the period from Oct'16 to March'17 and there is no farther change.

Pressure at vessel and reception points of transfer line is being monitoring during operation to ensure no leakage in pipeline.

Regular patrolling of pipeline is being done by APSEZL Security Department. Following mitigation plan is followed in case of small leaks leading to spills.
<table>
<tr><th>Activity</th><th>Adequacy of Measures</th></tr>
<tr><td>Hose Connection / Disconnection (liquid operation)</td><td>It is collected in deep tray in case of leakage. Stop the supply of liquid discharge.</td></tr>
<tr><td>Hose Connection / Disconnection (liquid operation)</td><td>Immediately stop the supply of liquid discharge. Marine break away coupling available for control of load.</td></tr>
<tr><td>Tanker discharge operation (SPM operation)</td><td>Emergency operation shut off (stopping the discharge)</td></tr>
</table></td></tr>
<tr><td>13.</td><td>There should be display boards at critical locations along the pipeline viz. road / rail /river crossings giving emergency instructions as well as contact details of GAPL. This will ensure prompt information regarding location of accident during any emergency. Emergency Information board should contain emergency instructions in addition to contact details.</td><td>Complied.
Display boards with emergency contact detail are provided at critical locations.

Photographs of the same were submitted as part of the compliance report for the period from Oct'16 to March'17 and there is no farther change.</td></tr>
</table>

Sr. No.	Conditions	Compliance Status as on 30-09-2018
14.	During operation phase, proper precautions should be taken to avoid any oil spills and no oily wastes shall be discharged into the water bodies.	Complied During operation, SPM team takes responsibility and actively supervises the operation. Inspection and maintenance activities are carried out regularly for prevention of any kind of oil spill at SPM. No liquid waste are generated / discharged from the project activity. In order to analyze marine water quality, marine sampling is being carried out at a location near SPM. Please refer sr. no 8 for further details.
15.	All conditions stipulated by the Forest and Environment Department, Government of Gujarat should be strictly implemented.	Complied All the conditions stipulated by Forest and Environment Department are being complied. Point wise compliance report of CRZ recommendations issued vide letter No. **ENV-10-2002-124-P (Part1)** dated **8th October 2003** is enclosed as **Annexure- A**.
16.	All conditions stipulated in Gujarat Pollution Control Board vide their letter No. PC/NOC/381/1039 dated 8th January, 2002 should be implemented.	Complied. Consent to Operate (CC&A) was granted by GPCB based on the compliance of conditions of the No Objection Certificate (CtE). This CC&A is renewed from time to time based on its validity. The last renewal was obtained vide GPCB consent no. WH 86980 valid till 26th April, 2022. Copy of the same was submitted as part of compliance report for the duration of Apr'17 to Sep'17.
B. General Condition		
1	Construction of the proposed structures should be undertaken meticulously confirming to the existing Central / local rules and regulations. All the construction designs / drawings relating to the proposed construction activities must have approvals of the concerned State Government Department / Agencies.	Complied. Not applicable at present. Construction activities are completed & project is in operation stage. Entire SPM pipeline is buried underground. Total pipeline length is 15.4 km including 8.6 km inside the open sea and 6.8 Km on landward side. Construction activities are carried out based on the approvals of the concerned state government department and prevailing laws.
2	The project authorities should take appropriate community development	Complied. APSEZ is actively working with local community around the project area and provides required support for their

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2018</th></tr>
<tr><td></td><td>and welfare measures for the villagers in the vicinity of the project site, including drinking water facilities. A separate fund should be allocated for this purpose.</td><td>livelihood and other concerns through the CSR arm – Adani Foundation. Brief information about activities in the main four persuasions is mentioned below. Please refer Annexure – 3 for full details of CSR activities carried out by Adani Foundation in the Mundra region.
<table>
<tr><th>Area</th><th>Activity</th></tr>
<tr><td>Community Health</td><td>• The Adani Foundation runs two mobile health care units. Main objective of Mobile Van is to reduce travel time, hardships and expenses. Two mobile health care units cover 34 villages and 05 fishermen settlements. Around 113 types of general and lifesaving medicines are available in these units. Total patient was treated under this scheme during the year 2018-19 (Till Sep'18): 8972 Nos.
• During the year 2018-19 (Till Sep'18), total 5137 transactions were done by 8518 card holders of 66 villages of Mundra Taluka and they received cash less medical services under this project.
• Total 10485 OPDs were given medical treatment in various villages through rural dispensaries.
• During this year, anthropometry study done for 2020 children. Total 6 children became free of malnutrition due to efforts under "Suposhan" Project. Additionally, 6288 FGD were conducted during this year.
• Total 8770 haemoglobin screenings of RPA woman and adolescent girls was carried out, which helps in controlling anaemia in women and indirectly malnutrition.
• During the year 2018-19, 11 Specialty camps were organized and 1636 Patients were benefitted.</td></tr>
<tr><td>Sustainable Livelihood – Fisher folk</td><td>• Average 118 KL of water was supplied to 983 households from different settlements on a daily basis under Machhimar Shudhh Jal Yojana.
• Adani Foundation constructed four Balwadis for kids between the age group of 2.5 years to 5 years at different settlements under Vidya Deep Yojana.
• Participatory scholarship support for fisherman children studying in SMJ high school Luni and to above 12th standards Students. 80 percentage support given by Adani foundation and 20 percentage support by parents!
• RTG Crane Operator: 03 Fisherman Youth
• Dori Work Training: 39 Women
• Mangrove Plantation, moss cleaning, etc.: 5201 Man-days.
• In addition to this, employment worth of 34727 man-days has been provided till date. The Foundation has also supported Pagadiya fishermen as painting labours by providing them with employment and job in various fields.
• AF has initiated Programme for Awareness of Farmers in collaboration with KVK. The outreach is approximate 67 farmers of 5 villages.
• This year we have given 1,08,000 man fodder worth Rs. 205 Lacs approximately under fodder cultivation program.</td></tr>
</table></td></tr>
</table>

Sr. No.	Conditions	Compliance Status as on 30-09-2018	
			• Project Swavlamban Launched with blessings of differently abled people of MUNDRA TALUKA and total **533 beneficiaries** benefited with financial benefit of 15.0 Lacs under this scheme.
		Education	• Total **174 Schools** and **12350 students** have visited Adani Port, Adani Power & Adani Willmar facilities to get an insight upon the large scale business activity carried out at each of them as a part of project **UDAAN**. • Navneet English books distribution and **Plastic free Environment awareness** event organized in all **17 schools** of Utthan by Adani foundation. • 111 Govt. primary schools in total 62 villages of Mundra Taluka, 3 villages of in Anjar taluka and two villages of Mandvi Taluka every year on an average 2550 to 2700 children gets enrolled in 1st std in Taluka For 2018-2019 total **2300** children got enrolled & Adani foundation provided the "Enrollment kit" to all new enrolee in Taluka.
		Rural Infrastructure	• Under Dignity of Drivers Project, Adani Foundation has constructed Resting Shed for Drivers entering in SEZ Premises. Total 50 beds are constructed, drinking water and sanitation plus recreational – TV Facilities. • A large number of water harvesting structure (18 Nos. of check dams in coordination with salinity department) and ground recharge activities (pond deepening work for more than 15 ponds) were built leading to a significant increase in water table and higher returns to the farmers. • As a part of pre monsoon activities with ACT (Arid Communities and Technologies – NGO) under this program, we have carried out following work. But, due to negligible rainfall we are not able to find out outcome of this project. i. Borana – Artificial bore well recharge (work completed) ii. Mangara – Artificial bore well recharge (work completed) iii. Dhrub – Pond deepening work (work completed) iv. Mota Kapaya – abended bore well recharge (work completed) **Other works completed** • Civil and electrical works in HMV driver rest shed • River and pond cleaning by JCB Nanikhakhar, Zarpara and Baroi • 26 pond deepening work under SSJA in 19 villages of mundra taluka **Work in Progress** • Drainage maintenance and other misc works • Basic infra. Facility in Labour Colony • Drainage chamber and covers, wandh village • Development in common place, Navinal • Civil works in gadhvi samaj community hall, Navinal • Civil works in secondary school, Navinal • Repair of west weir work at zarpara

Sr. No.	Conditions	Compliance Status as on 30-09-2018
		• Construction of fisherman house, shekhadiya Skill Development: • Soft skill training – 284 Nos. • Technical Training – 478 Nos. Budget for CSR Activity for the FY 2018-19 is to the tune of INR 1666 lakh. Out of which, Approx. INR 651 lakh are spent during the year (Till Sep'18).
3	To meet any emergency situation, appropriate fire – fighting system should be installed. Appropriate arrangements for uninterrupted power supply to the environment protection equipment and continuous water supply for the firefighting system should be made.	Complied. Tug (Dolphin-11) has firefighting system of 1200 m3/hr. along with 20 ton lifting "A" frame and diving support facility for support at offshore. With respect to onshore facilities valve station, pumping station and transportation pipeline , foam base fire tender is available . With respect to onshore facilities valve station , pumping station and transportation pipeline, foam base fire tender, fire water network is available Fire-fighting system has been installed and maintained to meet emergency situations. Additionally for emergency, DG Set is provided for fire water pumps to ensure continuous water supply for firefighting purpose. Detail information on firefighting facility available at APSEZL was submitted as part of the compliance report for the period from Oct'16 to March'17 and there is no farther change.
4	A separate Environment Management Cell with suitably qualified staff to carry out various environment related functions should be set up under the charge of a Senior Executive who will report directly to the Chief Executive of the Company.	Complied. M/s APSEZ has a well structured Environment Management Cell, staffed with qualified manpower for implementation of the Environment Management Plan. The Environment Management Cell is headed by Sr. Manager who directly reports to the top management. Environment Cell organogram was submitted along with last compliance report for the period Oct'17 to Mar'18. And there is no further change.
5	The funds earmarked for environment protection measures should be maintained in a separate account and there should be no diversion of these funds for any	Complied. Separate budget for the Environment Protection measures is earmarked every year. All environmental and horticulture activities are considered at group level and budget allocation is also done accordingly. No separate bank account is maintained for the same however, all the

Sr. No.	Conditions	Compliance Status as on 30-09-2018
	other purpose. A year wise expenditure on environmental safeguards should be reported to this Ministry's Regional Office at Bhopal.	expenses are recorded in advanced accounting system of the organization. Budget for environmental management measures (including horticulture) for the FY 2018-19 is to the tune of INR 1080 lakh. Out of which, Approx. INR 516 lakh are spent during the FY 2018-19 (Till Sep'18). Detailed breakup of the expenditures for the past 3 years as well as a summary of expenditures for the past 5 years is attached as **Annexure – 4**.
6	Full support should be extended to the officers of this Ministry's Regional Office at Bhopal and the officers of the Central and State Pollution Control Board by the project proponents during their inspection for monitoring purposes, by furnishing full details and action plans including the action taken reports in respect of mitigative measures and other environmental protection activities.	Complied APSEZL is always extending full support to the regulatory authorities during their visit to the project site. Last visit of Regional Office, GPCB was done on 20.07.2017 for Main port. APSEZL has submitted the reply to the site visit report vide letter dated 04.08.2017 incorporating details of action taken in respect of the observations of the GPCB representative. There was no visit carried out by any government authority during the compliance period of Apr'18 to Sep'18 with respect to SPM project.
7	In case of deviation or alteration in the project including the implementing agency, a fresh reference should be made to this Ministry for modification in the clearance conditions or imposition of new one for ensuring environmental protection. The project proponents should be responsible for implementing the suggested safeguard	Point noted. There is no change in the approved project proposal.

Sr. No.	Conditions	Compliance Status as on 30-09-2018
	measures.	
8	This Ministry reserves the right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.	Point noted.
9	This Ministry or any other competent authority may stipulate any other additional conditions subsequently, if deemed necessary, for environmental protection, which should be complied with.	Point noted.
10	A copy of the clearance letter should be marked to the concerned Panchayat / local NGO, if any, from whom any suggestion / representation has been received while processing the proposal.	Not applicable at present
11	State Pollution Control Board / Committee should display a copy of the clearance letter at the District Industries Center and Collector's Office/ Tehsildar's Office for 30 days from the date of receipt of this letter.	Not Applicable This condition does not belong to project proponent.
12	The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of	Already Complied.

Sr. No.	Conditions	Compliance Status as on 30-09-2018
	the locality concerned informing that the project has been accorded environmental clearance and copies of clearance letter are available with the Gujarat Pollution Control Board and may also be seen at the website of the Ministry of Environment & Forests at http://www.envfor.nic.in/	
13	The project proponents should inform regional Office Bhopal as well as the Ministry, the date of financial closure and final approval of the project by the concerned authority and the date of start of work.	Already Complied
14	The project proponent will obtain Forest clearance for any stretch of land if it passes through the forest land.	Not Applicable No forest land was involved in the project.
15	So as to maintain ecological features and avoid damage to the ecosystem, movement of vehicles in the Inter Tidal Zone shall be restricted to minimum.	Complied. All activities are carried out as per the permissions obtained from competent authorities. No unauthorized movement of vehicles is allowed in the intertidal zone.
16	Since the pipeline passes along mangrove areas and the mud flats of Mundra area, the project proponents will ensure adequate	Complied. Not applicable at present Construction activities are completed & project is in operation stage. Please refer to specific condition no 1 for detailed reply regarding mangrove plantation activity.

Sr. No.	Conditions	Compliance Status as on 30-09-2018
	protection to mangroves.	
17	Budgetary break up for Environmental Management Plan for the project to be mentioned.	Complied. Please refer to general condition no 5 for detailed reply regarding budgetary break up.

ANNEXURE – A

CRZ Recommendation Compliance Report

Half yearly Compliance report of CRZ recommendation for "SPM,COT and connecting pipeline at Mundra Port, Dist. Kutch in Gujarat" issued by DoEF, GOG vide letter no. ENV-10-2002-124-P (Part1) dated 8th October 2003.

Sr. No.	Conditions	Compliance Status as on 30-09-2018
1	The provision of the CRZ notification of 1991 and its amendments issued from time to time shall be strictly complied with by the GAPL.	Complied. Construction activities are completed and the project is in operation phase. All stipulations with respect to the CRZ notification and its subsequent amendments are complied with.
2	This recommendation is only for those activities proposed to be commissioned before the end of the year 2008 as mentioned in the bar chart submitted by GAPL.	Point noted. Construction activities are completed and the project is in operation phase.
3	A separate clearance shall be obtained by the GAPL for construction of the SPM No. 3 and 4, corresponding pipelines and COTs after demonstrating the compliance of the conditions, ecological upliftment activities undertaken successfully and mitigative measures implemented while developing the SPM no.1 and corresponding COT. A regional EIA shall also be commissioned immediately by the GAPL and all future development should be based on the outcome of the said regional EIA only.	Point Noted. APSEZL has only developed SPM no. 1 so far. SPM no. 3 and 4 are not developed yet and required permissions for the same will be obtained by following procedures mentioned in respective notifications.
4	Before commissioning of the construction activities, the construction design and pipeline alignment shall be validated/ approved by National Institute Oceanography to ensure that there is no negative	Complied. Construction activities are completed and the project is in operation phase. The EIA report was prepared by NIO and specific design considerations were taken into account for carrying out various studies for preparation of the same. Findings of the studies were considered before commissioning of the

Sr. No.	Conditions	Compliance Status as on 30-09-2018
	impact on the coastal morphology, hydrodynamics and ecological systems including the corals, if any. The mitigative measures as may be suggested by the NIO for this purpose shall be implemented by the GAPL.	construction activities. There are no corals present at the project site.
5	A comprehensive EIA shall be prepared and submitted to this Department by the GAPL, before commissioning of the SPM. All the suggestions for environmental protection /management that may be given in the comprehensive EIA shall be implemented by the GAPL.	Complied. EIA study has been completed and report is already submitted to MoEF&CC and other concerned authorities. Based on the same, Environment and CRZ clearance was granted by MoEF&CC. However, APSEZ has appointed a NABET accredited consultant M/s. Cholamandalam MS Risk Services Limited to prepare a cumulative impact assessment report for the entire Mundra region. The study is recently concluded and the final report is submitted vide our letter dated 30.04.2018 to GCZMA and MoEF&CC for their consideration. Copy of the acknowledgement letter is attached as **Annexure – 5**.
6	The ground water shall not be tapped in any case to meet with the water requirements during construction and/or operation phases.	Complied. APSEZ does not draw any ground water for the water requirement. Present source of water for entire port and SEZ is desalination plant and/or Narmada water through Gujarat Water Infrastructure Limited. Location of SPM is unmanned (approximately 8.6 km inside the open sea from the shore) hence no operation or maintenance activities require use of water on regular basis.
7	The GAPL shall ensure that the free flow of water in the intertidal area is not hampered due to proposed construction activities for pipeline corridor as well as other activities including the COT. Further, it shall be ensured by the GAPL that	Complied. Construction activity is already completed and the project is in operation phase. Free flow of water in the intertidal area is not hampered due to any operational activities. There are no filling or reclamation activities done at any of the creeks or mangrove areas in the vicinity of the project. As per recent bathymetry study carried out by NCSCM, it can be

Sr. No.	Conditions	Compliance Status as on 30-09-2018
	the nearby mangroves are not at all affected due to proposed development activities specifically the COT.	concluded that there are sufficient depths at the creek mouths and all creek mouths are open allowing flushing of water. NCSCM final report on comprehensive and integrated plan for preservation and conservation of mangroves and associated creeks in and around has been submitted to the concerned authorities i.e. MoEF&CC, New Delhi and GCZMA, Gandhinagar vide our letter dated 04.06.2018 and acknowledge copy of the same is attached here as **Annexure – 6**.
8	The GAPL shall take up massive mangroves plantation activities in addition 25 Ha. of area suitably identified in consultation with the office of the Principal Chief Conservator of Forests, GoG , as well as this Department. The GAPL shall bear the cost of the said land as well as the cost of the plantation of mangroves & its sustenance for a reasonable period of time.	Complied. Construction activities are completed & project is in operation stage. Please refer to specific condition no 1 of the compliance of EC and CRZ clearance for detailed reply regarding mangrove plantation activity.
9	In addition to the mangroves plantation, the GAPL shall also take up massive greenbelt development in and around the project site in consultation with the Forest Department.	Complied. Construction activities are completed & project is in operation stage. Please refer to specific condition no 2 of the compliance of EC and CRZ clearance for detailed reply regarding greenbelt development activity.
10	The GAPL shall provide financial contribution as many as decided by this department for any common study like carrying capacity for the Gulf of Kachchh as well as for any common facilities including Vessesl Traffic Management System in the	Complied. Necessary financial support will be provided on hearing from MOEF&CC. APSEZ is practicing well defined traffic control procedure. A VTS service for Gulf of Kutch is provided by the VTS Gulf of Kutch, operated by Directorate General of Lighthouses and Lightships (DGLL), Govt. of India.

adani	Adani Ports and SEZ Limited	From : Apr'18 To : Sep'18
Status of the conditions stipulated under CRZ Recommendation		

Sr. No.	Conditions	Compliance Status as on 30-09-2018
	Gulf of Kachchh, for the purpose of the environment protection/management.	Marine Control of APSEZ provides traffic update to vessels in Mundra Port Limit on VHF Channel- 77. Arrival and departure information before arrival and departure respectively in Gulf of Kutch is provided to VTS information cell through agent or by directly sending mail to vtsmanagergulfofkutch@yahoo.com and vtsgok@yahoo.com
11	The GAPL shall provide financial support in implementation of National Green Corps scheme (being implemented in Gujarat by the GEER Foundation) in Kachchh district in consultation with Forests & Environment Department.	Complied Necessary support will be provided on hearing from GEER foundation to support NGC scheme.
12	The GAPL shall bear the cost of the external agency that may be appointed by the Forests and Environment Department, GoG for supervision/ monitoring of their activities during construction and/or operational phases.	Point noted. APSEZ will provide full support for supervision and monitoring of the project operations after due discussion with the concerned agency and Forests & Environment Department, GoG. No such agency was appointed during the compliance period.
13	The dredged material that may be generated, if any, shall be disposed of at location suitably identified in consultation with the institute of repute like NEERI/NIO after due consideration of various environmental aspects and ensuring no significant negative impacts due to the same.	Complied. Construction activities are completed & project is in operation stage. SPM is approximately 8.6 km inside the open sea from the shore where 30 m of draft is naturally available. Hence no dredging is required.
14	No waste including the construction debris, oily waste from construction equipment's, untreated sewage, etc. would be	Complied. Construction activities are completed and the project is in operation phase.

Sr. No.	Conditions	Compliance Status as on 30-09-2018
	disposed of in to sea/ river/ creek or in the CRZ areas. The treated sewage meeting with the norms fixed by the Gujarat Pollution Control Board and the reject water from RO plant if any, shall be disposed of at a point in the deep sea as may be suggested by the institute of repute like the NEERI/NIO.	There is no disposal of any waste including civil debris in CRZ area. No Sewage or RO Reject water is being generated by SPM activity.
15	The Gujarat Maritime Board shall ensure that the Vessel Traffic Management System for safe navigation in the Gulf of Kachchh shall be established and commissioned before commissioning of the SPM No. 1 by the GAPL. The GAPL shall follow up for this with various stakeholders and provide financial and technical inputs for the same.	Complied. Kandla, GMB & DGLL are the agencies who financially support to VTMS. For SPM, APSEZ is mutual partner to support in case of Oil spill & vice versa. For further details regarding traffic management, please refer condition no. 10 of CRZ recommendations above.
16	A mutual aid system for the Mundra Port region shall be developed to meet with any unforeseen circumstances or to meet with any accidental condition. The GAPL shall take a lead for this by involving other stakeholders including HPCL.	Complied. APSEZ has signed an MoU with HPCL, Mittal Pipeline Ltd., Mundra in the region of Gulf of Kutch to assist each other within stipulated time frame with best combination of resources. **Interface with ROSDCP and NOSDCP** For responding to oil spill, the Indian Coast Guard has developed the National Oil Spill Disaster Contingency Plan NOSDCP which has the approval of the Committee of Secretaries and has been in operation since 1996. The NOSDCP brings together the combined resources of the various organizations and departments, Coast Guard, Ports and Oil handling Agencies, and related industries, to provide a level of preparedness to the threat posed to the marine environment by oil spills.
17	A detailed Risk Assessment	Complied.

Sr. No.	Conditions	Compliance Status as on 30-09-2018
	and Disaster Management Plan shall be worked out before commissioning of the SPM by the GAPL and the mitigative measures shall be identified and implemented. The local Oil Spill Contingency Plan in lines with the National Oil Spill Disaster Contingency Plan for the Mundra Port shall be put in to operation immediately.	Detailed Risk Assessment and Disaster Management Plan were prepaid By Tata AIG risk assessment services and few mitigation measures are addressed in compliance of specific condition no 10 of EC & CRZ clearance above. These studies were carried out before the start of the development activity and were considered by MoEF&CC before grant of the EC and CRZ clearance. For responding to oil spill, the Indian Coast Guard has developed the National Oil Spill Disaster Contingency Plan NOSDCP which has the approval of the Committee of Secretaries and has been in operation since 1996. Oil Spill Contingency Response Plan (OSCRP) is prepared in accordance with the NOSDCP. OSCRP is updated regularly. The updated OSCRP was submitted as a part of compliance report for the duration of Apr'17 to Sep'17 and there is no further change in the same.
18	Proper rehabilitation scheme shall be worked out for local fisherman communities in consultation with the District Collector/the Commissioner of Fisheries, Government of Gujarat, before commissioning of the SPM and report shall be furnished to the Forests and Environment Department.	Not applicable Location of SPM is unmanned (approximately 8.64 km inside the open sea from the shore) hence, there is no displacement of people, houses or fishing activity as a result of the project. However, APSEZ performs large scale socio-economic upliftment program and shares the details with FOKIA (Federation of Kutch Industries Association) chaired by District Collector quarterly. For further information related to CSR activities carried out by Adani Foundation in the Mundra region, please refer to compliance of General condition no. 2 of the EC and CRZ clearance above.
19	The construction labour shall be provided with adequate amenities/ facilities including the water supply, sanitation and fuel to ensure that the existing environmental condition is not deteriorated by them. The camps for the construction labour shall be kept outside the CRZ area. The GAPL	Complied. Construction activity is already completed, project is in operation phase. No construction camps were located in CRZ area. Most workers came from nearby villages however, for others; construction camps were located outside CRZ area. All necessary infrastructure and facilities like mobile toilets, safe drinking water, medical health care etc. were provided.

Sr. No.	Conditions	Compliance Status as on 30-09-2018
	shall ensure that there is no confrontation amongst the local villagers and construction labour.	
20	All possible social and health impacts due to the proposed development at Mundra Port shall be assessed in detail in the comprehensive EIA and a detailed management plan shall be developed to mitigate the same.	Complied. Aspects of social and health impact were studies as part of EIA report prepared by NIO and mitigation measures have been implemented. APSEZ performs large scale socio-economic upliftment program and shares the details with FOKIA (Federation of Kutch Industries Association) chaired by District Collector quarterly. For further information related to CSR activities carried out by Adani Foundation in the Mundra region, please refer to compliance of General condition no. 2 of the EC and CRZ clearance above.
21	The GAPL shall work out a detailed socio-economic upliftment programme in consultation with the District Collector and District Development Officer and shall implement the same. Separate budgetary provisions shall be kept for this purpose.	
22	An Environmental Management Cell with person having proper background shall be constituted. A separate budgetary provision shall have to be made for implementation of the Environmental Management Plan.	Complied. APSEZL has a well structured Environment Cell, staffed with qualified manpower for implementation of the Environmental Management Plan. For further details on the same, please refer to compliance of general condition no. 4 of the EC and CRZ clearance above. Separate budget for the Environment Protection measures is earmarked every year. For further details on the same, please refer to compliance of general condition no. 5 of the EC and CRZ clearance above.
23	Post project environmental monitoring shall be carried out regularly through a reputed institute like NEERI/NIO and report shall be submitted to the Forests and Environment Department, GoG every year.	Being complied. Monitoring of various environmental parameters for Ambient Air, Noise, marine water and sediments is being carried out by NABL accredited and MoEF&CC approved agency namely M/s. Pollucon Laboratory Pvt. Ltd. Ambient Air Quality (twice in a week) and Noise (once in a month) monitoring are being carried out by NABL and

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 30-09-2018</th></tr>
<tr><td></td><td></td><td>MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the same for duration from Apr'18 to Sep'18 is mentioned below.

Total Ambient Air & Noise Sampling Locations: 4 Nos.
<table>
<tr><th>Parameter</th><th>Unit</th><th>Max</th><th>Min</th><th>Perm. Limit$</th></tr>
<tr><td>PM_{10}</td><td>$\mu g/m^3$</td><td>95.31</td><td>42.70</td><td>100</td></tr>
<tr><td>$PM_{2.5}$</td><td>$\mu g/m^3$</td><td>55.67</td><td>16.35</td><td>60</td></tr>
<tr><td>SO_2</td><td>$\mu g/m^3$</td><td>26.58</td><td>5.2</td><td>80</td></tr>
<tr><td>NO_2</td><td>$\mu g/m^3$</td><td>44.64</td><td>16.27</td><td>80</td></tr>
<tr><th>Noise</th><th>Unit</th><th>Max</th><th>Min</th><th>Perm. Limit</th></tr>
<tr><td>Day Time</td><td>dB(A)</td><td>74.1</td><td>56.1</td><td>75</td></tr>
<tr><td>Night Time</td><td>dB(A)</td><td>69.6</td><td>57.7</td><td>70</td></tr>
</table>
$ as per NAAQ standards, 2009
Values recorded confirms to the stipulated standards

Marine water monitoring is carried out on monthly frequency In order to analyzed marine water quality, marine sampling is being carried out at a location nearby SPM. Please refer specific condition No. 8 of EC & CRZ clearance above.

Monitoring reports for the period from Apr'18 to Sep'18 are enclosed as Annexure – 2.</td></tr>
<tr><td>24</td><td>No construction activities shall be carried out by the GAPL in any of the Forest areas.</td><td>Already Complied. Not applicable at present.

The construction work is completed and project is in operation phase. No construction activity at any of the forest area is carried out for project of SPM, COT and connecting pipeline.</td></tr>
<tr><td>25</td><td>All necessary clearances from different Government Department/Agencies shall be obtained before commissioning any construction activities.</td><td>Complied.
All necessary clearances as per prevailing laws have been already obtained. Construction activity is already completed, project is in operation phase.</td></tr>
<tr><td>26</td><td>A half yearly compliance report with respect to above mentioned conditions as well as the implementation of the suggestions/ recommendations of the</td><td>Complied.

Half yearly compliance report is being submitted regularly. Last compliance report including results of monitoring data for the period of Oct'17 to Mar'18 was submitted to Regional Office of MoEF&CC @ Bhopal, Zonal Office of CPCB @ Baroda, GPCB @ Gandhinagar & Gandhidham and</td></tr>
</table>

adani	**Adani Ports and SEZ Limited**	**From : Apr'18** **To : Sep'18**
Status of the conditions stipulated under CRZ Recommendation		

Sr. No.	Conditions	Compliance Status as on 30-09-2018
	EIA and Risk Assessment reports shall be furnished to the Forest and Environment Department, GoG, without fail at regular interval.	Dept. of Forests & Env., Gandhinagar vide our letter dated 01.05.2018. Copy of the same is also available on our web site https://www.adaniports.com/ports-downloads. A soft copy of the same was also submitted through e-mail on 12.06.2018 to all the authorities. Please refer below for the details regarding past six compliance submissions. **Sr. no. / Compliance period / Date of submission** 1 / Apr'15 to Sep'15 / 30.11.2015 2 / Oct'15 to Mar''16 / 30.05.2016 3 / Apr'16 to Sep'16 / 01.12.2016 4 / Oct'16 to Mar'17 / 30.05.2017 5 / Apr'17 to Sep'17 / 01.12.2017 6 / Oct'17 to Mar'18 / 29.05.2018 All the recommendations given in the report of Tata AIG Risk Management Services are implemented. For further information related to the same, please refer to compliance of specific condition no. 10 of the EC and CRZ clearance above.
27	The GAPL shall also have to comply with any other condition as may be stipulated by the Forests and Environment Department, GoG, from time to time.	Point noted.

Annexure – 1

Details of Greenbelt development at APSEZ, Mundra

	Total Green Zone Detail Till Up to Sep - 2018				
	Area (In Ha.)	**Trees (Nos.)**	**Palm (Nos.)**	**Shrubs (SQM)**	**Lawn (SQM)**
SV COLONY	69.43	32480.00	7298.00	68327.00	95019.00
PORT & NON SEZ	78.98	137642.00	18395.00	76666.78	58905.18
SEZ	114.70	227835.00	17302.00	220449.60	27462.03
MITAP	3.47	8622.00	66.00	3340.00	8072.00
WEST PORT	86.04	186827.00	51342.00	24112.00	22854.15
AGRI PARK	8.94	17244.00	1332.00	5400.00	2121.44
SOUTH PORT	14.25	25530.00	3470.00	3882.00	3327.26
Samudra Township	53.39	44872.00	11818.00	19978.07	35071.67
Productive Farming (Vadala Farm)	23.79	27976.00	0.00	0.00	0.00
TOTAL (APSEZL)	**452.98**	**709028**	**111023**	**422155.45**	**252832.73**
		820051			

Details of Mangrove Afforstation done by APSEZ

Sl. no.	Location	Area (ha)	Duration	Species	Implementation agency
1	Mundra Port	24.0	-	Avicennia marina	Dr. Maity, Mangrove consultant of India
2	Mundra Port	25.0	-	Avicennia marina	Dr. Maity, Mangrove consultant of India
3	Luni/Hamirmora (Mundra, Kutch)	160.8	2007 - 2015	Avicennia marina, Rhizophora mucronata, Ceriops tagal	GUIDE, Bhuj
4	Kukadsar (Mundra, Kutch)	66.5	2012 - 2014	Avicennia marina	GUIDE, Bhuj
5	Forest Area (Mundra)	298.0	2011 - 2013	Avicennia marina	-
6	Jangi Village (Bhachau, Kutch)	50.0	2012 - 2014	Avicennia marina	GUIDE, Bhuj
7	Jakhau Village (Abdasa, Kutch)	310.6	2007-08 & 2011-13	Avicennia marina, Rhizophora mucronata, Ceriops tagal	GUIDE, Bhuj
8	Sat Saida Bet (Kutch)	255.0	2014-15 & 2016-17	Avicennia marina & Bio diversity	GUIDE, Bhuj
9	Dandi Village (Navsari)	800.0	2006 - 2011	Avicennia marina, Rhizophora mucronata, Ceriops tagal	SAVE, Ahmedabad
10	Talaza Village (Bhavnagar)	50.0	2011-12	Avicennia marina	SAVE, Ahmedabad
11	Narmada Village (Bhavnagar)	250.0	2014 - 2015	Avicennia marina	SAVE, Ahmedabad
12	Malpur Village (Bharuch)	200.0	2012-14	Avicennia marina	SAVE, Ahmedabad
13	Kantiyajal Village (Bharuch)	50.0	2014-15	Avicennia marina	SAVE, Ahmedabad
14	Devla Village (Bharuch)	150.0	210-16	Avicennia marina	SAVE, Ahmedabad
15	Village Tala Talav (Khambhat, Anand)	100.0	2015 - 2016	Avicennia marina	SAVE, Ahmedabad
16	Village Tala Talav (Khambhat, Anand)	38.0	2015 - 2016	Avicennia marina	GEC, Gandhinagar
	Total Mangrove Plantation:	**2827.90 Ha**			

Annexure – 2

"HALF YEARLY ENVIRONMENTAL MONITORING REPORT"

FOR

ADANI PORTS AND SPECIAL ECONOMIC ZONE LIMITED
TAL: MUNDRA, KUTCH, MUNDRA – 370 421

MONITORING PERIOD:
APRIL 2018 TO SEPTEMBER 2018

PREPARED BY:

POLLUCON LABORATORIES PVT.LTD.

**PLOT NO.5/6 "POLLUCON HOUSE", OPP. BALAJI INDUSTRIAL SOCIETY,
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TC - 5945 ISO 9001:2015 ISO 14001:2015 OHSAS 18001:2007

MARINE WATER MONITORING SUMMARY REPORT

RESULTS OF MARINE WATER [M1 LEFT SIDE OF BOCHA CREEK - N 22°45'183" E 069°43'241"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018		MAY 2018		JUNE 2018		JULY 2018		AUGUST 2018		SEPTEMBER 2018		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.05	8.02	8.12	8.09	8.17	8.09	8.12	7.98	8.25	8.18	8.17	8.14	IS3025(P11)83Re.02
2	Temperature	oC	30.7	30.1	31.1	30.8	30.6	30.3	31.4	30.8	30.5	30.2	30.8	30.6	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	210	246	292	218	281	240	302	274	344	290	312	289	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	3	2	4	3	4	2	3	2	4	3	3.0	2.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	8	6	6.8	6	6	5.4	6.2	5.4	6.6	6.4	6.2	6	IS3025(P38)89Re.99
6	Salinity	ppt	34.6	34.4	35.1	34.8	36	35.8	34	33.8	33.8	33.5	34.1	33.7	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22nd Edi)5520 D
8	Nitrate as NO_3	µmol/L	10.8	8.2	13.8	9.6	14	11.4	6	3	9.8	7.5	7.5	6.8	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.1	0.9	1.7	0.8	1.63	1.12	1.8	1.3	1.5	1.1	1.1	0.8	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	6.24	5.54	5.2	4.8	3.8	3.12	4	3.4	3.4	2.8	2.8	2.2	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.6	1.3	2.1	1.5	2.14	1.93	2.08	1.8	2.25	1.6	2.3	1.8	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	8.5	8.2	8.4	7.8	5.30	4.40	11.80	7.70	14.7	11.4	11.4	9.8	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	18	4	19	8	16	4	6.8	3.2	7.2	4.4	10	3	PLPL-TPH
14	Total Dissolved Solids	mg/L	36210	36090	37940	35210	36208	35756	34912	34118	34210	34108	34510	34392	IS3025(P16)84Re.02
15	COD	mg/L	10	8	11	10	15	6	10	8	12	9	9	8.0	APHA(22nd Edi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	2.13	0.76	2.4	2.1	2.03	1.17	2.6	0.8	1.75	1.3	1.21	1.1	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m^3	1.11	0.929	1.6	1.2	2.68	1.12	1.9	1.2	2.26	2.03	1.811	1.63	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

17.2	Phaeophytin	mg/m^3	3.2	2.9	3.9	2.8	1.74	0.87	3.4	2.6	1.72	1.40	1.37	1.21	APHA (22ndEdi) 10200-H
17.3	Cell Count	No. x 10^3/L	228	76	298	90	264	112	240	130	184	156	123	104	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	**Biddulphia sp.** *Melosira sp. Navicula sp. Nitzschia sp. Skeletonema sp.* --	**Melosira sp.** *Navicula sp. Nitzschia sp. Fragillaria sp.* -- --	**Nitzschia sp.** *Rhizosolenia sp. Navicula sp. Asterionella sp. pediastrum sp Synedra sp.*	**Navicula sp.** *Fragillaria sp. Biddulphia sp.* -- -- --	Rhizosolenia sp. Navicula sp. Chaetognathes Nitzschia sp. Thallasiosira sp. Surirella Ceratium	Nitzschia sp. Navicula sp. Melosira sp. -- -- -- --	**Rhizosolenia** *Nitzschia Navicula Biddulphia Coscinodiscus Cheatoceros*	**Synedra** *Navicula Thallasiosira* -- -- --	*Melosira Thallasionema Navicula Nitzschia Rhizosolenia* --	*Navicula Nitzschia* -- -- -- --	*Nitzschia Peridiniium Navicula Biddulphia* --	*Thallassionema Nitzschia Navicula* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	20		18		70		68		54		43		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Copepods Decapods Foraminiferans Ostracodes		Crustaceans Fish egg Mysids Molluscans --		Polychaete Mollusan Crustaceans Ostracods Foraminiferans		Decapods Copepods Polychaete Gastropods --		Copepods Foraminiferans Polychaete Mysids Lamellibranches		Chaetognaths Copepods Gastropods --		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	4.58		9.4		10.7		8.4		7.6		6.08		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	1750		1950		1850		1900		1700		2050		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4 (2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M1 LEFT SIDE OF BOCHA CREEK - N 22°45'183" E 069°43'241"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018	MAY 2018	JUNE 2018	JULY 2018	AUGUST 2018	SEPTEMBER 2018	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.84	0.72	0.75	0.66	0.54	0.68	FCO:2007
2	Phosphorus as P	µg/g	180	205	210	240	224	218	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.8	5.4	5.2	5.5	5.15	5.4	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	212	260	118	146	120	230	AAS 3111B
5.3	Manganese as Mn	µg/g	1680	1780	1760	1880	1750	1650	AAS APHA 3111 B
5.4	Iron as Fe	%	5.2	5.8	4.7	5.1	4.9	5.3	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	80.6	42.8	66.4	56.8	41.6	64	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	70.8	80.6	72	67.9	43.8	56	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	240	180	278	312	290	242	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	8.2	7.2	9.9	6.5	3.2	7.5	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	0.12	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Decapods Amphipods --	Crabs Anthozoans Isopodes Decapodes	Polychaete Anthozoans Decapods	Gastropods Polychaete Decapods	Bivalves Decapods Polychaete	Polychaete Echinoderms --	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Copepods Hydrozoa	Copepodes Foraminiferans --	Nematodes Hydroza	Bryozoans Hydrozoa	Hydrozoa --	Copepods Ostracodes --	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	372	260	382	441	353	614	APHA (22nd Edi) 10500-C

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M2 MOUTH OF BOCHA & NAVINAL CREEK - N 22°44'239" E 069°43'757"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018		MAY 2018		JUNE 2018		JULY 2018		AUGUST 2018		SEPTEMBER 2018		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.15	8.11	8.17	8.15	8.23	8.16	8.2	8.15	8.24	8.09	8.26	8.15	IS3025(P11)83 Re.02
2	Temperature	oC	30.5	30.2	31.3	30.8	30.7	30.3	30.8	30.2	30.7	30.4	31	30.6	IS3025(P9)84R e.02
3	Total Suspended Solids	mg/L	258	278	310	262	282	246	296	272	308	290	284	252	IS3025(P17)84 Re.02
4	BOD (3 Days @ 27 °C)	mg/L	4	3	3	2	3	2	2	BDL*	3.0	BDL*	3.0	BDL*	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	6.6	6	6	5.8	5.8	5.6	6.6	6	6.4	6.2	6.6	6.1	IS3025(P38)89 Re.99
6	Salinity	ppt	34.9	34.6	35.4	35.1	35.2	35	33.8	33.4	34.2	33.5	34.3	34	APHA (22ndEdi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22ndEdi)5 520D
8	Nitrate as NO_3	µmol/L	13.6	10.2	26.2	23.8	10.4	8.2	3.3	3	10.4	5	6.2	4.4	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.5	1.1	2.2	1.7	1.12	0.66	2.2	1.6	1.8	1.2	0.95	0.6	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	5.87	5.53	3.2	2.4	3.23	2.4	3.4	2.9	4.0	3.0	2.8	2.1	IS3025(P34)88 Cla.2.3
11	Phosphates as PO_4	µmol/L	1.5	1.3	1.8	1.1	1.77	1.42	1.95	1.74	2.4	2.1	2.56	2.2	APHA(22ndEdi) 4500 C
12	Total Nitrogen	µmol/L	7.5	7.2	5.1	4	4.50	3.20	8.90	7.50	16.2	9.2	9.95	7.1	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	17	7	12	4	18	8	16	4	10	4.0	8	3.0	PLPL-TPH
14	Total Dissolved Solids	mg/L	37128	36720	37610	37108	35992	35872	34712	34218	34312	34116	34416	34319	IS3025(P16)84 Re.02
15	COD	mg/L	12	10	6	5	11	8	8	6	11.0	6.0	8.0	5.0	APHA(22ndEdi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/ L/day	1.35	0.67	1.8	1.12	1.62	1.01	2.2	1.6	1.23	0.72	1.32	1.05	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/ m^3	2.2	0.97	2.6	1.23	2.42	1.32	3.58	2.3	1.69	0.94	1.35	0.753	APHA (22ndEdi) 10200-H
17.2	Phaeophytin	mg/ m^3	3.5	4.4	2.4	1.5	1.6	0.86	2	1.9	1.0	0.47	0.8	0.379	APHA (22ndEdi) 10200-H

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

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Lab Manager (Q)

17.3	Cell Count	No. x 10^3/L	285	140	270	80	380	124	310	190	210	148	140	99	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	**Biddulphia sp.** *Cyclotella sp. Nitzschia sp. Peridinium Coscinodiscus sp.*	**Thallasionema sp.** *Skeletonema sp. Navicula sp.* -- --	**Navicula sp.** *Synedra sp. Coscinodiscus sp. Asterionella sp.* --	**Navicula sp.** *Fragillaria sp. Biddulphia sp* -- --	**Rhizosolenia sp.** Navicula sp. Nitzschia sp. Biddulphia sp. Melosira sp.	Navicula sp. Biddulphia sp. Nitzschia sp. -- --	**Navicula** *Nitzschia rhizosoleria Biddulphia* -- --	**Biddulphia** *Fragillaria sp. Navicula sp.* -- -- --	*Navicula Nitzschia Coscinodiscus Thallasiosira Frugillaria Cyclotella*	*Melosira Nitzschia* -- -- -- --	*Thallassionema Nitzschia Biddulphia Gyrosigma Rhizosolenia*	*Peridinium Biddulphia Navicula* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10 ^{3}/ 100 m^3	32		22		31		48		40		38		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Gastrotriches Copepods Polychaete worms Bivalves		Gastropods Copepods Decapods Ostracods Krill		Gastroponds Mollusan Bivalves Polychaete --		Polychaete Bivalves Ctenophores Mysids		Gastropods Chaetognaths Siphonophores Lamellibranches		Decapods Gastropods Polychaetes Copepods		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	4.2		7.8		3.8		6.4		4.94		3.95		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	1650		1995		1750		1650		1950		1850		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22nd Edi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M2 MOUTH OF BOCHA & NAVINAL CREEK – N 22°44'239" E 069°43'757"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018	MAY 2018	JUNE 2018	JULY 2018	AUGUST 2018	SEPTEMBER 2018	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.75	0.9	0.9	0.8	0.64	0.74	FCO:2007
2	Phosphorus as P	µg/g	202	222	160	198	210	188	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.45	5.3	5.1	5.35	5.3	5.2	AAS APHA 3111 B
5.2	Total Chromium as Cr+3	µg/g	124	142	148	112	102	132	AAS 3111B
5.3	Manganese as Mn	µg/g	1940	1620	1650	1580	1440	1350	AAS APHA 3111 B
5.4	Iron as Fe	%	5.1	5.5	4.9	5.1	4.9	4.85	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	94.6	72.8	82	65	58	48	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	62.8	48.6	43	82	64	52	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	256	290	310	360	290	210	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	10.7	8.1	7.4	5.5	3.4	2.6	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Polychaete worms Amphipods Gastropods	Echinoderms Polychaete worms Isopods	Echinoderms Decapods Isopods	Polychaete Gastropods Bivalves	Gastropods Polychaete Crustaceans	Polychaete Isopods Decapods	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Hydrozoa --	Foraminiferans Nematodes Copepods	Nematodes Copepods	Nematodes Foraminiferans --	Copepods -- --	Foraminiferans Copepods --	APHA (22nd Edi) 10500-C
6.3	Population	no/m^2	298	240	353	471	324	471	APHA (22nd Edi) 10500-C

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M3 EAST OF BOCHAISLAND - N 22°46'530" E 069°41'690"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018		MAY 2018		JUNE 2018		JULY 2018		AUGUST 2018		SEPTEMBER 2018		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.19	8.13	8.12	8.09	8.13	8.05	8.25	8.15	8.17	8.11	8.21	8.14	IS3025(P11)83Re.02
2	Temperature	oC	30.2	30.3	31.1	30.8	31	30.5	30.6	30.2	30.9	30.6	30.7	30.5	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	252	220	268	208	296	244	318	284	332	298	348	272	IS3025(P17)84Re.02
4	BOD (3 Days @ 27°C)	mg/L	4	3	5	4	3	2	3	BDL*	4.0	BDL*	BDL*	BDL*	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	6.2	5.8	6.2	6	6.2	6	6.2	5.6	6.4	5.8	6.6	6.2	IS3025(P38)89Re.99
6	Salinity	ppt	35	34.6	35.2	34.8	35.6	35.2	34.2	33.8	34.4	33.8	34.1	34	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	13.8	8	17.8	10.2	15.8	11.3	9	5	7.5	4.0	5.6	3.2	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.2	0.6	1.8	1.1	2.4	1.63	2.8	1.9	2.1	1.8	2.1	1.6	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	2.7	2.2	3.4	2.8	1.7	1.2	2	1.6	3.0	2.0	1.7	1.1	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.6	1.4	2.6	2.1	2.25	1.87	2.4	1.7	2.04	1.80	2.31	2.10	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	3.8	2.7	4.8	4.2	3.10	2.40	13.80	8.50	12.6	7.8	9.4	5.9	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	18	12	10	4	12	4	10	6	16	10	18	8	PLPL-TPH
14	Total Dissolved Solids	mg/L	36208	35712	36940	35910	36117	35756	34972	34318	34408	34096	34312	34106	IS3025(P16)84Re.02
15	COD	mg/L	10	8	12.6	10.2	11	8	6	BDL*	10	BDL*	7	BDL*	APHA(22nd Edi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	1.71	0.47	1.78	1.14	2.21	1.49	3.1	2.18	1.55	0.81	1.3	0.945	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m³	2.5	0.65	2.8	1.8	2.11	1.45	2.6	1.8	1.72	1.11	1.38	0.88	APHA (22nd Edi) 10200-H
17.2	Phaeophytin	mg/m³	2.4	1.8	3.4	2.9	1.78	1.16	3.4	3	0.894	0.4	0.806	0.3	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

17.3	Cell Count	No. x 10^3/L	264	96	280	110	348	100	316	220	198	92	132	61	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	**Nitzschia sp.** *Navicula sp. Coscinodiscus sp. Rhizosolenia sp. Biddulphia sp.* **--**	**Fragillaria sp.** *Navicula sp. Melosira sp.* -- -- **--**	**Amphipora sp.** *Asterionella sp. Biddulphia sp. Cocconeis sp. Pleurosigma sp. Nitzschia sp.*	**Navicula sp.** *Nitzschia sp. Pleurosigma sp.* -- -- --	Rhizosolenia sp. Coscinodiscus sp. Thallasiosira sp. Nitzschia sp. Pleurosiqma --	Nitzschia Navicula Melosira -- -- --	**Cosmarium** *Rhizosolenia Thallasiosira Biddulphia Coscinodiscus Melosira*	**Melosira** *Biddulphia Rhizosolenia* -- -- --	*Frugillaria Melosira Nitzschia Thallasiosira Gylnardia* --	*Melosira Nitzschia Navicula* -- -- --	*Rhizosolenia Thallasionema Nitzschia Coscinodiscus Fragillaria*	*Navicula Synedra Nitzschia* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	20		16		62		72		55		44		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Copepods Nematodes Polychaete worms --		Copepods Cyclops Decapods Krill Polychaete worms		Crustaceans Gastroponds Bivalves Hydrozoans --		Polychaete Bivalves Ostracodes Echinoderms Decapods		Copepods Decapods Foraminiferans Mysids Gastropods		Amphipods Copepods Mysids Polychaetes		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	5.28		7.8		11.6		10.4		5.1		7.92		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	1680		1910		1650		1800		2010		1850		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M3 RIGHT SIDE OF BOCHA CREEK - N 22°46'530" E 069°41'690"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018	MAY 2018	JUNE 2018	JULY 2018	AUGUST 2018	SEPTEMBER 2018	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.65	0.62	0.75	0.82	0.6	0.64	FCO:2007
2	Phosphorus as P	µg/g	140	198	242	266	272	240	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.2	5.5	5.4	5.1	4.9	5.14	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	140	182	139	178	160	144	AAS 3111B
5.3	Manganese as Mn	µg/g	1570	1440	1680	1710	1580	1450	AAS APHA 3111 B
5.4	Iron as Fe	%	5.12	5.75	5.1	4.8	4.6	4.75	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	50.2	34.2	79.2	52.8	60.6	68.2	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	40.6	60.4	50.4	58.6	41.6	53.2	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	218	256	262	298	272	308	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	11.6	5.4	11.2	8.8	4.6	2.8	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Polychaete worms Isopods Decapods	Polychaete worms Bivalves Anthozoans	Polychaete Isopods Decapods	Polychaete Bivalves Sponges	Polychaete Amphipods Echinoderms	Isopods Polychaetes Decapods	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes --	Foraminiferans Copepodes	Hydroza --	Nematodes Bryozoans *Foraminiferans*	Copepods Foraminiferans --	Bryozoans Hydrozoa --	APHA (22nd Edi) 10500-C
6.3	Population	no/m^2	343	310	338	529	559	440	APHA (22nd Edi) 10500-C

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M4 JUNA BANDAR N 22°47'577" E 069°43'620"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018		MAY 2018		JUNE 2018		JULY 2018		AUGUST 2018		SEPTEMBER 2018		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.18	8.1	8.07	8.02	8.11	8.06	8.09	8.01	8.17	8.06	8.19	8.15	IS3025(P11)83Re.02
2	Temperature	oC	30.2	30	31.1	30.8	30.5	30.2	30.8	30.2	30.1	29.8	30.6	30.5	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	288	223	262	210	308	267	390	296	342	270	317	284	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	2.5	1.8	3.4	3	2	1	3	BDL*	BDL*	BDL*	BDL*	BDL*	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	5.8	5.2	6.2	5.9	5.6	5.4	6.6	6.2	6.4	6.0	6.5	6.2	IS3025(P38)89Re.99
6	Salinity	ppt	35	34.2	35.4	34.8	35.4	35	34.4	34	34.3	34.1	33.9	33.8	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	3	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	20.6	17.4	12.4	8.2	17.2	14.4	8.5	5.3	12.4	6.2	7.4	3.4	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.2	0.8	0.9	0.6	1.38	0.61	1.40	0.8	1.8	1.2	2.1	1.1	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	2.2	1.8	3.2	2.4	2.53	2	3.00	2	4.0	3.0	2.8	2.4	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.7	1.4	2.2	1.6	2.09	1.87	2.3	1.96	2.18	2.1	2.21	2.04	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	7	6	5.2	3.1	3.50	2.90	12.90	8.10	18.2	10.4	12.3	6.9	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	14	8	20	6	16	5	16	4	10	6.0	8	3.0	PLPL-TPH
14	Total Dissolved Solids	mg/L	36840	36320	37110	36242	36118	35914	34812	34610	34756	34612	34216	34104	IS3025(P16)84Re.02
15	COD	mg/L	8	6	11.4	9.2	8	5	8	6	6.0	BDL*	6.0	5.0	APHA(22nd Edi) 5520-D Open Reflux
A	Flora and Fauna														
16	Primary productivity	mgC/L/day	2.56	0.67	2.4	1.6	2.7	1.03	2.78	1.4	3.1	1.6	2.2	1.46	APHA (22nd Edi) 10200-J
B	Phytoplankton														
17.1	Chlorophyll	mg/m^3	3.1	0.7	2.52	2.1	3.93	1.21	2.9	1.8	1.32	1.09	1.06	0.874	APHA (22nd Edi) 10200-H
17.2	Phaeophytin	mg/m^3	2.4	1.7	3.1	2.8	2.85	1.69	2.4	1.6	1.13	0.86	0.908	0.694	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

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Lab Manager (Q)

17.3	Cell Count	No. x 10^3/L	310	80	280	60	344	104	380	130	134	122	136	21	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	**Fragillaria sp.** *Melosira sp.* *Pinnularia sp.* *Rhizosolenia sp.* *Skeletonema sp.* **--**	**Nitzschia sp.** *Amphora sp.* *Biddulphia sp.* -- -- --	**Asterionella sp.** *Coscinodiscus sp.* *Navicula sp.* *Nitzschia sp.* *Fragillaria sp.* *Surirella sp.*	**Navicula sp.** *Gyrosigma sp.* *Coscinodiscus sp.* *Asterionella sp.* -- --	Navicula sp. Nitzschia sp. Coscinodiscus sp. Cheatoceros sp. Skeletonema sp. --	Navicula sp. Bacteriastrum Nitzschia sp. -- -- --	**Navicula** *Nitzschia* *Rhizosolenia* *Coscinodiscus* *Cyclotella*	**Biddulphia** *Nitzschia* *Surirella* -- --	*Coscinodiscus* *Navicula* *Biddulphia* *Thallasionema* *Frugillaria*	*Nitzschia* *Melosira* -- -- --	*Biddulphia* *Nitzschia* *Cyclotella* *Peridinium* *Thallassionema*	*Peridinium* *Cyclotella* *Fragillaria* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	17		22		38		58		64		51		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Copepods Ostracodes Molluscans Ostracods		Copepods Krill Decapods Crustaceans Ostracodes		Hydrozoans Polychaete Bivalves Gastropods --		Molluscans Polychaete Bivalves Decapods		Copepods Foraminiferans Ostracodes Fish Larve		Foraminiferans Polychaetes Gastropods Copepods		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	10.2		13.2		9.5		11.8		5.84		4.67		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	1550		1760		1600		1850		2070		1890		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M4 JUNA BANDAR N 22°47'577" E 069°43'620"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018	MAY 2018	JUNE 2018	JULY 2018	AUGUST 2018	SEPTEMBER 2018	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.98	0.88	0.8	0.75	0.7	0.55	FCO:2007
2	Phosphorus as P	µg/g	187	158	190	202	184	210	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.44	4.9	5.4	5.22	5.1	5.35	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	178	144	136	158	142	165	AAS 3111B
5.3	Manganese as Mn	µg/g	1940	1770	1910	1845	1760	1680	AAS APHA 3111 B
5.4	Iron as Fe	%	5.35	5.4	5.3	5.1	4.9	5.1	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	38.6	44.6	84.4	72.8	63	52	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	72.2	66.2	70.2	56.1	48	64	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	222	210	276	298	240	272	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	10.2	7.1	11.2	9.2	6.2	5.9	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Polychaete worms Isopods Decapods	Polychaete worms Echinoderms Anthozoans	Amphipods Polychates --	Polychaete Bivalves	Polychaete Bivalves	Decapods Polychaetes --	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Bryozoans --	Nemotodes Foraminiferans *Hydrozoa*	Hydroza Branchyurans	Copepods Ostracodes *Hydrozoans*	Foraminiferans Copepods --	Hydrozoa Foraminiferans Ostracodes	APHA (22nd Edi) 10500-C
6.3	Population	no/m^2	294	270	324	441	412	559	APHA (22nd Edi) 10500-C

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Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

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Lab Manager (Q)

RESULTS OF MARINE WATER [M5 TOWARDS WESTERN SIDE OF EAST PORT – N 22°46'041" E 069°47'296"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018		MAY 2018		JUNE 2018		JULY 2018		AUGUST 2018		SEPTEMBER 2018		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.07	8.03	8.18	8.12	8.15	8.1	8.24	8.09	8.27	8.2	8.25	8.19	IS3025(P11)83Re.02
2	Temperature	oC	30.6	30.2	31.4	30.8	30.4	30.1	30.8	30.6	30.5	30.2	30.7	30.4	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	212	175	308	282	312	260	298	244	318	284	352	306	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	4	3	3	2	3	2	3	2	4.0	BDL*	3.0	BDL*	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	6.2	5.8	6.4	5.8	6.2	6	6.6	5.8	6.4	6.2	6.2	6.0	IS3025(P38)89Re.99
6	Salinity	ppt	34.8	34.5	35.1	34.6	35.6	35	34.8	34.2	34.6	34.4	34.2	34.1	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	14.2	12.4	15.2	10.8	14	10.2	7.4	3.2	9.8	4.6	6.1	3.2	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.3	1.1	1.7	0.9	1.53	0.87	0.85	0.6	0.75	0.4	1.1	0.45	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	1.9	1.5	2.1	1.4	5.1	3.61	2.4	2.1	3.4	2	2.6	1.8	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.7	1.4	1.95	1.72	1.82	1.55	2.18	1.45	2.3	2.1	2.15	1.9	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	2.8	2.4	2.8	1.5	8.10	7.00	10.65	5.90	13.95	7.0	9.8	5.45	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	18	7	10	4	18	3	10	4	12	6	14	6	PLPL-TPH
14	Total Dissolved Solids	mg/L	35720	35230	35642	35108	36208	35814	35218	34948	34942	34618	34572	34328	IS3025(P16)84Re.02
15	COD	mg/L	12	10	8	6.4	12	8	8	6	12.0	6.0	10.0	BDL*	APHA(22nd Edi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	1.84	0.83	3.2	1.5	2.14	0.99	3.9	2.8	2.13	1.68	1.91	1.01	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m^3	1.16	0.97	2.4	2.2	2.85	1.71	3.4	1.6	2.04	1.92	1.63	1.53	APHA (22nd Edi) 10200-H
17.2	Phaeophytin	mg/m^3	2.2	1.6	3.6	3	2.76	1.25	2.8	1.3	1.26	1.6	1.01	0.646	APHA (22nd Edi)

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															10200-H
17.3	Cell Count	No. x 10^3/L	340	90	290	70	292	152	380	268	210	148	140	99	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	**Amphora sp.** *Fragillaria sp.* *Melosira sp.* *Rhizosolenia sp.* *Coscinodiscus sp.* **--**	**Fragillaria sp.** *Melosira sp.* *Nitzschia sp.* -- **--** --	**Rhizosolenia sp.** *Synedra sp.* *Navicula sp.* *Coscinodiscus sp.* *Skeletonema sp.* --	**Nitzschia sp.** *Melosira sp.* *Fragillaria sp.* -- -- --	Navicula sp. Nitzschia sp. Skeletonema sp. Coscinodiscus sp. Pleurosigma sp. Biddulphia sp.	Navicula sp. Nitzschia sp. Melosira sp. -- -- --	**Rhizosolenia** *Navicula* *Nitzschia* *Coscinodiscus* *Skeletonema* *Surirella*	**Melosira** *Thallasiosira* *Nitzschia* -- -- --	*Coscinodiscus* *Nitzschia* *Navicula* *Thallasiosira* -- --	*Frugillaria* *Guinardi* *Synedra* -- -- --	*Thallasionema* *Cyclotella* *Nitzschia* *Biddulphia* *Rhizosolenia*	*Cyclotella* *Nitzschia* *Melosira* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	15		25		26		30		48		41		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Polychaete worms Amphipods Gastrotriches Copepods		Nematodes Copepods Copepods --		Gastropods Bivalves Nematodes Crustaceans		Hydrozoa Polychaete Bivalves Foraminiferans		Polychaete Decapods Bivalves Gastropods		Polychaete Decapods Copepods Fish egg		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	5.69		8.4		6.6		9.8		9.9		7.68		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	1840		1720		1680		1850		2100		2070		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi. 2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

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Lab Manager

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Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M5 TOWARDS WESTERN SIDE OF EAST PORT – N 22°46'041" E 069°47'296"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018	MAY 2018	JUNE 2018	JULY 2018	AUGUST 2018	SEPTEMBER 2018	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.88	0.58	0.62	0.98	0.69	0.58	FCO:2007
2	Phosphorus as P	µg/g	260	310	243	298	202	196	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.25	5.15	5.26	5.36	5.1	4.8	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	162	186	176	144	118	132	AAS 3111B
5.3	Manganese as Mn	µg/g	1380	1560	1428	1480	1610	1540	AAS APHA 3111 B
5.4	Iron as Fe	%	5.4	5.5	5.3	5.12	4.96	478	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	21.8	33.2	22.8	44.8	30.8	51.4	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	60.6	78.4	65.2	72.9	60	49	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	172	210	184	218	590	410	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	17.2	5.9	12.2	14.6	9.6	3.4	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	0.18	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Polychaete worms Isopods Mysids	Crabs Mysids Decapods Bivalves	Echinoderms Decapods --	Polychaete Mysids Isopods	Polychaete Amphipods Mysids	Bivalves Ostracodes Chaetognaths	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Hydrozoa --	Gastrotriches Ostracodes	Copepods Hydroza	*Nematodes* -- --	-- Hydrozoa --	Copepods Bryozoans --	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	362	340	265	382	471	643	APHA (22nd Edi) 10500-C

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M7 EAST PORT N 22°47'120" E 069°47'110"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018		MAY 2018		JUNE 2018		JULY 2018		AUGUST 2018		SEPTEMBER 2018		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.2	8.12	8.25	8.15	8.19	8.08	8.13	8.07	8.19	8.11	8.16	8.15	IS3025(P11)83Re.02
2	Temperature	oC	30.1	29.6	31.4	30.9	30.2	30.4	30.6	30.1	30.7	30.5	30.6	30.5	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	190	152	248	130	310	256	317	272	368	311	384	304	IS3025(P17)84Re.02
4	BOD (3 Days @ 27°C)	mg/L	2.2	1.6	5	4	5	2	4	2	3.0	2.0	4.0	2.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	6.2	5.8	6.6	6.2	6.3	5.8	6.2	5.6	6.6	6.2	6.4	6	IS3025(P38)89Re.99
6	Salinity	ppt	34.8	34.5	35.2	34.8	35.6	35	35	34.8	34.6	34.2	34.4	34.3	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22nd Edi)5520D
8	Nitrate as NO_3	µmol/L	7.8	5.2	4.4	2.9	10.2	7.4	5.9	4.7	9.6	5.4	4	2.5	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.1	0.8	0.8	0.5	1.33	1.02	1.48	0.75	1.3	0.8	1.1	0.75	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.1	1.9	2.1	1.4	2.19	1.78	2.45	1.9	2.1	1.6	2.6	1.9	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	1.43	2.24	1.72	1.58	2.46	2.09	1.8	1.6	2.06	1.8	2.14	1.7	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	4.3	2.8	4.8	3.9	2.60	1.90	9.83	7.35	13	7.8	7.7	5.15	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	15	10	6	2	14	4	18	6	14	8.0	16	10.0	PLPL-TPH
14	Total Dissolved Solids	mg/L	35602	35112	35972	35212	36512	36214	35208	34984	34996	34810	34872	34564	IS3025(P16)84Re.02
15	COD	mg/L	7	6	16	12	18	10	12	8	14	8	12	10	APHA(22ndEdi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	1.6	1.3	2.4	1.8	6.98	4.95	3.6	3.1	1.57	0.94	1.55	1.26	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m^3	1.15	0.97	2.6	2.4	4.54	2.78	3.9	2.4	1.59	1.32	1.27	1.06	APHA (22nd Edi) 10200-H
17.2	Phaeophytin	mg/m^3	2.4	1.9	3.4	3.2	2.14	1.33	2.6	2.1	1.2	0.97	0.961	0.774	APHA (22nd Edi) 10200-H

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17.3	Cell Count	No. x 10^3/L	270	65	320	90	304	196	340	240	212	136	141	91	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	**Amphora sp.** *Cyclotella sp.* *Rhizosolenia sp.* *Navicula sp.* ***Thallasionema sp.*** *Coscinodiscus sp.*	**Biddulphia sp.** *Melosira sp.* *Rhizosolenia sp.* -- -- --	**Nitzschia sp.** *Synedra sp.* *Coscinodiscus sp.* *Pleurosigma sp.* *Thallassiosira sp.* *Pinnularia sp.*	**Navicula sp.** *Fragillaria sp.* *Thalassionema sp.* -- -- --	Navicula sp. Nitzschia sp. Rhizosolenia sp. Coscinodiscus sp. Melosira sp. Thallassiosira sp.	Nitzschia sp. Melosira sp. Pleuzesima -- -- --	**Rhizosolenia** *Pleurosigma* *Nitzschia* *Navicula* *Biddulphia* *Thallassiosira*	**Melosira** *Nitzschia* *Biddulphia* -- -- --	*Biddulphia* *Rhizosolenia* *Nitzschia sp.* *Navicula sp.* *Thallassiosira* --	*Melosira* *Nitzschia sp.* *Fragillaria* -- -- --	*Rhizosolenia* *Nitzschia* *Coscinodiscus* *Navicula* *Thallassiosira*	*Navicula* *Thallassiosira* *Nitzschia* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	18		24		39		42		47		37		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Polychaete worms Amphipods Gastrotriches Ostracods		Copepodes Gastropodes Crustaceans Cyclops Polychaetes		Bivalves Gastropods Nematodes Copepods --		Bivalues Hydrozoans Polychaete Nematodes Decapods		Gastropods Nematodes Decapods Polychaete --		Polychaete Copepods Lamellibranches --		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	8.2		7.4		7.1		11.2		8.9		6.24		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	1960		2050		1750		1950		2040		2080		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi.2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M8 RIGHT SIDE OF BOCHA CREEK N 22°45'987" E 069°43'119"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018		MAY 2018		JUNE 2018		JULY 2018		AUGUST 2018		SEPTEMBER 2018		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.28	8.18	8.21	8.13	8.2	8.14	8.21	8.16	8.17	8.12	8.19	8.11	IS3025(P11)83Re.02
2	Temperature	oC	29.8	29.5	31.4	30.9	30.7	30.3	30.6	30.4	30.9	30.5	30.8	30.7	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	212	172	318	282	272	236	301	254	337	296	313	297	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	3.4	2.8	5.2	3.8	3	2	3	2	4.0	3.0	3.0	2.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	6	5.6	6.4	6	6.4	5.8	6.1	5.5	6.4	6	6.5	6.1	IS3025(P38)89Re.99
6	Salinity	ppt	35.1	34.8	35.4	34.9	35.6	35.1	35.2	34.8	34.8	34.2	34.6	34.3	APHA (22ndEdi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22ndEdi)5520D
8	Nitrate as NO_3	µmol/L	9.6	7.4	7.9	5.2	14.3	10.6	4.7	3.1	7.4	5	3.9	2.8	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.5	0.7	2.3	1.1	0.92	0.51	0.62	0.48	0.84	0.6	1.6	1.1	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.8	3.2	4.2	2.8	1.8	1.46	1.5	1.3	2.4	1.6	1.9	1.5	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	µmol/L	2.1	0.612	2.4	1.3	1.87	1.71	1.99	1.82	2.16	2.04	2.36	2.18	APHA(22ndEdi) 4500 C
12	Total Nitrogen	µmol/L	4.9	3.7	5.8	4.4	2.60	2.00	6.82	4.88	10.64	7.2	7.4	5.4	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	16	11	10	8	20	6	18	10	14	8.0	18	10.0	PLPL-TPH
14	Total Dissolved Solids	mg/L	35710	35470	35918	35423	36218	35877	35810	35320	35410	34910	34972	34578	IS3025(P16)84Re.02
15	COD	mg/L	14	10	18	13	10	6	12	10	14	10	12	10	APHA(22ndEdi) 5520-D Open Reflux
A	Flora and Fauna														
16	Primary productivity	mgC/L /day	2.43	0.74	3.15	2.6	2.39	0.88	3.1	2.6	1.48	0.83	1.35	0.923	APHA (22nd Edi) 10200-J
B	Phytoplankton														
17.1	Chlorophyll	mg/m^3	1.2	0.93	2.2	1.8	3.06	1.67	3.98	2.1	1.89	1.03	1.51	0.83	APHA (22ndEdi) 10200-H
17.2	Phaeophytin	mg/m^3	1.5	0.4	1.7	1.4	2.76	0.36	2.6	1.8	1.73	0.73	1.38	0.58	APHA (22ndEdi) 10200-H

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17.3	Cell Count	No. x 10^3/L	290	90	260	40	368	88	340	270	222	116	144	83	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	**Synedra sp.** *Skeletonema sp.* *Biddulphia sp.* *Navicula sp.* **Nitzschia sp.**	**Fragillaria sp.** *Nitzschia sp.* *Thallasiosira sp.* -- --	**Fragillaria sp.** *Navicula sp.* *Synedra sp.* *Coscinodiscus sp.* *Oscillatoria sp.*	**Navicula sp.** *Nitzschia sp.* *Gyrosigma sp.* *Oscillatoria sp.* --	Rhizosolenia sp. Chaetognathes Coscinodiscus sp. Nitzschia sp. Navicula sp.	Chaetognathes Thallasiosira sp. Rhizosolenia sp. -- --	**Coscinodiscus** *Rhizosolenia* *Thallasiosira* *Biddulphia* *Melosira* *Cyclotella* --	**Nitzschia** *Biddulphia* -- -- -- -- --	*Frugillaria* *Thallasiosira* *Nitzschia* *Coscinodiscus* *Navicula* *Guinardia* *Rhizosolenia*	*Melosira* *Nitzschia sp.* *Synedra* -- -- -- --	*Thallasiosira* *Cyclotella* *Coscinodiscus* *Navicula* --	*Biddulphia* *Gyrosigma* *Navicula* -- --	APHA (22nd Edi) 10200-H
C							Zooplanktons								
18.1	Abundance (Population)	noX10^3/ 100 m^3	21		16		48		46		44		35		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Gastropods Polychaetes worms Bivalves Copepods		Mysids Polychaete worms Gastrotriches Nauplius larvae Decapods		Hydrozoans Bivalues Gastropods Molluscans Ostracodes		Hydrozoans Polychaete Bivalues Foraminiferans Decapods		Copepods Ostracodes Decapods Foraminiferans Fish Larvae		Polychaete Copepods Gastropods Decapods		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	7.5		10.2		8.25		9.4		6.8		5.44		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	1660		1880		1850		1750		2050		2250		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi. 2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

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Lab Manager (Q)

RESULTS OF SEDIMENT ANALYSIS [M8 RIGHT SIDE OF BOCHA CREEK – N 22°45'987" E 069°43'119"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018	MAY 2018	JUNE 2018	JULY 2018	AUGUST 2018	SEPTEMBER 2018	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.75	0.8	0.76	0.85	0.68	0.6	FCO:2007
2	Phosphorus as P	µg/g	402	380	370	340	392	340	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy	--
4	Petroleum Hydrocarbon	µg/g	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.5	5.6	5.2	5.4	5.25	5.45	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	µg/g	240	212	238	268	210	236	AAS 3111B
5.3	Manganese as Mn	µg/g	1890	1760	1685	1744	1650	1560	AAS APHA 3111 B
5.4	Iron as Fe	%	5.3	5.6	5.3	5.15	5.05	5.02	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	µg/g	56.1	44.2	42	34	26	40	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	µg/g	78.8	68.3	58	44.8	38	58	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	µg/g	282	310	262	296	240	322	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	µg/g	14.8	8.1	12.2	7.5	8.1	6.4	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	µg/g	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Bivalves Mysids	Polychaete worms Isopods Decapods Prawns	Polychaete Decapods Mysides	Polychaete Bivalves Isopods	Polychaete Bivalves Gastropods	Polychaetes -- -	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes Copepods	Nematodes Foraminiferans	Nematodes Foraminiferans	Gastropods Ostracodes --	-- Ostracods *Copepods*	Copepods Hydrozoa --	APHA (22nd Edi) 10500-C
6.3	Population	no/m^2	290	270	279	250	353	382	APHA (22nd Edi) 10500-C

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Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

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Lab Manager (Q)

RESULTS OF MARINE WATER [M11 MPT T1 JETTY N 22°42'278" E 069°43'450"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018		MAY 2018		JUNE 2018		JULY 2018		AUGUST 2018		SEPTEMBER 2018		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.17	8.08	8.09	7.95	8.12	8.03	8.17	8.03	8.09	8.05	8.16	8.05	IS3025(P11)83Re .02
2	Temperature	oC	30.1	29.5	31.6	30.9	30.5	29.8	30.3	30	30.8	30.2	30.6	30.4	IS3025(P9)84Re. 02
3	Total Suspended Solids	mg/L	308	242	332	192	272	228	296	264	328	298	302	285	IS3025(P17)84Re .02
4	BOD (3 Days @ 27 °C)	mg/L	3.4	3	2.8	2.4	4	3	3	2	3.0	BDL*	4.0	BDL*	IS 3025 (P44)1993Re.03E dition2.1
5	Dissolved Oxygen	mg/L	6.2	5.8	6.6	6.4	6	5.2	6.6	6	6.4	6.1	6.2	6	IS3025(P38)89Re .99
6	Salinity	ppt	35.7	35.2	35.4	35.1	35.8	35.2	34.8	34.2	34.6	34.2	34.1	34	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22nd Edi)552 0D
8	Nitrate as NO_3	µmol/L	15.7	10.2	10.8	7.4	35.2	34.85	7.4	5.1	11.6	6.2	9.8	5.4	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	2.2	1.6	1.1	0.8	13.17	8.27	3.8	1.4	2.1	1.6	1.6	1.1	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	1.7	1.4	2.1	1.8	1.59	1.09	2.4	0.9	1.8	1.4	1.4	0.5	IS3025(P34)88Cla .2.3
11	Phosphates as PO_4	µmol/L	1.2	0.9	1.75	1.24	2.14	1.82	2.56	1.9	2.36	2.1	2.18	2.08	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	2.38	2.25	3.4	2.8	1.96	1.88	13.60	7.40	15.5	9.2	12.8	7	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	20	8	16	6	14	8	18	10	20	8.0	15	5.0	PLPL-TPH
14	Total Dissolved Solids	mg/L	36792	36160	35672	35312	36140	35812	35712	35194	34940	34224	34518	34272	IS3025(P16)84Re .02
15	COD	mg/L	11	8	10	6	14	11	14	8	10	< 5.0	14	BDL*	APHA(22nd Edi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	1.93	1.01	2.42	2.3	2.12	1.71	2.88	2	1.31	0.518	1.46	0.968	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m^3	2.1	0.5	3.4	1.8	2.96	1.46	3.69	2.17	1.97	1.73	1.58	1.38	APHA (22nd Edi) 10200-H
17.2	Phaeophytin	mg/m^3	2.5	2.1	2.1	1.6	1.87	1.78	2.05	1.78	1.6	0.73	1.28	0.58	APHA (22nd Edi) 10200-H

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Lab Manager

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17.3	Cell Count	No. x 10^3/L	290	86	240	80	308	92	330	110	220	152	147	91	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	**Navicula sp.** *Rhizosolenia sp.* *Thallasiosira sp.* *Coscinodiscus sp.* *Skeletonema sp.*	**Navicula sp.** *Thallasiosira sp.* *Biddulphia sp.* -- --	**Skeletonema sp.** *Synedra sp.* *Navicula sp.* *Rhizosolenia sp.* *Coscinodiscus sp.*	**Biddulphia sp.** *Pinnularia sp.* *Pleurosigma sp.* -- --	**Synedra sp.** Rhizosolenia sp. Nitzschia sp. Biddulphia sp. Navicula sp.	**Navicula sp.** Nitzschia sp. Skeletonema sp. -- --	**Peridiriz um** *Gyrosiama* *Thalassiosira* *Thalassi0thrix* *Biddulphia*	**Thallasiossira** *Nitzschia* *Cyclotella* -- --	*Coscinodiscus* *Navicula* *Nitzschia sp.* *Thallasiosira* *Frugillaria*	*Navicula* *Nitzschia sp.* *Thallasiosira* -- --	*Gyrosigma* *Thallasiosira* *Navicula* *Biddulphia* *Peridiniu m*	*Nitzschia* *Navicula* *Cyclotella* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	22		16		24		42		43		34		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Copepods Foraminiferans Ostracods Gastropods		Crustaceans Copepods Foraminiferans Nematodes Polychaete worms		Polychaete Bivalves Ostracodes Decapods --		Hydrozoans Bivalues Gastropods Crustaceans Echinoderms		Polychaete Nematodes Decapods Mysids --		Decapods Gastropods Polychaete Copepods		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	8.8		5.4		6.25		9.4		5.6		4.48		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	1780		1510		1950		2050		2150		2000		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi. 2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULTS OF MARINE WATER [M12 SPM N 22°40'938" E 069°39'191"]

SR. NO.	TEST PARAMETERS	UNIT	APRIL 2018		MAY 2018		JUNE 2018		JULY 2018		AUGUST 2018		SEPTEMBER 2018		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.01	7.95	8.07	8.03	8.07	8.02	8.13	8.09	8.21	8.17	8.24	8.19	IS3025(P11)83Re .02
2	Temperature	oC	29.8	29.6	31.4	31	30.9	30.6	30.8	30.2	30.6	30.5	30.8	30.5	IS3025(P9)84Re. 02
3	Total Suspended Solids	mg/L	286	252	312	290	242	210	272	251	306	271	218	190	IS3025(P17)84Re .02
4	BOD (3 Days @ 27°C)	mg/L	4	3	5	2	5	4	4	3	3.0	2.0	2.0	BDL*	IS 3025 (P44)1993Re.03E dition2.1
5	Dissolved Oxygen	mg/L	5.8	5.4	6	5.5	6	5.6	6.4	5.8	6.6	6.4	6.4	6	IS3025(P38)89Re .99
6	Salinity	ppt	36.1	35.7	35.9	35.4	36	35.8	35	34.6	34.8	34.5	34.3	34	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22nd Edi)552 0D
8	Nitrate as NO_3	µmol/L	21.8	14.6	14.2	10.8	18.4	12.2	7.4	4.7	13.8	6.4	10.4	5.2	IS3025(P34)88
9	Nitrite as NO_2	µmol/L	1.7	1.2	2.1	1.7	2.14	1.43	2.4	1.6	1.8	1.1	2	1.5	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	µmol/L	3.4	2.8	4.8	3.1	3.1	2.3	2.9	2	1.6	1.4	3	2.2	IS3025(P34)88Cla .2.3
11	Phosphates as PO_4	µmol/L	1.5	1.4	2.3	1.8	2.14	1.87	2.35	1.99	2.16	2.1	2.4	2	APHA(22nd Edi) 4500 C
12	Total Nitrogen	µmol/L	5.1	3.8	5.8	4.4	3.10	2.30	12.70	8.30	17.2	8.9	15.4	8.9	IS3025(P34)88
13	Petroleum Hydrocarbon	µg/L	12	7	18	10	18	10	14	6	25	10	20	14	PLPL-TPH
14	Total Dissolved Solids	mg/L	36772	35980	36240	35912	36912	36080	35918	35216	35072	34764	34852	34316	IS3025(P16)84Re .02
15	COD	mg/L	12	10	16	12	18	14	14	10	14	10	16	12	APHA(22nd Edi) 5520-D Open Reflux
A	**Flora and Fauna**														
16	Primary productivity	mgC/L /day	2.47	0.74	3.1	2.8	11.7	7.42	5.8	3.4	1.82	1.46	1.59	1.12	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
17.1	Chlorophyll	mg/m^3	2.2	1.02	2.1	1.8	3.78	2.4	3.84	2.9	2.3	1.6	1.84	1.28	APHA (22nd Edi) 10200-H
17.2	Phaeophytin	mg/m^3	1.6	1.2	2.2	1.4	2.94	2.31	3.6	2.1	1.4	1.28	1.12	1.02	APHA (22nd Edi) 10200-H

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

17.3	Cell Count	No. x 10^3/L	224	75	290	65	364	128	340	110	242	126	161	84	APHA (22nd Edi) 10200-H
17.4	Name of Group Number and name of group species of each group	--	**Fragillaria sp.** *Peridinium Melosira sp. Thallasiosira sp. Skeletonema sp.*	**Melosira sp.** *Navicula sp. Nitzschia sp.* -- --	**Navicula sp.** *Synedra sp. Skeletonema sp. Biddulphia sp. Rhizosolenia sp.*	**Synedra sp.** *Nitzschia sp. Coscinodiscus sp.* -- --	**Navicula sp.** Nitzschia sp. Coscinodiscus sp. Thallasiosira sp. Melosira sp.	**Nitzschia sp.** Thallasiosira sp. Rhizosolenia sp. -- --	**Thalassi 0thrix** *Navicula Nitzschia Surirella Peridinium*	**Plerosima** *Navicula Cyclotella* -- --	*Navicula Thallasiosira Nitzschia sp. Coscinodiscus Rhizosolenia*	*Synedra Navicula Melosira* -- --	*Biddulphia Nitzschia Coscinodiscus Thallasiosira Gyrosigma*	*Peridinium Navicula Thallasiosira* -- --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
18.1	Abundance (Population)	noX10^3/ 100 m^3	12		16		28		32		39		31		APHA (22nd Edi) 10200-G
18.2	Name of Group Number and name of group species of each group	--	Foraminiferans Ctenophores Polychaetes Copepods		Copepods Crustaceans Gastropods Ostracods Nematodes		Gastropods Polychaete Bivalves Mysids --		Polychaetes amphineurans Decapods Foraminiferans --		Decapods Nematodes Polychaete Copepods Mysids		Polychaete Chaetognathes Foraminiferans Copepods		APHA (22nd Edi) 10200-G
18.3	Total Biomass	ml/100 m^3	10		8.4		5.6		7.8		5.0		4.1		APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
19.1	Total Bacterial Count	CFU/ml	1450		1590		1550		1750		1950		1850		IS 5402:2002
19.2	Total Coliform	/ml	Absent		Absent		Absent		Absent		Absent		Absent		APHA(22ndEdi)9221-D
19.3	Ecoli	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS:1622:1981Edi. 2.4(2003-05)
19.4	Enterococcus	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 15186 :2002
19.5	Salmonella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-3)
19.6	Shigella	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 1887 (P-7)
19.7	Vibrio	/ml	Absent		Absent		Absent		Absent		Absent		Absent		IS : 5887 (P-5)

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULTS OF ETP WATER OUTLET

SR. NO.	PARAMETERS	UNIT	RESULTS OF ETP WATER OUTLET						GPCB Limit	TEST METHOD
			04/04/2018	02/05/2018	05/06/2018	11/07/2018	04/08/2018	05/09/2018		
1	Colour	Co-pt	50	50	60	60	70	50	**100**	IS3025(P4)83Re.02
2	pH	--	6.64	7.12	7.2	7.58	7.4	7.5	**6.5 TO 8.5**	IS3025(P11)83Re.02
3	Temperature	°C	33	33	31.6	33	31.2	31	**40**	IS3025(P9)84Re.02
4	Total Suspended Solids	mg/L	34	42	52	48	65	48	**100**	IS3025(P17)84Re.02
5	Total Dissolved Solids	mg/L	1146	1060	1146	1078	1502	1104	**2100**	IS3025(P16)84Re.02
6	COD	mg/L	92	80	77	86	90	84	**100**	APHA(22nd Edi) 5520-D Open Reflux
7	BOD (3 Days @ 27 °C)	mg/L	28	24	20	28	26	28	**30**	IS 3025 (P44)1993Re.03Edition2.1
8	Chloride as Cl	mg/L	419	499	429	418	490	440	**600**	IS3025(P32)88Re.99
9	Oil & Grease	mg/L	3.2	2.4	4.1	2.4	1.4	2.2	**10**	APHA(22nd Edi)5520D
10	Sulphate as SO_4	mg/L	110	96	84	72	82	60	**1000**	APHA(22nd Edi)4500 SO_4 E
11	Ammonical Nitrogen as NH_3	mg/L	3.2	2.4	0.5	0.8	1.2	1.8	**50**	IS3025(P34)88Cla.2.3
12	Phenolic Compound	mg/L	0.014	0.021	BDL*	BDL*	BDL*	BDL*	**1**	IS3025(P43)92Re.03
13	Copper as Cu	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	**3**	AAS APHA(22nd Edi)3111 B
14	Lead as Pb	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	**0.1**	AAS APHA(22nd Edi)3111 B
15	Sulphide as S	mg/L	BDL*	0.8	1.2	0.8	1.0	1.6	**2**	APHA(22nd Edi) 4500-S
16	Cadmium as Cd	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	**2**	AAS APHA(22nd Edi)3111 B
17	Fluoride as F	mg/L	1.6	1.2	1.5	1.2	0.8	0.6	**2**	APHA(22nd Edi) 4500 F D SPANDS

*Below detection limit

H. T. Shah

Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai

Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

ADANI PORT – T1 TERMINAL NR.MARINE BUILDING								
Sr. No.	Date of Sampling	Particulate Matter (PM10) µg/m³	Particulate Matter (PM 2.5) µg/m³	Sulphur Dioxide (SO2) µg/m³	Oxides of Nitrogen (NO2) µg/m³	Carbon Monoxide as CO mg/m³	Hydrocarbon as CH_4 mg/m³	Benzene as C_6H_6 µg/m³
1	03/04/2018	87.60	48.34	13.58	30.56	0.37	BDL*	BDL*
2	06/04/2018	70.75	32.58	19.36	41.04	0.39	BDL*	BDL*
3	10/04/2018	90.62	50.17	17.58	33.96	0.53	BDL*	BDL*
4	13/04/2018	71.49	29.62	20.28	38.32	0.50	BDL*	BDL*
5	17/04/2018	65.68	26.21	22.27	29.59	0.27	BDL*	BDL*
6	20/04/2018	79.42	44.54	15.15	33.41	0.62	BDL*	BDL*
7	24/04/2018	89.33	49.30	14.98	36.38	0.64	BDL*	BDL*
8	27/04/2018	94.27	39.40	12.43	32.75	0.40	BDL*	BDL*
9	01/05/2018	71.36	30.20	20.09	38.25	0.26	BDL*	BDL*
10	04/05/2018	65.87	27.25	12.84	32.76	0.74	BDL*	BDL*
11	08/05/2018	82.66	38.69	10.61	29.39	0.42	BDL*	BDL*
12	11/05/2018	74.33	48.76	15.51	36.56	0.61	BDL*	BDL*
13	15/05/2018	69.45	31.49	18.52	34.25	0.46	BDL*	BDL*
14	18/05/2018	88.53	37.61	21.28	44.59	0.73	BDL*	BDL*
15	22/05/2018	73.65	43.68	13.42	37.38	0.82	BDL*	BDL*
16	25/05/2018	62.41	28.46	14.27	27.54	0.36	BDL*	BDL*
17	29/05/2018	77.66	40.40	17.57	40.41	0.39	BDL*	BDL*
18	01/06/2018	88.59	38.44	23.46	42.66	0.86	BDL*	BDL*
19	05/06/2018	93.46	55.67	11.47	33.25	0.56	BDL*	BDL*
20	08/06/2018	81.24	45.43	17.40	39.21	0.78	BDL*	BDL*
21	12/06/2018	90.25	49.59	18.65	44.28	0.52	BDL*	BDL*
22	15/06/2018	75.87	30.37	22.42	41.87	0.38	BDL*	BDL*
23	19/06/2018	86.86	46.85	15.24	30.45	0.82	BDL*	BDL*
24	22/06/2018	70.50	32.78	19.55	38.55	0.61	BDL*	BDL*
25	26/06/2018	65.44	37.53	13.58	36.78	0.97	BDL*	BDL*
26	29/06/2018	78.34	29.54	16.28	28.55	0.53	BDL*	BDL*
27	03/07/2018	83.40	43.31	16.52	37.84	0.37	BDL*	BDL*
28	06/07/2018	67.60	30.62	19.57	34.52	0.27	BDL*	BDL*
29	10/07/2018	90.56	52.34	15.57	32.48	0.60	BDL*	BDL*
30	13/07/2018	85.62	36.49	21.55	28.34	0.38	BDL*	BDL*

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

ADANI PORT – T1 TERMINAL NR. (MARINE BUILDING)								
Sr.No.	**Date of Sampling**	**Particulate Matter (PM10) µg/m³**	**Particulate Matter (PM 2.5) µg/m³**	**Sulphur Dioxide (SO2) µg/m³**	**Oxides of Nitrogen (NO2) µg/m³**	**Carbon Monoxide as CO mg/m³**	**Hydrocarbon as CH_4 mg/m³**	**Benzene as C_6H_6 µg/m³**
31	17/07/2018	54.45	22.84	10.29	26.56	0.24	BDL*	BDL*
32	20/07/2018	70.56	40.44	14.56	33.47	0.34	BDL*	BDL*
33	24/07/2018	69.30	29.53	13.86	30.85	0.71	BDL*	BDL*
34	27/07/2018	87.66	48.39	17.40	35.29	0.41	BDL*	BDL*
35	31/07/2018	73.52	44.56	9.60	25.23	0.70	BDL*	BDL*
36	03/08/2018	65.68	37.53	19.58	36.55	0.29	BDL*	BDL*
37	07/08/2018	81.86	34.24	12.61	39.20	0.37	BDL*	BDL*
38	10/08/2018	69.20	42.35	10.38	28.66	0.62	BDL*	BDL*
39	14/08/2018	77.54	40.19	14.58	37.64	0.45	BDL*	BDL*
40	17/08/2018	62.41	25.46	11.21	22.64	0.16	BDL*	BDL*
41	21/08/2018	86.18	35.41	17.21	32.43	0.53	BDL*	BDL*
42	24/08/2018	76.67	46.22	23.55	26.23	0.34	BDL*	BDL*
43	28/08/2018	89.70	50.72	13.68	38.52	0.63	BDL*	BDL*
44	31/08/2018	52.78	22.34	21.54	35.63	0.31	BDL*	BDL*
45	04/09/2018	86.36	34.53	25.64	44.64	0.48	BDL*	BDL*
46	07/09/2018	90.44	50.38	15.79	40.21	0.89	BDL*	BDL*
47	11/09/2018	58.65	24.67	13.63	26.75	0.44	BDL*	BDL*
48	14/09/2018	92.35	52.38	19.57	38.37	0.52	BDL*	BDL*
49	18/09/2018	83.59	36.24	16.33	41.20	0.63	BDL*	BDL*
50	21/09/2018	77.54	32.58	12.51	19.30	0.86	BDL*	BDL*
51	25/09/2018	84.20	48.30	14.54	36.84	0.42	BDL*	BDL*
52	28/09/2018	74.51	39.44	22.39	39.21	0.40	BDL*	BDL*
	TEST METHOD	**IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)**	**Gravimetric-CPCB - Method (Vol.I,May-2011)**	**IS:5182(Part II):Improved West and Gaeke**	**IS:5182(Part VI):Modified Jacob & Hochheiser (NaOH-NaAsO2)**	**NDIR Digital Gas Analyzer**	**SOP: HC: GC/GCMS/Gas analyzer**	**IS 5182 (Part XI):2006/CPCB Method**

*Below detection limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

NEAR FIRE STATION								
Sr. No.	Date of Sampling	Particulate Matter (PM10) µg/m³	Particulate Matter (PM 2.5) µg/m³	Sulphur Dioxide (SO2) µg/m³	Oxides of Nitrogen (NO2) µg/m³	Carbon Monoxide as CO mg/m³	Hydrocarbon as CH_4 mg/m³	Benzene as C_6H_6 µg/m³
1	03/04/2018	93.48	52.41	9.76	36.68	0.63	BDL*	BDL*
2	06/04/2018	78.62	36.39	21.23	39.57	0.48	BDL*	BDL*
3	10/04/2018	81.61	46.33	19.09	31.53	0.44	BDL*	BDL*
4	13/04/2018	76.49	32.48	15.02	35.47	0.30	BDL*	BDL*
5	17/04/2018	60.41	28.57	24.51	25.47	0.38	BDL*	BDL*
6	20/04/2018	56.78	24.57	22.21	29.36	0.82	BDL*	BDL*
7	24/04/2018	94.52	54.69	12.46	26.20	0.46	BDL*	BDL*
8	27/04/2018	86.11	35.48	18.45	30.02	0.58	BDL*	BDL*
9	01/05/2018	66.87	20.46	23.71	22.79	0.37	BDL*	BDL*
10	04/05/2018	86.54	44.67	10.90	40.29	0.65	BDL*	BDL*
11	08/05/2018	76.49	33.36	16.62	25.41	0.56	BDL*	BDL*
12	11/05/2018	95.31	54.61	21.65	33.45	0.38	BDL*	BDL*
13	15/05/2018	82.58	34.56	13.25	30.27	0.29	BDL*	BDL*
14	18/05/2018	93.48	50.45	18.39	38.79	0.55	BDL*	BDL*
15	22/05/2018	79.66	46.75	20.73	23.56	0.79	BDL*	BDL*
16	25/05/2018	88.37	38.76	8.89	29.23	0.66	BDL*	BDL*
17	29/05/2018	70.46	35.44	19.29	34.54	0.47	BDL*	BDL*
18	01/06/2018	93.73	42.26	20.89	38.63	0.74	BDL*	BDL*
19	05/06/2018	82.40	45.71	18.23	28.44	0.34	BDL*	BDL*
20	08/06/2018	66.56	30.28	24.29	42.77	0.48	BDL*	BDL*
21	12/06/2018	86.78	46.71	22.90	40.27	0.60	BDL*	BDL*
22	15/06/2018	70.22	27.62	26.58	25.43	0.47	BDL*	BDL*
23	19/06/2018	92.51	51.20	19.85	35.34	1.00	BDL*	BDL*
24	22/06/2018	80.39	36.48	14.51	30.14	0.37	BDL*	BDL*
25	26/06/2018	75.46	44.25	11.25	39.47	0.85	BDL*	BDL*
26	29/06/2018	84.29	38.56	9.60	32.52	0.84	BDL*	BDL*
27	03/07/2018	77.65	40.64	19.61	35.63	0.42	BDL*	BDL*
28	06/07/2018	63.58	27.45	22.90	22.28	0.61	BDL*	BDL*
29	10/07/2018	83.56	49.83	10.56	36.75	0.50	BDL*	BDL*
30	13/07/2018	79.41	34.60	15.41	25.61	0.23	BDL*	BDL*

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

NEAR FIRE STATION								
Sr.No.	**Date of Sampling**	**Particulate Matter (PM10) µg/m³**	**Particulate Matter (PM 2.5) µg/m³**	**Sulphur Dioxide (SO2) µg/m³**	**Oxides of Nitrogen (NO2) µg/m³**	**Carbon Monoxide as CO mg/m³**	**Hydrocarbon as CH_4 mg/m³**	**Benzene as C_6H_6 µg/m³**
31	17/07/2018	59.50	24.62	12.86	23.52	0.22	BDL*	BDL*
32	20/07/2018	85.02	47.62	8.72	30.30	0.56	BDL*	BDL*
33	24/07/2018	76.80	32.65	17.59	26.83	0.92	BDL*	BDL*
34	27/07/2018	82.89	42.59	20.26	32.54	0.25	BDL*	BDL*
35	31/07/2018	68.51	37.39	18.28	29.31	0.73	BDL*	BDL*
36	03/08/2018	80.94	46.83	14.31	33.27	0.50	BDL*	BDL*
37	07/08/2018	73.57	30.53	19.46	36.45	0.22	BDL*	BDL*
38	10/08/2018	90.50	50.41	22.56	31.86	0.71	BDL*	BDL*
39	14/08/2018	69.37	36.73	16.41	41.80	0.39	BDL*	BDL*
40	17/08/2018	67.36	28.53	13.31	26.59	0.32	BDL*	BDL*
41	21/08/2018	92.45	53.45	11.38	40.27	0.46	BDL*	BDL*
42	24/08/2018	71.56	41.55	15.29	29.21	0.21	BDL*	BDL*
43	28/08/2018	81.24	46.37	18.52	42.62	0.79	BDL*	BDL*
44	31/08/2018	59.32	25.66	24.81	32.78	0.54	BDL*	BDL*
45	04/09/2018	79.48	31.73	17.59	38.65	0.29	BDL*	BDL*
46	07/09/2018	84.59	45.58	21.23	34.25	1.13	BDL*	BDL*
47	11/09/2018	66.44	28.62	11.25	33.26	0.31	BDL*	BDL*
48	14/09/2018	87.64	48.62	13.32	30.27	0.79	BDL*	BDL*
49	18/09/2018	77.65	33.40	18.40	29.32	0.55	BDL*	BDL*
50	21/09/2018	91.29	38.72	23.40	37.20	1.00	BDL*	BDL*
51	25/09/2018	72.65	35.48	12.69	27.48	0.66	BDL*	BDL*
52	28/09/2018	89.28	50.24	16.45	35.74	0.45	BDL*	BDL*
	TEST METHOD	**IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)**	**Gravimetric-CPCB - Method (Vol.I,May-2011)**	**IS:5182(Part II):Improved West and Gaeke**	**IS:5182(Part VI):Modified Jacob & Hochheiser (NaOH-NaAsO2)**	**NDIR Digital Gas Analyzer**	**SOP: HC: GC/GCMS/Gas analyzer**	**IS 5182 (Part XI):2006/CPCB Method**

*Below detection limit

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

H. T. Shah
Lab Manager

Dr. Arun Bajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

ADANI HOUSE								
Sr. No.	Date of Sampling	Particulate Matter (PM10) µg/m³	Particulate Matter (PM 2.5) µg/m³	Sulphur Dioxide (SO2) µg/m³	Oxides of Nitrogen (NO2) µg/m³	Carbon Monoxide as CO mg/m³	Hydrocarbon as CH_4 mg/m³	Benzene as C_6H_6 µg/m³
1	03/04/2018	80.60	43.76	15.82	39.57	0.42	BDL*	BDL*
2	06/04/2018	65.41	29.34	18.46	30.56	0.60	BDL*	BDL*
3	10/04/2018	79.39	36.72	11.31	26.63	0.80	BDL*	BDL*
4	13/04/2018	64.20	27.63	9.40	22.70	0.61	BDL*	BDL*
5	17/04/2018	52.58	19.42	19.46	35.47	0.18	BDL*	BDL*
6	20/04/2018	72.47	41.56	10.42	34.71	0.73	BDL*	BDL*
7	24/04/2018	82.72	46.72	16.70	31.53	0.29	BDL*	BDL*
8	27/04/2018	62.51	26.38	14.73	25.24	0.36	BDL*	BDL*
9	01/05/2018	56.76	23.84	18.45	31.83	0.17	BDL*	BDL*
10	04/05/2018	80.78	37.72	15.64	27.63	0.27	BDL*	BDL*
11	08/05/2018	50.47	21.30	12.49	22.69	0.34	BDL*	BDL*
12	11/05/2018	79.33	44.55	7.34	25.74	0.77	BDL*	BDL*
13	15/05/2018	60.45	25.63	9.78	19.63	0.58	BDL*	BDL*
14	18/05/2018	76.37	30.71	16.79	33.65	0.53	BDL*	BDL*
15	22/05/2018	55.37	33.42	11.85	30.58	0.70	BDL*	BDL*
16	25/05/2018	82.78	35.63	5.64	35.63	0.40	BDL*	BDL*
17	29/05/2018	65.47	29.76	8.67	26.70	0.57	BDL*	BDL*
18	01/06/2018	72.43	32.55	16.37	35.61	0.65	BDL*	BDL*
19	05/06/2018	53.61	23.21	13.92	25.30	0.44	BDL*	BDL*
20	08/06/2018	60.81	39.22	8.69	21.57	0.96	BDL*	BDL*
21	12/06/2018	75.64	42.55	11.53	31.21	0.41	BDL*	BDL*
22	15/06/2018	64.26	24.55	17.23	36.57	0.23	BDL*	BDL*
23	19/06/2018	81.63	46.26	9.53	19.63	0.87	BDL*	BDL*
24	22/06/2018	66.86	29.26	10.92	22.59	0.54	BDL*	BDL*
25	26/06/2018	58.39	34.26	18.58	29.53	0.39	BDL*	BDL*
26	29/06/2018	70.50	26.26	6.58	39.55	0.46	BDL*	BDL*
27	03/07/2018	69.53	38.67	10.33	27.75	0.26	BDL*	BDL*
28	06/07/2018	56.76	24.84	14.50	31.54	0.15	BDL*	BDL*
29	10/07/2018	77.58	43.63	6.50	25.33	0.44	BDL*	BDL*
30	13/07/2018	62.69	31.34	12.64	21.57	0.29	BDL*	BDL*

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

ADANI HOUSE								
Sr. No.	**Date of Sampling**	**Particulate Matter (PM10) µg/m³**	**Particulate Matter (PM 2.5) µg/m³**	**Sulphur Dioxide (SO2) µg/m³**	**Oxides of Nitrogen (NO2) µg/m³**	**Carbon Monoxide as CO mg/m³**	**Hydrocarbon as CH_4 mg/m³**	**Benzene as C_6H_6 µg/m³**
31	17/07/2018	48.83	19.71	5.37	18.35	0.18	BDL*	BDL*
32	20/07/2018	65.84	37.30	11.58	28.55	0.31	BDL*	BDL*
33	24/07/2018	54.60	23.42	7.55	30.64	0.48	BDL*	BDL*
34	27/07/2018	76.79	45.76	9.63	38.46	0.58	BDL*	BDL*
35	31/07/2018	59.60	33.67	7.53	16.46	0.32	BDL*	BDL*
36	03/08/2018	59.72	33.21	12.68	29.51	0.33	BDL*	BDL*
37	07/08/2018	67.23	27.51	10.53	25.50	0.52	BDL*	BDL*
38	10/08/2018	76.85	45.43	8.40	18.80	0.27	BDL*	BDL*
39	14/08/2018	61.48	30.46	11.53	28.51	0.47	BDL*	BDL*
40	17/08/2018	55.67	22.46	6.86	16.27	0.30	BDL*	BDL*
41	21/08/2018	74.55	29.92	9.69	36.75	0.40	BDL*	BDL*
42	24/08/2018	65.84	37.67	13.51	27.59	0.26	BDL*	BDL*
43	28/08/2018	72.55	42.84	17.56	32.78	0.44	BDL*	BDL*
44	31/08/2018	48.35	18.55	16.57	21.58	0.13	BDL*	BDL*
45	04/09/2018	72.55	26.88	15.67	30.76	0.25	BDL*	BDL*
46	07/09/2018	65.72	39.34	12.61	22.39	0.62	BDL*	BDL*
47	11/09/2018	53.25	22.59	9.38	26.26	0.18	BDL*	BDL*
48	14/09/2018	76.43	43.47	10.54	29.63	0.74	BDL*	BDL*
49	18/09/2018	68.26	28.38	13.18	33.58	0.67	BDL*	BDL*
50	21/09/2018	88.29	35.72	16.54	20.52	0.52	BDL*	BDL*
51	25/09/2018	56.82	31.63	8.70	25.60	0.58	BDL*	BDL*
52	28/09/2018	63.29	36.55	14.69	23.63	0.34	BDL*	BDL*
	TEST METHOD	**IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)**	**Gravimetric-CPCB - Method (Vol.I,May-2011)**	**IS:5182(Part II):Improved West and Gaeke**	**IS:5182(Part VI):Modified Jacob & Hochheiser (NaOH-NaAsO2)**	**NDIR Digital Gas Analyzer**	**SOP: HC: GC/GCMS/Gas analyzer**	**IS 5182 (Part XI):2006/CPCB Method**

*Below detection limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

CT-3 DG HOUSE								
Sr. No.	Date of Sampling	Particulate Matter (PM10) µg/m³	Particulate Matter (PM 2.5) µg/m³	Sulphur Dioxide (SO2) µg/m³	Oxides of Nitrogen (NO2) µg/m³	Carbon Monoxide as CO mg/m³	Hydrocarbon as CH_4 mg/m³	Benzene as C_6H_6 µg/m³
1	03/04/2018	73.62	38.56	18.87	42.57	0.33	BDL*	BDL*
2	06/04/2018	55.63	26.31	10.48	26.20	0.65	BDL*	BDL*
3	10/04/2018	70.39	40.61	12.86	37.52	0.22	BDL*	BDL*
4	13/04/2018	59.41	24.43	15.72	29.11	0.21	BDL*	BDL*
5	17/04/2018	45.63	18.65	17.64	30.02	0.24	BDL*	BDL*
6	20/04/2018	62.57	27.55	11.30	25.53	0.55	BDL*	BDL*
7	24/04/2018	67.59	43.46	9.77	22.74	0.41	BDL*	BDL*
8	27/04/2018	75.58	32.41	7.99	18.80	0.31	BDL*	BDL*
9	01/05/2018	50.63	17.61	15.42	26.61	0.23	BDL*	BDL*
10	04/05/2018	74.91	36.35	9.54	23.39	0.44	BDL*	BDL*
11	08/05/2018	56.36	25.76	6.85	16.60	0.50	BDL*	BDL*
12	11/05/2018	65.76	29.57	11.38	33.33	0.33	BDL*	BDL*
13	15/05/2018	59.35	20.33	14.13	24.76	0.19	BDL*	BDL*
14	18/05/2018	71.49	34.34	12.69	29.49	0.48	BDL*	BDL*
15	22/05/2018	69.35	40.24	10.68	20.63	0.64	BDL*	BDL*
16	25/05/2018	52.58	22.75	16.21	38.23	0.25	BDL*	BDL*
17	29/05/2018	60.08	33.67	5.20	19.78	0.63	BDL*	BDL*
18	01/06/2018	80.58	35.84	14.25	30.28	0.57	BDL*	BDL*
19	05/06/2018	63.44	27.56	7.67	18.68	0.76	BDL*	BDL*
20	08/06/2018	71.67	31.75	12.75	36.44	0.42	BDL*	BDL*
21	12/06/2018	67.34	37.85	15.48	22.64	0.81	BDL*	BDL*
22	15/06/2018	56.30	18.53	19.22	29.67	0.30	BDL*	BDL*
23	19/06/2018	75.76	42.62	11.66	26.49	0.94	BDL*	BDL*
24	22/06/2018	60.20	25.47	16.57	33.47	0.25	BDL*	BDL*
25	26/06/2018	50.32	29.45	10.74	25.81	0.55	BDL*	BDL*
26	29/06/2018	65.33	26.56	18.44	42.94	0.32	BDL*	BDL*
27	03/07/2018	62.71	34.38	13.68	32.68	0.47	BDL*	BDL*
28	06/07/2018	51.42	23.46	17.57	25.48	0.19	BDL*	BDL*
29	10/07/2018	73.69	40.40	19.24	29.53	0.39	BDL*	BDL*
30	13/07/2018	68.44	28.65	10.61	18.65	0.55	BDL*	BDL*

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

CT-3 DG HOUSE								
Sr. No.	**Date of Sampling**	**Particulate Matter (PM10) µg/m³**	**Particulate Matter (PM 2.5) µg/m³**	**Sulphur Dioxide (SO2) µg/m³**	**Oxides of Nitrogen (NO2) µg/m³**	**Carbon Monoxide as CO mg/m³**	**Hydrocarbon as CH_4 mg/m³**	**Benzene as C_6H_6 µg/m³**
31	17/07/2018	42.70	16.48	8.32	21.33	0.14	BDL*	BDL*
32	20/07/2018	76.31	44.88	16.44	37.55	0.21	BDL*	BDL*
33	24/07/2018	59.60	20.82	9.41	22.42	0.64	BDL*	BDL*
34	27/07/2018	61.30	35.51	14.24	28.66	0.16	BDL*	BDL*
35	31/07/2018	55.45	29.36	11.46	20.20	0.63	BDL*	BDL*
36	03/08/2018	71.67	42.41	18.39	20.81	0.18	BDL*	BDL*
37	07/08/2018	56.42	24.55	16.45	34.48	0.25	BDL*	BDL*
38	10/08/2018	60.81	38.40	12.58	23.28	0.55	BDL*	BDL*
39	14/08/2018	53.68	26.81	7.66	31.69	0.41	BDL*	BDL*
40	17/08/2018	48.25	19.20	9.14	19.33	0.23	BDL*	BDL*
41	21/08/2018	68.44	29.40	13.37	28.74	0.36	BDL*	BDL*
42	24/08/2018	58.25	32.62	11.70	21.86	0.48	BDL*	BDL*
43	28/08/2018	70.27	37.81	15.72	25.86	0.56	BDL*	BDL*
44	31/08/2018	42.70	16.35	19.23	29.51	0.17	BDL*	BDL*
45	04/09/2018	66.67	23.42	19.39	24.75	0.68	BDL*	BDL*
46	07/09/2018	80.27	41.62	13.53	28.35	0.82	BDL*	BDL*
47	11/09/2018	48.74	19.24	6.81	32.82	0.25	BDL*	BDL*
48	14/09/2018	63.44	35.64	17.31	35.61	0.36	BDL*	BDL*
49	18/09/2018	58.31	25.60	10.39	38.19	0.60	BDL*	BDL*
50	21/09/2018	67.22	28.44	14.35	26.44	0.81	BDL*	BDL*
51	25/09/2018	77.47	45.63	7.34	20.35	0.52	BDL*	BDL*
52	28/09/2018	52.46	30.66	12.30	19.49	0.27	BDL*	BDL*
	TEST METHOD	**IS:5182(Part 23):Gravimetric CPCB - Method (Vol.I,May-2011)**	**Gravimetric-CPCB - Method (Vol.I,May-2011)**	**IS:5182(Part II):Improved West and Gaeke**	**IS:5182(Part VI):Modified Jacob & Hochheiser (NaOH-NaAsO2)**	**NDIR Digital Gas Analyzer**	**SOP: HC: GC/GCMS/Gas analyzer**	**IS 5182 (Part XI):2006/CPCB Method**

*Below detection limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULTS OF NOISE LEVEL MONITORING

Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	T1 TERMINAL NR.MARINE BUILDING					
		Result [Leq dB(A)]					
	Sampling Date & Time	03/04/2018	25/05/2018	19/06/2018	06/07/2018	07/08/2018	07/09/2018
1	6:00-7:00	68.4	65.4	66.1	65.8	64.2	68.3
2	7:00-8:00	65.2	60.1	62.1	69.4	62.3	64.4
3	8:00-9:00	66.8	73.1	60.7	61.4	66.8	62.4
4	9:00-10:00	70.2	70.4	69.1	62.5	69.4	68.4
5	10:00-11:00	62.8	69.4	73.4	68.4	71.5	64.4
6	11:00-12:00	68.3	68.1	74.1	65.2	63.1	64.2
7	12:00-13:00	63.7	70.1	69.1	60.4	62.5	68.5
8	13:00-14:00	62.9	68.4	70.2	67.4	65.8	68.4
9	14:00-15:00	68.5	66.2	68.1	63.4	68.4	68.9
10	15:00-16:00	65.1	65.2	65.1	62.4	61.2	72.5
11	16:00-17:00	70.3	61.8	60.4	68.1	63.4	65.3
12	17:00-18:00	71.8	69.4	69.2	61.4	64.1	63.9
13	18:00-19:00	69.4	72.1	70.1	60.8	68.1	66.8
14	19:00-20:00	62.8	71.4	63.1	69.4	60.2	65.4
15	20:00-21:00	65.1	69.8	62.5	70.6	62.9	68.3
16	21:00-22:00	62.5	66.1	61.4	72.4	65.3	67.3
Day Time Limit*		75 Leq dB(A)					

Result of Noise level monitoring [Night Time]

SR. NO.	Name of Location	T1 TERMINAL NR.MARINE BUILDING					
		Result [Leq dB(A)]					
1	Sampling Date & Time	03/04/2018	25/05/2018	19/06/2018	06/07/2018	07/08/2018	07/09/2018
2	22:00-23:00	67.2	62.4	68.4	63.2	65.1	68.4
3	23:00-00:00	65.1	65.1	65.1	65.4	62.7	65.5
4	00:00-01:00	63.4	61.4	62.4	67.8	66.4	62.4
5	01:00-02:00	61.7	68.4	66.8	62.1	66.9	63.1
6	02:00-03:00	66.2	63.4	62.5	64.2	60.1	61.4
7	03:00-04:00	62.8	60.4	65.4	64.2	62.4	68.4
8	04:00-05:00	66.2	62.7	63.4	68.3	62.8	64.2
9	05:00-06:00	68.4	60.2	60.4	65.2	63.7	63.1
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULTS OF NOISE LEVEL MONITORING

Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	NEAR FIRE STATION					
		Result [Leq dB(A)]					
1	Sampling Date & Time	06/04/2018	11/05/2018	22/06/2018	13/07/2018	17/08/2018	14/09/2018
2	6:00-7:00	65.1	68.4	68.4	68.4	62.5	65.4
3	7:00-8:00	62.8	64.1	65.1	62.1	68.4	66.3
4	8:00-9:00	63.1	60.1	62.1	65.4	72.4	66.9
5	9:00-10:00	70.4	62.8	63.4	73.1	74.1	67.4
6	10:00-11:00	72.1	70.4	68.4	64.1	70.4	63.2
7	11:00-12:00	69.9	73.4	65.1	68.1	69.9	62.4
8	12:00-13:00	68.1	65.1	63.1	62.4	63.4	67.4
9	13:00-14:00	62.4	69.4	60.4	68.4	60.4	65.3
10	14:00-15:00	63.4	65.4	60.9	62.4	62.4	62.5
11	15:00-16:00	61.8	66.1	68.4	69.4	64.5	68.4
12	16:00-17:00	60.4	66.8	62.1	61.4	65.1	68.3
13	17:00-18:00	62.4	63.1	63.4	60.4	63.4	68.7
14	18:00-19:00	68.1	61.4	68.1	62.7	62.5	64.3
15	19:00-20:00	68.4	65.1	67.1	68.4	63.4	62.7
16	20:00-21:00	65.2	62.8	62.1	64.3	65.2	65.8
	21:00-22:00	62.8	65.2	60.5	61.5	66.8	63.5
Day Time Limit*		75 Leq dB(A)					

Result of Noise level monitoring [Night Time]

SR. NO.	Name of Location	NEAR FIRE STATION					
		Result [Leq dB(A)]					
1	Sampling Date & Time	06/04/2018	11/05/2018	22/06/2018	13/07/2018	17/08/2018	14/09/2018
2	22:00-23:00	68.4	68.4	62.4	67.4	64.1	65.1
3	23:00-00:00	63.1	65.3	60.7	69.3	63.4	62.4
4	00:00-01:00	60.4	61.5	61.4	66.3	62.1	67.2
5	01:00-02:00	65.4	62.9	59.4	62.1	60.4	63.4
6	02:00-03:00	62.4	68.7	54.7	66.2	68.4	60.5
7	03:00-04:00	67.1	63.1	62.1	63.2	63.4	68.4
8	04:00-05:00	66.1	62.8	63.1	67.3	65.4	65.2
9	05:00-06:00	62.4	63.8	62.8	69.6	67.1	62.1
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULTS OF NOISE LEVEL MONITORING

Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	ADANI HOUSE					
		Result [Leq dB(A)]					
	Sampling Date & Time	10/04/2018	01/05/2018	15/06/2018	17/07/2018	21/08/2018	04/09/2018
1	6:00-7:00	63.1	60.1	66.1	62.4	58.4	64.3
2	7:00-8:00	60.4	63.4	65.7	56.1	63.1	68.8
3	8:00-9:00	69.1	68.4	68.1	63.1	61.5	65.7
4	9:00-10:00	72.4	62.1	62.1	61.8	62.5	70.1
5	10:00-11:00	70.1	68.7	63.4	68.4	69.4	72.4
6	11:00-12:00	65.1	70.5	65.1	70.4	72.1	63.4
7	12:00-13:00	68	63.4	68.1	71.8	70.1	60.4
8	13:00-14:00	67.2	68.1	70.1	68.8	68.4	67.9
9	14:00-15:00	62.4	68.5	70.6	66.1	65.4	67.5
10	15:00-16:00	62.4	66.4	69.4	69.4	60.4	62.4
11	16:00-17:00	65.3	62.1	65.1	62.5	68.5	70.3
12	17:00-18:00	68.1	69.4	62.1	63.4	65.2	71.9
13	18:00-19:00	63.4	64.2	60.4	60.4	64.8	68.8
14	19:00-20:00	65.1	62.9	64.1	65.4	63.1	62.1
15	20:00-21:00	62.5	63.4	70.1	68.1	61.4	60.1
16	21:00-22:00	63.1	61.8	68.1	66.8	62.8	64.1
Day Time Limit*		75 Leq dB(A)					

Result of Noise level monitoring [Night Time]

SR. NO.	Name of Location	ADANI HOUSE					
		Result [Leq dB(A)]					
1	Sampling Date & Time	10/04/2018	01/05/2018	15/06/2018	17/07/2018	21/08/2018	04/09/2018
2	22:00-23:00	65.1	62.4	68.4	67.3	60.4	68.4
3	23:00-00:00	68.4	66.2	65.1	59.5	65.1	64.2
4	00:00-01:00	68.2	66.8	60.4	63.1	65.4	62.1
5	01:00-02:00	65.4	63.4	62.4	61.0	61.8	62.1
6	02:00-03:00	62.4	61.5	58.1	61.3	63.4	60.4
7	03:00-04:00	66.1	65.9	60.8	63.4	62.4	64.8
8	04:00-05:00	60.4	67.1	60.7	68.3	65.7	63.1
9	05:00-06:00	63.1	65.6	61.8	66.2	67.1	61.7
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

RESULTS OF NOISE LEVEL MONITORING

Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	CT-3 DG HOUSE					
		Result [Leq dB(A)]					
	Sampling Date & Time	17/04/2018	15/05/2018	05/06/2018	24/07/2018	24/08/2018	04/09/2018
1	6:00-7:00	62.7	62.4	59.4	65.3	60.1	56.3
2	7:00-8:00	65.2	65.4	62.1	67.2	63.5	60.4
3	8:00-9:00	61.4	61.4	60.4	70.2	69.5	59.4
4	9:00-10:00	60.8	68.4	65.8	66.4	62.4	62.6
5	10:00-11:00	65.2	62.4	63.4	62.6	62.8	65.4
6	11:00-12:00	63.1	61.7	69.5	60.3	68.1	68.4
7	12:00-13:00	61.8	68.4	62.4	65.2	61.4	68.9
8	13:00-14:00	65.9	64.1	65.7	68.3	64.3	67.3
9	14:00-15:00	68.2	62.4	63.1	66.4	63.5	65.5
10	15:00-16:00	67.4	69.4	60.1	61.4	60.8	62.3
11	16:00-17:00	64.3	65.1	62.4	65.2	65.5	65.3
12	17:00-18:00	63.5	61.8	68.4	68.3	69.2	64.2
13	18:00-19:00	65.5	66.1	63.4	66.2	62.1	62.3
14	19:00-20:00	66.1	62.4	67.1	72.6	61.4	65.4
15	20:00-21:00	61.4	69.1	62.8	70.2	65.6	61.3
16	21:00-22:00	65.2	65.2	63.4	69.3	63.8	66.2
Day Time Limit*		75 Leq dB(A)					

Result of Noise level monitoring [Night Time]

SR. NO.	Name of Location	CT-3 DG HOUSE					
		Result [Leq dB(A)]					
1	Sampling Date & Time	17/04/2018	15/05/2018	05/06/2018	24/07/2018	24/08/2018	04/09/2018
2	22:00-23:00	63.4	65.4	65.1	64.2	61.4	60.4
3	23:00-00:00	59.4	62.4	60.4	69.3	62.8	62.4
4	00:00-01:00	60.4	68.4	62.1	67.3	65.1	60.4
5	01:00-02:00	62.1	62.7	58.7	65.3	63.4	65.2
6	02:00-03:00	60.4	59.1	55.1	69.2	59.4	63.1
7	03:00-04:00	60.7	59.7	62.4	64.3	60.4	64.5
8	04:00-05:00	62.5	63.1	60.4	60.3	60.8	68.4
9	05:00-06:00	64.7	60.4	59.4	63.1	62.4	62.1
Night Time Limit*		70 Leq dB(A)					

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

H. T. Shah
Lab Manager

Dr. Arun Bajpai
Lab Manager (Q)

Minimum Detection Limit [MDL]

Ambient Air Parameters		
Sr. No.	**Test Parameter**	**MDL**
1	Particulate Matter (PM10) (µg/m^3)	10
2	Particulate Matter (PM 2.5) (µg/m^3)	10
3	Sulphur Dioxide (SO_2) (µg/m^3)	5
4	Oxides of Nitrogen (µg/m^3)	5
5	Hydrogen Sulphide as H_2S (µg/m^3)	6

Stack Parameters		
Sr.No.	**Test Parameter**	**MDL**
1	Particulate Matter (mg/Nm^3)	10
2	Sulphur Dioxide (ppm)	1.52
3	Oxides of Nitrogen (ppm)	2.65
4	Carbon Monoxide (mg/Nm^3)	0.1
5	Haydro Carbon NMHC (ppm)	1.0

Sea Water Parameters			
SR. NO.	**TEST PARAMETERS**	**UNIT**	**MDL**
1	pH	--	2
2	Temperature	°C	2
3	Total Suspended Solids	mg/L	2
4	BOD (3 Days @ 27 °C)	mg/L	1
5	Dissolved Oxygen	mg/L	0.1
6	Salinity	ppt	1
7	Oil & Grease	mg/L	2
8	Nitrate as NO_3	µmol/L	0.5
9	Nitrite as NO_2	µmol/L	0.01
10	Ammonical Nitrogen as NH_3	µmol/L	0.2
11	Phosphates as PO_4	µmol/L	0.5
12	Petroleum Hydrocarbon	µg/L	1
13	Total Dissolved Solids	mg/L	10
14	COD	mg/L	3
15	Primary productivity	mgC/L/day	0.1
16	Chlorophyll	mg/m^3	0.1
17	Phaeophytin	mg/m^3	0.1
18	Cell Count	No. x 10^3/L	1

Sea Sediment Parameters			
SR. NO.	**TEST PARAMETERS**	**UNIT**	**MDL**
1	Organic Matter	%	0.1
2	Phosphorus as P	µg/g	1
3	Petroleum Hydrocarbon	µg/g	1
4	Aluminum as Al	%	0.1
5	Manganese as Mn	µg/g	1
6	Mercury as Hg	µg/g	0.1

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

STP Water parameter(mg/L)		
Sr. No.	**Test parameter**	**MDL**
1	pH	2
2	Total Suspended Solids (mg/L)	2
3	BOD (3 days @ 270 C) (mg/L)	1
4	Residual Chlorine (mg/L)	0.2
5	Fecal Coliform (MPN INDEX/100 mL)	1.8

ETP Water Parameters			
SR. NO.	**TEST PARAMETERS**	**UNIT**	**MDL**
1	Colour	Co-pt	2
2	pH	--	2
3	Temperature	^{o}C	2
4	Total Suspended Solids	mg/L	2
5	Total Dissolved Solids	mg/L	10
6	COD	mg/L	3
7	BOD (3 Days @ 27 ^{o}C)	mg/L	1
8	Chloride as Cl	mg/L	1
9	Oil & Grease	mg/L	2
10	Sulphate as SO_4	mg/L	1
11	Ammonical Nitrogen as NH_3	mg/L	0.2
12	Phenolic Compound	mg/L	0.005
13	Copper as Cu	mg/L	0.01
14	Lead as Pb	mg/L	0.01
15	Sulphide as S	mg/L	0.1
16	Cadmium as Cd	mg/L	0.002
17	Fluoride as F	mg/L	0.05

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-7.

Dr. Arun Bajpai
Lab Manager (Q)

National Accreditation Board for Testing and Calibration Laboratories

(A Constituent Board of Quality Council of India)

CERTIFICATE OF ACCREDITATION

POLLUCON LABORATORIES PVT. LTD.

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2005

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

for its facilities at

5/6 "Pollucon House", Old Shantinath Mill Lane, Navjivan Circle, Udhana Magdalla Road, Surat, Gujarat

in the field of

TESTING

Certificate Number TC-5945 *(In lieu of T-0821 & T-0820)*

Issue Date 28/05/2017 **Valid Until** 27/05/2019

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

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

Signed for and on behalf of NABL

N. Venkateswaran
Program Director

Anil Relia
Chief Executive Officer

रजिस्ट्री सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

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अधिसूचना

नई दिल्ली, 2 जून, 2016

का.आ. 1953(अ).—केन्द्रीय सरकार के साथ पठित पर्यावरण (संरक्षण) नियम, 1986 के नियम 10 पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 12 की उपधारा (1) के खंड (ख) और धारा 13 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए और भारत सरकार के तत्कालीन पर्यावरण और वन मंत्रालय की अधिसूचना सं. का.आ. 1174(अ), तारीख 18 जुलाई, 2007 में निम्नलिखित संशोधन और करती है, अर्थात् :—

उक्त अधिसूचना सं संलग्न तालिका में,–

(क) क्रम संख्यांक 5, 9,13 से 15, 20, 79, 80 और 83 से 85 तथा उससे संबंधित प्रविष्टियों के स्थान पर निम्नलिखित क्रमशः क्रम संख्यांक और प्रविष्टियां रखी जाएंगी, अर्थात् :—

(1)	(2)	(3)	(4)
"5	मैसर्स विमता लैबस लिमिटेड 142 आई डी ए, फेस – 2, चेरालापलई, हैदराबाद, आध्रांप्रदेश-500051	(1) डा. सुब्बा रेड्डी मालामपति, (2) श्री एस वी श्रीनिवास रेड्डी, (3) श्री अरनूरी चन्ना रमेश कुमार	02.06.2016 से 01.06.2021
14	मैसर्स अश्वमेध इंजीनियर्स एंड कंसलटैंट, सर्वे न. 102, प्लाट सं. 26, वडाला पार्थार्डी रोड, इंदिरा नगर, नासिक, महाराष्ट्र – 422009	(1) सुश्री अर्पणा सुनील फारंडे, (2) सुश्री शाह शुभांगी प्रकाश कांबले (3) श्री निनांद अरविंद साउदानकर	02.06.2016 से 01.06.2021
20	मैसर्स पोलूकोन लेबोरटरीस प्रा. लि., 544, बेलिजयम टावर्स, रिंग रोड, लिनियर बस स्टैंड के पीछे, सूरत, गुजरात-395006	(1) डा. अरुण कुमार बाजपेई (2) श्री देवांग मधुकर गांधी (3) श्री हर्शल मधुकर गांधी	02.06.2016 से 01.06.2021
84	मैसर्स डेटाक्स कोरपोरेशन प्रा. लि., 3 तल, के जी चैंबरस, गुजरात समाचार प्रेस के पीछे, रिंग रोड, सूरत, गुजरात - 395002	(1) श्री अमीत बल कृष्णा रिनोस (2) श्री खासाकिया जितेंद्र कुमार दाहयाभाई (3) सुश्री दिव्यालक्ष्मी आर पटेल	02.06.2016 से 01.06.2021

Annexure – 3

Adani Foundation, Mundra

adani
Foundation

SIX MONTHLY
REPORT
2018-19

Adani Foundation
Adani House, Port Road, Mundra – Kutch 370 421
[info@adanifoundation.com] [www.adanifoundation.com]

Community Health

Adani Foundation has pioneered several innovations under its Health Programme in Mundra, Kutch. These innovations comprise of new methodologies to address the different aspects of health needs among the most marginalized communities, especially Malnourished Children, Women and Senior Citizens.

Committed to "Health for All" the Foundation runs Mobile Health Care Units, Rural Clinics, Special Innovative Projects i.e. Health Card to Senior Citizens, Fighting to Malnourishment Suposhan" Project, Dialysis Project and Variety of Health Related Camps.

Mobile Dispensaries & Rural Clinics

The population of Mundra block is spread over various villages. Due to inadequate transportation facilities, the villagers have to face many hardships even for reaching to the doctor in case of common diseases. The medical expenses and zero earning per day add surplus to their hardships.

To help them in the above mentioned health related problems, the service of mobile medical van has been started by the Adani Foundation in Mundra block. In big villages, rural dispensaries have been started considering their population and area.

The Adani Foundation runs two mobile health care units. Main objective of Mobile Van is to reduce travel time, hardships and expenses. Two mobile health care units cover 34 villages and 05 fishermen settlements. Around 113 types of general and life saving medicines are available in these units. It has turned out to be a boon for women and children as the service is availed at their door - step.

MHCU Month wise Data-2018/19		
1	April	1508
2	May	1397
3	June	1236
4	July	1523
5	Aug.	1512
6	Sep.	1796
	Total	**8972**

Village wise OPD Data-2018/19

1	Tunda wandh	699
2	Siracha	1928
3	Navinal	896
4	Luni	3283
5	Vadala	503
6	Bhadreshwar	716
7	Labour colony	53
8	Tunda	394
9	Tuna anjar	135
10	Wandi	780
11	Rampar	292
12	Tragadi Bandar	428
13	Rangoli	378
	Total	**10485**

The Adani Foundation operates Rural Dispensaries in 08 villages of Mundra block, 03 villages of Anjar block and 01 village of Mandvi block along with one at Rangoli gate. At these dispensaries, health services are provided free of charge for two hours daily by a doctor and a volunteer.

Details of transaction		
1	April	828
2	May	840
3	June	809
4	July	962
5	Aug.	836
6	Sep.	862
	Total	5137

Health Cards to Senior Citizens

The major junctures of human life are - childhood, adulthood and old age. The first phase is well looked after by the parents and second phase is of self-reliant but the last phase is a dependent one. The needs of old people are less looked after. When people become old, they start living a life of aloofness and solitude. Therefore, the Adani Foundation has started the Adani Health Programme for the aged to look after their health. To address the health care issues related to ageing, AF launched a 3 year long pilot project – 'Adani Vadil Swasthya Yojna' on 20th February 2011 at Mundra and further extended the same for the next three years i.e. up to 2017. Under this Programme, the individuals aged 60 years and above are benefitted. Health Cards are issued to them with the purpose of providing adequate and timely treatment. The families consisting of aged ones with a yearly income of Rs. 2 lacs or more get a Blue Card. The Blue Card holders can avail diagnosis facility and treatment at a subsidized rate in the Adani hospitals, Mundra. The families with a yearly income of less than Rs. 2 lacs are issued a Green Card. Green Card holder aged people get treatment for illness in Adani hospitals, Mundra with an aid up to the limit of Rs. 50,000/- within a period of 3 years.

During the six months 2018-19, total 5137 transactions were done by 8518 card holders of 66 villages of Mundra Taluka. They received cash less medical services under this project. In Green Card category, 6139 aged people got treated for various illness & diseases at Adani hospitals, Mundra with an aid up to a limit of Rs. 50,000/- within the period of 3 years.

The 763 Blue Card Holders can avail diagnosis facility and treatment at a subsidized rate in the Adani hospitals, Mundra. Scheme is continue since seven years The third phase of this scheme was started in last year. The limit for the beneficiary was set to 30000/- within a period of 3 years. the senior citizens get emergency medical care at Adani Hospital, Mundra and they are referred to GAIMS

Suposhan

Malnutrition amongst Children, Adolescent girls and Women in India is an alarming phenomenon. (In India: 48 % or 54 million children under-five years were stunted. India accounted for 33 %of stunted children in the world. As per Global Nutrition Report released recently, Children below five years- 38.7 % Stunted and 15.1%are wasted. 69.5% children6-59 months old, 55.8% adolescent girls aged 15-18 years, 55.3% women aged 15-49 years have Anemia. Moreover anemia prevalence in pregnant women is as high as 58.7%) Curbing Malnutrition was part of Millennium Development Goals and again focused through second and third Sustainable Development Goals on Zero hunger and Good Health & Wellbeing respectively.

During this half year, anthropometry study done for 2020 children. Total 6 children became free of malnutrition due to efforts under "Suposhan" Project. Additionally, 6288 FGD were conducted during this year.

Total 8770 hemoglobin screenings of RPA woman and adolescent girls was carried out. Which helps in controlling anemia in women and indirectly malnutrition.

Implementation Strategy

Base line data was provided for Mundra Taluka in initial phase of Project.

Total Number Anganwadi in the selected area

- Information on Sub-centers/ Primary Health Centers/ Community Health centers/ Referral Hospitals
- •Availability of Healthy worker- male & female both, ANMs, LHVs, Doctors, specialists such as Gynecologist, Pediatricians, Pharmacist, Dietician Lab. Technician, Nursing Staff etc. at above centers (Number & names with contact details)
- Selected areas' Birth rate, Death rate, Infant Mortality Rate, Mother Mortality Rate, Sex ratio, Child Sex ratio against district, state and national average
- Total number of beneficiaries and against that enrolled beneficiaries at Anganwadi/ICDS: 0-6 year children, Adolescent girls, pregnant women and lactating mothers
- Identified malnourished and anemia children/ adolescent girls and women (numbers & name as well as current level of malnutrition & anemia with dates- Base Line data)
- Current Inputs provided through the Government machineries
- Other services available through CBOs, NGOs etc.- Details of inputs and contact details of those organizations
- Understanding & Listing of area specific cultural and behavioral barriers

Role and Responsibility of Adani Foundation

Health Checkup camp

- Awareness activity : Focused Group Discussion
- Capacity Building of Sangini
- Home visit
- Health related sessions
- Financial support provide for better treatment
- Doctor services provided (Pediatric, Gynec, Dietitian)
- AF provides Nutritional Food Support

Suposhan Saptah

The birth of a healthy newborn child is determined by the health of the mother. Mother's health, in turn, has its basis on her health status during adolescence. The health of a society, as a whole, thus depends on the health of the women, in all stages of their lives. Adani Foundation acknowledges this field of health and aims to address women's health, through their entire life cycle. These efforts have culminated in Project Suposhan, Adani Foundation Health initiative. Project aims to generate awareness in communities and facilitate the strengthening of the health systems and healthcare delivery platforms, with a specific focus on the mother and child. Project focuses on increasing health literacy in communities for mothers, child and adolescent health services through trained community health workers (Sangini), creating effective referral linkages to higher services. SuPoshan "Food Guidance Week" celebration systematized in all 61 villages in Mundra Taluka from 13th Nov – 20th Nov. Suposhan Food competition was organized in coordination with ICDS block and Supervisors, Sarpanch, ASHA workers and women leaders. The reason behind celebrating "Suposhan Food Guidance Week" is to make people aware about the importance of nourishment so that everyone is able to live healthy life. It involves community by · The importance of Nutrition and Balanced Diet · Importance of locally available food. · Preparing own variety nutritious dishes, · Folk songs on nutritious, · Slogans with actions, · Spreading awareness on different schemes, · Vaccination · Kitchen garden and · Exclusive Beast Feeding

Support for Medical Aid to Deprived

The scope of the organization extended up to providing best health care facilities to the needy, poor, challenged and not so well-to-do families for the treatment of illness and diseases. It is not always possible to predict the medical expenses. Moreover, those who are economically not so sound, become indebted for lifetime in case of certain illnesses. Therefore, Adani Foundation provides primary health care and financial assistance for ailments such as kidney related problems, paralysis, cancerous and tumor surgeries, neurological and heart problems, blood pressure, diabetes etc.

During six months, month we organized two medical examination camps in which Medical Support was given to 485 People from Mundra, Bhadreshwar, Zarpara, Shekhadia Nana Mota Kapaya, Bhujpur, Vadala, Wandi and other villages under our work area.

Medical Supports		
1	April	103
2	May	65
3	June	54
4	July	65
5	Aug.	97
6	Sep.	101
	Total	**485**

Gujarat Adani Institute of Medical Sciences

Gujarat Adani Institute of Medical Science is the first Medical College of Kutch region. It started in partnership with Adani Group and Government of Gujrat in the year 2009. This college was affiliated by the Medical council of India in the year 2014 for the MBBS with 150 seats per year. Gujarat Adani Institute of Medical Science is affiliate with the first digital university "Krantiguru Shyamji Krishna Verma Kutch University". In GAIMS, currently 750 students are studying, The GAIMS Medical College is situated in heart of Bhuj city on a large plot of 27 acres.

A teaching hospital (G K General Hospital) with 700 beds is established with GAIMS in which patients of Kutch are getting subsidized medical facilities. The Hostel facility is also available for the students in the campus only. The accommodation facility is given to the staff of GAIMS.

Health Camps

Various health camps are organized at regular intervals to meet the specific requirements of the community. Screening camps are organized regularly as per the route map planned in coordination with Adani Hospitals. During the year 2018-19, 11 Specialty camps were organized and 1636 Patients were benefitted.

General Health Camp & Surgical Camp					
Sr.no.	Month	Date	Place	Villages Name	Total Patinets
1	Apr-18	28.04 to 29.04.2018	Jat Malek Muslim & Maheshari Samuha Sadi At Mundra	Mundra	178
2	Jun-18	26.06.2018	Malaria Camp Sukhpar Mundra	Mundra	36
3	Jul-18	17.07.2018	Karva E Mustfa Hospital Health Camp	Mundra	50
4	Jul-18	21.07.2018	Mahesh Nagar Primary School	Mundra	190
5	Jul-18	30.06.2018	Muslim Jamat Samuh Sadi, Luni	Luni	40
6	Aug-18	11.08.2018	Rotary Hall, Mundra Surgical Mega Camp	Mundra	185
7	Aug-18	28.08.2018	Mithani Labour colony Health camp	Dhrub	80
8	Sep-18	22.09.2018	Shri Swaminarayan Mandir-Baroi Boad	Baroi	191
9	Sep-18	24.09.2018	Mithani Labour colony Health camp	Dhrub	105
10	Sep-18	26.09.2018	Jain Derasar, Oshwal Seri	Mundra	56
11	Oct-18	02.10.2018	Bava Gor Pir Uras Luni	Luni	525
			Total...		1636

Urinary stone – Dialysis Treatment

Drinking water of Mundra contains high Fluoride (amount of salt). Hence, the proportion of patients with urinary stone and kidney failure is more . A project for patients who need dialysis is thus initiated so that the poor patients can receive the treatment at subsidized rates in the nearby, well-equipped hospitals. The main objective of providing dialysis treatment is to help the extremely needy patients to live a healthy life. Total 3 Patients were being supported for regular dialysis (twice in a week) by participatory approach.

Mpw's Village Meeting			
Sr. No	Month	C.M. Meeting	MPW Meeting
1	April	0	0
2	May	7	18
3	June	6	13
4	July	5	12
5	August	4	16
6	September	3	11
	Total	**25**	**70**

Death Body Van Data		
Sr. No	Month	No. of Death Body
1	April	34
2	May	55
3	June	42
4	July	46
5	August	30
6	September	50
	Total	**257**

- Adani Foundation Team has initiated coordination with GKGH hospital since 2014 and established a reception area for the smooth patient coordination and preparation for the social networking program.
- Adani Foundation organized General Health Camps and Speciality Camps in various interior villages of Kutch in coordination with GKGH which created magical impact and benefitted 3335 patients. Adani Foundation Bhuj Health team has also organized more than ten awareness camps and village level meetings at 293 villages of Kutch regarding services of GKGH.
- Dead body medical van – Dignity to death is one of the noble initiatives taken up by the Adani Foundation. If any death occurs in GKGH, dead bodies are shifted to the native village of the concerned in the Kutch District free of cost. Total 257 dead bodies privileged till now to different locations in Kutch.

Shakti Raksha – Preventive and Curative Breast and Survical Cancer

Adani hospital Mundra, Taluka health office, Indian Red Cross society and Adani foundation has initiated Shakti Raksha Project in which special gynecologist camp for detection of breast n survival camp and thalassemia testing for pregnant women at CHC MUNDRA. In first phase we have covered all PHC and susceptible cases has been referred for pep test and mammogram at GKGH, Bhuj.
In this project we have covered 103 villages of Mundra and Bhuj this year with curative measures. Most medicine will provided by Taluka health office.
We have covered total 569 patients and 106 cases were referred to GKGH Bhuj. In which one case diagnosed with breast lump (not malignant).

Brest & Cervical Cancer screening and Thalassemia testing camp

Sr. No	Date	Place	Gynec	Thalassemia testing	Total Beneficiary	Referred Patients
1	09-06-2018	Mundra CHC	62	34	118	25
2	12-06-2018	Zarpara PHC	26	6	32	5
3	14-06-2018	Moti Bhujpur PHC	54	15	86	18
4	21-06-2018	Mota Kandagara PHC	42	11	53	10
5	25-06-2018	Nani Tumbadi PHC	55	14	69	12
6	28-06-2018	Vanki PHC	48	7	55	8
7	03-07-2018	Ratadiya PHC	79	11	90	17
8	05-07-2018	Bhadreshwar PHC	52	14	66	11
Total			**418**	**112**	**569**	**106**

Glimpse of Arogya Saptah






Arogya Saptah (8th – 14th August 2018)

Adani foundation, Adani Hospital and GAIMS have Jointly Celebrated "Arogya Saptah" 8th to 14th August-2018 in Respect of 72th Independence of our country. Celebration included multi specialty camps, Workshops, truckers health check up, surgical camp on foundation day and adolescent fair at different part of district. Collector, DDO, Minister, MLA and other dignitaries from NGOs had remained present. Objective of the program was to avail health benefits at GKGH and also at Adani Hospital Mundra and Approximately 4500 people will be direct beneficiaries of the program.

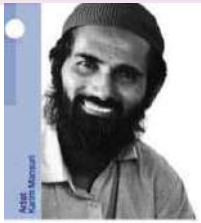
Day	Date	Event Name	Detail about Event	Beneficiaries
1	8th August 2018	Specialty Mega Camp	Specialist doctors i.e. Gynaecologist, Paediatrician, Nephrologists and general surgeon from GKGH had extended their services.	218
2	9th August 2018	Cervical/Brest cancer Screening & Awareness camp	In SOS gada village screening camp organize with preventive awareness session. 17 women critically suggested for further check up at GKGH.	113
3	10th August 2018	Haemoglobin Testing camp	Haemoglobin testing and awareness for de warming of 917 adolescent girls at Rapar village.	917
4	11th August 2018	1. Surgical Mega Camp, Mundra 2. Roa accident Awareness programme, Nakhtrana	1. Specialist Doctors from Adani hospital Mundra and Medical officers of Adani foundation had extended their services. 2. On occasion of Adani foundation ay session for Road accident awareness and safety including primary health check up camp was organized at Nakhatrana.	223 172
5	12th August 2018	Class-4 Staff CPR and first aid training	Class-4 Staff CPR and first aid training was organize in campus of G K general hospital for capacity building of staff and their motivation.	181
6	13th August 2018	Adolescent fair, Gadhashisha	Adolescent fair was organized at Gadhashisha high school in which lady gynaecologist had cleared doubts of the adolescent girls and given information.	170
7	14th August 2018	Asha Worker workshop	Capacity building workshop was organized for ASHA workers of urban and rural bhuj.	150

Empowering lives and broadening their scope for economic opportunities, Adani Foundation's initiatives introduced under **'Sustainable Livelihood Development Program',** have been founded on community based approaches.

Under this programme, we associated our self with Fisherman community, Farmers and Women groups.

Adani Ports and SEZ Limited started its business in 1996. When APSEZ started port operations, fishing community was found deprived and in a perpetual state of poverty. They were living a scattered life. Unavailability of roads, pure drinking water and unhygienic living conditions had made their lives tragic and miserable. We thought we could not achieve our goal of development unless and until we support them to uplift the living standard of the people of this community. After inception of CSR arm of the Adani Group – Adani Foundation in 1996, a strategy based on priorities and continuous and comprehensive socio-economic development and reforms for the fishing community was planned.

With the Foremost objective to improve living standards of Fisher-folk, Adani Foundation protracted support in Education, Health, Sustainable Livelihood and Rural Infrastructure Development Sectors.



Namda
is a sheep wool felting craft which is one of the oldest crafts of India.

There is only one artisan currently practicing this craft in Mundra, Gujarat.

SUSTAINABLE LIVELIHOOD DEVELOPMENT PROGRAM

Education

Education is one of the most important stepping stones to bring about a unified development in any community. The Adani Foundation, through its rigorous surveys and assessments, could understand that it was education which should be taken up to bring about a real change in the status of the fisher folk communities. Following are some of the major education initiatives taken up by the foundation:

Balvadi		
Sr.	Village & Bandar	Children
1	Juna bandar	55
2	Luni	25
3	Zapara-Chhacha	28
4	Bavadi bandar	30
	Total	138

Vidya Deep Yojana

A great amount of efforts were put in developing school preparedness programmes by empowering 'Balwadis' at Fisher folk settlements. Under the Machhimar Vidya Deep Yojana, Adani Foundation constructed four Balwadis for kids between the age group of 2.5 years to 5 years at different settlements. The programme is inclusive of nutritious food, awareness on health, hygiene, cleanliness, discipline, regularity and development of basic age appropriate concepts.

Machhimar Arogya Yojana

A healthy person can work well and earn for his family. Hence it is necessary to provide medical facilities to cure and prevent them and to provide then the treatment of diseases prevailing among the people specially women; children and elderly person, especially due the lack of balanced nutritious diet.

Mobile Health Care Unit - the mobile dispensaries have been run by the Adani Foundation since 2009. The mobile dispensary is available not only in the Vasahats/Settlements but also near the coast where the fishermen, can avail the facilities as and when needed. **Total average 247 fishermen were benefitted by Mobile Dispensary during last half year**.

1. Apart from this, a number of subsidiary initiatives such as health awareness camps, medical check-ups, etc. are conducted by the Adani Foundation at frequent intervals, to provide the fisher folk community with the much needed and required information and assistance.

2. Medical Financial Support –Adani Foundation has extended financial assistance to more than **73 financially challenged patients** from the Fisher Folk Community in case of medical urgency during this year.

3. Health Card for Senior Citizen Project – This is one of the major and prominent and the most innovative project of the Adani Foundation. Under this scheme Health Cards were given to the to Senior Poverty Stricken Citizens to provide them financial support to combat with their health related needs. The project for the senior citizens is popularly known as **Vadil Swasthya Yojana and till date 165 senior citizens** from fisher folk community are enrolled in the scheme. Most of them keep these cards in their wallets with other important documents and cards.

Vidya Sahay Yojana- Scholarship Support

Participatory scholarship support for fisherman children studying in SMJ high school Luni and to above 12th standards Students . 80 percentage support given by Adani foundation and 20 percentage support by parents! They willingly agree for the same.. We also encourage them for technical education for good job opportunities.. Total 66 students has been benefitted, among them 51 students from 9 to 12 standard and 15 students from BA,B.ed,LLB. On this occasion more than 300 students & parents were present.

Machhimar Shudhh Jal Yojana

This scheme of providing potable water has helped in reducing the drudgery of women and contributed largely towards general wellbeing.
Water tank platforms have been constructed and tanks have been set up in order to provide clean potable drinking water to the community. Daily 1,18,000 Litres of water is supplied at different settlements.

Potable Water		
Sr.	Vasahat	Total liters/ day
1	Juna Bandar	30,000
2	Luni Bandar	15,000
3	Randh Bandar	25,000
4	Bavadi Bandar	15,000
5	Veera Bandar	10,000
6	Ghavarvaro Bandar	8,000
7	Kutdi Bandar	15,000
	Total	1,18,000

Linkages with various Departments

Coordination with coast guard, Marine Department and Fisher folk for smooth Port operations Regular Meetings with fisherman for various innovate technology for fishing

Machhimar Kaushalya Vardhan Yojana

Apart from providing formal education, special programmes were conducted to enhance youth employability. Based on the need of assessment, a number of trades were introduced by the Adani Skill Development Centre in Mundra, where the fisher folk youth could join and get vocational training for a number of technical and non-technical skills. 20 women took part in Dori work training at Navinal and 19 women took part in Dori work at Juna Bandar.

Sr. No	Course Name	No of Students
1	Dori work ,Juna Bandar	19
2	Dori work, Navinal	20
3	Checker Cum RTG Crane Operator	03
	Total	**42**

Machhimar Ajivika Uparjan Yojana

The 'Ajivika Uparjan Yojana' was implemented to promote and support alternative livelihoods among the Fisher folk communities during the non-fishing months. The Foundation introduced 'Mangrove Nursery Development and Plantation' in the area as an alternate income generating activity for the people of the region. Both men and women received training on Mangrove plantation, moss cleaning, etc. as per requirements. The Foundation provided them with employment equivalent to 5201 man–days. In addition to this, employment worth of 34727 man-days has been provided till date. The Foundation has also supported Pagadiya fishermen as painting laborers by providing them with employment and job in various field.

Innovative Project : Solar Tent Dryer

CIFT (Central Institute of Fisheries Technology) has been conducting a prototype study on Solar tent dryers with improved technology at their head quarters in Kochi, which is expected to be completed within a span of another three months. They may be able to upscale or replicate the technology once the study is completed. In all probability, they will provide the designs for the solar tent dryer for drying Bombay duck and / or Acetus Indicus with financial estimate by the first quarter of next year. Meanwhile the team from the HQ and Veravel centre can visit Mundra region for initial site visit and feasibility studies. CIFT requested our team to visit CIFT HQ at Kochi during coming months to assess the prototype model and understand more on other CIFT developed hybrid dryers

Fisherman Cricket league

Adani foundation, MUNDRA organized Cricket Tournament " Sixth Adani Premiere League among Fishermen community to promote healthy Sportsmanship and harmonically transparent relationship. The Tournament had been played for 13 days at SVC (Shanti Vihar Cricket Ground) by 6 matches per Days with full of Audience, Total 65 Teams with 780 Fishermen youth were participated with 550Rs. Contribution per teams from Mundra, Anjar and Mandvi Block. The Final Match was played on 9.07.2018 and Pir Saheb (Religious Mentor), Rakshit sir (Executive Director- APSEZ), Dr.A.k Vatsani (Deputy collector ,Bhuj) Mr. Mahesh Dafda (Assistant Director of Fisheries, Bhuj), Mrs. Pankti Shah(Unit CSR Head) ,AF staff and Fishermen Leaders remained present. The Final Match was so interesting and Salaya team becomes winner over Luni Team and more than 1200 Audience from various villages were present. The winner's trophy, Runners-up Trophy, Man of the Series, Man of the Match, Best Baller, and Best Bats-Man Trophy has been given to the Respective Teams and players. The 25000Rs, 15000Rs, 2100Rs, 1100Rs, and 500Rs, 500Rs Prize given to the above Respective Teams and Players from the Teams contribution.

Adani Foundation puts efforts in Mundra block for consistent betterment in livelihood sector. The organization has carried out remarkable activities in the agricultural and animal husbandry sectors.

Drive for Technology to use in agriculture

- We have initiated Programme for Awareness of Farmers in collaboration with KVK. The outreach is approximate 67 farmers of 5 villages
- The purpose of this project is to initiate village wise integrated agricultural & allied development for sustaining agriculture and socio economic situation of farming community of Mundra block.

Agriculture Programme

Sr.no	Village Name	Member
1	Zarapara	21
2	Zarapara	15
3	Siracha-	16
4	Navinal	15
		67

Fodder Cultivation

The organization provides fodder during the time of scarcity and the last 3 months of summer every year. During this period, fodder is regularly sent to every village with the help of the local people. This has given stability to the families who earn their livelihood through animal husbandry.
In order to meet the demand of fodder, the Adani Foundation purchases it from the regional farmers. This gives them fair rates in return.
This year we have given 1,08,000 man fodder worth Rs. 205.00 Lacs approximately.

We have to find out Sustainable Solution for Fodder Cultivation

Fodder is the main issue as rainfall is very less in this region. Adani Foundation is working intensively in direction of fodder sustainability in three ways
1.Individual Fodder Cultivation Support – NB21 demonstration – Supported 140 Farmers of Dhrub and Zarpara
2.Drip Irrigation support Linkages with Fodder – First phase we will support drip irrigation in 22 villages and this linkages will help to convince them for NB21 at least in one acre land
3.Village Level Fodder Cultivation : Participatory Approach
(a) Winter crop Cultivation – Support to Individual (Supported for seeds of Makai for 200 acre land)
(b) Winter Crop Cultivation – Support to Group of Farmers

Project Swavlamban

Project Swavlamban Launched with blessings of differently abled people of MUNDRA TALUKA.

Our objective is

- To increase awareness about Government schemes for Divyang people, widows and senior citizens and coordinate them with Social Welfare Department, GoG
- After getting income generation equipment support - Proper training provision to make them self-reliant in true sense!! In launching ceremony, Dy. Collector Kutch, Jilla social welfare officer and TDO MUNDRA will remain present.
- Adani Foundation is playing the role of facilitator in case of tie up with Government Scheme for Widows, Senior Citizens and Handicapped people. The identity cards are issued for the handicapped in coordination with Bhuj Samaj Suraksha Khata which is beneficial for them to get specific kit for their disability type.
- The financial benefit of the senior citizen Yojana is Rs. 500per month and the widow scheme is of Rs. 1000 per month. Jilla Samaj Suraksha Officer and team remain present every time.

No	Type	Beneficiaries	Financial benefit
1	Disabled	409	10,00,000
2	Widow	92	3,25,000
3	Senior Citizen	32	1,75,000
	Total	533	15,00,000.00

Women Empowerment Projects

- In Kutch, the situation of women is miserable. Women are totally dependent on male members of family for their needs. Consumption of liquor is one of the main culprits in Kutch. Due to this evil prevalent among men many women are suffering.
- Considering this situation, We have started our training program with two major women's group of Villages near Adani Power and Adani Ports. Both the groups of women (**120 women in total)** successfully completed their training for preparing washing powder, phenyl, liquid for cleaning utensils and hand wash etc.
- We have selected 12 women groups having 10 members each, as per their ability for different work i.e. accounting, banking, leadership, marketing, administration etc.
- As a further step to bring sustainability, we thought to start a shop "Saheli Mahila Gruh Udyog" at Shantivan Colony after discussion with the Administrative Department of Ports and Power regarding the supply of the material, rate etc.

Women Empowerment Projects

Women Empowerment Projects
Step towards socio economic development

No	Village	Group	Members	Saving Amount	Work
1	Mota Kandagra	Jay Mekran	18	100	Stitching
2	Mota Kandagra	Jay Momai	10	200	Stitching
3	Navinal	Vishwas	14	100	Stitching/Dori
4	Navinal	Chamunda	10	100	Phynayle making
5	Baroi	Adhar	12	100	Perishable items
6	Sadau	Vishwasi	16	100	Dhadki, Frames
7	Shekhadia	Sonal	12	200	Washing Powder
8	Mota Kapaya	Tejasvi	10	100	Eco friendly bags
9	Mundra	Meghdhanushya	18	100	Mud work
			112	1100	

Glimpse of Women Empowerment Projects

SHG Meetings in various Villages regarding record check , Loan , Interest detail also collect information for their hidden Skill.

Education

Education Initiative of Adani Foundation signed an MoU with Maa Foundation, Vapi and adopted four major projects from them. The list of the projects upto October 2014-15 was:

Project Uthhan : Adani foundation has been promoting various educational and human initiatives in education, community health, sustainable livelihood and Rural Infrastructure.

In this context with an aim to enhance the quality of primary education in Kutch district, Adani foundation adopted 17 government school located at Mundra Taluka under the project 'UTTHAN' a drive of quality education.

Adani foundation is expected to achieve visible and measurable important in scholastic area.

Adani foundation will be focusing to bring the positive evidences of change in the personal, behavior and academic development of the students.

Objective of "Utthan"

- To improve basic knowledge of Math, Languages, English and Computer among students of Govt. schools.
- To Raise Minimum Level of weak students

Output of "Utthan"

- Increase enrolment ratio of students to 100%
- 100% regular present of students in school
- To improve their arithmetic, reading capacity in various languages, English etc.
- To increase confidence level of students
- Involvement of local community, village leaders and local Govt. through various activities

Outcome of "Utthan"

- Students of class 1th to 7th in government schools will take interest in activity based learning.
- Community and teachers will be positive and satisfy from this education project.
- Increase interest of students in school, they develop knowledge and understand importance of library.
- Education friendly environment development in school as well as in community.

Expected impact of "Utthan"

- Vachan, Ganan and Lekhan strengthening in Priya students
- Education department of Gujarat government will include activity based learning in regular course curriculum.

Beneficiaries of "Utthan"

- Children of class 1st to 7th standard in 17 government schools will be the beneficiaries of this project

Implementation Partners of "Utthan"

DPEO/TEPO/BRC will provide guidance for implementation and experts will visit on an interval of 6 months to evaluate the project.

Proposed Activities "Utthan"

- Training of Government School Staff
- Reading, Writing and Maths improvement as per Gunotsav Data
- Development of Teaching Learning Material
- English Language
- Role Model Activity in assembly
- Reading Corner Activities
- Monitoring and Evaluation

Implementation Strategy "Utthan"

At school level Uthhan Preraks will be the core implementer of the project. Project Officer visits regularly to selected schools to guide and manage the project and report to management. TPEO/BRC will involve in the project evaluation process at the interval of twice in year.

Kick Start of "Utthan"

- Participated in 'Teachers day' celebration. Introduced six female members of Utthan sahayak to schools. As a symbol of respect towards teachers Utthan team had given sapling to all 17 schools.
- Out of 1178 students 944 students participated in test, 413 students got more than 50% marks whereas 516 students got less than 50% marks means 44% students got more than 50% marks whereas 55% students got less than 50% marks. 232 students out of 1178 students were absent during the test. Base line for English subject is zero since first time we introduced English as a subject in 1 to 4 grade. Within 15 days of intervention we got remarkable and measurable change in English alphabet writing capability of Utthan students (Grade 1 to 4).
- Navneet English books distribution ' and Plastic free Environment awareness event organized in all 17 schools of Utthan by Adani foundation. One more positive step take by Adani foundation in order to achieve quality education for all " UTTHAN " Schools.

Project "Utthan" : Guru Vandana

- Guruvandana' Program celebration of teacher's day was organized on 12 November 2018 attended by government dignitaries and our beloved teachers of 106 government primary schools with great enthusiasm.
- Objective of the program conveyed to audience by CSR head Ms.Panktiben.
- It has been said that a healthy mind resides in a healthy body which is why a health checkup is scheduled for all the gurudevs (teachers) which included BMI, BP, RBS, HB and vision test done by adani hospital Mundra.
- Followed by a motivational speech by Dr.Darshana Dhodakiya who is the Director of Bhasha Bhavan of Gujarati Subject, Throwing light on the principle that teachers cannot be trained in to be coming a teacher, but they are teachers because they actually are born teachers.
- Soft skill training by Ms.Ridhi Trivedi who is a highly skilled trainer from ASDC and would explain us the importance and need of soft skills. A highly thought provoking drama by students of 'Shekhadiya' school. And last but not the least short and sweet session taken by Mr. Jatin Upadhyay. Throughout the program anchoring is done by Ms. Darshana Shastri and Ms. Jgruti Joshi.
- Achieved one of the objective teachers' capacity building

Celebration of World Environment Day at High School, Moti Khakhar

- Plantation of 1111 trees in Moti Khakhar high school ground in coordination with forest department : Moti Khakhar is a Village in Mundra Taluka .It is located 19 KM from Mundra. School is constructed in year 2008 and it is with large ground. Principal requested Adani Foundation to support for tree plantation in area. As per size of ground we can plant more than 1000 plants. In addition, Soil condition is also appropriate. Adani Foundation contacted Forest Department for Tree plantation before monsoon and Forest Department supported for 4000 plants. After getting support from Forest Department – Adani Foundation supported for Drip and Fence for protection of plantation. On 5th June 2018, Adani Foundation Mundra planted 1111 trees at Moti Khakhar. Function was scheduled by Gram Panchayat. Mr. Vyas (District Education Officer),Mr. Anjan (DCF, Mundra), Mr. Saxena (COO, APSEZ),AF Team, students of the school and Village leaders remained present

Shala Praveshotsav

To motivate children for schooling by providing the welcome kit / education kit and to create conducive children for " joyful learning" Environment for children for Learning during shala Praveshotsav Govt. has wide spread network of 111 Govt. primary schools in total 62 villages of Mundra Taluka, 3 villages of in Anjar taluka and two villages of Mandvi Taluka every year on an average 2550 to 2700 children gets enrolled in 1st std in Taluka For 2018-2019 total 2300 children got enrolled & Adani foundation provided the "Enrollment kit" to all new enrollee in Taluka

Mother's Meet

To motivate parents to maintain regularity of school, health hygiene and cleanliness we scheduled 3 mothers meet per week, which is really beneficial for student's overall growth. We arrange quiz completion for mother's to update their general knowledge.

Project UDAAN

Mundra has created a position for itself by creating capacities in Port Handling, Edible Oil Refining and Power Generation. With a vision to familiarize, educate and inspire the future generation to become successful business leader, engineers, managers and other professionals, the Adani Foundation organizes Education Exposure visits to Mundra for High schools and educational institutes in Various parts of Gujrat.
Total 2987 educational institutes has visited and 219410 beneficiaries of the project.

Summary of Six Months for Project "UDAAN"

APRIL -2018 TO SEPTEMBER - 2018

NO.	MONTH	SCHOOL/ COLLEGE	BOYS	GIRLS	TEACHERS	TOTAL
1	Apr -18	27	1381	515	108	2004
2	May -18	31	1107	827	105	2039
3	June - 18	30	1333	579	107	2019
4	July - 18	29	1280	727	116	2123
5	Aug -18	29	1256	770	109	2135
6	Sep - 18	28	1317	606	107	2030
	TOTAL	174	7674	4024	652	12350

Adani Vidya Mandir, Bhadreshwar

Adani Vidya Mandir, a unique Gujarati medium school was started in June 2012 at Bhadreshwar village of Mundra Taluka. The objective behind setting up this school is to provide free education to children of fishermen and economically challenged families. The foundation provides nutritious food to the pupils including breakfast, lunch and snacks every day. Special care is taken to provide high quality education and overall development of children. The children are groomed to go back to their families and communities and be the agents to change.

Class	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
1st	53	40	45	41	38	40	40
2nd	26	68	46	41	39	37	37
3rd	27	40	73	45	37	39	39
4th		39	48	70	44	36	36
5th			37	46	58	39	39
6th			37	36	46	58	58
7th			34	37	35	44	44
8th			39	34	36	34	34
9th				38	38	30	30
10th					23	27	30
Total	106	187	359	387	394	384	387

SUJLAM SUFLAM JAL ABHIYAN

The state government has announced its 31-day water conservation drive called 'Sujalam Sufalam Jal Abhiyan'. The campaign will be launched on "Gujarat Gaurav Din" on May 1, which is the foundation day of Gujarat state. Moreover, the government aims to revive 32 rivers in the state

Adani Foundation is willingly taking part in this drive and supporting 26 pond deepening at 19 villages of Mundra Taluka.

Inauguration of the Event was held at Nilkanth Mahadev Pond in Gundala Village. Chief Guest of the Event was Mr. Vasanbhai Ahir (Minister of State, Welfare of socially and educationally backward classes) Distinguish guest was Mr. Virendrasinh Jadeja (MLA Mandvi-Mundra) and Mrs. Remya Mohan (Collector, Kutchh) were remained present and motivated for this noble cause

Adani Foundation is working for water conservation with salinity department in construction of 18 check dams as well as more than 20 pond deepening work since 2007.

Adani Foundation got chance to become a part of Sujlam Suflam Jal Abhiyan. Adani Foundation will make the project successful and support this noble cause.

ENVIRONMENT SUSTANABILITY

The Environment Impact Assessment (EIA) Notification, 2006, issued under the Environment (Protection) Act, 1986, as amended from time to time, prescribes the process for granting prior environment clearance (EC) in respect of cevoain development projects/activities listed out in the Schedule to the Notification.

Sustainable development has many important facets/components like social, economic, environmental, etc. these components are closely interrelated and mutually re-enforcing. Under Corporate Environmental responsibility 10 km radious villages from SEZ Boundaries.

To make connections between human actions and the level of biological diversity found within a habitat and/or ecosystem, today we launch project "Sanrakshan" in coordination with GUIDE. Today MOU has been signed with Dr. Thivakaran – GUIDE for conservation of mangroves spices on coastal belt.

Under Sujlam Suflam project Adani Foundation has successfully completed pond deepening work in Mundra & Abdasa Taluka in record time. 26 pond deepening in Mundra and 7 pond deepening in Abdasa accomplished with all parameters calculated. In Mundra taluka 51723 cum excavation work has been done which increase storage capacity of 51 ML.

In Naliya taluka 14550 cum excavation work has been done which increase storage capacity of 15 ML. Total 66 ML storage capacity will increased.

PARTICIPATORY GROUND WATER MANAGEMENT

At the turn of millennium, the state watched with growing alarm the steady depletion of its ground water and launched massive drive to achieve water security in Mundra region. As a part of pre monsoon activities with ACT (Arid Communities and Technologies – NGO) we have carried out following work. But, due to negligible rainfall we are not able to find out outcome of this project.

Borana- Artificial bore well recharge –work completed

Mangara- Artificial bore well recharge – work completed

Dhrub- pond deepening work – work completed

Mota kapaya-abanded bore well recharge – work completed

Table 1: NURSERY STATUS AS OF SEPTEMBER 2018

Sr. No.	SPECIES	LOCATION (FROM)	SITE	DATE OF ARRIVAL IN BHUJ	DATE OF SOWING	NO. OF SEED-BAGS ESTABLISHED	NO. OF SEEDS IN EACH BAG	TOTAL NO. OF SEEDS SOWN	APPROX. SURVIVAL RATE TILL DATE
1	*Aegiceros corniculatum*	Parangipettai		Sept 21	Sept 25	2000	2	4000	
		Kandla							
2	*Excoecaria agallocha*	Pondicherry		Sept 22	Sept 26	4000	10	40000	
3	*Rhizophora apiculata*	Machilipatnam		Sept 22	Sept 26	4000	1	4000	
4	*Ceriops decantra*	Parangipettai		Sept 21	Sept 25				
		Machilipatnam		Sept 22	Sept 26				
5	*Bruguiera gymnorhiza*								
6	*Xylocarpus moluccensis*	Machilipatnam		Sept 22	Sept 26	1360	1	1360	
7	*Bruguiera cylindrica*	Machilipatnam		Sept 22	Sept 26	1500	1	1500	
8	*Ceriops tagal*	Jamnagar		Sept 15					

PROJECT "SANRAKSHAN" - BIODIVERSITY

The mangrove biodiversity enrichment project in and around Adani ports special economic zone limited (APSEZL) aims to introduce select true mangrove species on a pilot scale in suitable coastal belts and assess their survival. Because this project is the first of its kind, the expected survival rate is between 20-30%.

The project is currently in its initial stages of establishing nurseries and sowing seeds of several different species brought in from multiple locations in and outside of Gujarat state. These nurseries have been developed in tidal flats near the village of Luni, Kutchh, Gujarat.

The mangrove seeds/propagules) for the establishment of the nursery were brought in from various locations in India, namely, Machilipatnam (Andhra Pradesh), Pondicherry (Tamil Nadu), Parangipettai (Pichavaram Mangroves, Tamil Nadu), Kandla (Gujarat) and Jamnagar (Gujarat).

In most of these locations, there is adequate fresh water supply available due to high/substantial rainfall and/or presence of major rivers (also important river confluences and deltas that give rise to a thriving estuarine environment). Consequently, the mangrove species that successfully grow in those regions are adapted to a low-salinity environment (where salinity is approximately 20 ppt) against that of 37-44 ppt prevailing in Kachchh coastal waters. Furthermore, the species selected to establish the biodiversity enrichment project also belong to this group of mangrove species. This subsequently creates a challenge for the team heading this project because the Kachchh region does not provide adequate salinity ranges for survival of most of these species. In fact, it provides an extremely harsh saline environment (salinity can range up to as high as 44 ppt during summer).

Considering the above-mentioned scenario, the site selection criteria, need for species of high salinity tolerance and studying their natural occurrence in Kachchh becomes critical in ensuring a substantial survival rate of the mangrove species selected to potentially successfully establish a diverse and resilient mangrove community in the Kachchh region.

Furthermore, a highly diverse set of mangrove species will ensure resilience in the face of changing climate and could probably provide as a thriving gene pool and seed bank in the future for the Kachchh region.

PROJECT "DRIP IRRIGATION"

- **Basis of Requirements of Drip Irrigation**

The main source of livelihood being agriculture, the cultivators tend to use more and more underground water for irrigation. Underground waters have gone very highly saline. The use of such water for irrigation has made the soil also saline and the crop yields have dwindled.

- **Process of Drip Support**

Farmer have to applied in the prescribed form of Adani foundation with photograph.
Inspection and verification will be by AF representative.
Ration card, work order of G.G.R.C, 7/12 certificate and all bills must be attached.
Farmer will be informed by telephonic to have form query.
Primary information about farmer land will be received by telephone.
Farm visit within 10 days of after received of application and verified the installation of system as per map and material as per bill will be checked and get farmer feed back.
Verification report submitted to account office.
Payment within 20 days if all document is complete through net banking.
Farmer economic study after our support.

- **Villages of Drip Support**

Keeping in view the situation and request comes from community, once again Drip irrigation support is planned in three phase. As a part of first phase, we are considering 22 potential villages. We have put condition that we will support only if they become agree for fodder cultivation atl east in one acre

RURAL INFRASTRUCTURE DEVELOPMENT

Building a strong community relationship is the key to progress of Adani Foundation. The programs such as Education, Health and Sustainable livelihood development play a very important role in building this strong relationship with the community. These three programs are incomplete without the inclusion of the Rural Infrastructure Development program.

This year on path of sustainability, we have taken some steps as follows...

Under Dignity of Drivers Project, Adani Foundation has constructed Resting Shed for Drivers entering in SEZ Premises. Total 50 beds are constructed, drinking water and sanitation plus recreational – TV Facilities and will be charged minimum. Adani Foundation has handed over the project to ASSET Department – SEZ as a revenue generation model.
In this ceremony Mr. Avinash Rai (CEO- APSEZ), Mr. Rakshit Shah(Executive Director – APSEZ), Mr. Pritpal Sinh (Head – SEZ Operation) and other transporters remained present.

Work in progress

- Drainage maintenance and other misc works
- Basic infra. Facility in Labour Colony
- Drainage chamber and covers ,wandh village
- Development in common place, Navinal
- Civil works in gadhvi samaj community hall, Navinal
- Civil works in secondary school, Navinal
- Repair of west weir work at zarpara
- Construction of fisherman house, shekhadiya

Completed works

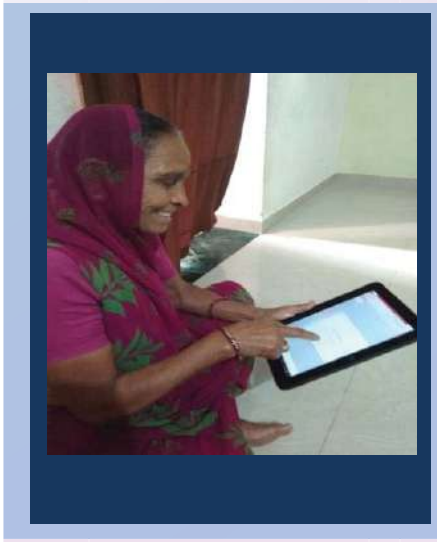
- Civil and electrical works in HMV driver rest shed
- River and pond cleaning by JCB- Nani khakhar, Zarpara and Baroi
- 26 pond deepening work under SSJA in 19 villages of mundra taluka

Labour colony- sanitation work

Driver Rest Shed at North Gate

Cricket pavilion shed, Nani Khakhar

Zarpara- west weir repairing work



Adani Skill Development Centre

Adani Skill Development Centre (ASDC) is playing a pivotal role in implementing sustainable development in the state.
Several miscellaneous industries exist in Kutch district. Adani Skill Development Centre has started a center in Mundra block so that the needs of these industries are fulfilled, the local youth is enrolled in various training / skill courses and the distance between the both is minimized.
The objective of this center is to impart different kinds of training to the students of 10th, 12th, college or ITI from surrounding areas. Thus, various employment-oriented trainings are organized to optimize the skills, art and knowledge through proper guidance and direction.
During this six months Total 762 people is given various trainings to enhance socio economic development.
Out of which 227 people are getting employment and average income up to Rs. 6500 per month.

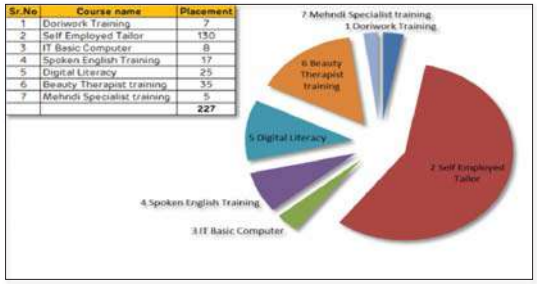
DETAILS OF VARIOUS TRAINING UNDERTAKEN

Sr.No	Course name	No.of canditates	Male	Female	Place	Start date	End date
1	Doriwork Training	19	0	19	Juna Bandar	01-04-2018	31-05-2018
2	Doriwork Training	20	0	20	Navinal	01-04-2018	31-05-2018
3	Self Employed Tailor	34	0	34	Tunda	01-04-2018	31-05-2018
4	Self Employed Tailor	15	0	15	Pragpar	10-04-2018	10-06-2018
5	IT Basic Computer	18	14	4	ASDc collage centre	01-05-2018	30-06-2018
6	Spoken English Training	15	8	7	ASDC Collage centre	01-05-2018	30-06-2018
7	Self Employed Tailor	11	0	11	Pragpar	03-05-2018	03-07-2018
8	Self Employed Tailor	33	0	33	Tunda	18-05-2018	20-07-2018
9	Digital Literacy	40	17	23	ASDC Collage centre	04-06-2018	03-07-2018
10	Beauty Therapist training	93	0	93	ASDC Baroi Centre	18-06-2018	17-08-2018
11	Digital Literacy	35	16	19	Tunda	02-07-2018	01-08-2018
12	Digital Literacy	107	53	54	Dhrub	04-07-2018	03-08-2018
13	Self Employed Tailor	33	0	33	Toda	19-07-2018	18-09-2018
14	Self Employed Tailor	16	0	16	Tunda	25-07-2018	24-09-2018
15	Spoken English Training	31	18	13	ASDC collage centre	01-08-2018	30-10-2018
16	Digital Literacy	38	27	11	ASDC Collage centre	08-08-2018	07-09-2018
17	Self Employed Tailor	73	0	73	Rampar	16-08-2018	15-10-2018
18	IT Basic Computer	12	12	0	Adani House	27-08-2018	28-08-2018
19	Beauty Therapist training	97	0	97	ASDC Baroi Centre	04-09-2018	05-11-2018
20	Mehndi Specialist training	22	0	22	ASDC Baroi Centre	04-09-2018	05-11-2018
		762	165	597			

Total fee Collected = 2,42,500/-

DETAILS OF VARIOUS TRAINING UNDERTAKEN

Sr.No	Course name	Placement
1	Doriwork Training	7
2	Self Employed Tailor	130
3	IT Basic Computer	8
4	Spoken English Training	17
5	Digital Literacy	25
6	Beauty Therapist training	35
7	Mehndi Specialist training	5
		227



Adani skill development centre Mundra Placement figures of ASDC.

Adani skill development centre Mundra is qualified in NSDC with 5 star rating for job role junior crane operator and unarmed security guard.

SWACHHAGRAHA

Mundra site- Adani Foundation launched Swachhagraha in 4 Blocks of Kutch District (Mundra, Anjar, Gandhidham, Bhuj). The Swachhagraha programme was launched in Bhuj District, Gujarat State with participation of over 450 Schools in Swachhagraha Prerak's Training Workshop with support of District Education Department, Kutch District. The programme was launched by Mrs. Shilin R. Adani, Trustee, Adani Foundation; Mr. Prabhav Joshi – DDO, Kutch Dist; Mr. V.S.Gadhavi, Director, Adani Foundation; Mrs. Sushama Oza, Director, Adani Foundation; Mrs. Ami Rakshit Shah, Adani Public School; Mr. Rakesh Vyas – DEO, Kutch; Mr. Sanjay Parmar - DPEO, Kutch; Dr. Gyaneshwar Rao, Medical Director, GAIMS; Dr. Gurudas Khilani, Dean, GAIMS; Ms Pankti Shah, Unit CSR Head, Mundra on 1st October 2018 at 10.30 AM at GAIMS Auditorium, Bhuj with full day Swachhagraha Training Workshop of Teachers.

LAUNCHED "SAKSHAM" CENTER AT BAROI GUEST HOUSE

ASDC-Baroi (Mundra):- Adani skill development Center (ASDC) launched 'SAKSHAM' center at Baroi guest house in Mundra on 16th June 2018 to provide skill development training to youth in the Mundra. An initiative of Adani foundation, the center in the Mundra city will benefit about more than 500 candidates every year in Beauty &Wellness course. The center will provide skill development training to the youths in the age group of 14-40years initially in Beauty & Wellness course. Total enrolled for this training were 90 students.

LAUNCHED "DIGITAL LITERACY" AT UTHHAN VILLAGES

Adani Skill Development center, Mundra has started digital literacy class in local village. 40 girls and boy are participated in first session. All village people are happy for this training in phase. We have also arrange evening batches to cover all people of various village.
Digital literacy training done through laptops and Tablets:-
1). The course duration is 26 days and number of hours is 52.
2). Per day training delivery hour is 2.
3). This is completely based on demonstrative and practical training methodologies.
4). The delivery is intended to be done through Desktops and Tablets
5). Attaching Also cover for payment banking topics .

SWACHHAGRAHA : At Gujrat Adani Institute of Medical Sciences

"Swachhagraha " – Project launched at Adani G K General Hospital to embed values of cleanliness in minds of the staff and community as well. Separate staff member is also appointed by HO team for the same. Mr. Gadhavi had launched swachhagraha by presenting insignia to Dr. Bhadraka (Head, Adani GKGH).

SAMVEDANA : Series of Motivational Sessions

To motivate and felicitate paramedical and nursing staff motivational session was organized with help of Ms. Hiral Pandya which is critical requirement of GKGH. She talked about behavior aspect as well as compassionate approach to patients.

Swachhagraha Marathon : Run Against Depression

Gujarat Adani Institute of Medical Sciences G K General Hospital and Student Counsel Organized the Bhuj Marathon. Theme of the marathon was Run against Depression and Swachhagraha.

Total more than 800 participants took part in this marathon with enthusiasm and zeal.



International Coastal Clean up Day

Mundra Adani foundation MUNDRA has celebrated swachhagraha related International Coastal Clean up Day celebrated with Coast Guard" with theme swachhagraha.. School students, Coast Guard staff and Adani foundation staff had cleaned Mandvi beach and give a message of swachhagraha.. At the end information given about swachhagraha project

NAMDA : ON REVIVAL PATH

Even as a breakthrough is waiting to happen, five trainees were enrolled on Tuesday 5th Dec 17 by Adani Skill Development Centre (ASDC) for the age-old Namda craft, a dying art form of Kutchh district in Gujarat. First initiative of its kind, the skill development training on Namda is aimed at preparing a future generation of artisans for the historic art form.

Adani Foundation, the CSR wing of Adani Group had vowed to save Namda from extinction and bring back its past glory. Originally innovated by an artisan of Mughal Era in the 11th Century India, Namda craft was primarily practiced by the Pinjara and Mansuri communities and Sama Muslims native to Kutchh. Sans proper encouragement, marketing avenues and promotion, the art suffered a major setback with artisans gradually switching over to other professions for livelihood earning.

Till recently, when the Adani Foundation, Mundra team members approached Mansuri Karimbhai Umarbhai, perhaps the sole survivor of the craft in Kutchh, Namda was dying a natural death. As a good corporate citizen, the Adani Group initiated a move to protect the art form, as well to make it popular and sustainable.

The first step towards the enormous goal of reviving Namda, the training programme kicked started with lots of positivity and enthusiasm among the trainees, who are committed to put best efforts for bringing back the past glory for this craft. And the best part of the initiative is that, the Namda survivor himself would train the future-artisans.

GREAT ACHIEVEMENT IS....

KARIM MANSOORI ONCE AN ORDINARY NAMDA ARTISAN IS NOW AN ENTERPRENUAR. THE ADANI FOUNDATION FEELS CONTENTIN REVIVING THE DYING NAMDA ART FORM AND SUPPORTING MANSURI IN STARTING HIS OWN BUSINESS.

HIS JOURNEY IS OFF TO TO A FLYING START AND WE WISH HIM ALL THE BEST.

New Journey of My Life !!

As if destiny had turned cruel to her, one after another shocks shattered the family life of Shyama Ben. Otherwise a jolly woman with lots of positive energy and great dreams of in her bright eyes, the unexpected miseries compelled her to enter into a state of solitude and high-depression. This villager of Sadau in Mundra locality had 7 times miscarriages, each time giving her an serious emotional blow and ceasing the hope of being a mother. This was not the end; luck had kept something even worst for her. For no fault of this poor lady in the mishaps and destiny doings, her husband left her in the midst of life at a time when she required maximum support from a person who knows her so well and can best understand her pains.

All these pushed Shyama Ben into darkness of life and she became totally cut-off from the social mainstream. This also adversely resulted into her health and mental status. But its well said, "What God Will....." , there was something big which she was destined to achieve in life to define her self-identity and shape the life in a constructive way. With help of neighbor lady she joined SHG Group and capacity building trainings by Adani Foundation. Within six months she took 5 training i.e. capacity building, leadership, banking, federation making and record keeping.

In June 2018 Adani Foundation planned an exposure to SEWA group. After exposure programme of SHG members and could notice certain potentials in her, which led to a new beginning. With required training and skill upgradation, she appeared for an interview in Britannia Industries within the APSEZ, Mundra and got selected for the position of supervisor. Today she is a self-sufficient woman with a earning of Rs 9000/- per month with other allowance for lunch and transportation. The new journey has again given her an opportunity to lead life normal way and start dreaming again to achieve greater things in life.

Ways to Bright Future !!

Mamad Sakil Osman Ghani Adani Vidya Mandir – Bhadreshwar 'A High Leap by a Poor Child from the Fisher folk Community.....Towards Engineering Studies.....Through Adani Vidya Mandir' 2017-18 Name: Mamad Sakil Osman Ghani Father's Name: Osman Ghani Mother's Name: Halimaben Family: Brother (1) + Sisters (4) & Parents; total 8 members Occupation: Fishing Village: Luni; Taluka: Mundra; District: Kutchh In modern times along with its importance, education has also made changes in our lifestyle.

Adani Vidya Mandir, Bhadreshwar, is like a lighthouse giving a ray of hope in remote areas. It was established to provide education to children from socio-economically backward communities. The school provides high-quality education, nutritious food as well other kinds of facilities so that children's self-respect increases through the education. Speaking of students, Mamad Sakil was enrolled in the Std. 7, in 2014-15 in the Adani Vidya Mandir, Bhadreshwar. His father, Osman Ghani, is a fisherman. His family of eight members consists of his mother, his father, a brother and four sisters. They live in Luni Bandar.

From the beginning it was seen that he was a quiet, straightforward, humble and cultured boy. He also exhibits behavior with moral values. Everyone helped the family socio-economically. In the Adani Foundation with the help of Vijayhai and Ishwarbhai noted details of the family and found that nobody was educated. In such times of rising prices and inflation it is difficult to raise so many children. So the school management decided to take over and fulfil his basic necessities. Efforts for this child's educational success were made including counselling and guidance.

During his first year in the school, he participated in the running competition in the Khel Mahakumbh and came first in the district. In this way, he began to progress in not just education but also other areas. He started getting promoted to the next standard every year and eventually he reached Std. 10. With the help of the school in various ways and his own hard work, he successfully cleared Std. 10 with 77%. He stood second in the school. Now, the journey of his life has really started. He has started to see new and inconceivable dreams for his future career. Now, the Adani Foundation will be holding his hand to fulfil his dreams.

After completing studies of the Std. 10, he was gifted an android phone by the school principal, Smt. Lali madam, as he needed new technology to get admission for further studies. In this way all the obstacles have been removed from his career path. He has now taken admission in mechanical engineering in Bhuj Polytechnic, and the Adani Foundation has paid his entire fee. A new innings has started in his life. With his hard work he is making progress step-by-step. He has set a good example for other students. And we all hope that he will eventually become a strong financial support to his family.

Enhance Employability!!

Vimleshkumar, an RTG crane operator at MICT, Mundra is a classic case study of skill development training ensuing employability. Just couple of month back a much stressed Vimleshkumar had approached Adani Skill Development Centre (ASDC) Mundra to undertake checker-cum- RTG crane operator training with a hope of getting some employment somewhere to support his economically poor family. After passing 12th qualification, Vimlesh was rendered unemployed like hundreds and thousands of youths of his age and locality.

While undergoing the ASDC training he would have never imagined that this additional knowledge and skill up gradation would bring him a bright future and good days for his family. Soon after completion of his 3 months duration course, Vimlesh Kumar got a job in MICT, Mundra doing cargo handling operations at MICT, Mundra. His current earning per month is Rs 12,000/- .

Vimleshkumar for employability through knowledge and skill development...

Divine feeling towards Mata no Madh!!

Mata no Madh is a village in Lakhpat Taluka of Kutch district, Gujarat, India. The village lies surrounded by hills on both banks of a small stream and has a temple dedicated to Ashapura Mata, the household deity of former Jadeja rulers of Cutch State. She is also considered patron deity of Kutch. Many people are used to reach this Ashapura temple by feet from different parts of India. G K General hospital has organized health facility through at 10 locations on way of Mata Na Madh during Navaratri 5th to 11th oct.. In addition to medical facility, This health shibir will provide awareness of swachhagraha, swine flu and Beti bachavo as well The concept given by Shri Gadhvi Sir and implementation will be taken care by Dr. Chintan and Adani foundation health team.

ADANI FOUNDATION ALL PROJECT ACHIVIEMENT APRIL – SEP 2018-19

AF- COMMUNITY HEALTH - MUNDRA 2018-19					
Sr. No.	**Description**	**No. of Direct Beneficiaries**	**No of Indirect Beneficiaries**	**No of Access Beneficiaries**	**Remarks**
1	Mobile health care unit	8972	26916	61500	29 Village
2	Medicines for rural clinics - 9	10485	31455	37500	11 Village
3	Support to Needy people	485	2425	73700	15 Village
4	Dialysis Support	3	32	119	No.of Dialysis-119 (03 Village)
5	Health Card Service to Senior Citizen	5137	25685	169279	68 Village
6	Suposhan	21502	64506	153219	Child,Adolescent girls,RPA Women (61 Village)
7	Shakti Raksha Project	457	2285	153219	61 Village
Total		47041	153304	648536	
AF- COMMUNITY HEALTH - GAIMS BHUJ					
1	Health Camp	4120	16780	7031	-
2	School Health Check up	527	1671	589	-
3	School Awareness	150	603	0	-
4	Ortho Implant	24	120	576	-
5	Death Body	259	1092	0	-
6	Patient Care & Coordination	2628	10872	162000	-
7	Mata no Madh - Health Camp	21000	84000	250000	
		28708	115138	420196	

RID					
1	Pond deepening work	31551	0	0	Total 19 Village.
2	Drainage maintenance and JCB hiring	13059	0	0	Total 06 Village.
3	Tuna Port Related CSR Projects	1215			Wandi Village.
4	Basic infra. Facility in Labour Colony	1380	0	0	Total Labour Colony = 5.
5	Development work in Zarpara & Mundra	2735	18338		(1) Zarpara = 735 (2) Mundra = 2000
6	Fisherman Amenities : Infrastructure Support at different Bandar	2472	0	0	(1) Old Abndar = 1056. (2) Bavdi Bandar = 576. (3) Kutadi Bandar = 840.
7	Participatory Ground Water Management	4927	0	0	Total 04 Village.
	Total	57339	18338	0	
	SLD (AGRI, Women Empowerment and Govt linkages)				
1	I.G Support	50	200	400	-
2	Sadhan sahay- tricycle and wheelchair	45	180	600	-
3	Gujrat govt sadhan sahay- Handicaps	41	164	600	-
4	Central govat sahay Handicaps	142	568	600	-
5	Medical certi Handicaps	182	728	980	-
6	Pension Yojana Linkages	124	496	400	-
7	Bus pass Linkages	170	680	980	-
9	fodder N.B 21	140	1250	1560	-
10	Biogas	21	130	270	-
11	Organic farming	21	140	290	-
12	Fodder support				-
13	Women Empowerment	94	570	768	-
14	Namada craft	6	36	0	-
	Total	1036	5142	7448	

EDUCATION					
1	Material Support	8	1600	20	-
2	Mothers Meet	36	1800	3600	-
3	Project Uthhan	17	2598	0	-
4	Shala Praveshotshav	3000	9000	0	-
5	Swachhagraha	450	36000	0	
6	Teachears Training	4	1000	10000	
7	Support to 10th Pass Students from AVMB	44	132	0	-
Total		3559	52130	13620	
	Education Initiative for Fisher folk				
1	Education Initiative for children at vasahat	250	1500	265	
2	Balvadi	138	690	149	
3	Vehical support	98	490	0	
4	Exposure tour, Fee & Other Edu. Support to poor students and cycle support to Fishermen Students.	142	852	0	
Total		628	3532	414	
	Sustainable livelihood for Fisher folk				
1	Community Engagement Activities	780	0	780	
2	Livelihood promotion - Income Generation to individual	13	78	0	
3	Awareness generation and capacity building	70	350	176	
4	Potable Water to Fisher Folk at vasahat	921	5526	1200	
5	Mangroves plantation and maintenance	158	948	0	
Total		1942	6902	2156	
	Total beneficaries	140253	354486	1092370	

Adani Foundation, CSR Budget - Mundra
Budget Utilization April to September-2018

F.Y. 2018-19

Rs. In lacs

Sr. No.	Program	Budget 2018-19 Rs.	Budget Utilization Rs.
A.	Admin Expense	67.55	24.05
B.	Education		
(i)	Education Initiative	67.85	30.66
(ii)	Adani Vidya Mandir-Bhadreshwar	143.15	48.96
(iii)	Shanti Vihar (Project Udaan)	342.82	108.96
	Sub Total	553.82	188.58
C.	Community Health	243.21	84.00
D.	Sustainable Livelihood Development	475.22	282.10
E.	Rural Infrastructure Development	326.34	72.38
	GRAND TOTAL	**1666.14**	**651.11**


ભદ્રેશ્વર ગામે અદાણી ગ્રુપના ચેરમેનના
જન્મદિનની અનોખી ઉજવણ
તાલુકા હેલ્થ ઓફિસ મુન્દ્રા દ્વારા ઓરી
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સરકારી યોજનાઓ વિશે વિનામૂલ્યે
માહિતી અને ફોર્મ આપવામાં આવશે
મુન્દ્રા તાલુકામાં પ્રા. શિક્ષણના
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આયુષ્માન ભારત યોજના તળે
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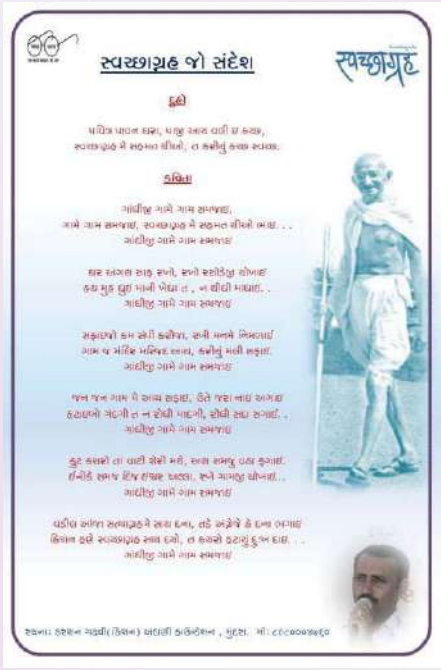
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કવિતા
ગાંધીજી ગામે ગામ સમજાણ,


શેખડીયા ગામને ગ્રીન વીલેજ
બનાવવાના કાર્યનો પ્રારંભ
શિક્ષક બનતા નથી પરંતુ જન્મે છે
'ગુરુવંદના' કાર્યક્રમમાં પ્રાથમિક
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સામાજિક જવાબદારી સરાહનીય
અદાણી ફાઉ. દ્વારા ભુજના સ્લમ વિસ્તારની
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Annexure – 4

Cost of Environmental Protection Measures

Sr. No.	Activity	Cost incurred (INR in Lacs)			Budgeted Cost (INR in Lacs)
		2016 – 17	2017 – 18	2018 – 19 (Till Sep'18)	2018 – 19
1.	Environmental Study / Audit and Consultancy	36.78	9.0	4.6	30.5
2.	Legal & Statutory Expenses	4.76	5.07	0.12	5.7
3.	Environmental Monitoring Services	27.95	27.02	12.5	36.0
4.	Hazardous / Non Hazardous Waste Management & Disposal	12.52	65.62	50.5	84.8
5.	Environment Days Celebration	6.71	2.85	2.21	10.0
6.	Treatment and Disposal of Bio-Medical Waste	1.27	1.13	0.75	1.56
7.	Mangrove Plantation, Monitoring & Conservation	72.38	60.0	Nil	50.0
8.	Other Horticulture Expenses	555.00	547.0	299.0	636.0
9.	O&M of Sewage Treatment Plant and Effluent Treatment Plant (including STP, ETP of Port & SEZ & Common Effluent Treatment Plant)	61.50	70.02	81.67	108.05
10.	Expenditure of Environment Dept. (Apart from above head)	131.83	102.15	64.49	117.29
	Total	**910.70**	**889.86**	**515.84**	**1079.9**

Further year wise breakup of the cost is mentioned in table below:

Year	Environment	Horticulture	Total
2014-15	462.87	380.27	843.14
2015-16	346.23	434.72	780.95
2016-17	355.70	555.00	910.7
2017-18	342.86	547.00	889.86
2018-19 (Till Sep'18)	216.84	299.00	515.84
Total	**1724.5**	**2215.99**	**3940.49**

Annexure – 5

adani

30.04.2018

To,
Director (Environment) & Member Secretary,
Gujarat Coastal Zone Management Authority,
Sachivalaya,
Gandhi Nagar

Subject: Submission of final report for Cumulative Impact Assessment at Mundra

Reference:

(1) Your office letter no. ENV-10-2013-118-E dated 19.12.2014
(2) MoEF&CC order vide F. No. 10-47/2008-IA-III dated 18.09.2015
(3) Our submission of 1st progress report vide letter dated 10.09.2016
(4) Our submission of 2nd progress report vide letter dated 27.07.2017

Dear Sir,

In view of compliance with the directions issued by MoEF&CC, GCZMA in its 21st meeting held on 07.02.2014 has directed APSEZ to submit Terms of Reference (ToR) to undertake a "*Cumulative Impact Assessment study for the projects already granted Environmental Clearance (EC) and CRZ clearance in the region so that future developments can be assessed for providing necessary approvals at a later stage*".

Further to the submission of ToR and subsequent discussions, GCZMA has approved ToR for undertaking Cumulative Impact Assessment (CIA) study vide letter no: ENV-10-2013-118-E dated 19.12.2014.

In view of the above, APSEZ appointed M/s. Cholamandalam MS Risk Services Limited (CMSRSL) for carrying out CIA Study.

Further, an order was issued by MoEF&CC vide F. No. 10-47/2008-IA-III dated 18.09.2015, with specific directions to APSEZ. Below mentioned directions relate to the need of CIA study.

xi) A regional strategic impact assessment report with a special focus on Mundra region will also be prepared. The cost towards these studies will also be borne by PP.

x) In the subject matter of thermal power plant, the proposed regional strategic impact assessment analysis will take in to account salinity aspect along with its potential environmental impact to suggest future corrective actions as well as the guiding tool on extension and additional of the capacities.

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During the course of the study, APSEZ has submitted two progress reports to GCZMA. Also, APSEZ has been submitting the updated status regarding the progress of the CIA study to all concerned authorities as part of the six monthly compliance reports. A joint site visit (MoEF&CC, RO, Bhopal, GCZMA and GPCB, RO, Gandhidham) was carried out during 21 – 22.12.2016 for compliance report verification.

In continuation to our earlier submissions, we would like to inform you that the CIA study is now completed (including baseline data collection, completion of all the technical studies to identify possible impacts on various environmental attributes and drafting a suitable macro level environment management plan) and the final report is enclosed for your consideration.

Thank you
Yours sincerely,

Shalin Shah
Head – Environment

Copy to: Sh. Kushal Vashist, Director, MoEF&CC, Indira Paryavaran Bhavan, Jor bagh road, Aliganj, NewDelhi

02/5/18

Ministry of Environment, Forests & Climate Change
Govt. of India
Indira Paryavaran Bhawan
Jorbagh Road, Aliganj
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Annexure – 6

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04.06.2018

To,
Director (Environment) & Member Secretary,
Gujarat Coastal Zone Management Authority,
Sachivalaya,
Gandhi Nagar

Subject: Submission of final report on comprehensive and integrated plan for preservation and conservation of mangroves and associated creeks in and around APSEZ, Mundra, Gujarat.

Reference:

(1) EC and CRZ clearance of Multi-product SEZ at Mundra vide MoEF&CC letter F. No. 10-138/2008-IA-III dated 15.07.2014
(2) MoEF&CC order vide F. No. 10-47/2008-IA-III dated 18.09.2015
(3) Submission of NCSCM's proposal and scope of work vide our letter dated 25.04.2016

Dear Sir,

In view of compliance with the directions issued by MoEF&CC, the scope of work of NCSCM was discussed during 28th meeting of GCZMA held on 22.04.2016. The discussed scope of work was submitted to GCZMA vide our letter dated 25.04.2016.

In view of the above, NCSCM commenced the studies covering the following directions mentioned in references above.

- *Bocha island, ecologically sensitive geomorphological features and areas in the island and creeks around the island will be declared as conservation zone action plan for its conservation must be prepared. M/s. APSEZ should provide necessary financial assistance for this purpose.*
- *A Comprehensive and integrated conservation plan including detailed bathymetry study and protection of creeks/mangrove area including buffer zone, mapping of co-ordinates, running length, HTL, CRZ boundary will be put in place. The plan will take note of all the conditions of approvals granted to all the project proponents in this area, e.g., the reported case of disappearance of mangroves near Navinal creek. The preservation of entire area to maintain the fragile ecological condition will be a part of the plan in relation to the creeks, mangrove conservation and conservation of Bocha Island up to Baradimata and others.*

4/6/18
સક્ષમ નિકરણ અધિકારી
રજીસ્ટ્રી શાખા
વન અને પર્યાવરણ વિભાગ
સચિવાલય,ગાંધીનગર.

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- *NCSCM will prepare the plan in consultation with NIOT, PP and GCZMA. In recognition of the fact that the existing legal provisions under the E(P) Act 1986 do not provide for any authority to impose ERF by the Government, the plan will be financed by the PP. The implementation will be carried out by GCZMA. The monitoring of the implementation will be carried by NCSCM.*

During the course of the study, APSEZ has submitted two reports regarding progress of the study to all concerned authorities as part of the six monthly compliance reports. MoEF&CC vide their letter dated 23.08.2016 requested to submit an updated status of the directions (reference – 2). In reply, APSEZ submitted the requisite information with the progress report of the ongoing studies vide letter dated 10.09.2016. In continuation to the same, following site visits were carried out for verification of compliance status. During the said visits, the progress reports submitted were discussed with the concerned authorities present.

- A joint site visit (MoEF&CC, RO, Bhopal, GCZMA and GPCB, RO, Gandhidham) was carried out during 21 – 22.12.2016.
- Site visit of Regional Officer, MoEF&CC, Bhopal was carried out during 02 – 03.05.2018.

In continuation to our earlier submissions, we would like to inform you that the stated study is now completed (including preparation of the conservation plan) and the report prepared by NCSCM is enclosed for your consideration.

It may be noted that demarcation of HTL and CRZ areas of the entire coast of Gujarat (including the APSEZ area) is being carried out by NCSCM. NCSCM has already prepared the draft maps. Once the maps are finalized, they will be submitted to GCZMA and MoEF&CC as part of the requirements.

Thank you
Yours sincerely,

Shalin Shah
Head – Environment

Copy to: Director (Infra II committee), MoEF&CC (IA.III section), Indira Paryavaran Bhavan, Jor bagh road, Aliganj, NewDelhi

प्राप्त किया
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