adani™

APSEZL/EnvCell/2017-18/003 Date: 23.05.2017

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 under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat by M/s. Adani Ports & SEZ Limited."

Ref : Environment clearance under CRZ notification granted to /s. Adani Ports & SEZ Limited vide letter dated 20th September, 2000 bearing no. J-16011/40/99-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 / CRZ Clearance for the period of October – 2016 to March – 2017 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

Ennarasu Karunesan
Chief Executive Officer
Mundra & Tuna Port

Enclosure: 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
Adani House
PO Box No 1
Mundra, Kutch 370 421
Gujarat, India

Tel +91 2838 25 5000
Fax +91 2838 25 5110
info@adani.com
www.adani.com

Environmental Clearance Compliance Report

Port Expansion Project including Dry/Break Bulk Cargo Container Terminal, Railway Link and related Ancillary and Back-up facilities at Mundra Port, Dist. Kutch, Gujarat

Adani Ports and SEZ Limited

For the Period of:

October-2016 to March-2017

Index

Compliance Report

adani	**Adani Ports and SEZ Limited**	**From : October'16** **To : March'17**
Status of the conditions stipulated in Environment Clearance under CRZ notification		

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"		
Sr. No.	**Conditions**	**Compliance Status as on 31-03-2017**
A. Specific Condition		
i	All the conditions stipulated by the Gujarat Pollution Control Board vide their NOC No. PC/NOC/Kutch/391/18424 dated 10.6.99 and No. PC/NOC/Kutch/222(2)16880 dated 1.5.99 shall be strictly implemented.	Complied. The project is in operation phase and has been granted Consent to operate (CC&A) vide letter no. AWH-83561 issued on 09/01/2017 valid up to 20/11/2021. Copy of the same is attached as **Annexure – 1.** CtO is granted based on the compliance of the CtE conditions.
ii	The conditions stipulated in the letter No ENV-1098-6477-PI dated October 28, 1999 and No. ENV-1099-2702-PI dated 27.12.99 of shall be strictly implemented.	Complied. Point wise compliance report of CRZ recommendations issued vide letter No ENV-1098-6477-PI dated October 28, 1999 and No. ENV-1099-2702-PI dated 27.12.99 is enclosed as **Annexure- A**.
iii	The turning circle should be increased from 550 m to 600 m.	Complied. The turning circle has a radius of 700m centered on channel joining point as per Port Information Booklet last edited on 21.02.2017.
iv	A girdle canal with settlement tanks shall be provided around the coal storage area.	Not applicable at present. Coal handling is not practiced at project site. No coal handling was practiced during the compliance period.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
v	All efforts shall be made for water conservation and rain water harvesting. Arrangements shall be made for roof top rain water harvesting from various structures.	Complied. Under the Water Conservation and Optimization Drive at APSEZ, various initiatives were taken for conservation of water as, 1. Optimization & modification of tank cleaning process at Liquid Terminal 2. Installation of Water-free urinals at Adani House & Tug Berth building 3. Recirculation of water from Fixed firefighting system to reservoir through flexible pipe during testing of firefighting system. 4. Provided wind breaking wall for dust suppression at coal stack pile reduced the water usage for dust suppression. 5. Conservation of Condensate from Air Conditioner and use for gardening
		6. Spray nozzles are provided in taps of Tug Berth, CT2, CT3 & CT4 buildings to reduce the water consumption. 7. Water Maker machine is installed near Tug Berth jetty which generates drinking water from atmospheric moisture. The capacity of this machine is 250 liters per day. All of above initiative saved more than 1400 Million Liters of water during FY 2016-17.
vi	To obviate the problem of coastal erosion due to dredging, the setback distance of at least 50 m from the Chart Datum line of Bocha island would be maintained.	Complied. During Maintenance dredging in this area it is ensured that at least 50 m distance is maintained.

adani	Adani Ports and SEZ Limited	From : October'16 To : March'17
Status of the conditions stipulated in Environment Clearance under CRZ notification		

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"		
Sr. No.	**Conditions**	**Compliance Status as on 31-03-2017**
vii	The dredged material shall be disposed of only in the identified locations outside the CRZ area. While dumping the dredged material, sufficient distance should be ensured from the existing mangroves so that there is no damage to the ecology. During dumping of dredged material the mitigative measures as suggested by NIO shall be implemented. It shall be ensured that there is no dumping of dredged material in the CRZ.	Complied. Capital dredging is completed and only maintenance dredging is going on. Dredged material is partly used for level rising and partly disposed at location identified by NIO. The measures recommended by NIO are implemented In order to ensure no damage to marine ecology Marine water & sediment monitoring is being carried out once in a month by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the same for duration from Oct'16 to Mar'17 is mentioned below.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 31-03-2017</th></tr>
<tr><td></td><td></td><td>Total Sampling Locations: 12 Nos.
<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>8.28</td><td>7.1</td><td>8.4</td><td>7.2</td></tr>
<tr><td>TDS</td><td>mg/L</td><td>538320</td><td>34120</td><td>56780</td><td>35330</td></tr>
<tr><td>TSS</td><td>mg/L</td><td>55</td><td>14</td><td>47</td><td>18</td></tr>
<tr><td>BOD (3 Days @ 27 oC)</td><td>mg/L</td><td>8.6</td><td>0</td><td>10</td><td>3</td></tr>
<tr><td>DO</td><td>mg/L</td><td>6.6</td><td>4.8</td><td>8</td><td>4.2</td></tr>
<tr><td>Salinity</td><td>ppt</td><td>44.72</td><td>30.6</td><td>4209</td><td>37.8</td></tr>
<tr><td>COD</td><td>mg/L</td><td>28</td><td>9</td><td>36</td><td>10</td></tr>
</table>
The results depict that there is no damage. Monitoring Reports are attached as Annexure – 2 for the same.</td></tr>
<tr><td>viii</td><td>The mangrove afforestation shall be undertaken at the identified sites and the progress report in this regard shall be submitted to this Ministry regularly. All the recommendations suggested in the NIO report for restoration of the coastal habitat by mangrove afforestation at Navinal island shall be strictly implemented.</td><td>Complied.

24.13 hectare of mangrove afforestation was been carried out at identified sites in consultation with Gujarat Institute of Desert Ecology (GUIDE) as they are one of the authorized agencies of Dept. of Forest & Env., Govt. of Gujarat for carrying out mangrove afforestation and monitoring to implement recommendations suggested in NIO report. The same is provide at Sr. No. xix.

Details of mangrove plantation along the west of Navinal creek and green belt development by APSEZL till date is annexed as Annexure – 3.</td></tr>
</table>

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
ix	No ground water shall be withdrawn for this project.	Complied. Present source of water is desalination plant of APSEZ and/or Narmada water through Gujarat Water Infrastructure Limited. These ensure the fresh water availability for various project related activities. APSEZ does not draw any ground water for the water requirement. Average water requirement of Main Port Terminal is 1.74 MLD which is sourced from desalination plant of APSEZ and/or GWIL.
x	The project proponent shall ensure that the construction workers do not cut the Mangroves for fuel wood etc.	Complied. Project is in operation phase.
xi	The project proponent shall ensure that no creeks are blocked and the natural drainage of the area is not affected due to project activities.	Complied. All creeks are in existence allowing free flow of water and there is no filling or reclamation of any creek area. APSEZL has so far constructed 19 culverts having total length of approx. 1100 m with total cost of INR 20 Crores. Apart from that three RCC Bridges have been constructed over Kotdi creek with total length of 230 m at the cost of INR 10 Crores.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 31-03-2017</th></tr>
<tr><td>xii</td><td>The project proponent shall ensure that there will be no disposal of sullage and sewage generated from construction camps, surface run-off from construction sites, and oil and grease spillage from the construction equipment's in the creeks.</td><td>Complied.
Project is in operation phase.

Sewage generated from port is being treated in designated STP and treated sewage is used for horticulture purposes.
<table>
<tr><th>Location</th><th>Capacity</th><th>Quantity of Wastewater</th><th>Type of ETP / STP</th></tr>
<tr><td>LT</td><td>265 KLD</td><td>150 KLD</td><td>Activated Sludge</td></tr>
</table>
Third party analysis of the treated water is being carried out twice in a month by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the same for duration from Oct'16 to Mar'17 is mentioned below. The results of the same are attached as Annexure – 2.</td></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Parameter</th><th>Unit</th><th>Max</th><th>Min</th><th>Perm. Limit$</th></tr>
<tr><td>pH</td><td>--</td><td>7.5</td><td>6.69</td><td>6.5 – 8.5</td></tr>
<tr><td>TSS</td><td>mg/L</td><td>48</td><td>24</td><td>100</td></tr>
<tr><td>TDS</td><td>mg/L</td><td>1380</td><td>709</td><td>2100</td></tr>
<tr><td>COD*</td><td>mg/L</td><td>142</td><td>72</td><td>100</td></tr>
<tr><td>BOD*
(3 Days @ 27 °C)</td><td>mg/L</td><td>36</td><td>20</td><td>30</td></tr>
<tr><td>Ammonicle Nitrogen as NH3</td><td>mg/L</td><td>3.66</td><td>1.80</td><td>50</td></tr>
</table>
$ as per CC&A granted by GPCB
*Single case of exceedance is observed within Six Month of observation</td></tr>
</table>

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"		
Sr. No.	**Conditions**	**Compliance Status as on 31-03-2017**
xiii	The project proponent shall stick to the time bound program submitted to the Department of Environment, Government of Gujarat for the proposed activities including installation of desalination plant for meeting the entire water requirement. They shall coordinate their construction/operations schedule with the installation schedule of desalination plant.	Complied. Present source of water is desalination plant of APSEZ and/or Narmada water through Gujarat Water Infrastructure Limited. APSEZ does not draw any ground water for the water requirement. Average water requirement of Main Port Terminal is 1.74 MLD which is sourced from desalination plant of APSEZ and/or GWIL.
xiv	The project proponent shall ensure that the commercial fisheries are not hampered due to presence of barges, vessels and other activities in the region. Necessary plan in this regard shall be prepared in consultation with the NIO and submitted within 3 months.	Complied. No commercial fisheries are prevailing in this area except Pagadia and fishermen with small boats. Unhindered access is provided to the fishing boats. During project proposal, APSEZ proposed to provide four (4) dedicated accesses at Juna Bandar, Luni, Bavdi Bandar and Zarpara for the fishermen to approach the sea for fishing activity. However, during construction as well as operation, through fishermen consultative process, APSEZ has provided seven (7) access roads
		Total length of all the approach roads is approx. 23 Kms and expenditure involved is Rs. 637 Lacs. There is no hindrance to the movement of fisherman boats.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
xv	The project proponent shall bear the cost of the external agency that may be appointed by the Department of Environment, Government of Gujarat for carrying out the supervision and/or the monitoring of the construction activities.	Complied. Construction activities are completed and project is in operation phase. If at all any study is suggested by Govt. of Gujarat, we will give full co-operation
Xvi	The project proponent shall carry out the post-project monitoring of various environmental parameters in consultation with the Department of Environment, Government of Gujarat and Gujarat Pollution Control Board.	Being complied. Monitoring of various environmental parameters for Ambient Air, Noise, Wastewater, ground water, marine water and sediments along with the parameters mentioned in the consent order issued by GPCB is being carried out by NABL and MoEF&CC accredited agency. Monitoring reports for the period from April'16 to Sept.'16 are enclosed as **Annexure-2.**
xvii	The project proponent shall prepare the detailed traffic control management plan for the port and shall participate in the VTMS to be developed for the Gulf of Kachchh.	Complied. 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. 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

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"		
Sr. No.	**Conditions**	**Compliance Status as on 31-03-2017**
xviii	Action plan shall be prepared by the project proponents to prevent damage to marine life and also to the coastline in case of any oil spillage and the same shall be strictly implemented. Regular mock drills shall be carried out to ensure fitness of the equipment in place.	Complied. Oil spill contingency plan is in place and implemented. Oil spill contingency plan Updated & approved by coast guard was submitted along with last compliance submission for the duration of Apr'16 to Sep'16. Mock drills are conducted regularly. Detail on drill conducted on 21.12.2016 is attached as **Annexure – 4.**

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
xix	The project proponents shall work out the maximum quantity of spilled material, which can find its way into the coastal waters, under different accident scenarios, and their impact on aquatic life shall be studied after clearly demarcating the impact zones. On the basis of such studies, the necessary action plan to mitigate the likely impacts shall be prepared before commencement of the operations. Action taken report in this regard shall be submitted to the Ministry.	Complied. 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. APSEZL has already having facilities for combating a Tier-1 spill. Recommendations of Marine EIA by NIO with respect to pollution emergency contingency plan for Multipurpose Terminal, Container, Dry & Break Bulk Terminal as well as associated facilities are addressed in Oil Spill Response Plan. This action plan prepared by Adani Ports and SEZ Ltd, Mundra is to combat the oil spill (LOS-DCP) is in accordance with the NOS DCP, International Petroleum Industry Environmental Conservation Association (IPIECA). 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 along with last compliance submission for the duration of Apr'16 to Sep'16.
B. General Condition		

adani	Adani Ports and SEZ Limited	From : October'16 To : March'17
Status of the conditions stipulated in Environment Clearance under CRZ notification		

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"		
Sr. No.	**Conditions**	**Compliance Status as on 31-03-2017**
i	Construction of the proposed structures should be undertaken meticulously conforming 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 Departments / Agencies.	Already complied. Not applicable at present. All construction activities are carried out confirming to the existing rules and regulation and as per the CRZ notification. Approval under the preview of GMB, PESO and Factories act were taken prior to start of construction.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 31-03-2017</th></tr>
<tr><td>ii</td><td>The proponent shall ensure that as a result of the proposed constructions ingress of the saline water into the ground water does not take place. Piezometers shall be installed for regular monitoring for this purpose at appropriate locations on the project site.</td><td>Complied.

To monitor the ground water quality, four bore wells are provided. Third party analysis of the ground water is being carried out quarterly by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the same for duration from Oct'16 to Mar'17 is mentioned below.
<table>
<tr><th>Parameter</th><th>Unit</th><th>Minimum</th><th>Maximum</th></tr>
<tr><td>pH</td><td>-</td><td>7.57</td><td>8.41</td></tr>
<tr><td>Salinity</td><td>mg/L</td><td>2.98</td><td>22.2</td></tr>
<tr><td>Oil & Grease</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr>
<tr><td>Hydrocarbon</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr>
<tr><td>Lead as Pb</td><td>mg/L</td><td>0.011</td><td>0.012</td></tr>
<tr><td>Arsenic as As</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr>
<tr><td>Nickel as Ni</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr>
<tr><td>Total Cromium as Cr</td><td>mg/L</td><td>0.017</td><td>0.022</td></tr>
<tr><td>Cadmium as Cd</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr>
<tr><td>Mercury as Hg</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr>
<tr><td>Zinc as Zn</td><td>mg/L</td><td>0.029</td><td>0.93</td></tr>
<tr><td>Copper as Cu</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr>
<tr><td>Iron as Fe</td><td>mg/L</td><td>0.041</td><td>0.48</td></tr>
<tr><td>Insecticides/Pesticides</td><td>mg/L</td><td>BDL*</td><td>BDL*</td></tr>
</table>
*BDL = Below Detectable Limit
Test Reports are attached as **Annexure - 2**</td></tr>
</table>

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 31-03-2017</th></tr>
<tr><td>iii</td><td>A comprehensive contingency plan in collaboration with the concerned authorities must be formulated to contain in case of any oil spills. Appropriate devices such as oil skimmer, oil monitor, oil water separator must be acquired for strengthening the contingency plan. All the service vessels that required for oil spill operations must be equipped with booms and dispersants. The personal onboard of these vessels must be properly trained in operation of these booms and dispersants.</td><td>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. Oil spill contingency plan updated & approved by coast guard was submitted along with last compliance submission for the duration of Apr'16 to Sep'16.

Shoreline Resources available with APSEZL, Mundra for deployment during shoreline cleanup/ emergent situation details is as below
<table>
<tr><th>Item</th><th>Quantity</th></tr>
<tr><td>Oil Spill Dispersants</td><td>40250 ltr.</td></tr>
<tr><td>Absorbent pads</td><td>1000</td></tr>
<tr><td>Portable dispersant storage tank: 1000 ltr. capacity</td><td>1 no.</td></tr>
<tr><td>Portable pumps</td><td>2 nos.</td></tr>
<tr><td>Oil discharge hose, 3", 2 x 10 m</td><td>1 set</td></tr>
<tr><td>Rachet belt (Eco make)</td><td>10 nos.</td></tr>
<tr><td>Tool box (Eco)</td><td>6 nos.</td></tr>
<tr><td>Tanker Trucks</td><td>04 nos.</td></tr>
<tr><td>Mini Vacuum Pump (30 m3 / hr)</td><td>02 nos.</td></tr>
<tr><td>Slurry Pump (60 m3 / hr)</td><td>01 no.</td></tr>
</table>
Detail of resource available at APSEZL is provided in Annexure 3 of Oil Spill Contingency Plan.
11 Dolphin tugs are fitted with Oil Spill Dispersant boom and proportionate pump to mix OSD and Sea water as required; out of them 10 Dolphin Tugs are fitted with a fire curtain and remote controlled fire monitors.

IMO module course organized by Maritime Training Institute is conducted & 36 personnel have achieved IMO level 1 & 4 personnel have achieved IMO Level 2. Different training modules as Oil Spill, Oil Spill Equipment, Notification exercise, Incident are conducted at different frequency.</td></tr>
</table>

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
iv	The operation plan for responding to an oil spill must include clear procedures for notification of a spill, response decision, clean up operations, communications, and termination of cleanup operations, cleanup cost, oil pollution, damage control and disaster management plan.	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. Oil spill contingency plan updated & approved by coast guard was submitted along with last compliance submission for the duration of Apr'16 to Sep'16. Oil Spill Contingency Plan includes procedures for notification of a spill as point no 7.1, response strategy as Point no. 3.0 , cleanup operations, Cleanup cost and termination of cleanup in point no. 3.5, communications in point no. 6.0.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 31-03-2017</th></tr>
<tr><td>v</td><td>A well-equipped laboratory with suitable instruments to monitor the quality of air and water shall be set up so as to ensure that the quality of ambient air and water conforms to the prescribed standards. The laboratory will also be equipped with qualified manpower including a marine biologist so that the marine water quality is regularly monitored in order to ensure that the marine life is not adversely affected as a result of implementation of the said project. The quality of ambient air and water shall be monitored periodically in all the seasons and the results should be properly maintained for inspection of the concerned pollution Control agencies.</td><td>Being complied

Ambient Air Quality (twice in a week) and Noise (once in a month) monitoring are being carried out by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the same for duration from Oct'16 – Mar'17 is mentioned below.
Total 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$</td><td>97.29</td><td>44.48</td><td>100</td></tr>
<tr><td>$PM_{2.5}$</td><td>$\mu g/m^3$</td><td>56.65</td><td>18.72</td><td>60</td></tr>
<tr><td>SO_2</td><td>$\mu g/m^3$</td><td>25.73</td><td>5.09</td><td>80</td></tr>
<tr><td>NO_2</td><td>$\mu g/m^3$</td><td>43.31</td><td>14.23</td><td>80</td></tr>
<tr><th>Noise</th><th>Unit</th><th colspan="2">Average</th><th>Perm. Limit</th></tr>
<tr><td>Day Time</td><td>dB(A)</td><td colspan="2">65.7</td><td>75</td></tr>
<tr><td>Night Time</td><td>dB(A)</td><td colspan="2">63.4</td><td>70</td></tr>
</table>
$ as per NAAQ standards, 2009</td></tr>
</table>

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
	The periodic monitoring reports at least once in 6 months must be sent to this Ministry as well as its Regional Office at Bhopal.	Sewage generated from port is being treated in designated STPs and treated sewage is used for horticulture purposes. Third party analysis of the treated water is being carried out once in a month by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the same for duration from Oct'16 to Mar'17 is provided above in point No. xii. Marine Monitoring: Summary of the marine water monitoring for duration from Oct'16 to Mar'17 is mentioned below. **Total Sampling Locations: 12 Nos.**

Parameter	Unit	Surface		Bottom	
		Max	Min	Max	Min
pH	--	8.28	7.1	8.4	7.2
TDS	mg/L	538320	34120	56780	35330
TSS	mg/L	55	14	47	18
BOD (3 Days @ 27 °C)	mg/L	8.6	0	10	3
DO	mg/L	6.6	4.8	8	4.2
Salinity	ppt	44.72	30.6	4209	37.8
COD	mg/L	28	9	36	10

Adani group has appointed a marine biologist Mr Shivanagouda Sanagoudra to monitor marine water quality. Also the third party monitoring of the Marine water is being carried out once in a month by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd. who has marine biologist to ensure that the marine water quality do not adversely affects the marine life. Monitoring Reports are attached as **Annexure – 2** for the same.

Half yearly compliance reports containing monitoring report is regularly submitted to MoEF&CC, Bhopal. Last compliance report was submitted on 28.11.2016.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
vi	Adequate provision for infrastructure facilities such as water supply, fuel for cooking, sanitation etc. must be provided for the laborers during the construction period in order to avoid damage to the environment. Colonies for the laborers should not be located in the CRZ area. It should also be ensured that the construction workers do not cut trees including mangroves for fuel wood purpose.	Already complied. Not Applicable at present. Construction Activity is already completed. Adequate infrastructure facilities as mentioned in the condition were provided during construction phase. The facility for drinking water, toilet and rest shelter were provided and are in existence for the dignity of labor.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 31-03-2017</th></tr>
<tr><td>vii</td><td>To prevent discharge of sewage and other liquid wastes in to the water bodies, adequate system for collection and treatment of the wastes must be provided. No sewage and other liquid wastes without treatment should be allowed to enter into the water bodies. The quality of treated effluents, emissions, solid wastes and noise levels must confirm to the standards laid down by the competent authority including the Central/State Pollution Control Board.</td><td>Complied.

Adequate pipelines are provided to ensure the collection and treatment of effluent. Raw sewage is collected from 30 different collection pits at APSEZ locations through browsers and is transferred to ETP/STPs for treatment.

Sewage generated from port is being treated in designated ETP/STPs and treated sewage is used for horticulture purposes. No treated water is discharged into the water bodies.

Third party analysis of the treated water, Flue Gas, Ambient Air and Noise is being carried out regularly by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd.
Summary of treated effluent for duration from Oct'16 to Mar'17 is provided above in Condition No. xii.
Summery of six monthly monitoring of Flue gas emission is provided below.
<table>
<tr><th>Parameter</th><th>Unit</th><th>Limit</th><th>Min.</th><th>Max.</th></tr>
<tr><td>PM</td><td>mg/Nm^3</td><td>150</td><td>32.75</td><td>150</td></tr>
<tr><td>SO_2</td><td>mg/Nm^3</td><td>100</td><td>9.59</td><td>100</td></tr>
<tr><td>NO_2</td><td>mg/Nm^3</td><td>50</td><td>39.76</td><td>50</td></tr>
</table>
Source: M/s. Pollucon Laboratory Pvt. Ltd.</td></tr>
</table>

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
		Six monthly report of Flue Gas emissions for duration from Oct'16 to Mar'17 is attached as **Annexure – 2.** Summary of Ambient Air and Noise for duration from Oct'16 to Mar'17 is provided in general condition No. v above. **Solid Waste Management**: APSEZL adopted 5R concept for environmentally sound management of different types of solid & liquid waste. The following table summarizes the waste management practice (for Apr – Sept '16) for different types of wastes at Mundra: Municipal Solid Waste A well-established system for segregation of dry & wet waste is in place, by which all wet waste (Organic waste) is being segregated & utilized for compost manufacturing; compost is further used by in house horticulture team for green belt development. Dry Recyclable Waste - is being sorted out in various categories & finally being sent for recycling. E- Waste & Used Batteries - is being sold to registered recycler. Solid Hazardous Waste - is being disposed through common facility i.e. CHWIF and / or co-processing at cement industries. Used/Waste Oil - It is being sold to authorized recycler/reprocesser. Downgrade Chemicals - It is being sold to authorized solvent recover. Slop Oil – Slop oil from vessels are received and water and oil particles from the same are separated in Oil Water Separator system. Separated oil from the same is being sold to authorized recycler /reprocessor.

Waste	Quantity in MT	Disposal method
Municipal Solid Waste		
Dry Waste	62.77	After recovery sent for recycling
Wet Waste	25.78	Converted to Manure for Horticulture use

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 31-03-2017</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Waste</th><th>Quantity in MT</th><th>Disposal method</th></tr>
<tr><td colspan="3">Hazardous Waste</td></tr>
<tr><td>ETP Sludge</td><td>2.18</td><td>Landfilling at TSDF Site</td></tr>
<tr><td>Pig Waste</td><td>4.59</td><td>Co-processing at cement industries</td></tr>
<tr><td>Tank Bottom Sludge</td><td>42.90</td><td>Co-processing at cement industries</td></tr>
<tr><td>Oily Cotton waste</td><td>28.21</td><td>Co-processing at Cement Industries</td></tr>
<tr><td>Used / Spent Oil</td><td>86.40</td><td>Sell to registered recycler</td></tr>
<tr><td>Discarded Containers</td><td>8.85</td><td>Sell to registered recycler</td></tr>
</table>
</td></tr>
<tr><td>viii</td><td>Appropriate facility should be created for the collection of solid and liquid wastes generated by the barges/vessels and their safe treatment and disposal should be ensured to avoid possible contamination of the water bodies.</td><td>Complied.
Ships berthing at Mundra Port comply with MARPOL regulations.
Waste reception facility provided at port collects Solid waste (i.e. Garbage) from vessels and collected waste is being sorted at Material Recovery Facility & sent for recycling.
No discharge is allowed into marine environment inside port limits and APSEZL does not receive sewage/liquid waste from ship.
Oily sludge (a mixture of oil, water and dirt) is disposed through authorized recycler / re-processor.
Oily slop is being received at port and separated at Oil Water Separation facility provided by APSEZL. Separated oil is being sold to authorized recycler, whereas waste water is being treated at effluent treatment plant.</td></tr>
</table>

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
ix	Necessary navigational aids such as channel markers should be provided to prevent accidents. Internationally recognized safety standards shall be applied in case of barge /vessel movements.	Complied. Navigational aids such as buoys and leading lights have been provided. The rules and regulation of the port contributes to the safe, efficient and environmentally responsible handling of shipping traffic. The international rules of IMO, such as SOLAS convention and its amendments and national regulations are in force at APSEZ, Mundra. **APPLICABLE REGULATION** ➢ Port Security Law (ISPS) ➢ Indian Port Act ➢ Gujrat Maritime Board Act 1981 ➢ Navigational Safety Port Committee (NSPC) ➢ All relevant international rules and regulations on MARPOL, Load lines Etc.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
x	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. Proper precautions are taken to avoid any oil spills during operation as check of pressure of oil transfer lines and manual watch during oil cargo transfer. Available mechanisms to avoid oil spills are identified as below At liquid terminal: Immediate shut off valve from vessel and shore. Periodical testing of lines Immediate suction of material by pump. Emergency operation shut down. At Marine Operations: Scupper plug, dip tray, absorbent pad, saw dust is provided to address confined spillage/leakage. At Container Terminals: Leak cart is available for collect spilled chemical. Spill control materials in place. Oil drums are stored in covered shed where pellets are used. Tray provided to collection of spillage/leakage if occurred. No oily waste is discharged to water bodies. Oily waste or oil contaminated waste is being disposed as mentioned in General Condition no. vii above.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
xi	The project authorities should take appropriate community development 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.	Complied. The CSR Activities are planned out at Mundra by Adani Foundation in below four 1 Community Health 2 Sustainable livelihood development -fisher folk 3 Education 4 Rural Infrastructure Development Drinking water is being regularly provided to fisher folk community as mentioned below: Total of 93000 liters of water was supplied to 728 households from different settlements on a daily basis under Machhimar Shudhh Jal Yojana. Adani Foundation has installed RO Plant at Chhach Vistar at Zarpara. Also constructed under ground tank 1.0 lacs lit capacity at Rampar village of Anjar Taluka. Budget for CSR Activity for the FY 2016-17 is to the tune of INR 1535 lakh. Out of which, INR 1420 lakh are spent. Details of the CSR activity and expenditure for the period Oct-16 to March.'17 is enclosed as **Annexure – 5.**
xii	The quarrying material required for the construction purpose shall be obtained only from the approved quarries / borrow areas. Adequate safeguard measures shall be taken to ensure that the overburden and rocks at the quarry site does not find their way into water bodies.	Not applicable at present. Construction activities are completed. No such activity is carried out during the compliance period of Oct'16 to Mar'17.
xiii	The dredging operations, if any, to be undertaken with the prior approval of this Ministry, shall be executed with appropriate safeguard measures to prevent turbidity conditions in consultation with the expert agencies such as CWPRS / NIO.	Complied The capital dredging is completed and only maintenance dredging is carried out. The disposal of the dredged material is being done as per the recommendations of EIA report prepared by NIO

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
xiv	For employing unskilled, semi-skilled and skilled workers for the project, preference shall be given to local people.	Complied • Adani Skill development center, Mundra is providing skill development training to the locals for Soft Skill, Technical Training and for Carrier Guidance & knowledge based training. Total 941 students were trained as per above topics during FY 2016-17. Allocation of fund for education is availed by Adani Foundation. Total 105.43 Lacs were spent for community education & skill development during FY 2016-17. • Preference is given to local people for employment based on their qualification and experience. • All Mangrove plantations are done in consultation with GUIDE and Local forest dept. • 24 hectare of mangrove afforestation at Mundra was done through active participation of local fishermen at the cost of INR 25.0 Lac Details on skill development training imparted during period of Financial Year 2016-17 by Adani Foundation are enclosed as **Annexure - 5**
xv	To meet any emergency situation, appropriate firefighting system and water pipelines 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, 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 along with last compliance submission for the duration of Apr'16 to Sep'16.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>Compliance Status as on 31-03-2017</th></tr>
<tr><td>xvi</td><td>Regular drills should be conducted to check the effectiveness of the on-site Disaster Management Plan.</td><td>Complied.
A mock drill was conducted on 15.04.2016 at SS-1 Building for the scenario "Evacuation of the building due to earthquake" for FY 2016-17.
Regular drills are being conducted for effectiveness of the system. Details for the same was submitted along with last compliance submission for the duration of Apr'16 to Sep'16.</td></tr>
<tr><td>xvii</td><td>The recommendations made in the Environmental Plan and Disaster Management Plan, as contained in the EIA and Risk Analysis Reports of the project, shall be effectively implemented.</td><td>Complied
All the recommendations are being implemented.
Few Marine EIA recommendations:
<table>
<tr><td>Operational protocols and safety procedure should be printed and freely available to concerned staff. The employees must be adequately trained to inculcate a high level of competence not only in day to day operations but also during emergency sictuations. Periodic refresher cources must also be organized to maintain the level of their competence.</td><td>The company has written the operational protocols and safety procedures as a part of ISO 14001:2008, OHSAS 18001:2008 and ISO 9001:2008 certifications.
APSEZ has established training department to impart training to its employees.

IMO module course organized by Maritime Training Institute is conducted & 36 personnel have achieved IMO level 1 & 4 personnel have achieved IMO Level 2. Different training modules as Oil Spill, Oil Spill Equipment, Notification exercise, Incident are conducted at different frequency.</td></tr>
</table></td></tr>
</table>

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017	
		Periodic monitoring should be undertaken at the designated sites after the terminals become operational and the results of each monitoring should be carefully evaluated to identify changes if any and to take corrective measures, if warranted.	Monitoring of various environmental parameters for Ambient Air, Noise, Wastewater, ground water, marine water and sediments is being carried out by NABL and MoEF&CC accredited agency. Monitoring reports for the period from April'16 to Sept.'16 are enclosed as Annexure-2.
		Adequate vigilance is required to adherence of ships to Marpol protocol and related regulations.	During the vessel declaration compliances with respect to Air Pollution and Oil are monitored by the Port Authority. The ships are certified with international certification bodies only after complying with the Marpol protocol..
		Manual Listing Procedure for conducting ship movement operations in the port area must be available to the concerned staff.	Berthing Policy & Tariff Structure is made available for conducting ship movement to the concerned staff and made available on web link www.adaniports.com/pdfs/PIB_06122013.pdf Port Information Booklet is also made available on web link www.adaniports.com/Port_Operations_Port_Tariffs.aspx

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017	
		Few Tata AIG Risk Assessment Recommendations:	
		There should be facilities of boom, skimmer, dispersant, diving suits, firefighting equipment and excellent communication facilities.	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.
		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.	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. The same was submitted along with last compliance submission for the duration of Apr'16 to Sep'16.
		Water samples around SPMs may be monitored periodically for checking up any oil contamination.	Marine water and sediment testing near SPM is being carried out monthly by NABL and MoEF&CC accredited agency. Monitoring reports for the period from April'16 to Sept.'16 are enclosed as Annexure-2.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"		
Sr. No.	**Conditions**	**Compliance Status as on 31-03-2017**
xviii	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 APSEZL 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. Executive who directly reports to the top management. The organogram of Environment Cell is attached as **Annexure – 6**.
xix	The project affected people, if any, should be properly compensated and rehabilitated.	Not applicable. The project was conceptualized in such a way that there are no impacts on the local settlements due to the project proposal. However, the project is already implemented and is in operation phase.
xx	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 other purpose. A year wise expenditure on environmental safeguards should be reported to this Ministry.	Complied. Separate budget for the Environment protection measures is earmarked every year. All environment and horticulture activities are considered at corporate level and budget allocation is done accordingly. No separate bank account is maintained for the same however, all the expenses are recorded in advanced accounting system of the organization. Budget for environmental management measures (including horticulture) for the FY 2016-17 is to the tune of INR 932 lakh. Out of which, Approx. INR 910 lakh are spent during F.Y. 2016-17 period. Detailed breakup of the expenditures is attached as **Annexure – 7**.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"		
Sr. No.	**Conditions**	**Compliance Status as on 31-03-2017**
xxi	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 Boards 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 12.01.2017 and 09.02.2017 for West port and Main port respectively. APSEZL has submitted the reply to the site visit report vide letter dated 29.01.2017 and 17.02.2017 incorporating details of action taken in respect of the observations of the GPCB representative.
xxii	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 ones for ensuring environmental protection. The project proponents should be responsible for implementing the suggested safeguard measures.	Point Noted.
xxiii	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.

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"

Sr. No.	Conditions	Compliance Status as on 31-03-2017
xxiv	This Ministry or any other competent authority may stipulate any other additional conditions subsequently, if deemed necessary, for environmental protection, which shall be complied with.	Point Noted.
xxv	A copy of the clearance letter will be marked to concerned Panchayat / local NGO. If any, from whom any suggestion / representation has been received while processing the proposal.	Not applicable at present
xxvi	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industries centre and Collector's Office/Tehsildar's Office for 30 days	Not applicable at present
xxvii	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 the locality concerned informing that the project has been accorded environmental clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen at Website of the Ministry of Environment and Forests at http://www.envfor.nic.in/.	Already Complied. Not applicable at present

Half yearly Compliance report of Environment Clearance under CRZ notification for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide letter no. J-16011/40/99-IA.III dated 20th September, 2000"		
Sr. No.	**Conditions**	**Compliance Status as on 31-03-2017**
xxviii	The Project Proponents should inform the Regional Office as well as the Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of start of Land Development Work.	Already Complied. Not applicable at present
xxix	The Project Proponent should make specific arrangements for rainwater harvesting in the project design and the rainwater so harvested should be optimally utilized.	Groundwater recharge cannot be done at the project site since the entire project is in the intertidal / sub tidal areas. Rain water within project area is managed through storm water drainage. However, APSEZL has carried out rainwater harvesting activities in the nearby villages for benefit of the locals as pond deepening activities carried out at Dhrub, Mota Bhadiya villages in FY 2016-17 by Adani foundation. Earthen bund construction was carried out across the river at Baroi and Bhujpur village for the benefit of local farmers.

Annexure – A

adani	Adani Ports and SEZ Limited	From : October'16 To : March'17
Status of the conditions stipulated under CRZ Recommendation		

Half yearly Compliance report of CRZ recommendation for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide DoEF, GOG letter no. ENV-1098-6477-p1 dated 28th October 1999

<table>
<tr><th>Sr. No.</th><th>Conditions</th><th>CRZ Compliance Status as on 31-03-2017</th></tr>
<tr><td colspan="3">A. Specific Condition</td></tr>
<tr><td>1</td><td>The company shall submit comprehensive Environmental Impact Assessment Report and Risk Assessment Report containing worst case scenario and detailed oil spill control management plan before carrying out the construction activities and shall implement all the mitigative measures/suggestions/recommendations given in the report of NIO and Tata AIG Risk Management Services.</td><td>Already Complied. Not applicable at present
Environmental Clearance was granted based on the submission of said documents. Rapid EIA was submitted on Feb 29, 2000 & Risk Assessment Report containing worst case scenario and detailed oil spill control management plan was submitted on Dec 28, 1999.
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>Operational protocols and safety procedure should be printed and freely available to concerned staff. The employees must be adequately trained to inculcate a high level of competence not only in day to day operations but also during emergency sictuations. Periodic refresher cources must also be organized to maintain the level of their competence.</td><td>The company has written the operational protocols and safety procedures as a part of ISO 14001:2008, OHSAS 18001:2008 and ISO 9001:2008 certifications.
APSEZ has established training department to impart training to its employees.

IMO module course organized by Maritime Training Institute is conducted & 36 personnel have achieved IMO level 1 & 4 personnel have achieved IMO Level 2. Different training modules as Oil Spill, Oil Spill Equipment, Notification exercise, Incident are conducted at different frequency.</td></tr>
</table></td></tr>
</table>

Half yearly Compliance report of CRZ recommendation for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide DoEF, GOG letter no. ENV-1098-6477-p1 dated 28th October 1999

Sr. No.	Conditions	CRZ Compliance Status as on 31-03-2017	
		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.	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.
		Periodic monitoring should be undertaken at the designated sites after the terminals become operational and the results of each monitoring should be carefully evaluated to identify changes if any and to take corrective measures, if warranted.	Monitoring of various environmental parameters for Ambient Air, Noise, Wastewater, ground water, marine water and sediments is being carried out by NABL and MoEF&CC accredited agency. Monitoring reports for the period from April'16 to Sept.'16 are enclosed as **Annexure-2.**
		Adequate vigilance is required to adherence of ships to Marpol protocol and related regulations.	During the vessel declaration compliances with respect to Air Pollution and Oil are monitored by the Port Authority. The ships are certified with international certification bodies only after complying with the Marpol protocol..

Half yearly Compliance report of CRZ recommendation for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide DoEF, GOG letter no. ENV-1098-6477-p1 dated 28th October 1999

Sr. No.	Conditions	CRZ Compliance Status as on 31-03-2017
		Manual Listing Procedure for conducting ship movement operations in the port area must be available to the concerned staff. — Berthing Policy & Tariff Structure is made available for conducting ship movement to the concerned staff and made available on web link www.adaniports.com/pdfs/PIB_06122013.pdf Port Information Booklet is also made available on web link www.adaniports.com/Port_Operations_Port_Tariffs.aspx
		Few Tata AIG Risk Assessment Recommendations:
		There should be facilities of boom, skimmer, dispersant, diving suits, firefighting equipment and excellent communication facilities. — 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.
		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. — 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 attached during last compliance submission for the duration of Apr'16 to Sep'16.
		Water samples around SPMs may be monitored periodically for checking up any oil contamination. — Marine water and sediment testing near SPM is being carried out monthly by NABL and MoEF&CC accredited agency. Monitoring reports for the period from April'16 to

Half yearly Compliance report of CRZ recommendation for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide DoEF, GOG letter no. ENV-1098-6477-p1 dated 28th October 1999		
Sr. No.	**Conditions**	**CRZ Compliance Status as on 31-03-2017**
2	The company in no case tap ground water.	Complied. Present source of water is desalination plant of APSEZ and/or Narmada water through Gujarat Water Infrastructure Limited. Average water requirement of water for entire port and SEZ operations is 6.5 MLD out of which 3.5 MLD is obtained from Desalination plant whereas 3.0 MLD is obtained from GWIL.
3	The company shall not cut mangroves for the project activities except for stray mangrove seeding required for the railway line only after detailed assessment through NIO and 25 acre of land shall be planted with mangroves in consultation with NIO.	Already Complied. Not applicable at present The company has not cut mangroves. APSEZ has carried out 24 hectare of mangrove plantation near Navinal creek. Details on mangroves afforestation carried out by APSEZL till date is annexed as **Annexure – 3.** EIA report was prepared by NIO in which all impacts on mangroves and coastal ecology of the region for the proposed design were studied in detail.
4	The company shall carry out the mangroves plantation programme in addition to 25-acre mangrove plantation to be done with the help of the NIO, in consultation with the forest department.	
5	The company shall ensure that the construction labors do not cut mangroves for fuel, etc.	Already Complied. Not applicable at present 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.

Half yearly Compliance report of CRZ recommendation for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide DoEF, GOG letter no. ENV-1098-6477-p1 dated 28th October 1999		
Sr. No.	**Conditions**	**CRZ Compliance Status as on 31-03-2017**
6	The company shall ensure that no creek are blocked due to the project activities,	Complied. As per Marine EIA of WFDP in 2008 carried out by NIO, prominent creek system (main creeks and small branches of creeks) in the study region are: (1) Kotdi (2) Baradimata (3) Navinal (4) Bocha (5) Mundra (Oldest port (Juna Bandar) leading to Bhukhi river) All above creeks are in existence allowing free flow of water and there is no filling or reclamation of any creek area. APSEZL has so far constructed 19 culverts having total length of approx. 1100 m with cost of INR 20 Crores. Apart from that three RCC bridges have been constructed over Kotdi creek with total length of 230 m at the cost of INR 10 Crores.
7	The company shall ensure that there will be no disposal of sullage and sewage generated from construction camps, surface run-off from construction sites, and oil and grease spillage from construction equipment in the creeks.	Already complied. Not applicable at present. Project is in operation phase. Sewage and effluent generated from port is being treated in designated ETP and treated water is used for horticulture purposes. Third party analysis of the treated water is being carried out twice in a month by NABL and MoEF&CC accredited agency namely M/s. Pollucon Laboratories Pvt. Ltd. Summary of the same for duration from Oct'16 to Mar'17 is mentioned in the condition no. xii of EC Compliance report. The results of the same are attached as **Annexure – 2.**

Half yearly Compliance report of CRZ recommendation for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide DoEF, GOG letter no. ENV-1098-6477-p1 dated 28th October 1999

Sr. No.	Conditions	CRZ Compliance Status as on 31-03-2017
8	The company shall stick to the time bound programme submitted to this department for the proposed activities including installation of desalination plant for meeting the entire water requirement.	Already complied. Not applicable at present. Construction work was completed on time and project is in operation phase. Desalination plant with the capacity of 47 MLD is installed to meet the water requirement. Present source of water is desalination plant of APSEZ and/or Narmada water through Gujarat Water Infrastructure Limited. Average water requirement for entire port and SEZ is 6.5 MLD out of which 3.5 MLD is obtained from Desalination plant whereas 3.0 MLD is obtained from GWIL.
9	The company shall ensure that the commercial fisheries are not hampered due to the presence of barges, vessels and other activities in the region. Necessary plan in this regards shall be prepared in consultation with the NIO.	Complied. No commercial fisheries are prevailing in this area except Pagadia and fishermen with small boats. Unhindered access is provided to the fishing boats. During project proposal, APSEZ proposed to provide four (4) dedicated accesses at Juna Bandar, Luni, Bavdi Bandar and Zarpara for the fishermen to approach the sea for fishing activity. However, during construction as well as operation, through fishermen consultative process, APSEZ has provided seven (7) access roads. Total length of all the approach roads is approx. 23 Kms and expenditure involved is Rs. 637 Lacs. There is no hindrance to the movement of fisherman boats. Communication mechanisms have been developed for the smooth movement of fishing boats vis-à-vis shipping activities.
10	The company shall bear the cost of the external agency that may appointed by this department for carrying out the supervision and/or the monitoring of the construction activities.	Complied. Construction activities are completed and project is in operation phase. If at all any study is suggested by Govt. of Gujarat, we will give full co-operation

Half yearly Compliance report of CRZ recommendation for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide DoEF, GOG letter no. ENV-1098-6477-p1 dated 28th October 1999

Sr. No.	Conditions	CRZ Compliance Status as on 31-03-2017
11	The company shall carry out the post project monitoring of various environmental parameters in consultation with this department and Gujarat Pollution Control Board.	Being complied. Monitoring of various environmental parameters for Ambient Air, Noise, Wastewater, ground water, marine water and sediments is being carried out by NABL and MoEF&CC accredited agency. Monitoring reports for the period from April'16 to Sept.'16 are enclosed as **Annexure-2.**
12	The company shall prepare the detailed traffic control management plan for the port and shall participate in the VTMS to be developed for the Gulf of Kachchh.	Complied. 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. 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
13	In order the eliminate adverse impact on the mangroves of Bocha Island and coastal ecology of the region, the company shall carry out construction activities only after the construction design and methodology is approved by NIO.	Already complied. Not applicable at present. Construction activity is already completed. EIA report was prepared by NIO in which all impacts on mangroves and coastal ecology of the region for the proposed design were studied in detail.

Half yearly Compliance report of CRZ recommendation for "Port expansion project including dry/break bulk cargo container terminal, railway link and related ancillary and back-up facilities at Mundra Port, Dist. Kutch in Gujarat vide DoEF, GOG letter no. ENV-1098-6477-p1 dated 28th October 1999		
Sr. No.	**Conditions**	**CRZ Compliance Status as on 31-03-2017**
14	Any other conditions may be stipulated by this department from time to time.	Point noted.

Annexure – 1

GPCB

GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN
Sector 10-A, **Gandhinagar** 382 010
Phone : (079) 23226295
Fax : (079) 23232156
Website : www.gpcb.gov.in

By R.P.A.D.

In exercise of the power conferred under section-25 of the Water (Prevention and Control of Pollution) Act-1974, under section-21 of the Air (Prevention and Control of Pollution)-1981 and Authorization under rule 6(2) of the Hazardous & Other Waste (Management & Transboundary Movement) Rules-2016, framed under the Environmental (Protection) Act-1986.The board has granted the consent order no. **AWH- 80627** vide letter No. PC/CCA-KUTCH/39(4)/ID-17739/364963 dated-01/08/2016.

And whereas Board has received application inward No. **113691** dated **21/11/2016** for the **Renewal Consolidated Consent and Authorization** (CC&A) of the Board under the provisions / rules of the aforesaid Acts. Consents & Authorization are hereby granted as under:

CONSENTS AND AUTHORISATION:
(Under the provisions /rules of the aforesaid environmental acts)

To
M/s. Adani Ports & Special Economic zone Limited,
Plot No: 169/P
AT-Navinal Island,
Taluka: Mundra,
Dist: Kutch – 370 421

1. **Consent Order No. AWH-83561 Date of Issue: 09/01/2017.**
2. The consent shall be valid up to **20/11/2021** for storage & distribution of following products:

No.	Product	Quantity in MT/Month
1.	General Cargo	4.0 Lac MT/Month
2.	Liquid Cargo (Chemical/Poc Products	2.65 Lac MT/Month
3.	Import, Stoarge And Distribution Of Edible Oil	1.25 Lac MT/Month
4.	Storage And Distribution Of Bitumen	6,400 MT/Month
5.	Dry Cargo Handling	9 MMT/Month
6.	Container Terminal Handling Operation	4.5 Million TEUs/Annum
7.	Waste destruction system for decomposition/destruction of municipal solid waste	3.5 Cubic Meter (MSW Destruction Capacity @ 500 Kg/day)
8.	Oil water separate (Flame Proof) to remove –Oil portion from slope oil received from Vessels/Ships	25 M^3/Hr

SUBJECT TO THE FOLLOWING SPECIFIC CONDITIONS:

1. You shall not carry out any activity which may attract applicability of EIA Notification-2006.
2. No ground water shall be withdrawal without obtaining prior permission from competent authority.
3. You shall operate 18 No of D. G Sets as stand by, as mentioned in 4.2 No .
4. You shall comply all conditions of CTE issued vide order No. PC/NOC/CCA-Kutch - 582/16783, 01/08/2009 for "Waterfront development Plan" which includes four Port Clusters, ship yard, Desalination plant, Intake and outfall facility and associated area development.
5. You shall have to comply with all the condition mentioned in the Environment Clearance accorded for all port activities vide bearing number 10-47/2008-IA-III dated 12/01/2009 & dated 15/07/2014.
6. The project proponent shall comply with all the orders/directions of the Hon'ble High Court of Gujarat and Hon'ble supreme court in the matter including any pending order.

3. CONDITIONS UNDER WATER ACT 1974:

3.1 The quantity of industrial effluent generation from industrial operations shall not exceed 90.31 Kl/day

3.2 The quantity of the domestic waste water (Sewage) shall not exceed 248 KL/day.

3.3 The quality of the industrial effluent shall conform to the following standards;

PARAMETER	PERMISSIBLE LIMIT
pH	6.5 to 8.5
Temperature	40 °C
Colour (pt.co.scale units)	100 units
Suspended Solids	100 mg / l
Oil & Grease	10 mg / l
Phenolic Compound	01 mg / l
Amonical Nitrogen	50 mg / l
BOD (3Days at 27 oC)	30 mg / l
COD	100 mg / l
Chlorides	600 mg / l
Sulphates	1000 mg / l
Total Dissolved Solids	2100 mg / l
Sulphides	02 mg / l
Copper	03 mg / l
Lead	0.1 mg / l
Cadmium	02 mg / l
Fluorides	02 mg / l

All efforts shall be made to remove colour & unpleasant odour as far as practicable.

GUJARAT POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN
Sector 10-A, Gandhinagar 382 010
Phone : (079) 23226295
Fax : (079) 23232156
Website : www.gpcb.gov.in
GPCB

3.4 The treated effluent conforming to the above standards shall be used for plantation & gardening purpose within the premises.

3.5 Sewage shall be treated in existing ETP.

3.6 The unit shall install meters at utilities for measuring category wise (Category as given in Schedule II of "Water (Prevention & Control of Pollution) Cess Act-1977") consumption of water.

4 CONDITIONS UNDER AIR ACT 1981:

4.1 The following shall be used as fuel in the boiler/ furnace / Thermic fluid Heater / D.G Sets as following rates after proposed expansion:

Sr. no.	Name of Fuel	Quantity
1.	Furnace oil/LDO/HSD	860 Liter/Hour
2.	HSD	100 Liter/Hour

4.2 The flue gas emission through various stacks/vent of boiler, heaters shall conform to the following standards:

Sr. no.	Stack attached to	Stack height in meters	Parameter	Permissible limit
1.	Hot Water Generator --1	35	PM	150 mg/Nm^3
2.	Hot Water Generator ---2	35	SO_2	100 ppm
3.	Thermic fluid heater (2 Nos)	35	NOx	50 ppm
4.	D.G. Set – 9 Nos (500 KVA) (Stand By)	9 Meter Each		
5.	D.G. Set – 3 Nos (1250 KVA) (Stand By)	30 Meter common		
6.	D.G. Set – 6 Nos (1500 KVA) (Stand By)	30 Meter Each		

4.3 The applicant shall install & operate air pollution control system in order to achieve process gas emission norms as prescribed below;

Sr. no.	Stack attached to	Stack height in meters	Air Pollution Control System	Parameter	Permissible limit
1.	Waste Destruction System with Auxiliary heater	10	Ventury Scrubber	SO_2 NOx	40 mg/Nm^3 25 mg/Nm^3

4.4 The concentration of the following parameters in the ambient air within the premises of the industry shall not exceed the limits specified hereunder as per National Ambient Air Quality Standards issued by MoEF & CC dated 16th November-2009.

Sr. No.	Pollutant	Time Weighted Average	Concentration in Ambient air in µg/m^3
1.	Sulphur Dioxide (SO_2)	Annual 24 Hours	50 80
2.	Nitrogen Dioxide (NO_2)	Annual 24 Hours	40 80
3.	Particulate Matter (Size less than 10 µm) OR PM_{10}	Annual 24 Hours	60 100
4.	Particulate Matter (Size less than 2.5 µm) OR $PM_{2.5}$	Annual 24 Hours	40 60

GUJARAT POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN
Sector 10-A, Gandhinagar 382 010
Phone : (079) 23226300
Fax : (079) 23232156
Website : www.gpcb.gov.in

GPCB

4.5 The applicant shall provide portholes, ladder, platform etc at chimney(s) for monitoring the air emissions and the same shall be open for inspection. The chimney(s) vents attached to various sources of emission shall be designed by numbers such as S-1, S-2, etc. and these shall be painted / displayed to facilitate identification.

4.6 The concentration of Noise in ambient air within the premises of industrial unit shall not exceed following levels:

Between 6 A.M. to 10 P.M. : 75 dB (A)
Between 10 P.M. to 6 A.M. : 70 dB (A)

5 Authorization under Hazardous & Other Waste [Management, Transboundary Movement] Rules, 2016 & amended.

5.1 Authorization Number: AWH-83561 and shall valid up to 20/11/2021.

5.2 M/s. Adani Ports & Special Economic zone Limited, is hereby granted an authorization to operate facility for following hazardous wastes on the premises situated at, **Plot No: 169/P, AT-Navinal Island, Taluka: Mundra, Dist: Kutch – 370 421.**

Sr. No	Waste	Quantity /Year	Category	Facility
1.	Used Oil	300 MT	5.1	Collection, storage, Transportation,, Disposal by selling out to registered recyclers/reprocessers
2.	ETP Sludge	1.095 MT	35.3	Collection, storage, Transportation, Disposal at TSDF site of SEPPL
3.	Sludge and filters contaminated with oil	5 MT	3.3	Collection, storage, Transportation,, Disposal by sending to common facility of SEPPL/NECL and/or sent for co-process at cement industries through recycling solutions Pvt. Ltd, Panoli.
4.	Asbestoes Waste	Whatever quantity generated	B-1	Collection, storage, Transportation, Disposal at TSDF site
5.	Glass wool Waste (Thermal Insulation Material)	Whatever quantity generated	H-6.1	Collection, storage, Transportation, Disposal at TSDF site
6.	Downgrade Chemicals	Whatever quantity generated	20.2	Collection, storage, Transportation, Disposal by sending to authorized Solvent Recover
7.	Discard containers/barrels	16 MT	33.3	Collection, storage, Transportation,, Disposal by selling to registered vendor
8.	Bottom sludge	Whatever quantity generated	3.2	Collection, storage, Transportation,, Disposal by sending to common facility of SEPPL/NECL and/or sent for co-process at cement industries through recycling solutions Pvt. Ltd, Panoli
9.	Waste Residue containing Oil	100 MT	33.2	Collection, storage, Transportation, Disposal by Co-processing at cement Industries and / or incineration at CHWIF site.

10.	Pig Waste	24 MT	3.1	Collection, storage, Transportation,, Disposal by sending to common facility of SEPPL/NECL and/or sent for co-process at cement industries through recycling solutions Pvt. Ltd., Panoli

5.3 The authorization is granted to operate a facility for collection, storage, within factory premises, transportation, and ultimate disposal of Hazardous wastes by selling out to registered recyclers.

5.4 The authorization is subject to the conditions stated below and such other conditions as may be specified in the rules from time to time under the Environment (Protection) Act-1986.

5.5 TERMS AND CONDITIONS OF AUTHORISATION:

1. The authorized person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
2. The authorization or its renewal shall be produced for inspection at the request of an officer authorized by the State Pollution Control Board.
3. The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorization.
4. Any unauthorized change in personnel, equipment or working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.
5. The person authorized shall implement Emergency Response Procedure (ERP) for which this authorization is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time;
6. The person authorized shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty"
7. It is the duty of the authorized person to take prior permission of the State Pollution Control Board to close down the facility.
8. The imported hazardous and other wastes shall be fully insured for transit as well as for any accidental occurrence and its clean-up operation.
9. The record of consumption and fate of the imported hazardous and other wastes shall be maintained.
10. The hazardous and other waste which gets generated during recycling or reuse or recovery or pre-processing or utilization of imported hazardous or other wastes shall be treated and disposed of as per specific conditions of authorization.
11. The importer or exporter shall bear the cost of import or export and mitigation of damages if any.
12. An application for the renewal of an authorization shall be made as laid down under these Rules.
13. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.

GUJARAT POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN
Sector 10-A, Gandhinagar 382 0
Phone : (079) 2322
Fax : (079) 2323
Website : www.gpcb.gov.in
GPCB

14. Annual return shall be filed by June 30th for the period ensuring 31st March of the year.

6. GENERAL CONDITIONS:

6.1 As per "Public liability insurance act-91" company shall get Insurance policy of total project cost, if applicable & submit the valid policy to this office.

6.2 Unit shall develop green belt within premises as per the CPCB guidelines. However, if the adequate land is not available within premises, the unit shall tie up with local agencies like gram panchayat, school, social forestry office etc. for the plantation at suitable open land in nearby locality and submit an action plan of plantation for next three years to GPCB.

6.3 Adequate plantation shall be carried out all along the periphery of the industrial premises in such a way that the density of plantation is at least 1000 trees per acre of land and a green belt of 10 meters width shall be developed. The applicant shall have to submit the returns in prescribed form regarding water consumption and shall have to make payment of water cess to the Board under the Water (Prevention and Control of Pollution) Cess Act- 1977.

6.4 In case of change of ownership/management the name and address of the new owners/partners/directors/proprietor should immediately be intimated to the Board.

6.5 The applicant shall however, not without the prior consent of the Board bring into use any new or altered outlet for the discharge of effluent or gaseous emission or sewage waste from the proposed industrial plant. The applicant is required to make applications to the Board for this purpose in the prescribed forms under the provisions of the Water (Prevention and Control of Pollution) Act-1974, the Air (Prevention and Control of Pollution) Act-1981 and the Environment (Protection) Act-1986.

6.6 The overall noise level in and around the plant area shall be kept well within the standards by providing noise control measures including engineering control like acoustic insulation hoods, silencers, enclosures etc on all sources of noise generation. The ambient noise level shall conform to the standards prescribed under the Noise Pollution (Regulation and Control) Rules, 2000 framed under Environment (Protection) Act, 1986.

6.7 Applicant is required to comply with the manufacturing, Storage and Import of Hazardous Chemicals Rules-1989 framed under the Environment (Protection) Act-1986.

GUJARAT POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN
Sector 10-A, **Gandhinagar** 382 010
Phone : (079) 23226295
Fax : (079) 23232156
Website : www.gpcb.gov.in

GPCB

6.8 If it is established by any competent authority that the damage is caused due to their industrial activities to any person or his property in that case they are obliged to pay the compensation as determined by the competent authority.

6.9 Applicant shall have to comply with all the guidelines / directive issued / being issued by MoEF&CC / CPCB / DoEF from time to time.

6.10 Environmental cell shall be setup and shall be responsible for the total Environmental management. Monitoring in respect to Air, Water, Noise level shall be carried out and results shall be submitted to GPCB on quarterly basis.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(Sushil Vegda)
Senior Environment Engineer

NO: PC/ CCA- KUTCH-39(4)/ ID 17739/ 403658 **Date:** 9/2/2017

ISSUED TO:
M/s. Adani Ports & Special Economic zone Limited,
Plot No: 169/P
AT-Navinal Island,
Taluka: Mundra, Dist: Kutch – 370 421

Annexure – 2

"HALF YEARLY ENVIRONMENTAL MONITORING REPORT"

FOR

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

MONITORING PERIOD:
OCTOBER 2016 TO MARCH 2017

PREPARED BY:

POLLUCON LABORATORIES PVT.LTD.
544, BELGIUM TOWERS, RING ROAD, SURAT – 395 003
PHONE/FAX – (+91 261) 2455 751, 2601 106, 2601 224.
E-mail: pollucon@gmail.com web: www.polluconlab.com

T 0820 - 821 **ISO 9001:2008** **ISO 14001:2004** **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	OCTOBER 2016		NOVEMBER 2016		DECEMBER 2016		JANUARY 2017		FEBRUARY 2017		MARCH 2017		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.06	8.17	8.15	8.26	8.02	8.19	7.86	7.89	8.08	8.26	8.10	8.18	IS3025(P11)83Re.02
2	Temperature	°C	30	29	28	27	29	30	30	29	28	30	30	29	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	22	20	30	38	14	18	20	24	30	22	16	22	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	6.8	8.6	4.0	5.0	BDL*	BDL*	6.0	7.0	8.6	6.8	5.0	6.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.4	5.0	5.8	4.4	5.6	5.0	5.6	4.8	5.6	8.0	5.40	4.80	IS3025(P38)89Re.99
6	Salinity	ppt	40.58	41.2	41.6	42.1	41.2	41.17	39.46	40.18	42.2	40.6	40.66	41.58	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	mg/L	0.667	0.731	0.382	0.505	0.536	0.757	0.453	0.83	0.672	0.732	0.605	0.711	IS3025(P34)88
9	Nitrite as NO_2	mg/L	0.059	0.074	0.061	0.073	0.030	0.070	0.035	0.062	0.669	0.072	0.055	0.069	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	mg/L	0.718	0.873	1.12	1.19	0.919	0.881	0.595	0.671	0.734	0.881	0.727	0.302	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	mg/L	0.093	0.102	0.935	1.24	1.16	0.836	1.35	1.88	0.093	0.103	0.111	0.133	APHA(22nd Edi) 4500 C
12	Total Nitrogen	mg/L	1.444	1.678	1.563	1.769	1.485	1.708	1.083	1.563	2.07	1.685	1.387	1.582	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	14	BDL*	18	BDL*	BDL*	BDL*	11	BDL*	18	BDL*	BDL*	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	50010	50670	47801	48260	48593	50560	48460	48990	50020	56780	48180	48590	IS3025(P16)84Re.02
15	COD	mg/L	25	36	16	20	19	38	16	18	20	25	16	20	APHA(22nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.64	0.44	0.44	0.32	0.6	0.48	0.84	0.36	0.68	0.48	0.38	0.40	SOP – PLPL - 07
A	**Flora and Fauna**														
17	Primary productivity	mgC/L /day	2.13	0.563	2.13	0.563	1.46	0.09	1.35	0.225	1.66	0.33	1.125	0.203	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
18.1	Chlorophyll	mg/m^3	1.629	0.454	1.62	0.454	1.46	0.32	2.93	0.641	1.65	0.481	1.896	0.320	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

18.2	Phaeophytin	mg/m^3	0.576	1.50	0.57	1.5	0.41	1.73	0.838	3.47	2.12	3.63	0.421	1.810	APHA (22nd Edi) 10200-H
18.3	Cell Count	Unit x 10^3/L	168	59.47	178	16	121	8.0	242	16	121	8.0	36	24	APHA (22nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae Navicula sp. Cymbella sp. Melosira sp. Coscinodiscus sp. Skeletonema sp. Thallasionema sp. Nitzschia sp. Cheatoceros sp. Gyrosigma sp. -- -- -- --	Bacillariophyceae Fragillaria sp. Melosira sp. Nitzschia sp. -- -- -- -- -- -- -- -- -- --	Bacillariophyceae Coscinodiscus sp. Gyrosigma sp. Pleurosigma sp. Amphora sp. Skeletonema sp. Amphora sp. Cymbella sp. Navicula sp. Nitzschia sp. Thallasiosira sp. Synedra sp.	Bacillariophyceae Fragillaria sp. Melosira sp. Pinnularia sp. Nitzschia sp. -- -- -- -- -- -- -- --	Asterionella sp. Biddulphia sp. Cyclotella sp. Navicula sp. Nitzschia sp. Coscinodiscus sp. Krill -- --	Fragillaria sp. Naviculla Synedra -- -- -- -- -- --	Bacillariophyceae Navicula sp. Asterionella sp. Skeletonema sp. Thallasiosira sp. Fragillaria sp. Coscinodiscus sp. Cyclotella sp. Synedra sp. Green algae Ulothrix sp. Cyanophyceae Lyngbya sp.	Bacillariophyceae Fragillaria sp. Melosira sp. Nitzschia sp. -- -- -- -- -- -- -- --	Bacillariophyceae Navicula sp. Cymbella sp. Melosira sp. Coscinodiscus sp. Skeletonema sp. Thallasiosira sp. Nitzschia sp. Cheatoceros sp. Gyrosigma sp. -- -- --	Bacillariophyceae Fragillaria sp. Melosira sp. Nitzschia sp. -- -- -- -- -- -- -- --	Bacillariophyceae Nitzschia sp. Rhizosolenia sp. Navicula sp. Asterionella sp. Cymbella sp. Synedra sp. Green Algae Pandorina sp. Pediastrum sp. Ulothrix sp. Cyanophyceae Oscillatoria sp.	Bacillariophyceae Navicula sp. Fragillaria sp. Pinnularia sp. Biddulphia sp. Green Algae Ulothrix sp. Cyanophyceae Oscillatoria sp. Spirulina sp. --	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
19.1	Abundance (Population)	no/m^2	180	50	225	13	180	10	225	13	180	10	170	30	APHA (22nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	Ostracodes Polychaete worms Mysids Decapods Amphipods --	Foraminiferans Ctenophores -- -- -- --	Polychaetes Nematodes Ctenophores Bivalves Mysids --	Nematodes -- -- -- -- --	Gestropods Isopods Decapods Nematodes --	Copepods -- -- -- --	Copepods Polychaete worms Crustaceans Bivalves Mysids --	Gastropods -- -- -- -- --	Ostracods Polychaete worms Mysids Decapods Amphipods --	Foraminiferans -- -- -- -- --	Gastropods Isopods Decapods Krill Namatodes Molluscans Copepods	Copepods Polychaete worms Crustaceans	APHA (22nd Edi) 10200-G
19.3	Total Biomass	ml/100	162	41	143	5.20	112	1.50	212	2.44	153	1.85	102	10.4	APHA (22nd Edi)

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

		m^3													10200-G
D	**Microbiological Parameters**														
20.1	Total Bacterial Count	CFU/ml	1860	1570	1610	1420	1130	1580	1520	1170	1840	1560	1520	1390	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22nd Edi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi.2.4 (2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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	OCTOBER 2016	NOVEMBER 2016	DECEMBER 2016	JANUARY 2017	FEBRUARY 2017	MARCH 2017	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.629	0.619	0.347	0.539	0.619	0.498	FCO:2007
2	Phosphorus as P	mg/kg	147	210	145	142	143	137	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.48	4.89	4.99	5.05	5.45	5.15	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	mg/kg	190	239	188	179	191	169	AAS 3111B
5.3	Manganese as Mn	mg/kg	869	599	788	700	859	731	AAS APHA 3111 B
5.4	Iron as Fe	%	2.17	2.09	2.6	4.13	2.12	3.65	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	53.98	68.17	57.63	53.75	53.64	54.6	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	mg/kg	30.02	41.89	37.97	36.49	29.99	34.35	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	143	196	142	133	143	129	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	mg/kg	1.19	1.17	1.13	1.55	1.19	1.42	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Isopods Echinoderms Mysids	Mysids Echinoderms	Isopods Decapods	Polychaete worms Bivalves --	Isopods Polychaete worms --	Crabs Anthozoans Isopodes Decapodes	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes Foraminiferans --	Nematodes Foraminiferans --	Copepods Foraminiferans --	Nematodes --	Nematodes Foraminiferans	Copepodes Foraminiferans	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	205	377	288	377	238	288	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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	OCTOBER 2016		NOVEMBER 2016		DECEMBER 2016		JANUARY 2017		FEBRUARY 2017		MARCH 2017		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.17	8.23	8.08	8.24	8.18	8.29	7.75	7.9	8.14	8.22	8.19	8.26	IS3025(P11)83Re.02
2	Temperature	°C	29	28	29	27	29	28	29	28	30	27	31	30	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	22	28	31	39	22	26	22	32	31	26	28	24	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	5.4	4.2	3.0	8.0	4.0	6.0	6.0	5.0	5.6	4.6	4.0	6.0	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	5.4	4.8	5.7	5.2	5.4	4.8	5.0	4.6	5.2	4.4	5.40	5.00	IS3025(P38)89Re.99
6	Salinity	ppt	40.63	41.53	39.1	39.8	40.96	41.76	41.6	42.6	40.62	41.56	42.00	43.10	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)5 520D
8	Nitrate as NO_3	mg/L	0.541	0.753	0.367	0.474	0.552	0.757	0.453	0.664	0.538	0.762	0.670	0.880	IS3025(P34)88
9	Nitrite as NO_2	mg/L	0.06	0.042	0.027	0.043	0.061	0.04	0.025	0.053	0.080	0.046	0.068	0.049	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	mg/L	0.355	0.464	0.523	0.0616	0.337	0.468	0.479	0.537	0.367	0.477	0.420	0.540	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	mg/L	0.164	0.159	0.479	0.556	0.153	0.148	0.294	0.229	0.168	0.159	0.041	0.047	APHA(22nd Edi) 4500 C
12	Total Nitrogen	mg/L	0.956	1.259	0.917	1.133	0.95	1.265	0.957	1.254	0.958	1.285	0.158	1.469	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	11	BDL*	8	BDL*	10	BDL*	10.6	BDL*	8.0	BDL*	10.20	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	48410	49340	46910	47840	49460	49990	37670	38230	48420	49320	43820	46330	IS3025(P16)84Re.02
15	COD	mg/L	18	14	12	20	16	18	18	22	20	16	14	20	APHA(22nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.368	0.744	0.36	0.41	0.79	0.33	0.36	0.5	0.366	0.746	0.80	0.30	SOP – PLPL - 07
A	**Flora and Fauna**														
17	Primary productivity	mgC/ L/day	1.55	0.338	1.553	0.338	1.01	0.45	1.57	0.338	1.53	0.563	1.238	0.225	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
18.1	Chlorophyll	mg/ m^3	1.148	0.347	1.14	0.347	1.36	0.16	2.72	0.32	1.22	0.267	1.095	0.134	APHA (22nd Edi) 10200-H
18.2	Phaeophytin	mg/ m^3	1.56	1.8	1.56	1.8	1.34	1.98	2.69	3.97	4.1	4.00	1.671	1.493	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

18.3	Cell Count	Unit x 10^3/L	184	43	170	46	118	23	236	46	118	23	155	45	APHA (22nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae Amphiprora sp. Asterionella sp. Cyclotella sp. Gyrosigma sp. Nitzschia sp. Navicula sp. Pinnularia sp. Rhizosolenia sp. Dianoflagllates Peridinizem sp. -- -- --	Bacillariophyceae Melosira sp. Fragillaria sp. Nitzschia sp. -- -- -- -- -- -- -- -- --	Bacillariophyceae Navicula sp. Nitzschia sp. Coscinodiscus sp. Tabellaria sp. Skeletonema sp. Melosira sp. Cyclotella sp. Pinnularia sp. Fragillaria sp. -- --	Bacillariophyceae Fragillaria sp. Nitzschia sp. Melosira sp. Synedra sp. -- -- -- -- -- -- --	Naviculle Synedra Gyrosigma Coscinodiscus Asterionella Melrsia Syrirella Skeletonemel Certaium	Naviculle Nitishia -- -- -- -- -- --	Bacillariophyceae Navicula sp. Nitzschia sp. Biddulphia sp. Fragillaria sp. Thallasiosira sp. Coscinodiscus sp. Cyclotella sp. Melosira sp. Synedra sp. -- -- --	Bacillariophyceae Synedra sp. Navicula sp. Melosira sp. -- -- -- -- -- -- --	Bacillariophyceae Amphiprora sp. Asterionella sp. Cyclotella sp. Gyrosigma sp. Nitzschia sp. Navicula sp. Pinnularia sp. Rhizosolenia sp. -- -- -- --	Bacillariophyceae Melosira sp. Fragillaria sp. Nitzschia sp. -- -- -- -- -- -- --	Bacillariophyceae Navicula sp. Synedra sp. Coscinodiscus sp. Asterionella sp. Gyrosigma sp. Cocconeis sp. Pinnularia sp. Green Algae Pandorina sp. Chlorella sp.	Bacillariophyceae Navicula sp. Fragillaria sp. Gyrosigma sp. Pinnularia sp. Cyanophyceae Lyngbya sp. Oscillatoria sp.	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
19.1	Abundance (Population)	no/m^2	210	50	263	50	210	40	263	50	210	40	320	100	APHA (22nd Edi) 10200-G

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

19.2	Name of Group Number and name of group species of each group	--	Isopods Bivalves Polychaete worms Fish eggs Brachiopods Copepods	Polychaete worms Decapods Molluscans -- -- --	Copepods Decapods Polychaetes Gastropods -- --	Decapods Gastropods -- -- -- --	Copepods Nematedoes Polycleate Cnstaeen Foraminiferus	Nematodes Cnstaeen -- -- --	Bivalves Gastropods Nematodes Krill Fish egg --	Decapods Copepods Bivalves -- -- --	Isopods Bivalves Polychaete worms Fish egg Brachiopods Copepods	Polychaete worms Decapods Molluscans -- -- --	Crustaceans Copepods Krill Polychaete worms Decapods	Gastropods Polychaete worms	APHA (22nd Edi) 10200-G
19.3	Total Biomass	ml/100 m^3	132	29.87	135	32	119	1.32	203	1.56	143	1.52	59	6.0	APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
20.1	Total Bacterial Count	CFU/ml	1810	1420	1640	1450	1810	1480	1830	1460	1820	1440	1670	1470	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22nd Edi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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	OCTOBER 2016	NOVEMBER 2016	DECEMBER 2016	JANUARY 2017	FEBRUARY 2017	MARCH 2017	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.586	0.483	0.680	0.598	0.556	0.670	FCO:2007
2	Phosphorus as P	mg/kg	169	171	173	156	168	1.57	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.29	5.09	5.3	5.16	5.26	5.21	AAS APHA 3111 B
5.2	Total Chromium as Cr+3	mg/kg	134	95.8	139	147	136	145	AAS 3111B
5.3	Manganese as Mn	mg/kg	712	755	709	669	714	807	AAS APHA 3111 B
5.4	Iron as Fe	%	2.31	2.04	2.32	2.17	2.34	2.07	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	37.83	49.26	39.36	30.54	37.86	36.64	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	mg/kg	102	69.39	111	72.87	106	80.91	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	135	171	145	127	138	119	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	mg/kg	1.32	1.1	1.26	1.2	1.36	1.11	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Amphipods Isopods --	Isopods Mysids Copepods	Bivalves Amphipods Copepods	Polychaete worms Decapods Mysids	Amphipods Isopods --	Echinoderms Polychaete worms Isopods	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Copepods Bryozoans --	--	Copepods	Brachiopods Copepods	Copepods Bryozoans	Foraminiferans Nematodes Copepods	APHA (22nd Edi) 10500-C
6.3	Population	no/m^2	137	252	192	252	159	433	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2016		NOVEMBER 2016		DECEMBER 2016		JANUARY 2017		FEBRUARY 2017		MARCH 2017		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.56	8.01	7.90	8.18	7.76	7.87	7.88	7.85	7.54	8.02	7.76	8.01	IS3025(P11)83Re.02
2	Temperature	°C	30	29	29	29	29	28	29	28	29	30	29	28	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	20	24	38	47	24	25	26	30	38	20	24	30	IS3025(P17)84Re.02
4	BOD (3 Days @ 27°C)	mg/L	5.6	8.0	3.0	5.0	BDL*	10	8.0	10	5.8	6.0	6.0	7.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.32	4.58	5.80	4.40	5.64	4.80	5.40	4.80	5.34	4.54	5.64	4.62	IS3025(P38)89Re.99
6	Salinity	ppt	42.76	43.08	42.8	43.2	41.72	42.8	40.8	41.6	44.72	43.06	41.72	42.96	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	mg/L	0.311	0.413	0.3	0.36	0.331	0.41	0.573	0.664	0.314	0.418	0.317	0.438	IS3025(P34)88
9	Nitrite as NO_2	mg/L	0.018	0.026	0.054	0.063	0.041	0.027	0.027	0.035	0.014	0.023	0.015	0.270	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	mg/L	0.764	0.836	0.784	0.822	0.506	0.806	0.71	0.844	0.752	0.826	0.503	0.746	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	mg/L	0.352	0.684	0.82	0.96	0.455	1.19	0.21	0.388	0.351	0.68	0.457	0.719	APHA(22nd Edi) 4500 C
12	Total Nitrogen	mg/L	1.093	1.275	1.138	1.245	0.851	1.24	1.31	1.543	1.08	1.267	0.836	1.011	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	14	BDL*	14	BDL*	BDL*	BDL*	10.6	BDL*	16	BDL*	BDL*	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	51470	51990	51960	52360	50150	51340	47550	48230	51420	51980	50150	51690	IS3025(P16)84Re.02
15	COD	mg/L	20	29	14	18	20	28	26	30	14	18	20	22	APHA(22nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.3	0.23	0.38	0.29	0.38	0.49	0.64	0.77	0.4	0.29	0.380	0.302	SOP – PLPL - 07
A	**Flora and Fauna**														
17	Primary productivity	mgC/L /day	2.02	0.18	2.02	0.18	1.35	0.225	2.07	0.675	1.35	0.653	1.602	0.518	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
18.1	Chlorophyll	mg/m^3	1.709	0.481	1.7	0.481	1.84	0.187	3.68	0.374	2.24	0.32	2.350	0.187	APHA (22nd Edi) 10200-H
18.2	Phaeophytin	mg/m^3	0.758	1.65	0.758	1.65	0.625	1.94	1.25	3.88	2.69	3.94	0.379	2.130	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

18.3	Cell Count	Unit x 10^3/L	250	24	152	38	126	19	252	38	126	19	79	22	APHA (22nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae Cyclotella sp. Coscinodiscus sp. Fragillaria sp. Melosira sp. Thallasionema sp. Asterionella sp. Navicula sp. Pleurosigma sp. Synedra sp. -- -- -- --	Bacillariophyceae Synedra sp. Melosira sp. Gyrosigma sp. -- -- -- -- -- -- -- -- --	Bacillariophyceae Nitzschia sp. Synedra sp. Coscinodiscus sp. Thallasionema sp. Pinnularia sp. Gyrosigma sp. Fragillaria sp. Cyclotella sp. Navicula sp. Biddulphia sp. --	Bacillariophyceae Melosira sp. Navicula sp. Nitzschia sp. Coscinodiscus sp. Decapods Bivalves -- -- -- -- --	Navicula sp. Nitzschia sp. Coscinodicusus Skeletonema sp. Melosira Thallasiosira Synedra Fragillaria sp. --	Melosira Navicula sp. Nitzschia sp. -- -- -- -- --	Bacillariophyceae Asterionella sp. Biddulphia sp. Cheatoceros sp. Fragillaria sp. Rhizosolenia sp. Coscinodiscus sp. Melosira sp. Gyrosigma sp. Synedra sp. -- -- --	Bacillariophyceae Nitzschia sp. Fragillaria sp. Thallasiosira sp. -- -- -- -- --	Bacillariophyceae Cyclotella sp. Coscinodiscus sp. Fragillaria sp. Melosira sp. Thallasionema sp. Asterionella sp. Navicula sp. Pleurosigma sp. Synedra sp. -- -- --	Bacillariophyceae Synedra sp. Melosira sp. Gyrosigma sp. -- -- -- -- -- -- -- --	Bacillariophyceae Amphiprora sp. Asterionella sp. Biddulphia sp. Cocconeis sp. Pleurosigma sp. Nitzschia sp. Thallasiosira sp. Pinnularia sp. Green Algae Ankistrodesmus sp. Pandorina sp. Chlorella sp. Cyanophyceae	Bacillariophyceae Achnanthes sp. Cocconeis sp. Navicula sp. Nitzschia sp. Pleurosigma sp.	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
19.1	Abundance (Population)	no/m^2	140	20	175	25	140	30	175	38	140	30	110	50	APHA (22nd Edi) 10200-G

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

19.2	Name of Group Number and name of group species of each group	--	Nematodes Rotifers Copepods Ostracods Isopods Hydrozans	Decapods Gastropods -- -- -- --	Nematodes Polychaetes Gastropods Isopods -- --	Crustaceans -- -- -- --	Crustaceans Fish egg Mysids Mollusca --	Nematodes Polychaete worms -- -- --	Decapods Polychaete worms Crustaceans Bivalves Foraminiferans --	Gastropods Crustaceans -- -- -- --	Nematodes Rotifers Copepods Ostracods Isopods Hydrozans	Decapods Gastropods -- -- -- --	Crustaceans Fish egg Mysids Molluscans	Polychaete worms Nematodes	APHA (22nd Edi) 10200-G
19.3	Total Biomass	ml/100 m^3	143	12.54	126	2.3	124	1.35	213	2.35	213	2.35	93.25	33.1	APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
20.1	Total Bacterial Count	CFU/ml	1850	1540	1570	1330	1810	1140	1750	1450	1820	1560	1810	1620	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22ndEdi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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	OCTOBER 2016	NOVEMBER 2016	DECEMBER 2016	JANUARY 2017	FEBRUARY 2017	MARCH 2017	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.535	0.620	0.514	0.539	0.569	0.501	FCO:2007
2	Phosphorus as P	mg/kg	147	198	163	157	147	163	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.35	5.25	5.22	5.17	5.31	5.23	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	mg/kg	142	174	150	151	145	151	AAS 3111B
5.3	Manganese as Mn	mg/kg	901	690	824	859	903	825	AAS APHA 3111 B
5.4	Iron as Fe	%	2.15	1.84	1.96	1.95	2.17	1.97	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	48.21	58	50.49	52.92	48.25	50.52	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	mg/kg	35.88	30.2	32.54	35.33	35.85	32.43	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	135	172	128	133	137	129	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	mg/kg	1.59	0.94	1.44	1.63	1.56	1.44	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Polychaete worms Turbellaria --	Polychaete worms Decapods	Polychaete worms Ostracods	Bivalves Isopods --	Polychaete worms -- --	Polychaete worms Bivalves Anthozoans	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Hydrozoa Foraminiferans --	Foraminiferans Nematodes --	Nematodes Copepods --	Copepods Ostracods	Hydrozoa Foraminiferans	Foraminiferans Copepodes	APHA (22nd Edi) 10500-C
6.3	Population	no/m^2	171	314	240	314	198	337	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2016		NOVEMBER 2016		DECEMBER 2016		JANUARY 2017		FEBRUARY 2017		MARCH 2017		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.83	8.10	8.21	8.34	7.56	7.87	7.82	7.77	7.84	8.40	8.02	8.00	IS3025(P11)83Re.02
2	Temperature	°C	30	29	28	27	29	28	30	29	28	27	29	30	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	26	32	24	28	16	24	16	18	24	28	28	32	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	5.4	7.2	6.0	10	5.0	7.0	7.0	5.0	5.6	7.4	4.0	8.0	IS 3025 (P44)1993Re.03 Edition2.1
5	Dissolved Oxygen	mg/L	5.6	4.8	6.0	5.2	5.6	4.6	5.0	4.2	5.8	4.6	5.80	4.80	IS3025(P38)89Re.99
6	Salinity	ppt	39.74	40.92	37.20	38.2	41.64	42.36	42.6	43.2	39.76	40.94	38.40	39.10	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	mg/L	0.353	0.386	0.413	0.566	0.789	0.852	0.453	0.528	0.538	0.388	0.384	0.222	IS3025(P34)88
9	Nitrite as NO_2	mg/L	0.053	0.065	0.027	0.091	0.073	0.079	0.051	0.067	0.056	0.064	0.054	0.076	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	mg/L	0.673	0.763	0.896	1.10	0.618	0.618	0.729	0.806	0.679	0.771	1.010	1.290	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	mg/L	0.234	0.144	0.657	0.071	0.812	0.836	0.158	0.149	0.239	0.145	0.540	0.675	APHA(22nd Edi) 4500 C
12	Total Nitrogen	mg/L	1.079	1.214	1.336	1.757	1.48	1.549	1.233	1.401	1.273	1.223	1.448	1.588	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	12	BDL*	10	BDL*	10.2	BDL*	10.2	BDL*	16	BDL*	BDL*	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	47010	48220	44910	45840	43940	45180	49580	50120	47020	48240	45315	46173	IS3025(P16)84Re.02
15	COD	mg/L	20	29	20	28	16	22	20	24	28	28	14	24	APHA(22nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.818	0.454	0.52	0.34	0.89	0.37	0.84	0.42	0.816	0.456	0.500	0.460	SOP – PLPL - 07
A	**Flora and Fauna**														
17	Primary productivity	mgC/L/day	1.845	0.563	1.84	0.563	1.46	0.585	2.25	0.788	1.73	0.81	1.575	0.675	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
18.1	Chlorophyll	mg/m^3	1.78	0.534	1.78	0.53	1.36	0.267	2.72	0.534	1.28	0.16	1.89	0.16	APHA (22nd Edi) 10200-H
18.2	Phaeophytin	mg/m^3	1.08	1.67	1.08	1.67	1.51	1.93	3.03	3.87	4.47	4.25	0.067	1.69	APHA (22nd Edi)

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

															10200-H
18.3	Cell Count	Unit x 10^3/L	192	44	158	34	142	17	284	34	142	17	162	33	APHA (22nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae Biddulphia sp. Amphiprora sp. Cheatoceros sp. Navicula sp. Synedra sp. Coscinodiscus sp. Pinnularia sp. Skeletonema sp. Rhizosolenia sp. Dianoflagllates Peridinizem sp. Ceratium sp. --	Bacillariophyceae Thallasionema sp. Fragillaria sp. Synedra sp. Nitzschia sp. -- -- -- -- -- -- --	Bacillariophyceae Navicula sp. Cyclotella sp. Nitzschia sp. Coscinodiscus sp. Pinnularia sp. Melosira sp. Gyrosigma sp. Synedra sp. Asterionella -- --	Bacillariophyceae Navicula sp. Fragillaria sp. Melosira sp. -- -- -- -- -- -- --	Naviculla Biddulphia Coscinodicusus Synedra Thallasiosira Melosira Cymebella Fragilloria Sketepnema	Biddulphia Naviculla Nituschia -- -- -- -- -- --	Bacillariophyceae Asterionella sp. Biddulphia sp. Skeletonema sp. Rhizosolenia sp. Cymbella sp. Thallasiosira sp. Pinnularia sp. Navicula sp. -- -- -- --	Bacillariophyceae Navicula sp. Fragillaria sp. Gyrosigma sp. -- -- -- -- -- --	Bacillariophyceae Biddulphia sp. Amphiprora sp. Cheatoceros sp. Navicula sp. Synedra sp. Coscinodiscus sp. Pinnularia sp. Skeletonema sp. Rhizosolenia sp. Dianoflagllates Peridinizem sp. Ceratium sp. --	Bacillariophyceae Thallasionema sp. Fragillaria sp. Synedra sp. Nitzschia sp. -- -- -- -- -- --	Bacillariophyceae Asterionella sp. Coscinodiscus sp. Navicula sp. Nitzschia sp. Fragillaria sp. Surirella sp. Thallasionema sp. Green Algae Ankistrodesmus sp. Chlorella sp. Pandorina sp. Cyanophyceae Anabaena sp.	Bacillariophyceae Tabellaria sp. Navicula sp. Gyrosigma sp. Coscinodiscus sp. Asterionella sp. Cyanophyceae Oscillatoria sp. Nostoc sp.	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
19.1	Abundance (Population)	no/m^2	200	30	250	38	190	10	238	13	190	10	267	133	APHA (22nd Edi) 10200-G

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

19.2	Name of Group Number and name of group species of each group	--	Decapods Nematodes Bryozoans Polychaete worms Gastropods Copepods	Decapods Gastropods -- -- -- --	Polychaete worms Nematodes Mysids Isopods Fish eggs --	Polychaete worms -- -- -- --	Lopepods Decapods Neatodes Bivalves Gestropods	Nematodes -- -- -- --	Copepods Nematodes Krill Gastropods Crustaceans Bivalves	Nematodes -- -- -- -- --	Decapods Nematodes Bryozoans Polychaete worms Gastropods Copepods	Decapods Gastropods -- -- -- --	Gastropods Copepods Decapods Ostracods Krill	Ctenophores Gastropodes Krills Nemotodes	APHA (22nd Edi) 10200-G
19.3	Total Biomass	ml/100 m^3	192	21.40	182	35	145	1.10	186	1.80	186	1.80	75	15	APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
20.1	Total Bacterial Count	CFU/ml	2080	1910	1760	1540	1730	1560	2020	1930	2060	1920	1850	1680	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22ndEdi)9 221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi .2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2016	NOVEMBER 2016	DECEMBER 2016	JANUARY 2017	FEBRUARY 2017	MARCH 2017	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.482	0.422	0.552	0.511	0.484	0.495	FCO:2007
2	Phosphorus as P	mg/kg	180	191	195	186	161	172	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.05	5.35	5.18	5.32	5.08	5.21	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	mg/kg	157	122	165	136	159	127	AAS 3111B
5.3	Manganese as Mn	mg/kg	881	811	791	827	884	896	AAS APHA 3111 B
5.4	Iron as Fe	%	2.73	2.23	2.03	2.05	2.76	2.33	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	50.07	40.98	56.85	54.61	50.08	49.9	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	mg/kg	44.27	71.28	45.21	46.36	44.28	45.9	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	170	191	175	173	168	179	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	mg/kg	1.23	1.19	1.91	1	1.26	1.94	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Bivalves Echinoderms Krill Anthozoans	Polychaete worms --	Bivalves Isopods	Mysids Polychaete worms Decapods	Polychaete worms -- --	Polychaete worms Echinoderms Anthozoans	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Copepods Bryozoans --	Foraminiforans Gastrotriches Copepods	Loepods -- --	Copopods --	Copepods Ostracodes	Nemotodes Foraminiferans Hydrozoa	APHA (22nd Edi) 10500-C
2	Population	no/m^2	308	171	240	314	198	440	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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	OCTOBER 2016		NOVEMBER 2016		DECEMBER 2016		JANUARY 2017		FEBRUARY 2017		MARCH 2017		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.98	8.10	8.18	8.24	7.81	7.76	7.92	7.87	7.96	8.40	7.87	7.70	IS3025(P11)83Re .02
2	Temperature	°C	30	29	27	28	29	28	30	29	27	30	29	30	IS3025(P9)84Re. 02
3	Total Suspended Solids	mg/L	22	34	19	24	16	26	18	22	20	32	18	24	IS3025(P17)84Re .02
4	BOD (3 Days @ 27 °C)	mg/L	6.0	8.0	6.0	8.0	5.0	6.0	6.0	4.0	8.0	6.0	3.0	4.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.6	4.4	5.6	4.9	5.4	4.4	5.8	4.4	5.4	4.6	5.60	4.60	IS3025(P38)89Re .99
6	Salinity	ppt	38.4	39.6	39.9	40.4	39.4	40.5	40.2	40.9	38.6	39.8	39.55	40.80	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	0.2	BDL*	APHA(22nd Edi)5520D
8	Nitrate as NO_3	mg/L	0.612	0.695	0.35	0.47	0.581	0.626	0.619	0.664	0.613	0.702	0.616	0.677	IS3025(P34)88
9	Nitrite as NO_2	mg/L	0.046	0.038	0.021	0.032	0.037	0.027	0.043	0.412	0.048	0.036	0.047	0.035	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	mg/L	0.284	0.381	0.56	0.820	0.522	0.284	0.364	0.441	0.293	0.385	0.378	0.443	IS3025(P34)88Cl a.2.3
11	Phosphates as PO_4	mg/L	0.063	0.081	0.14	0.19	0.72	1.34	0.093	0.112	0.065	0.084	0.247	0.137	APHA(22nd Edi) 4500 C
12	Total Nitrogen	mg/L	1.356	1.11	0.931	1.322	1.14	0.937	1.026	1.52	0.954	1.123	1.041	1.155	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	11	BDL*	BDL*	BDL*	11.8	BDL*	10.8	BDL*	14	BDL*	0.80	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	47920	48480	46500	46940	45910	47120	38440	39630	47940	48420	36800	37300	IS3025(P16)84Re .02
15	COD	mg/L	17	22	20	28	17	20	22	14	18	24	9	14	APHA(22nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.56	0.44	0.32	0.28	0.36	0.24	0.54	0.4	0.58	0.46	0.560	0.420	SOP – PLPL - 07
A	**Flora and Fauna**														
17	Primary productivity	mgC/L /day	1.91	0.72	1.91	0.72	2.7	0.99	2.47	0.765	1.68	0.81	1.688	0.563	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
18.1	Chlorophyll	mg/m^3	1.89	0.614	1.89	0.614	2.56	0.374	2.56	0.534	1.76	0.374	1.362	0.294	APHA (22nd Edi) 10200-H
18.2	Phaeophytin	mg/m^3	0.964	1.660	0.964	1.660	1.69	3.88	3.15	4.02	3.95	4.18	0.806	0.959	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

18.3	Cell Count	Unit x 10^3/L	188	54	152	18	292	32	222	18	111	9.0	215	40	APHA (22nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae Skeletonema sp. Pinnularia sp. Coscinodiscus sp. Melosira sp. Cymbella sp. Navicula sp. Nitzschia sp. Cheatoceros sp. Pleurosigma a sp. -- -- -- --	Bacillariophyceae Pleurosigma a sp. Navicula sp. Fragillaria sp. -- -- -- -- -- -- -- -- --	Bacillariophyceae Asterionella sp. Nitzschia sp. Cheatoceros sp. Navicula sp. Thallasiosira sp. Biddulphia sp. Thallasiosira sp. Fragillaria sp. Cyclotella sp. -- --	Bacillariophyceae Navicula sp. Nitzschia sp. Fragillaria sp. -- -- -- -- -- -- -- --	Asterionella Sketetonema Cyclotella sp. Pleurosigma a sp. Melosira Biddulphia sp. Naviculla Nituschia Microcystis	Navicula sp. Fragilloria Melosira -- -- -- -- -- --	Bacillariophyceae Nitzschia sp. Melosira sp. Tabellaria sp. Asterionella sp. Pinnularia sp. Coscinodiscus sp. Navicula sp. Skeletonema sp. Cymbella sp. -- -- --	Bacillariophyceae Cyclotella sp. Nitzschia sp. Fragillaria sp. -- -- -- -- -- -- -- -- --	Bacillariophyceae Asterionella sp. Biddulphia sp. Fragillaria sp. Thallasiosira sp. Cymbella sp. Skeletonema sp. Navicula sp. Nitzschia sp. Coscinodiscus sp. -- -- --	Bacillariophyceae Coscinodiscus sp. Navicula sp. Nitzschia sp. -- -- -- -- -- -- -- -- --	Bacillariophyceae Rhizosolenia sp. Synedra sp. Navicula sp. Coscinodiscus sp. Skeletonema sp. Green Algae Spirogyra sp. Pediastrum sp. Hydrodictyon sp. Desmids Cosmarium sp.	Bacillariophyceae Nitzschia sp. Pinnularia sp. Fragillaria sp. Biddulphia sp. Cyanophyceae Anabaena sp. Nostoc sp.	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
19.1	Abundance (Population)	no/m^2	230	70	288	75	225	50	288	75	230	60	260	60	APHA (22nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	Foraminiferans Polychaete worms Ostracods Mysids Copepods Fish eggs	Polychaetes Nematodes Bivalves -- -- --	Foraminiferans Nematodes Polychaetes Bivalves Fish egg Ostracodes	Bivalves Gastropods Mysids -- -- --	Decapods Polychaetes Mysids Bivalves Nematodes	Decapods Foraminiferans -- -- --	Polychaete worms Crustaceans Bivalves Decapods Gastropods --	Gastropods Polychaete worms -- -- -- --	Bivalves Isopods Decapods Crustaceans Copepods --	Decapods Copepods -- -- -- --	Copepods Cyclops Decapods Krill Polychaete worms	Copepods Polychaete worms Ostracods	APHA (22nd Edi) 10200-G
19.3	Total Biomass	ml/100	193	65.4	171	63	159	6.98	196	5.3	196	5.3	69	11	APHA (22nd Edi) 10200-G

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

		m^3													
D	**Microbiological Parameters**														
20.1	Total Bacterial Count	CFU/ml	1670	1380	1850	1600	1750	1500	1690	1370	1680	1360	1830	1630	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22nd Edi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi. 2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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	OCTOBER 2016	NOVEMBER 2016	DECEMBER 2016	JANUARY 2017	FEBRUARY 2017	MARCH 2017	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.704	0.56	0.578	0.629	0.706	0.64	FCO:2007
2	Phosphorus as P	mg/kg	177	182	146	173	178	180	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.53	5.3	6.12	5.67	5.56	5.79	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	mg/kg	117	98	192	93.96	118	119	AAS 3111B
5.3	Manganese as Mn	mg/kg	754	620	844	695	752	729	AAS APHA 3111 B
5.4	Iron as Fe	%	2.47	2.1	3.12	2.37	2.48	2.41	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	49.43	51.8	62.77	49.09	49.44	48.21	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	mg/kg	54.35	30.21	46.28	46.25	54.34	54.52	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	163	181	186	171	166	179	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	mg/kg	2.18	1.38	2.02	2.18	2.16	2.02	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Polychaete worms Echinoderms --	Bivalves Decapods	Polychaete worms Decapods	Echinoderms Decapods Mysids	Polychaete worms Bivalves --	Crabs Mysids Decapods Bivalves	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Nematodes Foraminiferans --	Copepods Nematodes --	Copepods Foraminiferans --	Copepods --	Nematodes Foraminiferans	Gastrotriches Ostracodes	APHA (22nd Edi) 10500-C
6.3	Population	no/m2	240	440	377	314	278	385	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2016		NOVEMBER 2016		DECEMBER 2016		JANUARY 2017		FEBRUARY 2017		MARCH 2017		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.91	8.10	8.15	8.35	7.97	8.18	7.90	7.81	7.92	8.20	8.10	8.18	IS3025(P11)83Re.02
2	Temperature	°C	30	29	29	28	30	29	30	29	29	30	29	30	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	16	18	16	24	18	24	18	20	18	20	18	22	IS3025(P17)84Re.02
4	BOD (3 Days @ 27°C)	mg/L	8.0	6.4	4.0	6.0	BDL*	6.0	6.0	4.0	6.0	6.8	8.0	9.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.6	4.8	5.8	5.2	5.0	4.8	5.2	5.0	5.8	4.6	5.60	4.80	IS3025(P38)89Re.99
6	Salinity	ppt	39.73	40.63	37.2	37.8	38.9	39.5	38.46	39.44	39.72	40.62	38.10	39.20	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	mg/L	0.617	0.845	0.52	0.704	0.536	0.789	0.453	0.755	0.618	0.846	0.681	0.784	IS3025(P34)88
9	Nitrite as NO_2	mg/L	0.066	0.052	0.047	0.031	0.031	0.025	0.022	0.024	0.066	0.054	0.063	0.050	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	mg/L	0.196	0.337	0.411	0.616	0.393	0.412	0.211	0.364	0.198	0.338	0.295	0.554	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	mg/L	0.+606	0.452	0.357	0.42	0.181	0.157	0.168	0.154	0.608	0.454	0.540	0.585	APHA(22nd Edi) 4500 C
12	Total Nitrogen	mg/L	0.879	1.234	0.978	1.351	0.96	1.226	0.686	1.143	0.878	1.236	1.039	1.189	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	10.4	BDL*	14	BDL*	BDL*	BDL*	11.2	BDL*	10.6	BDL*	1.40	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	44130	44720	42190	42640	46690	47650	47100	47830	44120	44710	43186	43828	IS3025(P16)84Re.02
15	COD	mg/L	12	17	16	24	20	20	18	16	20	18	24	29	APHA(22ndEdi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.476	0.752	0.58	0.42	0.74	0.5	0.78	0.56	0.478	0.754	0.820	0.580	SOP – PLPL - 07
A	**Flora and Fauna**														
17	Primary productivity	mgC/L /day	1.845	0.788	1.84	0.788	1.46	0.788	2.47	0.765	1.23	0.765	1.350	0.450	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
18.1	Chlorophyll	mg/m^3	1.97	0.614	1.97	0.614	1.60	0.187	2.563	0.534	1.440	0.427	1.682	0.107	APHA (22nd Edi) 10200-H
18.2	Phaeophytin	mg/m^3	0.155	2.09	0.155	2.09	0.529	2.52	3.15	4.02	2.82	4.99	0.598	2.02	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

18.3	Cell Count	Unit x 10^3/L	196	52	178	30	132	15	222	18	132	15	227	29	APHA (22nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae Achnanthes sp. Biddulphia sp. Cheatoceros sp. Nitzschia sp. Pinnularia sp. Synedra sp. Navicula sp. Surirella sp. Melosira sp. -- -- -- --	Bacillariophyceae Fragillaria sp. Melosira sp. Nitzschia sp. -- -- -- -- -- -- -- -- --	Bacillariophyceae Nitzschia sp. Navicula sp. Coscinodiscus sp. Thallasiosira sp. Tabellaria sp. Asterionella sp. Pleurosigma a sp. Cyclotella sp. Cymbella -- --	Bacillariophyceae Melosira sp. Nitzschia sp. Fragillaria sp. Tabellaria sp. -- -- -- -- -- --	Navicula sp. Nitzschia sp. Pleurosigma a sp. Asterionella sp. Melosira Surirela Biddulphia sp. -- --	Fragillaria sp. Navicula sp. Synedra sp. -- -- -- -- --	Bacillariophyceae Asterionella sp. Thallasiosira sp. Synedra sp. Pleurosigma a sp. Coscinodiscus sp. Rhizosolenia sp. Fragillaria sp. Skeletonema sp. Melosira sp. -- -- --	Bacillariophyceae Navicula sp. Nitzschia sp. Melosira sp. -- -- -- -- -- --	Bacillariophyceae Nitzschia sp. Navicula sp. Skeletonema sp. Coscinodiscus sp. Synedra sp. Pinnularia sp. Pleurosigma a sp. Melosira sp. Cymbella sp. -- -- --	Bacillariophyceae Melosira sp. Fragillaria sp. Nitzschia sp. -- -- -- -- -- --	Bacillariophyceae Nitzschia sp. Synedra sp. Coscinodiscus sp. Pleurosigma a sp. Thallasiosira sp. Pinnularia sp. Green Algae Chlorella sp. Pandorina sp. Ulothrix sp. Desmids Closterium sp.	Bacillariophyceae Navicula sp. Fragillaria sp. Tabellaria sp. Cyanophyceae Oscillatoria a sp. Nostoc sp. Green Algae Chlorella sp.	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
19.1	Abundance (Population)	no/m^2	290	80	225	38	180	30	288	75	180	30	280	40	APHA (22nd Edi) 10200-G

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

19.2	Name of Group Number and name of group species of each group	--	Copepods Gastropods Bivalves Foraminifer ans Amphipods Ostracods	Bivalves Melopods Nematodes -- -- --	Polychaete worms Decapods Nematodes Gastropods Isopods --	Copepods Nematodes -- -- --	Coprpods Gastropods Echinoder ms Bivalves Nematodes	Foraminifer ans Crustacean s -- -- --	Copepods Gastropods Polychaete worms Decapods Mysids Foraminifer ans	Copepods Decapods -- -- --	Copepods Nematodes Polychaete worms Ostracods Mysids Isopods	Polychaete worms Foraminifer ans -- -- -- --	Copepods Krill Decapods Crustacean s Ostracodes	Copepods Gastropod s	APHA (22nd Edi) 10200-G
19.3	Total Biomass	ml/100 m^3	212	92.14	173	32	134	1.85	196	5.3	134	2.54	56	5.0	APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
20.1	Total Bacterial Count	CFU/ml	1860	1690	1790	1650	1780	1550	1870	1660	1880	1680	1760	1580	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22ndEdi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi.2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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	OCTOBER 2016		NOVEMBER 2016		DECEMBER 2016		JANUARY 2017		FEBRUARY 2017		MARCH 2017		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	8.13	8.19	8.11	8.26	7.77	8.19	7.82	7.89	8.16	8.14	7.77	8.17	IS3025(P11)83Re .02
2	Temperature	°C	29	28	28	28	30	28	29	28	30	29	30	29	IS3025(P9)84Re. 02
3	Total Suspended Solids	mg/L	26	30	21	29	26	28	22	26	24	28	26	28	IS3025(P17)84Re .02
4	BOD (3 Days @ 27 °C)	mg/L	5.1	6.8	4.0	3.0	BDL*	BDL*	6.0	8.0	5.4	6.4	6.0	7.0	IS 3025 (P44)1993Re.03E dition2.1
5	Dissolved Oxygen	mg/L	5.4	4.8	5.8	4.9	5.6	4.8	5.6	4.4	5.8	4.6	5.60	4.40	IS3025(P38)89Re .99
6	Salinity	ppt	39.73	40.63	30.6	37.9	42.89	43.88	42.6	43.2	39.76	40.66	42.89	43.70	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	mg/L	0.438	0.503	0.22	0.44	0.410	0.663	0.302	0.422	0.44	0.508	0.391	0.485	IS3025(P34)88
9	Nitrite as NO_2	mg/L	0.482	0.606	0.063	0.042	0.052	0.035	0.017	0.025	0.48	0.6	0.053	0.067	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	mg/L	0.669	0.738	0.82	0.950	0.862	0.806	0.767	0.844	0.679	0.752	0.859	0.950	IS3025(P34)88Cla .2.3
11	Phosphates as PO_4	mg/L	0.196	0.258	0.59	0.72	0.074	0.390	0.476	0.752	0.19	0.257	0.067	0.098	APHA(22nd Edi) 4500 C
12	Total Nitrogen	mg/L	1.589	1.847	1.103	1.432	1.324	1.504	1.086	1.291	1.599	1.860	1.303	1.411	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	10.6	BDL*	18	BDL*	10.2	BDL*	10.6	BDL*	10.8	BDL*	0.20	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	44550	45130	42980	43640	53820	48320	50480	51370	44520	45140	538320	54740	IS3025(P16)84Re .02
15	COD	mg/L	20	30	16	12	20	18	24	26	24	26	20	22	APHA(22nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.36	0.22	0.4	0.52	0.73	0.6	0.26	0.32	0.38	0.26	0.700	0.430	SOP – PLPL - 07
A	**Flora and Fauna**														
17	Primary productivity	mgC/L /day	1.08	0.563	1.08	0.563	1.32	0.698	1.12	0.675	1.08	0.81	1.463	0.113	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
18.1	Chlorophyll	mg/m^3	1.7	0.561	1.7	0.561	1.46	0.294	2.93	0.587	1.65	0.267	1.922	0.427	APHA (22nd Edi) 10200-H
18.2	Phaeophytin	mg/m^3	0.422	1.77	0.422	1.77	0.662	2.04	1.32	4.08	2.60	4.40	0.021	1.479	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

18.3	Cell Count	Unit x 10^3/L	183	36	170	24	136	12	272	24	136	12	202	33	APHA (22nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae Pinnularia sp. Cymbella sp. Gyrosigma sp. Fragillaria sp. Cheatoceros us sp. Skeletonema sp. Pleurosigma sp. Melosira sp. -- -- -- -- --	Bacillariophyceae Fragillaria sp. Nitzschia sp. Pinnularia sp. -- -- -- -- -- -- -- -- --	Bacillariophyceae Navicula sp. Synedra sp. Coscinodiscus sp. Cyclotella sp. Gyrosigma sp. Pleurosigma sp. Nitzschia sp. Surirella sp. Skeletonema sp. -- --	Bacillariophyceae Turbellaria Fragillaria sp. Navicula sp. -- -- -- -- -- -- --	Amphipods Navicula sp. Nitzschia sp. Coscinodiscus sp. Fragillaria sp. Pleurosigma sp. Synedra Melosira --	Fragillaria sp. Synedra Nitzschia sp. -- -- -- -- --	Bacillariophyceae Biddulphia sp. Navicula sp. Nitzschia sp. Skeletonema sp. Rhizosolenia sp. Surirella sp. Gyrosigma sp. -- -- -- -- --	Bacillariophyceae Fragillaria sp. Melosira sp. Nitzschia sp. -- -- -- -- --	Bacillariophyceae Pinnularia sp. Cymbella sp. Gyrosigma sp. Fragillaria sp. Cheatoceros us sp. Skeletonema sp. Pleurosigma sp. Melosira sp. -- -- -- --	Bacillariophyceae Fragillaria sp. Nitzschia sp. Pinnularia sp. -- -- -- -- -- --	Bacillariophyceae Asterionella sp. Fragillaria sp. Navicula sp. Synedra sp. Coscinodiscus sp. Oscillatoria sp. Nostoc sp. Green Algae Chlorella sp. Pediastrum sp.	Bacillariophyceae Fragillaria sp. Navicula sp. Nitzschia sp. Gyrosigma sp. Oscillatoria sp. Desmids Closterium sp.	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
19.1	Abundance (Population)	no/m^2	240	20	300	25	240	20	300	25	240	20	240	80	APHA (22nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	Chaetognaths Aerophores Nematodes Decopodes Isopods Crustaceans	Isopodes Foraminiferans Bivalves -- -- --	Polychaete worms Nematodes Crystaleans Crastropods Mysids --	Glastropods -- -- -- -- --	Nematodes Echinoderms Coprpods Gastropods Mollusca	Coprpods Gastropods -- -- --	Polychaete worms Decapods Nematodes Isopods -- --	Gastropods -- -- -- -- --	Chaetognathes Aerophores Nematodes Decapods Isopods Crustaceans	Isopods Foraminiferans Bivalves -- --	Nematodes Copepods Copepods	Polychaete worms Isopods	APHA (22nd Edi) 10200-G
19.3	Total Biomass	ml/100	153	1.4	182	4.5	119	3.2	235	4.1	235	4.1	61.0	9.0	APHA (22nd Edi) 10200-G

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

		m^3													
D	**Microbiological Parameters**														
20.1	Total Bacterial Count	CFU/ml	1550	1230	1650	1560	1680	1460	1730	1360	1580	1280	1470	1110	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22nd Edi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi. 2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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	OCTOBER 2016	NOVEMBER 2016	DECEMBER 2016	JANUARY 2017	FEBRUARY 2017	MARCH 2017	TEST METHOD
			SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	SEDIMENT	
1	Organic Matter	%	0.582	0.540	0.557	0.482	0.586	0.502	FCO:2007
2	Phosphorus as P	mg/kg	166	162	189	197	164	190	APHA(22nd Edi) 4500 C
3	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	--
4	Petroleum Hydrocarbon	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	PLPL-TPH
5	**Heavy Metals**								
5.1	Aluminum as Al	%	5.27	5.62	5.17	5.15	5.24	5.18	AAS APHA 3111 B
5.2	Total Chromium as Cr^{+3}	mg/kg	88.22	84.6	151	151	88.34	152	AAS 3111B
5.3	Manganese as Mn	mg/kg	729	712	820	801	724	821	AAS APHA 3111 B
5.4	Iron as Fe	%	2.17	2.28	2.42	3.13	2.18	2.43	AAS APHA(22nd Edi)3111 B
5.5	Nickel as Ni	mg/kg	39.38	41.9	56.59	53.96	39.39	56.62	AAS APHA(22nd Edi)3111 B
5.6	Copper as Cu	mg/kg	45.25	39.4	49.27	50.01	45.29	49.38	AAS APHA(22nd Edi)3111 B
5.7	Zinc as Zn	mg/kg	159	198	193	185	158	194	AAS APHA(22nd Edi)3111 B
5.8	Lead as Pb	mg/kg	1.97	1.27	1.79	1.75	1.98	1.79	AAS APHA(22nd Edi)3111 B
5.9	Mercury as Hg	mg/kg	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
6	**Benthic Organisms**								
6.1	Macrobenthos	--	Bivalves Decapods Mysids	Decapods --	Polychaete worms --	Decapods -- --	Bivalves Decapods --	Polychaete worms Isopods Decapods Prawns	APHA (22nd Edi) 10500-C
6.2	MeioBenthos	--	Gastrotriches Bryozoans --	Gastrotriches Bryozoans --	Ciliates Nematodes --	Nematodes --	Foraminiferans --	Nematodes Foraminiferans	APHA (22nd Edi) 10500-C
6.3	Population	no/m^2	274	189	144	189	119	433	APHA (22nd Edi) 10500-C

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2016		NOVEMBER 2016		DECEMBER 2016		JANUARY 2017		FEBRUARY 2017		MARCH 2017		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.9	8.17	8.28	8.38	7.72	7.82	7.87	7.63	7.1	8.16	7.62	7.20	IS3025(P11)83Re.02
2	Temperature	°C	30	29	29	28	29	28	30	29	30	29	28	29	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	14	18	21	26	20	24	20	18	15	18	20	24	IS3025(P17)84Re.02
4	BOD (3 Days @ 27 °C)	mg/L	3.2	4.8	4.0	8.0	6.0	8.0	8.0	4.0	3.4	4.6	6.0	7.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.6	4.6	5.6	4.8	4.8	4.6	5.4	4.6	6.6	5.8	5.60	4.80	IS3025(P38)89Re.99
6	Salinity	ppt	38.9	39.76	40.2	41.6	41.8	42.09	40.6	41.4	37.9	38.76	42.10	42.93	APHA (22nd Edi) 2550 B
7	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	0.5	BDL*	APHA(22nd Edi)5520D
8	Nitrate as NO_3	mg/L	0.358	0.410	0.612	0.566	0.821	0.915	0.483	0.619	0.358	0.418	0.689	0.903	IS3025(P34)88
9	Nitrite as NO_2	mg/L	0.023	0.014	0.054	0.061	0.073	0.82	0.043	0.055	0.023	0.037	0.080	0.085	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	mg/L	0.224	0.364	0.317	0.504	0.412	0.562	0.959	1.09	0.22	0.367	0.489	0.605	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	mg/L	0.503	0.618	0.56	0.718	0.78	0.873	0.757	1.16	0.501	0.619	0.083	0.144	APHA(22nd Edi) 4500 C
12	Total Nitrogen	mg/L	0.605	0.79	0.983	1.13	1.306	1.559	1.465	1.764	0.601	0.78	1.256	1.593	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	BDL*	BDL*	13	BDL*	BDL*	BDL*	10.6	BDL*	BDL*	BDL*	1.70	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	41790	42280	47900	48800	48360	49870	49120	50440	41788	42283	34120	35330	IS3025(P16)84Re.02
15	COD	mg/L	10	14	24	32	24	28	20	26	14	10	18	20	APHA(22nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.50	0.40	0.71	0.52	0.86	0.34	0.74	0.52	0.40	0.60	0.88	0.40	SOP – PLPL - 07
A	**Flora and Fauna**														
17	Primary productivity	mgC/L /day	1.75	0.563	1.755	0.563	1.73	0.315	2.02	0.698	1.62	0.81	2.172	0.666	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
18.1	Chlorophyll	mg/m^3	1.89	0.748	1.89	0.748	1.81	0.427	3.63	0.854	1.65	0.69	2.584	0.489	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

18.2	Phaeophytin	mg/m^3	0.235	1.27	0.235	1.27	0.315	1.591	0.63	3.18	2.6	3.34	0.120	0.998	APHA (22ndEdi) 10200-H
18.3	Cell Count	Unit x 10^3/L	205	65	164	26	151	13	302	26	151	13	246	72	APHA (22nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae Cymbella sp. Thallasiosira sp. Skeletonema sp. Fragillaria sp. Navicula sp. Gyrosigma sp. Nitzschia sp. Pleurosigma sp. Cyanophyceae Microcystis sp. Dianoflagllates Ceratium sp. --	Bacillariophyceae Nitzschia sp. Fragillaria sp. Melosira sp. Navicula sp. -- -- -- -- -- -- -- --	Bacillariophyceae Navicula sp. Nitzschia sp. Synedra sp. Coscinodiscus sp. Thallasiosira sp. Turbellaria Cyclotella sp. Melosira sp. Surirella sp. -- --	Bacillariophyceae Melosira sp. Fragillaria sp. Nitzschia sp. -- -- -- -- -- -- -- --	Synedra sp. Navicula Coscinodiscus sp. Melosira Fragilaria Pleurosigma a Skeletane ma Amphprora Ulotrix	Surirela Naviculla Fragillaria -- -- -- -- --	Bacillariophyceae Asterionella sp. Biddulphia sp. Coscinodiscus sp. Fragillaria sp. Thallasiosira sp. Nitzschia sp. Navicula sp. Pleurosigma sp. Dianflagellates Peridinizem Ceratizem --	Bacillariophyceae Rhizosoleni a sp. Skeletonema sp. Synedra sp. Melosira sp. -- -- -- -- -- -- -- --	Bacillariophyceae Cymbella sp. Thallasiosira sp. Skeletonema sp. Fragillaria sp. Navicula sp. Gyrosigma sp. Nitzschia sp. Pleurosigma sp. Cyanophyceae Microcystis sp. Dianoflagllates Ceratium sp. --	Bacillariophyceae Nitzschia sp. Fragillaria sp. Melosira sp. Navicula sp. -- -- -- -- -- -- -- --	Bacillariophyceae Skeletonema sp. Synedra sp. Navicula sp. Rhizosoleni a sp. Coscinodiscus sp. Gomphonema sp. Green Algae Spirulina sp. Hydrodictyon sp. Scenedesmus sp. Desmids Cosmarium sp.	Bacillariophyceae Biddulphia sp. Pinnularia sp. Pleurosigma sp. Green Algae Pandorina sp. Pediastrum sp. Cyanophyceae Lyngbya sp. Microcystis sp.	APHA (22nd Edi) 10200-H
C	**Zooplanktons**														
19.1	Abundance (Population)	no/m^2	250	13	200	10	140	30	175	38	140	30	208	80	APHA (22nd Edi) 10200-G

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

19.2	Name of Group Number and name of group species of each group	--	Fish egg Copepods Polychaete worms Crustaceans Bivalves --	Gastropods -- -- -- -- --	Gastropods Nematodes Polychaete worms Mysids Isopods --	Gastropods -- -- -- --	Ostracods Nematods Bivaves Delapods --	Glastropods Mysids -- -- --	Copepods Nematodes Mysids Bivalves Foraminiferans --	Gastropods Polychaete worms -- -- -- --	Fish egg Copepods Polychaete worms Crustaceans Bivalves --	Gastropods -- -- -- --	Copepodes Gastropodes Crustaceans Cyclops Polychaetes	Decopodes Ostracods	APHA (22nd Edi) 10200-G
19.3	Total Biomass	ml/100 m^3	162	3.25	170	1.10	148	2.60	163	26.98	163	26.98	89	26	APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
20.1	Total Bacterial Count	CFU/ml	1700	1280	1810	1560	1530	1400	1540	1410	1701	1281	1900	1580	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22ndEdi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi. 2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

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

SR. NO.	TEST PARAMETERS	UNIT	OCTOBER 2016		NOVEMBER 2016		DECEMBER 2016		JANUARY 2017		FEBRUARY 2017		MARCH 2017		TEST METHOD
			SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	SURFACE	BOTTOM	
1	pH	--	7.84	8.01	8.02	8.32	7.23	8.01	7.79	8	7.88	8.02	7.74	7.82	IS3025(P11)83Re.02
2	Temperature	°C	30	29	28	27	29	28	28	27	29	30	28	29	IS3025(P9)84Re.02
3	Total Suspended Solids	mg/L	18	20	17	24	24	28	16	22	16	24	20	24	IS3025(P17)84Re.02
4	BOD (3 Days @ 27°C)	mg/L	5.4	7.6	3	6	7	6	4	8	5.6	7.8	6.0	8.0	IS 3025 (P44)1993Re.03Edition2.1
5	Dissolved Oxygen	mg/L	5.4	4.4	5.2	5.0	5.6	5.2	5.4	5.2	5.8	4.6	5.20	4.80	IS3025(P38)89Re.99
6	Salinity	ppt	40.36	41.22	42.8	43.4	39.6	40.8	42.6	43.2	41.38	40.24	41.60	42.20	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	mg/L	0.464	0.876	0.413	0.566	0.457	0.568	0.412	0.563	0.463	0.882	0.503	0.625	IS3025(P34)88
9	Nitrite as NO_2	mg/L	0.036	0.06	0.031	0.027	0.052	0.088	0.034	0.026	0.038	0.079	0.072	0.097	IS3025(P34)88 NEDA
10	Ammonical Nitrogen as NH_3	mg/L	0.804	0.99	0.672	0.766	0.206	0.712	0.676	0.766	0.807	0.11	0.814	0.889	IS3025(P34)88Cla.2.3
11	Phosphates as PO_4	mg/L	0.076	0.084	0.479	0.560	0.222	0.283	0.476	0.554	0.079	0.084	0.150	0.186	APHA(22nd Edi) 4500 C
12	Total Nitrogen	mg/L	1.304	1.926	1.116	1.359	0.715	1.368	1.122	1.355	1.308	1.071	1.389	1.610	IS3025(P34)88
13	Petroleum Hydrocarbon	mg/L	BDL*	BDL*	14	BDL*	10.4	BDL*	11.2	BDL*	BDL*	BDL*	1.70	BDL*	PLPL-TPH
14	Total Dissolved Solids	mg/L	47880	48520	39810	40180	48630	49210	39970	40230	47820	48580	45980	46720	IS3025(P16)84Re.02
15	COD	mg/L	16	24	24	28	20	12	16	24	18	28	19	24	APHA(22nd Edi) 5520-D Open Reflux
16	Oxidisable Particular Organic Carbon	%	0.60	0.34	0.48	0.29	0.46	0.76	0.58	0.32	0.8	0.36	0.71	0.39	SOP – PLPL - 07
A	**Flora and Fauna**														
17	Primary productivity	mgC/L/day	2.25	0.45	2.25	0.45	1.48	0.698	1.74	0.564	1.77	0.81	2.47	0.90	APHA (22nd Edi) 10200-J
B	**Phytoplankton**														
18.1	Chlorophyll	mg/m^3	1.709	0.507	1.70	0.507	1.28	0.187	1.88	0.746	1.70	0.32	2.510	0.481	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

18.2	Phaeophytin	mg/m^3	0.422	1.623	0.422	1.620	0.849	1.944	0.234	1.26	2.55	3.94	0.219	1.830	APHA (22nd Edi) 10200-H
18.3	Cell Count	Unit x 10^3/L	210	56	172	34	146	16	208	66	146	16	286.0	38.0	APHA (22nd Edi) 10200-H
18.4	Name of Group Number and name of group species of each group	--	Bacillariophyceae Asterionella sp. Navicula sp. Nitzschia sp. Fragillaria sp. Melosira sp. Cyclotella sp. Pinnularia sp. Coscinodiscus sp. -- -- --	Bacillariophyceae Melosira sp. Coscinodiscus sp. Navicula sp. -- -- -- -- -- -- -- -- -- --	Bacillariophyceae Asterionella Biddulphia sp. Synedra sp. Nitzschia sp. Navicula sp. Pinnularia -- -- -- -- -- --	Bacillariophyceae Pinnularia Fragillaria sp. Navicula sp. -- -- -- -- -- -- -- -- --	Naviculla Melosira Biddulp-hia Asterionella Coscinodiscus Sketetonema Cyclotetl Microcysris --	Naviculla Synedra Fugillaria -- -- -- -- -- --	Bacillariophyceae Biddulphia sp. Nitzschia sp. Pinnularia sp. Asterionella sp. -- -- -- -- -- -- -- -- -- --	Bacillariophyceae Navicula sp. Fragillaria sp. -- -- -- -- -- -- -- -- --	Bacillariophyceae Asterionella sp. Navicula sp. Nitzschia sp. Fragillaria sp. Melosira sp. Cyclotella sp. Pinnularia sp. Coscinodiscus sp. -- -- --	Bacillariophyceae Melosira sp. Coscinodiscus sp. Navicula sp. -- -- -- -- -- -- -- -- -- --	Bacillariophyceae Navicula sp. Synedra sp. Pleurosigma sp. Skeletonema sp. Fragillaria sp. Cheatoceros sp. Biddulphia sp. Rhizosolenia sp. Cyanophyceae Spirulina sp. Oscillatoria sp.	Bacillariophyceae Synedra sp. Nitzschia sp. Coscinodiscus sp. Fragillaria sp. Tabellaria sp. Cyanophyceae Oscillatoria sp. Green Algae Chlorella sp. Pediastrum sp.	APHA (22nd Edi) 10200-H

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

C	**Zooplanktons**														
19.1	Abundance (Population)	no/m^2	275	63	220	50	180	40	249	14	180	40	275	100	APHA (22nd Edi) 10200-G
19.2	Name of Group Number and name of group species of each group	--	Copepods Polychaete worms Crustaceans Mysids Nematodes --	Crustaceans Bivalves -- -- -- --	Nematodes Polychaete worms Gastropods Crystaleans Isopods --	Decapods Isopods Nematodes -- -- --	Coprpods Mysids Fish eggs Constceneous Bivalves	Polychaetes Gastropods -- -- --	Gastropods Isopods Crustaceans -- -- --	Isopods Nematodes -- -- -- --	Copepods Polychaete worms Crustaceans Mysids Nematodes --	Crustaceans Bivalves -- -- --	Mysids Polychaete worms Gastrotriches Nauplius larvae Decapods	Nematodes Gastropodes	APHA (22nd Edi) 10200-G
19.3	Total Biomass	ml/100 m^3	172	36.90	142	48.8	119	2.70	164	3.24	159	6.98	97	17	APHA (22nd Edi) 10200-G
D	**Microbiological Parameters**														
20.1	Total Bacterial Count	CFU/ml	1490	1220	1770	1460	1310	1560	1790	1450	1492	1224	1490	1030	IS 5402:2002
20.2	Total Coliform	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	APHA(22ndEdi)9221-D
20.3	Ecoli	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS:1622:1981Edi. 2.4(2003-05)
20.4	Enterococcus	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 15186 :2002
20.5	Salmonella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-3)
20.6	Shigella	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 1887 (P-7)
20.7	Vibrio	/ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	IS : 5887 (P-5)

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF ETP WATER OUTLET

SR. NO.	PARAMETERS	UNIT	RESULTS OF ETP WATER OUTLET						TEST METHOD
			04/10/2016	08/11/2016	06/12/2016	04/01/2017	07/02/2017	07/03/2017	
1	Colour	Co-pt	20	25	30	40	30	30	IS3025(P4)83Re.02
2	pH	--	7.28	6.95	7.33	7.5	6.69	7.02	IS3025(P11)83Re.02
3	Temperature	°C	29	28	29	30	29	30	IS3025(P9)84Re.02
4	Total Suspended Solids	mg/L	28	32	32	48	24	26	IS3025(P17)84Re.02
5	Total Dissolved Solids	mg/L	709	1070	1206	1380	1124	955	IS3025(P16)84Re.02
6	COD	mg/L	84	72	126	104	76	142	APHA(22nd Edi) 5520-D Open Reflux
7	BOD (3 Days @ 27 °C)	mg/L	23	20	25	28	22	36	IS 3025 (P44)1993Re.03Edition2.1
8	Chloride as Cl	mg/L	28.99	35.98	459	419	479	459	IS3025(P32)88Re.99
9	Oil & Grease	mg/L	BDL*	BDL*	1.1	0.8	1.0	1.1	APHA(22nd Edi)5520D
10	Sulphate as SO_4	mg/L	246	231	74.2	88	94	92	APHA(22nd Edi)4500 SO_4 E
11	Ammonical Nitrogen as NH_3	mg/L	1.96	2.05	3.66	1.8	2.05	2.85	IS3025(P34)88Cla.2.3
12	% Sodium as Na	%	41.12	44.48	46.67	44	41.15	49.94	AAS APHA(22nd Edi) 3500 NA B/ Flame Photometer
13	Nickel as Ni	mg/L	0.019	0.025	0.019	0.012	0.022	0.020	AAS APHA(22nd Edi)3111 B
14	Phenolic Compound	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	IS3025(P43)92Re.03
15	SAR	--	2.2	4.44	2.22	2.4	2.46	2.56	By Calculation
16	Total Chromium as Cr^{+3}	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS 3111B
17	Hexavalent Chromium as Cr^{+6}	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22nd Edi)3500Cr B Colorimetric method
18	Copper as Cu	mg/L	0.013	0.016	0.015	0.022	0.014	0.013	AAS APHA(22nd Edi)3111 B
19	Lead as Pb	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA(22nd Edi)3111 B
20	Sulphide as S	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22nd Edi) 4500-S
21	Mercury as Hg	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
22	Zinc as Zn	mg/L	0.026	0.038	0.071	0.12	0.031	0.041	AAS APHA(22nd Edi)3111 B
23	Cadmium as Cd	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA(22nd Edi)3111 B
24	Cyanide as CN	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22nd Edi)4500CN E
25	Arsenic as As	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA 3114 B
26	Fluoride as F	mg/L	BDL*	BDL*	0.53	0.7	BDL*	BDL*	APHA(22nd Edi) 4500 F D SPANDS
27	Insecticides/Pesticides	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	BDL*	GC MS

*Below detection limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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/m^3	Particulate Matter (PM 2.5) µg/m^3	Sulphur Dioxide (SO2) µg/m^3	Oxides of Nitrogen (NO2) µg/m^3	Carbon Monoxide as CO mg/m^3	Hydrocarbon as CH_4 mg/m^3	Benzene as C_6H_6 µg/m^3
1	04/10/2016	82.62	46.56	17.56	27.15	0.38	BDL*	BDL*
2	07/10/2016	73.20	38.66	9.91	15.45	0.40	BDL*	BDL*
3	11/10/2016	64.64	30.35	10.57	30.43	0.64	BDL*	BDL*
4	14/10/2016	79.39	44.52	15.26	34.36	0.55	BDL*	BDL*
5	18/10/2016	57.19	25.36	12.05	21.07	0.33	BDL*	BDL*
6	21/10/2016	70.31	29.52	7.98	26.55	0.18	BDL*	BDL*
7	25/10/2016	67.60	37.41	13.88	31.02	0.15	BDL*	BDL*
8	28/10/2016	58.67	27.44	8.04	28.09	0.49	BDL*	BDL*
9	31/10/2016	78.37	32.43	11.90	17.79	0.21	BDL*	BDL*
10	01/11/2016	70.43	31.59	13.36	29.36	0.66	BDL*	BDL*
11	04/11/2016	66.68	38.66	8.84	15.38	0.46	BDL*	BDL*
12	08/11/2016	76.71	44.48	15.23	23.91	0.39	BDL*	BDL*
13	11/11/2016	60.40	32.43	10.49	19.71	0.80	BDL*	BDL*
14	15/11/2016	54.61	25.77	6.25	26.42	0.60	BDL*	BDL*
15	18/11/2016	63.60	29.52	16.94	32.50	0.18	BDL*	BDL*
16	22/11/2016	58.49	37.41	14.33	16.38	0.37	BDL*	BDL*
17	25/11/2016	80.59	42.40	9.83	20.10	0.16	BDL*	BDL*
18	29/11/2016	62.67	23.70	12.86	28.10	0.53	BDL*	BDL*
19	02/12/2016	70.80	28.68	19.90	38.98	0.17	BDL*	BDL*
20	06/12/2016	66.31	35.75	14.15	33.41	0.46	BDL*	BDL*
21	09/12/2016	81.58	38.66	11.98	21.30	0.21	BDL*	BDL*
22	13/12/2016	77.82	21.62	15.14	35.50	0.40	BDL*	BDL*
23	16/12/2016	62.43	26.61	18.43	25.90	0.45	BDL*	BDL*
24	20/12/2016	54.18	23.70	13.49	27.57	0.57	BDL*	BDL*
25	23/12/2016	72.52	37.41	10.38	22.62	0.49	BDL*	BDL*
26	27/12/2016	59.29	30.76	21.44	39.16	0.33	BDL*	BDL*
27	30/12/2016	68.40	29.52	16.66	20.36	0.56	BDL*	BDL*
28	03/01/2017	44.88	25.36	6.07	26.15	0.27	BDL*	BDL*
29	06/01/2017	51.35	22.45	15.44	21.51	0.40	BDL*	BDL*
30	10/01/2017	63.91	27.44	13.90	31.63	0.32	BDL*	BDL*

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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	13/01/2017	55.22	30.35	10.12	28.26	0.50	BDL*	BDL*
32	17/01/2017	87.31	48.68	12.50	30.59	0.57	BDL*	2.72
33	20/01/2017	52.58	24.53	14.67	36.55	0.54	BDL*	BDL*
34	24/01/2017	62.67	28.68	8.87	19.51	0.42	BDL*	BDL*
35	27/01/2017	72.40	37.41	11.73	39.54	0.13	BDL*	BDL*
36	31/01/2017	81.21	46.56	16.35	23.72	0.60	BDL*	BDL*
37	03/02/2017	67.78	37.41	10.49	23.49	0.49	BDL*	BDL*
38	07/02/2017	87.30	46.56	18.16	27.27	0.73	BDL*	BDL*
39	10/02/2017	49.62	22.45	7.27	31.70	0.26	BDL*	BDL*
40	14/02/2017	56.70	32.43	17.70	35.66	0.63	BDL*	BDL*
41	17/02/2017	64.27	40.74	11.58	20.98	0.45	BDL*	BDL*
42	21/02/2017	79.42	44.48	13.41	33.09	0.23	BDL*	BDL*
43	24/02/2017	69.32	31.59	22.60	38.02	0.37	BDL*	BDL*
44	28/02/2017	70.37	38.66	16.14	36.51	0.34	BDL*	BDL*
45	03/03/2017	71.60	32.43	9.61	16.95	0.30	BDL*	BDL*
46	07/03/2017	60.58	28.68	14.38	28.08	0.48	BDL*	BDL*
47	10/03/2017	79.30	35.75	13.02	24.49	0.24	BDL*	BDL*
48	14/03/2017	52.27	25.36	7.33	19.60	0.36	BDL*	BDL*
49	17/03/2017	66.31	37.41	10.72	22.61	0.42	BDL*	BDL*
50	21/03/2017	58.43	24.53	5.09	15.37	0.19	BDL*	BDL*
51	24/03/2017	90.38	54.46	15.38	36.56	0.52	BDL*	BDL*
52	28/03/2017	78.31	27.44	19.42	30.91	0.27	BDL*	BDL*
53	31/03/2017	86.32	39.49	18.08	25.96	0.22	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-3

Dr. ArunBajpai
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	04/10/2016	87.47	50.40	9.96	34.76	0.22	BDL*	BDL*
2	07/10/2016	79.59	41.65	11.51	37.53	0.54	BDL*	BDL*
3	11/10/2016	91.29	45.40	13.63	33.18	0.48	BDL*	BDL*
4	14/10/2016	56.39	24.57	21.58	40.11	0.77	BDL*	2.62
5	18/10/2016	85.71	39.57	16.73	29.50	0.26	BDL*	BDL*
6	21/10/2016	95.72	43.74	12.43	35.11	0.14	BDL*	2.28
7	25/10/2016	78.68	47.49	15.04	26.53	0.66	BDL*	BDL*
8	28/10/2016	86.20	42.49	18.47	22.63	0.63	BDL*	BDL*
9	31/10/2016	72.62	29.57	17.04	38.63	0.30	BDL*	BDL*
10	01/11/2016	82.68	36.66	19.19	35.88	0.96	BDL*	BDL*
11	04/11/2016	92.38	50.40	10.63	31.46	0.64	BDL*	BDL*
12	08/11/2016	70.32	39.57	8.86	26.21	0.33	BDL*	BDL*
13	11/11/2016	69.53	27.49	18.72	38.83	0.58	BDL*	BDL*
14	15/11/2016	80.38	42.49	15.94	29.71	0.76	BDL*	BDL*
15	18/11/2016	93.60	53.73	11.16	41.42	0.31	BDL*	BDL*
16	22/11/2016	76.80	47.49	20.44	32.15	0.27	BDL*	BDL*
17	25/11/2016	97.29	56.65	17.71	28.66	0.13	BDL*	BDL*
18	29/11/2016	84.62	38.74	14.31	37.75	0.82	BDL*	BDL*
19	02/12/2016	76.93	30.41	12.32	34.34	0.34	BDL*	BDL*
20	06/12/2016	95.41	53.32	16.83	30.28	0.62	BDL*	2.26
21	09/12/2016	72.38	34.57	19.13	27.15	0.11	BDL*	BDL*
22	13/12/2016	90.32	50.40	22.14	42.64	0.55	BDL*	BDL*
23	16/12/2016	84.20	31.66	25.73	33.28	0.81	BDL*	BDL*
24	20/12/2016	78.38	42.49	9.53	19.14	0.42	BDL*	BDL*
25	23/12/2016	94.63	54.57	18.05	35.58	0.63	BDL*	BDL*
26	27/12/2016	88.20	46.65	24.72	43.31	0.24	BDL*	BDL*
27	30/12/2016	75.47	39.57	22.00	38.67	0.71	BDL*	BDL*
28	03/01/2017	82.62	45.40	13.13	23.72	0.21	BDL*	BDL*
29	06/01/2017	70.38	36.66	22.77	27.94	0.73	BDL*	BDL*
30	10/01/2017	86.81	39.57	19.58	38.38	0.48	BDL*	BDL*

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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	13/01/2017	92.32	47.49	14.46	24.99	0.55	BDL*	BDL*
32	17/01/2017	72.58	35.39	16.89	35.50	0.82	BDL*	BDL*
33	20/01/2017	58.50	32.49	20.33	40.42	0.80	BDL*	BDL*
34	24/01/2017	87.78	50.82	18.70	30.75	0.56	BDL*	BDL*
35	27/01/2017	74.62	48.74	23.50	21.97	0.18	BDL*	BDL*
36	31/01/2017	68.62	30.41	8.16	15.62	0.39	BDL*	BDL*
37	03/02/2017	92.93	52.48	18.92	37.76	0.64	BDL*	BDL*
38	07/02/2017	72.80	40.40	9.91	18.35	0.44	BDL*	BDL*
39	10/02/2017	87.59	35.41	14.10	28.84	0.17	BDL*	BDL*
40	14/02/2017	63.77	38.74	19.69	31.08	0.50	BDL*	BDL*
41	17/02/2017	76.93	43.74	23.44	34.96	0.78	BDL*	BDL*
42	21/02/2017	68.62	25.41	11.24	26.22	0.14	BDL*	BDL*
43	24/02/2017	54.68	29.57	13.34	33.56	0.27	BDL*	BDL*
44	28/02/2017	90.50	55.40	21.61	42.73	0.56	BDL*	BDL*
45	03/03/2017	85.71	39.57	21.67	39.21	0.56	BDL*	BDL*
46	07/03/2017	71.23	33.74	17.10	25.96	0.37	BDL*	BDL*
47	10/03/2017	92.63	46.65	19.05	35.50	0.41	BDL*	BDL*
48	14/03/2017	68.62	36.66	15.24	30.61	0.49	BDL*	BDL*
49	17/03/2017	95.60	52.48	23.26	24.50	0.46	BDL*	BDL*
50	21/03/2017	87.59	48.74	12.15	32.45	0.13	BDL*	BDL*
51	24/03/2017	74.62	32.49	8.07	21.19	0.32	BDL*	BDL*
52	28/03/2017	89.29	42.49	11.14	27.37	0.21	BDL*	BDL*
53	31/03/2017	96.32	55.40	9.05	23.55	0.11	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-3

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

PUB/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	04/10/2016	77.30	42.47	14.95	32.26	0.46	BDL*	BDL*
2	07/10/2016	64.53	36.64	19.74	23.70	0.62	BDL*	BDL*
3	11/10/2016	82.69	52.47	15.85	27.15	0.73	BDL*	BDL*
4	14/10/2016	72.52	41.57	10.48	34.68	0.66	BDL*	BDL*
5	18/10/2016	93.42	45.39	7.92	18.73	0.53	BDL*	BDL*
6	21/10/2016	58.58	23.74	9.97	22.24	0.24	BDL*	BDL*
7	25/10/2016	61.18	34.56	16.89	36.34	0.55	BDL*	BDL*
8	28/10/2016	90.63	54.55	12.92	31.60	0.52	BDL*	BDL*
9	31/10/2016	56.72	22.49	8.74	20.23	0.41	BDL*	BDL*
10	01/11/2016	66.02	20.40	9.54	25.63	0.81	BDL*	BDL*
11	04/11/2016	57.59	32.48	16.76	35.82	0.74	BDL*	BDL*
12	08/11/2016	61.68	34.56	12.81	29.36	0.54	BDL*	BDL*
13	11/11/2016	52.63	22.49	8.78	23.07	0.90	BDL*	BDL*
14	15/11/2016	74.70	33.73	11.21	21.63	0.69	BDL*	BDL*
15	18/11/2016	82.51	45.39	6.21	36.70	0.45	BDL*	BDL*
16	22/11/2016	50.27	28.73	17.50	39.00	0.57	BDL*	BDL*
17	25/11/2016	84.99	48.72	13.26	24.90	0.24	BDL*	BDL*
18	29/11/2016	76.31	42.47	7.93	18.45	0.65	BDL*	BDL*
19	02/12/2016	91.18	52.47	7.18	31.32	0.52	BDL*	BDL*
20	06/12/2016	84.61	47.47	11.89	20.88	0.44	BDL*	BDL*
21	09/12/2016	96.33	44.56	15.75	24.60	0.25	BDL*	BDL*
22	13/12/2016	72.59	36.64	18.62	38.63	0.58	BDL*	BDL*
23	16/12/2016	55.73	23.74	20.61	30.02	0.72	BDL*	BDL*
24	20/12/2016	62.17	26.65	16.68	35.50	0.50	BDL*	BDL*
25	23/12/2016	80.27	38.73	19.69	40.10	0.94	BDL*	BDL*
26	27/12/2016	75.32	35.40	13.78	33.65	0.66	BDL*	BDL*
27	30/12/2016	59.38	22.49	10.37	26.63	0.82	BDL*	BDL*
28	03/01/2017	56.78	30.40	15.27	21.67	0.57	BDL*	BDL*
29	06/01/2017	82.38	50.39	18.87	24.21	0.87	BDL*	BDL*
30	10/01/2017	69.61	32.48	17.01	34.68	0.64	BDL*	BDL*

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

PUB/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	13/01/2017	73.39	41.64	12.17	38.49	0.38	BDL*	BDL*
32	17/01/2017	81.33	45.73	6.45	27.63	0.73	BDL*	BDL*
33	20/01/2017	49.71	28.73	9.92	22.41	0.70	BDL*	BDL*
34	24/01/2017	68.19	31.65	13.18	33.74	0.82	BDL*	BDL*
35	27/01/2017	83.37	42.47	19.27	35.15	0.23	BDL*	BDL*
36	31/01/2017	52.63	23.32	14.41	30.58	0.49	BDL*	BDL*
37	03/02/2017	73.58	40.39	15.12	26.22	0.84	BDL*	BDL*
38	07/02/2017	55.73	31.65	12.06	36.71	0.58	BDL*	BDL*
39	10/02/2017	62.67	27.48	16.97	41.53	0.46	BDL*	BDL*
40	14/02/2017	51.20	22.49	10.65	27.79	0.80	BDL*	BDL*
41	17/02/2017	88.27	52.47	18.90	31.46	0.36	BDL*	BDL*
42	21/02/2017	71.29	44.56	21.36	39.62	0.21	BDL*	BDL*
43	24/02/2017	82.51	38.73	8.78	29.37	0.62	BDL*	BDL*
44	28/02/2017	77.80	34.56	19.36	25.05	0.79	BDL*	BDL*
45	03/03/2017	76.49	27.48	17.73	26.49	0.25	BDL*	BDL*
46	07/03/2017	57.59	24.57	9.85	21.98	0.58	BDL*	BDL*
47	10/03/2017	86.47	31.65	15.11	38.15	0.53	BDL*	BDL*
48	14/03/2017	60.31	33.73	14.01	23.84	0.62	BDL*	BDL*
49	17/03/2017	74.32	46.64	8.98	29.44	0.31	BDL*	BDL*
50	21/03/2017	63.60	29.57	19.94	42.39	0.34	BDL*	BDL*
51	24/03/2017	58.89	22.49	10.60	33.38	0.45	BDL*	BDL*
52	28/03/2017	70.42	34.56	7.25	18.84	0.47	BDL*	BDL*
53	31/03/2017	81.20	30.40	16.90	32.64	0.15	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-3

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

AIR STRIP								
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	01/10/2016	63.59	30.41	11.83	22.67	0.31	BDL*	BDL*
2	05/10/2016	79.41	42.49	7.15	19.28	0.16	BDL*	BDL*
3	08/10/2016	67.59	37.49	12.62	25.43	0.48	BDL*	2.26
4	12/10/2016	56.80	29.57	5.54	15.68	0.15	BDL*	BDL*
5	15/10/2016	45.62	26.72	13.71	23.57	0.44	BDL*	BDL*
6	19/10/2016	68.32	32.49	10.32	26.28	0.60	BDL*	BDL*
7	22/10/2016	52.80	27.49	6.20	18.37	0.34	BDL*	BDL*
8	26/10/2016	84.20	50.40	15.78	35.60	0.18	BDL*	BDL*
9	28/10/2016	58.19	23.74	9.56	21.43	0.40	BDL*	2.06
10	02/11/2016	85.71	32.49	9.68	17.51	0.13	BDL*	BDL*
11	05/11/2016	69.29	39.57	13.33	21.51	0.25	BDL*	BDL*
12	09/11/2016	50.80	22.49	11.51	25.31	0.37	BDL*	BDL*
13	12/11/2016	65.77	37.49	8.00	35.62	0.32	BDL*	BDL*
14	16/11/2016	80.38	43.74	17.71	30.47	0.15	BDL*	BDL*
15	19/11/2016	57.53	24.58	14.30	33.51	0.39	BDL*	BDL*
16	23/11/2016	62.38	35.41	6.20	16.87	0.23	BDL*	BDL*
17	26/11/2016	77.47	41.65	10.33	22.50	0.11	BDL*	BDL*
18	30/11/2016	53.71	27.49	15.89	32.11	0.48	BDL*	BDL*
19	03/12/2016	52.80	24.58	15.78	36.34	0.52	BDL*	BDL*
20	07/12/2016	45.71	20.41	20.52	38.23	0.22	BDL*	BDL*
21	10/12/2016	62.50	35.41	7.89	24.79	0.33	BDL*	BDL*
22	14/12/2016	76.80	37.49	14.12	20.37	0.16	BDL*	BDL*
23	17/12/2016	55.53	30.41	11.92	30.25	0.41	BDL*	BDL*
24	21/12/2016	70.32	34.57	7.04	18.69	0.23	BDL*	BDL*
25	24/12/2016	65.29	23.74	18.27	23.34	0.19	BDL*	BDL*
26	28/12/2016	84.62	46.65	16.83	28.47	0.36	BDL*	BDL*
27	31/12/2016	58.68	26.66	10.59	15.54	0.27	BDL*	BDL*
28	04/01/2017	46.19	25.41	13.64	31.58	0.54	BDL*	BDL*
29	07/01/2017	62.62	29.57	8.92	17.61	0.30	BDL*	BDL*
30	11/01/2017	82.38	36.66	16.83	26.30	0.21	BDL*	BDL*

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

AIR STRIP								
Sr. No.	Date of Sampling	Particulate Matter (PM10) µg/m^3	Particulate Matter (PM 2.5) µg/m^3	Sulphur Dioxide (SO2) µg/m^3	Oxides of Nitrogen (NO2) µg/m^3	Carbon Monoxide as CO mg/m^3	Hydrocarbon as CH_4 mg/m^3	Benzene as C_6H_6 µg/m^3
31	14/01/2017	51.40	21.66	17.83	34.36	0.69	BDL*	BDL*
32	18/01/2017	74.62	42.58	8.90	30.61	0.33	BDL*	BDL*
33	21/01/2017	65.53	27.49	10.43	24.98	0.45	BDL*	BDL*
34	25/01/2017	58.32	20.41	14.40	21.21	0.37	BDL*	BDL*
35	28/01/2017	77.59	40.40	18.52	29.70	0.48	BDL*	BDL*
36	01/02/2017	59.29	28.74	15.12	24.61	0.18	BDL*	BDL*
37	04/02/2017	48.49	18.74	9.78	18.57	0.39	BDL*	BDL*
38	08/02/2017	72.80	32.49	11.44	21.52	0.15	BDL*	BDL*
39	11/02/2017	52.62	24.58	13.56	32.58	0.48	BDL*	BDL*
40	15/02/2017	65.71	30.41	5.56	16.25	0.25	BDL*	BDL*
41	18/02/2017	56.31	27.49	7.92	19.20	0.30	BDL*	BDL*
42	22/02/2017	41.58	17.49	17.49	28.27	0.41	BDL*	BDL*
43	25/02/2017	54.31	31.66	6.34	20.86	0.31	BDL*	BDL*
44	01/03/2017	50.62	28.74	10.59	28.66	0.60	BDL*	BDL*
45	04/03/2017	42.80	18.74	17.59	32.40	0.31	BDL*	BDL*
46	08/03/2017	56.80	23.74	13.19	21.10	0.74	BDL*	BDL*
47	11/03/2017	61.29	31.66	6.42	25.58	0.33	BDL*	BDL*
48	15/03/2017	70.38	26.66	15.88	29.63	0.29	BDL*	BDL*
49	18/03/2017	64.20	33.74	11.51	33.47	0.24	BDL*	BDL*
50	22/03/2017	77.41	43.74	9.59	20.68	0.52	BDL*	BDL*
51	25/03/2017	67.41	25.41	5.58	16.82	0.48	BDL*	BDL*
52	29/03/2017	73.77	38.74	12.79	26.53	0.63	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-3

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

NEAR SHANTIVAN COLONY'S STP					
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
1	03/10/2016	69.57	37.41	9.76	42.70
2	06/10/2016	50.61	20.37	18.42	30.44
3	10/10/2016	79.30	42.40	13.62	29.49
4	13/10/2016	68.58	38.66	10.75	24.54
5	17/10/2016	72.59	18.71	23.53	31.61
6	20/10/2016	67.29	39.49	27.95	38.46
7	24/10/2016	52.27	26.61	6.19	18.64
8	27/10/2016	81.58	44.48	14.32	21.45
9	30/10/2016	71.17	33.67	19.39	28.31
10	03/11/2016	64.52	29.52	12.38	18.39
11	07/11/2016	75.60	40.74	8.09	32.64
12	10/11/2016	56.70	30.76	5.40	19.49
13	14/11/2016	78.31	37.41	19.65	26.21
14	17/11/2016	50.11	23.70	15.19	29.38
15	21/11/2016	72.40	34.50	14.20	33.35
16	24/11/2016	86.07	39.49	24.12	23.46
17	28/11/2016	69.32	27.44	17.20	34.52
18	01/12/2016	70.49	37.41	10.45	27.15
19	05/12/2016	62.80	33.67	8.82	15.79
20	08/12/2016	52.58	21.62	12.69	21.26
21	12/12/2016	69.57	30.76	15.92	34.14
22	15/12/2016	88.72	51.55	21.51	39.29
23	19/12/2016	77.51	43.65	18.70	31.57
24	22/12/2016	50.30	29.52	6.19	25.49
25	26/12/2016	80.28	46.56	20.75	38.10
26	29/12/2016	65.63	23.70	13.49	29.47
27	02/01/2017	56.89	25.36	11.37	25.51
28	05/01/2017	69.32	42.40	7.17	14.24
29	09/01/2017	49.31	22.45	5.68	17.24
30	12/01/2017	53.56	27.44	10.90	28.27

Continue …

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF AMBIENT AIR QUALITY MONITORING

NEAR SHANTIVAN COLONY'S STP					
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**
31	16/01/2017	42.60	20.37	8.90	19.60
32	19/01/2017	60.40	30.35	14.57	21.25
33	23/01/2017	71.17	41.57	16.29	26.14
34	26/01/2017	66.55	28.68	6.50	30.18
35	30/01/2017	52.58	19.54	9.74	18.49
36	02/02/2017	60.27	28.68	16.14	24.90
37	06/02/2017	46.48	20.37	12.83	31.48
38	09/02/2017	56.58	25.36	19.44	28.19
39	13/02/2017	68.58	32.43	7.31	33.19
40	16/02/2017	73.39	39.49	17.58	22.32
41	20/02/2017	50.30	22.45	14.35	25.84
42	23/02/2017	65.69	37.41	11.23	35.30
43	27/02/2017	58.30	19.54	9.80	21.56
44	02/03/2017	67.41	29.52	15.32	30.33
45	06/03/2017	50.30	21.62	13.66	21.60
46	09/03/2017	75.60	37.41	17.92	19.70
47	13/03/2017	68.58	33.67	11.33	24.35
48	16/03/2017	86.38	26.61	14.42	22.31
49	20/03/2017	56.83	23.70	7.14	25.39
50	23/03/2017	82.31	40.74	12.50	17.09
51	27/03/2017	53.62	16.63	9.92	27.98
52	30/03/2017	44.57	15.38	5.41	12.82
	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)**

*Below detection limit

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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	07/10/2016	08/11/2016	06/12/2016	20/01/2017	17/02/2017	17/03/2017
1	6:00-7:00	58.4	61.9	58.1	59.2	64.2	68.3
2	7:00-8:00	62.4	62	65.1	62.4	67.1	64.4
3	8:00-9:00	65.4	60.7	68.4	62.8	67.8	62.4
4	9:00-10:00	62.5	63.5	61.4	68.4	66.3	68.4
5	10:00-11:00	69.8	69.8	63.4	68.1	70.3	64.4
6	11:00-12:00	72.8	72.5	66.4	63.4	68.3	64.2
7	12:00-13:00	71.6	71.5	62.1	69.8	63.5	68.5
8	13:00-14:00	69.4	65.3	70.4	72.4	67.3	68.4
9	14:00-15:00	70.4	64.8	68.1	74.8	63.6	68.9
10	15:00-16:00	65.1	64.5	65.4	69.8	65.2	72.5
11	16:00-17:00	63.4	68.8	63.4	67.1	68.4	65.3
12	17:00-18:00	62.8	63.4	66.8	62.4	64.2	63.9
13	18:00-19:00	69.4	67.9	62.8	60.4	67.3	66.8
14	19:00-20:00	67.1	71.2	69.1	63.1	70.2	65.4
15	20:00-21:00	65.1	70.8	66.4	61.7	65.2	68.3
16	21:00-22:00	63.2	61.9	62.8	65.4	64.5	64.4
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	07/10/2016	08/11/2016	06/12/2016	20/01/2017	17/02/2017	17/03/2017
2	22:00-23:00	65.1	62.9	67.1	63.4	67.3	67.4
3	23:00-00:00	68.1	66.1	65.4	61.7	64.2	65.7
4	00:00-01:00	62.4	63.4	60.4	66.4	65.3	62.5
5	01:00-02:00	59.4	60.8	65.8	59.4	62.1	60.5
6	02:00-03:00	62.1	61.4	64.1	62.1	67.3	64.2
7	03:00-04:00	63.1	63.5	63.8	65.1	66.3	62.7
8	04:00-05:00	62.4	65.8	59.4	62.8	63.9	65.7
9	05:00-06:00	61.7	63.8	60.4	61.8	61.5	63.5
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
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)]					
	Sampling Date & Time	14/10/2016	11/11/2016	23/12/2016	10/01/2017	14/02/2017	14/03/2017
1	6:00-7:00	66.4	66.9	68.4	68.4	68.4	65.4
2	7:00-8:00	61.4	68.7	65.4	70.4	65	66.3
3	8:00-9:00	68.4	65.4	62.4	65.4	67.3	66.9
4	9:00-10:00	70.4	70	68.1	65.1	63.5	67.4
5	10:00-11:00	69.4	71.4	61.5	69.8	74.2	63.2
6	11:00-12:00	65.4	70.9	73.4	65.2	71.3	62.4
7	12:00-13:00	65.8	67.4	70.4	68.4	69.3	67.4
8	13:00-14:00	62.4	64.5	68.1	71.8	67.1	65.3
9	14:00-15:00	61.7	72.4	66.4	71.4	70.3	62.5
10	15:00-16:00	67.8	71.9	67.4	69.1	65.2	68.4
11	16:00-17:00	62.8	70.6	62.4	63.4	61.3	68.3
12	17:00-18:00	69.4	65.3	63.8	62.8	63.2	68.7
13	18:00-19:00	65.1	64.8	68.4	68.1	65.3	64.3
14	19:00-20:00	66.8	70.2	66.4	62.8	68.2	62.7
15	20:00-21:00	63.7	62.9	62.8	65.1	60.1	65.8
16	21:00-22:00	67.4	66.9	65.1	66.9	65.2	63.6
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	14/10/2016	11/11/2016	23/12/2016	10/01/2017	14/02/2017	14/03/2017
2	22:00-23:00	62.1	67.9	68.4	67.2	63.2	63.2
3	23:00-00:00	60.4	63.4	65.1	65.1	65.3	59.4
4	00:00-01:00	58.1	60.9	65.8	62.1	69.3	60.3
5	01:00-02:00	56.4	64.3	65.3	65.8	69.4	60.3
6	02:00-03:00	62.1	62.7	60.4	61.7	67.3	65.3
7	03:00-04:00	61.2	68.8	63.4	61.4	67.3	62.3
8	04:00-05:00	63.4	63.2	68.4	61.4	69.3	60.2
9	05:00-06:00	64.1	61.3	62.4	62.8	65.4	62.4
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF NOISE LEVEL MONITORING

Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	PUB/ADANI HOUSE					
		Result [Leq dB(A)]					
	Sampling Date & Time	04/10/2016	01/11/2016	20/12/2016	03/01/2017	10/02/2017	21/03/2017
1	6:00-7:00	62.4	62.8	62.5	63.4	65.3	60.3
2	7:00-8:00	65.1	63.5	66.4	60.4	67.8	63.4
3	8:00-9:00	62.4	68.4	69.4	68.4	67.3	62.3
4	9:00-10:00	65.7	64.9	62.4	65.1	70.2	67.4
5	10:00-11:00	67.1	71.2	72.1	72.4	72.3	65.6
6	11:00-12:00	62.8	73.1	70.8	70.5	66.4	68.4
7	12:00-13:00	68.1	67.4	65.4	65.8	66.9	70.4
8	13:00-14:00	63.1	68.6	62.4	63.4	69.3	65.3
9	14:00-15:00	65.1	62.9	68.4	61.5	65.3	69.4
10	15:00-16:00	72.4	66.8	66.4	68.4	63	69.7
11	16:00-17:00	69.4	68.9	63.4	70.4	64.1	67.3
12	17:00-18:00	68.1	65.8	65.1	67.1	62.3	65.3
13	18:00-19:00	65.4	66.1	61.7	67.8	62.4	63.8
14	19:00-20:00	66.1	67.5	68.4	65.1	60.2	64.3
15	20:00-21:00	68.1	67.3	66.7	61.4	64.2	67.4
16	21:00-22:00	62.8	62.8	62.4	62.8	65.1	63.8
Day Time Limit*		75 Leq dB(A)					

Result of Noise level monitoring [Night Time]

SR. NO.	Name of Location	PUB/ADANI HOUSE					
		Result [Leq dB(A)]					
1	Sampling Date & Time	04/10/2016	01/11/2016	20/12/2016	03/01/2017	10/02/2017	21/03/2017
2	22:00-23:00	62.1	64.8	65.4	65.1	67.3	67.4
3	23:00-00:00	66.4	65.3	63.4	61.5	67.1	68.3
4	00:00-01:00	62.4	61.4	63.8	63.4	64.2	63.2
5	01:00-02:00	58.7	60.9	68.4	59.5	65.3	60.1
6	02:00-03:00	54.1	62.7	61.4	60.4	68.2	60.4
7	03:00-04:00	59.2	61.7	63.7	60.8	67.2	62.4
8	04:00-05:00	60.4	62	60.4	65.4	62.8	65.3
9	05:00-06:00	61.7	64.8	62.4	64.2	65.4	63.6
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF NOISE LEVEL MONITORING

Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	AIRSTRIP					
		Result [Leq dB(A)]					
	Sampling Date & Time	26/10/2016	16/11/2016	21/12/2016	05/01/2017	21/02/2017	15/03/2017
1	6:00-7:00	50.4	54	52.4	52.1	52.4	54.3
2	7:00-8:00	52.4	65.5	56.1	55.1	55.6	51.3
3	8:00-9:00	61.4	61.3	56.4	59.1	61.3	58.4
4	9:00-10:00	59.8	58.9	62.1	62.4	59.5	60.3
5	10:00-11:00	63.4	62.3	59.4	60.4	62.3	62.4
6	11:00-12:00	65.1	54.8	63.4	65.4	55.3	65.3
7	12:00-13:00	62.4	62.8	62.4	62.4	59.5	63.2
8	13:00-14:00	61.8	68.4	62.9	63.8	60.3	68.3
9	14:00-15:00	64.7	57.8	66.4	65.8	60.8	68.3
10	15:00-16:00	68.1	59.3	65.4	68.4	61.4	65.3
11	16:00-17:00	66.4	60	62.7	62.4	58.3	64.2
12	17:00-18:00	67.1	59.6	59.4	61.7	57.3	65.2
13	18:00-19:00	62.4	64.8	59.1	61.5	57.2	61.3
14	19:00-20:00	65.4	61.6	63.4	64.8	57.3	64.2
15	20:00-21:00	63.8	62	61.4	68.4	62.4	63.2
16	21:00-22:00	61.8	65.7	61.7	62.4	60.1	65.3
Day Time Limit*		75 Leq dB(A)					

Result of Noise level monitoring [Night Time]

SR. NO.	Name of Location	AIRSTRIP					
		Result [Leq dB(A)]					
1	Sampling Date & Time	26/10/2016	16/11/2016	21/12/2016	05/01/2017	21/02/2017	15/03/2017
2	22:00-23:00	58.1	52.1	56.1	56.4	56.4	59.4
3	23:00-00:00	56.4	51.9	58.4	50.7	52.4	54.4
4	00:00-01:00	54.1	50	51.4	57.1	46.6	54.8
5	01:00-02:00	50.4	54.8	51.8	48.7	48.4	58.3
6	02:00-03:00	58.1	54.2	46.5	52.1	48.4	50.3
7	03:00-04:00	52.4	55.7	47.1	52.9	53.4	50.2
8	04:00-05:00	57.1	52.9	50.4	58.1	55.6	51.4
9	05:00-06:00	55.8	55.1	51.8	61.7	58.8	56.4
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF NOISE LEVEL MONITORING

Result of Noise level monitoring [Day Time]

SR. NO.	Name of Location	NEAR SHANTIVAN STP					
		Result [Leq dB(A)]					
	Sampling Date & Time	20/10/2016	21/11/2016	16/12/2016	23/01/2017	23/02/2017	27/03/2017
1	6:00-7:00	56.1	58.9	56.1	59.4	58.3	58.3
2	7:00-8:00	62.4	59.6	59.7	62.4	60.1	56.5
3	8:00-9:00	59.4	65.4	62.4	63.8	60.4	63.5
4	9:00-10:00	60.8	68.6	62.5	69.8	64.2	68.4
5	10:00-11:00	68.4	64.3	69.5	74.1	67.2	65.2
6	11:00-12:00	65.4	67.5	65.4	70.4	65.2	61.3
7	12:00-13:00	68.1	68.3	62.4	62.5	68.2	67.4
8	13:00-14:00	65.2	68.9	70.4	68.7	67.2	68.3
9	14:00-15:00	65.1	70.1	63.4	68.1	68.7	65.2
10	15:00-16:00	62.8	71.6	68.1	65.2	66.2	64.2
11	16:00-17:00	68.1	70.8	66.4	62.5	62.1	68.9
12	17:00-18:00	62.4	68.4	62.8	65.1	67.2	65.3
13	18:00-19:00	69.4	65.3	59.8	61.4	65.3	66.7
14	19:00-20:00	65.8	69	62.4	63.8	65.1	69.3
15	20:00-21:00	64.2	68.4	58.1	65.4	63.1	62.4
16	21:00-22:00	62.7	67.6	56.8	64.8	64.2	65.7
Day Time Limit*		75 Leq dB(A)					

Result of Noise level monitoring [Night Time]

SR. NO.	Name of Location	NEAR SHANTIVAN STP					
		Result [Leq dB(A)]					
1	Sampling Date & Time	20/10/2016	21/11/2016	16/12/2016	23/01/2017	23/02/2017	27/03/2017
2	22:00-23:00	63.4	60.1	62.4	65.4	61.2	64.3
3	23:00-00:00	61.2	61.2	55.4	62.1	65.3	62.4
4	00:00-01:00	59.4	58.4	58.1	58.4	65.8	60.5
5	01:00-02:00	57.1	57.3	57.1	58.1	66.4	62.6
6	02:00-03:00	60.4	63.8	57.9	58.6	62.3	58.3
7	03:00-04:00	63.1	68.9	60.4	60.4	65.1	61.7
8	04:00-05:00	58.1	62.4	61.4	63.7	61.3	63.5
9	05:00-06:00	62.1	60.1	61.8	61.5	61.6	62.7
Night Time Limit*		70 Leq dB(A)					

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

RESULT OF STACK MONITORING

SR. NO.	TEST PARAMETERS	UNIT	STD. LIMIT	THERMIC FLUID HEATER (BITUMEN)	HOT WATER SYSTEM-1	HOT WATER SYSTEM-2	TEST METHOD
				OCTOBER 16			
1	Particulate Matter	mg/Nm^3	**150**	14.63	25.82	21.57	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	5.99	9.59	7.62	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	32.40	33.31	35.47	IS:11255 (Part-VII):2005
				NOVEMBER 16			
1	Particulate Matter	mg/Nm^3	**150**	22.83	32.75	27.63	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	4.02	7.51	8.61	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	31.27	39.76	33.52	IS:11255 (Part-VII):2005
				DECEMBER 16			
1	Particulate Matter	mg/Nm^3	**150**	15.80	28.60	---	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	3.20	5.65	---	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	27.94	34.43	---	IS:11255 (Part-VII):2005
				JANUARY 17			
1	Particulate Matter	mg/Nm^3	**150**	11.72	---	---	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	4.80	---	---	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	35.83	---	---	IS:11255 (Part-VII):2005
				FEBRUARY 17			
1	Particulate Matter	mg/Nm^3	**150**	---	---	---	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	---	---	---	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	---	---	---	IS:11255 (Part-VII):2005
				MARCH 17			
1	Particulate Matter	mg/Nm^3	**150**	18.62	34.34	29.34	IS:11255 (Part-I):1985
2	Sulfur dioxide	ppm	**100**	5.75	6.57	8.54	IS:11255 (Part-II):1985
3	Oxides of Nitrogen	ppm	**50**	31.56	39.60	34.50	IS:11255 (Part-VII):2005

*Below detection limit
Results on 11 % O2 Correction when Oxygen is greater than 11 %.

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

MINIMUM DETECTION LIMIT [MDL]

Water parameter(mg/L)

Sr. No.	Test parameter	MDL
1	Total Suspended Solids	1
2	Oil & Grease	1
3	BOD	3
4	COD	5
5	Total Dissolved Solids	3
6	Sulphate	0.3
7	Ammonical Nitrogen	0.05
8	Nickel	0.01
9	Phenolic Compound	0.001
10	Fluoride	0.01
11	Copper	0.013
12	Sulphide	0.01
13	Cyanide	0.0001
14	Residual Chlorine	0.1
15	Boron	0.02
16	Insecticides/Pesticides	0.01
17	Nitrate Nitrogen	0.15
18	Phosphorous	0.15
19	Petroleum Hydrocarbon	0.01
20	Lead	0.005
21	Mercury	0.0005
22	Zinc	0.022
23	Cadmium	0.001
24	Arsenic	0.00015
Sediment parameter(mg/kg)		
1	Petroleum Hydrocarbon	0.2

Stack parameter		
Sr. No.	**Test parameter**	**MDL**
1	Particulate Matter (mg/Nm3)	10
2	Sulphur Dioxide(ppm)	1.52
3	Oxides of Nitrogen (ppm)	2.65

Ambient Air Parameter		
1	Particulate Matter (PM10)	10
2	Particulate Matter (PM 2.5)	10
3	Sulphur Dioxide (SO2) (µg/m3)	5
4	Oxides of Nitrogen (NO2) (µg/m3)	5
5	Benzene as C6H6 (µg/m3)	2
6	Carbon Monoxide as CO (mg/m3)	0.1
7	Hydrocarbon as CH4 (mg/m3)	0.15
8	Hydrogen Sulphide (H2S) (µg/m3)	6

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. ArunBajpai
Lab Manager (Q)

RESULTS OF BORE HOLE WATER

SR. NO	TEST PARAMETERS	UNIT	RESULTS					TEST METHOD
			OPP. DRUB RAILWAY STATION		NEAR PUB BUILDING		SEZ MAIN GATE NEAR FLYOVER BRIDGE	
	GPS Location		N 22° 43.073' S 069° 39.861'		N 22° 46.761' S 069° 40.999'		N 22° 48.446' S 069° 42.238'	
	Sampling Date		18/10/2016	18/01/2017	18/10/2016	18/01/2017	18/10/2016	
	Sampling Time		10:45	11:25	10:25	11:50	9:50	
	Status of Tide		L-09:17 & 1.51 m L-21:27 & 0.67 m	H-10:48 & 4.91 m L-16:52 & 2.17 m	L-09:17 & 1.51 m L-21:27 & 0.67 m	H-10:48 & 4.91 m L-16:52 & 2.17 m	L-09:17 & 1.51 m L-21:27 & 0.67 m	
1	pH	--	7.57	7.92	7.95	8.11	7.48	IS3025(P11)83Re.02
2	Salinity	mg/L	15.24	22.20	4.58	5.37	0.194	APHA 2520B
3	Oil & Grease	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	APHA(22nd Edi)5520D
4	Hydrocarbon	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	GC/GC-MS
5	Lead as Pb	mg/L	0.011	0.012	BDL*	BDL*	BDL*	AAS APHA(22nd Edi)3111 B
6	Arsenic as As	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA 3114 B
7	Nickel as Ni	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA(22nd Edi)3111 B
8	Total Chromium as Cr	mg/L	0.02	0.019	0.022	0.018	BDL*	AAS 3111B
9	Cadmium as Cd	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA(22nd Edi)3111 B
10	Mercury as Hg	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA- 3112 B
11	Zinc as Zn	mg/L	0.104	0.93	0.056	0.047	BDL*	AAS APHA(22nd Edi)3111 B
12	Copper as Cu	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	AAS APHA(22nd Edi)3111 B
13	Iron as Fe	mg/L	0.098	0.083	0.48	0.37	0.024	AAS APHA(22nd Edi)3111 B
14	Insecticides/Pesticides	mg/L	BDL*	BDL*	BDL*	BDL*	BDL*	GC/GC-MS
15	Depth of Water Level from Ground Level	meter	1.75	1.90	2.20	1.82	2.40	--

H. T. Shah
Lab Manager

POLLUCON LABORATORIES PVT. LTD. SURAT-3

Dr. Arun Bajpai
Lab Manager (Q)

Annexure – 3

Details of Greenbelt development at APSEZ, Mundra

LOCATION	Total Green Zone Detail Till Up to March - 2017				
	Area (In Ha.)	Trees (Nos.)	Palm (Nos.)	Shrubs (SQM)	Lawn (SQM)
SV COLONY	61.09	28287.00	6965.00	50020.00	80069.00
PORT & NON SEZ	71.96	124946.00	18613.00	62986.78	58455.18
SEZ	94.01	158335.00	15924.00	250449.60	27462.03
MITAP	2.48	8168.00	33.00	1670.00	4036.00
WEST PORT	81.34	181827.00	50221.00	24112.00	22854.15
AGRO- PARK	7.52	17244.00	1332.00	5400.00	2121.44
SOUTH PORT	14.08	25150.00	3430.00	3882.00	4826.97
Samundra Township	48.62	24602.00	12505.00	19978.07	35071.67
Productive Farming (Vadala Farm)	15.69	19336.00	0.00	0.00	0.00
TOTAL (APSEZL)	**396.79**	**587895.00**	**109023.00**	**418498.45**	**234896.44**
		696918.00			

❖ Within Adani Ports & SEZ

adani™

❖ **Within Residential Township (Samudra and Shantivan)**

❖ **Within CETP Premises**

adani™

Details of Mangrove Afforestation carried out by APSEZ (Up to March 2017)

S. NO.	Location	FY	Area (Hectare)	Clearance Reference	Plantation/Gap Filling	Species
A.1	Mundra Port Area (Mundra, Kutch)		24.00	Environment Clearace - Mundra (J-16011/13/95-IA.III dated 25 August 1995)	Plantation	Avicennia marina
Total Plantation			**24.00**			
B.1	Mundra Port Area (Mundra, Kutch)		25.00	Environment Clearace - Mundra (J-16011/30/2003-IA.III dated 21 July 2004)	Plantation	Avicennia marina
Total Plantation			**25.00**			
C.1	Luni/Hamiramora (Mundra, Kutch)	2007-08	40.00	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina Rhizophora mucronata Ceriops tagal
C.2		2009-10	10.00		Gap Filling Work	
C.3		2010-11	10.00		Gap Filling Work	
C.4		2011-12	95.40		Plantation	
C.5		2012-13	25.40		Plantation	
C.6		2013-14-15	70.00		Gap Filling Work	
Total Plantation (C.1+C.4+C.5)			**160.80**			
D.1	Kukadsar (Mundra, Kutch)	2012-13	66.50	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina
D.2		2013-14	10.00		Gap Filling Work	Avicennia marina
Total Plantation (D.1)			**66.50**			
E.1	Forest Area (Mundra)	2011-12	50.00	Forest Clearance - Mundra (F.No. 8-2/1999-FC (pt) dated 27 February 2009)	Plantation	Avicennia marina
E.2		2012-13	248.00		Plantation	Avicennia marina
Total Plantation (E.1+E.2)			**298.00**			

S. NO.	Location	FY	Area (Hectare)	Clearance Reference	Plantation/Gap Filling	Species
F.1	Jangi village (Bhachau, Kutch)	2012-13	50.00	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina
F.2		2013-14	20.00		Gap Filling Work	Avicennia marina
Total Plantation (F.1)			**50.00**			
G.1	Jakhau Village (Abdasa, Kutch)	2007-08	40.10	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina Rhizophora mucronata Ceriops tagal
G.2		2008-09	10.00		Gap Filling Work	
G.3		2009-10	10.00		Gap Filling Work	
G.4		2011-12	50.00	Environment Clearance - Dahej (11-37/2007-IA-III dtd 11 November, 2008)	Plantation	
G.5		2013-14	20.00		Gap Filling Work	
G.6		2012-13	30.00		Gap Filling Work	
G.7		2012-13	20.50	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	
G.8		2012-13	200.00	Environment Clearance - Mundra (10-47/2008-IA.III dtd. 12th Jan,2009)	Plantation	
G.9		2013-14-15	50.00		Gap Filling Work	
Total Plantation (G.1 + G.4 + G.7 + G.8)			**310.60**			
H.1	Sat Saida Bet (Kutch)	2014-15	250.00	Commitment with KPT for 250 Ha. - Tuna (By undertaking dated 3 June, 2013)	Plantation	Avicennia marina
H.2	Sat Saida Bet (Kutch)	2016-17	5.00	Commitment with KPT for 5 Ha. Bio-Diversity- Tuna.	In Progress.	Bio Diversity (Three Var.)
H.3	AKBTPL, Tuna Area	2016-17	30.00		Gap Filling Work-In Progress	Avicennia marina
Total Plantation			**255.00**			

S. NO.	Location	FY	Area (Hectare)	Clearance Reference	Plantation/Gap Filling	Species
I.1	Village Dandi (Navsari)	2006-07	200.00	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina Rhizophora mucronata Ceriops tagal
I.2		2007-08	100.00		Plantation	
I.3		2007-08	100.00	Environment Clearance - Dahej (11-37/2007-IA-III dtd 11 November, 2008)	Plantation	
I.4		2008-09	200.00	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	
I.5		2010-11	200.00		Plantation	
Total Plantation (I.1 + I.2 + I.3 + I.4 + I.5)			**800.00**			
J.1	Village Talaza (Bhavnagar)	2011-12	50.00	Environment Clearance - Dahej (11-37/2007-IA-III dtd 11 November, 2008)	Plantation	Avicennia marina
J.2	Village Narmada (Bhavnagar)	2014-2015	250.00	CRZ Recommendation - Mundra (Env-10-2005-222-P dated 12 October, 2006)	Plantation	Avicennia marina
Total Plantation (J.1 + J.2)			**300.00**			
K.1	Village Malpur (Bharuch)	2012-13-14	200.00	CRZ Recommendation - Dahej ENV-10-2006-71-P dtd 29th May, 2007	Plantation	Avicennia marina
K.2	Village Kantiyajal (Bharuch)	2014-15	50.00	CRZ Recommendation - Hazira ENV-10-2012-30-E dtd 11th May,2012	Plantation	Avicennia marina
K.3	Village Devla Bharuch	2014-15	50.00		Plantation	Avicennia marina
K.4	Village Devla Bharuch	2015-16	100.00		Plantation	Avicennia marina
Total Plantation (K.1 + K.2 + K.3 + K.4)			**400.00**			
L.1	Village Tada Talav (Khambat, Anand)	2015-16	100.00	Environment and CRZ clearance - Mundra SEZ (10-138/2008/IA.III dated 15 July 2014)	Plantation	Avicennia marina
L.2	Village Tada Talav (Khambat, Anand)	2015-16	100.00		Plantation	Avicennia marina
Total Plantation (L.1 + L.2)			**200.00**			
G. Total (Plantation+ Gapfilling)			**2889.90**			

Dandi

Hamiramora

Jakhau

Dandi

Annexure – 4

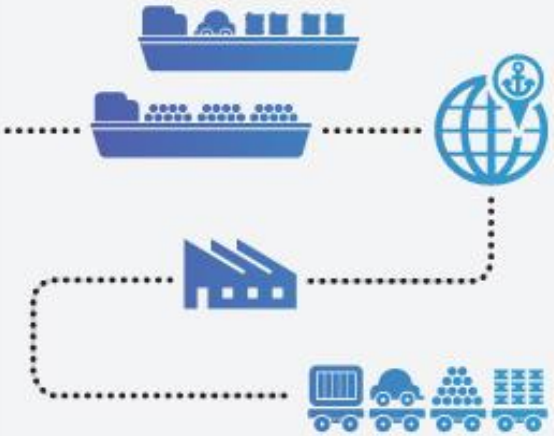
National Pollution Response Exercise (NATPOLREX)

Resources

Resources means obtaining coal from mines and trading; in future it will also include oil and gas production.

Logistics

Logistics denotes a large network of ports, SEZ and multi-modal logistics – railways and ships.



Energy

Energy involves power generation & transmission and gas distribution.

NATPOLREX-VI

- Mundra Port hosted the sixth edition of National Pollution Response Exercise (NATPOLREX-VI) organised by Indian Coast Guard on 21 Dec 2016.

- The event was graced by Hon'ble Chief Minister of Gujrat Shri Vijay Bhai Rupani.

Coast Guard holds drill to battle oil spills at Mundra

CM Attends 6th Edition Of Nat'l Pollution Response Exercise

Sarfaraz.Shaikh
@timesgroup.com

TOI

Eight coast guard ships, two ICG helicopters, two Dornier aircraft, one Indian navy ship, one IAF aircraft and several other vessels participated in the exercise

Mundra: To practice dealing with oil spills, the Indian Coast Guard conducted the sixth edition of National Pollution Response Exercise (NATPOLREX) on Wednesday about 10 nautical miles off the Mundra coast. Chief minister Vijay Rupani and DG, ICG, Rajendra singh, attended the occasion with representatives of various oil handling agencies of central and state government taking part in the drill.

The CM and the DG, ICG remained on board of 'Shakti' a 110-metre long coast guard vessel. The drill began with an oil carrier sending out message of an explosion on board resulting in rupture of oil tanks and injuries to people.

Eight coast guard ships, two ICG helicopters, two Dornier aircraft, one Indian navy ship, one IAF aircraft and several other vessels participated in the exercise.

Immediately, a coast guard ship with a boom, which accumulates oil spilled at sea, went to the spot. Other rescue vehicles including boats and choppers were sent in to help the injured and shift them to the closest port. At the same time, chemicals were sprinkled on the spilled oil to convert it into solid form enabling it to sink into the sea.

Rupani said Gujarat has the largest coastline (1600 km) among states, and has initiated Swachh Sagar Abhiyan along with Swachh Bharat Abhiyan. He added that the state has joined hands with defence forces to enhance border security on both land and sea.

"We will extend full cooperation in the Sagar Mala, a central government project for well-being of people living in coastal areas. I am happy about the way in which the ICG and other agencies conducted the drill," Rupani said.

It is worthy to note that oil resources transported through ships meet 70% of India's energy requirements. It is fraught with inherent risks and requires comprehensive accident prevention measures.

Security personnel from Australia, Sri Lanka and Mauritius witnessed the exercise at Mundra.

NATPOLREX-VI

NATPOLREX-VI

NATPOLREX-VI

Annexure – 5

Adani Foundation, Mundra

2016-17 ANNUAL REPORT

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

Index

Message from Head, Adani Foundation, Mundra....

The year 2016-17 has passed off with passion and courage to work for the commitment given to the community. It is essential that sustained growth is achieved at rural level along with the industrial development. This can be made possible by involving more and more people in the rural development programme.

This year conceded with more streamline procedure of grievance mechanism, milestone achievement in malnourishment project, considerable impact created by fisherman amenities projects and new era defined in agriculture projects.

The people of Kutch, especially that of Mundra, have generously supported the activities carried out by the Adani Group or else this wouldn't have been possible. Their determination, understanding and commitment have strengthened the development even more.

Our Achievement would not be possible without the ultimate support by Mr. Rakshit Shah, Executive Director - APSEZ and plentiful faith and passionate support by Dr. (Mrs.) Priti G Adani, Managing Trustee – Adani Foundation.

Mr. Mukesh Saxena
Head,
Adani Foundation

Community Health

It is not a coincidence that the first four letters of health is "Heal". Instilling health pursuing activities and ensuring availability of quality health care services to the remote areas is the objective of this sector. Committed to "Health for All" the Foundation runs Mobile Health Care Units, Rural Clinics, Special Innovative Projects i.e. Health Card to Senior Citizens, "Suposhan"- Fighting to Mal nourishment in Mundra and Kidney Stone 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 – One at Mundra and the other at Bitta. Main objective of Mobile Van is to reduce travel time, hardships and expenses. Two mobile health care units cover 29 villages at Mundra, 8 villages at Bitta and 06 fishermen settlements. Around 121 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.

The Adani Foundation operates Rural Dispensaries in 08 villages of Mundra block, 03 villages of Anjar block and at SEZ Gate. At these dispensaries, health services are provided free of charge for two hours daily by a doctor and a volunteer.

Sr.	Month	MHCU Month wise Data-2016/17	Rural Clinic OPD Data-2016/17
1	April	2714	2833
2	May	2873	2505
3	June	2947	3055
4	July	3262	3550
5	Aug.	3197	3712
6	Sep.	4384	3659
7	Oct.	2865	3631
8	Nov.	3890	3513
9	Dec.	4242	3513
10	Jan.	3936	3989
11	Feb.	4367	3790
12	March	3900	3200
	Total	42547	40950

Details of transaction

Sr.	Month	Sr.Citizen
1	April	677
2	May	648
3	June	698
4	July	757
5	Aug,	815
6	Sep.	822
7	Oct.	871
8	Nov.	742
9	Dec	808
10	Jan	833
11	Feb	896
12	March	800
	Total	9367

Health Cards to Senior Citizens

- Expected Outcome

Rapport building with families of old age persons and other stakeholders. 62 villages will be covered through this intervention.

District Civil Hospital in Bhuj will take care of all planned medical interventions. Only emergency and primary treatment cost will be incurred from Adani Hospital Mundra

- Expected Impact

Social security for old age persons (as health matters in old age). Building good image and long run relationship.

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 year 2016-17, total 9367 transactions were done by 7487 card holders of 66 villages of Mundra Taluka. They received cash less medical services under this project.

In Green Card category, 6665 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 822 Blue Card Holders can avail diagnosis facility and treatment at a subsidized rate in the Adani hospitals, Mundra.

Scheme is continue since six years and We are planning to extend the project for next three years period.

"Suposhan"

Basis of Requirement

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 Anaemia. Moreover anaemia prevalence in pregnant women is as high as 58.7%) Curbing Malnutrition was part of Millennium Development Goals and again focussed through second and third Sustainable Development Goals on Zero hunger and Good Health & Wellbeing respectively.

Sr. No.	Detail of Village & Work	No of total
1	Total village	61
2	Pending village	7
3	Villages in progress	54
4	Total sangini	28
5	Total Anganwadi in Mundra block	104
6	Total cover Anganwadi	86
7	Pending Anganwadi	20
8	Anthropometric study	7101
9	SAM children	22
10	MAM children	9
11	CMTC admitted	16
12	Total adolescent group	169
13	Reproductive women group	185
14	FGD	369
15	Hb testing(adole. girls and women)	2292
16	RUTF distribution	23
17	PRA	6
18	Camps-CMTC (SAM-MAM)	2
19	No. of beneficiaries	106
20	Total household survey	18185
21	family based counselling	83
22	Total events of project	95
23	Total sangini meeting	10
24	Total training	6

"Suposhan "

A child's entire life is determined in large measures by the food given to him/her during his/her first five years because childhood is the period of rapid growth and development. Nutrition is one of the most influencing factors in this period. Malnutrition substantially raises the risk of infant and child deaths, and increases the vulnerability to a variety of diseases in later life.

Project Suposhan is initiated with the objectives

- **Curb malnutrition amongst Children,**
- **Adolescent girls and Women in our CSR villages**
- **To reduce malnutrition and anaemia amongst adolescent girls and pregnant & lactating women by 70% in three years**
- **Reduction IMR and MMR**
- With combined efforts of Adani Foundation health team, ICDS and Child malnourishment treatment centre of GoG, we had identified 45 malnourished children and started intervention as per their illness. Now, 14 children reached to normal category and it is achievement of Adani Foundation. RUTF distribution done to 23 children and it really started to give magical results and positive response of parents for RUTF therapy has increased our enthusiasm.

- Adolescent girls group forming is in progress Total 169 groups are already formed. HB Testing completed for 2292 girls. We are getting good support in HB testing as the Touch HB machine is needle less capacity.
- Likewise more than 180 groups are formed for reproductive age group women. In this age group we are getting most appreciable response due to most of our Sangini are of the same age.

Implementation Strategy

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

•Total Number Aanganwadis in the selected area
•Information on Sub-centers/ Primary Health Centres/ Community Health centres/ Referral Hospitals
•Availability of Healthy worker- male & female both, ANMs, LHVs, Doctors, specialists such as Gynaecologist, Paediatricians, Pharmacist, Dietician Lab. Technician, Nursing Staff etc. at above centres (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 anaemic children/ adolescent girls and women (numbers & name as well as current level of malnutrition & anaemia 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 behavioural barriers

Expected Outputs

Community Health vertical at each location would focus on project on "Curbing Malnutrition amongst Children, Adolescent girls and Women "with combined approach of community management of Malnutrition and Anaemia and necessary medical treatment components.

- Each child and especially malnourished will be mapped with growth chart
- Regular inputs of RUTF treatment when necessary.
- FDGs with mothers and adolescent girls.
- Village meeting one in a month at every village
- Health camp every month
- Awareness campaigns.

Expected Outcomes

To reduce the occurrence of malnutrition amongst Children by 95 % in three years
•To reduce malnutrition and anaemia amongst adolescent girls and pregnant & lactating women by 70% in three years
•To create awareness about the issue of malnutrition and anaemia and related factors amongst all stakeholders and role they may play in curbing the issue
•To create a pool of resources to be utilised for combating the issue of Malnutrition and Anaemia
•To support efforts in reducing IMR and MMR

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.

In current month we organized two medical examination camps in which **Medical Support was given to 1413 People from Mundra, Bhadreshwar, Zarpara, Shekhadia Nana Mota Kapaya, Bhujpur, Vadala, Wandi and other villages under our work area.**

Medical Supports		
1	April	58
2	May	50
3	June	40
4	July	43
5	Aug.	95
6	Sep.	96
7	Oct.	85
8	Nov.	98
9	Dec.	166
10	Jan.	257
11	Feb.	225
12	March	200
	Total	**1413**

General Health Camp Data

Sr.no.	Month	Date	Place	Total Patinets
1	16-Apr	26827.04.2016	Tuna- Wandh Health Camp	74
2	16-Apr	15.4.2016	Samuh Sadi Mundra	81
3	16-Apr	9.4.2016	Ganesh mandir Mela	31
4	16-May	384.05.2016	Tuna- Wandh Health Camp	111
5	16-May	8.5.2016	Boliya Samuh Sadi	76
6	16-Jul	20.7.2016	Govt.School Health Camp-Bhadreshwar	178
7	16-Aug	16-Aug	Marin police through Medical Camp-Bhadreshwar	37
8	16-Aug	13 to 15.8.2016	Bharadi Mata Camp Navinal	100
9	16-Sep	2 to 9.9.2016	Shiv puran Katha Vandh	275
10	16-Oct	24.10.2016	Uras – Luni & Garib Kalyan Melo-Mundra	218
11	16-Dec	13.12.2016	Bukhari pir melo-Mundra	110
12	16-Dec	26.12.2016	Juna Bandar	53
13	17-Jan	27.01.2017	AVM-Bhadreswar	14
14	01-Feb	18.02.2017	Seth R.D. High school - Health Camp	210
	Total			**1568**

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 2016-17, 14 specialty camps were organized and 1568 Patients were benefitted.**

CALMED PROJECT- Collaborative Actions in Lowering Maternity Encounters Death

Adani Foundation has been looking after the health requirements of Mundra block for a long time. It has got a rich experience to address the preventive and curative health measures at Mundra belt. Therefore it was assessed by the Adani Foundation team that the most burning problem of this region is to cure Maternal Health, therefore, The demand was raised from the AF staff to improve the maternal health. Looking at the strengths of AF the following role has been identified. The prime objective is to reduce maternal and new born mortality through a collaborative cascade of training, briefings, publicity and monitoring. An effective programme to reduce maternal mortality (MDG 5A) requires collective efforts by Government, Professionals and Communities to deal with medical and administrative issues in a top down and bottoms up approach as both the approaches are important and complimenting to one another.

Activities proposed for this project are Selection of CHC/PHC, Training of trainers, AF Involvement in Target Areas, Identification of Needs in Target Areas, Implementation-mechanism, Publicity, and Communication-A Preparing Training Materials in MCH- Funding - Reporting: The project consultant of this project will submit monthly planning to AF

Capacity building inputs to AF staff in Maternal and child health situation so that at the initial stage they can reduce the maternal encountered death at Mundra Block. Implementation Strategy of the project: Master trainers has identified i.e. doctors from Adani Foundation, Adani Hospitals Mundra and Gujarat Adani Institute of Medical Sciences. Co - trainers would also be selected. These Master trainers had further percolated the knowledge and skill to ANM/ ASHA for the last 2 years and will continue current year also.

Health Awareness session Data- April to December-2016			
Month	Topic	Villages	Total
April	Health Hygiene & Cleanliness	Ganesh Mandir- Luni	80
June	Health Hygiene & Cleanliness	Govt.School- Bhadreshwar	70
July	Diseases & Personal Hygiene in monsoon season	Govt.school - Moti Bhujpur	370
Aug.	Personal Hygiene in monsoon season	Govt.School- Moti Khakhar	75
Sep.	Health Hygiene & Cleanliness	Govt.school- Zarpara	325
Oct.	Dengue fever information & Awareness Generation session	Govt.school- Gundala	75
Nov.	Personal Hygiene & Cleanliness	Govt High .School – Moti Bhujpur	210
Dec.	HIV-aids information & Awareness Generation session	Bed collage Mundra	110
	Total		1315

AWARENESS SESSIONS BY MEDICAL OFFICERS:

Awareness sessions at various schools and colleges were conducted to sensitize the future generations and teachers for further cooperation and coordination on various topics of women health. We had included women health issues such as anemia, menstrual disorders, breast cancer, cervical cancer etc. to promote awareness among the people. **During this year more than 1300 students are benefitted by awareness sessions**

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 Adani hospitals. The main objective of providing dialysis treatment is to help the extremely needy patients to live a healthy life.

Total 5 Patients were being supported for regular dialysis (twice in a week) during this year.

PHYSIPTHERAPY CAMPS

Adani Foundation is providing physiotherapy service to differently abled children's in coordination with BRC-Mundra. **This year total 18 children have taken physiotherapy at Adani hospital.**

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.

- Adani Foundation Team has initiated coordination with GKGH hospital since last year and established a reception area for the smooth patient coordination and preparation for the social networking programme.
- 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 584 dead bodies privileged till now to different locations in Kutch**.

Disease wise Data					
Month	Dengue	Jaundice	Malaria	HIV	TB
April	7	0	0	8	55
May	11	35	2	7	46
Jun	4	46	1	4	35
July	1	149	6	4	47
Aug	3	54	19	6	48
Sep	25	80	33	3	32
Oct	49	41	27	6	35
Nov	75	18	35	18	26
Dec	29	7	11	3	24
Jan	16	6	5	0	40
Feb	15	5	7	0	32

OPD/IPD Data		
Month	OPD	IPD
April	16221	2130
May	15652	2223
Jun	15420	2232
July	16819	2396
Aug	18494	2597
Sep	19121	2575
Oct	17919	2471
Nov	19998	2541
Dec	23053	8534
Jan	22693	7381
Feb	23217	7241

Safe child Project Annual Analysis			
No.	Month	Students	School
1	June	573	3
2	July	1489	7
3	August	1305	6
4	September	1964	6
5	October	1007	4
6	November	68	1
7	December	882	5
8	January	163	5
9	February	204	3
Total		**7507**	**38**

Death Body Van Data			
No.	Month	AF Van	Death in GKGH
1	April	51	72
2	May	46	134
3	Jun	52	103
4	July	51	115
5	Aug	50	115
6	Sep	54	72
7	Oct	50	82
8	Nov	59	75
9	Dec	53	73
10	Jan	60	77
11	Feb	58	64
	Total	584	982

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	50
2	Luni Bandar	28
3	Bavdi Bandar	35
4	Zarapra	32
	Total	145

Vidya Sahay Yojana – Scholarship Support

Under this programme, special attention is given to motivation higher education by providing books. The Adani Foundation provided transport facilities to students from Std. 6 to 8, studying in nearby villages. Bicycles have been distributed to students who have enrolled for higher education. The Foundation also gave scholarships to the students of ITI, Diploma Engineering and Degree Engineering.

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. In the villages at Mundra Taluka, several communities are economically side-lined and weaker that depend on a sole income source or are unemployed. Sustainable livelihood projects have been launched to cater financial independence through building local partnerships, providing diverse livelihood avenues, inculcate the attitude to establish savings, equipping to earn and updating local skills by making use of existing resources to encourage self-reliant lifestyles. Participation is encouraged by launching specific projects for fishermen communities, farmers and cattle owners, youth and women.

Vidya Deep Yojana

A lot of efforts were put in towards a school preparedness programme by empowering 'Balwadis' at Fisherfolk settlements. Under the Machhimar Vidya Deep Yojana, the Adani Foundation constructed four 'Balwadis', at different settlements, for children between the age group of two and a half years to five years. This programme focuses on the development of basic age-appropriate learning concepts, discipline, regularity, awareness about health, hygiene, cleanliness and also provides nutritious food. **Total beneficiaries of Vidya deep Yojana is 145 students**

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 7801 fishermen were benefitted by Mobile Dispensary every 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 1187 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 263 senior citizens from fisher folk community are enrolled in the scheme.** They are getting cash less medical services uptoRs. 50,000 for three years. Besides this, follow up with the card holders is a regular activity. It has been observed that card holders treat the card as an important document. Most of them keep these cards in their wallets with other important documents and cards.

Machhimar Awas Yojana

Fishermen who stay at vasahat/settlement at the seashore have been provided with appropriate shelter to protect them from the harsh weather. A special design of foldable housing was chosen on the basis of consultation with residents. These shelters are equipped with basic facilities such as toilets and pure drinking water to provide them clean and hygienic residences. **164 refurbished shelters have already been handed over to fishermen families at Juna Bandar. Another 110 shelters, with the additional advantage electricity facilities, are being made at Luni Bandar**..

Sughad Yojana

A total of 230 toilets have been constructed at three Fisherman related Villages at Mandvi Taluka and Randh Bandar. The construction of infrastructure was also accompanied by a continuous awareness campaign on hygiene, sanitation and use of toilets in particular.

Toilet Block		
Sr.	Village & Bandar	Qty
1	Modhva	156
2	Tragadi	6
3	Randh Bandar	8
4	Chachh Zarpara	60
	Total	230

Machhimar Kaushalya Vardhan Yojana

Apart from formal education, special programmes were conducted to enhance employability of the youth. Based on the need assessment, several trades were introduced by the Adani Skill Development Centre in Mundra, where the youth from the Fisherfolk communities could join and get vocational training for a number of technical and non-technical skills. These vocational trainings are unique as they include practical sessions and simulation activities. **This programme has benefited 94 youths by various training.**

Machhimar Shudhh Jal Yojana

In order to reduce the hardships faced by women, potable water was provided this year to the communities of this region. Water tank platforms have been constructed and tanks have been set up in order to provide clean potable drinking water to the community. **A total of 93000 litres of water was supplied to 728 households from different settlements on a daily basis.**.

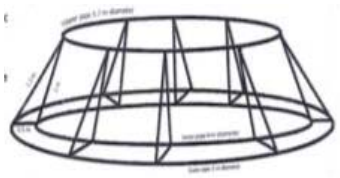
Machhimar Ajivika Uparjan Yojana

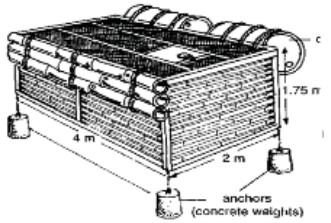
The 'Ajivika Uparjan Yojana' was implemented to promote and support alternative livelihoods among the Fisherfolk communities during the non-fishing months. The Foundation introduced 'Mangrove Nursery Development and Plantation' in the area as an alternate income generating activity for the people of 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 **3315** man–days. In addition to this, employment worth of **25,000** man-days has been provided till date. The Foundation has also supported **42** Pagadiya fishermen as painting labourers by providing them with employment of **5068** man–days.

Income Generation Activities : Painting Labour work and Mangroves plantation

Name of Fishermen	Year-2015-16	16-Apr	16-May	16-Jun	16-Jul	16-Aug	16-Sep	16-Oct	16-Nov	16-Dec	17-Jan	17-Feb	Apr to Feb Year-16-17 Total	Total Man-days	Order Amount Rs.
Vagher Talab Osman	2969	70	0	278	115	115	200	170	191	150	85	156	1530		3262568
Vagher Abbas Suleman	2961	240	400	268	185	70	168	204	200	200	216	208	2359		3417469
Vagher Mubark Iliyas	1090	150	40	160	232	145	150	110	35	15	80	62	1179		1903536
Total	7020	460	440	706	532	330	518	484	426	365	381	426	5068	12088	8583573

	Man-days											
Sr.	Name of Fishermen	Village	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Total	Order Amount Rs
1	Mubarak Alimamad Vagher	Shekhadiya	167	167							334	100200
2	Abdul Satar Jam	Shekhadiya	167	167							334	100200
3	Ismail Hajibhai Jam	Shekhadiya	167	167							334	100200
4	Sidhik Hasan Reliya	Luni	216	216							432	129600
5	Latif Suleman Manjaliya	Luni	183	183							366	109800
6	Jakab Hasan Manjaliya	Luni	290	270	115	60	60	60	60	60	975	340000
7	Manek Jakariya Suleman	Bhadreswar	292	308							600	180000
	Total		1482	1478	115	60	60	60	60	60	3375	1060000





New Initiatives : Cage culture

Fishing occupation and Port business coexists. When we started port operations, condition of Fisherfolk community was deprived. After inception of CSR arm of Adani Group – Adani Foundation in 1996, strategy was planned based on priorities for socio-economic development of Fisherfolk community. The fishers of the Shekhadia fishing village (Juna Bandar) are one of the stakeholders of the Adani Port Ltd., Mundra. The Company likes to intervene to provide quality livelihood to the fishers especially the women under their CSR funds.

The main objectives for promotion of alternative livelihood is to raise the economic standard of fisher folk, second is to reduce the pressure on fishing effort.

It was reported that about big numbers of fisher folks are willing to change their occupation; therefore, Cage culture aimed to provide alternative employment and encouraging them to shift from full-time to part-time fishing.

The Institute shall provide training to the selected fishers in live lobster handling, seed transportation and quality testing, cage fabrication and deployment, lobster husbandry practices, harvest and marketing etc. with sufficient hands on exposure at the sea cage farm owned by the CMFRI at Veraval. First phase of exposure and cage fabrication is completed. Launching of cage is done in presence of Dr. Koya (CMFRI) in March.

New Initiatives : Polyculture

Polyculture is the practice of culturing more than one species of aquatic organisms in the same unit area (marine, pond, streams and rivers). The principle of Polyculture is that production of more organisms in the particular unit area having different food habits.

The main objectives for promotion of alternative livelihood is to raise the economic standard of fisher folk, second is to reduce the pressure on fishing effort.

It was reported that about big numbers of fisher folks are willing to change their occupation; therefore, Cage culture aimed to provide alternative employment and encouraging them to shift from full-time to part-time fishing.

The activities involved i.e. capacity building, expert inputs, machineries, seeds of fish and fish food. We will identify feasible sites for the Polyculture and implement the activities with participation of fisher folk committees who will take whole responsibilities. These Polyculture will add value to the fishing occupation of the local fisher folk community.

Exposure visit : Fish Research Centre at Okha

The Seaweeds are macrophysics algae, a primitive type of plants lacking true roots, stems and leaves. The word seaweed gives the wrong impression that it is a useless plant. Seaweeds are wonder plants of the sea and highly useful plants. Seaweeds grow in the shallow waters. Root system and conducting tissues like land plants are absent in seaweeds. Most of them have hold-fast for attachment and some drift loose in the sea. Adani Foundation Team (PO:SLD) has visited Okha for the same.

Seaweeds new renewable source of food, energy, chemicals and medicines. Provides valuable source of raw material for industries like health food, medicines, pharmaceuticals, textiles, fertilizers, animal feed etc.

Agriculture & Animal Husbandry

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 70 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.
- This year Main Focused Activities

1. **Biogas Support to 9 Nos of farmers (AF, Beneficiaries and Govt support)**
2. **Kitchen Garden Kit distribution to 20 Farmers**
3. **Soil Health cards analysis : 25**
4. **Organic farming Related 15 Demonstration for "Jivamrut" at Zarpara**
5. **20 Tissue culture Date palm demonstration is sucessfully done with farmers of Zarpara**

Women Empowerment Projects

Encouraging women, to take control of their lives and building their confidence whether they are single, married or a widow; is one of the initiatives under the sustainable livelihood development program.

- Considering this situation, We have started our training programme with two major women's group of Villages near Adani Power and Adani Ports. Both the groups of women (90 women in total) successfully completed their training for preparing washing powder, phenyl, liquid for cleaning utensils and hand wash etc.
- We have selected 6 women groups having 15 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.
- Our pilot project is preparing Washing Powder and Phenyl. We are planning to start Home Made Products after discussion with HOD and Random groups of ladies in colonies and villages.
- **Till date "Saheli Mahila Gruh Udyog "has annual turn over of Rs. 3.70 Lacs.**
- **After one year of Pilot phase, Saheli Mahila Gruh Udyog includes 70 women. We are planning to convert "Saheli Mahila Gruh Udyog" into Producer company. Planning for 1. Production of Hygiene Products 2. Edible products and 3. Handicraft items with capacity building of women group**

Marketing Linkages : Dates

To promote Date : Amrut fal of Kutchh, AF did various linkages for marketing. By this support, **more than 1000 Kg Selling** at Adani Residential Colonies, Ahmedabad and Surat with good rate .

Food for cattle

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 59,224 mann fodder worth Rs. 127.00 Lacs approximately.

Exposure Visits

- 30 Farmers visited and discussed about results of Jivamutra and Kitchen Garden Feedback & "Agri Asia" Agriculture Technology Exhibition
- Animal Hostel visit Himatnagar and Gauchar Development workshop attended by Jayram Rabari and Karsan Gadhavi
- Group of farmers were taken to exposure visit of organic farming and bio gas bottling plant at Vaghodiya. This is totally new concept in agriculture. Organic products are demand of today's period. Bio gas plant is eco friendly and gives very good result

Coordination with Government for Widow and Senior Citizen Scheme

- We are 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 to two persons for the handicapped in coordination with Bhuj Samaj Suraksha Khata for regular visit and follow up.
- **Last year, 63 widows and 40 Senior citizens and 351 handicapped - total 454 members got benefitted** from the approval of pension certificate. The financial benefit of the senior citizen yojana is Rs. 400 per month and the widow scheme is of Rs. 900 per month.

No.	Scheme Name	Total	Remark
1	Medical Certificate for specially abled	136	Under medical camp and G.K. General Hospital, Bhuj
2	Buss pass for specially abled and I card	109	Samaj Surakha Khata at Bhuj
3	Sadhan Sahay	30	Bicycle 15, Tricycle-9, wheelchair -2, hearing machine -1, lage-1
4	Physiotherapy – Children	10	Coordination with B.R.C and Adani hospital
5	I.G Sadhan Sahay	41	Sewing machine-36, hand cart-3 , computer kit 1
6	Sadhan Sahay	23	By Adani foundation
7	Handicap pension	2	Sant surdas Yojana – Samaj suraksha – bhuj
8	Widows pension	63	Mamlatdar Kacheri Mundra
9	Senior Citizens pension	40	Mamlatdar Kacheri Mundra
	Total benefits	**454**	

Beti Vadhavo Abhiyan

Beti Vadhavo programme was organized in **32** Villages in the presence of Village Sarpanch and other leaders. We explained people about the various topics i.e. importance of girl child, Sex Ratio, Gender Equality and laws regarding Child abortion. This initiative was well accepted by community and we have observed a visible change in their mindset.
We have facilitated **500** daughters with Kit (Small Bed sheet, Mosquito net, Soap and Cream with nutritious food for mother)

In the present era, improvement in quality of educational services and a sound infrastructure for higher education is required so that the children are prepared to be globally competitive.

Education in its broadest, general sense is the means through which the aims and habits of a group of people lives on from one generation to the next.

Adani Foundation has marked out FOUR major core areas for peripheral Developmental work, amongst them "EDUCATION PROGRAMME" is one of the major areas where we work on following Objectives:

- To fill the gap – understanding the importance & urgency of requirement through Material or Infrastructural Support
- Render support to improved School Environment
- Efforts for 100 % enrollment & retention of eligible children in Govt. Primary Schools
- Provide conducive & healthy environment along with nutritious food to Children of Fisherman at Vasahat by means of Balwadis

Key Focus:

- Efforts to Improve Quality of Education
- Child Education & Nurturing
- Propagate Child Friendly Environment at schools
- Community Participation
- Maximum [100%] enrollment and retention in Schools

Education

Project UDAAN

Udaan is a learning based initiative focused on the youth coming from various schools across the state of Gujarat. Under this project, a two day free of cost exposure tour is organized wherein students are given a chance to visit the Adani Port, Adani Power & Adani Willmar facilities to get an insight upon the large scale business activity carried out at each of them.
Specifically students from high school (9th to 11th grade) are encouraged to take part in the exposure tours. It is believed that students of this age would be able to absorb the learning in a better way which could help them shape their lives by aspiring for big. The spread of the schools extends to various districts in Gujarat. There is a specific effort to reach out to schools in the rural areas. Other than schools even colleges where the exposure visit seems to be helping the curriculum are encouraged.
Till Date Total 2230 Schools and 169953 students have been part of project UDAAN.

Material Support

Adani Foundation is supporting for improving quality of Education, under the Teaching Learning Material to schools for Teachers & Students.
Role on infrastructure is must to achieve quality of Education. Many studies highlight that lack of infrastructure is also affected the school dropout ratio. Good & proper infrastructure is attracting children for school. So A.F. is also trying to full fill need of infrastructure in schools. Where there is no provision of Gov. grant & school's required support A.F. is there. **During this period AF provided RO Plant at Tunda Wandh Primary School and constructed Science laboratory at School at Mundra.**
In month of February 2017, supported district level annual event Kasturba Gandhi Kanya Vidyalaya. Addition to this Sound system given to Primary Schools at Siracha, Tunda Wandh and Vallabh Vidyalaya. Furniture support to Science School Mundra and Block resource center Mundra

Shala Praveshotsav

To motivate children for schooling by providing them welcome kit / Education kit and to Create conducive environment for children for **"Joyful Learning" during Shala Praveshotsav.**
Govt. has wide spread network of 111 Govt. Primary Schools in total 61 villages of Mundra Taluka, 3 villages in Anjar Taluka and two villages of Mandvi Taluka. Every Year on an average 2500 to 2700 children gets enrolled in 1st Std. in Taluka. **For 2016 - 17 total 2500 children got enrolled & Adani Foundation provided the "Enrollment Kit" to all new enrollee in Taluka. .**

Adani Education Development Center

Kutchh District is very poor in case of Primary Education. Educational Standards of Govt. School is considerably depraved. As per Government Figures, among 103 schools of Mundra Taluka, only 10 schools are in "A" Grade. It continuously destroying our young generation in absence of proper direction and base. keeping this situation in view, We have initiated Coaching center at Zarpara. **After getting good results (62 students were in D grade now only 4 students are in D grade, 8 students in C Grade, 30 students are in B grade and 20 are reached to A grade) this year we have planned to start at Navinal Village**

Other activities organized throughout the year

No	village	School's name	Activity	Beneficiaries
1	Jabalpur	Jabalpur Primary school.	Drawing Competition	47
2	Tuna	Tuna Group Primary school	Drawing & Fancy Dresses Comp.	371
3	Zarpara	Pransla (Zarpara) Primary school.	Essay Writing	115
4	Nana Kapaya	Nana Kapaya Primary school.	Quiz Competition	235
5	Gundala, Bhujpur	Gundala, Bhujpur, Mundra High school.	Costal Day Calibration	150
6	Tunda	Tunda Primary school.	Quiz Competition	178
7	Kandagara	Kandagara Wadi Vistar Primary school.	Quiz Competition	45
8	Zarpara, Shekhadia	Zarpara, Shekhadia, Navinal Primary school.	Balotsav Camp	115
9	Luni,Goyarasama,Baroi	Luni, Goyarsama, Baroi school	Elocution Competition	678
10	Zarpra	Zarpara kanya shala	Svachhata Abhiyan Program	57
11	Shekhadiya	Shekhadia Primary School	Svachhata Abhiyan Program	52
12	Mundra	B.Ed. Collage Mundra	Youth Day celebration	89
13	Mota Bhadia	vadi primary school	elocution	162
14	Mota Kandagra	primary school	quiz competition	338
			Total :-	**2632**

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 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.
In the Year 2015-16, Adani Vidya Mandir became a school having classes from 1st to 10th with total strength of 395 students. Right now 137 students are coming from Fisher folk communities.
Additional Coaching for new enrolled students was structured upto 17th May, 2015. Main objective is to make the new students cope up with new syllabus. Remedial Teaching has been started for Mathematics and Science subject. In addition to quality education, we focus on overall health, co-curricular activities and sports related events.

The Annual sports Day Celebration was held on January 28, 2017. Shri Sharad Sharma was the special guest for the occasion. It was witnessed by around 150 parents, village leaders and teachers of other government schools.

Also it is privilege to share that farewell was organized for Board going students at Vidya Mandir. Executive director APSEZ and Head AF Mundra remained present and encouraged students and all the teachers of AVMB for tirelessly working with the students to bring them up to this level.

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.

Whatsoever be the budget strategies for Infrastructure development, desired change is possible only if emphasis is laid on participation and leadership of the pupils therein. It is for this reason that Adani Foundation insists on including members of Gram Panchayat as well as thoughtful individuals from the rural areas for the implementation of programme. A remarkable development is the result of the joint efforts of the Adani Group and the Gram Panchayat. For the welfare of the rural area, the Gram Panchayat writes a requisition letter to Adani Foundation according to its primary needs. On the basis of this letter, several requisitions are registered in the "Request register". According to this registration, the programme is being implemented under the permission and guidance of the Gram Panchayat through appropriate decision - making.

It is important to build new structures. It is equally important to maintain these with ease and regularity. Adani Foundation has designed, planned and built a strong infrastructure for the betterment of education, community health, agriculture and living standards,

Under this core area, the Projects undertaken including construction of various infrastructures in villages as per requirements.

- Education Related Projects: Education is the most powerful weapon which you can use to change the world." To improve the quality of education and to improve school environment, the Adani Foundation supports for infrastructure development on request basis. Adani Foundation carries out the construction of assembly hall, classrooms, computer labs, space for midday meal, playground, school walls, washrooms etc. as per the needs and preferences of the school. It is aimed at providing facilities in education sector to the present generation.

- **We have constructed Science laboratory at Govt Science School at Mundra. We have repaired toilets and kitchen at Adani Vidya Mandir at Bhadreshwar.**

- Health Related Projects: The proposed work was related to our major core area – health. Adani Foundation has constructed individual toilets at Juna Madhapar, Dinara and Varnora village at Bhuj as per request from District collector. Also constructed 230 individual toilets for Fisherman Vasahats.

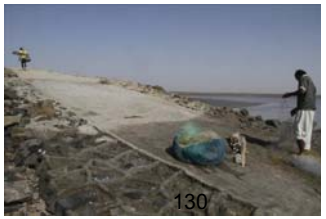
Other Projects: Some Projects we took up to fulfill the demands of communities. We have completed Canal connecting pond and river at Bhujpur, Shed Construction at Gundala, Construction of approach road at vadi Vistar at Zarpara.

- **Water Conservation Projects**: Scarcity of potable water in Kutch has led to acute problems in its coastal region. In Mundra, people mostly use ground water for drinking. Unfortunately this water has a high level of TDS which causes bone and kidney diseases. To alleviate this situation, the Adani Foundation has taken initiatives for water conservation including construction of check dams and pond deepening
- **This year Adani foundation carried out pond deepening in Dhrub, Mota Bhadiya Village and constructed earthen bund construction across the river at Baroi and Bhujpur village.**

- **Drinking Water Related Projects**: Potable drinking water is basic requirement of any village. For better health and hygiene of village drinking water should be clean and pure. So, this project will create positive and effective social impact. **Adani Foundation has installed RO Plant at Chhach Vistar at Zarpara. Also constructed UG tank 1.0 lacs lit capacity at Rampar village of Anjar Taluka.**

- Fisherman Related Projects: The primary objective of Adani Foundation is the development of the marginalized section of the region. The welfare of the Fisher Folk Community is of prime importance. In order to raise the standard of living of the fisherman community, Adani Foundation is active in providing good roads to reach ports and other remote corners

- Adani Foundation has also constructed platforms for drinking water, solar light, space for drying fish, etc. The construction of temporary residence of fishermen in order to provide them healthy lifestyle is being looked under the Fisherman Housing Programme by the Adani Foundation. In 2015-16, Adani Foundation constructed 2300 Mtr approach road for Pagadiya fisherman. We have refurbished 140 shelters at Juna Bandar.



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. Considering the same, Adani Skill Development Centre has initialized in the 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 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.
- Due to social and cultural traditions, various training programme are organized at school OR village level for youth and women so that they can gain its benefits in the future as well.
- Adani Skill Development Centre provides opportunities to the young people to become self-reliant, responsible and active citizens

Skill development trainings administered by ASDC
Each training module of ASDC is well-designed to make the learning more effective. Hands on experiment are the key factor to enhance learning in all the courses offered by ASDC.

IT- Basic Computer
Word, Excel, Power Point, Internet, Web Browser detail

Tally ERP 9
Basic Accounts, Voucher Entry, Ledgers, Group Creation, VAT, TDS, Service tax, Excise etc. is taught for 60 days to benefit students of class XII and above having commerce background.

Spoken English
Grammar, Tenses, Vowels, Articles, Prepositions, Phonetics, Tenses, Communication Skills etc. are offered especially for students and working people. This course duration is of 60 days.

Auto mobile Assistance
Training is regarding Units and Dimensions, Measuring & Marketing (Preparation of jobs for welding, Dismantling and assembly of components), Inspection, Preventive Mtc. And repair of bearing, gearbox, couplings, and TPM, Condition Monitoring, Kaizen
All the trainings are offered at either ASDC centre, at Port, at Power plant, at specific villages depending on the need of the module and the students. Certificate for each course is given by ASDC or by partner institute.

O&M of Coal Handling System at Ports
This module includes Induction at Port + First Aid + Safety training, GSU (Grab Ship unloaded) Crane Theory training, GSU Crane Simulator training, Commercial Documentation O & M of coal handling Activities Stacker Reclaimer Theory training, Silo Theory Training, Conveyor Theory Training, On Job Training conveyor.

Checker cum RTG Crane Operator
Students get training regarding Safe Operating Practices, RTG Controls and Functions, Pre-Operational and Operational Checks, Driving, Hoisting and Lowering Loads, Operations - Transferring Loads for three months.

Mechanical & Electrical work of Container Terminal
It includes training of Crane Operation & maintenance for two months and minimum qualification is ITI Fitter & Electrical

Stitching & Bagging Machine Operator
It includes Stitching and bagging operation in FCC 7 plant. It is for 1 Month and min. qualification required is 10 Pass.

Checker
Students gets basic Induction on (Safety, Fire, First Aid, Security, CT), Export Import procedures, Identification of containers, Container construction, Hazardous classification & Symbols, Role of yard checker, Role of deck checker, Role of Wharf checker, Bay Plan, Awareness of RDT, Custom Seal.

Forklift operator training
Forklifts are an **incredibly useful tool**, and in many cases are absolutely essential for the transport of goods in storage facilities, warehouses and construction sites. They tend to be fairly simple to operate, especially for people who can drive a car, and they help to lift loads that other readily accessible workplace machine cannot. They are therefore extremely common in a lot of different industries.

ASDC is proud that along with generating employment, it has also been a source of inspiration for entrepreneurship.

Vision:

To systematize the skill development efforts in the Nation and create an environment where youth and women not only get some vocational training but also gets some gainful employment, entrepreneurship and self- respect.

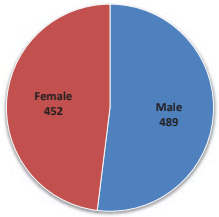
Objective:

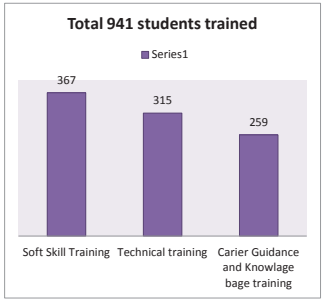
- Bridge the wide gap in demand & supply of human power.
- Awareness regarding availability, needs and vision for career development and education.
- Facilitation, spreading awareness, creating new opportunity to upgrade skills through organizing various skill trainings in the region.
- To improve overall status of rural Youth and women in the society by enhancing confidence and entrepreneurship in them.
- Encouraging youth for participatory approach in social and economic activity and helping them to keep away from addictions, to become self-dependent, and empower them to live a dignified life.
- To build a feeling of harmony in the society by creating a rapport of goodwill, mutual trust and respect.

Skill development trainings administered by ASDC

Each training module of ASDC is well-designed to make the learning more effective.

Total trained of Male & Female





Adani Skill Development Centre, Mundra

Course wise status, 1st April 2016 to 31st March 2017

Sr. No.	Course Name	Location	Male	Female	No of students
1	IT Basic Computer	ASDC Mundra	10	1	11
2	IT Basic Computer	ASDC Mundra	6	3	9
3	Tally Erp9.	ASDC Mundra	4	2	6
4	IT Basic Computer	ASDC Mundra	2	2	4
5	Vocation Training	Zarpara High School	59	36	95
6	Basic Computer-RTG student	ASDC Mundra	16	0	16
7	Basic Computer-RTG student	ASDC Mundra	8	0	8
8	IT Basic Computer	AVMB	33	6	39
9	IT-Basic Computer	Adani House	18	0	18
10	Mehnadi work	Gundala	0	21	21
11	Mehnadi work	Gundala	0	17	17
12	Dori work training	Gundala	0	20	20
13	Dori work training	Gundala	0	19	19
14	IT Basic computer-RTG Student	ASDC	8	0	8
15	IT Basic computer-RTG Student	ASDC	7	0	7
16	IT Basic computer-RTG Student	ASDC	8	0	8
17	IT Basic computer	Luni Bandar	14	0	14
18	IT Basic computer	Luni Bandar	6	9	15
19	IT Basic computer	ASDC	6	1	7
20	IT-Basic Computer	Adani House	25	0	25
		Total - A	**230**	**137**	**367**

Other Training					
Sr. No.	Course Name	Location	Male	Female	No of students
1	Mobile Repairing	ASDC Mundra	12	0	12
2	Stitching & Bagging Machine Operator	APSEZ	7	0	7
3	Beauty Parlour	Nana Kapaya	0	24	24
4	Beauty Parlour	ASDC Mundra	0	21	21
5	Checker Cum RTG Crane Operator	APSEZ	14	0	14
6	Tailoring	ASDC Mundra	0	18	18
7	Tailoring	ASDC Mundra	0	13	13
8	Beauty Parlour	Mundra	0	20	20
9	Mechanical & Electrical training of Container Terminal	APSEZ	6	0	6
10	Tailoring	ASDC	0	20	20
11	Forklift operator training	MSPVL	8	0	8
12	Checker Cum RTG Crane Operator	APSEZ	23	0	23
13	Tailoring	Old port	0	15	15
14	Tailoring	Old port	0	15	15
15	Beauti Parlour	MICT	0	23	23
16	Forklift operator training	MSPVL	14	0	14
17	Tailoring	Bhorara	0	15	15
18	Tailoring	Bhorara	0	17	17
19	Tailoring	Zarapara-Chach wadi	0	15	15
20	Tailoring	Zarapara-Chach wadi	0	15	15
		Total - B	84	231	315

"Swachchh Bharat" Movement

Adani Vidya Mandir gives momentum to "Swachchh Bharat" movement at Bhadreshwar in coordination with government schools of Bhadreshwar.
Total 450 Students participated in drive Several activities were carried out during the day that marked the uniqueness of this drive. Shri Mukesh Saxena, (Head CSR) specially remained present on the occasion to motivate and participate in this event. He shared that a cleanliness drive was initiated by the Adani Vidya Mandir at Bhadreshwar, Mundra. Having a clean and hygienic living environment is utmost important for health and profession, but providing for the same is equally challenging

Model Making Competition Certification

We had organized Model Making Competition among Technical Students of Kutchh District in Aug 2014. Three Winners of the Competition constructed replica of their model at Nana Kapaya, Baroi and Gundala Village under guidance of Engineers Team of Adani Foundation Which will be used as Medical Center at Gundala and Nana Kapaya and residence for poorest of poor at Baroi Village. Launching of Booklet of process documentation and Certification of Students organized on 9th July 2016

Support to Blind Girls from AKPG

Adani Foundation Mundra Supported blinded girls of Andh Kanya Prakash Gruh by purchasing rakhis made by them.
Fisherman leader of Navinal Anwar bhai created best example of Hindu Muslim unity by tying Rakhi from differently abled girls from Andh Kanya Prakash Gruh, Ahmedabad. Not only that, They gave donation to institute... This shows binding of our team so deeply and socially with fisherman community...

Important Events

SEA OF CHANGE : A JOUNRNEY OF TRANSFORMATION OF FISHERFOLK

Adani Foundation Mundra Team has transcribed about Life of Fisherman and its transformation. The Book was launched by Shri Gautam Adani and appreciated by all dignitaries.

"Panjo Medavo"

Adani Foundation Mundra has organized "Panjo Medavo" Programme on 27th Aug 2016 Saturday Evening, Total 170 local people including Sarpanch, village leaders and NGO working for welfare of community including media.
Mr. Mukesh Saxena, CSR head Adani Foundation shared that development of business is only possible with whole hearted support of local community. He gave confirmation that Adani foundation team is for community and will remain always !! Main attraction of the event was Kutchhi folk music by "Survani – the traditional artist support group" of Kutchh.

International Coastal Clean up Day

The International Coastal Clean-up is one of the largest volunteer efforts in the world dedicated to the health of our oceans. Every year, 20th September is dedicated to this noble cause of cleaning our beaches / shorelines impounded with lots of waste material which is considered non-biodegradable in nature and considered hazardous to the ocean health. Indian Coast Guard had been associated with this international event in India and has been organizing clean-up drive for our beaches once in a year to represent its concern for the overall ocean health and generating awareness among public. Coast Guard Authority being in Mundra would be organizing a clean-up operation in coordination with Adani Foundation.
Adani Foundation gives momentum to "Swachchh Bharat" movement at Juna Bandar, Mundra with Fisher folk community.

Adani Premiere League

Adani Foundation, Mundra organized Cricket Tournament, **"Adani Premiere League"** among fishermen community to promote healthy sportsmanship and harmonically transparent community relationship among fisher folk of Mundra and Anjar Taluka from 13.07.2015 to 23.07.2015. The Adani Premiere League by Adani Foundation started on 13.07.2016 at Shantivan Colony Cricket Ground. Total 44 Teams of 12 villages and 528 Fisherman participated. Teams from Villages Zarpara, Navinal, Shekhadia, Modhava, Salaya, Mundra, Tragadi, Luni, Sanghad, Gundiyali, Bhadreshwar & Vandi (Tuna) participated with great enthusiasm.

Safety awareness for fisherman

Safety awareness program for fisherman community was organized on 16th Sep 2016 in coordination with Indian coast guard, Air force and Fisheries department. Commandant Pradip Kumar did live demo for using different equipment like boya, ring and life jackets for safety purpose. Mr. Mukesh Saxena had given information about coastal safety and measures

Community Speaks....

"Adani Vidya Mandir has carved our future !!!"

In the Mundra Taluka of Kutch district there is a village named Bhadreshwar. The population of this village is approx. 9000 to 9500.Wherin resides the people of different castes like Darbar, Harijan, Vagher, Bhrahmin, Lohana ,Darzi and Jains. These people find an occupation in the nearby companies and others continue their ancestral occupation and get an income. The community like Vagher and Manek are included in the activities of fishing. Fishing is their only means of finding Remuneration. Hence they are known as Sagar khedu. For their survival they completely sustain on these. The lives of the fishermen are full of velour. But the level of education is very low. They go fishing for 8 months. There is stagnancy in work during the rainy season. During those seasons they celebrate all their cultural festivities. With an aim that the children from the fisher folk community move forward in the field of education,
Adani Foundation encourages them by various means. As a result the children form the fishermen community and the nearby locations are admitting to the Adani Vidhyamandir School in Bhadreshwar. Here the children receive quality education and nutritious food .In this school the underprivileged children from the nearby villages also gain education. With the progress in the field of education there is also a change observed amongst the fishermen families. The younger generation is also ready to leave their family occupation of fishing and progress in the field of education. Similar is the case of Haji Mohamad Sale.
He was disinterested in studying. He was very irregular, would not concentrate in class. He completed Std 7 with difficulty continuing the fishing lifestyle along with schooling. In this phase the Adani Foundation boosted his confidence by frequently visiting and with proper guidance he was admitted in the Adani Vidhyamandir, Bhadreshwar.
When they started he was very weak in Reading, writing and mathematics. Moreover he could not communicate with the co-students. In this phase they obtained education from the Adani Vidya Mandir .After receiving personal attention from the teachers he started improving gradually. Presently He is studying in class 9 and participating in all the extra curriculum activities. After having a talk with him we realized that he is having future plans too. Haji replied that he wants to be a soldier when he grows up. For which he runs, does physical activities and is always mentally prepared for any sports activities. He realized the strengths only after getting educated.
Today the importance of education has increased in the fisher folk community. Moreover the parents are also equally realizing the importance. Those who were not interested in Primary education are taking further education. Hence the fishermen communities are thankful to Adani Foundation for making these changes possible

SAMANVAY

Samanvay - A Seminar was organized to define social responsibility with the perspective of Development on September 20, 2016 at Adani House, Auditorium, Port road, Mundra, Kutch.
More than 35 Organizations namely Agakhan Rural Support Programme, Kutchh Navnirman Abhiyan. Vivekanand Research & Training Institute (VRTI), Navchetan Andhjan Mandal, Welspun Limited, Coastal Gujarat Power Limited, Ashapura group of industries, Sarv Seva Sangh, Kutch Mahila Vikas Sangathan (KMVS), Arid Community & Technology, SETU, Sahjeevan Trust, Veerayatan and Yusuf Meher Ali Centre (YMC) etc. took part in this Seminar. All NGO and Corporate shared their view for development from one common platform and impactful Work.
The Chief Guest: Shri Apurva Oza (CEO, Agakhan Rural Support Programme) and other Distinguished guests were:
Mr. Lalji Prajapati, Navchetan Andhajan Mandal
Shri Lalbhai Rambhiya, Head CSR AARTI Group of Industries
Shri Ramesh Gor, Coordinator, Vivekanand Research & Training Institute
Smt. Raginiben Vyas (Head-CSR, Ashapura group of Industries)
Dr.Punam Gupta (Welspun Limited)
Smt. Lataben Sachdey, KMVS
Shri Pradip Ghosal (Head – CSR, CGPL)
Dr. Yogesh Jadeja, Arid Community & Technology
Shri Dharmendra Kumar, Director, YMC
Shri Jadavjibhai Shethia, from Sarva Seva Sangh

CSR Conclave : Adani Foundation

Adani foundation CSR Conclave- II was held on 14th and 15th October 2016 at AMDC, Ahmedabad. Sh. P.N. Roy Chowdhury briefed the participants regarding the CSR conclave and substantiated few activities being carried out at various sites of AF. He said that mature sites should start transformative CSR rather than demand based CSR.
Dr. Malay Mahadevia underlined the need for adding sensitivity in all CSR activities and Business we do. He further highlighted that through our CSR efforts, we are transforming to be a responsible corporate.
Dr. Pritiben G. Adani shared the vision of Adani Foundation. She shared about sustainable CSR linked with Business. Respected A Nath Sir was felicitated by long service award. All eleven CSR Sites from various places of India shared that startvision for five years. Mr. Ennarasu (CEO, APSEZ) shared the strategies for designing long term vision. Mr. Mukesh Saxena (COO, SEZ Operations) and Head (CSR-AF Mundra) had presented Startvision for Mundra and Tuna CSR Projects.

Singing Sea Bird : Balvadi at Bandar

The Girl named Amina is 3 years old. She lives at Zarpara Bandar with her Family. She was living in unhygienic and unhealthy condition. Due to this condition she used to fall sick frequently. After joining Balvadi, she learned the importance of hygiene and started to remain clean. By nutritious food given in Adani Balvadi, she could keep herself healthy. Moreover, she learned to speak English Alphabets and now she sings poems and songs with full enthusiasm.

Her parents expressed their gratitude to foundation in the words "Adani e Amari dikri ni jindagi sudhari didhi".

Senior Citizen Scheme is blessing !

Ameena ben, a resident of Shekhadia Village, never ever thought of that in spite of having three sons she will have to lead a life of desertion. None of them had time to look after her and she was suffering from high blood pressure and stomach problems.

She was worried about increasing health problems due to old age. During Senior Citizen health camp organized in her village she came to know about this facility. Adani Foundation arranged for critical drugs through senior citizen scheme. Due to regular intervention with Adani hospital she is now absolutely fine and living gracious life with smile.

She always says with gratitude: "Adani hospital provides very good service with lots of care and love. Thanks to Adani for giving me new life with self-respect.

"I AM SPECIALLY BLESSED NOT DISABLED!!!"

Myself Naresh Maheshwari 13 years old boy resident of village Baroi, 3 Kms Distant from Mundra. I am physically disabled since birth. My parents are working as a Labour and can not take me for treatment or physiotherapy. My panchayat leader got news that for disable children physiotherapy treatment is available at Adani hospital. I started for the same and got very good results after regular treatment and exercises suggested by orthopedic doctor and physiotherapist . Now I can walk with help of stick, I am really thankful to Adani foundation for great help.

Healthcare at Door step!

Recently our primary health services are availed to 29 villages through the medium of mobile medical van. As many as 121 types of medicines are available in it. These services are liked by the people on a large scale. It has turned out like a boon for women and children as the service is availed at door - step.

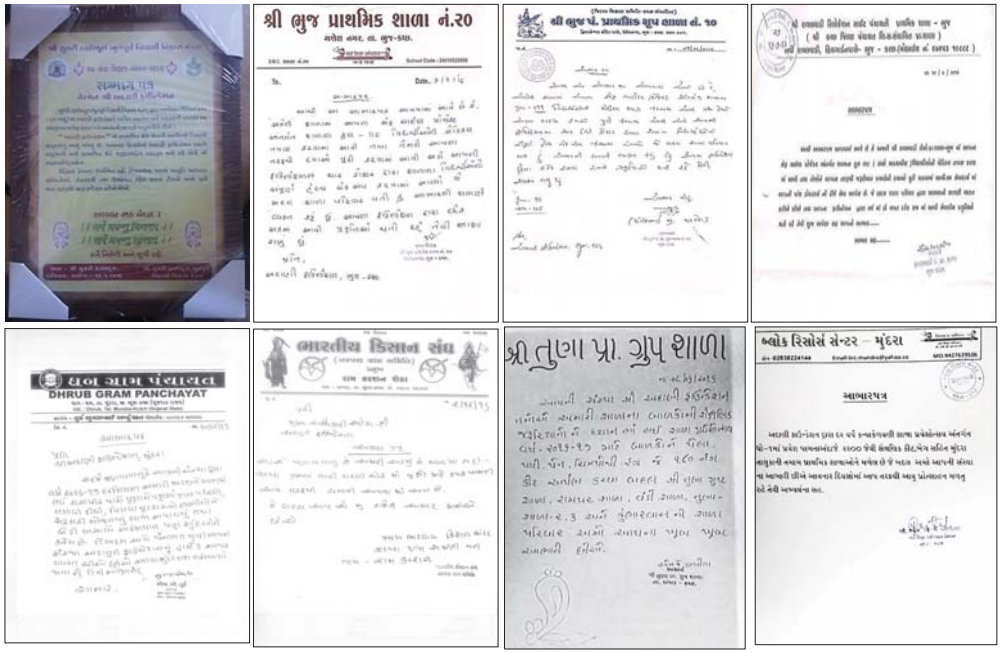
Bhorara is a village approximately 20 km away from Mundra wherein resides **Krishna Maheshwari** who was financially, health-wise and socially unstable until she availed help from AF at Mundra. She settled in Bhorara 5 years ago when she got married. she suffered from Abscess and Skin disease

Our Medical officer of Mobile Health Care Unit helped her a lot. He regularly went her home to change bandages and for dressing of abscess. Now she is completely alright and able to move and walk. Her blessings to Adani Foundation in her worlds ***" Due to Adani Foundation Medical Van I got fast relief, Doctor take care like my own family member"***

Visitors

- Mr. Michael Stephen, Mr. David Moor & Ms. Allison Joyce, Journalist Team from Australia along with MR. Jeyakumar Janakaraj (CEO Australia Port) visited Juna bandar for Adani Foundation Activity & Discussion with Fisher folk Group.
- Visit of Mr. Naren Karunakaran–The Economics Times on 28th June, 2016-visited Luni bandar and discussed with local fisherman about Mangrove plantation work at Luni site. He also visited Juna bandar & Discussed with Fisher folk Group for activities of CSR by Adani Foundation.
- Visit of Mr. Sudhakar B.- Head HR Energy Business- visited at Junabadar for Adani Foundation Activity & dissuasion with Fisher folk Group.
- Visit of auditors of OeEB Bank for review of CSR Activities at Juna Bandar. Presentation and information sharing was arranged at Adani House.

Appreciations Letters



નાના કપાયાના શાંતિ વિહાર ખાતે અદાણી ફાઉન્ડેશન દ્વારા 'પાંજો મેળાવડો' યોજાયો

પાંજો મેળાવડો

મુન્દ્રામાં માછીમારો દરિયાઈ સુરક્ષા અંગે માહિતગાર થયા

મુન્દ્રામાં છાત્રોએ ... અંગે વિચારો વ્યક્ત

મુંદરામાં સમન્વય તળે વિચારોનું

મુંદરા મધ્યે 'બેટી વધાવો' વિષય પર સેમીનારનું આયોજન

વડીલ-નિવૃત્તોને પ્રાયોરિટી કાર્ડ અર્પણ

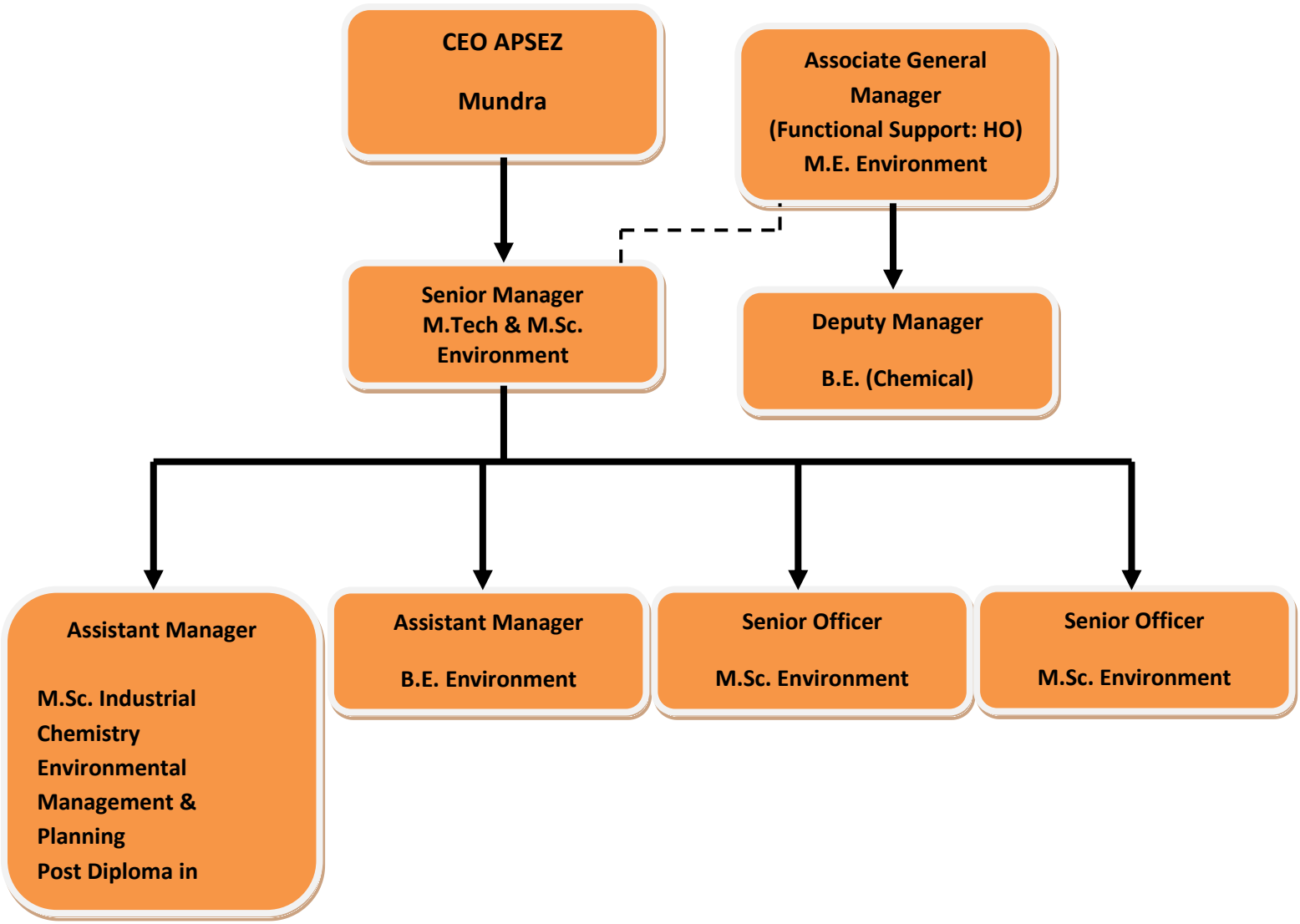
દહીંસરામાં આરોગ્ય કેન્દ્ર ઉદ્‌ઘાટન સમયે સરોવર માટે દશ લાખ ફાળવાયા

Adani Foundation, Mundra CSR Budget Utilization 2016-17					
Sr. No.	Program	Budget 2016-17	Expenditure	Expenditure	Total Expenditure
			Apr.16 to Sept.16	Oct.16 to Mar.17	2016-17
A.	**Admin Expense**	**136.44**	**62.54**	**60.76**	**123.30**
B.	**Education**				
(i)	Education Initiative	49.40	12.28	29.22	41.50
(ii)	Adani Vidya Mandir-Bhadreshwar	125.78	46.19	59.24	105.43
(iii)	Shanti Vihar (Project Udaan)	303.26	109.53	186.63	296.16
	Sub Total	**478.44**	**168.00**	**275.09**	**443.09**
C.	**Community Health**	**271.18**	**62.37**	**181.01**	**243.38**
D.	**Sustainable Livelihood Development**	**240.90**	**117.97**	**102.01**	**219.98**
E.	**Rural Infrastructure Development**	**408.24**	**105.30**	**285.78**	**391.08**
	GRAND TOTAL	**1535.20**	**516.18**	**904.65**	**1420.83**

Annexure – 6

Annexure – 6

Organogram of Environment Management Cell, APSEZ, Mundra



Annexure – 7

Cost of Environmental Protection Measures

Sr. No.	Activity	Cost incurred (INR in Lakh)			Budgeted Cost (INR in Lakh)
		2014 – 15	2015 – 16	2016 – 17	2016 – 17
1.	Environmental Study / Audit and Consultancy	29.87	45.45	36.78	49.98
2.	Legal & Statutory Expenses	11.26	3.30	4.76	7.88
3.	Environmental Monitoring Services	23.76	26.80	27.95	32.82
4.	Hazardous Waste Management & Disposal	9.56	34.56	12.52	12.75
5.	Environment Day Celebration	7.01	7.18	6.71	12.00
6.	Treatment and Disposal of Bio-Medical Waste	1.00	1.22	1.27	1.44
7.	Mangrove Plantation	127.97	53.28	46.18	30.00
8.	Mangrove Monitoring & Conservation	36.75	20.36	26.20	40.00
9.	Horticulture Expenses	380.27	434.72	555.00	516.00
10.	O&M of Sewage Treatment Plant and Effluent Treatment Plant (including STP, ETP of Port & SEZ & Common Effluent Treatment Plant)	30.78	18.18	61.50	98.85
11.	Expenditure of Environment Dept. (Apart from above head)	184.91	135.90	131.83	130.32
	Total	**843.14**	**837.73**	**910.70**	**932.04**