

Vijayasankar K

From: Vibhor Srivastava
Sent: Thursday, May 27, 2021 11:09 AM
To: rosz.bng-mefcc@gov.in
Cc: monitoring-ec@nic.in; zobangalore.cpcb@nic.in; mail.gspcb@gov.in; goacoastalzone@gmail.com; mptgoa@mptgoa.com; Environment Cell Mormugao Port Trust; Sandeep Jaiswal; Sathish Kumar R; Shabdendu Pathak
Subject: Reg: EC_CRZ Compliance _ AMPTPL- October - 2020 to April - 2021
Attachments: HYC_AMPTPL_Goa_Oct 20_Mar 21.pdf

Respected Sir/ Madam,

Please find attached the Half Yearly EC & CRZ Compliance Report for “**Adani Mormugao Port Terminal Pvt. Ltd.**”, Goa for the period “**October-2020 to March-2021**”.

Regards,

Vibhor Srivastava

Assistant Manager – Environment,

Address : Adani Mormugao Port Terminal Pvt. Ltd. Sub Station Building

Near Gate No. 2 of Mormugao Port Trust, Mormugao, Goa, 403803, India

Office: **+91 832 25 79326** | or Mob: **+916359897585** | Email: Vibhor.Srivastava@adani.com



Growth
with
Goodness

Our Values: Courage | Trust | Commitment





Ports and
Logistics

Ref: AMPTPL/2021/ 624

Date: 24.05.2021

To

Additional Chief Conservator of Forests (C),
Ministry of Environment, Forest and Climate Change,
Regional Office (SZ), Kendriya Sadan,
4th Floor, E&F Wings, 17th Main Road,
Koramangala II Block, Bangalore-560034 (Karnataka)
rosz.bng-mefcc@gov.in

Dear Sir,

Sub : Half yearly Compliance report of Environment and CRZ clearance for modernization and operation of Berth – 07 in M/s Mormugao Port for the period of October 2021 to March 2021 – Reg.

Ref : Environment and CRZ clearance for modernization of Berth No. – 07 for coal handling granted to M/s Mormugao Port Trust vide letter dated 30th December 2013 bearing F. No. 10-39/2009-IA.III.

Adani Mormugao Port Terminal Private Limited is concessionaire of M/s Mormugao Port Trust for Berth No. – 7. Please find enclosed herewith the compliance report to the conditions stipulated in the cited reference for the Half Yearly period **October 2020 to March 2021** in soft copy for your kind reference.

Thanking You

Yours Faithfully,

For **M/s Adani Mormugao Port Terminal Private Limited**

Authorized Signatory

Copy to:

1. **The Director (Monitoring-IA-III Division),** Ministry of Environment, Forest & Climate Change, Indira Paryavaran Bhawan, Jor Bagh, New Delhi – 110003.
2. **The Zonal Officer,** Central Pollution Control Board, 1st & 2nd Floor, Nisaraga Bhawan, A Block, Thimmaiah Main Road, 7th D Cross, Shivanagar, opposite Pushpanjali theatre, Bengaluru – 560010
3. **The Member Secretary,** Goa State Pollution Control Board, Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao – Bardez, Goa – 403511
4. **The Member Secretary,** Goa Coastal Zone Management Authority (GCZMA) 1st Floor, Pt. Deendayal Upadhyay Bhavan, Behind Pundalik Devasthan, Parvorim.
5. **The Chairman,** Mormugao Port Trust, Administrative Office, Headland Sada, Mormugao, Goa – 403804.

Adani Mormugao Port Terminal Pvt Ltd.
Sub Station Building,
Near Gate No. 2 of Mormugao Port Trust,
Mormugao, 403 803,
Goa, India

Tel: - +91 832 2579200
Fax: - +91 832 2579299
info@adani.com
www.adani.com



Registered Office: Adani Corporate House, Shantigram, Near Vaishno Devi Circle, S. G.Highway, Khodiyar, Ahmedabad-382421, Gujarat

	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013		
Sr. No.	Conditions	Compliance
6	Specific Conditions	
i	"Consent for Establishment" shall be obtained from Goa Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.	Complied, Copy of Consent for Establishment (CTE) submitted as annexure in six monthly compliance report dated 25 th November, 2014. All construction works completed and terminal is in operation with valid Consent from GSPCB (No.12/2019-PCB/347405/R0002737 dated 24/03/2020 valid up to 31/01/2025)
ii	The project proponent shall provide lining for collection of run off from coal stockyard and the leachate shall be treated before disposal.	Complied, Runoff from Coal Stock Yard is being collected in RCC dump pond provided with proper lining. Settled water from dump pond is being reused for dust suppression and settled coal solid particles are sent back to coal stock piles. Dump pond water quality is also monitored. Report of the same is attached as part of Six monthly monitoring report (Annexure 1)


	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013

Sr. No.	Conditions	Compliance
iii	The project proponent shall provide dry fog and sprinkling systems for effective dust suppression.	<p>Complied</p> <p>For effective dust suppression following measures are provided:</p> <ul style="list-style-type: none"> • 224 Nos. of dry fog dust suppression system have been provided in conveyor system and at all transfer points. • 43 Nos. Automatic Water Sprinklers have been provided at coal stock yard for dust suppression. • 02 Nos. Mist Canon provided. (one is mobile canon and other one tyre mounted) <div data-bbox="826 882 1474 1144">  </div> <div data-bbox="836 1182 1465 1485">  </div>


	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013

Sr. No.	Conditions	Compliance
iv	Entire transportation of coal shall be in closed conveyor.	<p>Complied, The coal is being transported through covered conveyor from jetty to silo/ stock yard. AMPTPL has provided 2700 meters long covered conveyor system from jetty to silo including 11 closed Transfer Points provided with Dry Fog Dust Suppression (DFDS) nozzles.</p> 
v	There shall be no washing of conveyor belt	<p>Complied No washing of Conveyor belt is done.</p>


	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013

Sr. No.	Conditions	Compliance
vi	The project proponent shall provide wind screen min 15 m height fabric HDPE all along the periphery. The height shall be designed taking into account the wind velocity modelling etc. Also explore creepers in consultation with forest department.	<p>Complied</p> <p>Wind screen of MS structure along with HDPE fabric/ perforated sheet of 15 metres height has been provided along the coal stacking yard facility taking into account the wind velocity. Wind screen has been covered with agronet.</p>  <p>Plantation has also been done all along the wind screens to ensure better wind breaking.</p>
vii	Coal shall be kept under moist conditions using water sprinklers. Transportation shall be in closed conveyors with water spray.	<p>Complied</p> <p>The coal is being stored under the moist condition. Jet Sprinklers are provided for the same. Coal is being transported through covered conveyors with inbuilt dry fog dust suppression system.</p>
viii	All the conditions stipulated by Goa Coastal Zone Management Authority (GCZMA) vide letter No. GCZMA/S/13-14/09/360 dated 07.06.2013, shall be complied with.	Complied.
ix	Periodical study on shore line changes shall be conducted and mitigation carried out if necessary. The details shall be submitted along with the six monthly monitoring reports.	<p>Not applicable</p> <p>This is an old berth within the existing premises of MPT and only modernization activity has been done.</p>

	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013

Sr. No.	Conditions	Compliance
x	Oil spills if any shall be properly collected and disposed as per the Rules. Proper Oil Contingency Management Plan shall be put in place.	Complied., AMPTPL is handling dry cargo only such as coal. However, AMPTPL is abiding by the Oil Spill Contingency Management Plan prepared by M/s MPT. (No such incident occurred during the compliance period)
xi	All the conditions stipulated in the earlier Clearances including the recommendations of Environment Management Plan, Disaster Management Plan shall be strictly complied with	Noted and being complied. Compliance of earlier clearance is being submitted by M/s MPT. All recommendations made in the Environment Management Plan as contained in the Environment Impact Assessment of the project are effectively implemented and being followed. EMP Compliance status is attached as Annexure II.
xii	Cargo shall be unloaded directly into hopper from the ship and transported to the stack yards through closed conveyor system only. Inbuilt dust suppression systems shall be provided at hoppers and all the transfer points / storage yards. Cargo shall not be unloaded directly onto the Berth. Water meters shall be provided at different locations to record the consumption of water used for dust suppression and daily log shall be maintained.	<p>Complied, Coal is being unloaded directly into hopper from the ship and transported to the stack yards through closed conveyor system. Inbuilt dust suppression system has been provided in hoppers, transfer towers and storage yards to avoid fugitive emissions. Coal cargo is not being unloaded directly onto the berth.</p> <p>AMPTPL has installed water meters and log sheet is being maintained to record water consumption in dust suppression system.</p> <div data-bbox="817 1397 1465 1650" data-label="Image">  </div>

	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		


xiii	<p>At least 15 m width of green belt along the periphery and 15 m width along the stockyard shall be undertaken including plantation of mangroves in consultation with Forest Department.</p>	<p>Complied/Being Complied</p> <p>Green belt with suitable native species has been developed, along the periphery and coal stock yard. Till date about 29,365 nos. plants have been planted in port premises and survival rate is well maintained (30 during compliance period). Additionally, AMPTPL has also developed vertical gardens. The plant species includes Conocarpus, Coconut, Palm, etc. There are no mangroves in the vicinity of Berth No. 7.</p>    
iv	<p>The dredge material shall be reused for low level rising wherever possible and excess</p>	<p>Complied,</p>

	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013		
Sr. No.	Conditions	Compliance
	shall be dumped into sea at the designated dumping areas identified based on mathematical model studies.	Construction of the project already completed and currently terminal is in operation. There was no dredging during the compliance period.
xv	To prevent discharge of sewage and other liquid wastes including ballast into marine environment, adequate system for collection, treatment and disposal of liquid wastes must be provided.	Complied There is no discharge of sewage and other liquid waste into marine environment. The domestic sewage is being collected in septic tanks provided within the premises of AMPTPL and sent to Sewage Treatment Plant of PWD at Baina for further treatment. Ballast water is not being taken by AMPTPL.
xvi	Necessary arrangements for the treatment of the effluents and solid wastes must be made and it must be ensured that the untreated effluents and solid wastes are not discharged into the water or on the beach; and no effluent or solid wastes shall be discharged on the beach.	Complied The domestic sewage is being collected in septic tanks provided within the premises of AMPTPL and sent to Sewage Treatment Plant of PWD at Baina for further treatment. STP inlet & outlet characteristic of water is regularly analyzed by NABL accredited laboratory. The monitoring results for the period Oct-2020 to Mar-2021 is enclosed as Annexure 1 - Solid waste generated is properly segregated, stored and disposed to local authorities in line to Solid Waste Management Rules 2016 as amended. Food waste is recycled in an OWC and used as manure. No effluent or solid wastes is being discharged into the water or on the beach.

	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013

Sr. No.	Conditions	Compliance
xvii	The quality of treated effluents, solid wastes, emissions and noise levels and the like, from project area must conform to the standards laid down by the competent authorities including the Central or State Pollution Control Board under the Environment (Protection) Act 1986	<p>Complied Regular Environmental Monitoring is carried out, to assess the quality of treated effluents from STP, Ambient Air Quality, Noise level, DG set through NABL accredited and MoEF&CC recognized laboratory. In addition AMPTPL has also installed CAAQMS at Sada village and the same is connected with servers of GSPCB and data is being transferred at real time basis. Results for all the monitoring parameters are within the prescribed limit. Summary of the monitoring report for the period Oct-2020 to March-2021 is enclosed as Annexure-1.</p> 
xviii	All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF along with half yearly compliance report to MoEF-RO.	<p>Complied All the mitigation measures/EMP submitted in EIA are being followed. EMP Compliance in matrix format is enclosed as Annexure - 2. The same is being submitted as part of Six monthly compliance report to all the concerned authorities</p>
xix	The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purpose.	<p>Complied, Separate budget for implementation of Environment Management Plan is in place and it is not diverted for any other purpose. Budget allocated for implementation of EMP for FY 20-21 is 47.76 Lakhs. A brief summary of environmental expenditure during the compliance period is given below.</p>

	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013

Sr. No.	Conditions	Compliance		
		S. No.	Description of Work	Amount lakhs (Rs.)
		1	Environment Quality Monitoring (Pollucon)	12.62
		2	Tarpaulin and other waste disposal	1.32
		3	Sponsorship's for Pollution awareness program	0.47
		4	Broad Band	1.86
		5	General Maintenance of air monitoring station (Sada)	6.68
		6	Green belt Maintenance & Development	5.17
		7	Electricity charges of AAQMS	0.52
		8	Drip Irrigation	4.39
		9	OWC installation	3.14
xx	The project proponent shall set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive	Complied AMPTPL is having well structured Environment Management Cell staffed with qualified manpower and well supported by team at regional office (Chennai) as well as Head Office in Ahmedabad for effective implementation of the stipulated environmental safeguards under the supervision Unit/Business Head AMPTPL.		
7. General Conditions				
i	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Compiled, There was no digging activity during the compliance period. Construction activity is completed and project is in operational phase.		
ii	Full support shall be extended to the officers of this Ministry/Regional Office at Bangalore by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	Complied. Full support is being extended to the officers of Ministry/Regional Office, as well as officers of Central and State Pollution Control Board during their visit. During compliance period GSPCB officials visited 5 times and 1 time Central Empowered Committee made a visit to port. All the necessary support was extended to them and the same shall be continued in future also		

	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013

Sr. No.	Conditions	Compliance
iii	A six-monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry at Bangalore regarding the implementation of the stipulated conditions.	Complied Six monthly EC & CRZ clearance Compliance reports of the stipulated conditions are regularly submitted to Regional Office of Ministry at Bengaluru, and other authorities (CPCB, GSPCB, MoEF&CC, GCZMA, MPT etc.). Last Compliance report for the period April 2020-September 2020 was submitted vide letter no. AMPTPL/2020/497 dated 28.11.2020.
iv	Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	Noted for Compliance.
v	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.	Noted.
vi	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.	Noted. There is no change in project profile or implementation agency.
vii	The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Complied Financial Closure Date: 14 th May, 2010 Concession agreement date with MPT: 22 nd September, 2009
viii	A copy of the clearance letter shall be marked to concern Panchayat/local NGO, if any, from whom any suggestion/representation have been made, received while processing the proposal.	Complied Complied by Mormugao Port Trust (MPT).
ix	Goa State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Center and Collector's Office/Tehsildar's office for 30 days.	Noted. This condition does not pertain to project proponent. However, it is learnt that Goa State Pollution Control Board has complied with the same.

	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013

Sr. No.	Conditions	Compliance
8.	These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 1994, including the amendments and rules made thereafter.	Noted for Compliance.
9.	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	Complied All applicable clearances from the concerned statutory authorities have been obtained.
10.	The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental and CRZ Clearance and copies of clearance letters are available with the Goa State Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests at http://www.envfor.nic.in . The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bangalore.	Complied MPT has given advertisement on 11 th January, 2014 in the newspapers mentioned below. 1) Sunaparant 2) Times of India, Goa. Copy of the same has already been submitted to RO-MoEF&CC (Bangalore).
11.	This Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004 as may be applicable to this project.	Noted.

	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013

Sr. No.	Conditions	Compliance
12.	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.	Complied Copy of six monthly EC&CRZ compliance report is being regularly uploaded by AMPTPL on company website at https://www.adaniports.com/ports-downloads?port=Murmugao-Terminal
13.	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.
14.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisaad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any were received while processing the proposal. The clearance letter shall also be put on the website of the company by proponent.	Complied The same has been Complied by Mormugao Port Trust.
15.	The proponent shall upload the status of compliance of the stipulated Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	Complied AMPTPL is regularly uploading the status of compliance of the stipulated clearance condition including results of monitored data in the company website. The same can be viewed at https://www.adaniports.com/ports-downloads?port=Murmugao-Terminal Six monthly compliance report is regularly submitted to Regional office of MoEF&CC at Bangalore, CPCB Zonal office, SPCB and other authorities. Last compliance report for the period April 2020 – September 2020 was submitted vide letter no. AMPTPL/2020/497 dated 28.11.2020.

	Adani Murmugao Port Terminal Pvt. Ltd.	From : Oct 2020 To : Mar 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

Half yearly Compliance report for Environment and CRZ Clearance for the modernization of Berth No. 7 for coal handling at Murmugao Port, Goa vide F No. 10-39/2009-IA.III dt. 30.12.2013

Sr. No.	Conditions	Compliance
16.	The environmental statement for each financial year ending 31 st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of Clearance conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	<p>Complied</p> <p>Environment Statement in Form V is submitted to Goa State Pollution Control Board for each financial year. Environment Statement for the year FY 2019-20 has been submitted online on 21.09.2020 vide Application No. 673452 and has also been uploaded on company website. Copy of the same is enclosed as Annexure-3.</p> <p>Copy of the same is available on company website at https://www.adaniports.com/ports-downloads?port=Murmugao-Terminal</p>

Enclosures:

Annexure Number	Details of Annexure
Annexure I:	Environmental Monitoring reports for the period Oct'20 to Mar'21
Annexure II:	EMP Compliance report.
Annexure III:	Environment statement in Form V for FY 19-20

"ENVIRONMENTAL MONITORING REPORT" FOR



**ADANI MURMUGAO PORT TERMINAL PVT. LTD. (AMPTPL),
GROUND FLOOR, PORT USERS COMPLEX, NEAR STATE BANK OF INDIA,
MORMUGAO HARBOUR, GOA 403802 INDIA – TEL 0832 2594253**

OCTOBER-2020 TO MARCH-2021

PREPARED BY:



M/s POLLUCON LABORATORIES PVT.LTD.

PLOT NO.5/6 "POLLUCON HOUSE",

OPP. BALAJI INDUSTRIAL SOCIETY,

OLD SHANTINATH MILL LANE,

NEAR GAYTRI FARSAN, NAVJIVAN CIRCLE,

UDHANA MAGDALLA ROAD, SURAT-395007

PHONE/FAX – (+91 261) 263 5750, 263 5751.

E-mail: pollucon@gmail.com

Web: www.polluconlab.com



TC-5945



ISO 9001:2015



ISO 14001:2015



ISO 45001:2018

"ENVIRONMENT MONITORING REPORT"

FOR



**ADANI MURMUGAO PORT TERMINAL PVT. LTD. (AMPTPL),
GROUND FLOOR, PORT USERS COMPLEX, NEAR STATE BANK OF INDIA,
MORMUGAO HARBOUR, GOA 403802 INDIA – TEL 0832 2594253**

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

Approved by : Dr. Arun Kumar Bajpai

Signed : 

Designation : Lab Manager (Q)



This report has been prepared by Pollucon laboratories Pvt. Ltd. with all reasonable skills, care and diligence, incorporating our General Terms and Conditions of Business and taking account of the resources devoted, flow chart, diagram etc. is provided by the client itself.

CONTENTS

Sr. No.	Title	Page No.
1	AMBIENT AIR QUALITY MONITORING	4
2	SEA WATER & SEDIMENTS MONITORING	7
3	STP WATER MONITORING	13
4	DUMP POND WATER MONITORING	15
5	DRINKING WATER MONITORING	17
6	SOIL QUALITY MONITORING	20
7	NOISE LEVEL MONITORING	22
8	D.G. STACK MONITORING	29
9	WEATHER DATA MONITORING	31

CHAPTER – 1

AMBIENT AIR QUALITY MONITORING

MONITORING PERIOD: OCTOBER-2020 TO MARCH-2021

Results of AAQM for Sada Village [OCTOBER-2020 TO MARCH-2021]

Sr. No.	Date of sampling	Particulate Matter (PM ₁₀) µg/m ³	Particulate Matter (PM _{2.5}) µg/m ³	Lead as Pb µg/m ³	Benzo (a) Pyrene (BaP)-particulate phase only ng/m ³	Arsenic as As ng/m ³	Nickel as Ni ng/m ³	Carbon Monoxide as CO mg/m ³	Benzene as C ₆ H ₆ µg/m ³	Ammonia (NH ₃) µg/m ³	Sulphur Dioxide (SO ₂) µg/m ³	Oxides of Nitrogen (NO ₂) µg/m ³	Ozone (O ₃) µg/m ³
1	01/10/2020	51.21	24.53	ND*	ND*	ND*	ND*	0.48	ND*	19.62	9.14	20.76	12.67
2	05/10/2020	60.81	31.16	ND*	ND*	ND*	ND*	0.15	ND*	12.40	13.11	23.41	16.65
3	08/10/2020	50.36	22.62	ND*	ND*	ND*	ND*	0.38	ND*	15.82	10.50	26.36	18.26
4	12/10/2020	63.56	32.53	ND*	ND*	ND*	ND*	0.31	ND*	21.52	12.56	17.57	13.53
5	15/10/2020	44.52	18.52	ND*	ND*	ND*	ND*	0.23	ND*	11.57	6.89	14.34	11.38
6	19/10/2020	68.92	35.63	ND*	ND*	ND*	ND*	0.36	ND*	23.54	15.40	12.79	20.65
7	22/10/2020	55.36	23.74	ND*	ND*	ND*	ND*	0.55	ND*	13.28	17.34	21.56	14.52
8	26/10/2020	43.58	15.37	ND*	ND*	ND*	ND*	0.42	ND*	10.36	8.40	16.74	10.37
9	29/10/2020	48.62	19.43	ND*	ND*	ND*	ND*	0.58	ND*	14.58	14.50	24.34	19.31
10	02/11/2020	53.62	18.56	ND*	ND*	ND*	ND*	0.29	ND*	21.65	13.59	21.56	18.23
11	05/11/2020	62.96	26.39	ND*	ND*	ND*	ND*	0.39	ND*	14.52	9.56	16.28	13.86
12	09/11/2020	48.63	17.57	ND*	ND*	ND*	ND*	0.14	ND*	17.58	17.50	25.62	10.21
13	12/11/2020	68.36	38.45	ND*	ND*	ND*	ND*	0.18	ND*	12.27	10.52	14.25	12.84
14	16/11/2020	57.68	32.44	ND*	ND*	ND*	ND*	0.16	ND*	18.53	12.46	28.45	14.59
15	19/11/2020	72.66	39.65	ND*	ND*	ND*	ND*	0.11	ND*	10.27	16.53	15.25	16.33
16	23/11/2020	59.37	29.42	ND*	ND*	ND*	ND*	0.31	ND*	15.24	11.30	22.84	11.24
17	26/11/2020	65.57	36.21	ND*	ND*	ND*	ND*	0.13	ND*	11.22	15.25	18.43	7.53
18	30/11/2020	50.28	23.66	ND*	ND*	ND*	ND*	0.34	ND*	26.66	8.68	10.97	9.55
19	03/12/2020	58.66	26.35	ND*	ND*	ND*	ND*	0.30	ND*	20.35	15.36	16.61	11.34
20	07/12/2020	63.56	30.33	ND*	ND*	ND*	ND*	0.22	ND*	16.23	8.61	20.78	14.24
21	10/12/2020	42.37	15.62	ND*	ND*	ND*	ND*	0.26	ND*	25.43	6.69	15.83	12.53
22	14/12/2020	70.27	37.54	ND*	ND*	ND*	ND*	0.41	ND*	13.66	13.54	22.67	20.62
23	17/12/2020	64.52	31.24	ND*	ND*	ND*	ND*	0.42	ND*	10.24	9.53	19.75	17.51
24	21/12/2020	47.52	22.75	ND*	ND*	ND*	ND*	0.23	ND*	18.54	14.31	24.22	19.36
25	24/12/2020	53.27	28.51	ND*	ND*	ND*	ND*	0.29	ND*	12.55	10.31	28.62	13.76
26	28/12/2020	60.36	32.57	ND*	ND*	ND*	ND*	0.39	ND*	15.37	7.38	21.51	15.75
27	31/12/2020	56.35	23.53	ND*	ND*	ND*	ND*	0.21	ND*	22.44	12.37	23.67	10.87
28	04/01/2021	56.26	19.27	ND*	ND*	ND*	ND*	0.17	ND*	15.47	10.20	19.24	20.49
29	07/01/2021	68.64	28.55	ND*	ND*	ND*	ND*	0.40	ND*	12.53	12.24	23.67	11.53
30	11/01/2021	45.62	25.32	ND*	ND*	ND*	ND*	0.32	ND*	10.23	16.29	20.43	15.36
31	14/01/2021	75.27	34.27	ND*	ND*	ND*	ND*	0.21	ND*	16.26	7.63	15.65	13.45
32	18/01/2021	55.64	26.35	ND*	ND*	ND*	ND*	0.30	ND*	20.48	11.58	18.23	16.27
33	21/01/2021	42.64	23.53	ND*	ND*	ND*	ND*	0.36	ND*	25.34	6.54	14.51	10.27
34	25/01/2021	73.63	36.38	ND*	ND*	ND*	ND*	0.16	ND*	11.22	15.24	26.59	19.38

35	28/01/2021	52.34	33.44	ND*	ND*	ND*	ND*	0.27	ND*	23.25	9.69	16.23	14.22
36	01/02/2021	60.28	33.48	ND*	ND*	ND*	ND*	0.23	ND*	17.53	16.20	31.29	19.67
37	04/02/2021	52.34	24.24	ND*	ND*	ND*	ND*	0.17	ND*	15.36	11.62	18.63	10.35
38	08/02/2021	63.38	30.41	ND*	ND*	ND*	ND*	0.11	ND*	12.36	13.26	25.62	16.27
39	11/02/2021	55.33	27.68	ND*	ND*	ND*	ND*	0.36	ND*	19.35	15.65	19.52	14.32
40	15/02/2021	48.37	20.39	ND*	ND*	ND*	ND*	0.29	ND*	16.22	8.65	15.62	11.54
41	18/02/2021	54.36	24.53	ND*	ND*	ND*	ND*	0.18	ND*	14.54	17.65	22.69	20.26
42	22/02/2021	45.73	18.52	ND*	ND*	ND*	ND*	0.40	ND*	22.66	12.45	17.58	15.29
43	25/02/2021	64.56	31.82	ND*	ND*	ND*	ND*	0.48	ND*	25.38	6.51	14.24	12.27
44	01/03/2021	57.50	26.39	ND*	ND*	ND*	ND*	0.41	ND*	23.60	18.58	22.89	17.59
45	04/03/2021	66.50	39.40	ND*	ND*	ND*	ND*	0.25	ND*	14.60	8.17	15.60	20.59
46	08/03/2021	54.20	36.38	ND*	ND*	ND*	ND*	0.21	ND*	16.60	15.39	30.31	10.59
47	11/03/2021	63.50	20.30	ND*	ND*	ND*	ND*	0.14	ND*	20.60	12.58	18.61	15.60
48	15/03/2021	59.60	25.61	ND*	ND*	ND*	ND*	0.44	ND*	17.50	10.27	25.59	13.50
49	18/03/2021	67.30	35.39	ND*	ND*	ND*	ND*	0.27	ND*	10.50	14.18	20.60	16.50
50	22/03/2021	56.20	31.49	ND*	ND*	ND*	ND*	0.24	ND*	25.60	9.54	16.49	11.59
51	25/03/2021	60.30	24.61	ND*	ND*	ND*	ND*	0.18	ND*	19.50	7.49	23.60	18.71
52	29/03/2021	48.60	27.51	ND*	ND*	ND*	ND*	0.37	ND*	11.20	11.20	11.60	12.59

ND*: - Not Detected; Detection Limit: Ozone as O₃ (µg/m³): 10

ND*: - Not Detected; Detection Limit - Lead as Pb (µg/m³): 0.5

ND*: - Not Detected; Detection Limit - Carbon Monoxide as CO (mg/m³): 0.01

ND*: - Not Detected; Detection Limit - Ammonia NH₃ (µg/m³): 10

ND*: - Not Detected; Detection Limit - Benzene as C₆H₆ (µg/m³): 2

ND*: - Not Detected; Detection Limit - Benzo (a) Pyrene (BaP) - Particulate Phase only (ng/m³): 0.5

ND*: - Not Detected; Detection Limit - Arsenic as As (ng/m³): 2

ND*: - Not Detected; Detection Limit - Nickel as Ni (ng/m³): 10

CHAPTER – 2

SEA WATER AND SEA SEDIMENTS MONITORING MONITORING PERIOD: OCTOBER-2020 TO MARCH-2021

Results of Sea water Monitoring

Sr. No.	Parameters	Unit	Results					
Sampling Location			Near Jetty					
GPS Location			15° 24.748'N, 73° 47.938'E					
Date of sampling			12/10/2020		12/11/2020		17/12/2020	
			Surface	Bottom	Surface	Bottom	Surface	Bottom
1	pH	--	8.23	8.17	8.26	8.19	8.23	8.2
2	Temperature	°C	30.4	30.1	30.3	30	30.1	29.9
3	Total Suspended Solids	mg/L	146	127	130	114	124	106
4	BOD (3 Days @ 27 °C)	mg/L	3.1	Not Detected	2.9	Not Detected	2.7	Not Detected
5	Dissolved Oxygen	mg/L	5.9	5.7	5.9	5.6	5.9	5.7
6	Salinity	ppt	33.9	34.3	34.2	34.6	34.8	35
7	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
8	Nitrate as NO ₃	μmol/L	3.28	3.12	3.39	3.26	3.47	3.29
9	Nitrite as NO ₂	μmol/L	0.75	0.56	0.68	0.43	0.58	0.41
10	Ammonical Nitrogen as NH ₃	μmol/L	3.14	2.9	2.74	2.58	2.49	2.28
11	Phosphates as PO ₄	μmol/L	2.37	2.1	2.19	1.96	1.93	1.81
12	Total Nitrogen	μmol/L	7.17	6.58	6.81	6.27	6.54	5.98
13	Petroleum Hydrocarbon	μg/L	Not Detected	Not Detected	Not Detected	Not Detected	6.84	Not Detected
14	Total Dissolved Solids	mg/L	35084	35456	35860	36460	36420	36684
15	COD	mg/L	23.5	19.2	22	Not Detected	19	Not Detected
17	Flora and Fauna							
17.1	Primary Productivity	mgC/L/day	21.15		27.9		32.4	
18	Phytoplankton							
18.1	Chlorophyll	mg/m ³	3.1	2.61	2.93	2.83	3.1	2.99
18.2	Phaeophytin	mg/m ³	1.28	2.47	1.92	1.73	1.46	1.87
18.3	Cell Count	No _x x 10 ³ /L	132	98	156	113	169	135
18.4	Name of Group Number and name of group species of each group	--	Cheatocerous sp. Thalassionema sp. Ceratum Rhizosolenia sp. Tricodesmium	Skeletonema sp. Nitzschia sp. Pleurosigma sp.	Tricodesmium sp. Rhizosolenia sp. Coscinodiscus sp. Skeletonema sp.	Navicula sp. Cyclotella sp. Pleurosigma sp. --	Skeletonema sp. biddulphia sp. Coscinodiscus sp. Pleurosigma sp.	Nitzschia sp. fragillaria sp. Thalasslonema sp. --
19	Zooplanktons							
19.1	Abundance (Population)	Nox10 ³ /100m ³	32		26		30	
19.2	Name of Group Number and name of group species of each group	--	Gastropods Cyclopoida Bivalves		Cyclopoida Gastropods Bivalves Copepods		Crustaceans polychates Bivalues	
19.3	Total Biomass	mL/100	3.65		2.9		3.1	

		m ³			
20	Microbiological Parameters				
20.1	Total Bacterial Count	CFU/mL	2110	2240	2180
20.2	Total Coliform	/mL	Absent	Absent	Absent
20.3	E.coli	/mL	Absent	Absent	Absent
20.4	Enterococcus species	/mL	Absent	Absent	Absent
20.5	Salmonella species	/mL	Absent	Absent	Absent
20.6	Shigella species	/mL	Absent	Absent	Absent
20.7	Vibrio species	/mL	Absent	Absent	Absent

Results of Sea water Monitoring

SR. NO.	PARAMETERS	UNIT	RESULTS					
Sampling Location			Near Jetty					
GPS Location			15° 24.748' N, 73° 47.938' E					
Date of sampling			14/01/2021		15/02/2021		18/03/2021	
			Surface	Bottom	Surface	Bottom	Surface	Bottom
1	pH	--	8.19	8.17	8.24	8.19	8.29	8.23
2	Temperature	°C	30.3	30.1	30.2	30	30.3	30.1
3	Total Suspended Solids	mg/L	102	118	114	128	123	142
4	BOD (3 Days @ 27 °C)	mg/L	3.3	Not Detected	3.5	Not Detected	3.7	Not Detected
5	Dissolved Oxygen	mg/L	5.9	5.6	5.9	5.7	5.9	5.7
6	Salinity	ppt	35	35.3	35.6	35.9	35.8	36.2
7	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
8	Nitrate as NO ₃	μmol/L	3.16	3	3.63	3.39	3.27	2.96
9	Nitrite as NO ₂	μmol/L	0.74	0.58	0.58	0.42	0.48	0.32
10	Ammonical Nitrogen as NH ₃	μmol/L	2.35	2.19	2.97	2.58	2.63	2.41
11	Phosphates as PO ₄	μmol/L	2.16	1.9	2.35	2.17	2.76	2.39
12	Total Nitrogen	μmol/L	6.25	5.77	7.18	6.39	6.38	5.69
13	Petroleum Hydrocarbon	μg/L	9.8	Not Detected	12.5	Not Detected	11.6	Not Detected
14	Total Dissolved Solids	mg/L	36134	36898	36658	36915	37402	37804
15	COD	mg/L	24	Not Detected	29	21	25	19
17	Flora and Fauna							
17.1	Primary Productivity	mgC/L/day	23.17		37.8		31.5	
18	Phytoplankton							
18.1	Chlorophyll	mg/m ³	3.2	3.09	3.36	3.2	2.79	2.37
18.2	Phaeophytin	mg/m ³	2.37	2.88	2.21	2.78	0.26	0.14
18.3	Cell Count	No.x 10 ³ /L	198	118	228	142	167	104
18.4	Name of Group Number and name of group species of each group	--	Ceratum sp. Rhizosolenia sp. Thallasione ma sp. Tricodesmiu mse sp. Coscinodiscu s sp.	Spirulina sp. Anabaena sp. Skeletonema sp. Odentella sp. --	Coscinodiscu s sp. Tricodesmiu m sp. Gyro sigma sp. Ceratium sp. Thallasione ma sp.	Pleurosigma sp. Cheatocerou s sp. Navicula sp. odentella sp. --	Ceratum sp. Spirulina sp. Tricodesmia sp. Skeletonema sp.	Cyclotella sp. Nitzschia sp. Cheatocerou s sp. Odentella sp.
19	Zooplanktons							
19.1	Abundance (Population)	Nox10 ³ /100m ³	39		35		28	
19.2	Name of Group Number and name of group species of each group	--	barnacle naupli Harpacticoida Gastropods Bivalues Ostracods		Calanoida Cyclopoida Gastropods Copepods		Gastropods Bivalves Barnade naupili Polychaetes	

19.3	Total Biomass	mL/100 m ³	4.25	4.1	2.9
20	Microbiological Parameters				
20.1	Total Bacterial Count	CFU/mL	2150	2180	2350
20.2	Total Coliform	/mL	Absent	Absent	Absent
20.3	E.coli	/mL	Absent	Absent	Present
20.4	Enterococcus species	/mL	Absent	Absent	Present
20.5	Salmonella species	/mL	Absent	Absent	Present
20.6	Shigella species	/mL	Absent	Absent	Absent
20.7	Vibrio species	/mL	Absent	Absent	Absent

Results of Sea Sediment Monitoring

SR. NO.	PARAMETERS	UNIT	RESULTS					
Sampling Location			Near Jetty					
GPS Location			N 15° 24.748', E 73° 47.938'					
Date of sampling			12/10/2020	12/11/2020	17/12/2020	14/01/2021	15/02/2021	18/03/2021
1	Organic Matter	%	0.46	0.43	0.47	0.56	0.53	0.41
2	Phosphorus as P	µg/g	674	704	638	718	756	638
3	Texture	--	Sandy	Sandy	Sandy	Sandy	Sandy	Sandy
4	Petroleum Hydrocarbon	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
5	Heavy Metals							
5.1	Aluminum as Al	%	4.92	4.83	4.68	4.98	5.12	4.58
5.2	Total Chromium as Cr+3	µg/g	183	160	194	173	156	123
5.3	Manganese as Mn	µg/g	834	758	636	604	714	596
5.4	Iron as Fe	%	4.76	4.43	4.58	4.7	4.83	4.42
5.5	Nickel as Ni	µg/g	38	53	65	42	57	38
5.6	Copper as Cu	µg/g	31	29	39	23	31	27
5.7	Zinc as Zn	µg/g	156	138	126	104	129	113
5.8	Lead as Pb	µg/g	2.4	2.16	1.74	2.36	3.46	2.64
5.9	Mercury as Hg	µg/g	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
6	Benthic Organisms							
6.1	Macrobenthos (No and name of groups present, No and name of species of each group present)	--	Bivalves Polychaetes --	Polychaetes Gastropods Bivalves	Polychaetes Crustaceans Bivalves	Polychaetes Crustaceans Gastropods	Amphipods Bivalves Gastropods Polychaetes	Bivalves Gastropods Polychaetes Amphipods
6.2	MeioBenthos (No and name of groups present, No and name of species of each group present)	--	Nematodes Foraminifera ns --	--	--	Harpacticoid s Nematods	Harpacticoid s Nematods Turbellaria	--
6.3	Population	no/m ²	471	382	412	529	588	412

CHAPTER – 3

STP WATER MONITORING

MONITORING PERIOD: OCTOBER-2020 TO MARCH-2021

Results of STP water quality monitoring

SR. NO.	PARAMETERS	UNIT	RESULTS					
Sampling Location			Baina Sewerage Plant STP Inlet					
Date of sampling			13/10/2020	13/11/2020	18/12/2020	15/01/2021	16/02/2021	19/03/2021
1	pH	--	7.48	7.64	7.11	6.95	7.12	7.32
2	Total Suspended Solids	mg/L	187	159	204	318	286	258
3	BOD (3 Days @ 27 °C)	mg/L	75	80	50	92	47	39
4	COD	mg/L	280	214	185	344	312	287
5	Oil & Grease	mg/L	7.9	6.8	15.8	19.3	14.8	12.9
6	Residual Free Chlorine	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

SR. NO.	PARAMETERS	UNIT	RESULTS					
Sampling Location			Baina Sewerage Plant STP Outlet					
Date of sampling			13/10/2020	13/11/2020	18/12/2020	15/01/2021	16/02/2021	19/03/2021
1	pH	--	7.35	7.43	7.15	6.81	7.28	7.39
2	Total Suspended Solids	mg/L	27	20	29	38	31	27
3	BOD (3 Days @ 27 °C)	mg/L	16	14	10	14	11.2	9.8
4	COD	mg/L	47	56	33	53	48	56
5	Oil & Grease	mg/L	Not Detected	Not Detected	8.1	Not Detected	Not Detected	Not Detected
6	Residual Free Chlorine	mg/L	0.8	0.8	0.8	0.6	0.8	0.7

CHAPTER – 4

DUMP POND WATER QUALITY MONITORING MONITORING PERIOD: OCTOBER-2020 TO MARCH-2021

Results of Dump Pond Water quality monitoring

SR. NO.	PARAMETERS	UNIT	RESULT					
			Dump Pond-1 Near CT 08		Dump Pond-2 Near Pump House		Dump Pond-3 - Nr. Jetty	
	Date of sampling		17/12/2020	18/03/2021	17/12/2020	18/03/2021	17/12/2020	18/03/2021
1	pH	--	7.99	8.12	8.1	8.13	7.49	7.53
2	Total Dissolved Solids	mg/L	349	358	382	396	575	586
3	Total Suspended Solids	mg/L	56	52	49	41	21	27
4	Turbidity	NTU	5.1	4.9	4.6	4.9	6.3	7.1
5	BOD (3 Days @ 27 °C)	mg/L	36	25	25	27	18	20
6	Dissolved Oxygen	mg/L	5.2	5.4	5	5.3	5	5.3
7	COD	mg/L	121	132	129	138	102	119
8	Salinity	ppt	0.17	0.18	0.18	0.19	0.21	0.23
9	Oil & Grease	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
10	Total Hardness as CaCO ₃	mg/L	150	163	122	128	194	187
11	Fluoride as F	mg/L	0.56	0.47	0.44	0.4	0.53	0.47
12	Chloride as Cl	mg/L	98	103	78	86	119	128
13	Zinc as Zn	mg/L	0.044	0.068	0.035	0.061	0.052	0.063
14	Cadmium as Cd	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
15	Lead as Pb	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
16	Mercury as Hg	mg/L	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

CHAPTER – 5

DRINKING WATER QUALITY MONITORING

MONITORING PERIOD: OCTOBER-2020 TO MARCH-2021

Results of Drinking Water Quality Monitoring

SR. NO.	PARAMETERS	UNIT	RESULT			
Sampling Location			Sub Station Building Canteen		Near AMPTPL Exit Gate	
Date of sampling			18/12/2020	22/03/2021	18/12/2020	22/03/2021
1	Colour	Hazen	2	3	2	3
2	Turbidity	NTU	0.25	0.27	0.3	0.35
3	Conductivity	µmho/cm	478	493	444	463
4	pH	--	7.11	7.15	7.06	7.12
5	Chloride as Cl	mg/L	79	83	110	115
6	Total Dissolved Solids	mg/L	318	336	294	307
7	Total Hardness as CaCO ₃	mg/L	125	132	110	118
8	Iron as Fe	mg/L	0.2	0.25	Not Detected	Not Detected
9	Sulphate as SO ₄	mg/L	39	43	20	25
10	Calcium as Ca	mg/L	36	32.8	15	16.4
11	Magnesium as Mg	mg/L	8.4	12	17.4	18.48
12	Fluoride as F	mg/L	0.33	0.46	0.44	0.42
13	Nitrate as NO ₃	mg/L	0.25	0.23	0.32	0.37
14	Manganese as Mn	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
15	Copper as Cu	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
16	Cadmium as Cd	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
17	Arsenic as As	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
18	Mercury as Hg	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
19	Lead as Pb	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
20	Zinc as Zn	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
21	Coliform	/100 mL	Absent	Absent	Absent	Absent
22	E-Coli	/100 mL	Absent	Absent	Absent	Absent
23	Residual Free Chlorine	mg/L	Not Detected	Not Detected	Not Detected	Not Detected

Results of Drinking Water Quality Monitoring

Sr. No.	Parameters	Unit	Result			
Sampling Location			Near Workshop Area		Near Amenity Building	
Date of sampling			18/12/2020	22/03/2021	18/12/2020	22/03/2021
1	Colour	Hazen	2	3	2	3
2	Turbidity	NTU	0.31	0.37	0.21	0.27
3	Conductivity	µmho/cm	444	476	419	438
4	pH	--	7.15	7.18	7.07	7.14
5	Chloride as Cl	mg/L	71	81	69.4	65
6	Total Dissolved Solids	mg/L	294	319	218	246
7	Total Hardness as CaCO3	mg/L	110	120	94	103
8	Iron as Fe	mg/L	Not Detected	Not Detected	0.55	0.42
9	Sulphate as SO4	mg/L	34	38	15.4	17
10	Calcium as Ca	mg/L	30	28.4	22	30.8
11	Magnesium as Mg	mg/L	8.4	11.76	9.36	6.24
12	Fluoride as F	mg/L	0.45	0.43	Not Detected	Not Detected
13	Nitrate as NO3	mg/L	0.3	0.28	0.62	0.75
14	Manganese as Mn	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
15	Copper as Cu	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
16	Cadmium as Cd	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
17	Arsenic as As	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
18	Mercury as Hg	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
19	Lead as Pb	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
20	Zinc as Zn	mg/L	Not Detected	Not Detected	Not Detected	Not Detected
21	Coliform	/100 mL	Absent	Absent	Absent	Absent
22	E-Coli	/100 mL	Absent	Absent	Absent	Absent
23	Residual Free Chlorine	mg/L	Not Detected	Not Detected	Not Detected	Not Detected

CHAPTER – 6

SOIL QUALITY MONITORING

MONITORING PERIOD: OCTOBER-2020 TO MARCH-2021

Results of Soil quality monitoring

SR. NO.	PARAMETERS	UNIT	RESULTS			
Sampling Location			NEAR CT-1		NEAR ADANI SITE	
Date of sampling			17/12/2020	18/03/2021	17/12/2020	18/03/2021
1	Type	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
2	Gravel	%	0.4	0.3	0.5	0.4
3	Coarse Sand	%	4.6	4.7	3.5	3.6
4	Medium Sand	%	40	37	44	39
5	Fine Sand	%	19	23	16	20
6	Total Sand	%	64	65	64	63
7	Silt & Clay	%	36	35	36	37
8	pH (1:5)	--	8.75	8.93	8.65	8.76
9	Electricity Conductivity	µmho/cm	918	938	811	859
10	Alkali matter	mg/kg	312	324	410	368
11	Cation Exchange Capacity	meq/100 g	10.4	10.52	11.2	10.76
12	Sodium Absorption Ratio	--	9.8	9.72	10.8	10.48
13	Organic Matter	mg/kg	0.4	0.38	0.4	0.34
14	Available Nitrogen	meq/100 g	0.35	0.39	0.4	0.48
15	Available Potassium	mg/kg	5.2	6.8	3.4	4.2
16	Available Phosphorus	mg/kg	5.2	6.1	0.35	0.37
17	Available Sodium	%	0.3	0.32	4	4.5
18	Permeability	%	0.7	0.72	0.7	0.71

CHAPTER – 7

NOISE LEVEL MONITORING

MONITORING PERIOD: OCTOBER-2020 TO MARCH-2021

Results of Day Time Noise level monitoring

October-2020					
Day Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		20/10/2020	16/10/2020	09/10/2020	03/10/2020
1	6:00-7:00	46.9	48.7	49.1	46.3
2	7:00-8:00	49.6	49.2	48.6	48.8
3	8:00-9:00	49.8	50.7	50.0	48.5
4	9:00-10:00	50.3	52.3	52.5	49.3
5	10:00-11:00	52.2	53.7	53.9	50.8
6	11:00-12:00	53.6	52.8	54.2	51.3
7	12:00-13:00	54.4	54.5	55.7	52.1
8	13:00-14:00	55.1	56.2	56.4	54.9
9	14:00-15:00	56.8	57.6	57.1	53.5
10	15:00-16:00	57.4	58.9	56.7	52.9
11	16:00-17:00	56.5	59.1	54.8	54.3
12	17:00-18:00	55.8	58.8	53.3	51.5
13	18:00-19:00	54.6	57.3	52.6	53.8
14	19:00-20:00	52.4	55.9	51.1	52.7
15	20:00-21:00	50.1	53.1	50.9	50.2
16	21:00-22:00	50.6	51.4	50.4	49.4
Day Time Limit		75 dB(A) Leq			55 dB(A) Leq

Results of Night Time Noise level monitoring

October-2020					
Night Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		20/10/2020 & 21/10/2020	16/10/2020 & 17/10/2020	09/10/2020 & 10/10/2020	03/10/2020 & 04/10/2020
1	22:00-23:00	49.3	48.8	49.2	43.8
2	23:00-00:00	48.9	47.1	48.7	44.1
3	00:00-01:00	47.5	46.5	47.9	42.9
4	01:00-02:00	46.3	45.6	46.4	43.5
5	02:00-03:00	47.0	46.2	47.2	43.7
6	03:00-04:00	48.6	47.4	46.8	42.4
7	04:00-05:00	47.6	45.0	45.3	41.6
8	05:00-06:00	45.4	44.7	44.6	43.3
Night Time Limit		70 dB(A) Leq			45 dB(A) Leq

**Limit as per CTO No. is 12/2019-PCB/347405/R0002737 dated 24.03.2020 valid up to 31/01/2025.

Results of Day Time Noise level monitoring

November-2020					
Day Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		03/11/2020	06/11/2020	10/11/2020	18/11/2020
1	6:00-7:00	48.3	47.1	50.8	45.8
2	7:00-8:00	50.3	48.6	47.5	47.9
3	8:00-9:00	48.9	49.9	51.5	49.1
4	9:00-10:00	51.3	50.4	54.3	51.8
5	10:00-11:00	53.4	51.6	52.2	52.5
6	11:00-12:00	52.8	54.8	51.0	51.7
7	12:00-13:00	53.8	53.9	54.1	53.7
8	13:00-14:00	54.4	55.5	55.9	52.9
9	14:00-15:00	55.1	56.7	56.6	54.2
10	15:00-16:00	56.4	53.6	57.2	53.2
11	16:00-17:00	57.7	58.7	55.2	52.4
12	17:00-18:00	58.9	56.5	54.7	50.9
13	18:00-19:00	56.2	54.6	53.3	51.2
14	19:00-20:00	54.5	51.9	52.7	50.2
15	20:00-21:00	52.6	48.8	51.4	49.3
16	21:00-22:00	51.1	49.5	50.6	48.5
Day Time Limit		75 dB(A) Leq			55 dB(A) Leq

Results of Night Time Noise level monitoring

November-2020					
Night Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		03/11/2020 & 04/11/2020	06/11/2020 & 07/11/2020	10/11/2020 & 11/11/2020	18/11/2020 & 19/11/2020
1	22:00-23:00	50.2	48.4	47.5	43.9
2	23:00-00:00	49.9	47.8	48.1	43.2
3	00:00-01:00	47.6	46.4	45.8	41.8
4	01:00-02:00	46.8	45.7	48.2	44.5
5	02:00-03:00	48.3	46.9	45.6	42.8
6	03:00-04:00	47.7	45.2	47.2	43.4
7	04:00-05:00	46.5	44.1	48.5	40.8
8	05:00-06:00	45.9	43.6	47.9	43.1
Night Time Limit		70 dB(A) Leq			45 dB(A) Leq

**Limit as per CTO No. is 12/2019-PCB/347405/R0002737 dated 24.03.2020 valid up to 31/01/2025.

Results of Day Time Noise level monitoring

December-2020					
Day Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		04/12/2020	11/12/2020	08/12/2020	15/12/2020
1	6:00-7:00	47.6	48.7	46.4	45.5
2	7:00-8:00	48.9	49.9	47.2	47.0
3	8:00-9:00	49.7	50.0	48.6	49.2
4	9:00-10:00	50.2	51.2	49.8	50.8
5	10:00-11:00	52.5	53.9	50.5	51.9
6	11:00-12:00	53.1	53.4	52.1	52.4
7	12:00-13:00	55.4	54.5	54.0	53.6
8	13:00-14:00	56.9	55.1	53.2	54.8
9	14:00-15:00	57.5	57.3	54.6	52.7
10	15:00-16:00	58.2	56.8	55.3	51.8
11	16:00-17:00	57.7	58.9	56.7	49.6
12	17:00-18:00	56.0	59.6	57.2	52.2
13	18:00-19:00	54.1	60.1	55.5	54.0
14	19:00-20:00	53.3	58.7	54.4	53.0
15	20:00-21:00	52.8	55.0	52.6	52.1
16	21:00-22:00	51.0	54.3	51.3	50.0
Day Time Limit		75 dB(A) Leq			55 dB(A) Leq

Results of Night Time Noise level monitoring

December-2020					
Night Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		04/12/2020 & 05/12/2020	11/12/2020 & 12/12/2020	08/12/2020 & 09/12/2020	15/12/2020 & 16/12/2020
1	22:00-23:00	50.9	52.1	50.5	42.8
2	23:00-00:00	49.1	50.4	50.0	43.9
3	00:00-01:00	48.8	48.0	49.2	41.8
4	01:00-02:00	47.6	49.3	48.5	43.6
5	02:00-03:00	45.4	47.8	47.1	40.7
6	03:00-04:00	44.7	46.2	46.4	42.6
7	04:00-05:00	43.5	47.9	45.8	44.3
8	05:00-06:00	44.2	46.5	44.8	42.3
Night Time Limit		70 dB(A) Leq			45 dB(A) Leq

**Limit as per CTO No. is 12/2019-PCB/347405/R0002737 dated 24.03.2020 valid up to 31/01/2025.

Results of Day Time Noise level monitoring

January 2021					
Day Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		05/01/2021	08/01/2021	12/01/2021	20/01/2021
1	6:00-7:00	48.4	47.0	48.1	46.4
2	7:00-8:00	47.9	48.9	49.9	45.4
3	8:00-9:00	49.6	52.6	50.2	48.0
4	9:00-10:00	51.2	50.8	51.0	49.7
5	10:00-11:00	51.6	52.2	53.4	50.6
6	11:00-12:00	53.8	54.4	54.8	51.8
7	12:00-13:00	54.7	55.6	56.1	52.3
8	13:00-14:00	55.9	56.7	57.9	54.6
9	14:00-15:00	54.1	55.3	58.2	54.2
10	15:00-16:00	56.9	54.3	59.6	52.1
11	16:00-17:00	55.4	56.8	60.8	50.9
12	17:00-18:00	54.5	57.0	58.3	49.4
13	18:00-19:00	52.9	55.1	57.6	54.0
14	19:00-20:00	51.9	52.7	56.3	52.4
15	20:00-21:00	50.4	51.7	54.9	51.3
16	21:00-22:00	49.8	50.5	50.3	49.5
Day Time Limit		75 dB(A) Leq			55 dB(A) Leq

Results of Night Time Noise level monitoring

January 2021					
Night Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		05/01/2021 & 06/01/2021	08/01/2021 & 09/01/2021	12/01/2021 & 13/01/2021	20/01/2021 & 21/01/2021
1	22:00-23:00	48.3	49.1	48.1	43.9
2	23:00-00:00	47.8	48.2	49.0	42.6
3	00:00-01:00	48.4	47.6	47.5	40.9
4	01:00-02:00	46.7	46.8	46.5	41.6
5	02:00-03:00	48.9	45.8	47.2	44.2
6	03:00-04:00	47.7	46.2	48.7	43.2
7	04:00-05:00	45.9	47.9	49.9	41.9
8	05:00-06:00	44.6	48.5	51.6	42.4
Night Time Limit		70 dB(A) Leq			45 dB(A) Leq

**Limit as per CTO No. is 12/2019-PCB/347405/R0002737 dated 24.03.2020 valid up to 31/01/2025.

Results of Day Time Noise level monitoring

February 2021					
Day Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		23/02/2021	09/02/2021	18/02/2021	02/02/2021
1	6:00-7:00	52.0	47.1	49.2	47.4
2	7:00-8:00	49.6	49.5	51.5	48.8
3	8:00-9:00	50.4	50.0	53.6	49.0
4	9:00-10:00	51.0	52.4	54.4	50.5
5	10:00-11:00	52.9	54.6	53.9	52.6
6	11:00-12:00	53.4	55.6	57.6	53.3
7	12:00-13:00	54.2	56.8	55.2	54.1
8	13:00-14:00	56.7	57.2	56.9	51.9
9	14:00-15:00	55.9	58.6	57.4	52.8
10	15:00-16:00	57.3	59.3	55.7	53.5
11	16:00-17:00	58.5	57.1	54.5	54.3
12	17:00-18:00	57.9	56.0	53.8	54.9
13	18:00-19:00	56.4	55.8	52.3	52.5
14	19:00-20:00	55.3	53.2	50.7	50.6
15	20:00-21:00	52.1	52.7	49.7	49.3
16	21:00-22:00	51.7	51.6	48.4	46.5
Day Time Limit		75 dB(A) Leq			55 dB(A) Leq

Results of Night Time Noise level monitoring

February 2021					
Night Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		23/02/2021 & 24/02/2021	09/02/2021 & 10/02/2021	18/02/2021 & 19/02/2021	02/02/2021 & 03/02/2021
1	22:00-23:00	49.8	50.3	47.0	43.2
2	23:00-00:00	45.8	49.6	46.1	42.8
3	00:00-01:00	46.1	43.8	47.1	41.6
4	01:00-02:00	45.9	48.0	43.4	44.6
5	02:00-03:00	44.8	46.1	45.7	42.7
6	03:00-04:00	45.5	47.0	44.2	43.9
7	04:00-05:00	44.3	45.0	43.5	44.4
8	05:00-06:00	43.7	44.1	44.1	42.0
Night Time Limit		70 dB(A) Leq			45 dB(A) Leq

**Limit as per CTO No. is 12/2019-PCB/347405/R0002737 dated 24.03.2020 valid up to 31/01/2025.

Results of Day Time Noise level monitoring

March 2021					
Day Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		09/03/2021	12/03/2021	04/03/2021	02/03/2021
1	6:00-7:00	51.3	48.5	47.9	47.1
2	7:00-8:00	50.8	52.6	48.4	48.8
3	8:00-9:00	52.8	53.2	49.8	49.3
4	9:00-10:00	53.6	51.5	51.0	50.9
5	10:00-11:00	54.1	53.1	52.3	51.2
6	11:00-12:00	55.8	57.3	54.7	52.7
7	12:00-13:00	57.8	54.8	55.5	53.0
8	13:00-14:00	58.4	56.3	57.1	54.4
9	14:00-15:00	59.5	58.7	58.6	52.0
10	15:00-16:00	60.7	57.6	59.8	54.5
11	16:00-17:00	58.9	58.1	58.0	53.8
12	17:00-18:00	59.6	57.4	56.5	53.4
13	18:00-19:00	58.8	55.6	54.9	50.6
14	19:00-20:00	56.4	54.3	52.4	54.6
15	20:00-21:00	54.2	53.3	51.7	52.9
16	21:00-22:00	53.9	52.1	50.2	53.7
Day Time Limit		75 dB(A) Leq			55 dB(A) Leq

Results of Night Time Noise level monitoring

March 2021					
Night Time dB(A)					
SR. NO.	Sampling Time	Near fire station	Near security tower	Adani Site Office Near Gate No.02	Sada village
		09/03/2021 & 10/03/2021	12/03/2021 & 13/03/2021	04/03/2021 & 05/03/2021	02/03/2021 & 03/03/2021
1	22:00-23:00	52.3	51.1	49.1	44.3
2	23:00-00:00	50.5	50.6	48.7	43.8
3	00:00-01:00	49.8	49.4	47.8	42.6
4	01:00-02:00	47.5	48.8	46.2	44.2
5	02:00-03:00	46.4	49.2	45.6	40.8
6	03:00-04:00	48.2	47.7	46.3	41.9
7	04:00-05:00	47.4	46.5	45.7	42.8
8	05:00-06:00	46.6	45.3	44.4	43.9
Night Time Limit		70 dB(A) Leq			45 dB(A) Leq

**Limit as per CTO No. is 12/2019-PCB/347405/R0002737 dated 24.03.2020 valid up to 31/01/2025.

CHAPTER – 8

D.G. STACK & D.G. STACK NOISE MONITORING

MONITORING PERIOD: OCTOBER-2020 TO MARCH-2021

D.G. Stack Monitoring Results

SR. NO.	TEST PARAMETER	UNIT	DG Stack - 1 (2000 KVA) Make Cummins Sr. No.:25388675		LIMIT [#]
			28/12/2020	18/03/2021	
			RESULTS	RESULTS	
1	Particulate Matter	mg/Nm ³	23.41	27.52	75
2	Sulfur Dioxide as SO ₂	Kg/hr	0.012	0.013	--
3	Oxides of Nitrogen as NOX	ppm	30.4	34.5	710
4	Non Methyl Hydro Carbon (NMHC)	mg/Nm ³	Not Detected	Not Detected	100
5	Carbon Monoxide (CO)	mg/Nm ³	20.14	23.29	150
6	Sulfur Content in fuel	%	0.02	0.018	< 2.0

#: Details Provided by Customer.

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

SR. NO.	TEST PARAMETER	UNIT	DG Stack - 2 (2000 KVA) Make Cummins Sr. No.: 25390869		LIMIT [#]
			28/12/2020	18/03/2021	
			RESULTS	RESULTS	
1	Particulate Matter	mg/Nm ³	18.76	21.44	75
2	Sulfur Dioxide as SO ₂	Kg/hr	0.015	0.011	--
3	Oxides of Nitrogen as NOX	ppm	13.54	30.45	710
4	Non Methyl Hydro Carbon (NMHC)	mg/Nm ³	Not Detected	Not Detected	100
5	Carbon Monoxide (CO)	mg/Nm ³	22.51	19.29	150
6	Sulfur Content in fuel	%	0.016	0.016	< 2.0

#: Details Provided by Customer.

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

SR. NO.	TEST PARAMETER	UNIT	DG Stack - 3 (380 KVA) Make Cummins Sr. No.: 25386499		LIMIT [#]
			28/12/2020	18/03/2021	
			RESULTS	RESULTS	
1	Particulate Matter	g/kw-hr	0.016	0.0019	0.3
2	Sulfur Dioxide (SO ₂)	Kg/hr	0.0007	0.0008	1.8
3	Oxides of Nitrogen as NOX	g/kw-hr	0.0053	0.0061	9.2
4	Hydro Carbon (HC)	g/kw-hr	Not Detected	Not Detected	1.3
5	Carbon Monoxide (CO)	g/kw-hr	0.0019	0.002	3.5

#: Details Provided by Customer.

Results on 15 % O₂ Correction when Oxygen is greater than 15 %**D.G. Stack Noise Level Monitoring Results**

SR. NO.	SAMPLING LOCATION	Outside DG Room 1 m distance	
		28/12/2020	18/03/2021
		RESULTS	RESULTS
1	DG Stack - 1 (2000 KVA) Cummins Sr. No.:25388675	71.9	74.3
2	DG Stack - 2 (2000 KVA) Cummins Sr. No.: 25390869	72.4	73.5
3	DG Stack - 3 (380 KVA) Cummins Sr. No.: 25386499	72.2	73.6
LIMIT**		75 dB(A)	

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

CHAPTER – 9
WEATHER DATA MONITORING
MONITORING PERIOD: OCTOBER-2020 TO MARCH-2021

Date	Avg wind Speed (km/hr)	Temperature (°C)	RH %	Precip. (mm)
01/10/2020	3.48	27.41	82.00	0
02/10/2020	4.45	27.61	82.26	0
03/10/2020	3.23	27.00	85.00	0
04/10/2020	3.57	26.98	81.25	0
05/10/2020	2.68	26.50	86.92	0
06/10/2020	3.46	27.25	86.50	0
07/10/2020	3.04	27.85	83.38	0
08/10/2020	4.65	28.43	87.38	0
09/10/2020	3.33	28.37	84.92	0
10/10/2020	4.82	27.32	91.29	3.30
11/10/2020	6.83	25.44	93.67	1.02
12/10/2020	5.41	25.04	91.75	0
13/10/2020	3.94	26.21	93.67	0
14/10/2020	4.90	26.12	87.33	3.56
15/10/2020	5.38	25.17	96.38	9.91
16/10/2020	6.85	25.92	92.33	0
17/10/2020	7.23	26.10	89.46	0
18/10/2020	4.21	25.90	89.39	0
19/10/2020	3.84	26.80	86.67	0
20/10/2020	2.58	26.87	89.83	1.02
21/10/2020	3.21	25.95	95.75	13.72
22/10/2020	4.77	26.41	93.50	0
23/10/2020	7.10	27.04	90.67	0
24/10/2020	8.51	27.12	80.67	0
25/10/2020	6.43	27.07	83.71	0
26/10/2020	3.90	27.33	82.08	89.41
27/10/2020	2.73	26.67	87.58	0
28/10/2020	2.73	27.46	71.63	0
29/10/2020	2.53	27.83	65.29	0
30/10/2020	2.46	27.34	69.08	0
31/10/2020	2.66	28.23	75.88	0
01/11/2020	3.06	28.08	81.08	0
02/11/2020	3.57	27.17	86.96	0
03/11/2020	3.17	27.94	76.17	0
04/11/2020	3.07	28.21	76.92	0
05/11/2020	2.86	28.59	61.00	0
06/11/2020	2.83	28.21	57.52	0
07/11/2020	3.85	28.44	69.58	0
08/11/2020	3.63	28.41	72.29	0
09/11/2020	2.90	28.69	64.17	0
10/11/2020	3.87	26.31	54.21	0
11/11/2020	3.36	25.82	52.25	0
12/11/2020	3.15	27.04	59.63	0
13/11/2020	3.71	28.80	67.96	0
14/11/2020	4.05	28.67	69.88	0
15/11/2020	3.49	28.56	65.17	0
16/11/2020	3.80	28.74	71.50	0
17/11/2020	4.30	28.80	70.50	0
18/11/2020	3.76	28.28	71.88	0
19/11/2020	4.31	28.00	76.79	0
20/11/2020	3.18	27.99	74.88	0

21/11/2020	3.06	28.00	73.08	0
22/11/2020	2.72	27.77	59.00	0
23/11/2020	3.56	28.02	61.25	0
24/11/2020	3.04	27.76	67.00	0
25/11/2020	3.26	27.07	72.08	0
26/11/2020	3.36	27.31	64.46	0
27/11/2020	3.95	27.29	62.13	0
28/11/2020	5.61	26.24	63.42	0
29/11/2020	4.93	27.36	64.92	0
30/11/2020	3.29	28.24	68.29	0
01/12/2020	2.95	28.18	64.79	0
02/12/2020	3.53	27.05	62.83	0
03/12/2020	3.38	26.38	63.25	0
04/12/2020	4.32	26.99	64.38	0
05/12/2020	4.03	27.45	65.58	0
06/12/2020	3.71	26.69	59.08	0
07/12/2020	3.31	27.82	63.08	0
08/12/2020	4.10	28.86	66.13	0
09/12/2020	4.07	29.08	67.92	0
10/12/2020	4.90	28.36	68.42	5.59
11/12/2020	2.77	26.27	79.83	0.51
12/12/2020	3.28	27.10	73.88	0
13/12/2020	2.88	27.08	71.29	0
14/12/2020	3.35	27.16	75.67	0
15/12/2020	3.49	27.43	70.83	0
16/12/2020	4.75	27.27	60.33	0
17/12/2020	4.14	27.48	67.58	0
18/12/2020	3.64	27.85	68.5	0
19/12/2020	3.53	27.50	62.17	0
20/12/2020	3.35	26.71	52.46	0
21/12/2020	4.75	26.37	54.29	0
22/12/2020	4.21	25.92	52.79	0
23/12/2020	3.24	26.29	53.75	0
24/12/2020	3.53	26.70	66.25	0
25/12/2020	3.13	27.43	61.38	0
26/12/2020	3.38	27.00	59.58	0
27/12/2020	3.60	26.58	61.54	0
28/12/2020	3.85	26.26	63.58	0
29/12/2020	4.14	26.26	62.88	0
30/12/2020	4.57	26.43	63.04	0
31/12/2020	4.64	27.83	65.13	0
01/01/2021	3.92	27.70	66.83	0
02/01/2021	4.50	26.88	58.17	0
03/01/2021	4.00	26.93	62.21	0
04/01/2021	3.24	27.27	70.67	0
05/01/2021	4.18	26.79	80.25	1.27
06/01/2021	3.56	27.70	71.71	0
07/01/2021	4.03	26.74	82.38	3.05
08/01/2021	2.70	26.28	86.29	1.27
09/01/2021	2.70	27.43	75.26	0
10/01/2021	3.96	28.25	75.21	0
11/01/2021	3.64	27.77	74.63	0
12/01/2021	2.77	27.99	58.96	0


13/01/2021	3.35	27.88	58.21	0
14/01/2021	3.35	27.59	53.79	0
15/01/2021	3.56	27.79	60.57	0
16/01/2021	4.32	27.82	63.92	0
17/01/2021	4.86	28.04	72.42	0
18/01/2021	3.56	28.04	65.42	0
19/01/2021	3.38	27.39	61.29	0
20/01/2021	2.92	27.24	66.25	0
21/01/2021	6.05	26.35	68.46	0
22/01/2021	4.90	25.29	70.33	0
23/01/2021	3.38	26.16	73.71	0
24/01/2021	5.00	26.96	76.92	0
25/01/2021	5.90	26.66	66.67	0
26/01/2021	6.23	26.10	64.54	0
27/01/2021	4.79	26.12	57.45	0
28/01/2021	5.11	26.57	67.00	0
29/01/2021	4.61	27.34	61.50	0
30/01/2021	3.64	26.71	60.63	0
31/01/2021	3.49	27.02	63.63	0
01/02/2021	3.52	27.83	53.92	0
02/02/2021	4.08	28.23	51.25	0
03/02/2021	4.17	27.46	52.26	0
04/02/2021	3.19	26.70	59.79	0
05/02/2021	4.16	26.20	63.26	0
06/02/2021	3.54	26.09	60.88	0
07/02/2021	3.27	27.25	51.58	0
08/02/2021	4.71	27.49	43.96	0
09/02/2021	4.26	26.77	41.92	0
10/02/2021	3.78	26.30	48.67	0
11/02/2021	3.16	26.23	57.09	0
12/02/2021	2.97	25.90	55.08	0
13/02/2021	4.64	25.86	57.71	0
14/02/2021	3.98	26.12	67.57	0
15/02/2021	5.72	25.84	76.46	0
16/02/2021	8.75	25.89	74.88	0
17/02/2021	8.28	25.74	73.43	0
18/02/2021	6.79	26.09	74.54	0.76
19/02/2021	5.22	25.82	64.08	0
20/02/2021	4.94	27.09	52.62	0
21/02/2021	5.58	27.51	57.13	8.13
22/02/2021	4.35	27.12	60.75	9.65
23/02/2021	3.06	27.71	64.78	0
24/02/2021	3.80	28.41	64.70	0
25/02/2021	4.41	27.35	77.95	0
26/02/2021	5.21	27.66	75.74	0
27/02/2021	5.31	26.89	72.63	0
28/02/2021	4.58	27.63	75.00	0
10/03/2021	4.45	28.16	79.81	0
11/03/2021	4.24	27.79	77.50	0
12/03/2021	4.69	28.28	73.50	0
13/03/2021	4.21	28.14	75.00	0
14/03/2021	4.33	27.93	78.67	0
15/03/2021	4.60	27.73	80.33	0



16/03/2021	3.87	28.43	80.43	0
17/03/2021	4.10	28.16	77.71	0
18/03/2021	4.14	28.67	80.50	0
19/03/2021	6.56	28.71	68.58	0
20/03/2021	7.92	28.39	57.25	0
21/03/2021	4.56	27.88	69.08	0
22/03/2021	5.04	27.95	75.42	0
23/03/2021	4.44	28.76	72.92	0
24/03/2021	5.89	29.06	72.63	0
25/03/2021	4.87	29.65	73.00	0
26/03/2021	3.94	30.22	76.83	0
27/03/2021	5.50	29.42	78.25	0
28/03/2021	5.29	29.62	78.42	0
29/03/2021	4.05	29.29	78.75	0
30/03/2021	5.10	29.72	76.08	0
31/03/2021	6.22	28.81	70.67	0

Note: 01.03.2021 to 09.03.2021, weather station is under maintenance.


	Adani Murmugao Port Terminal Pvt. Ltd.	From : October 2020 To : March 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		



ANNEXURE 2

EMP – COMPLIANCE STATUS		
Sl. NO	MEASURES	STATUS
1	Proposed roads in coal terminal shall be black topped to avoid entertainment of fugitive dust	<p>Complied.</p> <p>Both internal and external roads are paved with Cement Concrete and black top.</p>  <p>In addition, following is practised to control/minimise fugitive dust</p> <ul style="list-style-type: none"> Facility is using road sweeping machines for house-keeping apart from manual labours. Advanced Suction Type Road Sweeping machine is also deployed Regular house-keeping is carried out It is ensured that trucks remain covered with tarpaulin and properly fastened during transportation of cargo. There's speed restriction for vehicles entering the premises. Truck wheel washing arrangement is made inside the port to minimize dust emission. PUC Certification for vehicles is ensure. Cargo is kept covered with tarpaulin all the time (Except during loading & unloading)

	Adani Murmugao Port Terminal Pvt. Ltd.	From : October 2020 To : March 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		
2	The Municipal waste generated at the terminal is to be disposed along with the solid waste being disposed at present by the MPT.	<p>Being complied.</p> <p>Municipal waste generated is properly segregated, stored and disposed along with Solid Waste to local authorities in line to Solid Waste Management Rules 2016 as amended Dispatch register is maintained. Food waste is being fed to OWC for composting.</p> 
3	Adequate numbers Toilets shall be constructed in terminal office and office area. The sewage shall be treated in septic tank. The treated sewage from septic tank shall be disposed into existing sewage network of MPT.	<p>Complied.</p> <p>Toilet has been constructed at berth, office and workshop area. Sewage from the septic tank is transported by sewage tankers to STP located at PWD Baina. STP inlet & outlet characteristic of water is regularly analyzed by NABL accredited laboratory. The monitoring results for the period Oct-2020 to Mar-2021 is enclosed as Annexure 1</p>
4	Drinking water facilities and waste disposal facilities shall be located away from each other.	<p>Complied.</p>
5	The water Effluent from coal stock yard to Be settled in a settling tank	<p>Complied.</p> <p>Port has constructed three water dump ponds. Water effluent from coal stock yard is collected & settled in these dump ponds. Baffle walls in 2 ponds out of 3 have been constructed and 3rd is being constructed to enhance sedimentation efficiency.</p>


	Adani Murmugao Port Terminal Pvt. Ltd.	From : October 2020 To : March 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

6	Efficient pollution control technique for dust control to be utilized at open stock piles, conveyor transfer points, dump hopper loading points and other such dust generation locations.	<p>Complied.</p> <p>A. Dry fog dust suppression system has been provided in conveyor and 224 no's of transfer points.</p> <p>B. 43 Nos water sprinklers have been provided at coal stock yard for dust suppression.</p> <p>C. 2 Nos of Mist Canon systems are provided. (one is mobile canon and other one tire mounted)</p> <p>D. Covered conveyor belts are being used for transportation.</p> 
7	The stacker can operate from distance with boom to keep the stack pile surface to a minimum.	<p>Complied.</p>
8	All the regularly used roadways at site must be swept daily with a tank mounted road sweeper and washed by a truck mounted cart.	<p>Being Complied.</p> <p>Water tanker equipped with mist cannon arrangement is used to spray water on road to ensure the entrapment of fugitive emission. Also, vacuum sweeping machine and Bob cat have been deployed to remove dust from roads.</p>

	Adani Murmugao Port Terminal Pvt. Ltd.	From : October 2020 To : March 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		
		
9	All the transport shall be properly covered at the bottom and top with perfect sealing of plastic/tarpaulin sheets.	Complied. It is ensured that trucks remain covered with tarpaulin and properly fastened during transportation of cargo,
10	The stock yard should be covered with screens/ wall of height of at least 7 to 8 mtr.	Complied. Wind screen of MS structure along with HDPE fabric/ perforated sheet of 15 metres height has been provided along the coal stacking yard.
11	The will be properly covered with tarpaulin and overloading will not allowed to avoid spillage of loose material on the roads. Regular maintenance and washing of wheel to be done.	Being complied. All the loaded trucks are covered with tarpaulin. Truck wheel washing arrangement is made inside the port to minimize dust emission.
12	Ambient noise level due to vehicular traffic to be controlled by developing green belt.	Complied. Green belt developed along the periphery and coal stock yard. Currently about 29,365 plants are planted in port premises and are maintained well. Besides Ambient Noise levels are being monitored on a regular basis and reports of the same is being submitted to MoEF&CC as part of Six monthly compliance report and to GSPCB on regular basis. Ambient Noise levels for the period Oct'20-Mar'21 is attached as Annexure 1

	Adani Murmugao Port Terminal Pvt. Ltd.	From : October 2020 To : March 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		
13	Noise level from air compressor to be reduced by fitting exhaust muffler and intake mufflers	<p>Complied.</p> <p>Air compressor is kept in an acoustic enclosure to minimize noise from these machines. Exposures of workers to high noise level are minimized by job rotation and use of ear muff.</p>
14	Green belt development.	<p>Complied.</p> <p>Green belt developed along the periphery and coal stock yard. Currently about 29,365 plants are planted in port premises and are maintained well.</p>   
15	<p>For controlling fire from coal stock following measures to be adopted.</p> <p>1. 3 No. of mobile fire tender to be placed at coal stack pile area.</p>	<p>Complied.</p> <p>1. Installed fixed fire fighting system (49 fire hydrants & 28 hose reels) at coal stack pile & all CT's</p>

	Adani Murmugao Port Terminal Pvt. Ltd.	From : October 2020 To : March 2021
Compliance to the conditions stipulated in Environment and CRZ clearance.		

	<p>2. Autogenous combustion of coal stock to be prevented by limiting stock height not more than 6 M.</p> <p>3. Lump size of coal to be restricted to 20mm which will not lead to formation of air voids, eliminating the possibility of combustion</p>	<p>2. Stack height is being maintained at 9 meters as per the current CTO. Regular sprinkling of water is carried out to control autogenous combustion.</p> <p>3. Being complied.</p> <p>Also there are 14 No. of water monitors (used for high water volume during fire) are provided around coal stock area.</p>
16	Implementation of Environmental Monitoring Programme.	<p>Being complied.</p> <p>Regular Environmental Monitoring is carried out to access the quality of treated effluents from STP, Ambient Air quality, Noise level are being monitored through NABL accredited laboratory M/s Pollucon Laboratories Pvt Ltd. Regularly and confirming the standards. Also CAAQMS is installed & running successfully. Monitoring reports is being submitted to MoEF&CC as part of Six monthly compliance report and to GSPCB on regular basis. Environment Monitoring Report for the period Oct'20-Mar'21 is attached as Annexure 1.</p> 



GOA STATE POLLUTION CONTROL BOARD

FORM V

(See Rule 14)

Environmental Statement for the financial year ending on 31st March on or before 30th of September every year.

PART A

- (i) Name and address of the owner/ occupier of the industry operation or process : ADANI MURMUGAO PORT TERMINAL PVT. LTD
- (ii) Industry category Primary-(STC Code) : RED, Ports and harbour, jetties and Secondary-(STC Code) dredging operations
- (iii) Production capacity : 4.8 Million Tonnes

Production Name	Production Capacity	Production Unit
Handling of Coal	4.8	Metric Tonnes/Year

- (iv) Year of establishment : 2013
- (v) Date of the last environment statement submitted : 25/09/2019

PART B

1. Water consumption m3/ d

Process : Nil

Cooling : 263.88

Domestic : 38.51

Name of products	Process water consumption per unit of product output	
	During the previous financial year	During the current financial year
Handling of Coal	0.030 m3/MT	0.027 m3/MT

2. Raw material consumption

Name of raw materials	Name of products	Consumption of raw material per unit	
		During the previous financial year	During the current financial year
NIL	NIL	NIL	NIL

*Industry may use codes if disclosing details of raw materials would violate contractual obligations, otherwise all industries have to name the raw material used.

PART C

Pollution discharged to environment/ unit of output.

Pollution	Quantity of pollutants discharged(mass/day)	Concentration of pollutants in discharges(mass/volume)	Percentage of variation from prescribed standards with reasons
Water	No effluent discharged to environment		
Water	No effluent discharged to the environment	-	-
Air	DG sets are provided as standby power source and were used during power failure. The Height of DG stacks are as per CPCB/GSPCB Standards. All the monitored parameters are within standards.		
Air	DG STACK 1 (2000 KVA)- June-2019	PM-21.33 mg/Nm ³ , NOx- 33.49 ppm, CO- 21.32 mg/Nm ³ , NMHC- BDL, Sulfur in fuel- 0.018%	-
Air	DG STACK 1 (2000 KVA)- Sep-2019	PM-19.41 mg/Nm ³ , NOx- 38.45 ppm, CO- 16.03 mg/Nm ³ , NMHC- BDL, Sulfur in fuel- 0.019%	-
Air	DG STACK 1 (2000 KVA)- Dec-2019	PM-24.81 mg/Nm ³ , NOx- 35.44 ppm, CO- 14.72 mg/Nm ³ , NMHC- BDL, Sulfur in fuel- 0.015%	-
Air	DG STACK 1 (2000 KVA)- Mar-2020	PM-19.38 mg/Nm ³ , NOx- 32.29 ppm, CO- 16.88 mg/Nm ³ , NMHC- BDL, Sulfur in fuel- 0.016%	-
Air	DG STACK 2 (2000 KVA)- June-2019	PM-18.23 mg/Nm ³ , NOx- 29.31 ppm, CO- 19.63 mg/Nm ³ , NMHC- BDL, Sulfur in fuel- 0.015%	-
Air	DG STACK 2 (2000 KVA)- Sep-2019	PM-15.72 mg/Nm ³ , NOx- 35.46 ppm, CO- 13.98 mg/Nm ³ , NMHC- BDL, Sulfur in fuel- 0.017%	-

Air	DG STACK 2 (2000 KVA)- Dec-2019	PM-20.54 mg/Nm ³ , NOx- 32.82 ppm, CO- 15.95 mg/Nm ³ , NMHC- BDL, Sulfur in fuel- 0.018%	-
Air	DG STACK 2 (2000 KVA)- Mar-2020	PM-16.62 mg/Nm ³ , NOx- 28.62 ppm, CO- 14.22 mg/Nm ³ , NMHC- BDL, Sulfur in fuel- 0.013%	-
Air	DG STACK 3 (380 KVA)- June-2019	PM- 0.0015 g/kw-hr, NOx-0.0047 g/kw-hr, CO-0.0014 g/kw-hr, HC- BDL, SO ₂ - 0.0005 Kg/hr	-
Air	DG STACK 3 (380 KVA)- Sep-2019	PM- 0.0011 g/kw-hr, NOx-0.0048 g/kw-hr, CO-0.0009 g/kw-hr, HC- BDL, SO ₂ - 0.0006 Kg/hr	-
Air	DG STACK 3 (380 KVA)- Dec-2019	PM- 0.0022 g/kw-hr, NOx-0.0063 g/kw-hr, CO-0.0014 g/kw-hr, HC- BDL, SO ₂ - 0.0010 Kg/hr	-
Air	DG STACK 3 (380 KVA)- Mar-2020	PM- 0.0015 g/kw-hr, NOx-0.0052 g/kw-hr, CO-0.0012 g/kw-hr, HC- BDL, SO ₂ - 0.0005 Kg/hr	-

PART D

Hazardous Wastes

(as specified under Hazardous Wastes (Management and Handling) Rules, 1989)

Hazardous Wastes	Total Quantity (Kg)	
	During the previous financial year	During the current financial year
(a) From process	A). Cat. 5.1 Used Oil - 1.08 MT B). Cat. 5.2 Cotton Waste contaminated with Oil - 0.05 MT	A). Cat. 5.1 Used Oil - 1.62 MT. B). Cat 5.2 Cotton Waste Contaminated with Oil - 0.226 MT
(b) From pollution control facilities	Nil	Nil

PART E

Solid Wastes

	Total Quantity	
	During the previous financial year	During the current financial year
(a) From process	Nil	Nil
(b) From pollution control facility	Nil	Nil
(c)(1) Quantity recycled or re-utilised within the unit	Nil	Nil
(2) Sold	Nil	Nil
(3) Disposed	Nil	Nil

PART F

Please specify the characterization (in terms of composition and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes • Hazardous waste includes used oil (Cat 5.1) and cotton waste contaminated with oil (Cat 5.2). Used oil and the oil soaked cotton waste generated during various maintenance activities are collected in barrels kept in earmarked covered hazardous waste storage area & disposed of through GSPCB authorized – registered recycler.

- The used batteries and E -waste also stored in workshop storage area and disposed of through approved vendor.
- Hazardous waste return in Form 4 was submitted in line with the Hazardous and Other Wastes (Management & Trans boundary Movement) Rules, 2016.
- E-waste return in Form 3 was submitted in line with the E-waste Management Rules 2016
- Solid Waste includes mainly domestic waste (office & kitchen waste) which is disposed through Mormugao Municipal Council (In FY 19-20 0.029 MT of food waste was disposed).

PART G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production All the domestic waste water generated at site is treated at existing sewage treatment plant located at PWD Baina. The treated water is being reused within port premises. Unit has developed adequate green belt within port premises. .

PART H

Additional measures/ investment proposal for environmental protection abatement of pollution, prevention of pollution • Unit is undertaking Regular Environmental Monitoring of port & surrounding area through MoEF&CC recognized laboratory. All the monitored environmental parameters are well within specified limit & the details of monitored data is regularly submitting to GSPCB, CPCB, MoEF&CC and other concerned authorities.

- Unit has also installed Continuous Ambient Air Quality Monitoring System (CAAQMS) for the parameters SO₂, NO_x, PM₁₀ & PM_{2.5} and the monitored real time data has been connected with GSPCB server.
- Coal Stacks are kept covered with tarpaulin at all time, except during loading and unloading and adequate Sprinkling is carried out continuously during loading and unloading.
- Unit has installed multimedia filter system which receives the treated water from MPT Sewage tank. The filtered water is used for plantation & gardening activities. Unit has also provided dump pond and conveyance channel for collection of runoff generated from coal yard.
- Unit has provided Sprinklers at coal yard & conveyor system and carrying out regular water sprinkling to control the dust exposure. Wind screen covered with agronet/ jute cloth is provided around the periphery of coal yard.
- Unit has installed 2 cameras in coal stack yard and its online connectivity has been provided to GSPCB.
- As a precautionary measure an anemometer has been installed along with a hooter on Substation building and three different alert levels have been configured in PLC based on the Wind speed as follows:
 - For 25km/h to 27.99km/h - Hooter blows for 5 Seconds followed by a 1 Second Stop and the same repeats.
 - For 28km/h to 29.99km/h - The Hooter blows for 2 Seconds followed by a 1 second stop and the same repeats.
 - For Above 30km/h - The Hooter continuously blows without any stop.
- Unit has taken continuous steps for developing green belt area within port premises. Vertical garden has also been developed as part of Environment Initiatives.

PART I

Any other particulars for improving the quality of the environment • Integrated housekeeping management is undertaken at top priority to maintain neat and clean working environment in the plant area.

- Integrated Management System (ISO 9001:2015, 14001:2015 and 45001:2018) certified Port
- Working towards achieving “Zero Waste Inventory” as per our Group Environment Policy and all wastes are being handled in line with 5R Principle.