வ.உ.சிதம்பரனார் துறைமுக ஆணையம்
वी.ओ. चिदम्बरनार पत्तन प्राधिकरण
V.O.Chidambaranar Port Authority
(Ministry of Ports, Shipping & Waterways, Government of India)
Administrative Office, Harbour Estate, Tuticorin - 628 004
Tamilnadu
Civil Engineering Department
Telephone : 0461 - 2352252
Email Id : ce@vocport.gov.in
Website : www.vocport.gov.in

No.CIV-OFCQS-PLC-SIX M-V1-18/D. 2010 **Dated: 06.07.2023**

To

The Director,
Ministry of Environment, Forest & Climate Change,
Regional Office (South Eastern Zone),
HEPC Building, No.34, Cathedral Garden Road,
Nungambakkam,
Chennai-600 034 e.mail:eccompliance-tn@gov.in

Sub: "Submission of Ist Six Month Compliance report for the year 2023- reg.

Sir,

This has reference to the Environmental Clearance obtained by M/s. V.O.Chidambaranar Port Authority. As per the condition stipulated in Environmental clearance, the Second six month compliance report for the year 2023 is enclosed.

Encl: Compliance report with Annexures.

Yours faithfully,

CHIEF ENGINEER
ce@vocport.gov.in

Ist SIX-MONTH COMPLIANCE REPORT FOR ENVIRONMENTAL CLEARANCE (Dec 2022 to May 2023) WITH RESPECT TO EC NO - 11-139/2010-IA.III "CONSTRUCTION OF NCB III & NCB IV AND DREDGING IN FRONT OF NORTH CARGO BERTH II,III AND IV AND FILLING UP OF DREDGED MATERIAL INTO RECLAIM THE LAND INSIDE VOC PORT COMPLEX, TAMIL NADU BY M/S V.O.CHIDAMBARANAR PORT AUTHORITY" DATED 2ND JAN 2015

Sl No	Special Condition	Compliance
1.	"Consent for Establishment" 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.	Air (Prevention and Control of Pollution) Act, 1981 and Water (Prevention and Control of Pollution) Act, 1974.CTO valid up to 2028.
2.	The environmental clearance is subject to obtaining prior clearance from wildlife angle including clearance from the Standing Committee of the National Board for wildlife as applicable.	Eco-Sensitive Zone Gazette notification publish by MoEF & CC dated 27.07.2018, Port project site is 9 KM away from Gulf Of Mannar Marine national park. However Port has applied for wildlife clearance.
3.	Grant of environmental clearance does not necessarily implies that wildlife clearance shall be granted to the project and that their proposals for wildlife clearance shall be considered by the respective authorities on their merits and decision taken.	V.O.Chidambaranar Port Authority has submitted online application on 05.03.2016 for wildlife clearance as per the instruction of Ministry of Ports, Shipping and Waterways on 02.03.2016.
4.	The investment made in the project, if any, based on environmental clearance so granted, in anticipation of the clearance from wildlife angle shall be entirely at the cost and risk of the project proponent and Ministry of Environment. Forest & Climate Change shall not be responsible in this regard in any manner.	Eco-Sensitive Zone Gazette notifications publish by MoEF & CC dated 27.07.2018, Port project site is 9 KM away from Gulf Of Mannar Marine national park. However Port has applied for wildlife clearance.
5.	Dredging shall be done within the	Dredging was carried out within the existing

Sl No	Special Condition	Compliance
	existing breakwater as committed.	breakwater only.
6.	Dredging shall only be conducted by cutter/suction method and dredge spoil should not be disposed in open sea that will impact corals of Gulf of Mannar.	Dredging was conducted by using cutter/suction method and dredge spoil materials were used for the reclamation activity.
7.	The Berth III and IV should not handle any oil or chemical related cargo. No storage of oil and chemical shall take place.	Berth III & IV designed for only handling Dry Bulk Cargoes.
8.	Wind screen shall be provided all along the coal stock yard.	Wind screen installed at coal stock yard to minimize dust emission. 

Sl No	Special Condition	Compliance
9.	Since the port is in the vicinity of the Eco-Sensitive Zone, the storage of rock phosphate and copper concentrates shall only be in leak proof silos. The coal shall be stacked in the closed masonry wall with sprinkler arrangement. The stack yard should be weather proof. A detailed design in this regard shall be submitted to MoEF & CC with a copy to R.O., MoEF & CC, Chennai and Tamil Nadu PCB, prior to commencement of above activity.	V.O.C. Port Authority is being monitoring the storage of rock phosphate and copper concentrates and their leak proof silos. 
10.	All the conditions/recommendations stipulated by Tamil Nadu Coastal Zone Management Authority (TNCZMA) vide letter no. 8328/EC.3/2014-1 dated 30.05.2014, shall be complied with.	V.O.Chidambaranar Port Authority is compiling with the conditions of Tamil Nadu Coastal Zone Management Authority vide (TNCZMA) letter No.8328/EC.3/2014-I dated: 30.05.2014.
11.	A study report shall be submitted for the leachate generation at the coal stack yard and the suggestive mitigative measures	V.O.Chidambaranar Port Authority has installed 4 Nos of Piezometric bore wells for monitoring of ground water monitoring and periodical monitoring is being done. The report is being submitted to the TNPCB as well as MoEF&CC. There is no deviation in the water quality parameters with respect to standards. Copy of the report is enclosed as Annexure-I

Sl No	Special Condition	Compliance
		
12.	Dredging activity should be carried out so that it in no way affects the corals. CWLW will supervise the working.	Dredging was conducted by using cutter/section method and dredging activity was carried out without any damages to the corals.
14.	No construction work other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.	Construction works are being carried out as per the Central rule and regulation including of Coastal Regulation Zone Notification, CRZ plan of Tamil Nadu.
15.	All the recommendation of the EIA/EMP, Disaster Management Plan shall be strictly complied within letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF & CC along with half yearly compliance report to MoEF & CC-RO.	Port has prepared mitigation and monitoring report as per the EIA/EMP recommendation as well as Disaster management plan and the report was submitted to the Regional Office at Chennai.
16.	The project proponent shall set up separate environmental management cell for effective implementation of the	Separate Environment Cell created with adequate staff members under the Civil Engineering department for monitoring

Sl No	Special Condition	Compliance
	stipulated environmental safeguards under the supervision of a Senior Executive.	Pollution control activities.
17.	The project proponent shall take up mangrove plantation/green belt in the project area, wherever possible. Adequate budget shall be provided in the Environment Management plan for such mangrove development.	✓ Total Green Belt area in VOCPA = **637.73 Acres** (Including Mass Plantation Drive conducted in 2022) Proposed to plant 10000 plantation for every year
18.	The commitment made by the proponent to the issue raised during Public Hearing shall be implemented by the Proponent.	Points raised in Public hearing meeting implemented by the Port. In addition to that Port has carried out various remediation activities in around the port premises and nearby community.

Sl. No	General Condition	Compliance
1	The construction of the structures should be undertaken as per the plans approved by the concerned local authorities/local administration, meticulously conforming to the existing local and Central rules and regulations including the provisions of Coastal Regulation Zone Notification, 2011 and the approved Coastal Zone management plan of Tamil Nadu	Construction was carried out as per Central rule and regulation including of Costal Regulation Zone Notification, 2011 and the approved CRZ plan of Tamil Nadu.
2.	A six-Monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry at Chennai regarding the implementation of the stipulated conditions.	Environmental Clearance Six month Compliance status report and their monitoring report has been submitted to the Regional office, MoEF&CC, at Chennai.
3.	In the event of any change in the project profile a fresh reference shall be made to the Ministry of Environment, forest &	There is no change in the project profile or the project activities.

	Climate change.	
4.	This Ministry reserves the right to revoke this clearance, if any, of the conditions stipulated are not complied with to the satisfaction of this Ministry.	Port is complying Environmental clearance condition and six month report is being submitted to the Regional Office (MoEF & CC) at Chennai.
5.	Ministry of Environment, Forests & Climate Change or any other competent authority may stipulate any additional conditions subsequently, if deemed necessary, for environmental protection, which shall be compiled with	V.O.Chidambaranar Port Authority is willing to comply all stipulated Environmental clearance conditions Ministry of Environment, Forests & Climate Change.
6.	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.	Date of financial closure and final approval of the project including the land development informed time to time to the Regional office at Chennai.
7.	A copy of the environmental clearance letter shall also be displaced on the website of the concerned State Pollution Control Board. The EC letter shall also be displaced at the Regional office, District Industries centre and Collector,s Office/Tehsildar,s office for 30 days.	Copy of the Environmental Clearance letter is displayed at the time of the project at concerned State Regional office, District Industries centre and Collectors Office/Tehsildar's office.
8.	Full support should be extended to the officers of this Ministry's Regional office at Chennai and the offices of the Central and Tamil Nadu State Pollution Control Board by the project proponents during their inspection for monitoring purposes, by furnishing full details and action plans including the action taken reports in respect of mitigative measures and other environmental protection activities.	V.O.Chidambaranar Port Authority is willing to support the officials from the Ministry's Regional Office at Chennai and also the Office of the Central and Tamil Nadu State pollution Control Board.

9.	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its concerned Regional Office.	Separate account is maintained for the funds earmarked for environmental protection measures.

COMPLIANCE REPORT FOR ENVIRONMENTAL CLEARANCE WITH RESPECT TO EC NO - 10-63/2007-IA.III "CONSTRUCTION OF NCB II AT TUTICORIN PORT" DATED 13TH AUG 2007

S.No	Conditions	Compliance
1	Coral reef should not be destroyed during construction	Coral reef are not destroyed during the project construction period and carried out environmental impact assessment studies through SDMRI.
2	Mechanism evolved for the movement of fishing boats	Port is ensured that movement of fishing boats and their activities.
3	Should construct septic tank, soak pit	In the wharf area, septic tank and Soak pit are installed for the sewage and the excess water is sent to STP and sewage analysis report is enclosed as Annexure II.
4	No withdrawal of ground water in CRZ area. Piezometer shall be installed for regular monitoring for this purpose at appropriate locations	River water is used for project activity. Piezometric bore well installed for ground water analysis and same will be monitoring every month and report is submitted to Tamil Nadu Pollution Control Board.
5	Specific arrangements for rainwater harvesting should be made Details of regard should be furnished to the ministry	Rainwater harvesting pits are installed at the Port Hospital and Port School.
6	No product other than those permissible in the coastal regulation zone notification ,1991	Port is handling cargos as per the Environmental Clearance and TNPCB consent order as well as coastal regulation zone notification, 1991.

7	Water sprinkler system should be provided to mitigate the dust from bulk cargo	Water sprinkler systems as well as Fogging system are provided to mitigate the dust from bulk cargo. 
8	Appropriate drainage facility should be provided in order to collect the runoff from the port. Collection system should be linked to the treatment plant so that run off are treated before discharge.	V.O.Chidambaranar Port Authority has initiated the drainage facilities for the port premises to collect the runoff water from the Port area as well as residential area.

COMPLIANCE REPORT FOR ENVIRONMENTAL CLEARANCE WITH RESPECT TO LETTER No ,III dated 09.05.2006

S.No	Conditions	Status of compliance
1	No displacement of people should take place due to the project	Project activities are executed inside the Port land
2	All issues raised during the public hearing should be addressed and action plan for implementing the issues /concerns raised by the fisherman should be formulated and submitted to this ministry within 3 months from the date of receipt of this letter	The issues raised during the public hearing are addressed and action plan for implementing the issues has been prepared. In addition to the above various CSR activities were carried out in around the Port premises as well as nearby community.
3	The project proponent should earmark an amount 0.5% of the total civil work of the project for the socio- economic development and welfare in the area including drinking water supply, vocational training and fishery related development programmes.	Separate account is maintained for socio-economic development and welfare in the area including drinking water supply, vocational training and fishery related development programmes. Year wise expenditure report is submitted to Regional Office as well as Tamil Nadu Pollution Control Board.

4	The fishing activities by the fishermen living in the settlement along the project area should not be hindered and a mechanism may be evolved for the movement of fishing boats via-a-vis shipping activities.	Project and shipping activities are covered under Port premises; it has not affected the fishing activities or the fishing boats.
5	The project proponent should not undertake any destruction of mangroves during construction and operation of the project	There is no destruction of mangroves during the project activity.
6	All the conditions stipulated by the Tamil Nadu Pollution Control Board should be effective implemented	TNPCB compliance report was compiled and submitted to Tamil Nadu Pollution control Board.
7	Sewage arising in the Port area should be disposed off through septic tank-soak pit system or shall be treated along with the industrial effluents to conform to the standards stipulated by Tamil Nadu Pollution Control Board should be utilized/ re-cycled for gardening, plantation and irrigation.	Sewage generated from the V.O.Chidambaranar Port Authority is being collected and transfer to Sewage Treatment Plant. The plant capacity is 1 MLD and treated water is being used for the green belt development. Copy of the sewage treated water quality report is enclosed as Annexure II
8	Adequate plantation should be carried out along the roads of the Port premises and a green belt shall be developed	✓ Total Green Belt area in VOCPA = **637.73 Acres** (Including Mass Plantation Drive conducted in 2022) Proposed to plant 10000 plantation for every year
9	There should be no withdrawal of ground water in CRZ area, for this project. The proponent shall ensure that as result of the proposed constructions. Ingress of saline water into ground water does not take place. Piezometer shall be installed for regular monitoring for this purpose at appropriate locations on the project site.	River water is being used for the domestic purpose during the project execution as well as Port active and new initiative taken for installation of 5 MLD Desalination plant. Piezometric bore well analysis was carried every month and report is submitted to Tamil Nadu Pollution Control Board. The copy of the report is enclosed as Annexure I
10	The project should not be commissioned till the requisite water supply and electricity to the project are provided by the PWD/Electrical Department.	The project was started with facility of water supply from Tamil Nadu Water Supply and Drainage Board and electricity from the TNEB/Electricity Department.

11	No facilities should be constructed in the Coastal Regulation Zone area.	Construction activities done as per the Environmental Clearance & CRZ regulations.
12	No Facility should be carried out for this project	Project activity is done as per the Environmental Clearance.
S.No	**Environmental Clearance General Condition**	**Status of Compliance**
1	Adequate provision for infrastructure facility 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.	Port provided infrastructure facilities, water supply, fuel, sanitation etc. The project is carried out at waterfront area. There were no felling of trees/mangroves and pollution of water.
2	The project authority must take necessary arrangement for disposal of solid waste and for the treatment of effluent by providing a proper waste water treatment plant outside the CRZ area. The equality of treated effluents, solid waste 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 Forest under the Environment (protection) act,1986, whichever are more stringent.	Disposal of solid and liquid waste is being done as per the pollution control board norms. Port has engaged third party to execute Environmental monitoring work, M/s.Hubert Enviro care pvt ltd, for periodical analysis of Air quality, water quality, Marine water quality, Sea Bed Sediments and Noise level in various location and monthly reports of water quality parameters forwarded to Ministry. The copy of the report is enclosed as Annexure III.
3	The proponent should obtain the requisite consents for discharge of effluents and emissions 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	V.O.C.Port Authority obtained Consent Order for Air and Water and the consent validity is until March 2028 from Tamil Nadu Pollution Control Board. Copy of the consent order for air and water are enclosed as Annexure IV.

4.	The proponent should 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.	Port has engaged M/s.Hubert Envirocare for periodical analysis of Air quality, water quality, Marine water quality, Sea bed Sediments and Noise level in various location and monthly reports of water quality parameters and report is being submitted to Tamil Nadu Pollution Control Board on monthly basis. Copy of the report is enclosed as Annexure III.
5	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.	Environmental monitoring work is carried out through the third party M/s.Hubert Enviro care for periodical analysis of Air quality, water quality, Marine water quality, Sea bed sediments and Noise level in various location and monthly reports is being submitted to Tamil Nadu Pollution Control Board on monthly basis. Copy of the report is enclosed as Annexure III.
6.	The sand dunes and mangroves, if any, on the site should not be disturbed in any way.	Project is executed in waterfront area and there is no disturbance or damages to the sand dunes and mangroves.
7.	A copy of the clearance letter will be marked to the concerned Panchayat/local NGO, if any. From whom any suggestions/representation has been received while processing the proposals	Environmental clearance letter was submitted to Panchayat/local body.
8	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	Environmental Clearance copy is displayed at Regional office, as well as District industries Centre and Collector's Office/Tehsildar's office.
9	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 safegauards should be reported to this Ministry's Regional Office at Bangalore and the State Pollution Control Board.	Separate account is maintained for the environment protection measures. Year wise expenditure report is submitted to Regional Office as well as Tamil Nadu Pollution Control Board.

10.	Full support should be extended to the Officers to 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.	Port is being supported to the officials from the Ministry's of Environment and Forest & CC Regional office at Chennai and the offices of the central and Tamil Nadu State Pollution Control Board.
11	In case of deviation in the project including the implementing agency, a fresh reference should be made to this Ministry for modification in the clearance condition or impose of new ones for ensuring environmental protection.	The project is executed as per the norms. There is no deviation in the project implementation. The Project construction was carried out as per Central rule and regulation including of Coastal Regulation Zone Notification, 2011 and the approved CRZ plan of Tamil Nadu.
12	The Ministry right to revoke this clearance revokes this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.	Environmental Clearance six month compliance reports and monitoring report have been submitted to the regional office of the MoEF & CC, Chennai.
13	The Ministry or any other competent authority may stipulate any other additional conditions subsequently, if deemed necessary, for environmental protection, which shall be complied with.	V.O.C.Port Authority is willing to comply the condition from competent authority related with environmental protection.
14	The Project proponent should advertise in at least local newspaper widely circulated in the region around the project, one of which shall be vernacular language of the locality concerned information that the project has been accorded environmental clearance and copies of clearance letter are available with the state pollution control board may also be seen at website of the Ministry of Environment & Forest at http:www.envfornic.in. The	Environmental Clearance copy was advertised in local newspaper as well as copy was submitted to TNPCB.

	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.	
15	The project proponent 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.	Date of financial closure was 31st march of every year and approval of the project by the concerned authorities and the date of start of the project and land development will be informed to the Regional Office in future.

COMPLIANCE REPORT FOR ENVIRONMENTAL CLEARANCE WITH RESPECT TO EC NO - PD-26018/1/99-PDZ(CRZ) "PROPOSAL OF ENVIRONMENTAL CLEARANCE FOR CONSTRUCTION OF CARGO BERTH NO.8 AT TUTICORIN PORT AUTHORITY" DATED 12 MAY 2000.

S.No	Conditions	Compliance
1	All construction design/drawings relating to construction activities- approval of the concerned Government Department Agencies of the state Government of Tamil Nadu Ground water should not be trapped for the construction activity as the drawl of ground water for industrial use from the CRZ is a prohibited activity.	All construction design/drawings relating to construction activities- got the approval of the concerned Government Department
2	Adequate provision for all infrastructural facilities such as water supply, fuel, sanitation etc must be extended for labourers during the construction period in order to avoid damage to the environment.	Port has provided drinking water to the employee, fuel, sanitation facility for the Port employees as well as contract Labors during the project execution.
3	Dredging operations,if any, should be undertaken in consultation with either the Central Water and power research station, Pune or National Institute of Oceanography ,Goa or any other authorized agency to ensure that dredging operations do not cause adverse impact on water quality and marine productivity in the vicinity. Dredging operation as far as	Dredging was conducted by cutter/suction method and dredge spoil was used for the reclamation activity and there is no impact on hydrology and marine productivity.

	possible should be kept to the minimum for avoiding any adverse impact on marine life.	
4	Ground water should not be tapped for construction activities –prohibited activity	River water is being used for Port activities and also proposed the project for Desalination plant for the capacity of 5 MLD to supply water.
5	Disposal site for excavated material should be so designed that the revised land use after dumping and changes in the land use pattern do not interfere with the natural drainage	Dredging materials are used for the reclamation and utilized for the port activities. The reclaimed area is used for Port activities.
6	Adequate foam containers should be kept with supporting firefighting systems and water pipeline	V.O.Chidambaranar Port Authority is provided adequate safety fire fighting system, fire alarms, fire fighting equipments and fire station are available at the Port.
7	Staff posted in sensitive areas should be trained in implementation of the crisis management plan already drawn by the authority. Mock drills for this purpose should be conducted on a regular basis	Periodical training given to the Port Employee as well as contract employee. Fire station is available at the port premises and Mock drills are conducted on regular basis for the interval of 6 month.
8	2000-2500 trees per hectare may be adopted for rising of green belt. Necessary permissions may be obtained from the concerned authorities for cutting of trees.	✓ Total Green Belt area in VOCPA = **637.73 Acres** (Including Mass Plantation Drive conducted in 2022) Proposed to plant 10000 plantation for every year
9	Adequate system for collection, treatment and disposal of liquid waste	Waste water is being collected and treated in the sewage treatment plant and report is submitted to Tamil Nadu Pollution Control in regular basis.
10	Adequate noise control measures should be provided	Port is being monitoring Noise at the interval of every fortnight in around the port premises as well as work place and safety measures are taken through usage of PPEs Ear Muff, and Earplugs. Copy of the report is enclosed as Annexure III.
11	The quality of treated effluents, solid waste and emissions must be conformed	Emissions and noise levels are within the prescribed norms as per the CPCB & TNPCB

	to the standards- TNPCB	standards. Collection and segregation of solid waste is being done and disposed in safe manner as per the norms. Copy of the report is enclosed as Annexure III.
12	Environmental cell should be set up with laboratory facilities, equipment and the mobile van for collecting air samples.	Separate Environment Cell with adequate staff is created under the Civil Engineering department for monitoring Pollution control activities.
13	Necessary leakage detection devices with early warning system must be provided at strategic locations.	Safety alarm and leakage detection devices with early warning system have been installed at the user end. Port is being monitoring the pipe line and their system. Copy of leakage detection system enclosed as Annexure V.
14	Standby DG must be provided to ensure uninterrupted power supply the pump house and fire fighting system.	Continuous Electrical power supply is provided for pump house and Port is having separate Fire station with equipment for the fire protection system.
15	Third party inspection should be ensured during construction and operational phases with adequate insurance cover. The project authorities should confirm on regular intervals of six months to the Ministry about the implementation of the suggested safeguard measures and the data/report should be opened for inspection by the Team which would be constituted by the Ministry, If found necessary.	V.O.Chidambaranar Port Authority is being ensured the third party Insurance of the employee.
16	Adequate funding provisions, year wise and item wise must made for implementation of the above mentioned safeguard measures.	Port is being spent money for Environmental activities and expenditure is submitted to Regional Office (MoEF&CC) at Chennai.
17	The Proponents should follow the mitigative measures in to as mentioned in the Environmental Impact Assessment study and Environmental Management plan for the above project.	Mitigation and monitoring report has been prepared as per the EIA/EMP recommendation as well as Disaster management plan and the report is submitted to the Regional Office at Chennai.
18	These stipulations would be enforced among others under the provision of water (Prevention and Control of Pollution) Act, 19, The Air(Prevention of water (Prevention and control of	Port is having Public liability Insurance

	Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability (Insurance) Act,1991 along with their amendments and rules from time to time	

COMPLIANCE REPORT FOR ENVIRONMENTAL CLEARANCE WITH RESPECT TO EC NO - J-16011/17/95-IA.III "CAPITAL DREDGING IN APPROACH CHANNEL OF DOCK BASIN AT TUTICORIN PORT AUTHORITY" DATED 20 NOV 1995

S.No	Conditions	Compliance
1	Dredging operation should be undertaken on consultation with either Central water or power research station. Dredging should not affect water quality and marine productivity	Dredging was conducted by cutter/suction method and dredge spoil was used for the reclamation activity and there is no impact on hydrology and marine productivity.
2	Water quality parameter at the bottom level should be inspected and recorded during dredging.	Water quality parameter at the bottom level is inspected and recorded during dredging and there is no deviation in the water quality. Copy of the report is enclosed as Annexure III.
3	Adequate system for collection, treatment and disposal of liquid waste must be provided	Waste water is being collected and treated in sewage treatment plant and the report is submitted to Tamil Nadu Pollution control on regular basis. Copy of the report is enclosed as Annexure II
4	Adequate noise control measures	Port is monitoring Noise at the interval of every fortnight in and around the port premises as well as work place. Safety measures are taken through usage of Ear Muff, and Earplugs. Copy of the report is enclosed as Annexure III.
5	Quality of Treated effluents, solid waste, emissions and noise levels should be within standards.	Emissions and noise levels are within the prescribed norms as per the CPCB & TNPCB standards. Collection and segregation of solid waste is being done and disposed in safe manner as per the norms.
6	Reclaimed area should be utilized only	Dredging materials are used for the reclamation

	for container handling facilities	and utilized for the port activities. The reclaimed area is used for Port activities.
7	Afforestation should be undertaken over 30% of the port area.	✓ Total Green Belt area in VOCPA = **637.73 Acres** (Including Mass Plantation Drive conducted in 2022) Proposed to plant 10000 plantation for every year
8	A part of revenue generated due to increased handling of cargos should be utilized for improving the environment in the project impact area by maintaining a clean sea front, establishment of sewage treatment and oil recovery plants	Port is using part of revenue for the purpose of Environment. Green belt development, Dust emission (sprinkler system, fogging system, Environmental monitoring).
9	Environment cell	Separate Environment Cell created with adequate staff members under the Civil Engineering department for monitoring Pollution control activities.
10	Adequate provisions for enhancing the present allocation of Rs 2 crores on environmental aspects	Port is using part of revenue for the purpose of Environment. Green belt development, Dust emission (sprinkler system, fogging system, Environmental monitoring).
11	Public liability insurance	Port is having Public liability insurance.

COMPLIANCE REPORT FOR ENVIRONMENTAL CLEARANCE WITH RESPECT TO EC NO - J-16011/24/93-IA.III "REPLACEMENT OF RCC JETTY WITH BLOCK WORK PIER AT EXTENSION PORT BY TUTICORIN PORT AUTHORITY" DATED 27TH JAN 1995

S.No	Conditions	Compliance
1	Dredging activity- should not impact water hydrology, marine productivity- should consult with Expert Institute	Dredging was conducted by cutter/suction method and dredge spoil was used for the reclamation activity and there is no impact on hydrology and marine productivity.
2	Water quality parameter at the bottom level should be inspected and recorded during dredging.	Water quality parameter at the bottom level were inspected and recorded during dredging and there is no deviation in the water quality.
3	Periodic monitoring report on water quality parameter forwarded to Ministry (Six month interval)	Port engaged M/s Hubert Envirocare for periodically analysis of Air quality, Water quality, Marine Water quality, Sea Bed Sediments and Noise level in various location and Quarterly reports of water quality parameters forwarded to

		ministry. Copy of the report is enclosed as Annexure III.
4	Preparation of Disaster management plan, Forwarded to Ministry	Disaster management plan were prepared and submitted to Ministry.
5	Adequate system for collection, treatment and disposal of liquid waste must be provided	Waste water is being collected and treated in the sewage treatment plant and the report is submitted to Tamil Nadu Pollution control in regular basis. Copy of the report is enclosed as Annexure II.
6	Green belt development programme	✓ Total Green Belt area in VOCPA = **637.73 Acres** (Including Mass Plantation Drive conducted in 2022) Proposed to plant 10000 plantation for every year
7	Adequate noise control measures	Port is monitoring Noise at the interval of every fortnight and Earplugs were provided. Copy of the report is enclosed as Annexure III.
8	Quality of Treated effluents, solid waste, emissions and noise levels should be within standards.	Emissions and noise levels are within the prescribed norms as per the CPCB & TNPCB standards. Collection and segregation of solid waste is being done and disposed in safe manner as per the norms. Tarpaulin was covered on the top of the truck to avoid spillages while transferring coal from Vessel to jetty. Copy of the report is enclosed as Annexure III.
9	Environment Monitoring Cell must be set up	Separate Environment Cell with adequate staff members is created under the Civil Engineering department for monitoring Pollution control activities.
10	Adequate Financial provisions must be made	Financial provisions are made with Financial closure.
11	Any deviations in project proposal – new ones imposed for ensuring environmental protection	There is no deviation in the project construction. Construction was carried out as per Central rule and regulation including of Coastal Regulation Zone Notification, 2011 and the approved CRZ plan of Tamil Nadu.

COMPLIANCE REPORT FOR ENVIRONMENTAL CLEARANCE WITH RESPECT TO EC NO - J-16011/10/93-IA.III "CONSTRUCTION OF MULTIPURPOSE GENERAL CARGO BERTH NO 7 AT TUTICORIN PORT BY TUTICORIN PORT AUTHORITY" DATED 7TH FEB 1994

S.No	Conditions	Compliance
1	Dredging activity- should not impact water hydrology, marine productivity	Dredging was conducted by cutter/suction method and dredge spoil was used for the reclamation activity and there is no impact on hydrology and marine productivity.
2	Water quality parameter at the bottom level should be inspected and recorded during dredging.(turbidity, ammonical nitrogen, other nutrients)	Water quality parameter at the bottom level were inspected and recorded during dredging and there is no deviation in the water quality.
3	Quarterly reports of water quality parameters forwarded to ministry	Port is being engaged M/s Hubert Envirocare for periodical monitoring of Air quality, Water quality, Marine Water quality, location and the reports has been submitted to TNPCB as well as Ministry. Copy of the report is enclosed as Annexure III.
4	Preparation of Disaster management plan, Forwarded to Ministry	Disaster management plan were prepared and forwarded to Ministry
5	Adequate system for collection, treatment and disposal of liquid waste must be provided	Wastewater is being collected and treated in the sewage treatment plant and the report is submitted to Tamil Nadu Pollution control on regular basis. Copy of the report is enclosed as Annexure II.
6	Quality of Treated effluents, solid waste, emissions and noise levels should be within standards.	Emissions and noise levels are within the prescribed norms as per the CPCB & TNPCB standards. Collection and segregation of solid waste is being done and disposed in safe manner as per the norms. Copy of the report is enclosed as Annexure III.

COMPLIANCE REPORT FOR ENVIRONMENTAL CLEARANCE WITH RESPECT TO EC NO – J-16011/7/88-IA, III DATED: 23.12.1988

S.No	Conditions	Compliance
1	Pollution control measures (Air, Water, Solid waste)	Environmental monitoring is being done through external party M/s. Hubert Envirocare systems pvt ltd, approved by MoEF & CC.
2	Water supply, Power supply, Fire fighting	Adequate water supply is being provided inside the Port area. Un-interrupted power supply is being provided using DG set. Separate Fire service department is being created in Port.
3	Preparation of Disaster management plan, Approval from Ministry.	Disaster Management Plan was prepared and submitted to Ministry.
4	Sewerage and Drainage system	Sewage water is collected and treated in the sewage treatment plant and the report is submitted to Tamil Nadu Pollution control on regular basis.
5	Dredging activity- should not impact water hydrology, marine productivity	Dredging was conducted by cutter/suction method and dredge spoil was used for the reclamation activity and there is no impact on hydrology and marine productivity.
6	Green belt development programme	✓ Total Green Belt area in VOCPA = **637.73 Acres** (Including Mass Plantation Drive conducted in 2022) Proposed to plant 10000 plantation for every year
7	Environment Monitoring Cell must be set up	Environment Cell created under the Civil Engineering department for monitoring Pollution control activities.

COMPLIANCE REPORT WITH RESPECT TO MOEF & CC LETTER NO.11-139/2010-IA.III DATED:25.02.2019.

Environmental Clearance for the project " Deepening the Harbour Basin and approach Channel to handle 15.20 draught vessels, modification of Port entrance, construction of 6 Nos Berths and strengthening/Upgradation of existing Berths-1-9, NCB-II at V.O.Chidambaranar Port Authority, granted dated on 25.02.2019

Sl.No	Special Conditions	Compliance Status as on 30.06.2023
I	**Statutory compliance:**	
i.	Construction activity shall be carried out strictly according to the provisions of CRZ Notification, 2011 and the State Coastal Zone Management Plan as drawn up by the State Government. No construction work other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.	Noted. Construction activity is being carried out strictlyin accordance to the provisions of CRZ Notification, 2011 and the State Coastal Zone Management Plan as drawn up by the State Government.
ii.	All the recommendations and conditions specified by the Tamil Nadu Coastal Zone Management Authority who has recommended the project vide letter No. 7798/EC.3/2018-1 dated 2nd May, 2018 shall be complied with.	All the recommendations and conditions specified by the Tamil Nadu Coastal Zone Management Authority who has recommended the project vide letter No. 7798/EC.3/2018-1 dated 2nd May, 2018 is being complied.
iii.	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.	Port has obtained Consent to Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee. CTO valid up to 31.03.2028. The copy enclosed as **Annexure IV.**
iv.	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.	The recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines is being implemented in VOCPA.
v.	The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.	The Port is having own water supply system. Water is drawn from Thamiraparani river through Tamilnadu Water supply and Drainage Board.
vi.	All excavation related dewatering shall be as duly authorized by the CGWA. A NOC from the CGWA shall be obtained for all dewatering and ground water abstraction	Modification of Harbour entrance ie, widening of harbour entrance work has been started. hence, no dewatering & ground water abstraction.
vii.	A certificate of adequacy of available power from the agency supplying power to the project along with the load allowed for the project should be obtained.	Modification of Harbour entrance ie, widening of harbour entrance work has been started. During the execution of major project work, certificate of adequacy of

		available power will be obtained by VOCPA.
viii.	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Coast Guard, Civil Aviation Department shall be obtained, as applicable by project proponents from the respective competent authorities.	Noted. All Applicable statutory clearances will be obtained by VOC on the time of execution of project.
II	**Air quality monitoring and preservation**	
i.	The project proponent shall install system to carryout Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM_{10} and $PM_{2.5}$ in reference to PM emission, and SO_2 and NOx in reference to SO_2 and NOx emissions) within and outside the project area at least at four locations (one within and three outside the plant area at an angle of 120^o each), covering upwind and downwind directions.	Scientific Study had been carried out by M/s.Cholamandalam MS Risk services (CMSRS) for wind pattern and as per the report submitted 3 location has been identified. Based on the report submitted by M/s.Cholamandalam MS Risk servicesPort install3 CAAQMSis being connected to TNPCB Care Air Centre for monitoring PM_{10} and $PM_{2.5}$ in reference to PM emission, and SO_2 and NOx in reference to SO_2 and NOx emissions.
ii.	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed emission standards.	• Wind Screen is being erected for coal stock pile to prevent dust emission from the stock pile. And periodicalmaintenance has been done by Port. • 2 Nos of Truck Mounted Higher Capacity sweeping machineis deployed exclusively for controlling of fugitive emission and spillage of cargoesduring handling and transportation of cargoes. • Dedicated truck mounted high pressure water mist Fog machine is being deployed to reduce fugitive emission during handling and transportation of cargoes. • All coal cargo truck and rail rakes are properly covered while transportation to reduce fugitive emission during handling and transportation of cargoes. • VOC Port has installed Dry Fog Dust Suppression sprinkler System at Coal Terminal. • Covered belt Conveyor, Transfer Point, Discharge Point at Coal Stack Yard,

		provided telescopic chute for free falling of material from conveyor belt, dust containment for transfer point, loading hopper at terminal to minimize the fugitive coal dust emissions. • The coal is being conveyed through the closed conveyor system to avoid fugitive emission during handlingof cargoes. • V.O.C. Port is being carried out regular Ambient Air Quality monitoring with the third party approved by MoEF&CC and report submitted to TNPCB on monthly basis. Copy of report enclosed as **Annexure III.** • Online Continuous Ambient Air Quality monitoring is being connected to TNPCB Care Air Centre.
iii.	Continuous online monitoring of for air and water covering the total area shall be carried out and the compliance report of the same shall be submitted along with the 6 monthly compliance report to the regional office of MOEF&CC.	Online Continuous Ambient Air Quality monitoring is being connected to TNPCB Care Air Centre for monitoringPM_{10} and $PM_{2.5}$ in reference to PM emission, and SO_2 and NOx in reference to SO_2 and NOx emissions. Renovation of STP including installation of Continues Water monitoring system is in progress.
iv.	Shrouding shall be carried out in the work site enclosing the dock/proposed facility area. This will act as dust curtain as well achieving zero dust discharge from the site. These curtain or shroud will be immensely effective in restricting disturbance from wind in affecting the dry dock operations, preventing waste dispersion, improving working conditions through provision of shade for the workers.	Modification of Harbour entrance ie, widening of harbour entrance work has been started. During the execution of major project work, proper shrouding will be provided in the work site.
v.	Effective and efficient pollution control measures like covered conveyors/stacks (coal, iron ore and other bulk cargo) with fogging/back filters and water sprinkling commencing from ship unloading to stacking to evacuation shall be undertaken. Coal and iron ore stack yards shall be bounded by thick two tier green belt with proper drains and wind barriers wherever necessary.	• Wind Screen is being erected for coal stock pile to prevent dust emission from the stock pile. And periodical maintenance has been done by Port. • 2 Nos of Truck Mounted Higher Capacity sweeping machineis deployed exclusively for controlling of fugitive emission and spillage of cargoesduring handling and transportation of cargoes. • Dedicated truck mounted high pressure

<table>
<tr><td></td><td></td><td>water mist Fog machine is being deployed to reduce fugitive emission during handling and transportation of cargoes.

• All coal cargo truck and rail rakes are properly covered while transportation to reduce fugitive emission during handling and transportation of cargoes.

• VOC Port has installed Dry Fog Dust Suppression sprinkler System at Coal Terminal.

• Covered belt Conveyor, Transfer Point, Discharge Point at Coal Stack Yard, provided telescopic chute for free falling of material from conveyor belt, dust containment for transfer point, loading hopper at terminal to minimize the fugitive coal dust emissions.

• The coal is being conveyed through the closed conveyor system to avoid fugitive emission during handling of cargoes.

• V.O.C. Port is being carried out regular Ambient Air Quality monitoring with the third party approved by MoEF&CC and report submitted to TNPCB on monthly basis.

• Online Continuous Ambient Air Quality monitoring is being connected to TNPCB Care Air Centre.</td></tr>
<tr><td>vi.</td><td>Dust collectors shall be deployed in all areas where blasting (surface cleaning) and painting operations are to be carried out, supplemented by stacks for effective dispersion.</td><td>• 2 Nos of Truck Mounted Higher Capacity sweeping machineis deployed exclusively for controlling of fugitive emission and spillage of cargoesduring handling and transportation of cargoes.</td></tr>
<tr><td>vii.</td><td>The Vessels shall comply the emission norms prescribed from time to time.</td><td>No vessel permit without comply the norms prescribed by IMO Standard.</td></tr>
<tr><td>viii.</td><td>Diesel power generating sets proposed as source of backup power should be of enclosed type and conform to rules made under the Environment (Protection) Act, 1986. The height of stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets. Use of low sulphur diesel. The location of the DG sets may be decided with in consultation with State Pollution</td><td><table>
<tr><th>S.No</th><th>Oil Engine</th><th>Air Pollution Control measures</th></tr>
<tr><td>1.</td><td>600 KVA</td><td rowspan="8">All the DG Sets are fitted with Acoustic enclosures with stack</td></tr>
<tr><td>2.</td><td>500 KVA</td></tr>
<tr><td>3.</td><td>250KVA</td></tr>
<tr><td>4.</td><td>200KVA</td></tr>
<tr><td>5.</td><td>62.5 KVA</td></tr>
<tr><td>6.</td><td>50 KVA</td></tr>
<tr><td>7.</td><td>30/35 KVA</td></tr>
<tr><td>8.</td><td>25 KVA</td></tr>
</table></td></tr>
</table>

	Control Board.	9. 250 KVA 10. 200 KVA 11. 62.5 KVA 12. 30/35 KVA 13. 30/35 KVA
ix.	A detailed traffic management and traffic decongestion plan shall be drawn up to ensure that the current level of service of the roads within a 05 kms radius of the project is maintained and improved upon after the implementation of the project. This plan should be based on cumulative impact of all development and increased habitation being carried out or proposed to be carried out by the project or other agencies in this 05 Kms radius of the site in different scenarios of space and time and the traffic management plan shall be duly validated and certified by the State Urban Development department and the P.W.D./ competent authority for road augmentation and shall also have their consent to the implementation of components of the plan which involve the participation of these departments.	Preparation of traffic management and traffic decongestion plan is under process.
III	**Water quality monitoring and preservation**	
i.	The Project proponent shall ensure that no creeks or rivers are blocked due to any activities at the project site and free flow of water is maintained.	The proposed project site are within the Port premises, no creeks or rivers are blocked due to any activities by the Port.
ii.	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality. Silt curtains shall be used to contain the spreading of suspended sediment during dredging within the dredging area.	Currently, Port not executed any difgging and dredging activity.
iii.	No ships docking at the proposed project site will discharge its on-board waste water untreated in to the estuary/ channel.	As per IMO guideline,Port Reception facility provide for ships by VOCPA through empanelment of authorized recycler. And Port not allow ships to discharge its on-board waste water untreated in to the estuary/ channel.
iv.	Measures should be taken to contain, control and recover the accidental spills of fuel and cargo handle.	Following measures taken control and recover the accidental spills of fuel and cargo handle. ✓ Boom Barriers around vessel while

		handling liquid cargo. ✓ Liquid cargo's are transferred by using pipelines. ✓ Dusty cargoes are unloaded through Hoppers to truck to avoid fugitive emission. ✓ The coal is being conveyed through the closed conveyor system to avoid fugitive emission during handling of cargoes.
v.	The project proponents will draw up and implement a plan for the management of temperature differences between intake waters and discharge waters.	The Port is having own water supply system. Water is drawn from Thamiraparani river through Tamilnadu Water supply and Drainage Board. During project execution period management of temperature differences between intake waters and discharge waters will be recorded Port.
vi.	Spillage of fuel / engine oil and lubricants from the construction site are a source of organic pollution which impacts marine life. This shall be prevented by suitable precautions and also by providing necessary mechanisms to trap the spillage.	Noted. During execution of the project, Port will take necessary arrangements to avioid any spillage of fuel / / engine oil and lubricants from the construction site.
vii.	The fresh water requirement (3 MLD) for the present project will be met from Thamirabarani River at Vallavallan and 1 MLD from Thamirabarani River at Mangalakurichi.	The Port is having own water supply system. Water is drawn from Thamiraparani river through Tamilnadu Water supply and Drainage Board.
viii.	517 KLD of waste water is generated in a day and is being treated by existing STP of capacity 1 MLD. The STP which already exists in the Harbour Estate will be used and kept in operation during the operation phase of the proposed project development. The treated waste water / outfall from the STP will be used for the Green Belt development and dust suppression systems. The discharge of waste water into the nearest water bodies/sea is not proposed during any phase (construction as well as operation) of the project.	The Port is having own Sewage Treatment Plant of capacity 1 MLD. The sewage is being collected and treated in the existing STP, the treated water is used for the Green Belt development in Port area.
ix.	A certificate from the competent authority for discharging treated effluent/ untreated effluents into the Public sewer/ disposal/drainage systems along with the final disposal point should be obtained.	The Port is having own Sewage Treatment Plant of capacity 1 MLD. The sewage is being collected and treated in the existing STP, the treated water is used for the Green Belt development in Port area.Port is being carried out regular monitoring with the third

		party approved by MoEF&CC and report submitted to TNPCB on monthly basis. Copy enclosed as **Annexure II.** Port is in process of Renovation of STP including installation of Continues Water monitoring system is in progress.
x.	No diversion of the natural course of the river shall be made without prior permission from the Ministry of Water resources.	Noted. The project will be executed within the Port limit in Sea front area.
xi.	All the erosion control measures shall be taken at water front facilities. Earth protection work shall be carried out to avoid erosion of soil from the shoreline/boundary line from the land area into the marine water body.	Proposed to installed bund to control erosion installed opp to admin office to avoid erosion of soil from the shoreline/boundary line from the land area into the marine water body.
xii.	The project proponents would also draw up and implement a management plan for the prevention of fires due to handling of coal.	VOC Port has installed Dry Fog Dust Suppression sprinkler System at Coal Terminal.
xiii.	Port should draw oil spill management plan for proposed expansion with revised profile.	Oil Spill management plan has been prepared in VOC Port. For the proposed expansion project preparation of oil spill management plan is under process.
xiv.	Oil spill contingency plan shall be prepared and part of DMP to tackle emergencies. The equipment and recovery of oil from a spill would be assessed. Guidelines given in MARPOL and Shipping Acts for oil spill management would be followed. Mechanism for integration of terminals oil contingency plan with the overall area contingency plan under the coordination of Coast should be covered.	Oil Spill management plan has been prepared in VOC Port. For the proposed expansion project preparation of oil spill management plan is under process. ✓ Boom Barriers around vessel while handling liquid cargo. ✓ Liquid cargo's are transferred by using pipelines.
IV	**Noise monitoring and prevention**	
i.	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.	Noise level survey is being carried out by MoEF& CC Accredited agency as per the prescribed guidelines and report in this regard is being submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.**Annexure III.**
ii.	Noise from vehicles, power machinery and equipment on-site should not exceed the prescribed limit. Equipment should be regularly serviced. Attention should also be given to	Noise monitoring done by MoEF& CC accredited agency. Every fortnight report sent to TNPCB to conform to the standards prescribedunder during day time and during

<table>
<tr><td></td><td>muffler maintenance and enclosure of noisy equipments.</td><td>night time.

Proposal is initiated for installing Continuous Noise monitoring station in VOCPA.</td></tr>
<tr><td>iii.</td><td>Acoustic enclosures for DG sets, noise barriers for ground-run bays, ear plugs for operating personnel shall be implemented as mitigation measures for noise impact due to ground sources.</td><td>
<table>
<tr><th>S.No</th><th>Oil Engine</th><th>Air Pollution Control measures</th></tr>
<tr><td>1.</td><td>600 KVA</td><td rowspan="12">All the DG Sets are fitted with Acoustic enclosures with stack</td></tr>
<tr><td>2.</td><td>500 KVA</td></tr>
<tr><td>3.</td><td>250KVA</td></tr>
<tr><td>4.</td><td>200KVA</td></tr>
<tr><td>5.</td><td>62.5 KVA</td></tr>
<tr><td>6.</td><td>50 KVA</td></tr>
<tr><td>7.</td><td>30/35 KVA</td></tr>
<tr><td>8.</td><td>25 KVA</td></tr>
<tr><td>9.</td><td>250 KVA</td></tr>
<tr><td>10.</td><td>200 KVA</td></tr>
<tr><td>11.</td><td>62.5 KVA</td></tr>
<tr><td>12.</td><td>30/35 KVA</td></tr>
<tr><td>13.</td><td>30/35 KVA</td><td></td></tr>
</table>
</td></tr>
<tr><td>iv.</td><td>The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.</td><td>Noise monitoring done by external agency. Every fortnight report sent to TNPCB to conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.</td></tr>
<tr><td>V</td><td>Energy Conservation measures</td><td></td></tr>
<tr><td>i.</td><td>Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly.</td><td>• Port Installed 140KW Roof top Solar Power Plant, 500 KW Roof top Solar Power Plant in various buildings in Port area. Copy enclosed as Annexure XIII
• Port proposed and 5 MW (AC) grid connected ground based Solar PV Power Plant. The execution of the work is in progress. To meet the increasing energy demands, efforts are being taken by Port and all lights are replaced by LED Lights.
• Port proposed 2 MW Wind Farm at Port premises. The execution of work is in progress.</td></tr>
<tr><td>ii.</td><td>Compliance to Energy Conservation Building (ECBC-2017) shall be ensured for all the building complexes. Solar/wind or other renewable energy shall be installed to meet energy demand of 1% equivalent.</td><td>• Port Installed 140KW Roof top Solar Power Plant, 500 KW Roof top Solar Power Plant in various buildings in Port area.
• Port proposed and 5 MW (AC) grid connected ground based Solar PV Power Plant. The execution of the work is in progress.
• To meet the increasing energy demands,</td></tr>
</table>

		efforts are being taken by Port and all lights are replaced by LED Lights. • Port proposed 2 MW Wind Farm at Port premises. The execution of work is in progress. • Launched 6 nos. of Electric Cars and these cars are charged using solar power.Zero tail – pipe emission, each electrical vehicles reduce the GHG footprint by more than 1.5 Tonnes of CO2 every year. • Port proposed to deploy 14Nos. e-cars for Port Officers. Tender floated through GeM portal. • Port proposed to deployed4 Nos. of 9m 31-34 seater Electric Buses. Tender floated through GeM Portal.
iii.	Provide LED lights in their offices and residential areas.	To meet the increasing energy demands, efforts are being taken by Port and all lights are replaced by LED Lights.
VI	**Waste management**	
i.	Dredged material shall be disposed safely in the designated areas.	Dredging work not yet started. The dredged materials will be used for reclaimed backup area as proposed in the DPR.
ii.	Shoreline should not be disturbed due to dumping. Periodical study on shore line changes shall be conducted and mitigation carried out, if necessary. The details shall be submitted along with the six monthly monitoring report.	The shoreline study was conducted by IIT, Madras before the implementation of the project. During execution phase, Periodical study on shore line changes will be conducted.
iii.	Necessary arrangements for the treatment of the effluents and solid wastes/ facilitation of reception facilities under MARPOL must be made and it must be ensured that they conform to the standards laid down by the competent authorities including the Central or State Pollution Control Board and under the Environment (Protection) Act, 1986. The provisions of Solid Waste Management Rules, 2016. E- Waste Management Rules, 2016, and Plastic Waste Management Rules, 2016 shall be complied with	As per IMO guideline,Port Reception facility provide for ships by VOCPA through empanelment of authorized recycler from state pollution control board. And the wastes is being collected, transported and disposed through authorized recyclers.
iv.	The solid wastes shall be managed and disposed as per the norms of the Solid Waste Management Rules, 2016.	Waste is being collected in Port area and segregated as Biodegradable and non-biodegradable wastes. Biological treatment methods (Vermicomposting) adopted to decompose biodegradable waste; Non bio

		degradable waste is being disposed through authorized recycler.
v.	Any wastes from construction and demolition activities related thereto shall be managed so as to strictly conform to the Construction and Demolition Waste Management Rules, 2016.	Noted. Construction and Demolition Waste Management Rules, 2016 strictly followed by VOCPA.
vi.	A certificate from the competent authority handling municipal solid wastes should be obtained, indicating the existing civic capacities of handling and their adequacy to cater to the M.S.W. generated from project.	During execution of project, handling of Municipal Solid Waste Management certificate indicating the existing civic capacities of handling and their adequacy to cater to the M.S.W. generated from project will be obtained by VOCPA
vii.	Used CFLs and TFLs should be properly collected and disposed off/sent for recycling as per the prevailing guidelines/ rules of the regulatory authority to avoid mercury contamination.	To meet the increasing energy demands, efforts are being taken by Port and all lights are replaced by LED Lights.
VII	**Green Belt**	
i.	Green belt shall be developed in area as provided in project details with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant.	✓ Total Green Belt area in VOCPA = **637.73 Acres** (Including Mass Plantation Drive conducted in 2022) Proposed to plant 10000 plantation for every year
ii.	Top soil shall be separately stored and used in the development of green belt.	Noted. Top soil will be used in the development of green belt.
VIII	**Marine Ecology**	
i.	Dredging shall not be carried out during the fish breeding and spawning seasons	Noted. Dredging will not be carried out during the fish breeding and spawning seasons.
ii.	Dredging, etc shall be carried out in the confined manner to reduce the impacts on marine environment.	Dredging will be conducted in a confined manner by using cutter/section method and dredging will be proposed inside the breakwaters and channel areas. The proposed dredging activity will not affect the marine activities.
iii.	The dredging schedule shall be so planned that the turbidity developed is dispersed soon	Dredging will be conducted by using cutter/section method in order to minimized

	enough to prevent any stress on the fish population.	the dispersion of dredged materials.
iv.	Sediment concentration should be monitored fortnightly at source and disposal location of dredging while dredging.	Port has engaged MoEF& CC Accredited third party to execute Environmental monitoring work, monitoring of Sea Bed Sediments in various location mainly in the proposed project site.
v.	While carrying out dredging, an independent monitoring shall be carried out through a Government Agency/Institute to assess the impact and necessary measures shall be taken on priority basis if any adverse impact is observed.	Noted. Independent monitoring will be carried out through a Government Agency/Institute to assess the impact and necessary measures will be taken on priority basis if any adverse impact is observed.
vi.	No underwater blasting is permitted.	Noted. Port will not do underwater blasting
vii.	A copy of the Marine and riparian biodiversity management plan duly validated by the State Biodiversity Board shall be submitted before commencement of implementation.	Baseline study for Marine and riparian biodiversity & management plan was conducted by Port by engaging M/s.SDMRI Institute will be submitted to State Biodiversity Board after commencement of implementation.
viii.	A continuous monitoring programme covering all the seasons on various aspects of the coastal environs need to be undertaken by a competent organization available in the State or by entrusting to the National Institutes/ renowned Universities/accredited Consultant with rich experiences in marine science aspects. The monitoring should cover various physico-chemical parameters coupled with biological indices such as microbes, plankton, benthos and fishes on a periodic basis during construction and operation phase of the project. Any deviations in the parameters shall be given adequate care with suitable measures to conserve the marine environment and its resources.	Port has engagedMoEF& CC Accredited agency to execute Environmental monitoring work, M/s.Hubert Enviro care pvt ltd, for periodical analysis of Air quality, water quality, Marine water quality, Sea Bed Sediments and Noise level in various location and monthly reports of water quality parameters forwarded to Ministry. The copy of the report is enclosed as **Annexure III.** During execution of the project Port is proposed to study the marine environment
ix.	Marine ecological studies as carried out by M/s SuganthiDevaadasan Marine Research Institute and its mitigation measures for protection of	Noted and complied with.

	phytoplankton, zooplanktons, macrobenthos, marine turtles, mangroves, corals, sea grass etc as given in the EIA-EMP Report shall be complied with in letter and spirit.	
x.	Marine ecology shall be monitored regularly also in terms of sea weeds, sea grasses, mudflats, sand dunes, fisheries, echinoderms, shrimps, turtles, corals, coastal vegetation, mangroves and other marine biodiversity components as part of the management plan. Marine ecology shall be monitored regularly also in terms of all micro, macro and mega floral and faunal components of marine biodiversity.	At present, Dredging work & construction / upgrading not executed.
xi.	The project proponent shall ensure that water traffic does not impact the aquatic wildlife sanctuaries that fall along the stretch of the river.	Noted. VOCPA will ensure that water traffic does not impact the aquatic wildlife sanctuaries that fall along the stretch of the river.
IX	**Public hearing and Human health issues**	
i.	The work space shall be maintained as per international standards for occupational health and safety with provision of fresh air respirators, blowers, and fans to prevent any accumulation and inhalation of undesirable levels of pollutants including VOCs.	VOC Port is Certified under (Occupational Health & Safety Management System) ISO – 18001:2007 on 10.04.2017 and Upgraded to ISO – 45001:2018 on 06.04.2020.
ii.	The concerns expressed during the public hearing held by the M/s V.O. Chidambaranar Port Trust needs to be addressed during the project implementation. These would also cover socio-economic and ecological and environmental concerns, besides commitment by the management towards employment opportunities.	Noted and complied with. Public hearing grievances will be addressed.
iii.	Necessary arrangement for general safety and occupational health of people should be done in letter and spirit.	Noted. Necessary arrangement for general safety and occupational health of people is being implemented by VOCPA
iv.	Workers shall be strictly enforced to wear personal protective equipments like dust mask, ear muffs or ear plugs, whenever and wherever necessary/ required. Special visco-elastic gloves will be used by labour exposed to hazards from	Noted. Safety measures are taken through usage of PPEs Ear Muff, and Earplugs.

	vibration.	
v.	In case of repair of any old vessels, excessive care shall be taken while handling Asbestos & Freon gas. Besides, fully enclosed covering should be provided for the temporary storage of asbestos materials at site before disposal to CTSDF.	Noted.
vi.	Safety training shall be given to all workers specific to their work area and every worker and employee will be engaged in fire hazard awareness training and mock drills which will be conducted regularly. All standard safety and occupational hazard measures shall be implemented and monitored by the concerned officials to prevent the occurrence of untoward incidents/ accidents.	Periodical training given to the Port Employee as well as contract employee. Fire station is available at the port premises and Mock drills are conducted on regular basis for the interval of 6 month.
vii.	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan is being implemented.
viii.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Noted. Necessary facilities are being provided for the construction labours.
ix.	Occupational health surveillance of the workers shall be done on a regular basis.	Occupational health surveillance of the workers is being done on a regular basis.
X	**Corporate Environment Responsibility**	
i.	As per the Ministry's Office Memorandum F.No.22-65/2017-IA.III dated 1st May 2018, and proposed by the project proponent, an amount of Rs. 14.30 Crore (@0.25% of project Cost) shall be earmarked under Corporate Environment Responsibility (CER) for the activities such as education and training, culture and socio economic development, health, infrastructure and environment protection etc. The activities proposed under CER shall be restricted to the	The issues raised during the public hearing are addressed and action plan for implementing the issues has been prepared. In addition to the above various CSR activities were carried out in around the Port premises as well as nearby community.

	affected area around the project. The entire activities proposed under the CER shall be treated as project and shall be monitored. The monitoring report shall be submitted to the regional office as a part of half yearly compliance report, and to the District Collector. It should be posted on the website of the project proponent.	
ii.	The company shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.	VOC Port is Certified under (Occupational Health & Safety Management System) ISO – 18001:2007 and Upgraded to ISO – 45001:2018. **And** Certified under (Environment Management System) ISO – 14001:2004 and Upgraded to ISO – 14001:2015.
iii.	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.	Separate Environment Cell with adequate staff is created under the Civil Engineering department for monitoring Pollution control activities.
iv.	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.	Port has prepared mitigation and monitoring report as per the EIA/EMP recommendation as well as Disaster management plan.
v.	All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to the RO, MoEF&CC along with half yearly compliance report.	Port has prepared mitigation and monitoring report as per the EIA/EMP recommendation as well as Disaster management plan
vi.	Self environmental audit shall be conducted annually. Every three years third party	Every year environment audit is being conducted in VOCPA - Port is Certified

	environmental audit shall be carried out.	under ISO – 14001:2004 and Upgraded to ISO – 14001:2015 on 29.08.2017 under EMS.
XI	**Miscellaneous**	
i.	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.	Environmental clearance granted along with the environmental conditions and safeguards at their cost displayed in the VOCPA website.
ii.	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.	The copies of the environmental clearance obtained by Port submitted to the Heads of local bodies, Panchayats and Municipal Bodies.
iii.	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.	Status of compliance uploaded in website stipulated environment clearance conditions, including results of monitored data on their website and it is updated on half-yearly basis.
iv.	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.	Six-monthly reports on the status of the compliance of the stipulated environmental conditions submitted to MoEF& CC regularly.
v.	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	Environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986 is submitted to TNPCB on 27.09.2022 for the year 2022. Copy enclosed as **Annexure VI**
vi.	The criteria pollutant levels namely; SPM, RSPM, SO_2, NOx (ambient levels) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in	Scientific Study had been carried out by M/s.Cholamandalam MS Risk services (CMSRS) for wind pattern and as per the report submitted 3 locations has been

	the public domain.	identified. Based on the report submitted by M/s.Cholamandalam MS Risk services Port install3 CAAQMSis being connected to TNPCB Care Air Centre for monitoring PM_{10} and $PM_{2.5}$ in reference to PM emission, and SO_2 and NOx in reference to SO_2 and NOx emissions. The copy of Work order and maintenance of CAAQMS order enclosed as **Annexure VI.**
vii.	The project proponent 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, commencing the land development work and start of production operation by the project.	Date of financial closure of the Port will be 31.03.2023 and published in Port website
viii.	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.	Noted. VOCPA is strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
ix.	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.	Noted. The issues raised during the public hearing are addressed and action plan for implementing the issues has been implemented. In addition to the above various CSR activities were carried out in around the Port premises as well as nearby community.
x.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	Noted. Without prior approval of the Ministry of Environment no further expansion or modifications will be carried out by Port.
xi.	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Noted and agreed with.
xii.	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Noted and agreed with. Project activity is done as per the

		Environmental Clearance.
xiii.	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.	Noted and agree with.
xiv.	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.	V.O.Chidambaranar Port Authority is willing to support the officials from the Ministry's Regional Office at Chennai and also the Office of the Central and Tamil Nadu State pollution Control Board.
xv.	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.	Noted.
xvi.	Any appeal against this EC shall lie with the National Green Tribunal, if preferred within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.

COMPLIANCE REPORT WITH RESPECT TO MOEF & CC LETTER NO.11-20/2010-IA.III DATED: 20.05.2020.

Note: CRZ Clearance for the project "Setting Sea Water reverse Osmosis Plant of 5 MLD capacity at Thoothukudi, Tamil Nadu" at V.O.Chidambaranar Port Authority, granted dated on 20.05.2020 project work is to be started.

Annexure I

PIEZOMETER WELL WATER – 1

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/021/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-I**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **18/05/2023 -20/05/2023**
Analysis Commenced On : **20/05/2023**
Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
1	pH (at 25 °C)	-	7.98	IS 3025 (Part - 11):1983
2	Appearance #	-	Turbid liquid	2110 APHA 23rd Edition 2017
3	Colour	Hazen Unit	BLQ(LOQ:1.0)	IS 3025(Part - 4):1983
4	Odour	-	Agreeable	IS 3025 (Part - 5):1983
5	Chloride as Cl	mg/l	4503.42	4500 Cl -– B APHA 23rd Edn: 2017
6	Cyanide as CN	mg/l	BLQ(LOQ:0.01)	IS 3025 (Part - 27):1986
7	Total Dissolved Solids	mg/l	7864.0	IS 3025(Part -16):1984
8	Sulphate as SO4	mg/l	612.3	IS 3025(Part - 24):1986
9	Fluoride	mg/l	0.56	IS 3025 (Part - 60):1986
10	Boron as B #	mg/l	BLQ(LOQ:0.1)	IS:3025 (Part - 57):2005
11	Phenolic compounds as C6H5OH	mg/l	BLQ(LOQ:0.001)	APHA 23rd edition (Method 5530C): 2017
12	Hexavalent Chromium as Cr6+ #	mg/l	BLQ(LOQ:0.01)	IS 3025 (Part - 52):2003
13	Zinc as Zn	mg/l	BLQ(LOQ0.1)	USEPA Method 200.8:1994
14	Chromium as Cr	mg/l	BLQ(LOQ:0.01)	USEPA Method 200.8:1994
15	Copper as Cu	mg/l	BLQ(LOQ:0.01)	USEPA Method 200.8:1994
16	Cadmium as Cd	mg/l	BLQ(LOQ0.001)	USEPA Method 200.8:1994
17	Lead as Pb	mg/l	BLQ(LOQ0.005)	USEPA Method 200.8:1994
18	Selenium as Se	mg/l	0.014	USEPA Method 200.8:1994
19	Arsenic as As	mg/l	0.023	USEPA Method 200.8:1994
20	Mercury as Hg	mg/l	BLQ(LOQ0.0005)	USEPA Method 200.8:1994
21	Percent Sodium as Na	%	57.63	IS 3025(Part -45) 1993
22	Total suspended solid	mg/l	7.0	IS 3025 (Part - 17):1984
23	BOD,3 days @27°C as O2	mg/l	4.0	IS 3025 (Part - 44):1993
24	Chemical oxygen demand as O2	mg/l	36.0	IS 3025 (Part - 58):2006
25	Oil and Grease	mg/l	BLQ(LOQ:4.0)	IS 3025 (Part - 39):1991

Authorized Signatory

PIEZOMETER WELL WATER – 1

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/021/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-I**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **18/05/2023 -20/05/2023**
Analysis Commenced On : **20/05/2023**
Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
26	Sulphide as S2-	mg/l	BLQ(LOQ:0.04)	IS3025 (Part - 29):1986
27	**Pesticides**			
	Alpha HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Beta HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Gama HCH (Lindane)	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Delta HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDT	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDT	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDD	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDD	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDE	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDE	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Alpha Endosulfan	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Beta Endosulphan	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Endosulfansulphate	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Chlorpyrifos	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Butachlor	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Alachor	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Atrazine	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Aldrin	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Dieldrin	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Monocrotophos	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Ethion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Phorate	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	2,4-D	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007

Authorized Signatory

PIEZOMETER WELL WATER – 1

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/021/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-I**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **18/05/2023 -20/05/2023**
Analysis Commenced On : **20/05/2023**
Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
	Isoproturon	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Methyl Parathion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Malathion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
28	Nickel	mg/l	0.0104	USEPA Method 200.8:1994
29	Total Kjeldahl Nitrogen	mg/l	0.84	IS 3025 (Part - 34):1988
30	Ammonical Nitrogen as NH3-N	mg/l	0.52	IS 3025 (Part - 34):1988
31	Alpha Emitters	Bq/l	BLQ(LOQ:0.005)	IS 14194 (Part - 2):1994
32	Beta Emitters	Bq/l	BLQ(LOQ:0.09)	IS 14194 (Part - 1):1994
33	Total Residual Chlorine	mg/l	BLQ(LOQ:0.1)	IS 3025 (Part - 26):1986
34	Residual Sodium Carbonate	mg/l	BLQ(LOQ:1.0)	IS 11624 - 1986
35	Particle Size of Suspended Solids	mg/l	Passed through 850micron	HECS/W&WW/SOP/066
36	Free Ammonia	mg/l	BLQ(LOQ:0.02)	IS 3025 Part (34) 1982

Note:- BLQ - Below the Limit of Quantification, LOQ- Limit of Quantification, mg/l - Milligrams per liter.

End of Report

Authorized Signatory

PIEZOMETER WELL WATER - 2

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/022/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-II**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **18/05/2023 -20/05/2023**
Analysis Commenced On : **20/05/2023**
Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
1	pH (at 25 °C)	-	8.13	IS 3025 (Part - 11):1983
2	Appearance	-	Turbid liquid	2110 APHA 23rd Edition 2017
3	Colour	Hazen Unit	BLQ(LOQ:1.0)	IS 3025(Part - 4):1983
4	Odour	-	Agreeable	IS 3025 (Part - 5):1983
5	Chloride as Cl	mg/l	4354.96	4500 Cl -– B APHA 23rd Edn: 2017
6	Cyanide as CN	mg/l	BLQ(LOQ:0.01)	IS 3025 (Part - 27):1986
7	Total Dissolved Solids	mg/l	7604.0	IS 3025(Part -16):1984
8	Sulphate as SO4	mg/l	554.3	IS 3025(Part - 24):1986
9	Fluoride	mg/l	0.53	IS 3025 (Part - 60):1986
10	Boron as B	mg/l	BLO(LOQ 0.1)	IS:3025 (Part - 57):2005
11	Phenolic compounds as C6H5OH	mg/l	BLQ(LOQ:0.001)	APHA 23rd edition (Method 5530C): 2017
12	Hexavalent Chromium as Cr6+	mg/l	BLQ(LOQ:0.01)	IS 3025 (Part - 52):2003
13	Zinc as Zn	mg/l	BLQ(LOQ 0.1)	USEPA Method 200.8:1994
14	Chromium as Cr	mg/l	BLQ(LOQ:0.01)	USEPA Method 200.8:1994
15	Copper as Cu	mg/l	BLQ(LOQ:0.01)	USEPA Method 200.8:1994
16	Cadmium as Cd	mg/l	BLQ(LOQ 0.001)	USEPA Method 200.8:1994
17	Lead as Pb	mg/l	BLQ(LOQ 0.005)	USEPA Method 200.8:1994
18	Selenium as Se	mg/l	0.011	USEPA Method 200.8:1994
19	Arsenic as As	mg/l	BLQ(LOQ:0.005)	USEPA Method 200.8:1994
20	Mercury as Hg	mg/l	BLQ(LOQ 0.0005)	USEPA Method 200.8:1994
21	Percent Sodium as Na	%	62.33	IS 3025(Part -45) 1993
22	Total suspended solid	mg/l	9.0	IS 3025 (Part - 17):1984
23	BOD,3 days @27°C as O2	mg/l	5.0	IS 3025 (Part - 44):1993
24	Chemical oxygen demand as O2	mg/l	40.0	IS 3025 (Part - 58):2006
25	Oil and Grease	mg/l	BLQ(LOQ:4.0)	IS 3025 (Part - 39):1991

Authorized Signatory

PIEZOMETER WELL WATER - 2

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/022/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-II**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **18/05/2023 -20/05/2023**
Analysis Commenced On : **20/05/2023**
Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
26	Sulphide as S2-	mg/l	BLQ(LOQ:0.04)	IS3025 (Part - 29):1986
27	**Pesticides**			
	Alpha HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Beta HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Gama HCH (Lindane)	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Delta HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDT	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDT	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDD	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDD	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDE	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDE	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Alpha Endosulfan	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Beta Endosulphan	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Endosulfansulphate	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Chlorpyrifos	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Butachlor	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Alachor	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Atrazine	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Aldrin	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Dieldrin	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Monocrotophos	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Ethion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Phorate	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	2,4-D	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007

Authorized Signatory

PIEZOMETER WELL WATER - 2

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/022/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-II**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **18/05/2023 -20/05/2023**
Analysis Commenced On : **20/05/2023**
Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
	Isoproturon	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Methyl Parathion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Malathion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
28	Nickel	mg/l	BLQ(LOQ 0.01)	USEPA Method 200.8:1994
29	Total Kjeldahl Nitrogen	mg/l	0.96	IS 3025 (Part - 34):1988
30	Ammonical Nitrogen as NH3-N	mg/l	0.63	IS 3025 (Part - 34):1988
31	Alpha Emitters	Bq/l	BLQ(LOQ:0.005)	IS 14194 (Part - 2):1994
32	Beta Emitters	Bq/l	BLQ(LOQ:0.09)	IS 14194 (Part - 1):1994
33	Total Residual Chlorine	mg/l	BLQ(LOQ:0.1)	IS 3025 (Part - 26):1986
34	Residual Sodium Carbonate	mg/l	BLQ(LOQ:1.0)	IS 11624 - 1986
35	Particle Size of Suspended Solids	mg/l	Passed through 850micron	HECS/W&WW/SOP/066
36	Free Ammonia	mg/l	BLQ(LOQ:0.02)	IS 3025 Part (34) 1982

Note:- BLQ - Below the Limit of Quantification, LOQ- Limit of Quantification, mg/l - Milligrams per liter.

End of Report

Authorized Signatory

PIEZOMETER WELL WATER - 3

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/023/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-III**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **18/05/2023 -20/05/2023**
Analysis Commenced On : **20/05/2023**

Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
1	pH (at 25 °C)	-	8.29	IS 3025 (Part - 11):1983
2	Appearance	-	Turbid liquid	2110 APHA 23rd Edition 2017
3	Colour	Hazen Unit	BLQ(LOQ:1.0)	IS 3025(Part - 4):1983
4	Odour	-	Agreeable	IS 3025 (Part - 5):1983
5	Chloride as Cl	mg/l	4255.98	4500 Cl -– B APHA 23rd Edn: 2017
6	Cyanide as CN	mg/l	BLQ(LOQ:0.01)	IS 3025 (Part - 27):1986
7	Total Dissolved Solids	mg/l	7295.0	IS 3025(Part -16):1984
8	Sulphate as SO4	mg/l	506.3	IS 3025(Part - 24):1986
9	Fluoride	mg/l	0.49	IS 3025 (Part - 60):1986
10	Boron as B	mg/l	BLQ(LOQ:0.1)	IS:3025 (Part - 57):2005
11	Phenolic compounds as C6H5OH	mg/l	BLQ(LOQ 0.001)	APHA 23rd edition (Method 5530C): 2017
12	Hexavalent Chromium as Cr6+		BLQ(LOQ 0.01)	IS 3025 (Part - 52):2003
13	Zinc as Zn	mg/l	BLQ(LOQ 0.1)	USEPA Method 200.8:1994
14	Chromium as Cr	mg/l	BLQ(LOQ:0.01)	USEPA Method 200.8:1994
15	Copper as Cu	mg/l	BLQ(LOQ:0.01)	USEPA Method 200.8:1994
16	Cadmium as Cd	mg/l	BLQ(LOQ:0.001)	USEPA Method 200.8:1994
17	Lead as Pb	mg/l	BLQ(LOQ 0.005)	USEPA Method 200.8:1994
18	Selenium as Se	mg/l	BLQ(LOQ 0.005)	USEPA Method 200.8:1994
19	Arsenic as As	mg/l	0.016	USEPA Method 200.8:1994
20	Mercury as Hg	mg/l	BLQ(LOQ 0.0005)	USEPA Method 200.8:1994
21	Percent Sodium as Na	mg/l	60.54	IS 3025(Part -45) 1993
22	Total suspended solid	mg/l	5.0	IS 3025 (Part - 17):1984
23	BOD,3 days @27°C as O2	mg/l	4.0	IS 3025 (Part - 44):1993
24	Chemical oxygen demand as O2	mg/l	32.0	IS 3025 (Part - 58):2006
25	Oil and Grease	mg/l	BLQ(LOQ:4.0)	IS 3025 (Part - 39):1991

Authorized Signatory

PIEZOMETER WELL WATER - 3

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/023/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-III**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **-20/05/2023**
Analysis Commenced On **18/05/2023** : **20/05/2023**

Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
26	Sulphide as S2-	mg/l	BLQ(LOQ:0.04)	IS3025 (Part - 29):1986
27	**Pesticides**			
	Alpha HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Beta HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Gama HCH (Lindane)	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Delta HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDT	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDT	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDD	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDD	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDE	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDE	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Alpha Endosulfan	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Beta Endosulphan	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Endosulfansulphate	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Chlorpyrifos	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Butachlor	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Alachor	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Atrazine	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Aldrin	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Dieldrin	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Monocrotophos	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Ethion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Phorate	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995

Authorized Signatory

PIEZOMETER WELL WATER - 3

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/023/200523**
Report Date : **25/05/2023**

	2,4-D	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007

Authorized Signatory

PIEZOMETER WELL WATER - 3

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/023/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-III**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **18/05/2023 -20/05/2023**
Analysis Commenced On : **20/05/2023**

Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
	Isoproturon	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Methyl Parathion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Malathion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
28	Nickel	mg/l	0.011	USEPA Method 200.8:1994
29	Total Kjeldahl Nitrogen	mg/l	0.61	IS 3025 (Part - 34):1988
30	Ammonical Nitrogen as NH3-N	mg/l	0.39	IS 3025 (Part - 34):1988
31	Alpha Emitters	Bq/l	BLQ(LOQ:0.005)	IS 14194 (Part - 2):1994
32	Beta Emitters	Bq/l	BLQ(LOQ:0.09)	IS 14194 (Part - 1):1994
33	Total Residual Chlorine	mg/l	BLQ(LOQ:1.0)	IS 3025 (Part - 26):1986
34	Residual Sodium Carbonate	mg/l	BLQ(LOQ:1.0)	IS 11624 - 1986
35	Particle Size of Suspended Solids	mg/l	Passed through 850micron	HECS/W&WW/SOP/066
36	Free Ammonia	mg/l	BLQ(LOQ:0.02)	IS 3025 Part (34) 1982

Note:- BLQ - Below the Limit of Quantification, LOQ- Limit of Quantification, mg/l - Milligrams per liter.

End of Report

Authorized Signatory

PIEZOMETER WELL WATER - 4

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/022/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-IV**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **18/05/2023 -20/05/2023**
Analysis Commenced On : **20/05/2023**
Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
1	pH (at 25 °C)	-	8.07	IS 3025 (Part - 11):1983
2	Appearance	-	Turbid liquid	2110 APHA 23rd Edition 2017
3	Colour	Hazen Unit	BLQ(LOQ 1.0)	IS 3025(Part - 4):1983
4	Odour	-	Agreeable	IS 3025 (Part - 5):1983
5	Chloride as Cl	mg/l	4503.42	4500 Cl -– B APHA 23rd Edn: 2017
6	Cyanide as CN	mg/l	BLQ(LOQ:0.01)	IS 3025 (Part - 27):1986
7	Total Dissolved Solids	mg/l	7985.0	IS 3025(Part -16):1984
8	Sulphate as SO4	mg/l	633.17	IS 3025(Part - 24):1986
9	Fluoride	mg/l	0.53	IS 3025 (Part - 60):1986
10	Boron as B	mg/l	BLQ(LOQ:0.1)	IS:3025 (Part - 57):2005
11	Phenolic compounds as C6H5OH	mg/l	BLQ(LOQ:0.001)	APHA 23rd edition (Method 5530C): 2017
12	Hexavalent Chromium as Cr6+	mg/l	BLQ(LOQ:0.01)	IS 3025 (Part - 52):2003
13	Zinc as Zn	mg/l	BLQ(LOQ 0.1)	USEPA Method 200.8:1994
14	Chromium as Cr	mg/l	BLQ(LOQ:0.01)	USEPA Method 200.8:1994
15	Copper as Cu	mg/l	0.013	USEPA Method 200.8:1994
16	Cadmium as Cd	mg/l	BLQ(LOQ 0.001)	USEPA Method 200.8:1994
17	Lead as Pb	mg/l	BLQ(LOQ 0.005)	USEPA Method 200.8:1994
18	Selenium as Se	mg/l	BLQ(LOQ 0.005)	USEPA Method 200.8:1994
19	Arsenic as As	mg/l	BLQ(LOQ:0.005)	USEPA Method 200.8:1994
20	Mercury as Hg	mg/l	BLQ(LOQ 0.0005)	USEPA Method 200.8:1994
21	Percent Sodium as Na	%	69.87	IS 3025(Part -45) 1993
22	Total suspended solid	mg/l	9.0	IS 3025 (Part - 17):1984
23	BOD,3 days @27°C as O2	mg/l	6.0	IS 3025 (Part - 44):1993
24	Chemical oxygen demand as O2	mg/l	48.0	IS 3025 (Part - 58):2006
25	Oil and Grease	mg/l	BLQ(LOQ:4.0)	IS 3025 (Part - 39):1991

Authorized Signatory

PIEZOMETER WELL WATER - 4

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/022/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-IV**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **18/05/2023 -20/05/2023**
Analysis Commenced On : **20/05/2023**
Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
26	Sulphide as S2-	mg/l	BLQ(LOQ:0.04)	IS3025 (Part - 29):1986
27	**Pesticides**			
	Alpha HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Beta HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Gama HCH (Lindane)	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Delta HCH	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDT	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDT	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDD	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDD	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	O,P-DDE	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	P,P-DDE	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Alpha Endosulfan	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Beta Endosulphan	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Endosulfansulphate	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Chlorpyrifos	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Butachlor	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Alachor	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Atrazine	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Aldrin	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Dieldrin	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Monocrotophos	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Ethion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	Phorate	mg/l	BLQ(LOQ 0.00001)	USEPA Method 525.2:1995
	2,4-D	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007

Authorized Signatory

PIEZOMETER WELL WATER - 4

TEST REPORT

Name of the Client : **M/s. V.O.Chidambaranar Port Authority.,**
Address of the Client : **Tuticorin-628 004.**

Report No. : **HECSL/WT/022/200523**
Report Date : **25/05/2023**

Sample Description : **WATER**
Sample Mark : **Borewell Water-IV**
Sample Drawn By : **Hubert Enviro Care Systems Pvt Ltd**
Sampling/received Date : **18/05/2023 -20/05/2023**
Analysis Commenced On : **20/05/2023**
Completed On : **25/05/2023**

S.No.	Parameters	Units	Results	Test Method
	Isoproturon	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Methyl Parathion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
	Malathion	mg/l	BLQ(LOQ 0.00001)	USEPA Method 8321B:2007
28	Nickel	mg/l	BLQ(LOQ:0.01)	USEPA Method 200.8:1994
29	Total Kjeldahl Nitrogen	mg/l	0.65	IS 3025 (Part - 34):1988
30	Ammonical Nitrogen as NH3-N	mg/l	0.41	IS 3025 (Part - 34):1988
31	Alpha Emitters	Bq/l	BLQ(LOQ:0.005)	IS 14194 (Part - 2):1994
32	Beta Emitters	Bq/l	BLQ(LOQ:0.09)	IS 14194 (Part - 1):1994
33	Total Residual Chlorine	mg/l	BLQ(LOQ:0.1)	IS 3025 (Part - 26):1986
34	Residual Sodium Carbonate	mg/l	BLQ(LOQ:1.0)	IS 11624 - 1986
35	Particle Size of Suspended Solids	mg/l	Passed through 850micron	HECS/W&WW/SOP/066
36	Free Ammonia	mg/l	BLQ(LOQ:0.02)	IS 3025 Part (34) 1982

Note:- BLQ - Below the Limit of Quantification, LOQ- Limit of Quantification, mg/l - Milligrams per liter.

End of Report

Authorized Signatory

Annexure II

STP TREATED WATER QUALITY

	STP-OUTLET	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	AVG
S.No.	Parameters	OUTLET	OUTLET	OUTLET	OUTLET	OUTLET	OUTLET	
1.	Total suspended Solids	68.00	42.00	59.00	62.00	56.00	42.00	54.83
2.	pH	7.48	7.14	7.52	7.36	7.52	7.61	7.44
3.	BOD, 3 days @ 27°C as O_2	10.00	14.00	8.00	11.00	14.00	10.00	11.17
4.	COD as O_2	42.00	66.00	36.00	46.00	58.00	40.00	48.00
5.	Oil and Grease	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ4.0)	BLQ(LOQ4.0)	BLQ(LOQ 4.0)

***BDL – Below Detectable Limit**

Annexure III

Annexure-III

AMBIENT AIR QUALITY REPORT
SIX MONTH AVERAGE (Maximum & Minimum)

The Ambient air Quality monitoring 11 locations are given in the Table. The air quality data of individual location are presented below for the period Dec'2022 to May'2023.

S.No	Locations	SO_2 (µg/m^3)		NO_2 (µg/m^3)		PM_{10} (µg/m^3)		$PM_{2.5}$	
		Min	Max	Min	Max	Min	Max	Min	Max
1	Beach Water Tank (AAQ-1)	10.33	13.48	20.74	25.38	51.26	56.25	20.44	25.43
2	Berth 8 (AAQ-2)	8.14	14.82	21.63	26.13	52.26	55.35	22.54	25.16
3	VOC Wharf between Berth 3&4 (AAQ-3)	10.55	14.26	21.86	25.38	50.42	55.41	21.64	24.92
4	In front of Coal Jetty-1(AAQ-4)	10.91	13.20	21.16	25.44	53.68	56.40	22.51	24.71
5	North Fire Station (AAQ-5)	10.55	13.52	22.48	25.30	52.30	55.60	20.51	24.38
6	Administrative Office Building (AAQ-6)	10.40	13.02	22.43	24.38	52.15	56.36	20.55	24.16
7	Port Hospital (AAQ-7)	8.36	9.48	19.62	23.05	47.26	51.38	18.40	22.80
8	Between Berth 5 & 6(AAQ-8)	8.65	13.72	19.06	23.44	50.20	55.16	21.08	25.30
9	Signal Station(VOC Wharf) (AAQ-9)	10.91	13.68	22.80	25.82	51.43	56.20	23.02	26.11
10	Port School Building (AAQ-10)	11.83	14.26	20.64	26.50	51.26	57.18	22.52	26.50
11	Railway Quarters (AAQ-11)	9.40	11.58	18.65	23.58	50.26	53.46	20.62	25.02
Average									
NAAQ Standards (2009)		80		80		100		60	

Note: SO_2–Sulphur dioxide, NO_2- Nitrogen dioxide, PM_{10} - (Particulate Matter size less than 10 µm), $PM_{2.5}$ - (Particulate Matter size less than 2.5 µm) CO- Carbon monoxide, Pb – Particulate Lead; NAAQ Norms-National Ambient Air Quality Stipulated by CPCB/TNPCB for Industrial Areas 2009. BDL – Below Detectable Limit; D.L- Detectable Limit.

AMBIENT AIR QUALITY REPORT
(Maximum & Minimum)

BEACH WATER TANK

S.NO	PARAMETERS	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Min	Max	Avg
1	Sulphur Dioxide	13.26	10.33	13.48	11.26	12.39	12.51	10.33	13.48	12.21
2	Nitrogen Dioxide	24.48	20.74	22.66	25.38	23.52	24.02	20.74	25.38	23.47
3	Particulate Matter Size Less than 10 µm	55.35	51.26	53.51	56.28	54.31	54.66	51.26	56.28	54.23
4	Particulate Matter Size Less than 2.5 µm	22.10	20.44	23.41	25.43	22.60	22.38	20.44	25.43	22.73

BERTH 8

S.NO	PARAMETERS	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Min	Max	Avg
1	Sulphur Dioxide	8.14	11.72	13.21	14.82	13.89	13.28	8.14	14.82	12.51
2	Nitrogen Dioxide	21.63	23.80	25.42	26.13	23.60	23.55	21.63	26.13	24.02
3	Particulate Matter Size Less than 10 µm	52.27	55.35	53.28	54.74	52.26	53.03	52.26	55.35	53.49
4	Particulate Matter Size Less than 2.5 µm	22.54	25.10	24.30	25.16	22.54	23.91	22.54	25.16	23.93

VOC WHARF BETWEEN BERTH 3 & 4

S.NO	PARAMETERS	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Min	Max	Avg
1	Sulphur Dioxide	14.26	13.92	11.81	10.55	11.73	12.55	10.55	14.26	12.47
2	Nitrogen Dioxide	25.38	25.10	23.15	21.86	23.55	23.38	21.86	25.38	23.74
3	Particulate Matter Size Less than 10 µm	55.41	55.36	52.38	50.42	52.40	51.27	50.42	55.41	52.87
4	Particulate Matter Size Less than 2.5 µm	21.71	24.28	21.64	22.07	24.92	23.71	21.64	24.92	23.06

INFRONT OF COAL JETTY-I

S.NO	PARAMETERS	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Min	Max	Avg
1	Sulphur Dioxide	10.91	12.51	13.20	11.53	12.69	13.03	10.91	13.20	12.31
2	Nitrogen Dioxide	21.16	23.48	25.44	22.28	24.50	23.51	21.16	25.44	23.40
3	Particulate Matter Size Less than 10 µm	56.40	54.25	56.38	53.68	55.38	54.75	53.68	56.40	55.14
4	Particulate Matter Size Less than 2.5 µm	23.28	22.75	24.13	22.51	24.71	23.68	22.51	24.71	23.51

NORTH FIRE STATION

S.NO	PARAMETERS	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Min	Max	Avg
1	Sulphur Dioxide	11.53	12.65	10.55	11.42	13.52	13.48	10.55	13.52	12.19
2	Nitrogen Dioxide	24.92	22.48	23.51	25.30	23.82	24.12	22.48	25.30	24.03
3	Particulate Matter Size Less than 10 µm	54.61	52.30	55.26	52.84	55.60	54.39	52.30	55.60	54.17
4	Particulate Matter Size Less than 2.5 µm	21.48	22.16	24.38	22.63	20.51	21.02	20.51	24.38	22.03

ADMINISTRATION OFFICE BUILDING

S.NO	PARAMETERS	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Min	Max	Avg
1	Sulphur Dioxide	13.02	12.41	11.53	12.65	10.40	11.09	10.40	13.02	11.85
2	Nitrogen Dioxide	24.38	23.10	22.68	23.16	22.58	22.43	22.43	24.38	23.06
3	Particulate Matter Size Less than 10 µm	54.65	52.15	55.30	52.86	56.36	54.26	52.15	56.36	54.26
4	Particulate Matter Size Less than 2.5 µm	21.63	20.55	22.41	24.16	22.87	23.02	20.55	24.16	22.44

PORT HOSPITAL

S.NO	PARAMETERS	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Min	Max	Avg
1	Sulphur Dioxide	8.96	9.48	8.36	9.28	8.56	8.43	8.36	9.48	8.85
2	Nitrogen Dioxide	20.38	21.26	23.05	20.44	19.62	20.15	19.62	23.05	20.82
3	Particulate Matter Size Less than 10 µm	49.10	47.93	51.38	47.26	50.30	51.22	47.26	51.38	49.53
4	Particulate Matter Size Less than 2.5 µm	20.63	18.40	20.65	19.83	21.82	22.80	18.40	22.80	20.69

BETWEEN BERTH 5 & 6

S.NO	PARAMETERS	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Min	Max	Avg
1	Sulphur Dioxide	11.78	8.65	10.92	13.72	11.29	11.53	8.65	13.72	11.32
2	Nitrogen Dioxide	22.49	19.06	21.35	23.44	20.93	21.69	19.06	23.44	21.49
3	Particulate Matter Size Less than 10 µm	53.65	50.20	52.75	55.16	51.88	51.41	50.20	55.16	52.51
4	Particulate Matter Size Less than 2.5 µm	25.30	21.08	23.48	21.49	23.60	23.07	21.08	25.30	23.00

SIGNAL STATION (VOC WHARF)

S.NO	PARAMETERS	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Min	Max	Avg
1	Sulphur Dioxide	12.43	10.91	10.91	12.65	13.60	13.68	10.91	13.68	12.36
2	Nitrogen Dioxide	24.62	22.80	22.80	24.10	25.82	24.05	22.80	25.82	24.03
3	Particulate Matter Size Less than 10 µm	56.20	52.15	52.15	55.39	52.36	51.43	51.43	56.20	53.28
4	Particulate Matter Size Less than 2.5 µm	24.18	23.02	23.02	26.11	24.58	23.78	23.02	26.11	24.12

PORT SCHOOL BUILDING

S.NO	PARAMETERS	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Min	Max	Avg
1	**Sulphur Dioxide**	11.83	13.26	11.86	12.92	14.26	13.74	11.83	14.26	12.98
2	**Nitrogen Dioxide**	22.50	25.18	20.64	23.44	26.50	24.89	20.64	26.50	23.86
3	**Particulate Matter Size Less than 10 µm**	51.26	54.43	51.30	54.26	57.18	55.43	51.26	57.18	53.98
4	**Particulate Matter Size Less than 2.5 µm**	24.48	26.10	22.52	25.80	26.50	25.13	22.52	26.50	25.09

RAILWAY QUARTERS

S.NO	PARAMETERS	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Min	Max	Avg
1	Sulphur Dioxide	10.83	11.58	9.40	11.53	10.93	10.64	9.40	11.58	10.82
2	Nitrogen Dioxide	19.64	22.81	18.65	22.40	23.58	22.35	18.65	23.58	21.57
3	Particulate Matter Size Less than 10 µm	50.26	53.46	50.28	53.19	51.60	52.01	50.26	53.46	51.80
4	Particulate Matter Size Less than 2.5 µm	21.37	22.18	20.62	22.88	25.02	24.18	20.62	25.02	22.71

AMBIENT NOISE QUALITY- FORTNIGHT REPORT

		Dec 22-1	Dec-22-2	Jan-23-1	Jan-23-2	Feb-23-1	Feb-23-2
S.No	Location	Day Time Noise level in dB (A)	Day Time Noise level in dB (A)	Day Time Noise level in dB (A)	Day Time Noise level in dB (A)	Day Time Noise level in dB (A)	Day Time Noise level in dB (A)
1	VOC Wharf Pump House	74.5	73.2	74.9	74.6	75.2	75.3
2	Coal Jetty	64.2	66.4	64.6	69.0	64.9	69.6
3	Field Workshop	71.3	65.2	72.0	67.2	71.0	67.0
4	VOC Wharf Between Barth 4	61.0	64.6	61.5	63.0	60.8	62.4
5	Berth 8	60.8	63.1	61.2	63.9	61.5	64.2
6	VOC Shopping Mall	64.5	68.2	64.3	67.4	64.9	66.6
7	Floating Vessel	62.4	63.8	63.4	63.5	63.7	62.9

		Mar-23-1	Mar-23-2	Apr-23-1	Apr-23-2	May-23-2	May-23-2	
S.No	Location	Day Time Noise level in dB (A)	Day Time Noise level in dB (A)	Day Time Noise level in dB (A)	Day Time Noise level in dB (A)	Day Time Noise level in dB (A)	Day Time Noise level in dB (A)	Average
1	VOC Wharf Pump House	74.8	76.2	73.6	77.0	74.2	77.6	75.1
2	Coal Jetty	63.9	70.1	62.5	71.2	63.8	72.4	66.9
3	Field Workshop	72.1	69.2	71.8	69.8	70.6	68.5	69.6
4	VOC Wharf Between Barth 4	63.2	66.2	64.6	67.0	65.5	67.2	63.9
5	Container Loading Area	64.3	63.0	63.8	63.5	64.0	64.0	63.1
6	VOC Shopping Mall	63.5	64.2	62.4	64.8	63.2	63.6	64.8
7	Floating Vessel	63.8	63.2	63.6	62.6	62.8	63.0	63.2

S.No	Location	Dec 22-1	Dec-22-2	Jan-23-1	Jan-23-2	Feb-23-1	Feb-23-2
		Night Time Noise level in dB (A)	Night Time Noise level in dB (A)	Night Time Noise level in dB (A)	Night Time Noise level in dB (A)	Night Time Noise level in dB (A)	Night Time Noise level in dB (A)
1	VOC Wharf Pump House	63.6	63.9	63.2	64.0	63.6	63.6
2	Coal Jetty	61.8	58.6	62.0	59.2	62.5	59.5
3	Field Workshop	67.2	57.3	68.0	58.6	68.4	59.2
4	VOC Wharf Between Barth 4	59.8	54.6	60.2	55.5	59.3	56.0
5	Container Loading Area	56.6	62.0	56.8	61.0	55.6	62.2
6	VOC Shopping Mall	60.1	63.4	60.5	62.8	60.0	63.1
7	Floating Vessel	58.4	61.1	59.0	62.4	58.6	61.6

S.No	Location	Mar-23-1	Mar-23-2	Apr-23-1	Apr-23-2	May-23-2	May-23-2	Average
		Night Time Noise level in dB (A)	Night Time Noise level in dB (A)	Night Time Noise level in dB (A)	Night Time Noise level in dB (A)	Night Time Noise level in dB (A)	Night Time Noise level in dB (A)	
1	VOC Wharf Pump House	65.4	62.5	66.5	61.2	67.0	61.3	63.8
2	Coal Jetty	64.2	60.2	63.8	59.6	64.0	60.5	61.3
3	Field Workshop	70.5	60.4	71.2	60.8	71.6	61.2	64.5
4	VOC Wharf Between Barth 4	61.4	58.2	63.2	59.0	64.0	58.6	59.2
5	Container Loading Area	57.5	62.6	59.0	61.5	59.5	62.4	59.7
6	VOC Shopping Mall	58.2	62.8	58.6	62.0	59.2	62.5	61.1
7	Floating Vessel	54.5	60.5	53.4	60.9	52.8	61.4	58.7

BIOLOGICAL DATA

Approach Channel

S.No	Parameters	Values	Test Method
1	**Phytoplankton (64µm mesh)**		
	Total Cell Count	7600 cells/L	APHA 24th Edition Part 10000
	Total Genus	06	
	Genus	Thalassiosiraspp,NaviculaeSpp,PhaeocystisSpp,OdontellaSpp,MelosiraSpp,CorethronSpp	
2	**Zooplankton (200µm mesh)**		
	Total Cell Count	3400 cells/L	APHA 24th Edition Part 10000
	Total Genus	04	
	Genus	TitinopsisSpp,AcartiaSpp,Fishlarvae,CrabZoae,	
3	**Benthos**		
	Total Genus	07 No's	APHA 24th Edition Part 10000
	Genus	Crustaceans, SeaAquirts,Sponges,Corals,Echinoderms,Bivalves,Copepods	

Near Berth 3,4

S. No	Parameters	Values	Test Method
1	**Phytoplankton (64µm mesh)**		
	Total Cell Count	5600 cells/L	APHA 24th Edition Part 10000
	Total Genus	09	
	Genus	OdontellaSpp,BiddulphiaSpp,PhaeocystisSpp,ScripsssiellaSpp,NaviculaeSpp,ThalassiosiraSpp,RhizoseleniaSpp,GymnodiumSpp,Dinoflagellates	
2	**Zooplankton (200µm mesh)**		
	Total Cell Count	2700 cells/L	APHA 24th Edition Part 10000
	Total Genus	07	
	Genus	TitinopsisSpp,AcartiaSpp,Oithanarigida,Copepods,Rhincalanusspp,GlobigerinaSpp,ObeliaSpp	
3	**Benthos**		
	Total Genus	09 No's	APHA 24th Edition Part 10000
	Genus	Mussels, Clams, Crustaceans,Seaanemones,corals,sponges,Diatoms,ciliates,Ostracodes	

Dock Basin Area Near Berth 5 & 6

S.No	Parameters	Values	Test Method
1	**Phytoplankton (64µm mesh)**		
	Total Cell Count	5900 cells/L	APHA 24th Edition Part 10000
	Total Genus	08	
	Genus	ChaetceronsSpp,OdontellaSpp,BiddulphiaSpp,PhaeocystisSpp,NaviculaeSpp,ThalassiosiraSpp,RhizoseleniaSpp,GymnodiumSpp	
2	**Zooplankton (200µm mesh)**		
	Total Cell Count	2200 cells/L	APHA 24th Edition Part 10000
	Total Genus	05	
	Genus	FishLarvae,CrabZoea,,EucalanusSpp,TitinopsisSpp,MetacalanusSpp	
3	**Benthos**		
	Total Genus	07 No's	APHA 24th Edition Part 10000
	Genus	Crustaceans,Seaanemones,corals,sponges,Diatoms,ciliates, Ostracodes	

Dock Basin Area Near Coal Jetty I&II

S.No	Parameters	Values	Test Method
1	**Phytoplankton (64µm mesh)**		
	Total Cell Count	6900 cells/L	APHA 24th Edition Part 10000
	Total Genus	07	
	Genus	ThalassiosiraSpp, GymnodiumSpp,Dinoflagellates,Ceratumfuscus,Coscinodiscusspp,Corethronspp,MelosiraSpp	
2	**Zooplankton (200µm mesh)**		
	Total Cell Count	2500 cells/L	APHA 24th Edition Part 10000
	Total Genus	03	
	Genus	CrabZoea, Acartia Spp, Titinopsis Spp,	
3	**Benthos**		
	Total Genus	07 No's	APHA 24th Edition Part 10000
	Genus	Crustaceans, Seaanemones, corals, sponges, Diatoms, ciliates, Ostracodes	

MARINE WATER –SEA BED SEDIMENT

Approach Channel

S.NO	PARAMETERS	UNITS	Approach Channel	TEST METHOD
1	Organic Carbon	%	0.54	IS:2720 (P-22, 1972)
2	Organic Matter	%	0.78	IS:2720 (P-22, 1972)
3	**Sediment Texture**		Sand	-
	a. Sand	%	84.8	ASTM D4 21 / 422
	b. Silt	%	8.5	ASTM D4 21 / 422
	c. Clay	%	6.7	ASTM D4 21 / 422
	Heavy Metals in Sediments			
4	a. Cadmium	mg/kg	BLQ(LOQ 0.1)	EPA 3050 B/EPA 7130
	b. Copper	mg/kg	7.25	EPA 3050B/EPA 7210
	c. Lead	mg/kg	BLQ(LOQ 0.1)	EPA 3050 B/EPA-7080 A
	d. Nickel	mg/kg	BLQ(LOQ 0.1)	EPA 3050 B/ EPA-7520
	e. Chromium III	mg/kg	2.39	EPA 3050 B/ EPA 7190
	f. Chromium VI	mg/kg	BLQ(LOQ 0.1)	EPA 3050 B
	g. Mercury	mg/kg	BLQ(LOQ 0.1)	EPA 245.5-1974
	h. Arsenic	mg/kg	0.43	EPA 3050 B
5	Total Sulphur	mg/kg	2.4	ASTM D 4239
6				
6	Organic Sulphur Compounds	µg/gm	BLQ(LOQ 0.1)	HECS/INS/SOP/079
7	Fluorine Compounds	mg/kg	0.42	EPA 3050 B/IS 3025 (P) 60
8	Phosphate compounds	mg/kg	76.35	EPA 3050 B/ IS 3025 (P) 31
9				

Dock basin Area Near Berth 3 & 4

S.NO	PARAMETERS	UNITS	Near Berth 3,4	TEST METHOD
1	Organic Carbon	%	0.44	IS:2720 (P-22, 1972)
2	Organic Matter	%	0.70	IS:2720 (P-22, 1972)
3	**Sediment Texture**		Sand	-
	a. Sand	%	88.6	ASTM D4 21 / 422
	b. Silt	%	5.8	ASTM D4 21 / 422
	c. Clay	%	5.6	ASTM D4 21 / 422
	Heavy Metals in Sediments			
4	a. Cadmium	mg/kg	BLQ(LOQ0.1)	EPA 3050 B/EPA 7130
	b. Copper	mg/kg	6.34	EPA 3050B/EPA 7210
	c. Lead	mg/kg	BLQ(LOQ0.1)	EPA 3050 B/EPA-7080 A
	d. Nickel	mg/kg	BLQ(LOQ0.1)	EPA 3050 B/ EPA-7520
	e. Chromium III	mg/kg	3.98	EPA 3050 B/ EPA 7190
	f. Chromium VI	mg/kg	BLQ(LOQ0.1)	EPA 3050 B
	g. Mercury	mg/kg	BLQ(LOQ0.1)	EPA 245.5-1974
5	Arsenic	mg/kg	0.32	EPA 3050 B
6	Total Sulphur	mg/kg	1.70	ASTM D 4239
7	Organic Sulphur Compounds	µg/gm	BLQ(LOQ0.1)	HECS/INS/SOP/079
8	Fluorine Compounds	mg/kg	1.38	EPA 3050 B/IS 3025 (P) 60
9	Phosphate compounds	mg/kg	52.35	EPA 3050 B/ IS 3025 (P) 31

Dock basin Area Near Berth 5 & 6

S.NO	PARAMETERS	UNITS	Dock Basin Area Near Berth 5 & 6	TEST METHOD
1	Organic Carbon	%	0.74	IS:2720 (P-22, 1972)
2	Organic Matter	%	1.40	IS:2720 (P-22, 1972)
3	**Sediment Texture**		Sand	-
	d. Sand	%	91.6	ASTM D4 21 / 422
	e. Silt	%	5.2	ASTM D4 21 / 422
	f. Clay	%	3.2	ASTM D4 21 / 422
	Heavy Metals in Sediments			
4	h. Cadmium	mg/kg	BLQ(LOQ0.1)	EPA 3050 B/EPA 7130
	i. Copper	mg/kg	7.65	EPA 3050B/EPA 7210
	j. Lead	mg/kg	BLQ(LOQ0.1)	EPA 3050 B/EPA-7080 A
	k. Nickel	mg/kg	BLQ(LOQ0.1)	EPA 3050 B/ EPA-7520
	l. Chromium III	mg/kg	BLQ(LOQ0.1)	EPA 3050 B/ EPA 7190
	m. Chromium VI	mg/kg	BLQ(LOQ0.1)	EPA 3050 B
	n. Mercury	mg/kg	BLQ(LOQ0.1)	EPA 245.5-1974
5 6	Arsenic	mg/kg	0.68	EPA 3050 B
6	Total Sulphur	mg/kg	1.80	ASTM D 4239
7	Organic Sulphur Compounds	µg/gm	BLQ(LOQ0.1)	HECS/INS/SOP/079
8 9	Fluorine Compounds	mg/kg	0.98	EPA 3050 B/IS 3025 (P) 60
9	Phosphate compounds	mg/kg	70.62	EPA 3050 B/ IS 3025 (P) 31

Dock basin Area Near Coal Jetty I&II

S.NO	PARAMETERS	UNITS	Dock Basin Area Near Coal Jetty I&II	TEST METHOD
1	Organic Carbon	%	0.69	IS:2720 (P-22, 1972)
2	Organic Matter	%	1.16	IS:2720 (P-22, 1972)
3	**Sediment Texture**		Sand	-
	a. Sand	%	90.2	ASTM D4 21 / 422
	b. Silt	%	5.8	ASTM D4 21 / 422
	c. Clay	%	4.0	ASTM D4 21 / 422
	Heavy Metals in Sediments			
4	a. Cadmium	mg/kg	BLQ(LOQ0.1)	EPA 3050 B/EPA 7130
	b. Copper	mg/kg	5.14	EPA 3050B/EPA 7210
	c. Lead	mg/kg	BLQ(LOQ0.1)	EPA 3050 B/EPA-7080 A
	d. Nickel	mg/kg	BLQ(LOQ0.1)	EPA 3050 B/ EPA-7520
	e. Chromium III	mg/kg	BLQ(LOQ0.1)	EPA 3050 B/ EPA 7190
	f. Chromium VI	mg/kg	BLQ(LOQ0.1)	EPA 3050 B
	g. Mercury	mg/kg	BLQ(LOQ0.1)	EPA 245.5-1974
5 6	Arsenic	mg/kg	0.29	EPA 3050 B
6	Total Sulphur	mg/kg	1.86	ASTM D 4239
7	Organic Sulphur Compounds	µg/gm	BLQ(LOQ0.01)	HECS/INS/SOP/079
8 9	Fluorine Compounds	mg/kg	1.90	EPA 3050 B/IS 3025 (P) 60
9	Phosphate compounds	mg/kg	65.4	EPA 3050 B/ IS 3025 (P) 31

Annexure IV

TAMIL NADU POLLUTION CONTROL BOARD

Category of the Industry :

RED

CONSENT ORDER NO. 2308245948364 DATED: 24/04/2023.

PROCEEDINGS NO.T6/TNPCB/F.0118TTN/RL/TTN/A/2023 DATED: 24/04/2023

SUB: Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT –M/s. V.O.CHIDAMABARANAR PORT AUTHORITY , S.F.No. 340/2 341/2 342/2 343/2 344/2 345/2 346/2 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 790 400/1 400/2 400/3 401 402/1 402/2 402/3 403/1 403/2 403/3 404 405 406 407 408 409 410 411 412 413/1B of Mullakkadu Village & 392/1 392/2 392/3 393 & 394 of Tuticorin Village, MULLAKKADU PART 1 village, Thoothukkudi Taluk and Thoothukkudi District - Renewal of Consent for the operation of the plant and discharge of emissions under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) –Issued- Reg.

REF: 1. Board’s Proceedings No. T1/TNPCB/F.0118TTN/RL/TTN/A/2018 Dated 16.11.2018
2. Unit's Application No: 45948364 Dated 27.12.2022
3. DEE, Thoothukudi's IR No: F.0118TTN/RL/DEE/TTN/2023 Dated 27.03.2023

RENEWAL OF CONSENT is hereby granted under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) (hereinafter referred to as “The Act”) and the rules and orders made there under to

CHAIRMAN
M/s.V.O.CHIDAMABARANAR PORT AUTHORITY,
S.F.No. 340/2 341/2 342/2 343/2 344/2 345/2 346/2 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 790 400/1 400/2 400/3 401 402/1 402/2 402/3 403/1 403/2 403/3 404 405 406 407 408 409 410 411 412 413/1B of Mullakkadu Village & 392/1 392/2 392/3 393 & 394 of Tuticorin Village,
MULLAKKADU PART 1 village,
Thoothukkudi Taluk,
Thoothukkudi District.

Authorizing the occupier to operate the industrial plant in the Air Pollution Control Area as notified by the Government and to make discharge of emission from the stacks/chimneys.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This RENEWAL OF CONSENT is valid for the period ending March 31, 2028

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

SPECIAL CONDITIONS

1. This renewal of consent is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
	Product Details		
1.	Details of Berths and products handled Berth No I – Construction Materials, Raw Cashew, Palm Oil, Steel Plants, Granite, Timber Berth No II – Construction Materials, Raw Cashew, Palm Oil, Steel Plants, Granite, Timber Berth No III - Industrial Coal, Rock Phosphate, Copper Concentrate, Limestone, Pet Coke, Granite, Timber Berth No IV - Industrial Coal, Rock Phosphate, Copper Concentrate, Limestone, Pet Coke, Granite, Timber Berth No V - Project Cargo, Construction Materials, Maize, Logs, Sulfuric acid, Fertilizer raw material, Phosphoric acid, Granite, Timber, Ilmenite Sand Berth No VI - Project Cargo, Construction Materials, Maize, Logs, Sulfuric acid, Fertilizer raw material, Phosphoric acid, Granite, Timber, Ilmenite Sand Berth No VII - Containers Berth No VIII - Containers Berth no IX - Industrial Coal, Copper Concentrate, Rock Phosphate, Fertilizer Raw Materials Coal Jetty –I - Thermal Coal Coal Jetty –II - Thermal Coal Oil jetty - POL& other liquid Cargoes North cargo berth- I - Thermal Coal The following products are handled in the above Berths Handling of Various Types of Cargo (Such as POL, Naphtha, Furnace Oil, Diesel [HSD], Petrol, Kerosene, LPG, Phosphoric Acid, Liquid Ammonia, VCM, EDC, DNS, Palm Oil, MOP, DAP, Sulphur, Rock Phosphate, Coal, Petcoke, Met Coke, Raw Cashew, Timber logs, Pulses, Iron Scraps, Iron Pellets, Copper Cone, Soda Ash, Lime Stone, Sugar, Containerised Cargoes, Salt, Illuminate Sand, Garnet Sand, Copper Slag, Caustic Soda lye, Phosphoric Acid, Sulphuric Acid, Rice, Wheat, maize, Fertilizer, Cement, Feldspar, Construction Materials Barge etc)	42.00	Million Tons Per Annum
	By-Product Details		
1.	NIL	0	0
	Intermediate Product Details		
1.	NIL	0	0

2. This renewal of consent is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height has to be brought to the notice of the Board and fresh consent/Amendment has to be obtained.

I	**Point source emission with stack :**			
Stack No.	**Point Emission Source**	**Air pollution Control measures**	**Stack height from Ground Level in m**	**Gaseous Discharge in Nm3/hr**
01	DG Set 500 KVA	Acoustic enclosures with stack	4.27	1120
02	DG Set 160 KVA	Acoustic enclosures with stack	3.35	185
03	DG Set 100 KVA	Acoustic enclosures with stack	3	105
04	DG Set 250 KVA	Acoustic enclosures with stack	4.58	185
05	DG Set 125 KVA	Acoustic enclosures with stack	2.75	290
06	DG Set 600 KVA	Acoustic enclosures with stack	5	1900
07	DG Set 200 KVA	Acoustic enclosures with stack	3	735
II	**Fugitive/Noise emission :**			
Sl. No.	**Fugitive or Noise Emission sources**	**Type of emission**	**Control measures**	
1.	Coal Stock Yard	Fugitive	Wind net, Sprinkler System,Dust suppression system	

Special Additional Conditions:

i. The unit shall obtain No Objection Certificate (NOC) from the Tamil Nadu Bio Diversity Board /National Bio Diversity Authority if the unit is using any Biological resources or knowledge associated thereto as per the provisions of Biological Diversity Act 2002.

Additional Conditions:

1. The Port shall maintain the stack and acoustic enclosure provided for DG set
2. The Port shall ensure that the emission let out from the DG set shall satisfy the Ambient Air Quality/Emission/ANL standards prescribed by the Board
3. The Port shall take utmost care to prevent odour/fly nuisance to the surroundings
4. The Port shall develop adequate greenbelt within the periphery of the unit to attenuate noise and air pollution
5. The Port shall provide additional water sprinkler systems to cover the entire coal stock yard since the existing water sprinkler systems are found to be inadequate
6. In the Port area the speed of the trucks/vehicles transporting the bulk cargo/coal should be controlled by providing speed breakers at suitable intervals so as to control the heavy fugitive dust emission arising during the movement of trucks/vehicles at high speed and report should be submitted to TNPCB
7. The Port has installed three continuous ambient air quality monitoring stations at present in the following locations: 1. Near Post office in the Port colony area 2. Near oil jetty 3. Near SHV storage tank. The Port shall install one additional CAAQM station near the Green Gate in consultation with TNPCB
8. The Port shall ensure that in the CAAQM station located near Oil Jetty, the parameter namely Hydro Carbons in the ambient air should also be monitored
9. To minimize the dust emission from the coal stock yard the unit shall provide closed stock yard for the storage of coal instead of open storage and shall submit report within six months
10. The Port shall provide concrete roads inside the coal yard for the movement of trucks/vehicles in order to contain the fugitive dust emission arising during the movement of trucks/vehicles.
11. The Port shall provide Truck chase washing & tyre washing yard for cleaning of the trucks/vehicles in order to contain the fugitive dust emission arising during the movement of trucks/vehicles.
12. The Port shall ensure that wind barriers/wind screens are provided all around the periphery of the coal stock yard and are maintained properly
13. In case of revision of consent fee by the Government, the unit shall remit the difference in consent fee amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

To
CHAIRMAN,
M/s.V.O.CHIDAMABARANAR PORT AUTHORITY,
V.O.CHIDAMBARANAR PORT AUTHORITY
ADMINISTRATIVE OFFICE
BARATHI NAGAR
TUTICORIN,
Pin: 628004

Copy to:

1.The Commissioner, THOOTHUKUDI-Corporation, Thoothukkudi Taluk, Thoothukkudi District .
2. The District Environmental Engineer, Tamil Nadu Pollution Control Board, THOOTHUKKUDI.
3. The JCEE-Monitoring, Tamil Nadu Pollution Control Board, TIRUNELVELI.
4. File

** This consent order is computer generated by OCMMS of TNPCB and no signature is needed**

TAMIL NADU POLLUTION CONTROL BOARD

Category of the Industry :

RED

CONSENT ORDER NO. 2308145948364 DATED: 24/04/2023.

PROCEEDINGS NO.T6/TNPCB/F.0118TTN/RL/TTN/W/2023 DATED: 24/04/2023

SUB: Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT – M/s. V.O.CHIDAMABARANAR PORT AUTHORITY , S.F.No. 340/2 341/2 342/2 343/2 344/2 345/2 346/2 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 790 400/1 400/2 400/3 401 402/1 402/2 402/3 403/1 403/2 403/3 404 405 406 407 408 409 410 411 412 413/1B of Mullakkadu Village & 392/1 392/2 392/3 393 & 394 of Tuticorin Village, MULLAKKADU PART 1 village, Thoothukkudi Taluk and Thoothukkudi District - Renewal of Consent for the operation of the plant and discharge of sewage and/or trade effluent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act 6 of 1974) – Issued- Reg.

REF: 1. Board’s Proceedings No. T1/TNPCB/F.0118TTN/RL/TTN/A/2018 Dated 16.11.2018
2. Unit's Application No: 45948364 Dated 27.12.2022
3. DEE, Thoothukudi's IR No: F.0118TTN/RL/DEE/TTN/2023 Dated 27.03.2023

RENEWAL OF CONSENT is hereby granted under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act, 6 of 1974) (hereinafter referred to as “The Act”) and the rules and orders made there under to

CHAIRMAN
M/s.V.O.CHIDAMABARANAR PORT AUTHORITY,
S.F.No. 340/2 341/2 342/2 343/2 344/2 345/2 346/2 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 790 400/1 400/2 400/3 401 402/1 402/2 402/3 403/1 403/2 403/3 404 405 406 407 408 409 410 411 412 413/1B of Mullakkadu Village & 392/1 392/2 392/3 393 & 394 of Tuticorin Village,
MULLAKKADU PART 1 village,
Thoothukkudi Taluk,
Thoothukkudi District.

Authorising the occupier to make discharge of sewage and /or trade effluent.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This RENEWAL OF CONSENT is valid for the period ending March 31, 2028

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

SPECIAL CONDITIONS

1. This renewal of consent is valid for operating the facility for the manufacture of products/byproducts (Col. 2) at the rate (Col 3) mentioned below. Any change in the product/byproduct and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
	Product Details		
1.	Details of Berths and products handled Berth No I – Construction Materials, Raw Cashew, Palm Oil, Steel Plants, Granite, Timber Berth No II – Construction Materials, Raw Cashew, Palm Oil, Steel Plants, Granite, Timber Berth No III - Industrial Coal, Rock Phosphate, Copper Concentrate, Limestone, Pet Coke, Granite, Timber Berth No IV - Industrial Coal, Rock Phosphate, Copper Concentrate, Limestone, Pet Coke, Granite, Timber Berth No V - Project Cargo, Construction Materials, Maize, Logs, Sulfuric acid, Fertilizer raw material, Phosphoric acid, Granite, Timber, Ilmenite Sand Berth No VI - Project Cargo, Construction Materials, Maize, Logs, Sulfuric acid, Fertilizer raw material, Phosphoric acid, Granite, Timber, Ilmenite Sand Berth No VII - Containers Berth No VIII - Containers Berth no IX - Industrial Coal, Copper Concentrate, Rock Phosphate, Fertilizer Raw Materials Coal Jetty –I - Thermal Coal Coal Jetty –II - Thermal Coal Oil jetty - POL& other liquid Cargoes North cargo berth- I - Thermal Coal The following products are handled in the above Berths Handling of Various Types of Cargo (Such as POL, Naphtha, Furnace Oil, Diesel [HSD], Petrol, Kerosene, LPG, Phosphoric Acid, Liquid Ammonia, VCM, EDC, DNS, Palm Oil, MOP, DAP, Sulphur, Rock Phosphate, Coal, Petcoke, Met Coke, Raw Cashew, Timber logs, Pulses, Iron Scraps, Iron Pellets, Copper Cone, Soda Ash, Lime Stone, Sugar, Containerised Cargoes, Salt, Illuminate Sand, Garnet Sand, Copper Slag, Caustic Soda lye, Phosphoric Acid, Sulphuric Acid, Rice, Wheat, maize, Fertilizer, Cement, Feldspar, Construction Materials Barge etc)	42.00	Million Tons Per Annum
	By-Product Details		
1.	NIL	0	0
	Intermediate Product Details		
1.	NIL	0	0

2. This renewal of consent is valid for operating the facility with the below mentioned outlets for the discharge of sewage/trade effluent. Any change in the outlets and the quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Outlet No.	Description of Outlet	Maximum daily discharge in KLD	Point of disposal
Effluent Type : Sewage			
1.	TREATED SEWAGE	500.0	On land for gardening
2.	TREATED SEWAGE	150.0	Sprinkler - Coal dust suppresion
Effluent Type : Trade Effluent			

Special Additional Conditions:

The unit shall obtain No Objection Certificate (NOC) from the Tamil Nadu Bio Diversity Board /National Bio Diversity Authority if the unit is using any Biological resources or knowledge associated thereto as per the provisions of Biological Diversity Act 2002.

Additional Conditions:

1. The Port shall operate the Sewage Treatment Plant provided efficiently and continuously so as to satisfy the standards prescribed by the Board
2. The unit shall revamp the existing STP and the conveying pipelines within three months time to achieve the standards.
3. The Port shall install Online Continuous Effluent Monitoring System (OCEMS) to the STP as per the directions issued by the Board.
4. The Port shall utilize the treated sewage for green belt development and dust suppression activities as reported.
5. The Port shall not let out any untreated wastewater outside the premises or in to marine coastal areas at any point of time.
6. The Port shall comply with all the conditions stipulated in the Environmental Clearances issued
7. The Port shall install Electro Magnetic Flow meters with continuous recording arrangements in the inlet and outlet of the STP
8. This consent issued under the Water (P&CP) Act 1974, as amended shall not be construed as the Right to supersede or overrule other Acts or Rules or Bylaws or Directions, Orders etc., issued by other Government Departments / Statutory Bodies / Local Body / Organization etc., and the unit shall abide by the same, as and when issued by the respective Authority
9. The Port shall maintain the spill control measures provided at jetty and material handling areas to prevent Pollution
10. The Port shall not go for any additional construction, re-construction etc., without obtaining valid environmental clearance under the EIA notification, 2006 and CRZ Notification 2011 and consent to establish for the same
11. The Port shall not draw ground water from within the premises/CRZ area at any point of time
12. The Port shall maintain the drainage facilities provided to collect run off from port treat the same to prevent pollution of marine water
13. The Port shall maintain the leakage detection & early warning systems provided at the hazardous cargo sections, to ensure that that no spill/accident occurs due to handling of such cargo
14. The Port shall ensure that cargo is handled within the quantity for which EC is issued by MoEF & CC GOI
15. The Port Shall conducted regular mock drills to ensure desired response to oil spills, spill of hazardous chemicals and mock drills for response to accidents involving storage of hazardous chemicals
16. The Port shall ensure that the waste oil and used oil is handled with valid authorisation under Hazardous & Other Waste (Management & Transboundary) Rules 2016
17. The Port shall comply with the provisions of the Hazardous & other Wastes (Management and Transboundary movement) Rules, 2016
18. The Port shall ensure that cleaning of the septic tanks and STP tanks/components is carried out only mechanically and manual cleaning of the septic tanks and STP tanks/components is not carried out under any circumstances. While cleaning the septic tanks and STP tanks/components the workers involved in the cleaning operations should not be allowed to enter inside the septic tanks and STP tanks/components under any circumstances in order to avoid any fatal accidents while cleaning the septic tanks and STP tanks/components.
19. The Port shall provide concrete platform in the entire coal stock yard area with leachate collection and recycling arrangement to recycle the leachate generated back for sprinkling in the coal stock yard with proper approval from the CZMA
20. The Port shall carry out study on the adequacy of the existing STP and shall submit report along with the improvement works in the existing STP
21. The Port shall provide EMFMs at the inlet and outlet of the STP and shall establish on-line connectivity of the same with TNPCB Care Air Centre. The unit shall also carry out periodical calibration of the EMFM installed by approved agencies and shall furnish report to TNPC Board
22. In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification, failing which, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law
23. The Port shall not use ‘use and throwaway plastics’ such as plastic sheets used for food wrapping, spreading on dining table etc, plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bags and plastic flags irrespective of thickness, within the industry premises. Instead the unit shall encourage use of eco friendly alternative such as banana leaf, areca nut palm plates, stainless steel, glass, porcelain plates/cups, cloth bag, jute bag etc.

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

To
CHAIRMAN,
M/s.V.O.CHIDAMABARANAR PORT AUTHORITY,
V.O.CHIDAMBARANAR PORT AUTHORITY
ADMINISTRATIVE OFFICE
BARATHI NAGAR
TUTICORIN,
Pin: 628004

Copy to:

1.The Commissioner, THOOTHUKUDI-Corporation, Thoothukkudi Taluk, Thoothukkudi District .

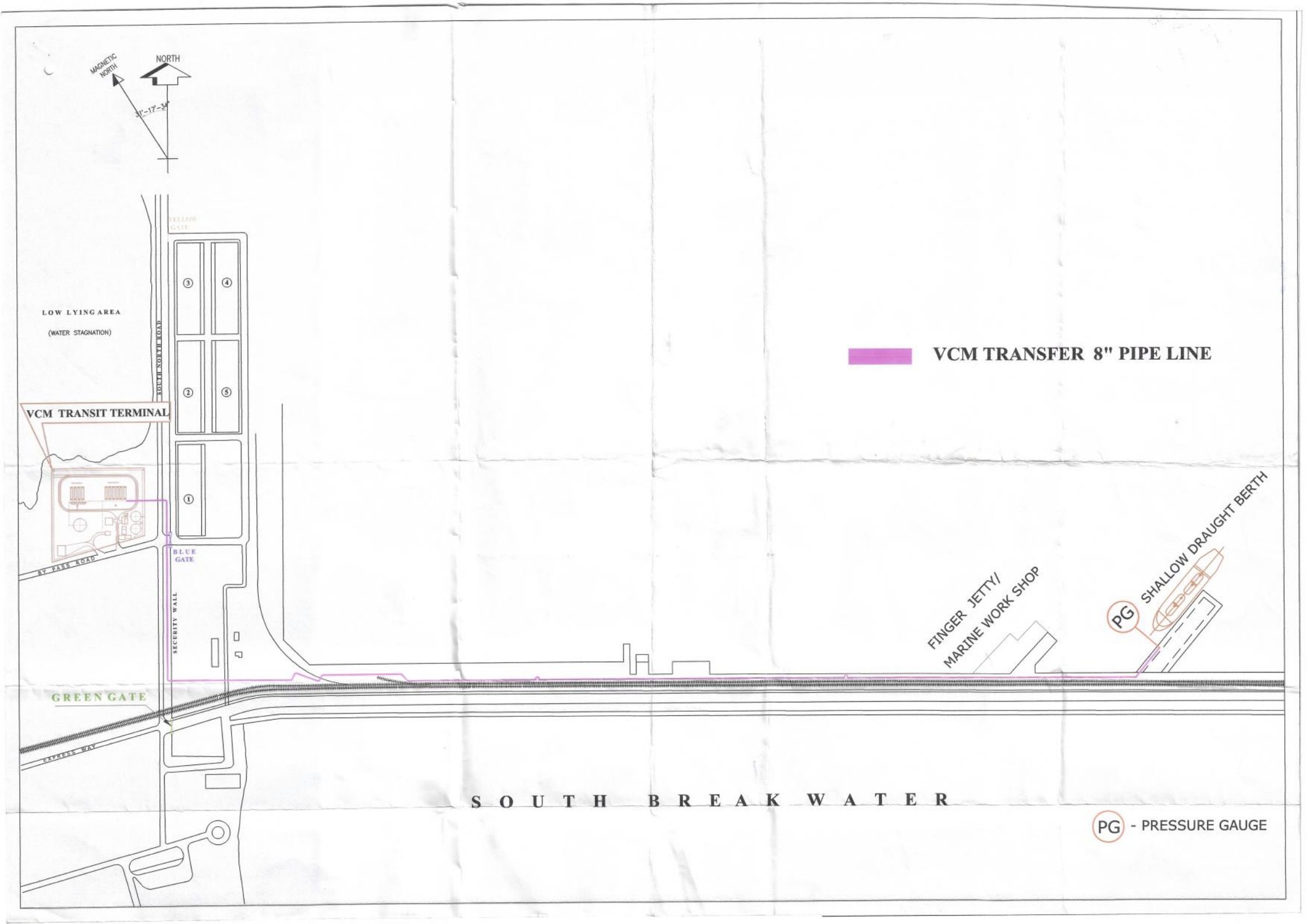
2. The District Environmental Engineer, Tamil Nadu Pollution Control Board, THOOTHUKKUDI.

3. The JCEE-Monitoring, Tamil Nadu Pollution Control Board, TIRUNELVELI.

4. File

** This consent order is computer generated by OCMMS of TNPCB and no signature is needed**

Annexure V


MAGNETIC NORTH
NORTH
5°-17'-34"
YELLOW GATE
LOW LYING AREA
(WATER STAGNATION)
SOUTH NORTH ROAD
VCM TRANSIT TERMINAL
BLUE GATE
BY PASS ROAD
SECURITY WALL
GREEN GATE
EXPRESS WAY
VCM TRANSFER 8" PIPE LINE
FINGER JETTY/
MARINE WORK SHOP
PG
SHALLOW DRAUGHT BERTH
SOUTH BREAK WATER
PG - PRESSURE GAUGE

SITE PLAN OF VCM. INSTALLATION AT TUTICORIN PORT AREA

SCALE 1:500

TG - TEMPERATURE GAUGE

PT - PRESSURE TRANSMITTER

PG - PRESSURE GAUGE

EXISTING CONSTRUCTED BUILDINGS PLINTH AREA AS FOLLOWS:

VCM STORAGE AREA - A	462.00 sqm. / 4971.00 sq.ft.
VCM STORAGE AREA - B	714.00 sqm. / 7683.00 sq.ft.
VCM STORAGE SPHERICAL TANK AREA	1347.84 sqm. / 14503.00 sq.ft.
VCM CONDENSER, COMPRESSOR BUILDING	136.80 sqm. / 1472.00 sq.ft.
TRUCK LOADING PLATFORM	46.40 sqm. / 499.50 sq.ft.
TRANSFORMER BAY	66.00 sqm. / 710.50 sq.ft.
ALTERNATOR ROOM	50.00 sqm. / 538.00 sq.ft.
FIRE WATER PUMP HOUSE AND OFFICE BUILDING	96.60 sqm. / 1039.50 sq.ft.
MCC. ROOM AND COMPRESSOR ROOM	108.00 sqm. / 1162.00 sq.ft.
COOLING TOWER	12.00 sqm. / 129.00 sq.ft.
FIRE WATER STORAGE TANK-1	227.00 sqm. / 2442.50 sq.ft.
FIRE WATER STORAGE TANK-2	227.00 sqm. / 2442.50 sq.ft.
EXISTING STRUCTURES TOTAL PLINTH AREA:	3493.64 sqm. / 37592.00 sq.ft.

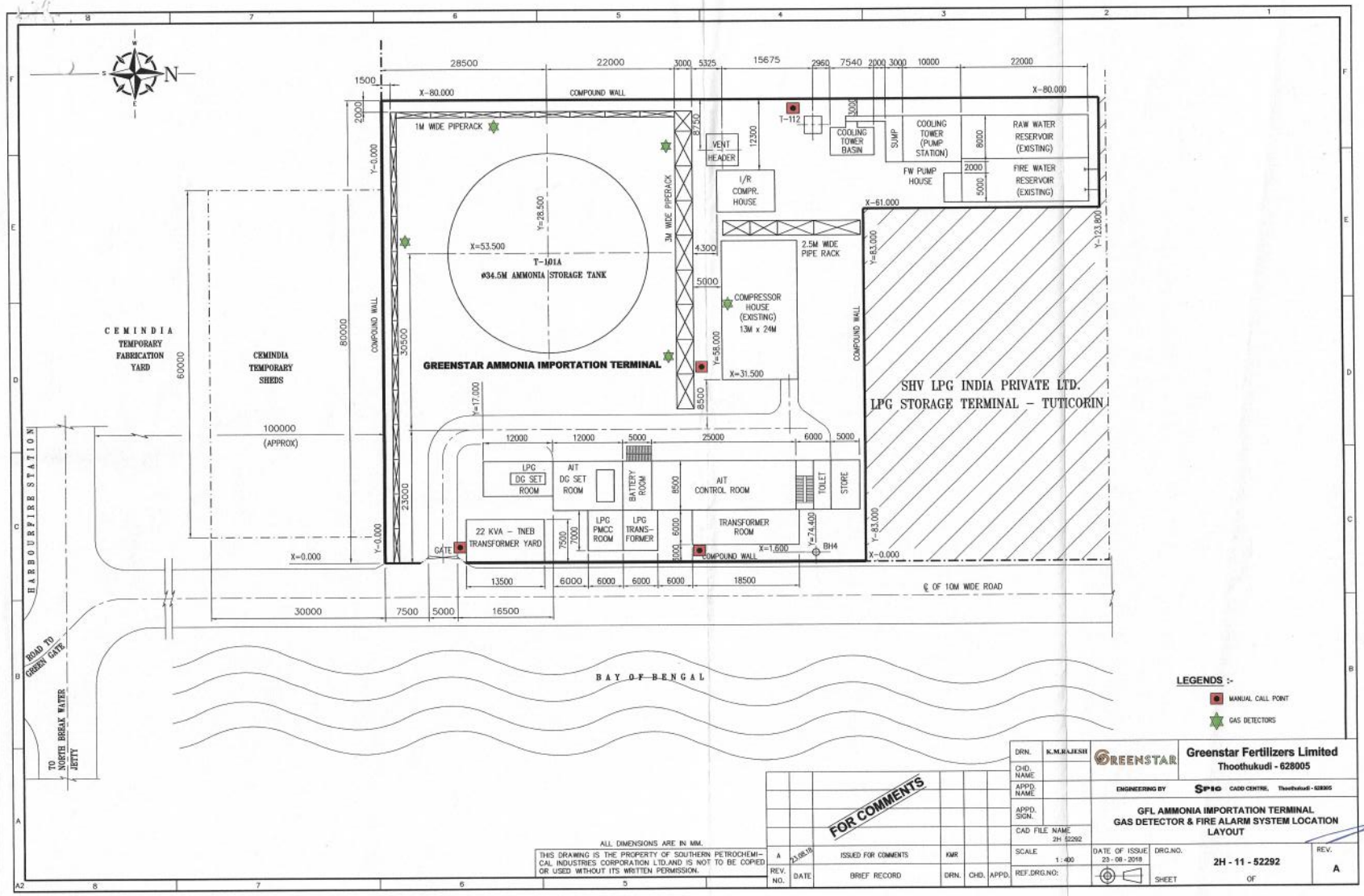
COLOUR INDEX

VC DETECTOR SENSOR /ppm

(ALL VC DETECTORS ARE CONNECTED TO TNPCB CHENNAI)
(ONLINE MONITORING 24x7)

DCW LIMITED
SAHUPURAM

SCALE	1:500 1:50	SITE PLAN OF VCM STORAGE AT VCM INSTALLATION IN S. No.394 MULLAKKADU VILLAGE AT TUTICORIN PORT AREA				
DATE	09-12-2009					
REFERENCE		DRG. No. DCW- BL - 005 - R11				
DRAWN	CHECKED	CHECKED				APPROVED
D.CAITAN ASST.ENGR.(DEG)		DY. MANAGER(MECH)	MANAGER (CIVIL)	C.M. (DEV.& PROD)	GM (PVC)	V.P. (MFG. POWER,ELWAPROJ.)


GREENSTAR AMMONIA IMPORTATION TERMINAL
T-101A
ø34.5M AMMONIA STORAGE TANK
1M WIDE PIPERACK
3M WIDE PIPERACK
2.5M WIDE PIPE RACK
VENT HEADER
I/R COMPR. HOUSE
COMPRESSOR HOUSE (EXISTING) 13M x 24M
COOLING TOWER BASIN
COOLING TOWER (PUMP STATION)
SUMP
RAW WATER RESERVOIR (EXISTING)
FW PUMP HOUSE
FIRE WATER RESERVOIR (EXISTING)
LPG DG SET ROOM
AIT DG SET ROOM
BATTERY ROOM
AIT CONTROL ROOM
TOILET
STORE
22 KVA – TNEB TRANSFORMER YARD
LPG PMCC ROOM
LPG TRANS-FORMER
TRANSFORMER ROOM
GATE
BH4
COMPOUND WALL
SHV LPG INDIA PRIVATE LTD.
LPG STORAGE TERMINAL – TUTICORIN
CEMINDIA TEMPORARY FABRICATION YARD
CEMINDIA TEMPORARY SHEDS
HARBOUR FIRE STATION
ROAD TO GREEN GATE
TO NORTH BREAK WATER JETTY
BAY OF BENGAL
℄ OF 10M WIDE ROAD
LEGENDS :-
MANUAL CALL POINT
GAS DETECTORS
FOR COMMENTS
ALL DIMENSIONS ARE IN MM.
THIS DRAWING IS THE PROPERTY OF SOUTHERN PETROCHEMICAL INDUSTRIES CORPORATION LTD.AND IS NOT TO BE COPIED OR USED WITHOUT ITS WRITTEN PERMISSION.
DRN. K.M.RAJESH
CHD. NAME
APPD. NAME
APPD. SIGN.
CAD FILE NAME 2H 52292
SCALE 1 : 400
REF.DRG.NO:
Greenstar Fertilizers Limited
Thoothukudi - 628005
ENGINEERING BY SPIC CADD CENTRE, Thoothukudi - 628005
GFL AMMONIA IMPORTATION TERMINAL
GAS DETECTOR & FIRE ALARM SYSTEM LOCATION LAYOUT
DATE OF ISSUE 23 - 08 - 2018
DRG.NO. 2H - 11 - 52292
REV. A
SHEET OF
REV. NO. A 23.08.18 ISSUED FOR COMMENTS KMR
DATE BRIEF RECORD DRN. CHD. APPD.

DCW LIMITED

(Caustic Soda and PVC Divisions)

CIN : L24110GJ1939PLC000748

ISO 9001 : 2008
OHSAS 18001 : 2007
ISO 14001 : 2004
ISO 28000 : 2007
ISO 50001 : 2011
CERTIFIED UNIT

Sahupuram P.O. Thoothukudi Dist.
Tamilnadu PIN : 628 229

Fax : 04639 - 280611
Phone : 04639 - 280231

Web : www.dcwltd.com
E-Mail : fax@shpm.dcwltd.com

20.09.2018

To

The Deputy Chief Engineer

V.O.C. Port Trust.

Tuticorin.

FACK) for n/a please
24/9/18

AEE (CIV)

SUB- As per your Letter No.CIV-OFCQS-PLC-MOEF-V1-18/D 1751-Dated 20.08.2018

Sir,

As per your above mentioned letter, We have furnished the details regarding early warning system in two numbers drawings.

One drawing stating the site plan of VCM Transit terminal with Gas Detector sensors.

Second drawing stating the VCM shipment pipe line Location from VCM TT to Shallow Draught Berth.

Besides this continuous patrolling with VCM gas detector in our VCM Pipe line at the time of VCM shipment.

Thanking you

Yours Faithfully

SAHUPURAM

DGM – PVC - DCW

Chennai Office : 358 (Old No.645), Third Floor,
ANNA SALAI, THOUSAND LIGHTS, CHENNAI - 600 006
✆ : 044 - 28292752, 28292082 Fax No. 044-28295766
E-Mail : chennaioffice@chn.dcwltd.com

Registered Office : DHRANGADHRA - 363 315 GUJARAT
✆: 02754 - 283244, 283381
Fax No.02754-283245
E-mail : dcwltd@wilnetonline.net

SHV ENERGY PRIVATE LIMITED
LPG – Import & Storage Terminal
Tuticorin - New Harbour
Tuticorin – 628 004
Tel 91-461 2352068, 2352242,2353268

SUPERGAS™

Date: 27.08.2018

The Deputy Chief Engineer,
Engg. Department (Civil)
V O C Port,
Tuticorin.

AEE (ENV)
28/8

Sir,

Sub: - Details regarding Early Warning System - reg.

Ref: - Your office letter No. CIV- OFCQS-PLC- MOEF- V1-18/D 1758 dated 16.08.2018

With reference to your letter dated 16th August 2018, we wish to submit the details of leakage detection devices installed in our LPG unloading pipelines inside the port area and in our storage Terminal.

No. of Gas sensors installed at oil jetty : 5 Nos

No of Gas sensors installed at Storage Terminal : 34 Nos

Thanking you,

Yours Sincerely,

For SHV Energy PRIVATE LIMITED

J Babu

TERMINAL MANAGER

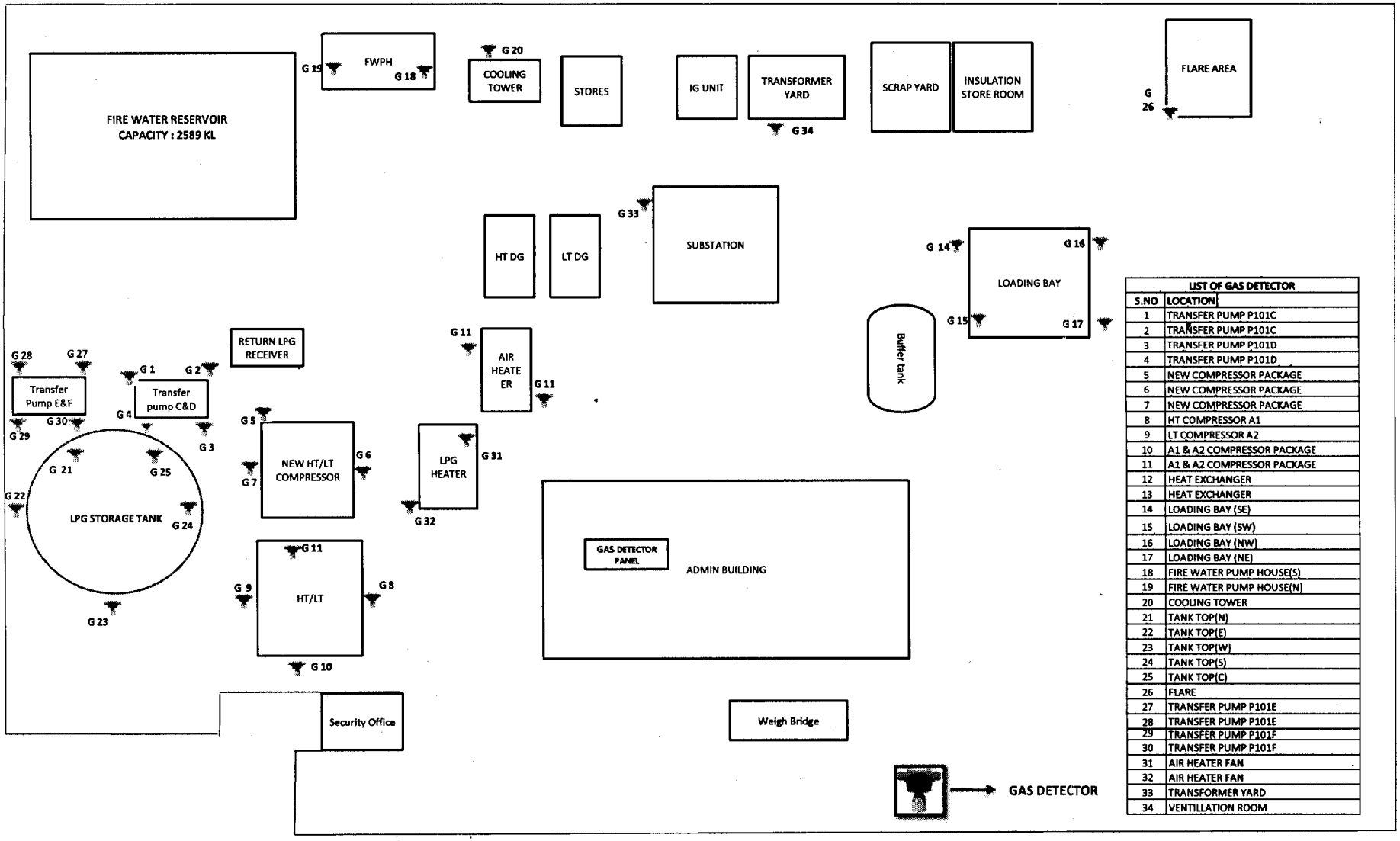
Encl: Details of Gas detector with mapping

CRISIL RATING No.1

SHV ENERGY PRIVATE LIMITED

LPG STORAGE TERMINAL

GAS DETECTOR LAYOUT-TERMINAL

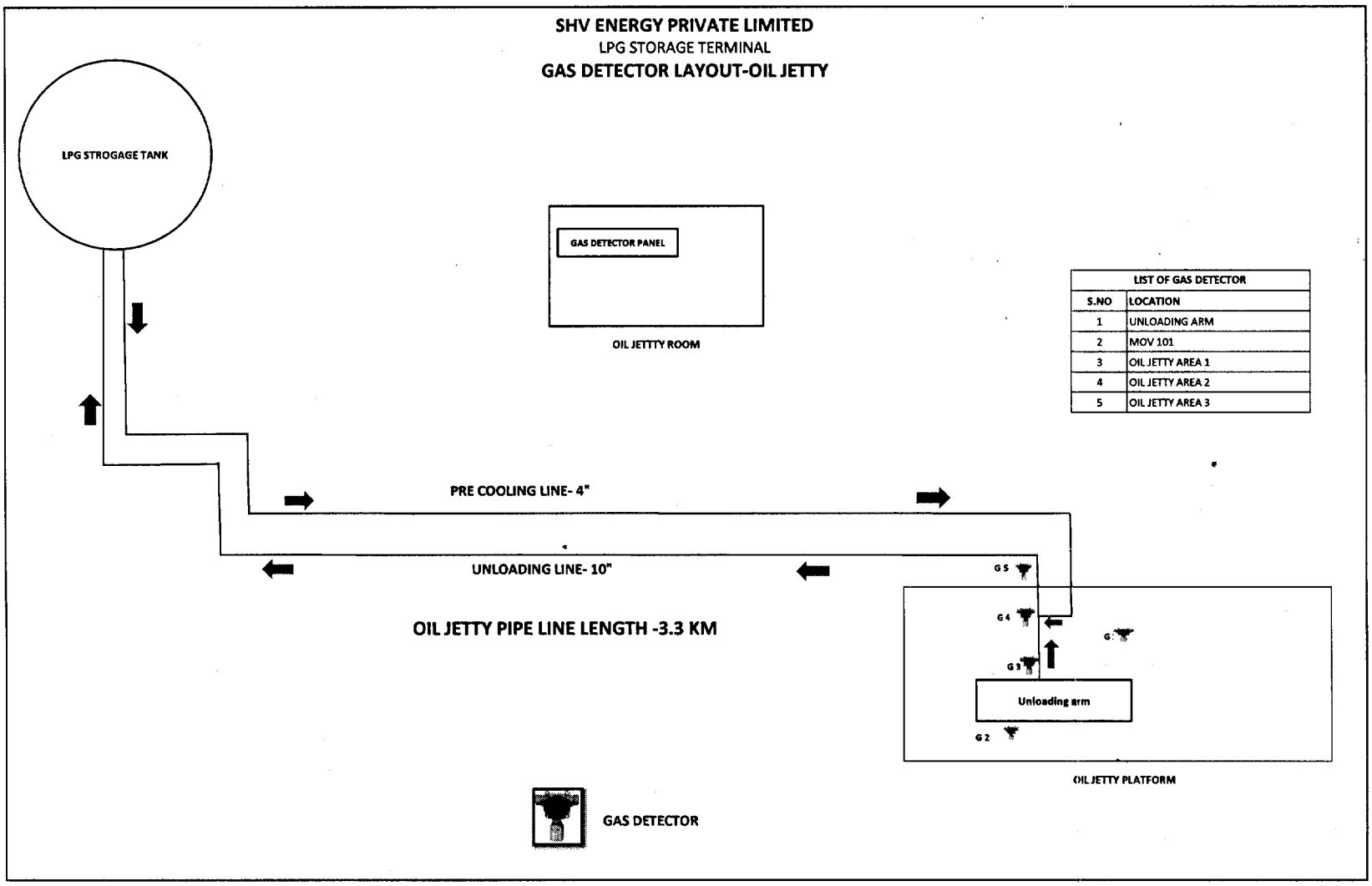


LIST OF GAS DETECTOR	
S.NO	LOCATION
1	TRANSFER PUMP P101C
2	TRANSFER PUMP P101C
3	TRANSFER PUMP P101D
4	TRANSFER PUMP P101D
5	NEW COMPRESSOR PACKAGE
6	NEW COMPRESSOR PACKAGE
7	NEW COMPRESSOR PACKAGE
8	HT COMPRESSOR A1
9	LT COMPRESSOR A2
10	A1 & A2 COMPRESSOR PACKAGE
11	A1 & A2 COMPRESSOR PACKAGE
12	HEAT EXCHANGER
13	HEAT EXCHANGER
14	LOADING BAY (SE)
15	LOADING BAY (SW)
16	LOADING BAY (NW)
17	LOADING BAY (NE)
18	FIRE WATER PUMP HOUSE(S)
19	FIRE WATER PUMP HOUSE(N)
20	COOLING TOWER
21	TANK TOP(N)
22	TANK TOP(E)
23	TANK TOP(W)
24	TANK TOP(S)
25	TANK TOP(C)
26	FLARE
27	TRANSFER PUMP P101E
28	TRANSFER PUMP P101E
29	TRANSFER PUMP P101F
30	TRANSFER PUMP P101F
31	AIR HEATER FAN
32	AIR HEATER FAN
33	TRANSFORMER YARD
34	VENTILLATION ROOM

SHV ENERGY PRIVATE LIMITED

LPG STORAGE TERMINAL

GAS DETECTOR LAYOUT-OIL JETTY



LIST OF GAS DETECTOR	
S.NO	LOCATION
1	UNLOADING ARM
2	MOV 101
3	OIL JETTY AREA 1
4	OIL JETTY AREA 2
5	OIL JETTY AREA 3

इंडियन ऑयल कार्पोरेशन लिमिटेड
(मार्केटिंग डिविजन)
हारबर इस्टेट,
तूत्तुक्कुडि 628 004.
Indian Oil Corporation Limited
(Marketing Division)
Harbour Estate,
TUTICORIN - 628 004.
Phone : 2352570 (Direct) 2352401 / 2353751

CE R. No. 590
Date : 11.09.18

टूटिकोरीन टर्मिनल
Tuticorin Terminal

Inspect the area/locality
AEE (Elec)
EA(K) for n/a please.
17/9/18.

Ref: TCN/PORT- PL/18-19
Date: 11.9.18

The Dy.Chief Engineer
VOC Port Trust
Tuticorin – 628 004

Sir,

Sub: **Details Regarding early Warning System in IOC-Regd**

With reference to your letter Ref. CIV/OFCQS/PLC-MOEF-V1-18/D regarding details of Leak Detection System, we hereby furnish following details.

1. For the pipeline inside port Area we have deputed Round the clock Line Watch Persons in all 3 shifts equipped with cycle & walkie talkie to monitor the pipeline.

2.At our factory boundaries we have installed Hydrocarbon Detectors at Pump House & Tank Farm Area to detect Leakages.

Copy of Factory Layout along with location of Hydrocarbon Detectors is attached for your reference.

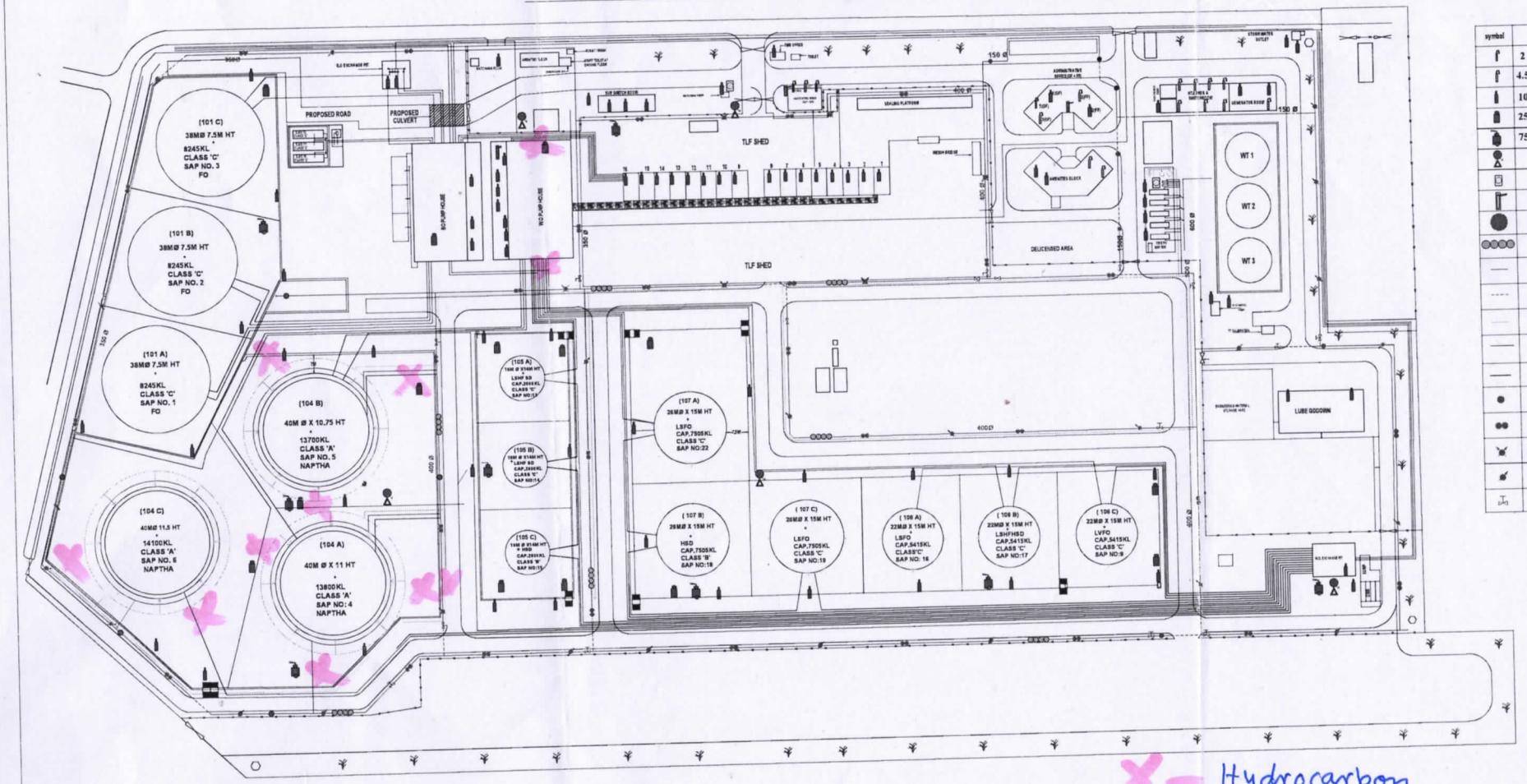
Thanking you,

Yours faithfully,
for Indian Oil Corporation Limited

11/9/18

(I.Sambasiva Rao)
Chief Terminal Manager
Tuticorin Port Terminal

PLAN SHOWING LAYOUT OF FIRE FIGHTING AND FIRE LINE SYSTEM



symbol	DETAILS	QT.
	2 kg CO_2 FIRE EXTINGUISHER	14
	4.5 kg CO_2 FIRE EXTINGUISHER	17
	10 kg DCP FIRE EXTINGUISHER	90
	25 kg DCP FIRE EXTINGUISHER	14
	75 kg DCP FIRE EXTINGUISHER	8
	HAND OPERATED SIREN	5
	ELECTRICAL SIREN	2
	EMERGENCY SHUTDOWN	2
	HVLR	5
	FOUR HYDRANT POINT	7
	FIRE HYDRANT LINE A/G	
	FIRE HYDRANT LINE U/G	
	FOAM LINE	
	WATER SPRINKLER LINE	
	RIM SEAL LINE	
	SINGLE HYDRANT POINT	
	DOUBLE HYDRANT POINT	
	FOAM CUM WATER MONITOR	
	WATER MONITOR	
	BUTTERFLY VALVE	

X - Hydrocarbon Detectors

INDIAN OIL CORPORATION LIMITED
(MARKETING DIVISION)
TUTICORIN TERMINAL

TITLE: FIRE FIGHTING & LINE SYSTEM LAYOUT TUTICORIN TERMINAL

DATE :

GREENSTAR

ACE(Env)
24/8

Date: 24.08.2018

To:

The Deputy Chief Engineer
Engineering Department / Civil
Administrative Office
V.O. C Port Trust
Tuticorin - 628004

Dear Sir,

Sub: Details regarding early warning system (Leakage detection device) in SPIC - reg

Ref: Your letter No. CIV-OFCQS-PLC-MOEF-V1-18/D/759 dated 20/08/2018- reg

With reference to the above subject, we here with submitting the details of early warning systems installed in our Ammonia importation terminal.

For information and records please.

Thanking you

For "Greenstar Fertilizers Limited "

Senior Manager (Safety and Environment)

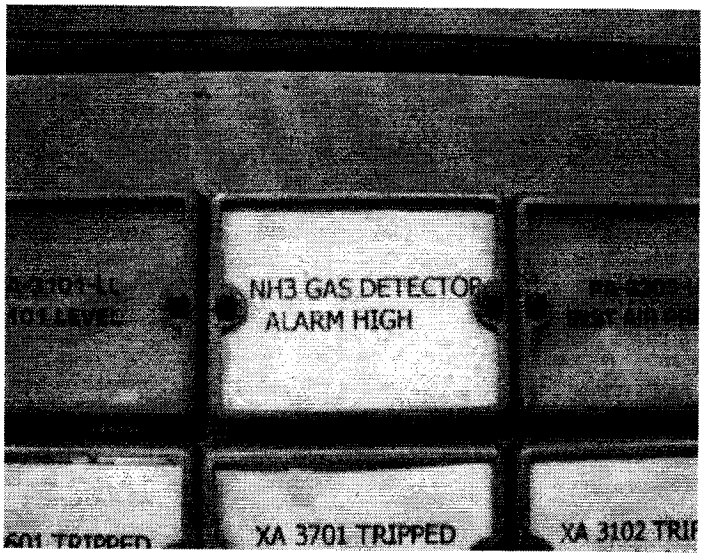
Enclosures

1. Photos showing the location of Gas detectors and Fire alarm system in terminal
2. Lay out showing the location of gas detectors and fire alarm devices.

Greenstar Fertilizers Limited
CIN : U24100TN2010PLC077127
REGD OFFICE : "SPIC HOUSE", No. 88 Mount Road, Guindy, Chennai - 600 032, Tamilnadu, India.
FACTORY : Muthiahpuram Post, Tuticorin - 628 005, Tamilnadu, India.
T : +91(461) 2244222 / 2355411 | F : +91(461) 2357001 | E : feedback@greenstar.net.in
Web : www.greenstarfertilizers.com

GREENSTAR FERTILIZERS LIMITED
Ammonia Importation Terminal

GAS SENSOR AND FIRE ALARM SYSTEM LOCATION



S.No. 1	PLANT: Greenstar Ammonia Importation Terminal

SENSOR ALARM PANEL:

AIT

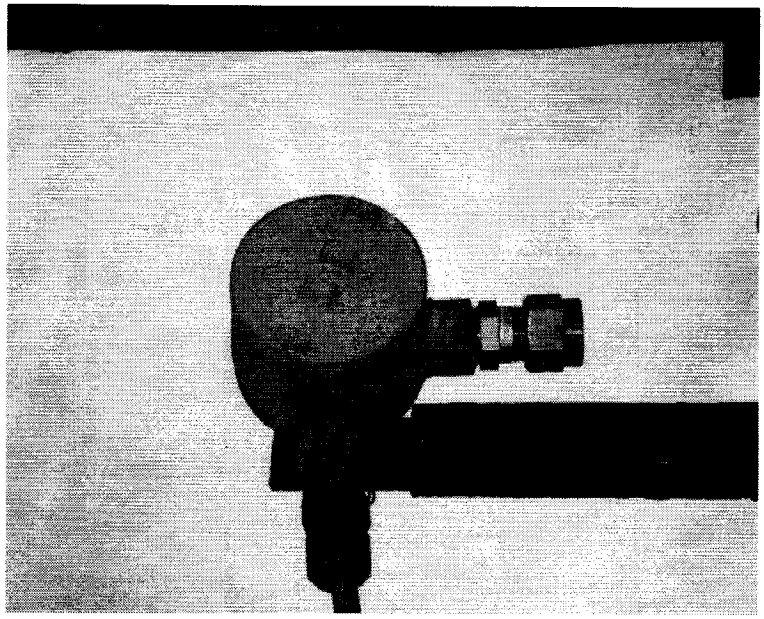
CONTROL ROOM

S.No. 2	PLANT: Greenstar Ammonia Importation Terminal

SENSOR DIGITAL INDICATION IN PANEL:

AIT

CONTROL ROOM



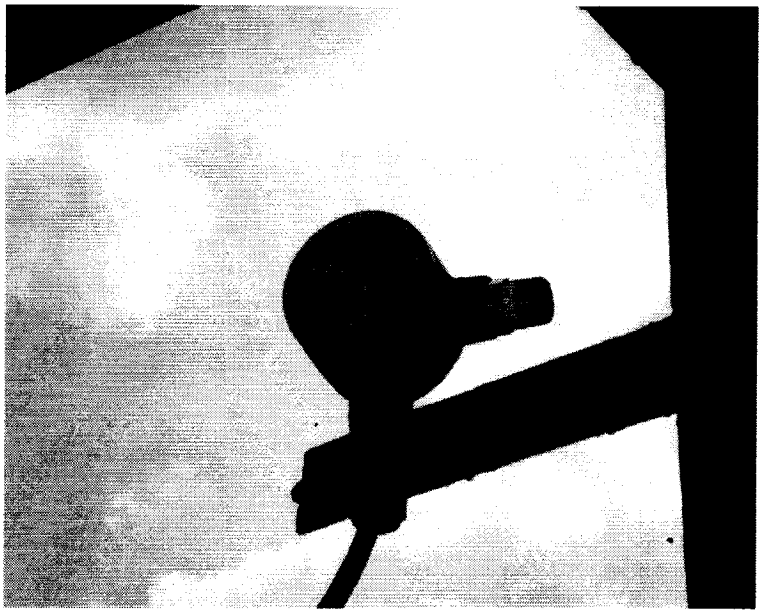
S.No. 3	PLANT: Greenstar Ammonia Importation Terminal

Sensor No: 1

AIT

South side

Compound wall

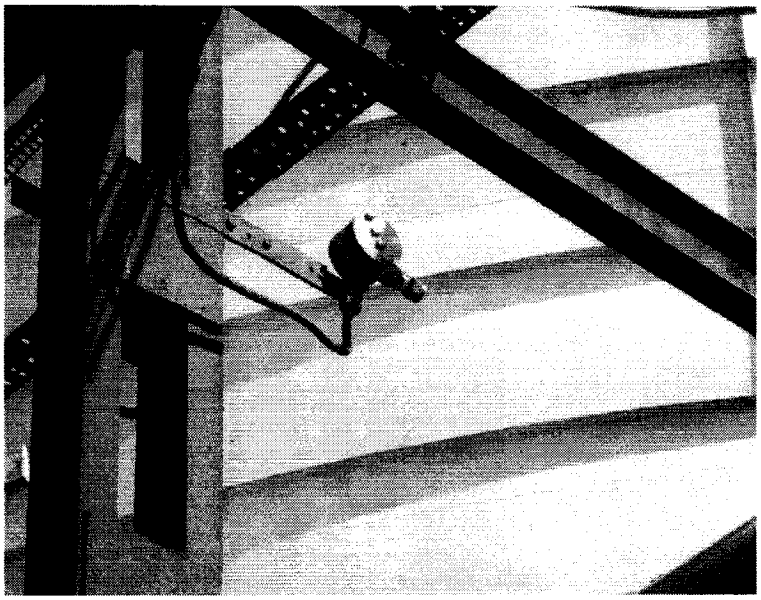


S.No. 4	PLANT: Greenstar Ammonia Importation Terminal

Sensor No: 2

AIT

West side Compound wall

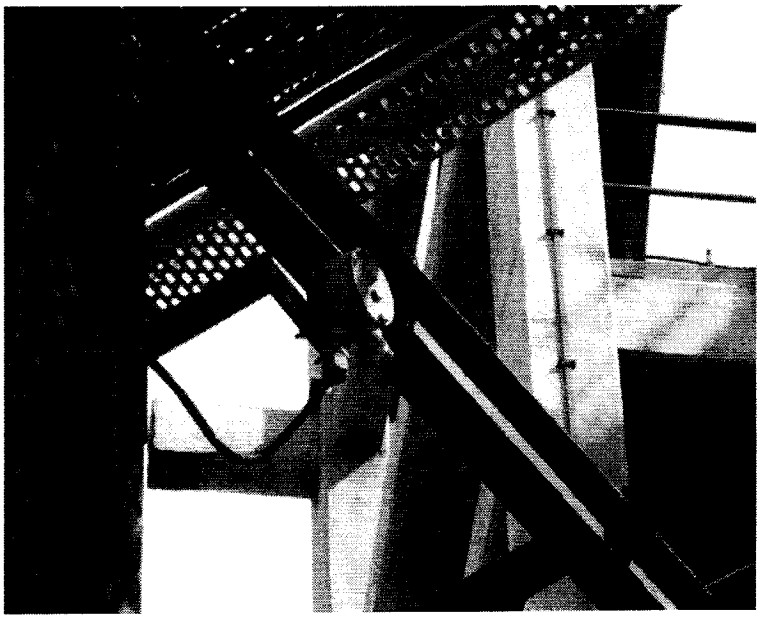


S.No. 5	PLANT: Greenstar Ammonia Importation Terminal

Sensor No: 3

AIT - Tank

North side

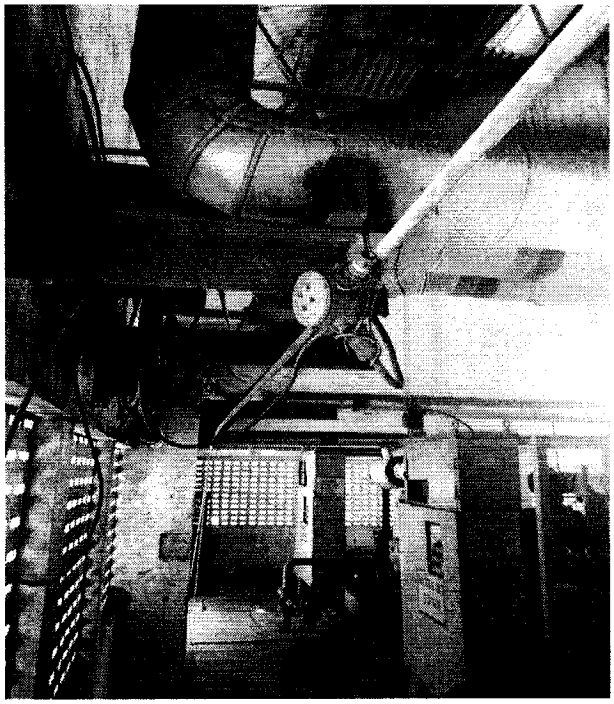


S.No. 6	PLANT: Greenstar Ammonia Importation Terminal

Sensor No: 4

AIT - Near

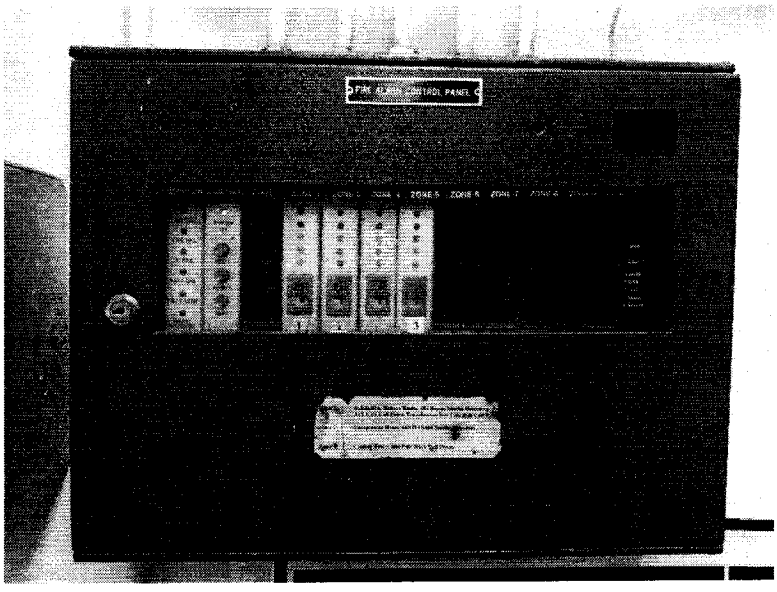
Stair case



S.No. 7	PLANT: Greenstar Ammonia Importation Terminal

Sensor No: 5

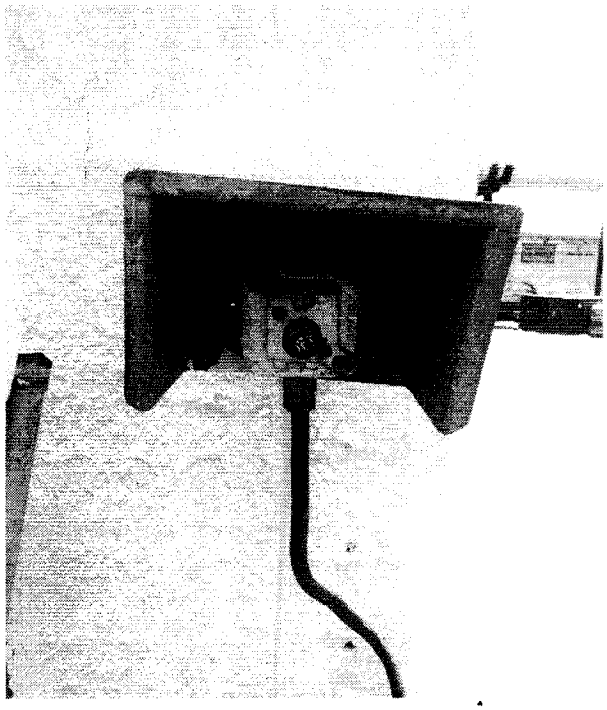
AIT – Compressor House inside



S.No. 8	PLANT: Greenstar Ammonia Importation Terminal

FIRE ALARM PANEL:

AIT CONTROL ROOM

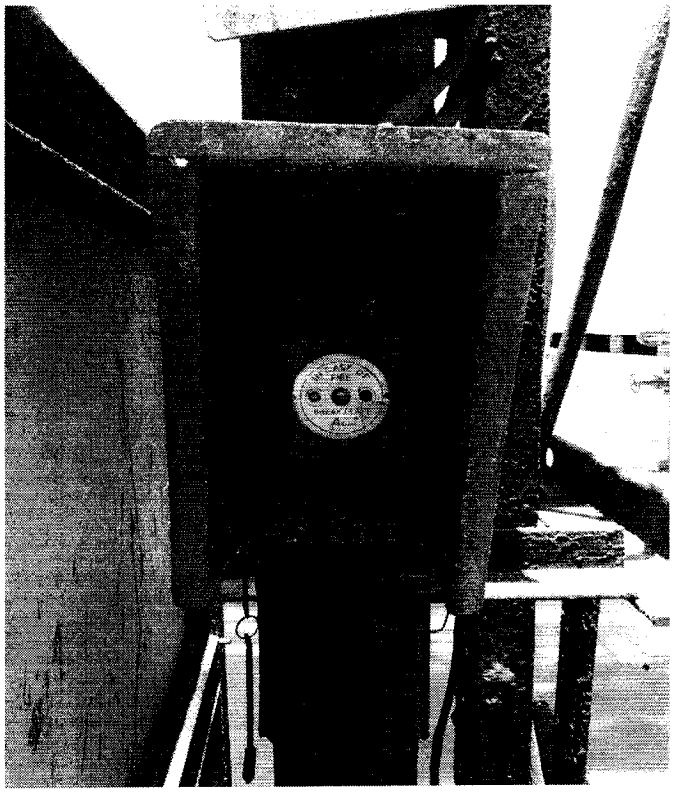


S.No. 9	PLANT: Greenstar Ammonia Importation Terminal

MANUAL CALL POINT: 01

AIT

ENTRANCE GATE

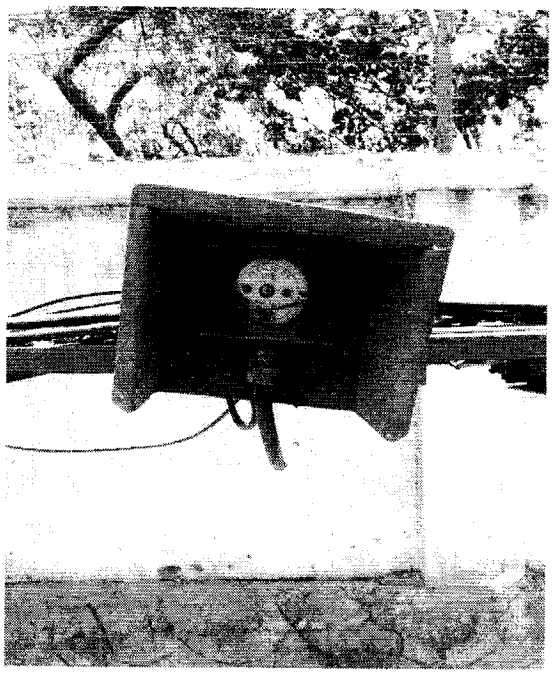


S.No. 10	PLANT: Greenstar Ammonia Importation Terminal

MANUAL CALL POINT: 02

AIT

PIPE RACK AREA



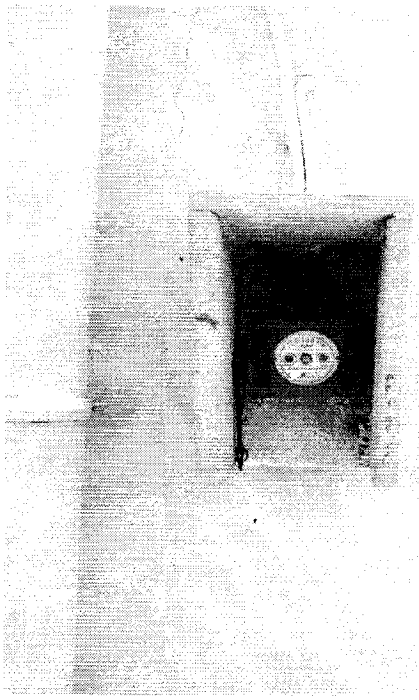
S.No.11	PLANT: Greenstar Ammonia Importation Terminal

MANUAL CALL POINT: 03

AIT

COOLING TOWER

AREA



S.No.12	PLANT: Greenstar Ammonia Importation Terminal

MANUAL CALL POINT: 03

AIT

COOLING TOWER

AREA

Annexure VI

வ.உ.சிதம்பரனார் துறைமுக ஆணையம்
वी.ओ. चिदम्बरनार पत्तन प्राधिकरण
V.O.CHIDAMBARANAR PORT AUTHORITY
पत्तन, पोत परिवहन और जलमार्ग मंत्रालय
MINISTRY OF PORTS, SHIPPING AND WATERWAYS
भारत सरकार GOVERNMENT OF INDIA
ADMINISTRATIVE OFFICE, HARBOUR ESTATE,
TUTICORIN 628 004, TAMIL NADU

IMS - ISO 9001:2015,
ISO 14001:2015,
ISO 45001:2018 &
ISPS COMPLIANT PORT

SAGARMALA
PORT-LED PROSPERITY

No.CIV-OFCQS-PLC-ENVIR-V1-19 Dated: 23.09.2022

To

The Director,
Regional Office,
Ministry of Environment, forest and Climate Change,
No 34 ,HEPC Building, No 34,
Cathedral Garden Road, Nungambakkam,
Chennai- 600034.

Sir,

Sub: Environmental Statement Form-V for the financial year ending 31st March 2022 – V.O.Chidambaranar Port Authority – reg.

Environment Statement, Form – V for the financial year ending 31st March 2022 as per Rule 14 of Environment Protection Rules 1986, pertaining to V.O.Chidambaranar Port Authority is enclosed herewith.

Yours faithfully,

CHIEF ENGINEER

FORM V

(See rule 14 of Environment (Protection) Rules, 1986)

Environmental statement for the financial year ending the 31st March 2022

PART – A

(i) Name and Address of the owner/occupier of the industry operation or process	:	Shri.T.K.Ramachandran, IAS V.O.ChidambaranarPort Authority, Ministry of Port Shipping and waterways, Trust, Bharathi Nagar, Harbor Estate, Tuticorin. Pin: 628004.
(ii) Industry category Primary – (STC Code) Secondary – (SIC Code)	:	Red Large
(iii) Production capacity – Units	:	Furnished in Annexure I Cargo handling during the year 2021-2022 is furnished vide Annexure-II
(iv) Year of Establishment	:	1979
(v) Date of last environmental statement submitted	:	29.09.2021

PART - B

Water and Raw Material Consumption

(i) Water consumption m^3/day

Process : NIL
Cooling : NIL
Domestic : 1958

Name of Products	**Process water consumption per unit of product output**	
	During the previous financial year2020-2021	**During the current financial year 2021-2022**
	(1)	(2)
Domestic/ Operational	777795 KL/year	714774 KL/year

(ii) Raw material consumption: Not applicable

Materials handling	Name of Products	Consumption of raw material per unit of output	
		During the previous financial year	During the current financial year
Not Applicable			

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

PART – C

Pollution discharged to environment/unit of output
(Parameter as specified in the consent issued)

(1) Pollutants	Quality of Pollutants discharged (mass/day)	Concentrations of pollutants discharges (Mass/volume)	Percentage of variation from prescribed standards with reasons
(a) Water		Analysis made on water, Air and Noise level monitoring through M/s Hubert Enviro care Pvt ltd, Chennai (Accredited to MoEF) is furnished as Annexure -VI	No Deviation
(b) Air		Analysis made on Air and Noise level monitoring through M/s Hubert Enviro care Pvt ltd, Chennai (Accredited to MoEF) is furnished as Annexure -VI	No Deviation
(c) Sea bed		Analysis made on Air and Noise level monitoring through M/s Hubert Enviro care Pvt ltd, Chennai (Accredited to MoEF) is furnished as Annexure -VI	No Deviation
(d) Noise		Analysis made on Air and Noise level monitoring through M/s Hubert Enviro care Pvt ltd, Chennai (Accredited to MoEF) is furnished as Annexure -VI	No Deviation

PART – D

Hazardous Wastes

(As specified under Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008)

Hazardous Wastes	**Total Quantity (MT)**	
	During the previous financial year 2020-2021	**During the current financial year 2021-2022**
3.1-Cargo residue, washing water and sludge containing oil	Nil	412
3.3-Sludge and filters contaminated with oil	Nil	21.66
3.4-Ballast water containing oil from ships	Nil	44.76
4.3-Slop oil	Nil	103.12
Used/spent oil (5.1)	20.180	Nil
5.2-Wastes or residues containing oil	Nil	171.66
Used batteries	25 Nos	41 Nos

PART – E

Solid Wastes

Solid Wastes	**Total Quantity**	
	During the previous financial year 2020-2021	**During the current financial year 2021-2022**
(a) From process (b) From pollution control facilities (c)(1) Quantity recycled or re-utilized within the unit (2) Sold (3) Disposed)	380 TPA	431 TPA

PART – F

Please specify the characteristics (in terms of consumption of quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Waste Categories	Quantity/MT	Disposal Method
3.1-Cargo residue, washing water and sludge containing oil	412	Sold to TNPCB approved vendor
3.3-Sludge and filters contaminated with oil	21.66	Sold to TNPCB approved vendor
3.4-Ballast water containing oil from ships	44.76	Sold to TNPCB approved vendor
4.3-Slop oil	103.12	Sold to TNPCB approved vendor
Used/spent oil (5.1)	Nil	Sold to TNPCB approved vendor
5.2-Wastes or residues containing oil	171.66	Sold to TNPCB approved vendor
Used Batteries	41	Sold to TNPCB approved vendor
Electrical Waste	131 nos	Buy back system
Garbage	431	Composting adopted for organic waste (vermi compost)

PART – G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production.

Environmental Expenditure For the Year 2021-2022		
S.No	**Expenditure details**	**Amount (Rupees)**
1.	Sewage treatment plant Operation and maintenance charges	11,15,271.00
2.	wharf sewage transfer and area cleaning activity	27,95,785.00
3.	Manning, operation, Repair and Maintenance of water sprinkler system available at coal yard near green gate for a period of Three years	17,58,000.00
4.	Monitoring of Sea bed,sea water quality,ambient Air quality, noise Pollution & Potable water quality on V.O.Chidambaranar Port area.	4,88,976.00
5.	Operation & Maintenance of continuous online Ambient Air Quality Monitoring (CAAQM) stations at three different locations at V.O.C Port	18,87,996.00
6.	Green belt development at Port premises	66,50,000.00
7.	Clearing of Juliflora atV.O.Chidambaranar Port .	7,90,800.00
8.	Waste Management (garbage)	95,00,000.00
9.	Truck mounted fogging dust suppression system operation and maintenance	43,16,608.00
10.	Truck mounted sweeping machine operation and maintenance	1,38,80,000.00
11.	Corporate Social Responsibility	1,82,75,000.00
12.	Bio medical waste management	2,10,940.00
	Total	6,16,69,376.00

PART – H

Additional measures/investment proposal for environmental protection including Abetment of pollution prevention of pollution.

Port has entered into an agreement with CESL for wet leasing of e- Cars for a period of 6 years. Three numbers of e-cars have put into operation in by M/s Convergence Energy

V.O.Chidambaranar Port Authority is in the process of adoption of multi clean fuel vehicles in line with guidelines issued by MoPSW under MIV initiative.V.O.Chidambaranar Port Authority has entered into an agreement with CESL for wet leasing of e-Cars for the period 6 years. Three numbers of e-cars have put into operation through M/s Convergence Energy Services limited (CESL0 from August 2021 onwards. Based on the performance of the e-cars further port is willing to engage additional three numbers of e- cars.

PART – I

Any other particulars for improving the quality of the environment:

- V.O.C Port is the ISO certified port (ISO 9001:2008, ISO 14001:2015).
- Periodical Environmental monitoring is being done for air, water, noise and sea bed including of oily water through third party on monthly basis.
- Heavy Duty Road Sweeping machine 2 nos are provided for cleaning of road and cargo handling area to Minimize the dust emission.
- Heavy Duty Dust controller fogging machine truck mounted vehicle isprovided for the control of dust at coal yard, cargo handling area as well as road &street to minimize the air pollution.
- VOCPA has implemented Continuous Ambient Air Quality monitoring station in the Oil jetty, Coal yard, Center area of the port for continuous monitoring of Emission.
- Port hason-shore power supply to Ships to Ships calling at Port for reduction of emission at wharf area.
- Port has Installed 500 KW solar power plants atVOCPA port Building.
- Water Sprinkler, wind barrier, and truck based water spray had been implemented to minimize the Dustat wharf area as well as coal yard in and around.
- A full-fledged occupational health centre has been established in port Hospital.
- Environment, Health and Safety periodical training is being given to Employees as well as contract employees.
- Organic waste is being converted to Vermi compost at solid waste management yard
- V.O.C port has developed parks and green belts at portpremises.

Annexure I

Port Capacity As per the theoretical

S.No	Berth Name/No/Cargo Handling	Theoretical Capacity
I	**Oil Jetty**:	
	Oil Jetty-POL/Oth.Liq	2.30
	Sub Total (A)	2.30
II	Coal Jetties:	
1	Coal jetty NoI	3.13
2	Coal jetty NoII	3.13
3	North Cargo Berth I	6.30
	Sub Total (B)	
III	**Alongside berths:General Cargo**	
1	Berth No 1	1.01
2	Berth No 2	1.75
3	Berth No 3	3.60
4	Berth No 4	3.60
5	Addl.Berth No 1	1.50
6	Addl.Berth No 2	1.75
7	Berth No 9-General Cargo (including Mechanization)	13.42
8	Shallow Draught Berth I	-
	Sub Total (C)	26.63
IV	**Container Terminal**	
1	Berth No 7- Container (4.17 lakh TEUs)	5.00
2	Berth No 8- Container (3.11 lakh TEUs)	3.73
	Sub Total (C)	8.73
	Total	50.21

Annexure II

V.O. CHIDAMBARANAR PORT AUTHORITY / TRAFFIC DEPARTMENT

Statement showing the commodity wise Traffic Handled during
April 2021to March 2022

Month	Traffic Handled in MMT
April-2021	32.62562
May-2021	25.17497
June-2021	27.49146
July-2021	28.00506
August-2021	32.59925
September-2021	29.62661
October-2021	27.15038
November-2021	28.96304
December-2021	28.92529
January-2022	24.01446
February-2022	23.89227
March-2022	32.71575
Total	34.118416

Annexure III

WATER CONSUMPTION FOR THE YEAR 2021-2022

Month	Quantity of Water 2021-22
April-2021	68750
May-2021	68820
June-2021	68320
July-2021	69220
August-2021	67420
September-2021	62520
October-2021	6322
November-2021	59320
December-2021	59220
January-2022	60330
February-2022	61322
March-2022	63210
Total	**714774**

Water consumption : 714774 KL/Year

Average water consumption domestic :1958KL/Day

Operational Purpose :Nil

Annexure IV

Statement of Hazardous waste disposal for the year 2021-2022

Hazardous waste disposal detail

Month	3.1-Cargo residue, washing water and sludge containing oil (MT)	3.3-Sludge and filters contaminated with oil (MT)	3.4-Ballast water containing oil from ships(MT)	4.3-Slop oil(MT)	5.1 Used/spent oil (MT)	5.2-Wastes or residues containing oil(MT)	Used Battery (Nos)
Aprl-21	NIL	NIL	NIL	NIL	NIL	NIL	NIL
May-21	NIL	NIL	NIL	NIL	NIL	28.72	NIL
Jun-21	NIL	NIL	NIL	NIL	NIL	67.54	NIL
Jul-21	NIL	NIL	44.76	NIL	NIL	58.5	NIL
Aug-21	70.7	NIL	NIL	NIL	NIL	16.9	41
Sep-21	15.74	21.66	NIL	NIL	NIL	NIL	NIL
Oct-21	91.28	NIL	NIL	NIL	NIL	NIL	NIL
Nov-21	37.6	NIL	NIL	NIL	NIL	NIL	NIL
Dec-21	26.68	NIL	NIL	57.38	NIL	NIL	NIL
Jan-22	72.66	NIL	NIL	39.18	NIL	NIL	NIL
Feb-22	69.34	NIL	NIL	6.56	NIL	NIL	NIL
Mar-22	28.08	NIL	NIL	NIL	NIL	NIL	NIL
Total	412	21.66	44.76	103.12	NIL	171.66	41 Nos

Annexure V

Solid waste management disposal during the year 2021-2022

Month	Quantity of solid waste (Tones)
April-2021	31.46
May-2021	32.56
June-2021	29.56
July-2021	35.26
August-2021	36.24
September-2021	33.28
October-2021	31.46
November-2021	34.58
December-2021	39.63
January-2022	40.52
February-2022	47.25
March-2022	39.24
Total	431.04

TEST REPORT

AMBIENT AIR QUALITY

S.NO	PARAMETERS	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	MIN	MAX	AVERAGE
1.TTPS NEAR COAL DUMP/BEACH WATER TANK																
1	Sulphur Dioxide	13.85	13.33	13.34	12.58	13.22	11.86	8.12	9.63	10.28	10.54	12.61	11.7	8.12	13.85	11.76
2	Nitrogen Dioxide	22.49	23.96	24.96	23.63	24.58	22.53	19.34	20.26	21.39	20.93	25.39	22.31	19.34	25.39	22.65
3	Particulate Matter Size Less than 10 µm	52.98	51.36	50.37	56.12	53.34	51.3	47.88	51.36	53.97	51.46	52.47	50.71	47.88	56.12	51.94
4	Particulate Matter Size Less than 2.5 µm	28.46	31.41	25.63	26.63	24.57	23.19	19.33	22.58	24.63	23.44	24.18	26.53	19.33	31.41	25.05
2.CONTAINER LOADING AREA																
1	Sulphur Dioxide	12.01	11.02	8.51	9.67	10.34	8.72	9.45	12.31	11.65	10.43	11.49	12.06	8.51	12.31	10.64
2	Nitrogen Dioxide	22.96	21.36	19.32	20.29	21.57	19.53	20.86	23.63	22.39	21.59	23.58	23.48	19.32	23.63	21.71
3	Particulate Matter Size Less than 10 µm	53.05	51.84	48.58	52.49	54.87	46.28	48.33	52.92	55.74	52.37	50.97	46.6	46.28	55.74	51.17
4	Particulate Matter Size Less than 2.5 µm	29.47	24.89	25.74	24.1	25.36	21.36	20.52	21.85	24.31	22.61	24.66	24.73	20.52	29.47	24.13
3.VOC WHARF BETWEEN BERTH 3 & 4																
1	Sulphur Dioxide	14.68	11.93	12.74	11.89	13.53	12.38	7.22	9.12	8.54	9.87	10.49	13.07	7.22	14.68	11.29
2	Nitrogen Dioxide	22.99	22.98	23.55	22.36	23.67	24.37	18.35	20.36	19.33	21.43	20.63	25.68	18.35	25.68	22.14
3	Particulate Matter Size Less than 10 µm	58.43	55.21	55.93	51.28	52.59	50.63	46.54	48.77	53.67	55.82	52.1	55.16	46.54	58.43	53.01
4	Particulate Matter Size Less than 2.5 µm	28.97	25.14	26.77	24.89	25.32	24.15	19.02	20.31	24.07	25.74	21.55	27.82	19.02	28.97	24.48
4. INFRONT OF COAL JETTY-I																
1	Sulphur Dioxide	11.43	13.68	11.33	12.48	9.84	11.32	10.96	11.58	12.96	10.43	9.68	11.73	9.68	13.68	11.45
2	Nitrogen Dioxide	20.67	24.58	21.69	22.21	20.32	22.1	21.32	22.31	23.31	21.59	21.44	23.58	20.32	24.58	22.09
3	Particulate Matter Size Less than 10 µm	45.89	51.36	54.96	56.93	54.39	52.63	49.42	46.33	51.64	52.37	48.8	43.26	43.26	56.93	50.67
4	Particulate Matter Size Less than 2.5 µm	24.63	24.86	26.04	27.25	25.43	21.58	20.79	18.84	22.56	22.61	20.62	25.68	18.84	27.25	23.41
5.NORTH FIRE STATION																
1	Sulphur Dioxide	15.96	13.21	9.74	10.66	11.29	11.48	9.54	10.32	8.96	11.34	11.48	12.67	8.96	15.96	11.39
2	Nitrogen Dioxide	24.66	21.68	20.23	21.79	22.34	20.35	20.02	21.58	19.22	21.95	23.39	22.58	19.22	24.66	21.65
3	Particulate Matter Size Less than 10 µm	48.82	51.93	52.32	47.87	50.12	52.38	48.38	46.63	52.89	54.21	51.7	53.26	46.63	54.21	50.88
4	Particulate Matter Size Less than 2.5 µm	37.46	26.2	27.29	21.23	22.36	24.1	20.84	19.32	21.33	23.83	20.86	22.81	19.32	37.46	23.97
6.ADMINISTRATION OFFICE BUILDING																
1	Sulphur Dioxide	10.2	12.98	10.59	14.23	13.45	12.58	11.25	10.98	9.91	10.39	12.51	10.65	9.91	14.23	11.64
2	Nitrogen Dioxide	19.68	23.69	21.78	24.62	23.66	25.1	22.78	21.63	20.22	22.63	23.18	21.39	19.68	25.1	22.53

3	Particulate Matter Size Less than 10 µm	46.21	58.41	57.63	52.93	51.23	53.15	52.36	51.54	50.13	48.2	46.39	49.2	46.21	58.41	51.45
4	Particulate Matter Size Less than 2.5 µm	26.87	26.84	26.89	21.34	21.74	22.16	21.54	20.32	21.34	21.66	20.58	24.88	20.32	26.89	23.01
7. PORT HOSPITAL																
1	Sulphur Dioxide	13.35	12.63	13.54	9.28	8.22	9.62	11.86	9.24	11.57	9.31	10.73	12.95	8.22	13.54	11.03
2	Nitrogen Dioxide	21.62	21.84	24.79	20.17	19.57	21.18	22.31	20.67	22.33	20.45	19.85	21.46	19.57	24.79	21.35
3	Particulate Matter Size Less than 10 µm	58.47	56.12	56.74	55.65	54.63	50.36	52.78	50.27	51.75	49.33	47.2	45.77	45.77	58.47	52.42
4	Particulate Matter Size Less than 2.5 µm	29.65	27.39	25.37	24.32	23.32	22.52	23.54	21.39	20.34	22.85	21.67	21.67	20.34	29.65	23.67
8.BETWEEN BERTH 5 & 6																
1	Sulphur Dioxide	10.41	11.96	11.44	9.82	10.25	9.65	11.29	7.93	9.62	12.5	10.73	12.63	7.93	12.63	10.69
2	Nitrogen Dioxide	21.85	22.65	22.38	20.54	21.66	23.41	22.52	18.54	20.1	22.43	21.18	24.16	18.54	24.16	21.79
3	Particulate Matter Size Less than 10 µm	45.37	50.23	47.52	45.37	47.22	45.28	47.96	49.33	50.36	48.7	49.66	51.68	45.28	51.68	48.22
4	Particulate Matter Size Less than 2.5 µm	23.41	22.18	22.39	21.63	22.37	20.36	18.32	20.54	21.71	23.42	22.11	23.09	18.32	23.42	21.79
9.SIGNAL STATION (VOC WHARF)																
1	Sulphur Dioxide	11.36	13.69	10.84	13.75	11.27	10.53	9.83	8.89	11.88	10.43	11.83	12.47	8.89	13.75	11.40
2	Nitrogen Dioxide	20.69	24.81	19.37	22.19	22.45	21.62	20.21	19.21	22.31	22.9	20.48	23.15	19.21	24.81	21.62
3	Particulate Matter Size Less than 10 µm	50.47	52.21	52.84	53.69	54.36	52.65	50.86	47.32	51.23	53.63	55.27	52.39	47.32	55.27	52.24
4	Particulate Matter Size Less than 2.5 µm	28.96	26.89	27.63	26.12	25.89	22.58	21.32	20.86	22.39	22.49	23.4	24.15	20.86	28.96	24.39
10.PORT SCHOOL BUILDING																
1	Sulphur Dioxide	12.87	12.52	11.88	12.54	10.89	12.58	10.15	8.23	9.36	12.53	11.54	13.82	8.23	13.82	11.58
2	Nitrogen Dioxide	21.69	23.85	21.36	21.83	20.32	23.1	21.89	19.64	20.45	21.8	22.63	24.17	19.64	24.17	21.89
3	Particulate Matter Size Less than 10 µm	56.57	54.16	48.51	50.89	54.25	56.25	51.82	48.59	54.31	53.61	45.3	48.5	45.30	56.57	51.90
4	Particulate Matter Size Less than 2.5 µm	27.88	26.8	21.45	23.62	24.36	22.56	20.33	20.87	23.58	22.94	22.19	24.36	20.33	27.88	23.41
11.RAILWAY QUARTERS																
1	Sulphur Dioxide	11.91	12.23	10.48	13.86	11.28	10.72	12.84	10.33	12.73	11.49	11.84	10.87	10.33	13.86	11.72
2	Nitrogen Dioxide	22.82	22.04	21.85	24.17	23.66	20.13	23.71	21.96	23.45	23.58	23.44	21.72	20.13	24.17	22.71
3	Particulate Matter Size Less than 10 µm	59.75	48.36	46.32	49.63	46.79	48.32	50.56	45.58	49.67	50.97	50.16	48.29	45.58	59.75	49.53
4	Particulate Matter Size Less than 2.5 µm	28.39	23.19	23.49	21.71	20.33	20.33	21.97	18.36	20.31	24.66	20.58	24.83	18.36	28.39	22.35

TEST REPORT

NOISE MONITORING

S.NO	LOCATION	Apr-21-1		Apr-21-2		May-21-1		May-21-2		Jun-21-1		Jun-21-2	
		Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)
1	VOC Wharf Pump House	62.1	54.7	66.3	51.4	68.3	53.1	60.8	53.2	64.3	55.9	65.1	50.9
2	Coal Jetty	61.8	53.6	64.6	58.3	66.5	56.4	64	51.4	60.9	51.3	63.4	57.6
3	Field Workshop	64.5	56.9	62.5	55.7	61.4	53.2	62.2	52.4	65.6	57.7	61.7	55.4
4	VOC Wharf Between Barth 4	66.9	57.8	65.8	57.1	66.9	66.9	65.8	64.6	67.2	58.5	64.9	56.5
5	Container Loading Area	59.9	46.5	61.9	52.8	60.5	53.2	58.3	48.2	60.7	45.3	60.2	53.3
6	VOC Shopping Mall	58.2	49.7	64.1	59.3	62.9	54.3	56.9	48.7	57.5	48.1	63.8	58.6
7	Floating Vessel	60.2	52.1	67 .4	54.9	66.7	53.4	62.2	50.1	61.3	53.5	66.6	53.8

S.NO	LOCATION	Jul-21-1		Jul-21-2		Aug-21-1		Aug-21-2		Sep-21-1		Sep-21-2	
		Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)
1	VOC Wharf Pump House	61.5	54.9	64.9	51.3	62.6	52.7	63.2	50.1	63.5	53.6	62.9	52.3
2	Coal Jetty	64.1	50.4	62.3	54.4	63.9	49.6	60.8	53.8	64.1	48.3	59.4	51.9
3	Field Workshop	65.6	55.8	60.4	53.9	64.2	53.9	58.6	51.9	62.8	52.2	60.2	50.4
4	VOC Wharf Between Barth 4	68.5	57.3	63.7	55.7	67.3	55.6	64.9	53.4	66.9	54.6	63.6	52.7
5	Container Loading Area	66.1	47.6	61.5	50.2	65.5	51.2	59.1	48.6	65.3	50.9	58.3	49.5
6	VOC Shopping Mall	58.6	49.9	62.1	57.7	59.1	48.5	63.8	55.3	58.7	47.6	65.9	54.1
7	Floating Vessel	62.9	52.2	65.8	51.5	62	52.1	66	50.9	61.4	51.3	64.5	51.3

S.NO	LOCATION	Oct-21-1		Oct-21-2		Nov-21-1		Nov-21-2		Dec-21-1		Dec-21-2	
		Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)
1	VOC Wharf Pump House	62.6	51.5	60.8	51.2	63.1	55.2	61.2	52.7	63.1	55.2	60.9	51.4
2	Coal Jetty	65.9	50.4	57.6	49.7	60.8	52.6	63.7	55.9	60.8	52.6	64.3	56.5
3	Field Workshop	63.7	52.8	61.1	52.3	64.7	56.9	64.6	53.1	64.7	56.9	62.9	52.3
4	VOC Wharf Between Barth 4	64.4	53.2	63.4	50.5	66.9	57.8	57.2	48.4	66.9	57.8	58.3	49.6
5	Container Loading Area	66.2	54.7	59.9	48.5	59.2	44.1	60.9	51.3	59.2	44.1	65.1	53.8
6	VOC Shopping Mall	59.3	49.1	66.7	53.9	56.3	43.7	62.8	53.7	56.3	43.7	61.2	55.2
7	Floating Vessel	60.8	48.9	63.6	50.1	61.5	50.2	65.1	51.3	61.5	50.2	63.7	50.9

S.NO	LOCATION	Jan-22-1		Jan-22-2		Feb-22-1		Feb-22-2		Mar-22-1		Mar-22-2	
		Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)	Day Time Noise level in dB (A)	Night Time Noise level in dB (A)
1	VOC Wharf Pump House	64.5	57.2	65.3	55.2	60.2	55.4	58.4	52.5	52.5	50.5	58.7	58.7
2	Coal Jetty	68.3	59.5	58.9	52.8	70.1	53.8	54.9	51.4	51.4	58.9	53.9	53.9
3	Field Workshop	51.8	46.5	60.5	56.4	55.2	49.1	57.8	49.3	49.3	51.6	51.2	51.2
4	VOC Wharf Between Barth 4	73.6	65	56.4	48.1	68.5	61.7	62.2	55.8	55.8	60.2	58.7	58.7
5	Container Loading Area	66.7	52.4	67.1	56.8	62.1	56.8	65.9	61.2	61.2	53.4	58.2	58.2
6	VOC Shopping Mall	56.5	48.7	66.2	60.7	52.9	45.3	66.2	60.9	60.9	55.6	62.4	62.4
7	Floating Vessel	64.2	53.5	58.5	52.1	60.1	58.4	60.5	57.8	57.8	60.7	59.8	59.8

TEST REPORT

STP TREATED WATER QUALITY

S.NO	PARAMETERS	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
	STP OUTLET												
1	Total suspended Solids	16.00	16.00	9.00	18.00	24.00	28.00	22.00	18.00	22.00	40.00	20.00	10.00
2	pH	7.46	7.74	7.14	7.62	7.45	7.31	8.50	7.90	8.35	8.19	7.37	8.15
3	BOD, 3 days @ 27°C as O2	4.00	4.00	18.00	16.00	22.00	16.00	12.00	10.00	46.00	25.00	18.00	14.00
4	COD as O2	32.00	28.00	88.00	72.00	78.00	54.00	68.00	56.00	235.00	152.00	82.00	70.00
5	Oil and Grease	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)	BLQ(LOQ 4.0)

TEST REPORT

MARINE WATER-BIOLOGICAL QUALITY

S.NO	PARAMETERS	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
1.Approach Channel													
I. phytoplankton (64µm mesh)													
1	Total Cell Count (cells/L)	3200	3600	4500	4400	4500	5100	2500	3200	4400	4300	4800	5300
2	Total Genus (No's)	6	5	8	7	8	8	4	6	7	7	8	7
3	Genus	Dinoflagellates,Thalassisora Spp,Rhizoseleniaspp,Odontella Spp,Melosira Spp,CorethronSpp	Dinoflagellates, Rhizoselenia spp, Odontella spp, Melosira spp, Corethron spp	Gymnodinicum spp, Thalassiosira spp, Coscinodiscus spp , Navicula spp, Scripsiella spp, Rhizosolenia Spp, Triodesmium spp, Biddulphia spp	Dinoflagellates, Thalassisora Spp,Rhizoselenia spp,Odontella Spp,Melosira Spp, Biddulpia Spp,Naviculae Spp	Gymnodinicum spp, Thalassiosira spp, Coscinodiscus spp, Navicula spp, Scripsiella spp, Rhizosolenia Spp, Triodesmium spp, Biddulphia spp	Ceratiumsp p, Peridinium spp, Chaetocerosspp, Triodesmiumspp, Pyroystissp p, Noctiluasp p, Biddulphiasp pp, Odontellasp pp	Dinoflagellates, ThalassisoraSpp, OdontellaSpp, MelosiraSp p	Dinoflagellates, Thalassisora Spp, Rhizoseleniaspp, Odontella Spp, MelosiraSpp, Corethron Spp	Dinoflagellates, Thalassisora Spp,Rhizoselenia spp,Odontella Spp,Melosira Spp,Biddulpia Spp,Naviculae Spp	Dinoflagellates, Thalassisora Spp,Rhizoselenia spp,Odontella Spp,Melosira Spp,Biddulpia Spp,Naviculae Spp	Dinoflagellates,Thalassisora Spp,Rhizoselenia spp,Odontella Spp,Melosira Spp,Biddulpia Spp,Naviculae Spp	Dinoflagellates, Thalassisora Spp,Rhizoselenia spp,Odontella Spp,Melosira Spp,Biddulpia Spp,Naviculae Spp
II. Zooplankton (200µm mesh)													
1	Total Cell Count (cells/L)	1400	1800	2400	1400	2400	1100	1500	1400	1400	1350	1900	2400

2	Total Genus (No's)	5	6	5	4	5	4	3	5	5	5	5	6
3	Genus	Titinopsis Spp,Obelia Spp, Copepod nauplii, Acartia spp,Eucalanus Spp	Titinopsis spp, Obelia spp, Copepodnauplii, Globigerina spp, Acartia spp, Eucalanus spp	Tintinnida spp, Acartia spp, Copepod nauplii, Eutinnus tenuis, Obelia spp.	Globigerina Spp,Titinopsis Spp,Eucalanus Spp,Acartia Spp	Tintinnida spp, Acartia spp, Copepod nauplii, Eutinnus tenuis Obelia sp.	Ceratiumspp,Thalassiosiraspp,Ceratiumspp,Rhizosolenia spp	EucalanusSpp,TitinopsisSpp,Acartiaspp	Titinopsis Spp,ObeliaSpp,Copepodnauplii,Acartia spp,Eucalanus Spp	Globigerina Spp,Titinopsis Spp,Eucalanus Spp,Acartia Spp,Copepod nauplii spp	Globigerina Spp,Titinopsis Spp,Eucalanus Spp,Acartia Spp,Copepod nauplii spp	Globigerina Spp,Titinopsis Spp,Eucalanus Spp,Acartia Spp,Copepod nauplii spp	Globigerina Spp,Titinopsis Spp,Eucalanus Spp,Acartia Spp,Copepod nauplii spp
III. Benthos													
1	Total Genus (No's)	7	5	6	5	6	7	6	7	6	6	13	11
2	Genus	Mussels, Clams, Crustaceans,Seaanemones,corals,sponges.Sponges	Mussels, Clams, Crustaceans, Corals, Sponges	Crustaceans, Ciliates, Echinoderms, Corals, Clams, Sponges.	Flagellates, nematodes ,Bivalves,Crustaceans, Mussels	Crustaceans , Ciliates, Echinoderms , corals, clams,Sponges	Mussels, Clams, Crustaceans,Seaanemones,corals ,sponges.Sponges	Turbellarians,SeaAquirts,Sponges, Corals,Bivalves,Copepods	Mussels, Clams, Crustaceans,Seaanemones,corals,sponges.Sponges	Flagellates,nematodes,Bivalves,Crustaceans,Mussels,Clams	Flagellates,nematodes,Bivalves,Crustaceans,Mussels,Clams	Flagellates,nematodes,Bivalves,Crustaceans,Mussels,Clams	Flagellates ,nematodes,Bivalves, Crustaceans,Mussels ,Clams
2. Dock basin Area Near Berth 3 & 4													
I. phytoplankton (64µm mesh)													
1	Total Cell Count (cells/L)	3000	3200	6200	6800	5800	4000	4600	5200	5400	5500	4900	5900

2	Total Genus (No's)	5	7	5	7	10	8	7	6	9	9	8	7
3	Genus	Odontella Spp,Dinoflagellates, Rhizosoleniaspp,Thalassiosira spp,NaviculaeSpp	Odontella spp, Dinoflagellates, Rhizosolenia spp, Phaeocystis spp, Thalassiosira spp, Naviculae spp, Dinoflagellates	Rhizosolenia Spp, Dinoflagellates, Naviculae Spp, Scrippsiella Spp, Corethron Spp	Dinoflagellates,Naviculae Spp, Scripsiella Spp,Gynnodium spp, Thalassiosira spp,Odontella Spp,Corethon spp	Odontella Spp,Biddulphia Spp,Phaeocystis Spp,Naviculae Spp,Thalassiosira Spp,Rhizoselenia Spp,Gymnodium Spp,Dinoflagellates,Melosira Spp	Dinoflagellates,Rhizosoleniaspp,Thalassiosira spp,NaviculaeSpp,PhaeocystisSpp, OdontellaSpp,MelosiraSpp,CorethronSpp	OdontellaSpp,Dinoflagellates,Rhizosoleniasp,Thalassiosiraspp,NaviculaeSpp, MelosiraSp,Corethronspp	Rhizosolenia spp, Naviculae Spp, Scripsiella Spp,Corethon spp, Gynnodium spp,Dinoflagellates.	Biddulphia Spp, Rhizosolenia spp, Naviculae Spp, Odontella Spp, Scripsiella Spp,Corethon spp, Gynnodium spp,Ceratum fuscus, Dinoflagellates.	Biddulphia Spp, Rhizosolenia spp, Naviculae Spp, Odontella Spp, Scripsiella Spp,Corethon spp, Gynnodium spp,Ceratum fuscus, Dinoflagellates.	Biddulphia Spp, Rhizosolenia spp, Naviculae Spp, Odontella Spp, Scripsiella Spp,Corethon spp, Gynnodium spp,Ceratum fuscus, Dinoflagellates.	Biddulphia Spp, Rhizoselenia spp, Naviculae Spp, Odontella Spp, Scripsiella Spp,Corethon spp, Gynnodium spp,Ceratum fuscus, Dinoflagellates.
II. Zooplankton (200µm mesh)													
1	Total Cell Count (cells/L)	1200	1400	3500	3000	3200	2000	3100	4000	2600	2500	2700	2900
2	Total Genus (No's)	4	5	6	3	6	6	7	4	7	7	6	5

3	Genus	Globigerina Spp,TitinopsisSpp,GlobigerinaSpp,Obelia Spp,	Globigerina spp, Titinopsis spp, Globigerina spp, Obelia spp, Copepodnauplii	Titinopis Spp, Acartis Spp, Globigerina Spp, Obelia Spp, Copepod nauplii, Eucalanus Spp.	Fish Larvae, Obelia Spp,Metacalanus Spp	Titinopsis Spp,Acartia Spp,Oithana rigida,Copepods,Obelia Spp,Fish Larvae,Eucalanus Spp	TitinopsisSpp,AcartiaSpp,Fishlarvae,CrabZoae,ShrimpZoea,ObeliaSpp	TitinopsisSpp,AcartiaSpp,Oithana rigida,Copepods,ObeliaSpp,FishLarvae,EucalanusSpp	Globegerina spp,Metacalanus Spp,Eucalanus Spp,Fish Larvae	Titinopsis spp,Globegerina spp,Metacalanus Spp,Eucalanus Spp,Acartia Spp,Copepod,Fish Larvae	Titinopsis spp,Globegerina spp,Metacalanus Spp,Eucalanus Spp,Acartia Spp,Copepod,Fish Larvae	Titinopsis spp,Globegerina spp,Metacalanus Spp,Eucalanus Spp,Acartia Spp,Copepod,Fish Larvae	Titinopsis spp,Globegerina spp,Metacalanus Spp,Eucalanus Spp,Acartia Spp,Copepod,Fish Larvae
III. Benthos													
1	Total Genus (No's)	8	6	4	5	9	8	9	5	6	6	10	9
2	Genus	Ciliates,Flagellates, Crustaceans,Copepods,Ostracodes,SeaSquirts,Bivalves,Echinoderms	Flagellates, Crustaceans, Copepods, Ostracodes, Bivalves, Echinoderms	Flagellates, Crusrtaceans, Copepods, Ostracodes.	Diatoms,Ciliates, Ostracodes,Bivalves, Turbellarians	Mussels, Clams, Crustaceans, Sea anemones,corals,sponges, Diatoms,ciliates,Ostracodes	Crustaceans,Turbellarians,SeaAquirts,Sponges,Corals,Echinoderms, Bivalves,Copepods	Mussels, Clams, Crustaceans,Seaanemones,corals,sponges,Diatoms,ciliates,Ostracodes	Diatoms, Mussels, Flagellates,corals,SeaSquirts	Mussels, Flagellates,corals,SeaSquirts, Diatoms,Echinoderms	Mussels, Flagellates,corals,SeaSquirts, Diatoms,Echinoderms	Mussels, Flagellates,corals,SeaSquirts, Diatoms,Echinoderms	Mussels, Flagellates,corals,SeaSquirts,Diatoms,Echinoderms
3. Dock basin Area Near Berth 5 & 6													
I. phytoplankton (64µm mesh)													
1	Total Cell Count (cells/L)	5900	4800	5600	5800	5100	4900	5900	5600	8700	7800	5100	5500

2	Total Genus (No's)	9	7	6	4	9	9	7	5	5	5	7	10
3	Genus	OdontellaSpp,BiddulphiaSpp,PhaeocystisSpp,ScrippssiellaSpp,NaviculaeSpp,ThalassiosiraSp,RhizoseleniaSpp,MelosiraSpp,Dinoflagellates	Odontellaspp, Biddulphiaspp, Phaeocystis spp, Scripsssiella spp, Naviculaespp, Rhizoseleniaspp, Dinoflagellates	Ceratium fuscus, Phaeocystis Spp, Scripsssiella Spp, Thalassiosira Spp, Melosira Spp, Biddulphia Spp, Naviculae Spp.	BiddulphiaSpp,NaviculaeSpp, RhizoseleniaSpp,GymnodiumSpp	OdontellaSp,BiddulphiaSpp,PhaeocystisSpp,,NaviculaeSpp,ThalassiosiraSpp, RhizoseleniaSpp,GymnodiumSpp,Dinoflagellates,MelosiraSpp	BiddulphiaSpp,PhaeocystisSpp,ScripsssiellaSp,NaviculaeSpp,ThalassiosiraSpp, RhizoseleniaSpp,GymnodiumSpp, Dinoflagellates	OdontellaSpp,BiddulphiaSpp,PhaeocystisSpp,ScripsssiellaSpp,NaviculaeSpp, ThalassiosiraSpp,RhizoseleniaSpp	RhizoseleniaSpp,Gymdonium Spp,Dinoflagellates, NaviculaeSpp,ScripsiellaSpp	Navicula spp, Rhizosolenia Spp, Ceratium spp, odontella spp, corethon spp	Navicula spp, Rhizosolenia Spp, Ceratium spp, odontella spp, corethon spp	Navicula spp, Rhizosolenia Spp, Ceratium spp, odontella spp, corethon spp	Navicula spp, Rhizosolenia Spp, Ceratium spp, odontella spp, corethon spp
II. Zooplankton (200µm mesh)													
1	Total Cell Count (cells/L)	3600	3300	1800	2200	3000	3600	3600	2100	5200	500	2900	2400
2	Total Genus (No's)	9	7	5	3	7	5	9	3	4	4	4	8

3	Genus	Titinopsis Spp,AcartiaSpp,Oithanarigida, Copepods, CrabZoae, FishLarvae, Rhincalanusspp,GlobigerinaSpp,ObeliaSpp	Titinopsis spp, Acartia spp, Oithanarigida, Fish Larvae, Rhincalanus spp, Globigerina spp, Obelia spp	Crab Zoea, Fish Larvae, Copepod nauplii, Metacalanus Spp, Titinopsis Spp.	Fish Larvae,Crab Zoea,Eucalanus Spp	TitinopsisSpp,AcartiaSpp, Oithanarigida,Copepods, ObeliaSpp,FishLarvae,EucalanusSpp	TitinopsisSpp,AcartiaSpp,Oithanarigida,Copepods,CrabZoae	TitinopsisSpp,AcartiaSpp,Oithanarigida,Copepods,CrabZoae,FishLarvae, Rhincalanusspp,GlobigerinaSpp,ObeliaSpp	ObeliaSpp,AcartiaSp,Fish Larvae	Metacalenus spp, Eucalanus spp, Copepod spp	Metacalenus spp, Eucalanus spp, Copepod spp	Metacalenus spp, Eucalanus spp, Copepod spp	Metacalenus spp, Eucalanus spp, Copepod spp
III. Benthos													
1	Total Genus (No's)	8	6	6	4	9	8	8	4	5	5	5	12
2	Genus	Ciliates,Flagellates, Crustaceans,Copepods,Ostracodes,Bivalves,Turbellarians, Echinoderms	Ciliates, Flagellates, Crustaceans, Copepods, Bivalves, Echinoderms	Crustaceans, Spomges, Tubellarians, Mussels, Polychaete worms, Diatoms.	Mussels, Clams, Crustaceans,Sea anemones	Mussels, Clams, Crustaceans, Seaanemones,corals,sponges,Diatoms, ciliates,Ostracodes	Mussels, Clams, Crustaceans,Seaanemones,corals,sponges,Diatoms,ciliates,Ostracodes	Ciliates,Flagellates,Crustaceans,Copepods,Ostracodes,Bivalves,Turbellarians, Echinoderms	Mussels, Clams, Crustaceans,Seaanemones	Bivalves ,Crustaceans, Amoeba , Ostracodes,Echinoderms	Bivalves ,Crustaceans, Amoeba , Ostracodes,Echinoderms	Bivalves ,Crustaceans, Amoeba , Ostracodes,Echinoderms	Bivalves ,Crustaceans, Amoeba , Ostracodes,Echinoderms
4. Dock basin Area Near Berth I&II													
I. phytoplankton (64µm mesh)													
1	Total Cell Count (cells/L)	4600	4100	5600	4600	6400	4600	4800	5200	5600	5000	4600	6300
2	Total Genus (No's)	9	7	8	6	12	9	8	5	8	8	8	10

3	Genus	Corethron Spp,OdontellaSpp,BiddulphiaSpp,ScripssiellaSpp, NaviculaeSpp,ThalassiosiraSpp,RhizoseleniaSpp,GymnodiumSpp, Dinoflagellates	Corethron spp, Odontella spp, Scripsssiella spp, Naviculae spp, Thalassiosira spp, Gymnodium spp, Dinoflagellates	Chaetcerons Spp, Odontella Spp, Biddulphia Spp, Phaeocystis Spp, Scripsssiella Spp, Gymnodium Spp, Dinoflagellates, Melosira Spp	CorethronSpp,OdontelaSpp,BiddulphiaSpp,,Scripsssiella Spp, NaviculaeSpp,ThalassiosiraSpp	Corethron Spp,Melosira Spp,Chaetcerons Spp,Odontella Spp,Biddulphia Spp,Phaeocystis Spp,Scripsssiella Spp,Naviculae Spp,Thalassiosira Spp,Rhizoselenia Spp,Gymnodium Spp,Dinoflagellates	ChaetceronsSpp,OdontellaSpp,BiddulphiaSpp, PhaeocystisSpp,,NaviculaeSpp,ThalassiosiraSpp,RhizoseleniaSpp,GymnodiumSpp,Dinoflagellates	ScripsiellaSpp,NaviculaeSpp,ThalassiosiraSpp, RhizoseleniaSpp,GymnodiumSpp, Dinoflagellates,Coscinodiscusspp,Corethronspp	Odontella Spp,Biddulphia Spp,Scripsssiella Spp, Gymnodium Spp,Dinoflagellates	Chaetcerons Spp,Odontella Spp,Biddulphia Spp,Phaeocystis Spp,Scripsssiella Spp,Gymnodium Spp,Dinoflagellates, Melosira Spp	Chaetcerons Spp,Odontella Spp,Biddulphia Spp,Phaeocystis Spp,Scripsssiella Spp,Gymnodium Spp,Dinoflagellates, Melosira Spp	Chaetcerons Spp,Odontella Spp,Biddulphia Spp,Phaeocystis Spp,Scripsssiella Spp,Gymnodium Spp,Dinoflagellates, Melosira Spp	Chaetcerons Spp,Odontella Spp,Biddulphia Spp,Phaeocystis Spp,Scripsssiella Spp,Gymnodium Spp,Dinoflagellates, Melosira Spp
II. Zooplankton (200µm mesh)													
1	Total Cell Count (cells/L)	3500	3200	3500	3500	3400	2300	2200	2600	3500	3200	1600	3000
2	Total Genus (No's)	8	7	4	7	10	6	3	6	4	4	4	7

3	Genus	ObeliaSpp ,Fish Larvae ,EucalanusSpp,TitinopsisSpp, MetacalanusSppRhincalanusSp p, Oithanarigida,GlobigerinaSpp	Obelia spp, Fish Larvae ,Eucalanus spp, Titinopsis spp, Metacalanus spp, Rhincalanus spp, Globigerina spp	Acartia Spp, Metacalanus Spp, Fish Larvae, Rhincalanus Spp.	ObeliaSpp, Fish Larvae, EucalanusSpp,TitinopsisSpp,MetacalanusSpp, RhincalanusSpp, Oithanarigida	Obelia Spp,Fish Larvae,Crab Zoea,Acartia Spp,Eucalanus Spp,Titinopsis Spp,Metacalanus SppRhincalanus Spp,Oithanarigida,Globigerina Spp	ObeliaSpp, FishLarvae, CrabZoea,, EucalanusSpp,TitinopsisSpp, MetacalanusSpp	Oithanarigida,Copepods,CrabZoae	Copepod nauplii Spp,Obelia Spp,Acartia Spp,Metacalanus Spp, Fish Larvae,GlobigerinaSpp,	Acartia Spp,Metacalanus Spp, Fish Larvae,RhincalanusSpp	Acartia Spp,Metacalanus Spp, Fish Larvae,RhincalanusSpp	Acartia Spp,Metacalanus Spp, Fish Larvae,RhincalanusSpp	Acartia Spp,Metacalanus Spp, Fish Larvae,RhincalanusSpp
III. Benthos													
1	Total Genus (No's)	11	9	3	8	12	9	5	4	3	3	8	8
2	Genus	Mussels, Clams, Crustaceans,Seaanemones,corals,sponges,Diatoms, ciliates,Ostracodes, Flagellates ,Waterbears	Mussels, Clams, Crustaceans, corals, sponges, Diatoms, Ostracodes , Flagellates, Waterbears	Mussels, Clams, Crustaceans	Mussels, Clams, Crustaceans,Sea anemones, corals,sponges,Diatoms,ciliates	Mussels, Clams, Crustaceans, Sea anemones,corals,sponges, Diatoms,ciliates,Ostracodes,Flagellates ,Waterbears	Mussels, Clams, Crustaceans,Seaanemones,corals,sponges,Diatoms,ciliates,Ostracodes	Flagellates, Crustaceans,Copepods,Ostracodes,Bivalves	Diatoms,ciliates, Crustaceans,Sea anemones	Mussels, Clams, Crustaceans	Mussels, Clams, Crustaceans	Mussels, Clams, Crustaceans	Mussels, Clams, Crustaceans