



AECTPL/KPL/EC-Compliance/ENV/-02

Date: 13/07/2018

To,
The General Manager (Operations)
Kamarajar Port Limited,
23 Rajaji Salai, Chennai – 600 001

Dear Sir,



Sub: Development of container terminal at Kamarajar Port Limited on DBFOT basis, KPL awarded to Adani Ennore Container Terminal Private Limited-
Submission of Half yearly Compliance (January 2018 – June 2018) of Environmental Clearance issued to KPL in various stages of development with regards to Container Terminal – Reg.

Ref: 1. Vide order no: 10-28/2005-IA-III dated 19th May, 2006
2. Vide order no: 10-28/2005-IA-III dated: 10/09/2007 and validity extension date: 31.03/2017
3. Vide order no: 10-28/2005-IA-III dated: 24/12/2014

With reference to above captioned subject and cited references, **Adani Ennore Container Terminal Private Limited** is submitting the **Half yearly compliance report** (for the period **January 2018 to June 2018**) of applicable conditions to the Environmental & CRZ Clearance obtained by the M/s. Kamarajar Port Limited in various stages of development as referred above.

Kindly acknowledge us the receipt of the same.

For **Adani Ennore Container Terminal Private Limited,**

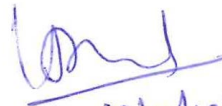

Capt. Jeyaraj Thamburaj
Business Unit Head


Encl.: As above.

✓ Copy To : Mr. Sravan Kumar, Head - Environment, KA

Adani Ennore Container Terminal Pvt Ltd
Adani House
Nr Mithakhali Circle, Navrangpura
Ahmedabad 380 009
Gujarat, India

Tel +91 79 2656 56 5555
Fax +91 79 2555 5500
info@adani.com
www.adani.com
CIN: U61200GJ2014PTC078795


13/7/18



காமராஜர் துறைமுக நிறுவனம்

कामराजर पोर्ट लिमिटेड

Kamarajar Port Limited

(erstwhile Ennore Port Limited)

(A Mini Ratna Government of India Undertaking)

No. KPL/MS/Env/MoEF&CC/2018

Date: 10.09.2018

To

Dr. C Kaliaperumal, M.E., Ph.D

Director (S)

Ministry of Environment, Forest and Climate Change,

Regional Office (SEZ), 1st and 2nd Floor,

Handloom Export Promotion Council,

34, Cathedral Garden Road, Nungambakkam,

Chennai - 34.

Sub: Kamarajar Port Limited, Chennai- Submission of Compliance report for the period of **January to June-2018** on the conditions issued by Ministry of Environment & Forests-Reg.

Sir,

Please find enclosed the compliance report for the period of January to June-2018 on the Ministry's conditions mentioned in the Environment clearance letters issued for the following projects.

1. Construction of new Satellite Port at Ennore, near Madras. Ministry's letter Ref: J-16011/9/87-IA, III dated 28.9.1992.
2. Development of Terminals for marine liquids, coal, iron and containers in second phase and associated capital dredging at Ennore port. Ministry's letter F. No. 10-28/2005-1A-III dated 19th May, 2006.
3. Development of Terminals for marine liquids, coal, iron and containers in second phase and associated capital dredging at Ennore port. Ministry's letter F. No. 10-28/2005-1A-III dated 10th September, 2007.
4. CRZ and Environmental clearance for the construction of General Cargo Berth at Ennore port cargo terminal project. MoEF Letter F.No.11-21/2009-IA-III dated 23.7.2009.

Cont....(2)

Registered Office & Trade Facilitation Centre :

4th Floor, Super Speciality Diabetic Centre
(erstwhile DLB Building)

Rajaji Salai, Chennai - 600 001.

Ph : 044-25251666-70 Fax : 044-25251665

CIN: U45203TN1999GOI043322

पंजीकृत कार्यालय & व्यवसाय सुविधा केन्द्र :

चौथी मंजिल, सुपर स्पेशलिटी डायबेटिक सेन्टर,
(डी एल बी बिल्डिंग)

राजाजी सलाई, चेन्नई-600 001.

फोन : 044-25251666-70 फैक्स : 044-25251665

website : www.ennoreport.gov.in e-mail : info@epl.gov.in

Kamarajar Port - India's Port of the Millennium

Port Office : Vallur Post, Chennai - 600 120

Ph : 044-27950030-40 Fax : 044-27950002

पोर्ट कार्यालय : वल्लूर पोस्ट, चेन्नई - 600 120

फोन : 044-27950030-40 फैक्स : 044-27950002

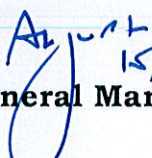
:2:

5. Expansion and modernization of existing handling of multicargo container terminal at Kamarajar Port by M/s. Kamarajar Port Limited - Environmental and CRZ clearance (Development of Multicargo berth (230m) and container terminal (730m)). MoEF's letter F.No. 10-28/2005-IA-III dated 24.12.2014.
6. Development of additional coal berths (CB3 and CB4) at Kamarajar Port, Tamil Nadu by M/s. KPL Environmental and CRZ clearance - MoEF's Letter F.No. 11-51/2012-IA-III dated 12.03.2015.
7. Modification of existing iron ore terminal on 'as is where is' basis to handle common user coal at Kamarajar Port- MoEF's Letter F.No.10-28/2005-IA-III dated 9th May 2018.

The six monthly environmental quality reports and the soft copy of the compliance report in CD are also enclosed.

Thanking you,

Yours sincerely,


15/09/18
General Manager (Marine Services)

Encl: soft copy of the Compliance report for the above individual projects in CD.

To
MR (HSE)You are here [Home](#)>> [Track Consignment](#)**Track Consignment**

* Indicates a required field.

* Consignment Number

ET115213185IN

Booked At	Booked On	Destination Pincode	Tariff	Article Type	Delivery Location
Chennai GPO BPC	15/09/2018 12:29:03	600034	47.20	Speed Post	Nungambakkam MDO

Event Details For : ET115213185IN Current Status : Item Booked

Date	Time	Office	Event
15/09/2018	12:29:03	Chennai GPO BPC	Item Booked

[More Informa](#)

Booked At	Booked On	Destination Pincode	Tariff	Article Type	Delivered At	Delivered On
BPC CHENNAI GPO	15/09/2018	600034	47.20	SPA		

Event Details For : ET115213185IN Current Status : Bag Despatched to NUNGAMBAKKAM MDO

Date	Time	Office	Event
17/09/2018	04:14:14	BNPL SP Hub ANNAROAD CHENNAI	Bag Despatched to NUNGAMBAKKAM MDO
16/09/2018	15:35:08	BNPL SP Hub ANNAROAD CHENNAI	Item Bagged for NUNGAMBAKKAM MDO
15/09/2018	19:01:41	BNPL SP Hub ANNAROAD CHENNAI	Item Received
15/09/2018	12:29:03	BPC CHENNAI GPO	Item Booked

[Home](#) | [About Us](#) | [Employee Corner](#) | [Tenders India](#) | [Forms](#) | [Right To Information](#) | [Opportunities](#) | [Holidays](#) | [Website Policies](#) | [Related s](#)This website belongs to Department of Posts, Ministry of Communications,
Government of IndiaSite Created and Maintained by Tata Consultancy Services Ltd.
Last updated ----- 25-Oct-2018**Registered Office Address**Department of Posts
Dak Bhawan, Sansad Marg
New-Delhi-110001.

Environmental & CRZ Clearance Half Yearly compliance Report – January 2018 to June 2018

Vide order no: 10-28/2005-IA-III dated 19th May, 2006

Specific Conditions:

Sl. No.	Environmental Clearance conditions	Compliance Status as on 31/06/2017
i.	All the conditions stipulated in the NOC from TNPCB vide their letter No. T12/TNPCB/Misc./F.3322/TVLR/05, dated 07.12.2005 should be strictly implemented.	Status by KPL. Detailed compliance submitted as annexure by KPL dated 18.07.2013.
ii.	Groins and other suitable structures should be constructed to prevent the closing of the mouth of Ennore Creek.	Status by KPL.
iii.	The DPR and the technical details to be awarded to the BOT operator should provide to MoEF for post project monitoring within 6 months from the date of receipt of this letter.	Complied. Container Terminal DPR submitted vide letter number EPL/MS/49/2008 dt. 13/03/2008.
iv.	The marine terminal should be set up outside CRZ area.	Status by KPL.
v.	Recommendations of Risk Analysis report should be strictly implemented and a comprehensive quantitative Risk Analysis should be carried out before operationalizing the project.	Operational Risk Assessment carried out and the recommendations are being implemented. Operational Risk Assessment copy enclosed as Annexure - I.
vi.	Approval form Chief Controller of Chief Explosives should be obtained for hazardous chemicals storage, transfer and related activities.	Not Applicable. AECTPL is not storing any Hazardous chemicals. Hence not applicable.
vii.	The reclamation of the port area should be carried out with the dredged materials. Dredged material should not be dumped into the sea. No reclamation should be carried outside the port limits.	Status by KPL.
viii.	The coastal protection works should be carried out after detailed hydrodynamic modelling studies and it should be ensured that no erosion or accretion takes place in the shore protection works.	Status by KPL.
ix.	Reclamation of 500 acres should be carried out only for the port development. The height of the reclaimed area will be maintained above the maximum flood level.	Status by KPL.
x.	The wave tranquillity study and the ship manuring studies carried out should be taken into account while operating the port.	Status by KPL.
xi.	The project proponent should ensure that doing construction and operation of the port there will be impact on the livelihood of the fisherman. The fishermen should be provided free access to carry out the fishing activity.	Status by KPL.
xii.	All necessary precaution while undertaking construction and operation of the port should be taken keeping in view the bathymetric changes caused due to tsunami.	Status by KPL.
xiii.	All development in the port should be accordance with the Coastal Regulation Zone Notification, 1991 and approved Coastal Zone Management Plan of Tamil Nadu.	Status by KPL.

Environmental & CRZ Clearance Half Yearly compliance Report – January 2018 to June 2018

xiv.	The project proponent should undertake a comprehensive hydrodynamic modelling study with regard to river diversion and submit the report to the Ministry within 6 months from the date of receipt of this letter. Further the unit should comply with all the findings/recommendations of the study.	Status by KPL.
xv.	Construction labour camps should be located outside of CRZ area and should be provided with adequate cooking and sanitation facilities.	Complied. Construction of container terminal is completed.
xvi.	The project affected people, of any should be properly compensated and rehabilitated.	Status by KPL.
GENERAL CONDITIONS:		
i.	Development of the proposed channel should be undertaken meticulously conforming to the existing Central/Local rules and regulations including CRZ Notification, 1991 and its amendments. All the construction designs/drawings relating to the proposed development activities must have approvals of the concerned State Govt. Depts./Agencies.	Status by KPL.
ii.	A well-equipped laboratory with suitable instruments to monitor the quality of air and water shall be set up as to ensure that the quality of ambient air and water conforms to the prescribed standards. The laboratory will also 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 concerned pollution control agencies. The periodic monitoring reports at least once in 6 months must be send to this Ministry (RO at Bangalore) and Pollution Control Committee.	Complied. AECTPL has awarded Environmental Monitoring to NABL accredited laboratory. The reports are being submitted to KPL and Tamil Nadu Pollution Control Board on monthly basis. Environment Monitoring report for the period January 2018 – June 2018 is attached as Annexure - II
iii.	Adequate provisions for infrastructure facilities such as water supply, fuel for cooking, sanitation etc. must be provided for the labourers during the construction period in order to avoid damage to the environment. Colonies for the labourers should not be located in CRZ area. It should also be ensured that the construction workers do not cut trees including mangroves for fuel wood purpose.	Complied. Construction completed.
iv.	To prevent discharge of sewage and other liquid wastes into the water bodies, adequate system for collection and treatment of the waste must be provided. No Sewage and other liquid wastes without treatment should be allowed to enter into the water bodies.	Complied. AECTPL has installed 25 KLD capacity Sewage Treatment Plant and treated water is being used for horticulture purpose
v.	Appropriate facility should be created for the collection of solid and liquid wastes generated by the barges/vessels and their safe treatment	Status by KPL.

Environmental & CRZ Clearance Half Yearly compliance Report – January 2018 to June 2018

	and disposal should be ensured to avoid possible contamination of the water bodies.	
vi.	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.	Status by KPL.
vii.	The project authorities should take appropriate community development and welfare measures for villagers in the vicinity of the project site, including drinking water facilities. A separate fund should be allocated for the purpose.	Status by KPL. However AECTPL has initiated few CSR initiatives in the vicinity of the project.
viii.	The quarrying material required for the construction purpose should be obtained only from the approved quarries/borrow areas. Adequate safeguards measures shall be taken to ensure that the overburden and rocks at the quarry site do not find their way in water bodies.	Complied AECTPL has completed construction.
ix.	For employing unskilled, semi-skilled and skilled workers for the project, preference should be given to local people.	Complied. AECTPL has considered local people during construction phase & also during Operation Phase through Contracts
x.	The recommendations made in the EMP and DMP, as contained in the EIA and RA reports of the projects shall be effectively implemented.	Status by KPL.
xi.	A separate EMC with suitable qualified staff to carry out various environment should be set up under the charge of a Senior Executive who will report directly to Chief Executive of the Company.	Complied. Environment Department headed by Senior Manager – Environment, who is reporting directly to Chief Executive Officer of the company is in place. He is well supported by Environment Management Team at H.O.
xii.	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 AECTPL allocated budget for Environment Management is about INR: 7,83,000/- for Financial Year - 2018-2019.
xiii.	Full support should be extended to the officers of the Ministry's Regional office at Bangalore and the officer of the Central and SPCB by the project proponent during this inspection for monitoring purposes, by furnishing full details and action plans including the action plans including the action taken reports in respect if mitigative measures and other environmental protection activities.	Noted for compliance .
xiv.	In case there is an intension of deviation or alternation 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	Noted for compliance

Environmental & CRZ Clearance Half Yearly compliance Report – January 2018 to June 2018

	ones for ensuring environmental protection. The project proponents should be responsible for implementing the suggested safeguard measures.	
xv.	The Ministry reserves right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.	Noted.
xvi.	This Ministry or any other competent authority may stipulate additional conditions subsequently, if deemed necessary for environmental protection, which shall be complied with.	Noted.
xvii.	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 available with the SPCB and may also be seen at Website of the Ministry of Environment & Forests at http://www.envforenic.in . The advertisement should be made within 7 days from the date of issue of the clearance letter and a copy of the same should be forwarded to the Regional Office of the Ministry at Bangalore.	Status by KPL.
xviii.	The project proponents should inform the RO 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.	Status by KPL.

Environmental & CRZ Clearance Half Yearly compliance Report – January 2018 to June 2018

Vide order no: 10-28/2005-IA-III dated: 10/09/2007 and validity extension date: 31.03/2017

A. Specific Conditions:

S.No	Environmental Clearance conditions	Compliance Status as on 31/06/2017
i	It should be ensured that no mangroves are destroyed during reclamation.	Status by KPL.
ii	The proposed extension to the project should not cause any shoreline change abutting Ennore Port.	Status by KPL.
iii	Adequate provision for beach nourishment and sand bypass should be provided.	Status by KPL.
iv	The dredged material obtained should be utilized for filling up of back up area.	Status by KPL.
v	All conditions stipulated in the environmental clearance letter of even number dated 19.05.2006 should be strictly complied with.	All stipulated conditions applicable to AECTPL in the environmental clearance letter of even number dated 19.05.2006 are being complied and compliance reports are regularly submitted to KPL
vi	The additional dredged material of 4 million cu. Mts. obtained from the project should not be disposed of into the sea.	Status by KPL.
vii	The reclaimed area should be used as containers stack yard only.	Status by KPL.
viii	Adequate drainage facilities should be provided in the reclaimed are along with collection and treatment system for treating the run off from the container stack yards.	Status by KPL.
ix	Necessary approvals/clearances should be obtained from the Tamil Nadu Coastal Zone Management Authority and Tamil Nadu Pollution Control Board before implementing the project.	TNCZMA recommendation was obtained by KPL Tamil Nadu Pollution Control Board accorded Consent to Operate orders to handle 11.68 MMTPA containers vide order no: T5/TNPCB/F.1305AMB/RL/AMB/W/2017 – dated: 28/06/2017. Application for Renewal of Consent to Operate has already been submitted to TNPCB.

B. General Conditions:

S.No	Environmental Clearance conditions	Compliance Status as on 31/06/2017
i	Construction of the proposed structures should be undertaken meticulously confirming to the existing Central/ local rules and regulations including Coastal Regulation Zone Notification 1991 & its amendments. All the construction design drawings relating to the proposed construction activities must have approvals of the concerned State Government Departments / Agencies.	Status by KPL.

Environmental & CRZ Clearance Half Yearly compliance Report – January 2018 to June 2018

ii	Adequate provisions for infrastructure facilities such as water supply, fuel, sanitation etc. should be ensured for construction workers during the construction phase of the project so as to avoid felling of trees/ Mangroves and pollution of water and the surroundings.	Complied. Construction of container terminal is completed.
iii	The project authorities must make necessary arrangements for disposal of solid wastes and for the treatment of effluents by providing a proper wastewater treatment plant outside the CRZ area. The quality of treated effluents, solid wastes and noise level etc. must conform to the standards laid down by the competent authorities including the Central/State Pollution Control Board and the Union Ministry of Environment and Forests under the Environment (Protection) Act, 1986, whichever are more stringent.	Complied AECTPL has installed and operating 25 KLD sewage treatment plant to collect and treat the sewage generated from the terminal.
iv	The proponent shall obtain the requisite consents for discharge of effluents and emission under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 from the Tamil Nadu Pollution control Board before commissioning of the project and a copy of each of these shall be sent to this Ministry.	Complied Tamil Nadu Pollution Control Board accorded Consent to Operate orders to handle 11.68 MMTPA containers vide order no: T5/TNPCB/F.1305AMB/RL/AMB/W/2017 – dated: 28/06/2017. Application for Renewal of Consent to Operate has already been submitted to TNPCB.
v	The proponent shall provide for a regular monitoring mechanism so as to ensure that the treated effluents conform to the prescribed standards. The records of analysis reports must be properly maintained and made available for inspection to the concerned State/Central officials during their visits.	Complied AECTPL has hired the service of NABL accredited laboratory for carrying out regular Environment monitoring and reports are being submitted to Tamil Nadu pollution control board. Reports are made available for inspection to the concerned State/Central officials during their visits.
vi	In order to carry out the environmental monitoring during the operational phase of the project, the project authorities should provide an environmental laboratory well equipped with standard equipment and facilities and qualified manpower to carry out the testing of various environmental parameters.	Complied Environmental Monitoring is being carried out through NABL accredited laboratory for carrying out regular Environment monitoring
vii	The sand dunes and mangroves, if any, on the site should not be disturbed in any way.	Status by KPL.
viii	A copy of the clearance letter will be marked to the concerned Panchayat/Local NGO, if any from whom any suggestion/representation has been received while processing the proposal.	Status by KPL.
ix	The Tamil Nadu 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.	Status by KPL.

Environmental & CRZ Clearance Half Yearly compliance Report – January 2018 to June 2018

x	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's Regional Office at Bangalore and the State Pollution Control Board.	Complied. AECTPL allocated budget for Environment Management is about INR: 7,83,000 /- for Financial Year - 2018-2019.
xi	Full support should be extended to the officers of this Ministry's Regional office at Bangalore 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.	Noted for compliance
xii	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.	Noted.
xiii	This Ministry reserve the right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.	Noted.
xiv	This Ministry or any other component authority may stipulate any other additional conditions subsequently, if deemed necessary, for environmental protection, which shall be complied with.	Noted.
xv	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 & Forests at http://www.envfor.in . The advertisement should be made within 7 days from the date of issue of the clearance letter and a copy of the same should be forwarded to the regional Office of this Ministry at Bangalore.	Status by KPL.
xvi	The Project proponents should inform the Regional Office at Bangalore 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.	Status by KPL.

Environmental & CRZ Clearance Half Yearly compliance Report – January 2018 to June 2018

Vide order no: 10-28/2005-IA-III dated: 24/12/2014

A. Specific Conditions:

S.No	Environmental Clearance conditions	Compliance Status as on 31/06/2017
i	"Consent to Establish" for the present project, shall be obtained from State Pollution Control Board under Air (Prevention and Control of Pollution) Act, 1981 and Water (Prevention and Control of Pollution) Act 1974.	Complied Tamil Nadu Pollution Control Board accorded Consent to Operate orders to handle 11.68 MMTPA containers vide order no: T5/TNPCB/F.1305AMB/RL/AMB/W/2017 – dated: 28/06/2017. Application for Renewal of Consent to Operate has already been submitted to TNPCB.
ii	Quality of Cargo should be handled in accordance with the details provided in the Form-I.	Complied AECTPL is handling only containerized cargo, as approved
iii	All the recommendations and conditions stipulated by Tamil Nadu Coastal Zone Management Authority (TNCZMA) No. 30060/EC.3/2005-1 dated 06.12.2005 shall be complied with.	Status by KPL.
iv	All the conditions as prescribed in the earlier Clearance letter no. 10-28/2005-IA-III dated 19.05.2006 and 10.09.2007 shall be complied with.	Status by KPL.
v	All the recommendation of the EIA/EMP & Risk Assessment and Disaster Management Report shall be complied with letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in the matrix format and the compliance for each mitigation plan shall be submitted to MoEF & CC along with half yearly compliance report to MoEF&CC- RO.	Status by KPL.
vi	The commitment made by the proponent to the issue raised during Public Hearing shall be implemented by the Proponent.	Status by KPL.
vii	Corporate Environmental Responsibility: <ul style="list-style-type: none"> a. The Company shall have a well laid down Environmental Policy approved by the Board of Directors. b. The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions. c. The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance 	AECTPL having approved QHSE policy. AECTPL having approved SOPs. Status by KPL.

Environmental & CRZ Clearance Half Yearly compliance Report – January 2018 to June 2018

	<p>conditions shall be furnished.</p> <p>d. To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large.</p>	Standard procedures are made available to address corrective & preventive the deviation and violations.
--	---	---

B. GENERAL CONDITIONS:

S.No	Environmental Clearance conditions	Compliance Status as on 31/06/2017
i	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Complied Construction completed
ii	Full support shall be extended to the officers of the Ministry/Regional Office at Chennai 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.	Noted for compliance
iii	A six-Monthly monitoring report shall be need to be submitted by the project proponents to the Regional Office of this Ministry at Chennai regarding the implementation of the stipulated conditions.	Status by KPL. For AECTPL, regular Environmental Monitoring is being carried out through NABL accredited laboratory
iv	Ministry of Environment, Forests & Climate Change or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the in the interest of environment and the same shall be complied with.	Noted for compliance.
v	The Ministry reserves the rights to revoke this clearance if any of the conditions stipulated are not complied with 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, Forests & Climate Change.	Noted.
vii	The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Noted.

Environmental & CRZ Clearance Half Yearly compliance Report – January 2018 to June 2018

viii	A copy of the clearance letter shall be marked to concerned Panchayat/ Local NGO, if any, from whom any suggestion/ representation has been made received while processing the proposal.	Status by KPL.
ix	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. Environment Department headed by Senior Manager – Environment, reporting directly to Chief Executive Officer is in place. He is <u>well</u> supported by Environment Management Cell, <u>HQ.</u>
x	The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.	Complied AECTPL allocated budget for Environment Management is about INR: 7,83,000 /- for Financial Year - 2018-2019.
5.	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.
6.	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.	Noted.
7.	The project proponent shall 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 and CRZ clearance and copies of clearance letters are available with the Tamil Nadu State Pollution Control Board and may also be seen at Website of the Ministry of Environment, Forests and Climate Change at http://www.envfornc.in . The advertisement should be made within Seven days from the date of issue of the clearance letter and a copy of the same should be forwarded to the regional Office of this Ministry at Chennai.	Status by KPL.
8.	The clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 20014 as may be applicable this project.	Noted.

Environmental & CRZ Clearance Half Yearly compliance Report – January 2018 to June 2018

9.	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, with a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act 2010.	Noted.
10.	Status of compliance to the various stipulated environment conditions and environmental safeguards will be uploaded by the project proponent in its website.	Noted.
11.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad/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 the proponent.	Status by KPL.
12.	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.	Status by KPL.
13.	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	Status by KPL.
14.	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 Office of MoEF & CC by email.	Noted and will be complied.



Adani Ennore Container Terminal
Private Limited

Quantitative Risk Assessment Report

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN / F / 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	AECTPL /RA/CT/OPS-001	Revision	03	Date of Revision	01.04.2017			
Name of Equipment/ Activity	Gate Operations							
Purpose of Equipment/ Activity	Inward / Outward movement of containers. Checking of Containers at Gate							
Sub Activities: (1) Vehicles carrying containers are gated in/out, (2) Movement of shift bus and cars, (3) Checking of containers								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By
1,2	<ul style="list-style-type: none"> Collision of vehicle while movement 	<ul style="list-style-type: none"> Private ITV operator's license is checked before entry to terminal. Maintain of vehicle speed 10 to 20 kmph. Monitoring by security guard. 	2	2	L	<ul style="list-style-type: none"> Display speed limit signage at designated place 	-	
	<ul style="list-style-type: none"> Hit by / run over by vehicle during movement 	<ul style="list-style-type: none"> Reflective traffic cones are placed near porta cabin. Security guard ensure that drivers follow the lane prescribed and no overtaking is allowed 	2	2	L			

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

3	<ul style="list-style-type: none"> Entangling in the structure during vehicle movement 	<ul style="list-style-type: none"> Safety rope/frame for trailer truck frame. Person is allowed to check the container on trailer when trailer engine is switched off. 	3	2	M	<ul style="list-style-type: none"> Safety ropes in the cut-trailers to be periodically checked and ensured that they are available 	L	
	<ul style="list-style-type: none"> Slip & Fall from the vehicle 	<ul style="list-style-type: none"> Personnel use all PPEs. Attentiveness Safety training is imparted. 	2	2	L			
	<ul style="list-style-type: none"> Trailer hit to surveyor. 	<ul style="list-style-type: none"> Surveyor should ensure that the truck carrying container under survey and the immediately following vehicle should be turned OFF. 	3	2	M	<ul style="list-style-type: none"> Truck/ trailer lane marking at IN/Out Gate Contracted structure placed at In/Out gate for Safe truck movement and surveyor halt area 	L	
Risk Assessment carried/reviewed/Issued out by								
Name		Designation	Op. Superintendent	Sign		Date	01.04.2017	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	AECTPL /RA/CT/OPS - 002	Revision	03	Date of Revision	01.04.2017			
Name of Equipment/ Activity	QC Operation							
Purpose of Equipment/ Activity	Container Handling in Vessel.							
Sub Activities: (1) Removing Hatch Covers, (2) Unloading and Loading of Containers, (3) Boom Operation, (4) Handling of Over Dimensional Cargo.								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By
1.	<ul style="list-style-type: none"> Hatch Covers Locked 	<ul style="list-style-type: none"> Deck Checker ensures that hatch cover is unlocked before hoist. 	3	1	L	-	-	.
	<ul style="list-style-type: none"> Falling of locks/ lashing rods onto ITV/ Persons. 	<ul style="list-style-type: none"> Locks and rods are removed prior lifting hatch cover. Proper house- 	3	2	M	Pinning/ Unpinning point had been identified and removal and fixing of locks are performing	L	Safety & Operation Incharge

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

2		keeping to be carried out.				at that point		
	<ul style="list-style-type: none"> Container hit to container while unloading and loading. 	<ul style="list-style-type: none"> Special Alarm fixed on each QC for hatch cover handling to alert the persons and ITVs Operator maintained the safe height of container and proper alignment procedure while unloading and loading. 	3	1	L			
	<ul style="list-style-type: none"> Damaged cell guides 	<ul style="list-style-type: none"> Operator & Deck checker check condition of the cell guides before start the 	3	1	L			

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

	<ul style="list-style-type: none"> • Twin lift containers with heavy Trim on spreader. • Boom may hit to vessel's accommodation or derrick. • Vessel derrick can hit QC or Containers during operation. 	<p>operation.</p> <ul style="list-style-type: none"> • Operator have to refer the PLC & fault display screen and get the assistance from engineering • Boom must be kept at boom up position while vessel berthing and sailing. • Derrick Cranes are moved before operation commencement 	3	1	L			
			3	1	L			
			3	2	M	<ul style="list-style-type: none"> • Weight limit is defined and set in PLC 	L	
	<ul style="list-style-type: none"> • Container falling from the height. 	<ul style="list-style-type: none"> • Assess the 						

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

3	<ul style="list-style-type: none"> Collision with man , machine interference 	<p>weight of the box as per stow plan and lift both the containers separately.</p> <ul style="list-style-type: none"> Anti-collision system provided on boom structure both the side. Rectangular operation of QC to avoid swing Use of certified slings. Operation carried out under continuous supervision. 	2	2	L			
---	---	---	---	---	---	--	--	--

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

4	<ul style="list-style-type: none"> Fall of object /load from height 	<ul style="list-style-type: none"> Should be handled with proper tools & tackles under supervisor & wharf checker guidance 	2	2	L			
Risk Assessment carried/Reviewed/Issued out by								
Name		Designation	Op. Superintendent	Sign		Date	01.04.2017	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	AECTPL / RA/ CT/OPS - 003	Revision	03	Date of Revision	01.04.2017			
Name of Equipment/ Activity	Handling Hazardous containers in Terminal							
Purpose of Equipment/ Activity	For Safe Handling of Hazardous Containers.							
Sub Activities: (1) Loading/Unloading Container on/from vessel. (2) Containers' placement at the designated area.								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By
1 & 2	<ul style="list-style-type: none"> Spillage of chemical from the container 	<ul style="list-style-type: none"> Containers are stacked only at the open ends of the stack. No containers are received inside yard without hazardous declaration or hazardous manifest and proper UN number with labeling on 4 	4	2	H	<ul style="list-style-type: none"> Chemical Suit is required for any hazardous cargo spillage handling which is available with Fire Department. Leak cart is availed for handling hazardous cargo spillage. Leak cart is placed at isolated area with fire hydrant. 	L	Shift In-charge (Duty Superintendent)

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

	<ul style="list-style-type: none"> Fire & Burn while hazardous cargo handling 	<p>sides of the container.</p> <ul style="list-style-type: none"> Spillage container to be evacuated from the stack as soon as possible and kept at HAZ Bound Area Frequent check on hazardous stack by yard checkers and supervisors during routine rounds. Containers stacked on the open ends of the yard for easy access for fire fighting. Allocating storage plan as per segregation or IMO table. 	3	2	M	<ul style="list-style-type: none"> Emergency Response Guide (ERG) and Emergency Response Plan (ERP) are installed in desktop of Fire, Safety, Security and Operation dept for ready reference and action to be taken. HAZARDOUS INYARD auto-generated mail is sent to all depts. for reference. 	L	
--	--	--	---	---	---	---	---	--

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

		<ul style="list-style-type: none"> Loading of HAZ container should be on the designated bays depending on the vessel's HAZ cargo plan approved by vessel's chief or Central Planner. 						
Risk Assessment carried/ Reviewed/ Issued out by								
Name		Designation	Op. Superintendent	Sign		Date	01.04.2017	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.		AECTPL / RA / CT/OPS - 004	Revision	03	Date of Revision		01.04.2017	
Name of Equipment/ Activity		Risk Associated with lashing, unlashng of containers						
Purpose of Equipment/ Activity		To lash or unlash the containers on board vessel.						
Sub Activities: (1) Lashing/Unlashing containers on ship, (2) Removing/ fixing of twist locks from/to containers.								
Sr. no of sub activi ty	Hazard	Existing Control Measures	Severit y Rating	Likeliho od Rating	Risk Lev el	Controls Required	Residu al Risk	Action By
1.	Fall from the height while working for lashing & unlashng of container	<ul style="list-style-type: none"> Use full body harness (FBH). FBH is inspected and maintained. Fastening of Safety rope while working near an open hatch 	4	2	M	<ul style="list-style-type: none"> Operations to be supervised by contractor's supervisors. Condition of access platforms to be verified before use. Vessel side barricading 	L	Shift-in charge

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

		<ul style="list-style-type: none"> • Lifebuoy provided each QC at sea side. ▪ While travelling on spreader use FBH and hook it to guard rail of spreader. • Operators ensure that checkers / lashers are not adjacent to the hanging load and away from the direction of load or spreader travel. • Twist locks removed and collected in the immediate stack / container 				<p>shall be secured by PP ropes (in case of missing hand rail to prevent fall of men / material from vessel.</p> <ul style="list-style-type: none"> ▪ No men should ascend / descend by holding the container gates. Use only proper aluminum ladder for men to work above 1.5m height in order to provide safe means of access. 		
2	Object falling from height		2	2	L			

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

		below and not thrown from height to hatch cover.						
3	Hit by vehicle	<ul style="list-style-type: none"> Lashers and checkers stand aside in safe zone of hanging load. 	2	2	L			
4	Hit to any persons during QC Gantry while LT/ST	<ul style="list-style-type: none"> Proper use of PPEs and VHF. Ensure & maintain ITV lanes and pedestrian walkways at wharf are followed. Wharf supervisor ensures that, lashers should not put locks at gantry Man pushers are installed in all QC cranes to avoid any 	3	1	L			

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

		collision to person and equipment's						
Risk Assessment carried/ Reviewed/ Issued out by								
Name		Designatio n	Op. Superintendent	Sign		Date	01.04.2017	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	AECTPL / RA/CT/OPS – 005	Revision	03	Date of Revision	01.04.2017			
Name of Equipment/ Activity	Movement of ITV/ Trucks in the terminal							
Purpose of Equipment/ Activity	Movement of containers inside the terminal.							
Sub Activities: (1) Movement of containers by ITV between wharf and yard.								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

1	<ul style="list-style-type: none"> • Hit to pedestrians / checkers. 	<ul style="list-style-type: none"> • Pedestrian path provided on wharf and yard. • Designated Traffic route plan followed. • At wharf area correct lane to required QC, is followed. • High visibility jacket / boiler suit (PPEs) • Drivers are trained on defensive driving. 	4	2	M	<ul style="list-style-type: none"> • Speed Limit for vehicles is displayed inside the terminal • Traffic Marshalls are deployed in addition with existing Security guards at respective points for facilitating traffic flow in allowed speed limit. 	L	Shift In-Charge/ Terminal Supervisor & Security DSO/ Security Supervisor
	<ul style="list-style-type: none"> • Collision with other vehicle, equipment's (RTG Cranes), building. 	<ul style="list-style-type: none"> • Speed limit inside terminal is 20kmph. • Overtaking / reversing only under supervision are allowed. 	4	2	M	<ul style="list-style-type: none"> • Contracted cement structure are placed at extreme ends of yard blocks and IN/OUT Gate Lanes 	L	Operation Incharge & Safety Incharg
	<ul style="list-style-type: none"> • Containers 	<ul style="list-style-type: none"> • Preoperational 						

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

	topple from/on the ITV.	<div>checks done for ITVs.</div> <ul style="list-style-type: none">• In case of major breakdown of the vehicle inside the terminal, the vehicle is barricaded.• While carrying one 20 feet container always place it on the center of the ITV.• Sharp turns are not allowed.	4	2	M	<ul style="list-style-type: none">• Traffic marshal's and security guards are deployed at Crossroads and inside the terminal for safe movement of ITVs and trailers• Penalty system for any vehicles not practicing the safe terminal rules and regulation	L	Security Incharge/ DSO
Risk Assessment carried/ Reviewed/ Issued out by								
Name		Designation	Op. Superintendent	Sign		Date	01.04.2017	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	AECTPL / RA/CT/OPS – 006	Revision	03	Date of Revision	01.04.2017			
Name of Equipment/ Activity	Reefer Container Operations in Reefer Yard.							
Purpose of Equipment/ Activity	Reefer Container Storage in Terminal.							
Sub Activities: (1) Plugging and Unplugging of power cord, (2) Monitoring of temperature								
Sr. no of sub activity	Hazard	Existing Control Measures	Severit y Rating	Likelihoo d Rating	Risk Lev el	Controls Required	Resid ual Risk	Action By
1.	<ul style="list-style-type: none"> Electric Shock while handling of reefer container 	<ul style="list-style-type: none"> While plugging the power switch is kept in OFF position. Use of PPE (helmet, safety shoes, Insulation Gloves and high visibility boiler suit). Safety training provided by the 	3	2	M	<ul style="list-style-type: none"> Use only access platform for monitoring and reading. 	L	Supervisor.

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

2.	<ul style="list-style-type: none">Fire due to short circuit	<p>HSE Department.</p> <ul style="list-style-type: none">Electric cables do not cross the platform.Technicians are trained on use of portable fire extinguishers.Fire system and extinguishers are available inside the terminal.MCB tripping system is installed	2	2	L			
Risk Assessment carried/ Reviewed/ Issued out by								
Name		Designation	Op. Superintendent	Sign		Date	01.04.2017	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	AECTPL/RA/CT/OPS-007	Revision	03	Date of Revision	01.04.2017			
Name of Equipment/ Activity	IPOS () System shut down							
Purpose of Equipment/ Activity	To ensure seamless operations.							
Sub Activities: (1) Manual tracking of terminal operations, (2) IT enabled data backup.								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By
1	<ul style="list-style-type: none"> Normal traffic flow movement disturbed 	<ul style="list-style-type: none"> Continuous monitoring by tower control, planner & Supervisor. 	2	2	L		-	Tower Control & Planners (Yard & Vessels).
2	<ul style="list-style-type: none"> Loss of Data 	<ul style="list-style-type: none"> Back up servers available. 24 Hours IT support availability. Daily backup is taken from TOS system to excel for export and import in yard.(Cold and 	2	2	L		-	IT-Helpdesk.

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

3	<ul style="list-style-type: none"> Vessel/Yard/Gate Operational Delay. 	<p>Hot both backup is taken)</p> <ul style="list-style-type: none"> Far backup is taken at AHD Location. Switchover to Manual operational Procedures. Manual tally sheets for vessel / gate / yard operations. Export planning is done as per the master yard plan made in excel sheet. Import delivery is done with manual E.I.R and finds the yard location from the yard inventory Backup file. Vessel Planning 	2	2	L		-	
---	---	--	---	---	---	--	---	--

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

		is done from the Excel backup file and sequence sheets can be generated manually						
Risk Assessment carried/ Reviewed/ Issued out by								
Name		Designation	Op. Superintendent	Sign		Date	01.04.2017	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	AECTPL/RA/CT/OPS -08	Revision	03	Date of Revision	01.04.2017			
Name of Equipment/ Activity	Physical Access Control System							
Purpose of Equipment/ Activity	To prevent un-authorized entry into the terminal							
Sub Activities: (1) Checking Inbound & Outbound Container carrying vehicles, (2) Thoroughly checking employees' and visitors' vehicles								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By
1.	<ul style="list-style-type: none"> Theft of material 	<ul style="list-style-type: none"> Entry allowed only on Valid pass. All vehicles inbound/outbound checked at gate by security guard. Operational material can be taken in/ out only with a valid gate pass. Security guards deployed on key 	2	1	L			Superintendent

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

2.	<ul style="list-style-type: none"> Terrorist attack. 	<p>areas.</p> <ul style="list-style-type: none"> No visitors are allowed without a valid pass authorized by CT2 officials. Continuous watch keeping of the wharf area & entire terminal with the help of CCTV cameras by security control. 	4	1	L			
3.	<ul style="list-style-type: none"> Vehicular accident. 	<ul style="list-style-type: none"> Driving license for Truck drivers checked by security randomly. Speed limit of 20km/hr. to be maintained. High visibility jackets are provided for the visitors. Designated Parking area made for the light motor vehicles. 	3	3	M	<ul style="list-style-type: none"> Traffic Marshals and security guards are deployed at key areas and frequent rounds by Security DSO Penalty provision by Security personnel 	L	

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

		<ul style="list-style-type: none"> Visitors are not allowed stepping down on yard /wharfing area without PPE. 						
Risk Assessment carried/ Reviewed/ Issued out by								
Name		Designation	Op. Superintendent	Sign		Date	01.04.2017	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	AECTPL /RA/CT/OPS - 009	Revision	03	Date of Revision	01.04.2017			
Name of Equipment/ Activity	Checking of containers' seal and damage at Wharf							
Purpose of Equipment/ Activity	Checking the container damage and/or seal at the time of loading/unloading							
Sub Activities: (1) Checking of containers at wharf, (2) Checking Seal of Containers, (3) Checking and updating container details in the system.								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By
1.	Run over, hit or caught between vehicles (ITV).	<ul style="list-style-type: none"> Checkers wear high visibility clothing and PPE. Designated ITV path available and continuous imparted training to drivers at frequent intervals. P.A system installed in gate for continuous awareness to 	4	2	M	<ul style="list-style-type: none"> Traffic cones are used to demarcate points for ITV parking points. Quay Cranes are equipped with checker's cabin. Checkers use the cabin for operational purpose. 	L	Wharf Supervisor/ Shift In-charge

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

		internal & external drivers.						
2.	• Fall of object	<ul style="list-style-type: none"> Trailers move only after checker's signal. ITV are not allowed to be parked under crane. Wharf Checker guides ITV operators to park correctly under spreader. 	2	2	L	<ul style="list-style-type: none"> Checkers work in the designated area that is not in conflict with ITV movement area. 		
3.	• ITV driven out while checking of seal.	<ul style="list-style-type: none"> Stand away from hanging load. Safety Training provided by HSE department on regular basis. Use the ladder mounted on ITV trailer to check the seals. 	3	2	M	<ul style="list-style-type: none"> ITV driver take the vehicle forward after obtaining signal from the checker Ladder 	L	

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

		<ul style="list-style-type: none"> Ensure that the ITV moves after obtaining signal from the person checking the seal of the container 				mounted on ITVs for safety of checkers		
Risk Assessment carried/ Reviewed/ Issued out by								
Name		Designation	Op. Superintendent	Sign		Date	01.04.2017	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	APSEZ / RA/ CT / OPS-010	Revision	03	Date of Revision	30.09.2015			
Name of Equipment/ Activity	Handling of Over Dimensional Cargo							
Purpose of Equipment/ Activity	Handling of Over Dimensional Cargo							
Sub Activities: (1) Fastening the cargo with slings, (2) Loading/Unloading on/from vessel								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

1.	<ul style="list-style-type: none"> • Cargo can roll down from container. 	<ul style="list-style-type: none"> • Ensure lashing condition of the ODC is up to the satisfaction of vessel chief officer. • Slow handling. • Not lifting too high. • Compulsory checking for lashing while survey. • Before handling in yard Checker / Lasher to visually analyze the condition of the cargo whether it can be handled safely, otherwise he calls the supervisor for further guidance. 	3	2	M	<ul style="list-style-type: none"> • Pre-assessment of cargo/OOG for the feasibility of the cargo handling (Dimension L/H/W and clear lifting points) received mail correspondence from Shipping line/agent • ODC not to be lifted too high from truck while handling. 	L	Shift Superintendent or Operation Head
2.	<ul style="list-style-type: none"> • One side weight of ODC cargo. 	<ul style="list-style-type: none"> • If the container is found to be one side load just make the container balanced with spreader trim/ list control and handle it very slowly with supervisor's guidance. 	2	2	L			

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

3.	<ul style="list-style-type: none"> ODC falling from height 	<ul style="list-style-type: none"> Continuous communication between supervisor and operator while handling ODC. Condition of the special lifting gears / lifting tools & tackles is periodically checked by supervision. 	3	2	L			
Risk Assessment carried/ Reviewed/ Issued out by								
Name		Designation	Op. Superintendent	Sign		Date	30.09.2015	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	APSEZ/ RA/CT/OPS-011	Revision	03	Date of Revision	01.04.2015			
Name of Equipment/ Activity	Use of Reach Stacker for container handling at terminal							
Purpose of Equipment/ Activity	Use of Reach stacker for container handling operations							
Sub Activities: (1) Movement of Reach Stacker at required location, (2) Handling of Container movement (By Road)								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By
1	<ul style="list-style-type: none"> Risk to hit Electrical bus bar structure (440 V) 	<ul style="list-style-type: none"> Clearance is judged by the supervisor and reach stacker operator. Boom of the reach stacker is kept down and spreader is kept vertical to the reach stacker No person except Operator is available while travelling. Reach stacker maintains the 	3	2	M	<ul style="list-style-type: none"> Reachstacker allowed to operate under the shift superintendent/ Operation head approval as a special case Reach stacker strictly allowed to operate under the supervision 	L	

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

2	<ul style="list-style-type: none"> Collision with other equipments/ vehicles/ containers 	<p>safe turning radius. Operator takes a note of nearby objects.</p> <ul style="list-style-type: none"> Nobody allow to stand around the reach stacker while it working. 	4	2	M	<ul style="list-style-type: none"> Reachstacker strictly allowed to operate under the supervision Base station/ VHF's installed in reachstacker for free flow of communication 	L	
	<ul style="list-style-type: none"> Hit any personal while reversing of reach stacker. 	<ul style="list-style-type: none"> No usage of reach stacker in the yard. 	3	1	L			
3	<ul style="list-style-type: none"> Damage to 	<ul style="list-style-type: none"> In built auto cut sensors along with 	2	2	L			

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

	Reach Stacker	weight display installed	4	3	M	<ul style="list-style-type: none"> Daily checks are being carried out by engineering team for condition of equipment Fire extinguishers provided and available in all mobile 		
4	due to heavy container weight. <ul style="list-style-type: none"> Fire or Electrical Spark 	<ul style="list-style-type: none"> Daily checks are being carried out by engineering team for condition of equipment Fire extinguishers provided and available in mobile equipment's 	4	3	M	<ul style="list-style-type: none"> Over rated fuse not to be used Weight display screen available in all mobile equipment's for safe handling and not to surpass counter weight Sensors are installed in 		
5	Tilt or toppling of equipment	<ul style="list-style-type: none"> Minimum speed limit to be maintained 5-10 Km/phr during travel Ensure sudden brake not applied 				spreader boom and hydraulic cylinders <ul style="list-style-type: none"> Safety Interlocks are availed in mobile equipment 		
6								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

Risk Assessment carried/ Reviewed/ Issued out by							
Name		Designation	Op. Superintendent	Sign		Date	01.04.2015
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.							

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment	APSEZ	Revision	03	Date of	01.04.2015			
Serial No.	/RA/CT/OPS-012			Revision				
Name of Equipment/ Activity	Rubber Tyred Gantry Operations							
Purpose of Equipment/ Activity	Handling Cargo / Containers							
Sub Activities: (1) Loading, unloading (yard to truck & truck to yard) & Stacking of the containers in yard, (2) RTG movement inside the yard.								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By
1	<ul style="list-style-type: none"> Trailer lift along with container 	<ul style="list-style-type: none"> RTG Operators check the Export containers are unlocked by slight lifting VHF Communication is available for interaction between crane operators & checkers/ supervisor 	4	2	M	<ul style="list-style-type: none"> RTG operator informs and call the terminal supervisor for assistance in unlock the container for safe handling Chassis anti-lift device installed in all RTG Cranes 	L	

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

2	<ul style="list-style-type: none"> • Hit by spreader / container • Hit by other RTG / vehicle / pedestri 	<ul style="list-style-type: none"> • Maintaining safe height clearance from the stack. • RTG is properly aligned in stack. • Corner to Corner stacking is done. • RTG to RTG, ITV and container anti collision sensor is available in RTG. 	4	1	M	<ul style="list-style-type: none"> • Crane Simulator Training is imparted to the RTG operators for conditioning them container terminal yard operations. • Anti-Collision sensor installed in all RTG cranes to avoid collision/ hit to container • Ongoing observation of Yard Supervisor for ensuring adherence of stacking pattern is followed in the yard. In case of any abeyance, it is addressed immediately. 	L	Yard Supervisor/ Shift In-Charge/ Security Supervisor.
---	--	--	---	---	---	---	---	--

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

	an	<ul style="list-style-type: none"> • Alignment of the truck in the ITV lane by RTG operator, with the assistance of yard checker. • Trained and authorized persons are allowed in the yard. • RTG operator checks the clearance before start travelling and move RTG only on RTG track. • ITVs are allowed to drive only in ITV path. • Mobile sweeper and cleaning persons inform to control tower and supervisor for approval before starting their work 	4	1	M	<ul style="list-style-type: none"> • Checker assists the operator for the long travel and cross travel movement of RTG. • Traffic Marshals and Security Guards are deployed at different locations inside the yard for ensuring that no vehicle and personnel movement is taking place beyond prescribed standards. • Tool Box Talk is carried out in every shift. 	L	Yard Supervisor/ Security Supervisor/ Shift Inc
--	----	---	---	---	---	---	---	---

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

Risk Assessment carried/ Reviewed/ Issued out by								
Name		Designation	Op. Superintendent	Sign		Date	01.04.2015	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	APSEZ /RA/CT/OPS-013	Revision	00	Date	01.04.2015			
Name of Equipment/ Activity	Movement of shuttle bus in the terminal.							
Purpose of Equipment/ Activity	Movement of shuttle bus inside the container terminal as per traffic route.							
Sub Activities: (1) Movement of shuttle bus								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By
1	Hit security guard / pedestrian	<ul style="list-style-type: none"> Pedestrian entry restricted Security guard provided with High Visibility Vest and lux level maintained. Hard Barriers placed to reduce speed and stop at the entry of gate Speed limit of 20 Km /hr to be maintained inside the terminal Security guard Trained on the activity of access 	3	3	M	Separate gate for pedestrian entry	L	

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

		control of vehicle an personal					L	
							L	
	Driving at Adani Circle Hit pedestrian / ITV/Pvt Truck	<ul style="list-style-type: none"> Traffic flow maintained to have cross intervention with exit traffic. Authorized pedestrian provided with High visibility Vest People provided terminal HSE induction 	2	3	M	<ul style="list-style-type: none"> Continuous training imparted for contracted staffs Tool box talks conducted on each shift 	L	
	Driving at back Reach Hit by Hatch Cover handling	<ul style="list-style-type: none"> Shuttle bus path determined away from Hatch cover placing area. Shuttle bus driver trained on the activity. 	3	2	M	<ul style="list-style-type: none"> Hatch cover handling are under the supervision of wharf 		

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

						Checker/ supervisor	--	
						<ul style="list-style-type: none"> Drivers are trained and strict to maintain/ follow the traffic flow of terminal 		
	Hit By PVT truck / ITV at Back Reach	<ul style="list-style-type: none"> Shuttle plies along with the traffic flow. 	3	2	M	<ul style="list-style-type: none"> Drivers are trained and strict to maintain/ follow the traffic flow of terminal 		
	Driving between 4 & 5 Yard Cross road Hit to RTGC / Internal ITV	<ul style="list-style-type: none"> Shuttle bus driver aware of the movements of the RTG. Shuttle bus path determined away from the RTG wheel turning path. Plies along with the traffic flow. Shuttle bus to halt along with the hazard light before and after parking 	3	1	L			

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

	Shuttle Bus breakdown at working area	<ul style="list-style-type: none"> Area to be barricaded and towing of vehicle under the supervision of security guard or supervisor Shuttle bus driver strictly instructed to park on designated parking zone/area 	2	2	L	-		
Risk Assessment carried/ Reviewed/ Issued out by								
Name		Designation	Asso. Manager	Sign		Date	01.04.2015	
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	APSEZ /RA/CT/OPS-014	Revision	00	Date of Revision	01.04.2015			
Name of Equipment/ Activity	Pinning and Unpinning Activity							
Purpose of Equipment/ Activity	Safe Unloading and loading of Container Operation							
Sub Activities: (i) Move the lock trolleys at pinning point, (ii) Fixing of twist locks to containers, (iii) Hatch covers operation, (iv) Alignment of ITV under the STS, (v) Vehicles carrying containers at pinning point, (vi) Movement of Vehicles (vii) Checking containers detail and (viii) Handling of Gear box by using of RST.								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By
1	<ul style="list-style-type: none"> Collision of lock trolley with ITV/ trailer(s) Suspended load or fall from height 	<ul style="list-style-type: none"> Use designated pedestrian lane to walk. Not move the lock trolleys while handling load 	4	4	H	<ul style="list-style-type: none"> To use walkway at the wharf near to the checker cabin on landside for moving the trolley before vessel commencement. To place the gear box once the vessel berthed and first box of 	L	Shift Supdt

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

						discharge and place it out of the vessel.		
2	<ul style="list-style-type: none"> ITV hit with lock Person/ trolley. 	<ul style="list-style-type: none"> Restrict vehicle speed to 10-15 Km/phr. Use pedestrian walkway for standing. Wear proper PPE while working in terminal. Defensive driver training and safety training card for ITV driver. 	3	3	M	<ul style="list-style-type: none"> High visible paint in lock trolley for more visibility to ITV driver. To be placed at walkway between lanes way from turning radius of ITV. 	L	Wharf Supervisor
3	<ul style="list-style-type: none"> Handling Hatch Covers 	<ul style="list-style-type: none"> Communication between QC Operator, Deck & Wharf Checker through VHF. Special Alarm fixed on each STS for hatch cover handling 	3	2	M	<ul style="list-style-type: none"> None is allowed to enter in operation area without permission from Superintendent/ Supervisor 	L	Wharf Supervisor

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

4	<ul style="list-style-type: none"> Run over hit or caught between vehicles. 	<ul style="list-style-type: none"> Lashers and checkers provided with safety training covering risk involved in the activity along with control measures Safety shoes, high visibility clothing and helmet made mandatory inside the terminal. Safety rope/frame for trailer truck frame. 	3	4	H	<ul style="list-style-type: none"> Safety ropes in the cut-trailers to be periodically checked and ensured that they are available Lashers and checkers should position himself away from ITV path in walkway between lanes Lashers to be provided with whistle for communication 	L	Wharf Supervisor
5	<ul style="list-style-type: none"> Brake/steering failure Pedestrian movement Damage to lock trolley and gear box. 	<ul style="list-style-type: none"> Hand Brake available, Periodic maintenance. Safety shoes, high visibility clothing and helmet made mandatory inside the terminal. Maintain safe 	3	3	M	<ul style="list-style-type: none"> Pre-Operational checks to be carried out by equipment operators and drivers Equipment daily checklist to be followed. Restrict vehicle speed to 10-15 kmph. ITV drivers to 	L	Wharf Supervisor

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

		<p>distance from ITV lane.</p> <ul style="list-style-type: none"> • Reflective traffic cones are placed near lock trolley. 				be familiarized on pinning and unpinning activity.		
6	<ul style="list-style-type: none"> • Reach stacker Collision with other equipment's/ vehicles/ containers/persons 	<ul style="list-style-type: none"> • Reach stacker maintains the safe turning radius. Operator takes a note of nearby objects. 	3	3	M	<ul style="list-style-type: none"> • It should be deployed prior to commencing and after completion of the vessel at wharf • Under the strict supervision of Shift Superintendent or wharf Supervisor 	L	Shift Superintendent
Risk Assessment carried/ Reviewed/ Issued out by								
Name		Designation	Safety Officer	Sign		Date	01.04.2015	

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

* Whenever risk is considered not to be tolerable the assessment process need to be repeated.

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

GEN/ F/ 009		FORMAT FOR RISK ASSESSMENT						
Risk Assessment Serial No.	APSEZ /RA/CT/OPS-015	Revision	00	Date of Revision	01.04.2015			
Name of Equipment/ Activity	RTG Crane & Reach stacker/ Empty Handlers working in the same block or yard							
Purpose of Equipment/ Activity	Safe Unloading and loading of Container Operation							
Sub Activities: Person : 1. RTG Crane & Reach stacker/ Empty Handlers working in the same block or yard								
Sr. no of sub activity	Hazard	Existing Control Measures	Severity Rating	Likelihood Rating	Risk Level	Controls Required	Residual Risk	Action By
1	<ul style="list-style-type: none"> Person hit / run over by reach stacker 	<ul style="list-style-type: none"> Pedestrian walkway and equipment movement path to be segregated RST to move with flashing beacons 	4	4	H	<ul style="list-style-type: none"> Traffic marshals posted in yard area to monitor movement of pedestrians while RST is moving in the yard area Anti- 	M	Shift Superintendent

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

		<ul style="list-style-type: none"> • Traffic marshals posted in yard area to monitor movement of pedestrians while RST is moving in the yard area • Reach stacker operator are to operate under the strict supervision of yard checker for movement of checkers, RTG and ITVs while operating 				<p>Collision sensor are installed in all RTGs</p> <ul style="list-style-type: none"> • Reach stacker operator are to operate under the strict supervision of yard checker for movement of checkers, RTG and ITVs while operating 		
--	--	---	--	--	--	---	--	--

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

	<ul style="list-style-type: none"> • Fall of objects from RST resulting in injury to personnel • Break/Steering failure of equipment 	<ul style="list-style-type: none"> • Reach stacker to use only after clearance from checker and RTG operator • Safety marshal / checker posted in yard area to ensure that pedestrians do not come into contact with the equipment operating area. • Check the weight of the load to be lifted via the 	3	3	M	<ul style="list-style-type: none"> • Pre-Operational Checks to be carried out • Daily Checks to be followed for equipment condition level • Safety marshal / checker posted in yard area to ensure that pedestrians do not come into contact with the equipment 	L	
--	--	---	---	---	---	--	---	--

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

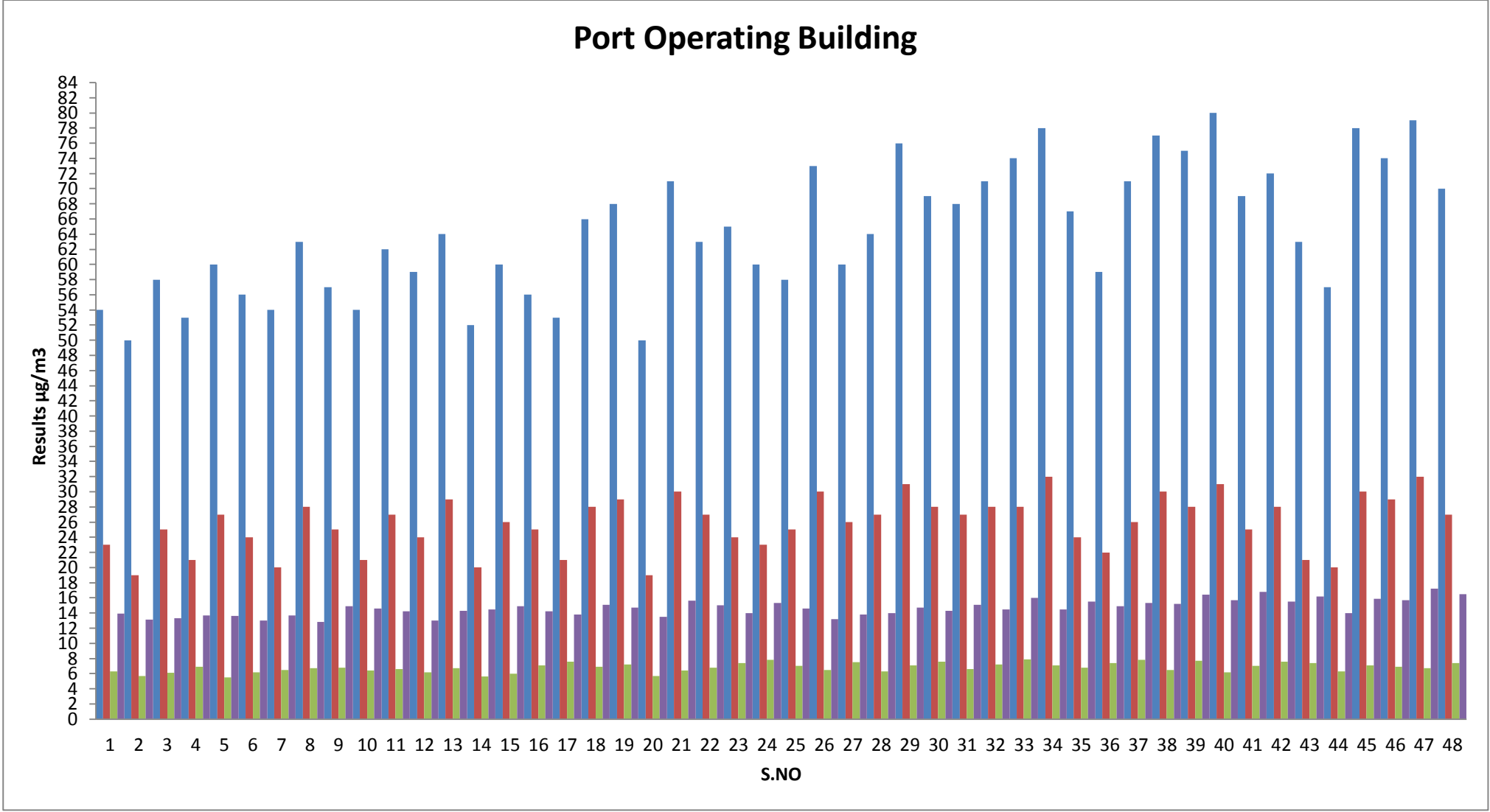
		SWL of reach stacker Lifting and lowering of loaded / Empty container to be done at very minimal speed				operating area.		
	<ul style="list-style-type: none"> Reach stacker collision with ITV / RTG 	<ul style="list-style-type: none"> Never use reach stacker closer to working RTG Do not operate under suspended loads 	4	4	H	<ul style="list-style-type: none"> Strict supervision by yard supervisor / checker through VHF communication Separate lane provided for ITV movement and RTG gantry movement 	M	Shift Supdt
Risk Assessment carried/ Reviewed/ Issued out by								

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED

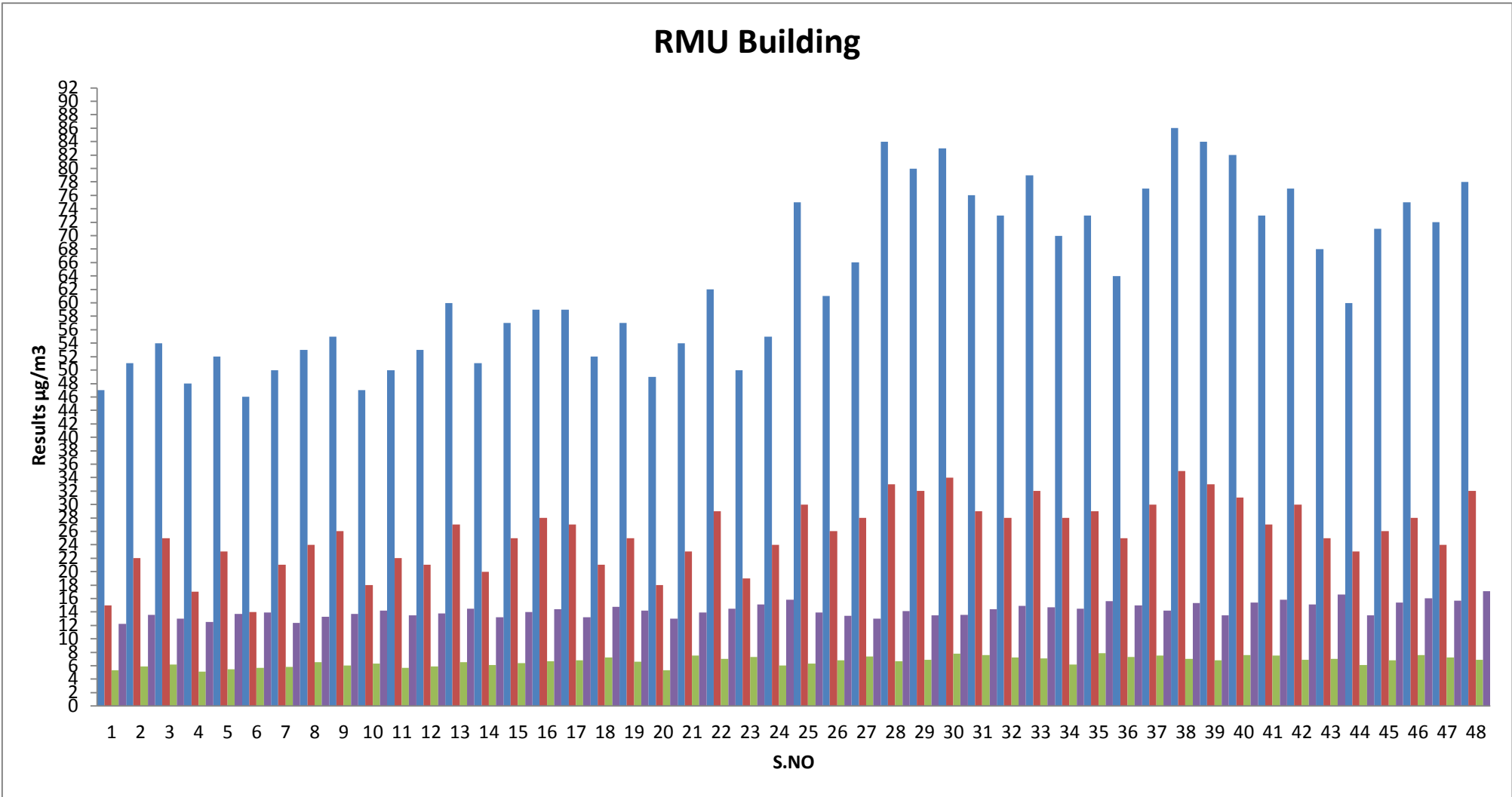
Name		Designation	Shift Superintendent	Sign		Date	01.04.2015
* Whenever risk is considered not to be tolerable the assessment process need to be repeated.							

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED (AECTPL)
January - 17 to June - 18

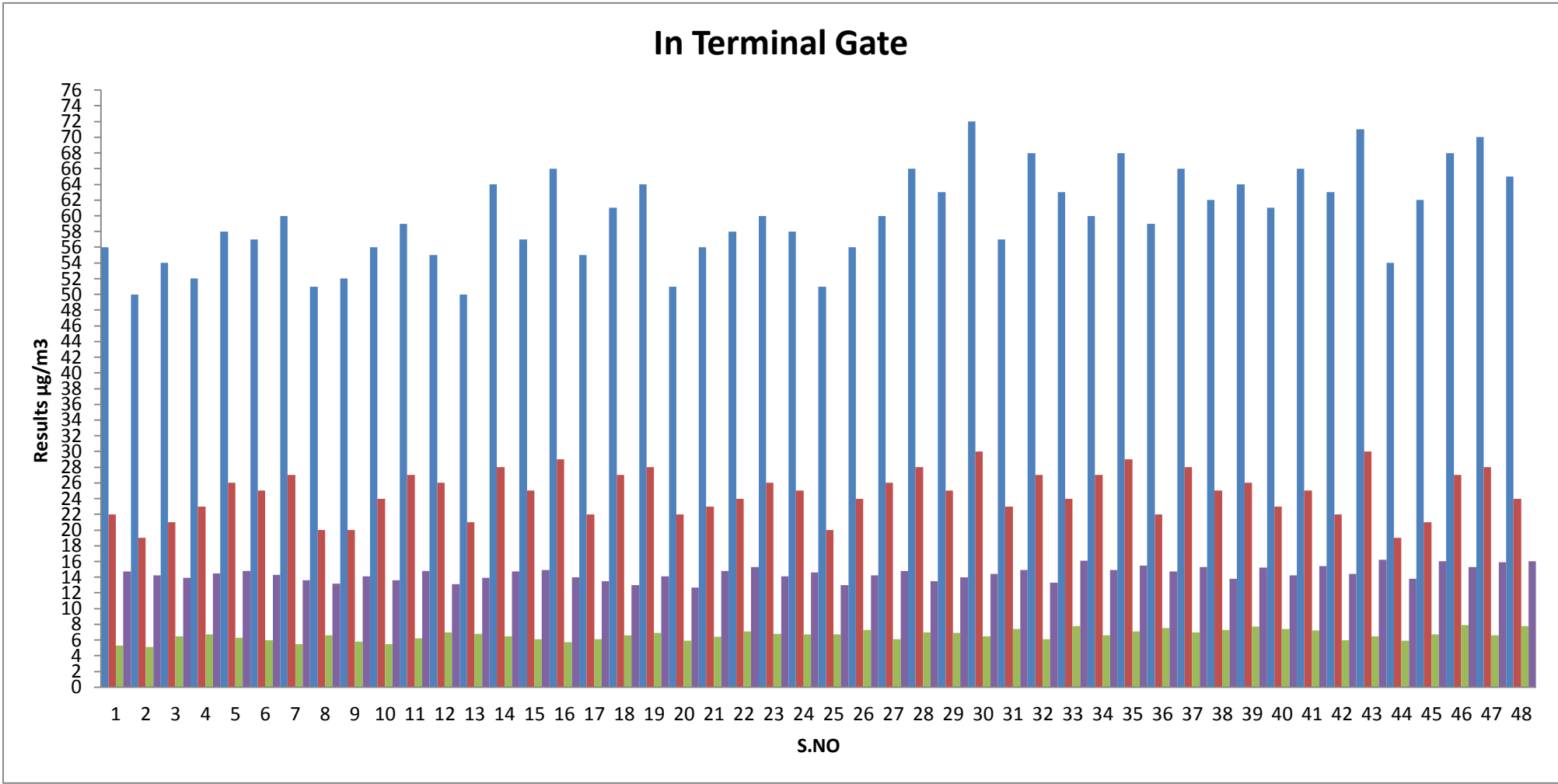
PORT OPERATING BUILDING (AAQ1)														
Parameters			Particular matter PM ₁₀	Particular matter PM _{2.5}	Sulphur dioxide as SO ₂	Nitrogen dioxide as NO ₂	Lead as Pb	Carbon monoxide as CO	Ozone as O ₃	Ammonia as NH ₃	Arsenic as As	Nickel as Ni	Benzene as C ₆ H ₆	Benzo (a) pyrene as BaP
Unit			µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
National AAQM Standard			100	60	80	80	1	4	180	400	6	20	5	1
S.No.	Sampling Date	Report Number												
1	02.01.2018	GCS/LAB/S/1865/17-18	54	23	6.3	13.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	05.01.2018	GCS/LAB/S/1865/17-18	50	19	5.7	13.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	08.01.2018	GCS/LAB/S/1865/17-18	58	25	6.1	13.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	12.01.2018	GCS/LAB/S/1865/17-18	53	21	6.9	13.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	16.01.2018	GCS/LAB/S/1865/17-18	60	27	5.5	13.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	19.01.2018	GCS/LAB/S/1865/17-18	56	24	6.2	13.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	22.01.2018	GCS/LAB/S/1865/17-18	54	20	6.5	13.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	29.01.2018	GCS/LAB/S/1865/17-18	63	28	6.7	12.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	02.02.2018	GCS/LAB/S/1957/17-18	57	25	6.8	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	06.02.2018	GCS/LAB/S/1957/17-18	54	21	6.4	14.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	09.02.2018	GCS/LAB/S/1957/17-18	62	27	6.6	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	12.02.2018	GCS/LAB/S/1957/17-18	59	24	6.2	13.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	16.02.2018	GCS/LAB/S/1957/17-18	64	29	6.7	14.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	19.02.2018	GCS/LAB/S/1957/17-18	52	20	5.6	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	23.02.2018	GCS/LAB/S/1957/17-18	60	26	6.0	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	26.02.2018	GCS/LAB/S/1957/17-18	56	25	7.1	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	05.03.2018	GCS/LAB/S/2049/17-18	53	21	7.6	13.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	09.03.2018	GCS/LAB/S/2049/17-18	66	28	6.9	15.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	12.03.2018	GCS/LAB/S/2049/17-18	68	29	7.2	14.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	16.03.2018	GCS/LAB/S/2049/17-18	50	19	5.7	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	19.03.2018	GCS/LAB/S/2049/17-18	71	30	6.4	15.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	23.03.2018	GCS/LAB/S/2049/17-18	63	27	6.8	15.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	26.03.2018	GCS/LAB/S/2049/17-18	65	24	7.4	14.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	30.03.2018	GCS/LAB/S/2049/17-18	60	23	7.8	15.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
25	02.04.2018	GCS/LAB/S/2122/17-18	58	25	7	14.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
26	06.04.2018	GCS/LAB/S/2122/17-18	73	30	6.5	13.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
27	09.04.2018	GCS/LAB/S/2122/17-18	60	26	7.5	13.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
28	12.04.2018	GCS/LAB/S/2122/17-18	64	27	6.3	14	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
29	16.04.2018	GCS/LAB/S/2122/17-18	76	31	7.1	14.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	20.04.2018	GCS/LAB/S/2122/17-18	69	28	7.6	14.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	23.04.2018	GCS/LAB/S/2122/17-18	68	27	6.6	15.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	27.04.2018	GCS/LAB/S/2122/17-18	71	28	7.2	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	04.05.2018	GCS/LAB/S/2214/18-19	74	28	7.9	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	07.05.2018	GCS/LAB/S/2214/18-19	78	32	7.1	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	11.05.2018	GCS/LAB/S/2214/18-19	67	24	6.8	15.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
36	14.05.2018	GCS/LAB/S/2214/18-19	59	22	7.4	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
37	18.05.2018	GCS/LAB/S/2214/18-19	71	26	7.8	15.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
38	21.05.2018	GCS/LAB/S/2214/18-19	77	30	6.5	15.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
39	25.05.2018	GCS/LAB/S/2214/18-19	75	28	7.7	16.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
40	28.05.2018	GCS/LAB/S/2214/18-19	80	31	6.2	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
41	04.06.2018	GCS/LAB/S/2289/18-19	69	25	7.0	16.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
42	08.06.2018	GCS/LAB/S/2289/18-19	72	28	7.6	15.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
43	11.06.2018	GCS/LAB/S/2289/18-19	63	21	7.4	16.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
44	15.06.2018	GCS/LAB/S/2289/18-19	57	20	6.3	14.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
45	18.06.2018	GCS/LAB/S/2289/18-19	78	30	7.1	15.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	22.06.2018	GCS/LAB/S/2289/18-19	74	29	6.9	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
47	25.06.2018	GCS/LAB/S/2289/18-19	79	32	6.7	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
48	29.06.2018	GCS/LAB/S/2289/18-19	70	27	7.4	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1



RMU BUILDING (AAQ2)														
Parameters			Particular matter PM ₁₀	Particular matter PM _{2.5}	Sulphur dioxide as SO ₂	Nitrogen dioxide as NO ₂	Lead as Pb	Carbon monoxide as CO	Ozone as O ₃	Ammonia as NH ₃	Arsenic as As	Nickel as Ni	Benzene as C ₆ H ₆	Benzo (a) pyrene as BaP
Unit			µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
National AAQM Standard			100	60	80	80	1	4	180	400	6	20	5	1
S.No.	Sampling Date	Report Number												
1	02.01.2018	GCS/LAB/S/1865/17-18	47	15	5.3	12.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	05.01.2018	GCS/LAB/S/1865/17-18	51	22	5.9	13.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	08.01.2018	GCS/LAB/S/1865/17-18	54	25	6.2	13.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	12.01.2018	GCS/LAB/S/1865/17-18	48	17	5.1	12.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	16.01.2018	GCS/LAB/S/1865/17-18	52	23	5.5	13.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	19.01.2018	GCS/LAB/S/1865/17-18	46	14	5.7	13.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	22.01.2018	GCS/LAB/S/1865/17-18	50	21	5.8	12.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	29.01.2018	GCS/LAB/S/1865/17-18	53	24	6.5	13.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	02.02.2018	GCS/LAB/S/1957/17-18	55	26	6.0	13.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	06.02.2018	GCS/LAB/S/1957/17-18	47	18	6.3	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	09.02.2018	GCS/LAB/S/1957/17-18	50	22	5.7	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	12.02.2018	GCS/LAB/S/1957/17-18	53	21	5.9	13.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	16.02.2018	GCS/LAB/S/1957/17-18	60	27	6.5	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	19.02.2018	GCS/LAB/S/1957/17-18	51	20	6.1	13.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	23.02.2018	GCS/LAB/S/1957/17-18	57	25	6.4	14.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	26.02.2018	GCS/LAB/S/1957/17-18	59	28	6.7	14.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	05.03.2018	GCS/LAB/S/2049/17-18	59	27	6.8	13.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	09.03.2018	GCS/LAB/S/2049/17-18	52	21	7.2	14.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	12.03.2018	GCS/LAB/S/2049/17-18	57	25	6.6	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	16.03.2018	GCS/LAB/S/2049/17-18	49	18	5.3	13.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	19.03.2018	GCS/LAB/S/2049/17-18	54	23	7.5	13.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	23.03.2018	GCS/LAB/S/2049/17-18	62	29	7.0	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	26.03.2018	GCS/LAB/S/2049/17-18	50	19	7.3	15.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	30.03.2018	GCS/LAB/S/2049/17-18	55	24	6.0	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
25	02.04.2018	GCS/LAB/S/2122/17-18	75	30	6.3	13.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
26	06.04.2018	GCS/LAB/S/2122/17-18	61	26	6.8	13.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
27	09.04.2018	GCS/LAB/S/2122/17-18	66	28	7.4	13.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
28	12.04.2018	GCS/LAB/S/2122/17-18	84	33	6.7	14.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
29	16.04.2018	GCS/LAB/S/2122/17-18	80	32	6.9	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	20.04.2018	GCS/LAB/S/2122/17-18	83	34	7.8	13.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	23.04.2018	GCS/LAB/S/2122/17-18	76	29	7.6	14.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	27.04.2018	GCS/LAB/S/2122/17-18	73	28	7.2	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	04.05.2018	GCS/LAB/S/2214/18-19	79	32	7.1	14.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	07.05.2018	GCS/LAB/S/2214/18-19	70	28	6.2	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	11.05.2018	GCS/LAB/S/2214/18-19	73	29	7.9	15.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
36	14.05.2018	GCS/LAB/S/2214/18-19	64	25	7.3	15.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
37	18.05.2018	GCS/LAB/S/2214/18-19	77	30	7.5	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
38	21.05.2018	GCS/LAB/S/2214/18-19	86	35	7.0	15.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
39	25.05.2018	GCS/LAB/S/2214/18-19	84	33	6.8	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
40	28.05.2018	GCS/LAB/S/2214/18-19	82	31	7.6	15.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
41	04.06.2018	GCS/LAB/S/2289/18-19	73	27	7.5	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
42	08.06.2018	GCS/LAB/S/2289/18-19	77	30	6.9	15.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
43	11.06.2018	GCS/LAB/S/2289/18-19	68	25	7.0	16.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
44	15.06.2018	GCS/LAB/S/2289/18-19	60	23	6.1	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
45	18.06.2018	GCS/LAB/S/2289/18-19	71	26	6.8	15.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	22.06.2018	GCS/LAB/S/2289/18-19	75	28	7.6	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
47	25.06.2018	GCS/LAB/S/2289/18-19	72	24	7.2	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
48	29.06.2018	GCS/LAB/S/2289/18-19	78	32	6.9	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1

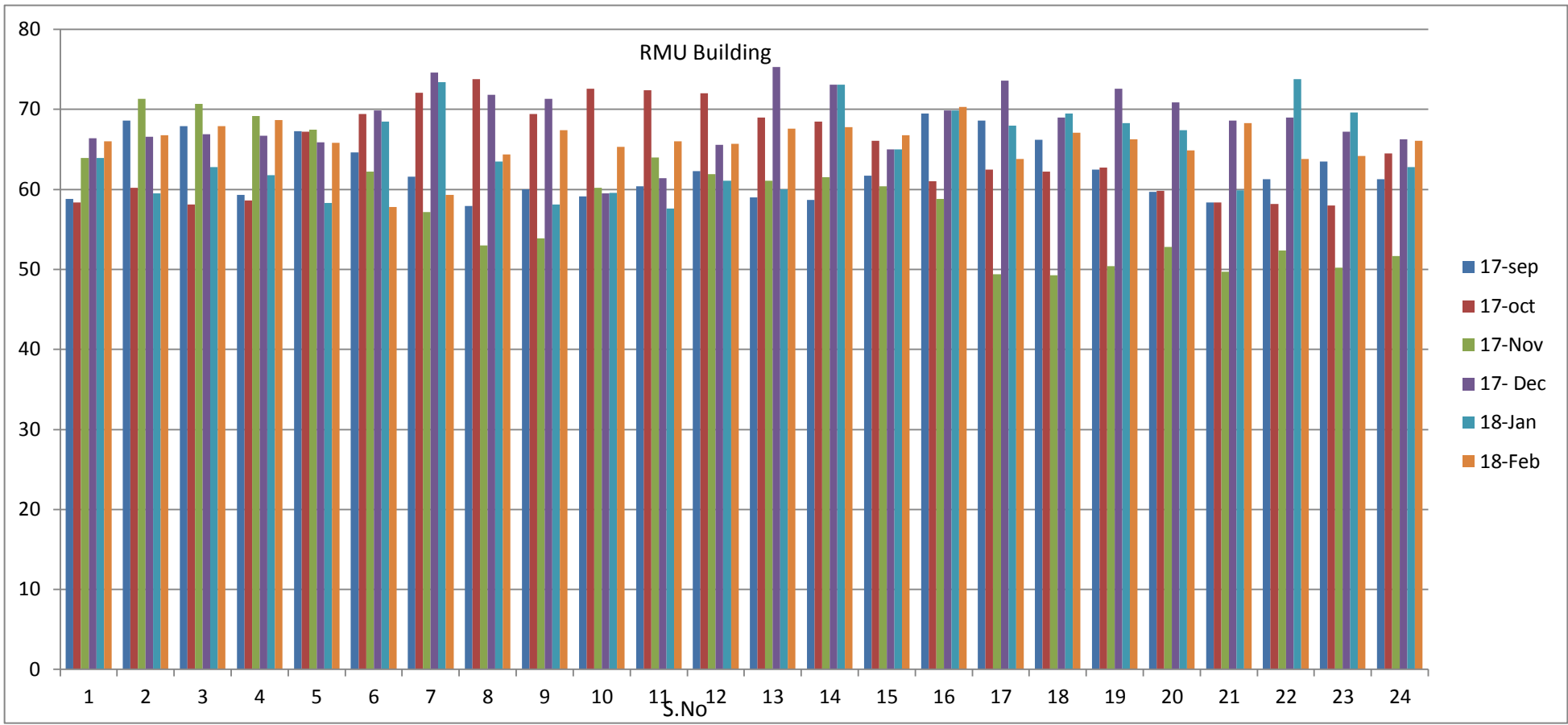
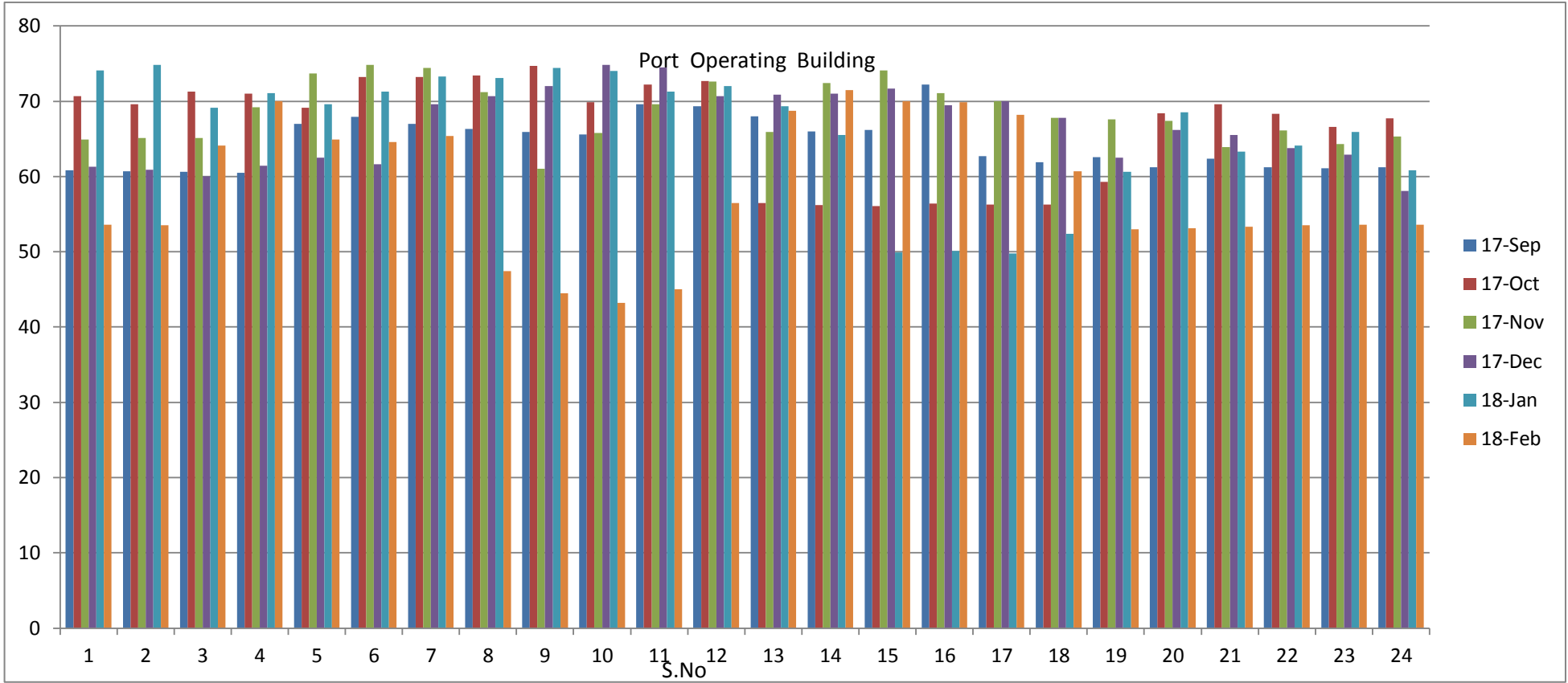


IN TERMINAL GATE (AAQ3)													
Parameters		Particular matter PM ₁₀	Particular matter PM _{2.5}	Sulphur dioxide as SO ₂	Nitrogen dioxide as NO ₂	Lead as Pb	Carbon monoxide as CO	Ozone as O ₃	Ammonia as NH ₃	Arsenic as As	Nickel as Ni	Benzene as C ₆ H ₆	Benzo (a) pyrene as BaP
Unit		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³	µg/m ³	µg/m ³	ng/m ³	ng/m ³	µg/m ³	ng/m ³
National AAQM Standard		100	60	80	80	1	4	180	400	6	20	5	1
S.No.	Sampling Date	Report Number											
1	02.01.2018	GCS/LAB/S/1865/17-18	56	22	5.3	14.7	<0.1	<1.0	<10	<2	<2	<1	<0.1
2	05.01.2018	GCS/LAB/S/1865/17-18	50	19	5.1	14.2	<0.1	<1.0	<10	<2	<2	<1	<0.1
3	08.01.2018	GCS/LAB/S/1865/17-18	54	21	6.5	13.9	<0.1	<1.0	<10	<2	<2	<1	<0.1
4	12.01.2018	GCS/LAB/S/1865/17-18	52	23	6.7	14.5	<0.1	<1.0	<10	<2	<2	<1	<0.1
5	16.01.2018	GCS/LAB/S/1865/17-18	58	26	6.3	14.8	<0.1	<1.0	<10	<2	<2	<1	<0.1
6	19.01.2018	GCS/LAB/S/1865/17-18	57	25	6.0	14.3	<0.1	<1.0	<10	<2	<2	<1	<0.1
7	22.01.2018	GCS/LAB/S/1865/17-18	60	27	5.5	13.6	<0.1	<1.0	<10	<2	<2	<1	<0.1
8	29.01.2018	GCS/LAB/S/1865/17-18	51	20	6.6	13.2	<0.1	<1.0	<10	<2	<2	<1	<0.1
9	02.02.2018	GCS/LAB/S/1957/17-18	52	20	5.8	14.1	<0.1	<1.0	<10	<2	<2	<1	<0.1
10	06.02.2018	GCS/LAB/S/1957/17-18	56	24	5.5	13.6	<0.1	<1.0	<10	<2	<2	<1	<0.1
11	09.02.2018	GCS/LAB/S/1957/17-18	59	27	6.2	14.8	<0.1	<1.0	<10	<2	<2	<1	<0.1
12	12.02.2018	GCS/LAB/S/1957/17-18	55	26	7.0	13.1	<0.1	<1.0	<10	<2	<2	<1	<0.1
13	16.02.2018	GCS/LAB/S/1957/17-18	50	21	6.8	13.9	<0.1	<1.0	<10	<2	<2	<1	<0.1
14	19.02.2018	GCS/LAB/S/1957/17-18	64	28	6.5	14.7	<0.1	<1.0	<10	<2	<2	<1	<0.1
15	23.02.2018	GCS/LAB/S/1957/17-18	57	25	6.1	14.9	<0.1	<1.0	<10	<2	<2	<1	<0.1
16	26.02.2018	GCS/LAB/S/1957/17-18	66	29	5.7	14.0	<0.1	<1.0	<10	<2	<2	<1	<0.1
17	05.03.2018	GCS/LAB/S/2049/17-18	55	22	6.1	13.5	<0.1	<1.0	<10	<2	<2	<1	<0.1
18	09.03.2018	GCS/LAB/S/2049/17-18	61	27	6.6	13.0	<0.1	<1.0	<10	<2	<2	<1	<0.1
19	12.03.2018	GCS/LAB/S/2049/17-18	64	28	6.9	14.1	<0.1	<1.0	<10	<2	<2	<1	<0.1
20	16.03.2018	GCS/LAB/S/2049/17-18	51	22	5.9	12.7	<0.1	<1.0	<10	<2	<2	<1	<0.1
21	19.03.2018	GCS/LAB/S/2049/17-18	56	23	6.4	14.8	<0.1	<1.0	<10	<2	<2	<1	<0.1
22	23.03.2018	GCS/LAB/S/2049/17-18	58	24	7.1	15.3	<0.1	<1.0	<10	<2	<2	<1	<0.1
23	26.03.2018	GCS/LAB/S/2049/17-18	60	26	6.8	14.1	<0.1	<1.0	<10	<2	<2	<1	<0.1
24	30.03.2018	GCS/LAB/S/2049/17-18	58	25	6.7	14.6	<0.1	<1.0	<10	<2	<2	<1	<0.1
25	02.04.2018	GCS/LAB/S/2122/17-18	51	20	6.7	13.0	<0.1	<1.0	<10	<2	<2	<1	<0.1
26	06.04.2018	GCS/LAB/S/2122/17-18	56	24	7.3	14.2	<0.1	<1.0	<10	<2	<2	<1	<0.1
27	09.04.2018	GCS/LAB/S/2122/17-18	60	26	6.1	14.8	<0.1	<1.0	<10	<2	<2	<1	<0.1
28	12.04.2018	GCS/LAB/S/2122/17-18	66	28	7.0	13.5	<0.1	<1.0	<10	<2	<2	<1	<0.1
29	16.04.2018	GCS/LAB/S/2122/17-18	63	25	6.9	14.0	<0.1	<1.0	<10	<2	<2	<1	<0.1
30	20.04.2018	GCS/LAB/S/2122/17-18	72	30	6.5	14.4	<0.1	<1.0	<10	<2	<2	<1	<0.1
31	23.04.2018	GCS/LAB/S/2122/17-18	57	23	7.4	14.9	<0.1	<1.0	<10	<2	<2	<1	<0.1
32	27.04.2018	GCS/LAB/S/2122/17-18	68	27	6.1	13.3	<0.1	<1.0	<10	<2	<2	<1	<0.1
33	04.05.2018	GCS/LAB/S/2214/18-19	63	24	7.8	16.1	<0.1	<1.0	<10	<2	<2	<1	<0.1
34	07.05.2018	GCS/LAB/S/2214/18-19	60	27	6.6	14.9	<0.1	<1.0	<10	<2	<2	<1	<0.1
35	11.05.2018	GCS/LAB/S/2214/18-19	68	29	7.1	15.5	<0.1	<1.0	<10	<2	<2	<1	<0.1
36	14.05.2018	GCS/LAB/S/2214/18-19	59	22	7.5	14.7	<0.1	<1.0	<10	<2	<2	<1	<0.1
37	18.05.2018	GCS/LAB/S/2214/18-19	66	28	7.0	15.3	<0.1	<1.0	<10	<2	<2	<1	<0.1
38	21.05.2018	GCS/LAB/S/2214/18-19	62	25	7.3	13.8	<0.1	<1.0	<10	<2	<2	<1	<0.1
39	25.05.2018	GCS/LAB/S/2214/18-19	64	26	7.7	15.2	<0.1	<1.0	<10	<2	<2	<1	<0.1
40	28.05.2018	GCS/LAB/S/2214/18-19	61	23	7.4	14.2	<0.1	<1.0	<10	<2	<2	<1	<0.1
41	04.06.2018	GCS/LAB/S/2289/18-19	66	25	7.2	15.4	<0.1	<1.0	<10	<2	<2	<1	<0.1
42	08.06.2018	GCS/LAB/S/2289/18-19	63	22	6.0	14.4	<0.1	<1.0	<10	<2	<2	<1	<0.1
43	11.06.2018	GCS/LAB/S/2289/18-19	71	30	6.5	16.2	<0.1	<1.0	<10	<2	<2	<1	<0.1
44	15.06.2018	GCS/LAB/S/2289/18-19	54	19	5.9	13.8	<0.1	<1.0	<10	<2	<2	<1	<0.1
45	18.06.2018	GCS/LAB/S/2289/18-19	62	21	6.7	16.0	<0.1	<1.0	<10	<2	<2	<1	<0.1
46	22.06.2018	GCS/LAB/S/2289/18-19	68	27	7.9	15.3	<0.1	<1.0	<10	<2	<2	<1	<0.1
47	25.06.2018	GCS/LAB/S/2289/18-19	70	28	6.6	15.9	<0.1	<1.0	<10	<2	<2	<1	<0.1
48	29.06.2018	GCS/LAB/S/2289/18-19	65	24	7.8	16.0	<0.1	<1.0	<10	<2	<2	<1	<0.1

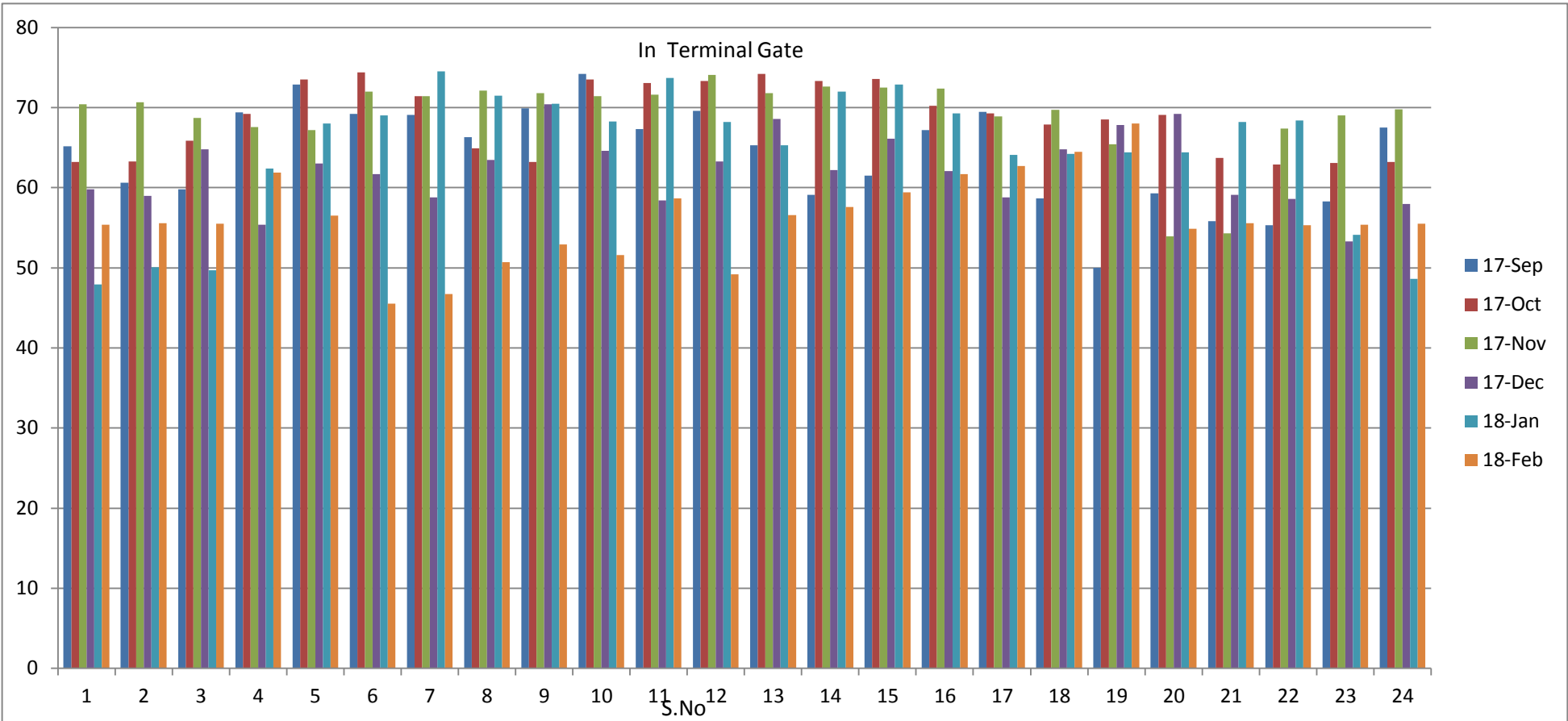


AMBIENT NOISE LEVEL MONITORING

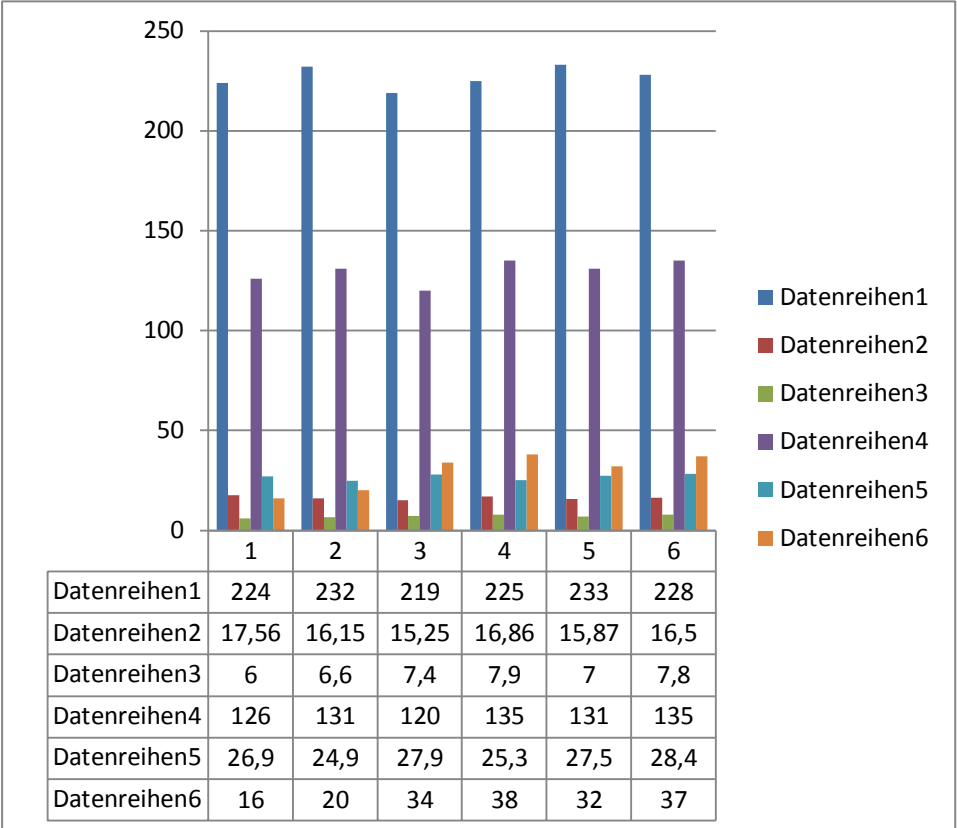
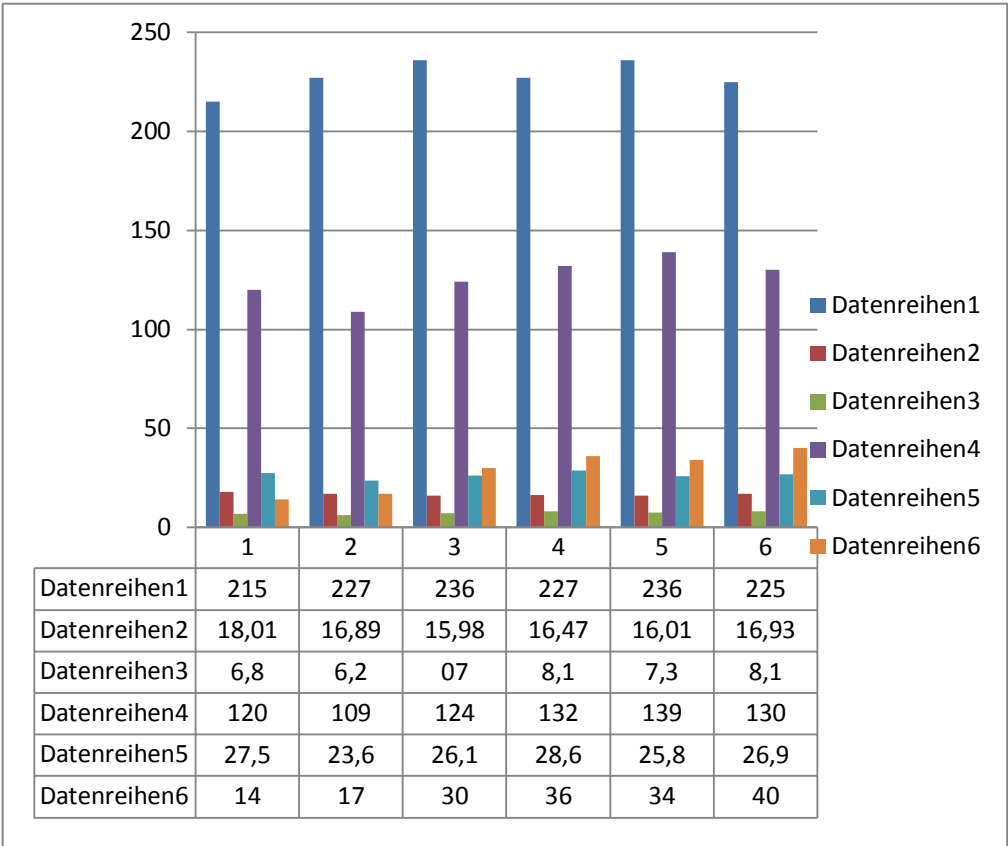
Location		PORT OPERATING BUILDING						RMU BUILDING					
Month & Year		Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
Parameter & Unit		Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)
S.No.	Time of Sampling												
1	06.00 – 07.00 (Day)	60.8	70.7	64.9	61.3	74.1	53.6	58.8	58.4	63.9	66.4	63.9	66
2	07.00 –08.00	60.7	69.6	65.1	60.9	74.8	53.5	68.6	60.2	71.3	66.6	59.5	66.8
3	08.00 – 09.00	60.6	71.3	65.1	60	69.1	64.1	67.9	58.1	70.7	66.9	62.8	67.9
4	09.00 – 10.00	60.5	71	69.2	61.4	71.1	70	59.3	58.6	69.2	66.7	61.8	68.7
5	10.00 – 11.00	67	69.1	73.7	62.5	69.6	64.9	67.3	67.2	67.5	65.9	58.3	65.8
6	11.00 – 12.00	67.9	73.2	74.8	61.6	71.3	64.6	64.6	69.4	62.2	69.9	68.5	57.8
7	12.00 – 13.00	67	73.2	74.4	69.6	73.3	65.4	61.6	72.1	57.2	74.6	73.4	59.3
8	13.00 – 14.00	66.3	73.4	71.2	70.7	73.1	47.4	57.9	73.8	53	71.8	63.5	64.4
9	14.00 – 15.00	65.9	74.7	61	72	74.4	44.5	60	69.4	53.9	71.3	58.1	67.4
10	15.00 – 16.00	65.6	69.9	65.8	74.8	74	43.2	59.1	72.6	60.2	59.5	59.6	65.3
11	16.00 – 17.00	69.6	72.2	69.6	74.5	71.3	45	60.4	72.4	64	61.4	57.6	66
12	17.00 – 18.00	69.3	72.7	72.6	70.7	72	56.5	62.3	72	61.9	65.6	61.1	65.7
13	18.00 – 19.00	68	56.5	65.9	70.9	69.3	68.7	59	69	61.1	75.3	60	67.6
14	19.00 –20.00	66	56.2	72.4	71	65.5	71.5	58.7	68.5	61.5	73.1	73.1	67.8
15	20.00 – 21.00	66.2	56.1	74.1	71.7	49.9	70	61.7	66.1	60.4	65	65	66.8
16	21.00 – 22.00	72.2	56.4	71.1	69.5	50.1	69.9	69.5	61	58.8	69.9	69.9	70.3
17	22.00 – 23.00 (Night)	62.7	56.3	70	70	49.8	68.2	68.6	62.5	49.4	73.6	68	63.8
18	23.00 – 00.00	61.9	56.3	67.8	67.8	52.4	60.7	66.2	62.2	49.3	69	69.5	67.1
19	00.00 – 01.00	62.6	59.3	67.6	62.5	60.6	53	62.5	62.7	50.4	72.6	68.3	66.3
20	01.00 – 02.00	61.2	68.4	67.4	66.2	68.5	53.1	59.7	59.8	52.8	70.9	67.4	64.9
21	02.00 – 03.00	62.4	69.6	63.9	65.5	63.3	53.3	58.4	58.4	49.7	68.6	59.9	68.3
22	03.00 – 04.00	61.2	68.3	66.1	63.8	64.1	53.5	61.3	58.2	52.4	69	73.8	63.8
23	04.00 – 05.00	61.1	66.6	64.3	62.9	65.9	53.6	63.5	58	50.2	67.2	69.6	64.2
24	05.00 – 06.00	61.2	67.7	65.3	58.1	60.8	53.6	61.3	64.5	51.7	66.3	62.8	66.1



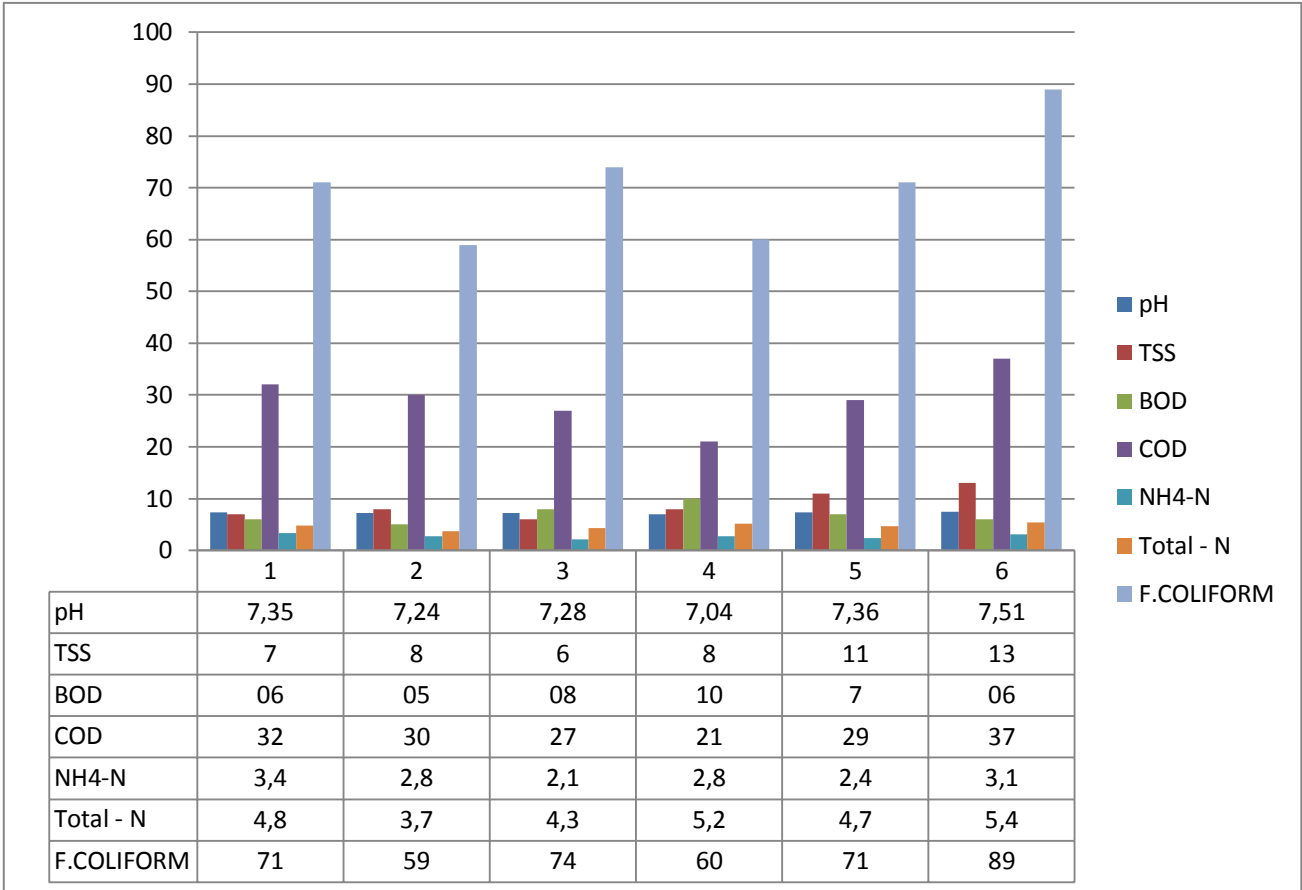
Location		IN TERMINAL GATE					
Month & Year		Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
Parameter & Unit		Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)
S.No.	Time of Sampling						
1	06.00 – 07.00 (Day)	65.2	63.2	70.4	59.8	47.9	55.4
2	07.00 –08.00	60.6	63.3	70.7	59	50.1	55.6
3	08.00 – 09.00	59.8	65.9	68.7	64.8	49.7	55.5
4	09.00 – 10.00	69.4	69.2	67.6	55.4	62.4	61.9
5	10.00 – 11.00	72.9	73.5	67.2	63	68	56.5
6	11.00 – 12.00	69.2	74.4	72.0	61.7	69	45.5
7	12.00 – 13.00	69.1	71.4	71.4	58.8	74.5	46.7
8	13.00 – 14.00	66.3	64.9	72.1	63.5	71.5	50.7
9	14.00 – 15.00	69.9	63.2	71.8	70.4	70.5	52.9
10	15.00 – 16.00	74.2	73.5	71.4	64.6	68.3	51.6
11	16.00 – 17.00	67.3	73.1	71.6	58.4	73.7	58.7
12	17.00 – 18.00	69.6	73.3	74.1	63.3	68.2	49.2
13	18.00 – 19.00	65.3	74.2	71.8	68.6	65.3	56.6
14	19.00 –20.00	59.1	73.3	72.6	62.2	72	57.6
15	20.00 – 21.00	61.5	73.6	72.5	66.1	72.9	59.4
16	21.00 – 22.00	67.2	70.2	72.4	62.1	69.3	61.7
17	22.00 – 23.00 (Night)	69.5	69.3	68.9	58.8	64.1	62.7
18	23.00 – 00.00	58.7	67.9	69.7	64.8	64.2	64.5
19	00.00 – 01.00	50	68.5	65.4	67.8	64.4	68
20	01.00 – 02.00	59.3	69.1	53.9	69.2	64.4	54.9
21	02.00 – 03.00	55.8	63.7	54.3	59.1	68.2	55.6
22	03.00 – 04.00	55.3	62.9	67.4	58.6	68.4	55.3
23	04.00 – 05.00	58.3	63.1	69	53.3	54.1	55.4
24	05.00 – 06.00	67.5	63.2	69.8	58	48.6	55.5



STACK MONITORING													
Location		DG 1500KVA - 1						DG 1500KVA - 2					
Month & Year		Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
S.No.	Parameters												
1	Stack Temperature, °C	215	227	236	227	236	225	224	232	219	225	233	228
2	Flue Gas Velocity, m/s	18.01	16.89	15.98	16.47	16.01	16.93	17.56	16.15	15.25	16.86	15.87	16.5
3	Sulphur Dioxide, mg/Nm3	6.8	6.2	7.0	8.1	7.3	8.1	6	6.6	7.4	7.9	7	7.8
4	NOX (as NO2) in ppmv	120	109	124	132	139	130	126	131	120	135	131	135
5	Particular matter, mg/Nm3	27.5	23.6	26.1	28.6	25.8	26.9	26.9	24.9	27.9	25.3	27.5	28.4
6	Carbon Monoxide, mg/Nm3	14	17	30	36	34	40	16	20	34	38	32	37
7	Gas Discharge, Nm3/hr	4943	4525	4206	4412	4213	4548	4733	4284	4152	4534	4202	4412



STP OUTLET WATER							
Location		STP OUTLET					
Month & Year		Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
S.No.	Parameters						
1	pH @ 25°C	7.35	7.24	7.28	7.04	7.36	7.51
2	Total Suspended Solids	7	8	6	8	11	13
3	BOD at 27°C for 3 days	6.0	5.0	8.0	10.0	7	6.0
4	COD	32	30	27	21	29	37
5	Ammonical Nitrogen as NH4-N	3.4	2.8	2.1	2.8	2.4	3.1
6	Total Kjeldahl Nitrogen as N - Total	4.8	3.7	4.3	5.2	4.7	5.4
7	Fecal Coliform	71	59	74	60	71	89



MARINE WATER								
Location		CB - 1 Surface Water						
Month & Year		Unit	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
S.No.	Parameters							
1	pH @ 25°C	-	8.32	8.35	8.18	7.29	7.44	7.65
2	Temperature	°C	29	29	29	29	29	29
3	Total Suspended Solids	mg/L	13	11	9	11	15	13
4	BOD at 27 °C for 3 days	mg/L	11	9	7	8	10	9
5	Dissolved oxygen	mg/L	3.9	3.6	3.2	4.1	4.3	4.7
6	Salinity at 25 °C	-	30.8	31.7	35.9	30.6	30.2	40.8
7	Oil & Grease	mg/L	BDL(DL 1.0)					
8	Nitrate as No ₃	mg/L	5.06	4.74	4.56	3.72	3.98	4.62
9	Nitrite as No ₂	mg/L	4.12	3.58	3.84	2.94	2.56	3.06
10	Ammonical Nitrogen as N	mg/L	BDL(DL 1.0)					
11	Ammonia as NH3	mg/L	BDL(DL 0.01)					
12	Kjeldahl Nitrogen as N	mg/L	BDL(DL 1.0)					
13	Total phosphates as PO4	mg/L	3.5	3.2	3	2.25	3.01	3.64
14	Total Nitrogen	mg/L	BDL(DL 1.0)					
15	Total Dissolved Solids	mg/L	32573	31970	33480	40604	41053	38719
16	COD	mg/L	39	48	37	41	49	37
17	Total bacterial count	cfu/ml	44	65	51	63	70	63
18	Coliforms	Per 100 ml	Absence					
19	Escherichia coli	Per 100 ml	Absence					
20	Salmonella	Per 100 ml	Absence					
21	Shigella	Per 100 ml	Absence					
22	Vibrio cholerae	Per 100 ml	Absence					
23	Vibrio parahaemolyticus	Per 100 ml	Absence					
24	Enterococci	Per 100 ml	Absence					
25	Octane	µg/L	168	163	159	172	159	166
26	Nonane	µg/L	BDL(DL 0.1)					
27	Decane	µg/L	BDL(DL 0.1)					
28	Undecane	µg/L	BDL(DL 0.1)					
29	Tridecane	µg/L	6.4	6.1	5.5	6.4	6.8	8.1
30	Tetradecane	µg/L	BDL(DL 0.1)					
31	Pentadecane	µg/L	BDL(DL 0.1)					
32	Hexadecane	µg/L	BDL(DL 0.1)					
33	Octadecane	µg/L	BDL(DL 0.1)					
34	Nonadecane	µg/L	BDL(DL 0.1)					
35	Elcosane	µg/L	BDL(DL 0.1)					
36	Primary Productivity	mg C/m ³ /hr	8.1	7.96	8.04	8.21	8.79	7.84
37	Chlorophyll a	mg /m ³	6.3	6.23	6.37	5.93	6.23	6.91
38	Phaeophytin	mg /m ³	0.82	0.71	0.66	0.58	0.46	0.53
39	Oxidisable Paticular Organic carbon	mg /L	6.26	6.07	5.89	6.24	5.88	6.79
PHYTOPLANKTON								
40	Bacteriastrium hyalinum	nos/ml	13	15	13	16	14	13
41	Bacteriastrium varians	nos/ml	7	8	6	4	6	4
42	Chaetoceros didymus	nos/ml	10	12	14	12	10	11
43	Chaetoceros decipiens	nos/ml	4	3	Nil	Nil	Nil	Nil
44	Biddulphia mobiliensis	nos/ml	6	4	3	6	8	7
45	Ditylum brightwellii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
46	Gyrosigma sp	nos/ml	Nil	Nil	5	7	9	12
47	Cladophyxis sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
48	Coscinodiscus centralis	nos/ml	14	10	8	5	7	11
49	Coscinodiscus granii	nos/ml	3	6	7	11	13	10
50	Cylcotella sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
51	Hemidiscus hardmanianus	nos/ml	10	11	10	8	12	15
52	Laudaria annulata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
53	Pyropacus horologicum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
54	Pleurosigma angulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
55	Leptocylindrus danicus	nos/ml	8	7	11	9	5	9
56	Guinardia flaccida	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
57	Rhizosolenia alata	nos/ml	9	5	4	3	8	14
58	Rhizosolena impricata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
59	Rhizosolena semispina	nos/ml	12	13	12	14	16	12
60	Thalassionema nitzschioides	nos/ml	7	9	5	10	12	10
61	Triceratium reticulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
62	Ceratium trichoceros	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
63	Ceratium furca	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
64	Ceratium macroceros	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
65	Ceracium longipes	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
ZOOPLANKTONS								
66	Acrocalanus gracilis	nos/ml	10	13	11	9	12	10
67	Acrocalanus sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
68	Paracalanus parvus	nos/ml	8	11	8	10	14	16
69	Eutintinus sps	nos/ml	3	5	4	5	7	9
70	Centropages furcatus	nos/ml	9	7	9	12	10	12
71	Corycaeus dana	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
72	Oithona brevicornis	nos/ml	7	12	10	13	11	13
73	Euterpina acutifrons	nos/ml	9	6	3	7	8	11
74	Metacalanus aurivilli	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
75	Copipod nauplii	nos/ml	11	14	16	14	13	14
76	Cirripede nauplii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
77	Bivalve veliger	nos/ml	8	10	12	11	15	11
78	Gastropod veliger	nos/ml	12	15	17	15	17	15

Location		CB - 1 Bottom Water						
Month & Year		Unit	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
S.No.	Parameters							
1	pH @ 25°C	-	8.13	8.24	8.08	7.59	7.71	7.83
2	Temperature	°C	29	29	29	29	29	29
3	Total Suspended Solids	mg/L	15	13	16	14	18	16
4	BOD at 27 °C for 3 days	mg/L	9	7	8	6	9	11
5	Dissolved oxygen	mg/L	1.2	1.5	2.1	1.8	1.5	2.6
6	Salinity at 25 °C	-	31.9	32.3	36.3	39	39.4	36
7	Oil & Grease	mg/L	BDL(DL 1.0)					
8	Nitrate as No ₃	mg/L	4.2	3.4	3.9	3.12	4.02	5.14
9	Nitrite as No ₂	mg/L	5.3	4.1	4.7	4.03	4.86	5.62
10	Ammonical Nitrogen as N	mg/L	BDL(DL 1.0)					
11	Ammonia as NH ₃	mg/L	BDL(DL 0.01)					
12	Kjeldahl Nitrogen as N	mg/L	BDL(DL 1.0)					
13	Total phosphates as PO ₄	mg/L	1.6	1.4	1.1	0.91	1.25	2.08
14	Total Nitrogen	mg/L	BDL(DL 1.0)					
15	Total Dissolved Solids	mg/L	33417	32795	36186	39904	40256	39107
16	COD	mg/L	58	54	65	73	81	61
17	Total bacterial count	cfu/ml	46	60	71	80	85	74
18	Coliforms	Per 100 ml	Absence					
19	Escherichia coli	Per 100 ml	Absence					
20	Salmonella	Per 100 ml	Absence					
21	Shigella	Per 100 ml	Absence					
22	Vibrio cholerae	Per 100 ml	Absence					
23	Vibrio parahaemolyticus	Per 100 ml	Absence					
24	Enterococci	Per 100 ml	Absence					
25	Colour	Hazan	10	8	10	7	10	15
26	Odour	-	Unobjectionable					
27	Taste	-	Disagreeable					
28	Turbidity	NTU	18	17	14	12	15	21
29	Calcium as Ca	mg/L	429	418	483	501	547	503
30	Chloride as Cl	mg/L	18074	17883	20100	21589	21784	19912
31	Cyanide as CN	mg/L	BDL(DL 0.01)					
32	Fluoride as F	mg/L	0.57	0.55	0.68	0.54	0.48	0.36
33	Magnesium as Mg	mg/L	1375	1366	1402	1348	1283	1249
34	Total Iron as Fe	mg/L	0.13	0.11	0.23	0.25	0.22	0.2
35	Residual Free Chlorine	mg/L	BDL(DL 0.1)					
36	Phenolic Compounds as C ₆ H ₅ OH	mg/L	BDL(DL 1.0)					
37	Total Hardness as CaCO ₃	mg/L	6802	6737	7050	6870	6716	6524
38	Total Alkalinity as CaCO ₃	mg/L	136	130	156	165	180	169
39	Sulphide as H ₂ S	mg/L	BDL(DL 0.5)					
40	Sulphate as SO ₄	mg/L	2704	2689	2757	3126	3042	2915
41	Anionic surfactants as MBAS	mg/L	BDL(DL 1.0)					
42	Monocrotophos	µg/L	BDL(DL 0.01)					
43	Atrazine	µg/L	BDL(DL 0.01)					
44	Ethion	µg/L	BDL(DL 0.01)					
45	Chlorpyrifos	µg/L	BDL(DL 0.01)					
46	Phorate	µg/L	BDL(DL 0.01)					
47	Methyl parathion	µg/L	BDL(DL 0.01)					
48	Malathion	µg/L	BDL(DL 0.01)					
49	DDT (o,p and p,p-Isomers of DDT,DDE and DDD)	µg/L	BDL(DL 0.01)					
50	Gamma HCH (Lindane)	µg/L	BDL(DL 0.01)					
51	Alpha HCH	µg/L	BDL(DL 0.01)					
52	Beta HCH	µg/L	BDL(DL 0.01)					
53	Delta HCH	µg/L	BDL(DL 0.01)					
54	Endosulfan (Alpha,beta and sulphate)	µg/L	BDL(DL 0.01)					
55	Butachlor	µg/L	BDL(DL 0.01)					
56	Alachlor	µg/L	BDL(DL 0.01)					
57	Aldrin/Dieldrin	µg/L	BDL(DL 0.01)					
58	Isoproturon	µg/L	BDL(DL 0.01)					
59	2,4-D	µg/L	BDL(DL 0.01)					
60	Polychlorinated Biphenyls (PCB)	µg/L	BDL(DL 0.01)					
61	Polynuclear aromatic hydrocarbons (PAH)	µg/L	BDL(DL 0.01)					
62	Arsenic as As	mg/L	BDL(DL 0.01)					
63	Mercury as Hg	mg/L	BDL(DL 0.001)					
64	Cadmium as Cd	mg/L	BDL(DL 0.003)					
65	Total Chromium as Cr	mg/L	BDL(DL 0.05)					
66	Copper as Cu	mg/L	BDL(DL 0.05)					
67	Lead as Pb	mg/L	BDL(DL 0.01)					
68	Manganese as Mn	mg/L	BDL(DL 0.05)					
69	Nickel as Ni	mg/L	BDL(DL 0.05)					
70	Selenium as Se	mg/L	BDL(DL 0.01)					
71	Barium as Ba	mg/L	BDL(DL 0.1)					
72	Silver as Ag	mg/L	BDL(DL 0.01)					
73	Molybdenum as Mo	mg/L	BDL(DL 0.01)					
74	Octane	µg/L	172	170	163	174	185	173
75	Nonane	µg/L	BDL(DL 0.1)					
76	Decane	µg/L	BDL(DL 0.1)					
77	Undecane	µg/L	6.9	6.3	6.0	7.1	7.7	7.2
78	Tridecane	µg/L	BDL(DL 0.1)					
79	Tetradecane	µg/L	BDL(DL 0.1)					
80	Pentadecane	µg/L	BDL(DL 0.1)					
81	Hexadecane	µg/L	BDL(DL 0.1)					

Location		CB - 1 Bottom Water						
Month & Year		Unit	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
S.No.	Parameters							
82	Heptadecane	µg/L	BDL(DL 0.1)					
83	Octadecane	µg/L	BDL(DL 0.1)					
84	Nonadecane	µg/L	BDL(DL 0.1)					
85	Elcosane	µg/L	BDL(DL 0.1)					
86	Primary Productivity	mg C/m ³ /hr	10.2	9.71	8.92	9.03	9.47	10.02
87	Chlorophyll a	mg /m ³	5.8	5.68	6.01	7.25	7.65	8.19
88	Phaeophytin	mg /m ³	1.3	1.24	1.38	0.97	0.82	0.76
89	Oxidisable Paticular Organic carbon	mg /L	8.7	7.86	7.75	7.26	6.76	7.51
PHYTOPLANKTON								
90	Bacteriastrum hyalinum	nos/ml	18	17	14	18	16	14
91	Bacteriastrum varians	nos/ml	9	6	8	11	9	7
92	Chaetoceros didymus	nos/ml	13	14	12	14	12	8
93	Chaetoceros decipiens	nos/ml	8	9	7	5	8	5
94	Biddulphia mobiliensis	nos/ml	10	13	10	13	15	17
95	Ditylum brightwellii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
96	Gyrosigma sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
97	Cladophyxis sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
98	Coscinodiscus centralis	nos/ml	12	15	16	12	10	8
99	Coscinodiscus granii	nos/ml	6	7	4	6	11	6
100	Cylcotella sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
101	Hemidiscus hardmanianus	nos/ml	14	16	12	10	14	10
102	Laudaria annulata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
103	Pyropacus horologicum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
104	Pleurosigma angulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
105	Leptocylindrus danicus	nos/ml	4	5	3	7	9	7
106	Guinardia flaccida	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
107	Rhizosolenia alata	nos/ml	6	8	6	8	13	16
108	Rhizosolena impricata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
109	Rhizosolena semispina	nos/ml	15	12	9	15	17	15
110	Thalassionema nitzschioides	nos/ml	3	4	7	9	11	13
111	Triceratium reticulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
112	Ceratium trichoceros	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
113	Ceratium furca	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
114	Ceratium macroceros	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
115	Ceracium longipes	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
ZOOPLANKTONS								
116	Acrocalanus gracilis	nos/ml	12	14	12	14	17	14
117	Acrocalanus sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
118	Paracalanus parvus	nos/ml	15	13	11	8	10	8
119	Eutintinus sps	nos/ml	7	9	7	11	9	11
120	Centropages furcatus	nos/ml	5	4	5	7	8	10
121	Corycaeus dana	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
122	Oithona brevicornis	nos/ml	10	15	13	15	13	16
123	Euterpina acutifrons	nos/ml	13	10	9	12	14	12
124	Metacalanus aurivilli	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
125	Copipod nauplii	nos/ml	16	17	15	10	12	11
126	Cirripede nauplii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil
127	Bivalve veliger	nos/ml	11	8	10	9	11	13
128	Gastropod veliger	nos/ml	9	12	14	13	19	18

SEA SEDIMENT								
Location		CB - 1 Sea Sediment						
Month & Year		Unit	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18
S.No.	Parameters							
1	Total organic matter	%	0.41	0.37	0.43	0.32	0.37	0.41
2	% Sand	%	35	32	34	30	35	40
3	%silt	%	16	13	19	20	12	10
4	%Clay	%	49	55	47	50	53	50
5	Iron (as Fe)	mg/kg	17.3	16.1	15.8	18.4	16.9	17.4
6	Aluminium (as Al)	mg/kg	15965	15858	15634	15216	15748	14012
7	Chromium (as cr)	mg/kg	56	52	46	51	57	63
8	Copper (as cu)	mg/kg	71	69	72	65	61	59
9	Manganese (as Mn)	mg/kg	482	476	451	373	385	401
10	Nickel (as Ni)	mg/kg	14	17	15	16.6	14.3	16.5
11	Lead (as Pb)	mg/kg	33	30	33	40	46	40
12	Zinc (as Zn)	mg/kg	241	238	227	211	244	219
13	Mercury(as Hg)	mg/kg	0.58	0.54	0.51	0.59	0.5	0.67
14	Total phosphorus as P	mg/kg	182	180	185	167	149	156
15	Octane	mg/kg	BDL(DL 0.1)					
16	Nonane	mg/kg	BDL(DL 0.1)					
17	Decane	mg/kg	BDL(DL 0.1)					
18	Undecane	mg/kg	0.25	0.21	0.24	0.28	0.31	0.38
19	Dodecane	mg/kg	BDL(DL 0.1)					
20	Tridecane	mg/kg	BDL(DL 0.1)					
21	Tetradecane	mg/kg	BDL(DL 0.1)					
22	Phntadecane	mg/kg	BDL(DL 0.1)					
23	Hexadecane	mg/kg	BDL(DL 0.1)					
24	Heptadecane	mg/kg	BDL(DL 0.1)					
25	Octadecane	mg/kg	BDL(DL 0.1)					
26	Nonadecane	mg/kg	BDL(DL 0.1)					
27	Elcosane	mg/kg	BDL(DL 0.1)					
I. Nematoda								
28	Oncholaimussp	nos/m ²	14	12	15	18	22	15
29	Tricomasp	nos/m ²	21	18	20	24	20	12
II. Foraminifera								
30	Ammoniabeccarii	nos/m ²	12	9	11	9	11	9
31	Quinquilinasp	nos/m ²	18	14	16	12	14	10
32	Discorbinellasp.,	nos/m ²	13	16	13	10	15	13
33	Bolivinaspathulata	nos/m ²	15	13	10	8	10	8
34	Elphidiumsp	nos/m ²	9	8	5	4	7	6
35	Noniondepressula	nos/m ²	10	15	12	13	9	11
III. Molluscs-Bivalvia								
36	Meretrixveligers	nos/m ²	26	21	19	21	17	21
37	Anadoraveligers	nos/m ²	24	23	25	22	24	18
	Total No. of individuals	nos/m ²	162	149	146	140	149	123
	Shanon Weaver Diversity Index		2.25	2.26	2.23	2.19	2.23	2.24