HETERO INFRASTRUCTURE SEZ LTD.

Ch. Lakshmipuram (Vill.), N. Narasapuram (Vill.), Rajayyapeta (Vill.), Nakkapally (Mandal)
VISAKHAPATNAM (Dist.) - 531 081. A.P., India. Tel : 08931- 227307, Fax : 08931- 227200
E-mail : contact@heterodrugs.com. URL : http//www.heterodrugs.com.

27th December 2022

Letter NO: HIS/EHS/MoEF&CC/2022-23/03

Joint Director (S)
Integrated Regional Office (IRO),
Ministry of Environment, Forest & Climate Change,
Green House complex, Gopala Reddy Road,
Vijayawada - 520010,
Andhra Pradesh.

Dear Sir,

Sub : Submission of six-monthly compliance report of Environmental Clearance issued to M/s Hetero Infrastructure SEZ Ltd, Nakkapalli, Visakhapatnam – Certified by third party -Regarding

Ref : Environmental Clearance No: 21-641/2007-IA, III (I) Dated 25/10/2010

With reference to the above, please find enclosed six-monthly compliance report of Environmental clearance of M/s Hetero Infrastructure SEZ Ltd, certified by third party approved by MoEF&CC (NABL & NABET Accredited Lab) for the period April 2022 to September 2022 with all necessary attachments for your kind information and perusal.

Kindly acknowledge the receipt.

Thanking you,

Yours faithfully,
For Hetero Infrastructure SEZ Ltd

S. Kullayi Reddy
Associate Vice President -EHS

Enclosures : As above

SV ENVIRO LABS & CONSULTANTS

(Environmental Engineers & Consultants in Pollution Control)

Corporate Office & Laboratory : Enviro House, B-1, Block-B, IDA, Autonagar, Visakhapatnam-530012
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Branch Office : 2-53, Mahipala Street, Yanam - 533464.

Recognized by Govt.of India-MoEF & CC, New Delhi, Accredited by : NABL & NABET

Date: 12.12.2022

To

Sr. General Manager -EHS,

M/s. Hetero Infrastructures SEZ Ltd

N. Narasapuram Village, Nallamattipalem Village,

Nakkapalli Mandal,

Visakhapatnam.

Sir.

Sub: Certified Compliance report for Environmental Clearance and CRZ Clearance of **M/s. Hetero Infrastructures SEZ Ltd** Audited by SV Enviro Labs & Consultants, NABL Accredited third party- Reg

Ref: 1) EC & CRZ Clearance F. No. 21-641/2007-IA.III, Date: 25.10.2010

We wish to inform you that. we SV Enviro Labs & Consultants, accredited by NABET/NABL located at Enviro House. B1, Block 'B'-IDA. Auto Nagar, Visakhapatnam herewith submit audited report for M/s. Hetero Infrastructures SEZ Ltd at Sy. No. 215, 286/1, 286/2, 283/1, in Ch. Lakshmi Puram. 312/1 to 312/5. 312/10 to 312/12. 313/1 to 313/7 of Rajaiahpet. 19(qart) in Pedda Teermala. 117/1 to 117/3, 119/1. 119/2. 120/1, 120/2. 125. 126, 129/1 to 129/9. 138. 142, 150, 215. N. Narasaraopuram Village, Nakkapally Mandal, Visakhapatnam for Environmental Clearance obtained from Ministry of Environment and Forests for the period of 01st April 2022 to 30th September 2022 (as on December 2022) after completing site visit.

With reference cited above. we have prepared certified compliance report for Environmental Clearance for the orders mentioned above vide reference numbers (1).

Thanks and Regards,

SV Enviro Labs & Consultants

Authorized Signatory

CERTIFIED COMPLIANCE REPORT OF ENVIRONMENTAL CLEARANCE
ISSUED BY SV ENVIRO LABS & CONSULTANTS
M/S. HETERO INFRASTRUCTURES SEZ LTD.,
NO: 21-641/2007-IA, III DATED 25TH OCTOBER 2010
EC COMPLIANCE PERIOD – 01ST APRIL 2022 TO 30TH SEPTEMBER 2022

S.No.	Condition	Compliance
Part-A, Specific Conditions		
Construction Phase		
(i)	Consent for Establishment" shall be obtained from Andhra Pradesh Pollution Control Board under Air and Water Act and a shall be submitted to the Ministry before start of any construction work at the site.	**Complied.** The industry has obtained Consent for Establishment from AP Pollution Control Board vide Order No: 219/PCB/CFE/RO-VSP/HO/2010-2355, date:13/12/2010.
(ii)	Sufficient dilution shall be ensured to meet the ambient parameters within 50 m distance from outfall.	**Complied.** Out fall pipeline has been laid as per NIO recommendations for having sufficient dilution at the point of outfall. .
(iii)	Regular Independent monitoring of marine water quality including temperature and salinity at the outfall shall be undertaken through an authorized agency and submitted along with six monthly monitoring report to the ministry.	**Being followed.** The industry is taking expertise of NIO for conducting the studies and conducting the studies on yearly basis. Waiting for the final report for the year 2022 and will be submitted to IRO, Vijayawada as soon as industry receives the same.
(iv)	Filters in the way of extruders shall be provided at the intake point to prevent fishes entering in the system.	**Complied by the industry.** Strainers have been provided at the intake point to prevent fish entry into the system.
(v)	The recommendations of EIA and DMP shall be strictly complied with.	**Complied.** The industry has complied with all recommendation of EIA & DMP. Copy of compliance report is enclosed as **Annexure-I** for your information.
(vi)	Lighted buoys shall be provided at intake and out fall location as indicators.	**Complied by the industry.** Marker Buoys which were installed at the intake & Outfall points as indicators have been damaged due to various reasons. Now the industry is in the process of replacing the same during annual maintenance in Feb 23.
(vii)	The pipeline shall be buried at least 2 m depth in onshore area and 4 mts in the offshore area. Necessary permission with regard to the pipeline burial and laying shall be obtained	**Complied by the industry.** Pipeline has been laid as per the recommendations made by NIO.

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	from maritime Board to ensure that the pipeline route does not fall in the navigation channel. Accordingly, the details of the laying of the pipeline shall be provided.	The pipeline route is not falling in the navigation channel
(viii)	The pipeline shall not pass through any sand dunes/mangroves. The project shall be implemented in such a manner that there is not damage whatsoever to the mangroves/other sensitive coastal ecosystem. If any damage to mangroves is anticipated/envisaged as a result of project activates then the clearance shall stand cancelled and the proponents shall seek fresh approval from the Ministry.	**Not applicable.** There are no mangroves and sand dunes in the area where pipeline has been laid. The industry is taking all precautions to avoid damage to the marine environment.
(ix)	The reject shall meet the standards prescribed by Andhra Pradesh Pollution Control Board before disposal.	**Complied by the industry.** The rejects are meeting the standards laid down by APPCB as we are using Hypo & Ferric Chloride only as and when required depending on Sea water quality. Copy of latest analysis report is enclosed as **Annexure -II** for your information.
(x)	A continuous and comprehensive post project marine quality monitoring programmed shall be taken up. This shall include monitoring of water quality sediments quality and biological characteristics and report submitted every 6 months to Ministry's Regional Office at Bangalore.	**Being followed.** The industry is conducting post project marine monitoring through NIO once in a year i.e pre-monsoon & Post-monsoon Seasons. The industry is waiting for the final report of NIO for the year 2022 and the same will be submitted to IRO, Vijayawada as soon as we receive the same. Copy of work order issued to NIO is enclosed as **Annexure-III** for your information and perusal.
(xi)	It shall be ensured that there is no displacement of people, houses or fishing activity as a result of the project.	**Complied by the industry.** The Land of the project is used to be a vacant land used for aquaculture in the past and there is no displacement of people, houses or fishing activity as a result of the project.
(xii)	There shall be display boards at critical locations along the pipeline Viz. road / rail/ river crossing giving emergency instructions. This will ensure prompt information regarding locations of accident during any Emergency.	**Complied by the industry.** The pipeline is completely laid in M/s Hetero Infrastructure SEZ Ltd area and only one crossing is there (Creek & Village Road) along the pipeline. Industry has

	Emergency information Board shall contain emergency instruction in addition to contact details. Proper lighting shall be provided all along the road.	taken all necessary precautions at the crossing. 24x7 security surveillance is in place all along the pipeline and Emergency contact details are available in the ECC & also at Security. Lighting has been provided all along the roads.
(xiii)	There shall be no withdrawal of ground water in CRZ area for this project.	**Complied by the industry.** The total water requirement of the facility is being met through Sea water Desalination plants and not drawing ground water for any purpose.
(xiv)	No other activities except the permissible actions under CRZ Notification 1991 shall be carried out with CRZ areas.	**Complied.** Industry is adhering with the conditions stipulated.
(xv)	Soil and ground water samples will be tested to ascertain that there is no threat to ground water quality by leaching of heavy metals and other toxic contamination.	**Complied.** The industry is conducting the analysis of soil & ground water periodically to check the contamination(ifany). Copy of Analysis report is enclosed as ***Annexure – IV.***
(xvi)	Construction spoils, including bituminous material and other hazardous materials must not be allowed to contaminate water courses and the dump sites for such material must be secured so that they should not leach into the ground water.	**Complied.** The industry is not using any bitumen for construction of roads as all the roads are made of concrete only. Hazardous material is being disposed to authorized agencies (TSDF & Cement Industries) as directed by the APPCB in their Consent. There are no dump sites for waste material around the factory premises.
(xvii)	Any hazardous waste generated during construction phase should be disposed off as per applicable rules and norms with necessary approval of the Andhra Pradesh state Pollution Control Board.	**Complying.** The industry has followed Hazardous waste generated during construction phase was disposed as per applicable rules and norms of APPCB.
(xviii)	The diesel generator sets to be used during construction phase should be low Sulphur diesel type and should conform to Environment (Protection) Rules prescribed for air and noise emission standards.	**Complied.** The industry is using only low Sulphur diesel for operation of DG sets.
(xix)	The diesel required for operation DG sets shall be stored in underground tanks and required clearance from Chief Control of Explosives shall be taken.	**Please Refer below:** As such there is no diesel storage in the premises of Hetero Infrastructure SEZ Ltd and the units which are located in SEZ area

		are storing the diesel in above ground storage tanks as approved by the Chief Controller of Explosives Copies of Explosive Licenses of SEZ units are enclosed as **Annexure-VIII** for your information and perusal.
(xx)	Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to applicable air and noise emission standards and should be operated only during non-peak hours	**Complied by the industry.** All vehicles hired by the company are in good condition and having pollution check certificates. The vehicle movement in the premises is restricted to daytime only.
(xxi)	Ambient noise levels should conform to residential standards both during day and night. Incremental pollution loads on the ambient air and noise quality should be closely monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB/SPCB	**Complied.** At present there are no major construction activities at site The industry is monitoring the noise levels in house and records are being maintained. As per records noise levels found to be within limits. Copy of the report is enclosed as **Annexure-V** for your information.
(xxii)	Fly ash should be used as building material in the construction as per the provision of Fly ash Notification of september,1999 and amended as on 27th August,2003	**Complied.** The industry utilized fly ash Bricks & also using fly ash in Ready Mix concrete for the construction purpose.
(xxiii)	Ready mixed concrete must be used in building construction	**Complied.** Ready mix concrete was used for the construction of buildings during construction phase. At present RMC plant installed by the industry though there are no major construction activities at site.
(xxiv)	Storm water control and its re use as per CGWB and BIS standards for various applications.	**Complied.** Dedicated storm water drains have been constructed in the plant and rainwater is being collected in the pond within the industry for usage (as per the requirement).
xxv	Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other best practices referred	**Complied.** The industry used Ready mix concrete for the construction and used curing chemicals for curing purpose.

		At present there are no major construction activities at site.
xxvi	Permission to draw ground water shall be obtained from the competent Authority prior to construction/operation of the project.	**NOT APPLICABLE** The industry is not drawing any ground water and using water from Sea water desalination plant for its usage.
xxvii	Regular supervision of the above and other measure for monitoring should be in place all through the construction phase, so as to avoid disturbance to the surroundings.	**Complied.** The industry is Regular supervision by the Environment Department head to avoid disturbance to the surroundings
xxviii	Under the provisions of Environment (protection)Act,1986, legal action shall be initiated against the project proponent if it was found that construction of the project has started without obtaining environmental clearance	**Complied.** The industry has construction activities were started after getting Environmental Clearance only.
II. Operation Phase		
I	The installation of the Effluent Treatment Plant (ETP) should be certified by an independent expert and a report in this regard should be submitted to the Ministry before the project is commissioned for operation. Treated effluent emanating from ETP shall be Recycled/ Reused to the maximum extent possible.	**Complied.** The industry has constructed full-fledged ETP for the treatment of Effluents at a cost of Rs.80.00 Cores. The ETP design was certified by the third party at the time of installation. Now the industry got the ETP performance evaluation done through the third party and the copy of ETP performance evaluation report is enclosed as **Annexure-VI** for your information.
ii	The solid waste generated should be properly collected and segregated. Wet garbage should be composed and dry/inert solid waste should be disposed off to the approved sites for land filling after recovering recyclable material	**Complied.** Dedicated places have been provided for storing solid waste. Installed Organic Waste Converter & Vermi-compost plant for disposing wet garbage and canteen waste. Inorganic salts are being disposed to TSDF Visakhapatnam whereas the organic wastes are being disposed to cement plants for co-incineration (Alternate Fuel) as per the conditions stipulated by the APPCB in CTO.
Iii	Diesel power generating sets proposed as sources of backup power for elevators and common area illumination during operation phase	**Complied by the industry.** The Diesel generators are provided with acoustic enclosures and the stack height of

	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 low sulphur diesel. The location of the DG sets may be decided with in consultation with Andhra Pradesh State Pollution Control Board.	the same is as per the norms prescribed by the Board. Using only low sulphur diesel for operation of the DG sets.
Iv	Noise should be controlled to ensure that it does not exceed the prescribed standards. During night time the noise levels measured at the boundary of the periphery of the plot shall be restricted to the permissible levels to comply with the prevalent regulations.	**Complied.** The industry is regularly monitoring the noise levels in & around the factory premises and found values are well within the norms. The industry is taking all possible measures to control the noise pollution.
V	The green belt of adequate width and density preferably with local species along the periphery of the plot shall be raised to provide protection against particulates and noise.	**Complied.** The industry has planted around 500000 saplings in and around the premises.
vi	Weep holes in the compound walls shall be provided to ensure natural drainage of rain water in the catchment area during the monsoon period	**Complied by the industry.** Weep holes are provided in the compound walls to ensure natural drainage of rainwater in the catchment area during the monsoon period. In addition to that Well-designed drainage system is in place for the entire premises.
vii	Rainwater harvesting for roof run-off, as plan submitted should be implemented. Before recharging the surface run off. pre-treatment must done to remove suspended matter,	**Complied.** The Complete rainwater is being collected in a pond within the industry for naturally recharging the ground water and the same is being reused for utilities (if requirement arises).
viii	The ground water level and its quality should be monitored regularly in consultation with Central ground water authority	**Complied by the industry.** Industry has provided 04 piezo wells within the factory premises for monitoring the Ground water Levels and quality. These wells are being monitored on quarterly basis through third party (MoEF&CC approved Laboratory). Layout of piezo wells and copy of report is attached as ***Annexure -VII*** **(A) and Annexure VII(B)**

ix	Traffic congestion near the entry and exit points from the roads adjoining the proposed project site must be avoided. Parking should be fully internalized and no public space should be utilized	**Complied.** There is no traffic congestion near entry & exist points. The industry is using its own Road & parking area and no public space is being utilized.
x	A report on the energy conservation measures confirming to energy conservation norms finalized by Bureau of Energy should be prepared incorporating details about building materials & technology & Factors etc and submit to the Ministry in three months time.	**Complied.** The study has been done on energy conservation measures and report is in place. The industry has appointed one expert energy auditor on permanent roles of the Company for Energy management & auditing. Regular reports will be generated from now onwards.
xi	Energy conservation measure like installation of CFLs/TFLs for the lighting the areas outside the building should be integral part of the project design and should in place before project commissioning. Use CFL and TFLs should be properly collected and disposed off/sent for recycling as per the prevailing guidelines/rules of the regulatory authority to avoided mercury contamination. Use of solar panels may be done to the extent possible.	**Complied.** Usage of CFLs/TFLs for the lighting area was an integral part of the project. The industry has replaced all CFL/TFL s with LED lights for lighting purpose in and around the premises. Electrical and electronic waste is being disposed to Recyclers Authorized by APPCB.
PART-B, GENERAL CONDITIONS		
i	The environmental safeguards contained in the EIA report should be implemented in letter and spirit.	**Complied.** The industry has implemented the environmental safeguards contained in the EIA report. Copy of compliance report is enclosed as **Annexure -I** for your information & perusal.
ii	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (hard copies as well as by e -mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	**Complied.** The industry has regularly submitted the EC compliance reports to Regional Office to MoEF & CC as per condition wise. The same report is being submitted to APPCB.
iii	Officials from the Regional Office of MoEF, Bangalore who would be monitoring the implementation of environment safeguards should be	**Noted and will be followed.**

	submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment(protection) Rules,1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail	The industry is regularly submitting Environmental statement to APPCB before 30th September of every year and is uploaded in Company website www.hetero.com. Copy of latest Environmental statement is enclosed as **Annexure-XI.**

ANNEXURE-IV

HETERO INFRASTRUCTURE SEZ LTD

COMPLIANCE REPORT ON THE RECOMMENDATIONS/ MITIGATION MEASURES MENTIONED IN THE EIA REPORT

ENVIRONMENTAL ISSUES/ IMPACTS (As per EIA)	ENHANCEMENT/ MITIGATION MEASURES (As per EIA)	MANAGEMENT ACTION/COMPLIANCE
Reduction of trees in the site: cutting of 25 trees	• Initiate and complete the process of compensatory trees plantation. Number of trees to be planted 25000.	This is to bring to your kind notice that, the total site was used for aquaculture farms in the past and hence there was no greenery/trees in the site while starting the project. However, the industry has planted more than 5.0 Lac plants in & around the industry site. The species used are as below: ➢ Ganuga ➢ Neem ➢ Acacia ➢ Pinto farm ➢ Kona Carpus ➢ Coconut and ➢ Medicinal plants The photographs of the green belt in and around the industry premises are enclosed as ***Annexure-I*** for your information.
Soil Erosion during construction and sediment load on the Storm water drains	• Earth works specifications to include provision for silt fence. • Construction during non-monsoon season	The industry has ensured that there is no soil erosion during the construction of industry and ensuring there is no sediment load on the storm water drains. The industry is cleaning/desilting the storm water drains regularly to avoid sediment deposition in the storm water drains. The natural drain which is passing adjacent to the industry premises is being cleaned regularly to avoid stagnations in the catchment area.
Sanitation facilities during construction	• Proper availability of drinking water and Sanitation facilities	During construction phase, the industry has provided labour sheds for the construction labour, adequate drinking water points and sanitation facilities. Photographs of the labour sheds and drinking water points are enclosed as **Annexure-II** for your information.

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Fire Prevention during construction	• Adopt safe work practise and have adequate firefighting facilities.	The industry has adopted and being adopted the safe work practices during the construction. Some of the safety practices followed are as below: ➢ Provisioning of Personal Protective Equipment ➢ Provisioning of fall protection equipment ➢ Regular Medical check-ups etc. The industry has provided adequate firefighting facilities in the industry. Details of firefighting facilities provided in the industry are enclosed as ***Annexure-III.***
Pollution of land, ground water and surface water arising from sanitary and other wastes and Spillages	• During Construction it will be ensured that contractor does not dispose off debris in water bodies.	This is to bring to your notice that, all the contractors are advised to dispose the debris in such a way that, it should not enter the water bodies. There are no water bodies in and around the project site.
	• Soil laden run off will not be diverted to water bodies.	Not Applicable. There are no water bodies to divert overloaded soil into the water bodies.
	• Vehicle maintenance and refuelling will be confines to areas under construction yard to trap discarded lubricant and fuel spills.	Regular vehicle maintenance and refuelling is being done outside the site in an authorised workshops and petrol pumps. In case of emergency maintenance of vehicles, the waste is disposed to Incineration along with other wastes.
	• Sanitation waste from will not be diverted to construction water bodies.	Sanitation waste is being collected separately and disposed to either incineration or to the treatment as applicable.
	• Contractor's to prepare, for the works sites, which make adequate provision for safe disposal of all wastes and prevention of spillages, leakage of polluting materials etc.	The contractors are advised to dispose the waste properly to avoid nuisance to the surroundings and also advised to not to use polluting materials like Bitumen, Waste oils etc in the construction.
	• Contractor to be required to pay all costs associated with cleaning up any pollution caused by their activities and to pay full compensation to those affected.	Major construction works have been completed and only few modifications works & repair works are going on at site. Till now there are issue associated with pollution caused due to the activities of contractors.

Groundwater abstraction for construction activities	• Contractor to ensure optimisation of water abstraction.	During major construction, the industry has used curing chemical, ready mix concrete etc. for optimum usage of water in construction. Photograph of the Ready-mix concrete plant working in the factory premises is enclosed as **Annexure-IV** for your information.
Construction traffic causing pavement and structure damage due to overloading, increasing congestion and increased road safety hazards on the Nakkapalli-Rajayyapeta road.	• Contractors to use appropriate vehicles and to comply with legal gross vehicle and axle load limits. • Contractors to repair damage at own expense. • Contractors to minimise road safety hazards and inconvenience to other road users by taking appropriate measures.	The industry has laid own road to the factory from National Highway and hence there is no traffic congestion, inconvenience to the other public and road safety issues. Drawing and Photographs of the Road are enclosed as **Annexure-V.**
Air Pollution from batch mix plants, construction yard due to movement of mechanical compactor and other vehicles.	• Trucks carrying construction material will be covered with tarpaulin to avoid spilling.	Instructed all truck owners to cover the trucks with tarpaulins and is being followed strictly.
	• Water Sprinkling will be carried out in mornings and evenings on haul roads and compact surface.	Industry used to sprinkle water on the roads during initial stages of construction and at present all roads are either concreted or black top,
	• Vehicles and construction machinery will be maintained to conform emission standards specified by SPCB.	Maintaining Vehicles and construction machinery in good working condition so that it will meet the emission standards specified by APPCB
	• Stock piled sand and stone will be wetted before loading. • Construction debris shall be disposed only at designated sites.	• There is no sand stocks at the site. • Construction debris is being disposed at designated places only.
Noise Levels	• Construction yard will be located at 500m away from habitation.	There is no construction yard near to the habitation.
	• All equipment will be maintained in good working order, properly designed engine enclosures and intake silencers.	All vehicles are provided with silencers and maintaining in good working condition. All DG sets are provided with acoustic enclosures. Photographs o the DG sets are enclosed as **Annexure -VI.**
Water Logging and cross Drainage.	• Storm water drain on the North Eastern side of the site connecting to the	Storm water drain on the eastern side of the factory is being maintained in good condition so that

	creek and drains within the site.	there will not be nay water logging in the catchment area. Drawings of the storm water drain on the eastern side of the factory is enclosed as **Annexure-VII**.
Negative impact on flora due to Flora due to cutting of trees.	• To compensate for 25 number of trees to be cut, 25000 number of trees will be planted.	Industry has planted more than 500000 plants in the premises. Photographs of the green belt are enclosed as **Annexure-VIII.**
Occupational Safety and Health	• Construction workers be provided with personal protective equipment (PPE) such as earplugs, helmets, safety shoes, gloves, etc.	All workers are being provided with suitable PPE like Shoes, Helmet, Goggles Gloves, Ear plugs etc. depending on the work. The PPE Matrix and protocols are enclosed as **Annexure-IX** for your information
Environmental monitoring during construction phase	• Ambient Air Quality to be measured once in a season (except monsoon) at location specified in monitoring plan	Ambient air quality monitoring is done continuously through 03 Nos of CAAQM stations. Conducting ambient air quality monitoring through third party once in a month and reports are being submitted to RO, APPCB, Visakhapatnam.
	• Water Quality (ground and surface) to be monitored once in a season (except monsoon season) at locations specified in monitoring plan.	The industry has provided 04 nos of piezo wells in the factory premises for monitoring the ground water quality and is being monitored once in 03 months. Reports are being submitted to MoEF&CC along with compliance reports. Layout of piezo wells installed in the plant is enclosed as **Annexure-X.**
	• Noise levels to be monitored once in a season at locations specified in monitoring plan.	Regular noise monitoring is being done internally and records are being maintained,
	• Soil quality to be monitored once a year .	Soil quality is being monitored once in six months and the reports are being submitted to MoEF&CC along with compliance reports,
	• Monitoring of Construction sites for arrangements made for protection measures at storage areas, and drainage.	Regularly monitoring the construction sites for arrangements made.
Occupation Phase		
Air Pollution From Boilers	• Effective stack heights and bag filters.	The industry is having 04 nos of boilers and the details are as below:

		<table><tr><th>Capacity of Boiler</th><th>Stack Height</th><th>APCD</th></tr><tr><td>45 TPH</td><td>53 m</td><td>Electrostatic Precipitator (ESP)</td></tr><tr><td>20 TPH</td><td>33 m</td><td>Dust collector followed by Bag filter</td></tr><tr><td>12 TPH</td><td>30 m</td><td>Bag filters</td></tr><tr><td>10 TPH</td><td>30 m</td><td>Bag filters</td></tr></table>
Air Pollution From DG sets	• Effective stack heights as per CPCB Formula	All DG sets are provided with adequate stack height as per the CPCB formula.
Air Pollution from Incinerator	• Provision of Scrubbers.	No Hazardous waste Incinerator is installed at site.
Diffuse emissions from, reactors, multiple effect evaporators, strippers etc.	• Provision of vent condensers.	• All reactors are provided with dual stage condensers to avoid process emissions entry into the atmosphere • All reactor vents in which acidic reactions are being carried are connected to scrubbers. • Stripper vent is connected to dual stage condensers.
Fugitive Emissions from accidental spills	• Containment measures like dykes for bulk solvent storage, periodic maintenance.	All solvent storage tanks are provided with sufficient dykes (110% of tank capacity) and provided Dump tanks in all solvent storage yards to control the spills. Photographs of the solvent yard is enclosed as **Annexure-XI**.
Water Resources	• Source: YLB Canal supply.	As per EC, the industry has installed Sea water Desalination plant for meeting the water requirements of the industry.
Effluents from Process:		
Organic Wastes	• Incinerator • Stripper followed by distillation or incineration.	Sending to cement Industries, pre-processing units for incineration purpose as directed by the Board.
High TDS Effluents	• Evaporator followed by Filter Press condensate From Evaporator for Biological treatment followed by tertiary treatment and marine disposal .	HTDS effluents are being treated in Multiple Effect Evaporator (MEE) followed by biological treatment and tertiary treatment before disposing into the Sea.
Low COD and Low TDS Effluents	• Activated Sludge process followed by tertiary treatment and marine disposal.	All LTDS effluents along with MEE Condensate is being treated in Bio-tower followed by Dual stage activated sludge process and then to RO plant before disposing into the Sea. Details and photographs of the Stripper/MEE/ATFD & Biological Treatment are enclosed as **Annexure -XII.**

Effluents from utilities	• Primary treatment followed by marine disposal.	Effluents from utilities is being treated along with LTDS effluents.
Domestic Effluents	• Sewage treatment plant and treated water for on Land Irrigation.	Domestic effluents are being treated in sewage treatment plant of 300 KLD capacity and treated sewage is recused for gardening purpose. Details of STP and photograph are enclosed as **Annexure-XIII**.
Solid Wastes		
Coal ash from Boiler	• Supply to Brick manufacturers and Cement Manufacturers	Sending to Brick manufacturing units.
Garbage	a) Biodegradable for vermicomposting and Reuse for horticulture development b) Recyclable Wastes Like Paper, plastic to recyclers. c) Non-Biodegradable for disposal to local authorities. d) STP Sludge for compost and reuse as manure.	a) Installed organic waste converter for converting the biodegradable waste into manure. b) LDPE paper and plastic waste is being sent to recyclers. c) Non-Biodegradable waste is being disposed as per the guidelines. d) Using STP sludge in Vermi compost plant to maintain moisture and then for gardening purpose as manure. Photograph of the vermi-compost plant is enclosed as **Annexure-XIV**.
Hazardous wastes		
a) Forced Evaporation salts b) Solvent Residues c) Process residues d) ETP sludge e) Waste Oils f) Used Batteries g) Waste Containers	• Temporary Storage Facility with 3 Months storage capacity And Sent To TSDF, Visakhapatnam sent to authorized recyclers Detoxification resultant effluent to ETP and sold to authorised vendor.	Hazardous wastes are being disposed as per the conditions stipulated by APPCB in the **CTO**. Minimum stocks are being maintained in the Hazardous waste storage yard. Detoxification of containers/Liners is being done in Detoxification yard and wash water is being routed to ETP for treatment. Hazardous waste and mode of disposal specified by the APPCB in **CTO** is enclosed as **Annexure-XV**.
Noise Pollution from DG Sets, Motors, Compressors etc.	• Provision of Acoustic enclosures for DG Sets provision of noise absorption pads at the foundation levels Green Belt.	All DG sets are provided with Acoustic enclosures and thick green belt is being maintained in & around the factory premises for minimising the noise.

Green Belt	• Provision of Avenue plantation and 50 m wide green belt all around the estate	Thick green belt is being maintained in & around the factory premises.
Occupational safety	• Provision of PPE, and Health centre. • Periodic Health Check-ups. • Occupational Safety training.	• The industry has provided 02 no's of Occupational health centres with ambulances (mini trauma) within the industry premises. Full time doctors are deployed in the OHC and Round the clock male nurses/ paramedical staff are available in the factory for taking care of health issues of employees/emergencies. • Periodical medical examination of the employees is being carried as per the Factories Act. • Occupational safety training is the part of Safety induction training and also during regular trainings.
Community Development	• Extension of Medical facilities by way of health camps, Improvement of educational facilities, Empowerment of Women in Surrounding villages.	The industry is extending medical support to the nearby villagers by way of: ➢ Conducting medical camps in the nearby villages regularly through mobile medical van of the Company and giving free medicines. ➢ Established Eye hospital at Nakkapalli for the eye care of the nearby villagers. This includes free testing, providing goggles, medicines, Cataract surgeries etc. ➢ Financial assistance to the people suffering with health ailments. ➢ Sanitation facilities during calamities. For education, the industry is carrying following activities: ➢ Providing the infrastructure to all nearby Govt. schools like construction of toilets, Compound walls, classrooms etc. ➢ Providing furniture to the Govt Schools. ➢ Providing Study material for school going children ➢ Drinking water facilities (RO Plants) in the schools. ➢ Rewards for the meritorious students.

		➢ Celebration of national events in schools ➢ Providing lighting & sport kits to the schools etc. For women empowerment, the industry is providing jobs to the women and promoting them to take self-decisions both at home and workplace by way of providing training to the women employees. The details are enclosed as **Annexure-XVI**

Submitted to the IRO, MoEF&CC, Vijayawada for information and perusal.

For Hetero Infrastructure SEZ Ltd

Date :23/12/2022

S. Kullayi Reddy
Associate Vice President -EHS

Annexure-I

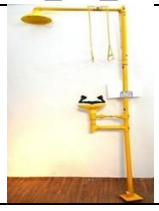
GREEN BELT PHOTOS

ANNEXURE-II

LABOUR SHED & DRINKING WATER

Drinking Water

ANNEXURE-III

Hetero Complex Safety Equipment's				
S. No	**Name of the Equipment**	**Capacity / UoM**	**Total Quantity**	**Photograph**
1	Fire Extinguishers	Nos	2238	
2	ARFFF (Foam)	Lts	47960	
3	Fire hydrant points	Nos	462	
4	Fire hose cabinet	Nos	436	
5	First aid hose reel	Nos	176	
6	Fire hydrant monitors	Nos	74	
7	Fire hydrant gate valves	Nos	314	
8	Fire blanket	Nos	148	
9	Eye & Body wash unit	Nos	105	

10	Personal protective Equipment in Blocks	Nos	74	
11	Eye wash bottle	Nos	327	
12	SCBA	Nos	38	
TYPE OF FIRE EXTINGUISHER				
1	CO2	2 kg	96	
2		4.5 kg	567	
3		5 kg	10	
4		22.5 kg	275	
5		45 kg	91	
6	Foam	9Lts	112	
7		50Lts	373	
8	DCP	9Kg	78	
9		10Kg	120	
10		25Kg	282	
11		50Kg	81	

12	D-Type	9Kg	4	
13		10 Kg	27	
14		25 Kg	15	
15		50 Kg	11	
16	ABC	2Kg	80	
17	DCP / Clean Agent Modular	10 Kg	672	

HETERO COMPLEX FIRE HYDRANT PUMP HOUSE DETAILS

PUMP HOUSE NO →	PUMP HOUSE –I			PUMP HOUSE-II			PUMP HOUSE-III		
PUMP DESCRIPTION	JOCKEY PUMP	MAIN PUMP	DIESEL PUMP	JOCKEY PUMP	MAIN PUMP	DIESEL PUMP	JOCKEY PUMP	MAIN PUMP	DIESEL PUMP
PUMP HEAD (Mt)	88	88	88	88	88	88	95.1	88	88
PUMP FLOW (m3/hr)	25	410	410	25	410	410	61	273	273
PUMP HP	25	215	231	25	215	231	20	150	133
PUMP RPM	2900	2900	1800	2900	1480	1800	2920	1480	1800
PUMP LPM	416	6833	6833	416	6833	6833	1000	4550	4550
AUTO START (Kg/cm2)	5	5	5	5	4	2	5	4	Manual shut off
AUTO SHUT OFF (Kg/cm2))	7	Manual shut off	Manual shut off	7	Manual shut off	Manual shut off	7	Manual shut off	Manual shut off
Water Storage Capacity	600 KL			1200 KL			1000 KL		

HETERO INFRASTRUCTURE SEZ LTD

HIGH PRESSURE WATER MIST FIRE TENDER		
UNIT	Fire Engine -1	Fire Engine-2
Engine model	EICHER 10.95	EICHER 10.95
Water tank capacity	3500ltrs	2000ltrs
Foam Tank capacity	350L	400L
Foam Water monitor capacity	2000Lpm@100bar	1000Gpm@7kG/cm2
DCP Tank capacity	….	250 Kgs
High pressure pump	150Lpm @ 100bar	150Lpm @ 100bar
High pressure hose pipe (60mtrs length)	02 no's	02 no's
Type	Advances water mist and Foam type	Advanced water Mist, Foam and Dry Chemical Powder

HETERO INFRASTRUCTURE SEZ LTD

ANNEXURE-IV

READY-MIX CONCRETE PLANT

HETERO INFRASTRUCTURE SEZ LTD

ANNEXURE – V

HETERO COMPLEX ROAD

HETERO INFRASTRUCTURE SEZ LTD

ANNEXURE – VI

DG SETS

HETERO INFRASTRUCTURE SEZ LTD

ANNEXURE – VII

STORM WATER DRAIN POINT

HETERO INFRASTRUCTURE SEZ LTD

ANNEXURE – VIII

GREEN BELT PHOTOS

HETERO INFRASTRUCTURE SEZ LTD

ANNEXURE – IX

PPE MATRIX

Area/Activity	PPEs REQUIRED BEFORE STARTING ACTIVITY				Area/Activity	PPEs REQUIRED BEFORE STARTING ACTIVITY			
PPE mandatory before entering in to any work Areas.	Safety Shoes		Nose Mask		Flammable Gas handling like Hydrogen etc.	Safety Shoes		FR Suit with Hood	
	Safety Goggles					Safety Goggles		Nitrile Hand glove	
	Safety Helmet					Safety Helmet		SCBA	
Handling of Flammable Solvents with Proper Earthing and bonding	Safety Shoes		FR Suit with Hood		Boiler house	Safety Shoes		FR Suit with Hood	
	Safety Goggles		Nitrile Gloves			Safety Goggles		Heat Resistant glove	
	Safety Helmet		PAPR			Safety Helmet		Ear Plug/Muff	
	Full Face Mask					Dust Masks			
Toxic Material Handling (Like NH3, bromine etc)	Safety Shoes		PVC Air Line Suit		Opening of Pipe lines	Safety Shoes		FR Suit with Hood	
	Safety Helmet		PVC Hand Gloves			Safety Goggles		Hand Gloves	
	Full Face Mask		PAPR			Safety Helmet		Nose Mask	
Charging/ Handling of corrosive chemical ($NaOH$, H_2SO_4)	Safety Shoes		PVC Apron		Utility and DG Set areas	Safety Shoes		Hand gloves	
	Safety Goggles		PVC Hand Gloves			Safety Goggles		Ear Plug/Mug	
	Safety Helmet		PAPR			Safety Helmet		FR Suit	
	Full Face Mask		Other			Nose Mask			
Charging/Handling powder (powder Milling, sifting, dispensing and charging in to reactor Etc)	Safety Shoes		FR Suit with Hood		Working at effluent sumps, water, sumps, cooling towers, aeration tanks, etc.	Safety Shoes		FR Suit with Hood	
	Safety Goggles		Nitrile Gloves			Safety Goggles		Safety Belts	
	Safety Helmet		PAPR			Safety Helmet		Hand gloves	
	Dust Mask					Nose Mask		Life Buoys	
Hot material handling, Abrasive material handling	Safety Shoes		FR Suit /Apron		Working at heights, painting, and Civil constructions.	Safety Shoes		Life Lines	
	Safety Goggles		Heat Resistant glove			Safety Goggles		Safety Belts	
	Safety Helmet					Safety Helmet		Hand gloves	
	Nose Mask					Nose Mask			
Rescue operation in Fire	Safety Shoes		Fire Proximity Suit		Hot Works like welding, cutting , grinding , heating , chipping etc.	Safety Shoes		FR Suit with Hood	
	Safety Goggles		Fire Proximity Glove			Safety Goggles		Safety Belts	
	Safety Helmet					Safety Helmet		Hand gloves	
	Full Face Mask		SCBA			Nose Mask			
Rescue operation in toxic, corrosive atmosphere.	SCBA		PVC hand Gloves		Confined Space Entry	Safety Shoes		Safety Belt/Ladder	
	PVC Suit/Apron		Safety Helmet			Safety Goggles			
	Safety Gum Shoe					Safety Helmet			
Laboratory works	Safety Shoes		FR Suit with Hood		Working on MCC, SFU, Isolator, capacitors underground cable	Insulative Shoe		Arc Suit	
	Safety Goggles		Lab Apron			Safety Goggles		Electrical Resistance Gloves	
	Nose Mask					Safety Helmet			
Detoxification Works	Safety Shoes		PVC Suit		Excavation work	Safety Shoes		FR Suit with Hood	
	Safety Goggles		Hand Gloves			Safety Goggles		Hand Gloves	
	Safety Helmet		PAPR			Safety Helmet			
Monitoring activities in plant and warehouse	Safety Shoes		FR Suit with Hood		Gas cylinder Handling	Safety Shoes		FR Suit with Hood	
	Safety Goggles		Nose Mask			Safety Goggles		Hand Gloves	
	Safety Helmet					Safety Helmet		Face Shield	
Road Tanker Sampling and Unloading	Safety Shoes		FR Suit with Hood		Powder Handling	Safety Shoes		FR Suit with Hood	
	Safety Goggles		Safety Belts			Safety Goggles		Nitrile Hand gloves	
	Safety Helmet		Nitrile Hand glove			Safety Helmet		PAPR	
	Full Face Mask					Nose Mask			

HETERO INFRASTRUCTURE SEZ LTD

ANNEXURE – X

LAYOUT OF PIEZO WELLS

HETERO INFRASTRUCTURE SEZ LTD

FIRST FORERUN COLLECTION SUMPS LOCATIONS

HETERO INFRASTRUCTURE SEZ LTD

ANNEXURE – XI

SOLVENT YARD

HETERO INFRASTRUCTURE SEZ LTD

ANNEXURE – XII

STRIPPER/MEE/ATFD & BIOLOGICAL TREATMENT

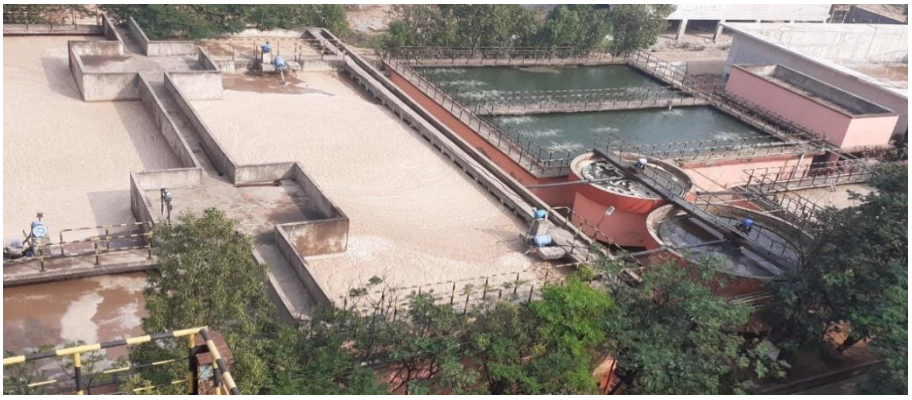
Multiple effect evaporator

Stripper

ATFD

HETERO INFRASTRUCTURE SEZ LTD

Biological treatment



HETERO INFRASTRUCTURE SEZ LTD

ANNEXURE – XIII

SEWAGE TREATMENT PLANT

HETERO INFRASTRUCTURE SEZ LTD

ANNEXURE – XIV

VERMI COMPOST PLANT

Annexure-XV

HAZARDOUS WASTE AND MODE OF DISPOSAL

Hazardous wastes are being disposed as per the conditions stipulated by APPCB in the CTO. Minimum stocks are being maintained in the Hazardous waste storage yard.

Hazardous waste and mode of disposal specified by the APPCB in CTO is mentioned below:

S.No	Details of waste	Mode of Disposal
1	Process Solid waste	To TSDF, Parawada, Anakapalli Dist. for secured Land filling
2	MEE/ Forced Evaporation Salt	
3	Incineration Ash	
4	ETP Sludge	
5	Solvent Residue/Organic Residue	Shall be incinerated to sent to Cement industries for Co-incineration/Co-processing/ Pre-processing units
6	Spent Carbon	
7	Damage or Rejected APIs/products	
8	Damaged or Expired Raw materials	
9	Used PPEs	Shall be incinerated in in-house incinerator or sent to Cement industries for incineration.
10	Used Oils	To Re-processing units authorized by APPCB
11	Used Batteries	Shall be sent to suppliers on buy back basis
12	e-Waste/ electrical waste	Sent to Authorized Recyclers approved by APPCB/CPCB.
13	Empty Drums/ Containers/ Liners contaminated with Hazardous chemicals/waste	To outside agencies after complete detoxification.
14	Empty barrels / containers / liners contaminated with hazardous chemicals / wastes	
15	LDPE Paper	To authorized Recyclers/ outside agencies
16	Coal Ash from Boilers	To Brick manufacturing units
17	Spent Solvents	Shall be recycled within the units of Hetero Infrastructure SEZ Ltd or sold to outside agencies
18	Recovered Solvents	

HETERO INFRASTRUCTURE SEZ LTD

A Brief Report of CSR activities in Nakkapalli plant areas

December 2022

About Hetero

Hetero is one of India's leading generic pharmaceutical companies and is one of the world's largest producers of anti-retroviral drugs for the treatment of HIV/AIDS. With more than 20 years of expertise in the pharmaceutical industry, Hetero's strategic business areas include APIs, generics and biosimilars. Hetero also offers custom pharmaceutical services to its partners around the world. The company is recognized for its strengths in Research and Development, manufacturing, and commercialization of a wide range of products.

Hetero is the first company in India to launch the generic version of Remdesivir injection, COVIFOR, in India, which is used to treat hospitalization cases of COVID-19.

Corporate Social Responsibility

At Hetero, we value health and prosperity for all. Our passion for improving quality of life extends beyond our business and transcends everything we do. While we work towards making medicines affordable and accessible to society at large, we also continuously seek opportunities to help the society through our corporate social responsibility initiatives. Since its inception, Hetero has been directly supporting with healthcare programmes, drinking water & sanitation, educational and welfare activities in communities surrounding the company's factories. The company also extends its support beyond its operational vicinities depending on the community needs and emergencies.

As a Hetero group we will focus on the following thematic areas to implement CSR activities in Nakkapally Region. Following activities have been implemented in 26 number of villages with an outreach of 16,800 households, 32 schools 31 Anganwadi centers etc.

1. Quality Education
2. Health Care Services
3. Village Infrastructure.
4. Drinking Water & Sanitation

1. Quality Education

Quality Education is one of the flagship programs for Hetero Company. We are working in 32 Schools & 31 Anganwadi Centers. Goal is to address the root causes of education quality challenges. We identified several challenges among the marginalised students studying especially in govt schools.

To provide quality education:

- Supported **32 vidya volunteers** in schools to balance the student teacher ratio. Purpose of vidya volunteers is to address the root causes of lack of required teaching staff in select schools. Vidya volunteers are well trained on various participatory didactic learning/teaching methods. Vidya volunteers help the school students through language and numeracy improvement. Also helps in various behavioural change trainings to students.

- Provided **uniforms, bags, stationery, notebooks & furniture** to schools to bring the uniformity among the students (till the year 2019). The intent of providing the above is to enable children studying in the schools to have a better access to learning materials.
- Provided **outdoor playing equipment** to Anganwadi schools to encourage the children to attend regularly. In several Anganwadi centers, it was observed that the children do not have access to required outdoor playing equipment.
- Constructed **RO Water Plant** in Schools to address the clean and safe drinking water.
- Provided **Cooking Wessels** to Schools.
- **Merit Awards** to students to encourage higher education.
- Provided **Reading Material** to 10th class students
- Constructed **25 toilets in Schools for Boys & Girls** to prevent the transmission of communicable diseases.

2. Health Care Services:

Health is the other flag ship program for Hetero Company, under health, we are working in following segments:

2.1 Vision Health Care Centre:

To Address the eyesight issues of marginalised communities, Hetero opened a Vision centre at Nakapally Village in collaboration with Sankurathri Foundation. The Vision centre equips latest technologies, well trained staff. Communities from neighbouring villages visits the Vision center, get the eye tests done, and for needed patients, undertake surgeries by specialist Surgeons.

Objective of the Centre:

To Support the needy villagers, who are having vision problem and not able to bare the expenses for eye surgeries.

So far, served **42,958 members**, distributed **17,983 spectacles** & conducted **1,806 eye surgeries.**

2.2 Mobile Medical Van:

The main purpose of this activity is to serve the underprivileged society and especially focus on seasonal diseases like fever, cold, allergies etc, blood pressure & sugar/diabetes.

Through this project, so far, we conducted **1,973 camps** and reached **1,04,612 members** & distributed medicines. A qualified medical doctor provides required medical support to the patients in the village itself. Once the testing is one, required medicines are provided to the patients free of cost. Interactions with few patients inferred that, on an average each patient save around Rs. 1000 per visit if they go and get the same medical support from nearby town.

2.3 Covid 19 response:

During Covid, every **15 days** we have done sanitation in the whole village to stop the spread of virus in the villages.

During lock down we have distributed groceries to the people in and around Nakkapally Region. We have organized special vaccination drive to the villagers.

Under this project we covered 27 villages and distributed **16,000 Grocery kit** (Dal, Rice, Sugar, oil packet etc) to the Villagers.

3. Village Infrastructure:

Under this project 27 villages are adopted by Hetero Group and constructed the following infrastructure in the villages.

- Constructed 6 Community Halls.
- Laying of CC Roads & Gravel roads
- Construction of Toilets
- Laying of Electrical Lines.
- Provided Solar lamps to the fisherman community
- Provided streetlights
- Construction of compound walls to Graveyards.
- Planted trees in the community.

4. Drinking Water & Sanitation:

Under this project following activities are completed.

- 14 RO Plants are installed in various villages to provide clean and neat drinking water.
- Provided running water to the whole community.
- Constructed Overhead tanks.
- Drilled 12 bore wells
- Constructed drainages in the community
- Created awareness on Swachh Bharath

SV ENVIRO LABS & CONSULTANTS

(Environmental Engineers & Consultants in Pollution Control)

Corporate Office & Laboratory : Enviro House, B-1, Block-B, IDA, Autonagar, Visakhapatnam-530012
www.svenvirolabs.com, Ph:0891-2755528, Cell: +91 9440338628
info@svenvirolabs.com, svenviro_labs@yahoo.co.in

Branch Office : 2-53, Mahipala Street, Yanam - 533464.

Recognized by Govt.of India-MoEF & CC, New Delhi, Accredited by : NABL & NABET

Ref: SVELC/HISL/22-09/01

Date: 21-09-2022

NAME AND ADDRESS : **M/s. HETERO INFRASTRUCTURE SEZ LIMITED,**
N.Narasapuram Village, Nakkapally Mandal,
Visakhapatnam (Dt).

SAMPLE PARTICULARS : **WATER**

SOURCE OF COLLECTION : **DESALINATION REJECT WATER**

SAMPLE CODE : SVELC/22/5340

DATE OF COLLECTION : 16-09-2022

DATE OF RECEIPT : 17-09-2022

START DATE OF ANALYSIS : 17-09-2022

END DATE OF ANALYSIS : 20-09-2022

TEST REPORT

S.NO	PARAMETER	UNIT	RESULT	METHODS
1.	Turbidity	NTU	<0.01	APHA,2130-B, 23rd Edition
2.	pH	-	7.84	APHA 4500-H+B, 23rd Edition
3.	Total Dissolved Solids	mg/l	50517	APHA,2540-C, 23rd Edition
4.	Total Alkalinity as $CaCO_3$	mg/l	189	APHA,2320-B, 23rd Edition
5.	Total Hardness as $CaCO_3$	mg/l	11200	APHA,2340-C, 23rd Edition
6.	Calcium as Ca	mg/l	801	APHA,3500-Ca B, 23rd Edition
7.	Magnesium as Mg	mg/l	2235	APHA,3500-Mg B, 23rd Edition
8.	Chlorides as Cl^-	mg/l	30657	APHA,4500-Cl B, 23rd Edition
9.	Fluoride as F	mg/l	3.99	APHA,4500-FD, 23rd Edition
10.	Nitrate as NO_3^-	mg/l	3.36	APHA,4500 NO^{3-} B & C, 23rd Edition
11.	Sulphates as SO_4	mg/l	4253	APHA,4500-SO_4^{2-} E , 23rd Edition

CHECKED BY

ENVIRO LABS & CONSULTANTS VISAKHAPATNAM

SV ENVIRO LABS & CONSULTANTS

SERVICE PURCHASE ORDER

Vendor Name & Address
900386
NATIONAL INSTITUTE OF OCEANOGRAPHY
REGIONAL CENTRE,176,LAWSONS BAY C
VISAKHAPATNAM,530017
GSTIN Number:

PO NO. : 4900198745
PO Date : 29.04.2022
Amendment Date :
Quotation No & Date :

Payment Terms : 50%ADVANCE,BALANCE BEFORE THE
Insurance :
Delivery Terms : DAPat site

With reference to your above quotation, we request you to supply the following materials / services subject to terms and conditions mentioned

GSTIN NUMBER : 37AABCH6897E3Z6
CIN No. : U24239TG2005PTC047265

S.No.	Service Code Service Description	Qty (UOM)	Unit Rate (INR)	Total Value (INR)
1	POST PROJECT MARINE MONITORING STUDIES			
	3000033 GENERAL SERVICE FOR R/M JOB WORKS	1.000 AU	2,500,000.00	2,500,000.00
	IN:INTEGRATED GST 18.00 %		450,000.00	
	- To Conduct post project monitoring study to assess the marine environmental impact on aquatic ecosystem due to the discharge of treated effluents.			
	SAC CODE :998711			
	Subtotal ---------->			2,950,000.00
	Delivery Date:31.08.2022			
	GrandTotal ---------->			2,950,000.00

Other Terms & Conditions

Special Instructions:
1.COA, MOA,MSDS,Validation Documents & Duplicate for Transporter Invoice must be accompany with the Consignment

Delivery Address:
HETERO INRFASTRUCTURE SEZ LIMITED
SY.No.150,286,312 N. NARASAPURAM
NAKKAPALLY (M) RAJAYAPETA (VILL)
VISAKHAPATNAM-531081

For HETERO INFRASTRUCTURE SEZ LTD
This Document is Electronically Apporoved. Hence, Signature is not Necessary

TERMS AND CONDITIONS

ACCEPTANCE: IF NO FORMAL ACCEPTANCE IS RECEIVED WITHIN 7 DAYS FROM THE DATE OF THIS PURCHASE ORDER , THE SAME SHALL BE DEEMED TO HAVE BEEN ACCEPTED BY YOU.

QUALITY: THE MATERIAL SUPPLIED AGAINST THIS PURCHASE ORDER MUST IN ALL RESPECTS CONFIRM TO THE SPECIFICATIONS STATED THEREIN OR AS PER SAMPLES APPROVED BY US.EACH CONSIGNMENTS OF THE MATERIAL DESPATCHED BY YOU SHOULD BE ACCOMPANIED BY A CERTIFICATE OF ANALYSIS.THE MATERIALS SUPPLIED WILL BE EXAMINED AT OUR LABORATORY AND THE REPORT WILL BE FINALAND BINDING ON THE PARITES. THE MATERIAL NOT CONFIRMING TO THE SPECIFICATIONS / APPROVED SAMPLES WILL BE REJECTED. THE MATERIALS REJECTED SHOULD BE IMMEDIATELY REMOVED BY YOU OR BY YOUR NOMINEES FROM OUR WORKS. IN CASE THE REJECTED MATERIAL REMAINS LYING AT OUR WORKS FOR ANY REASONS THE SAME WILL BE ENTIRELY AT YOUR RISK AND RESPONSIBILITY.IF SO DESIRED BY YOU THE REJECTED MATERIAL WILL BE DESPATCHED BY US TO YOU ON 'FREIGHT TO PAY BASIS' AND THE TRANSIT INSURANCE FOR SUCH RETURNS HAS TO BE ARRANGED BY YOU.WE WILL ALSO RAISE DEBIT NOTE FOR INCOMING FREIGHT CHARGES, IF ANY PAID BY US.

WEIGHT: UNLESS OTHERWISE STIPULATED WEIGHT / VOLUME RECORDED AT OUR PREMISES SHALL BE DEEMED AS FINAL.

VALIDITY: THE MATERIAL MUST BE AIR FREIGHTED / SHIPPED AS PER INSTRUCTIONS STIPULATED IN THE PURCHASE ORDER. TIME IS ESSENCE OF THIS PURCHASE ORDER. IN CASE THERE IS DELAY IN DESPATCH OF THE MATERIAL BY YOU, YOU WILL BE RESPONSIBLE FOR ALL DAMAGES AND LOSSES AS MAY ARISE AS A CONSEQUENCE THEREOF.

LIQUIDATED DAMAGES: IN CASE OF DELAYED SUPPLIES LIQUIDATED DAMAGES @ 2% PER MONTH OR PART THERE OF FOR THE VALUE OF DELAYED SUPPLIES SHALL BE PAYABLE.

DELIVERY SCHEDULE: SUPPLIES SHOULD BE ACCOMPANIED BY DELIVERY CHALLAN , BEARING THE REFERENCE OF THE PURCHASE ORDER.

SUSPENSION: IN THE EVENT OF STRIKES , ACCIDENTS OR ANY OTHER DISABLING CIRCUMSTANCES BEYOND OUR CONTROL , DELIVERIES AGAINST THE ORDER SHALL BE LIABLE FOR SUSPENSION AT OUR REQUEST.

PRICE: SUPPLIES IS EFFECTED AT A PRICE HIGHER THAN THOSE GIVEN IN THE PURCHASE ORDER WITHOUT OUR CONFIRMATION IN WRITTEN BEING FIRST OBTAINED, WILL BE LIABLE FOR REJECTION. WHERE THE ORDER IS PLACEDON FOR-OUR-FACTORY OR FREE DELIVERY AT WORKS BASIS, BOTH FREIGHT AND INSURANCE CHARGES SHALL BE PRESUMED TO HAVE BEEN INCLUDED IN SUCH PRICE, AND THE LOSS, BREAKAGE OR ANY DAMAGE DURING TRANSIT DUE TO ANY CAUSE WHATSOVER SHALL BE BORNE BY THE SUPPLIER. WE WILL BE ENTITLED TO DEDUCT SUCH SUMS OF MONEY AS MAY BE REMAINING OUTSTANIDNG ON ANY ACCOUNT OUT OF THE SUMS AS MAY BE REMAINING OUTSTANDING ON ANY ACCOUNT OUT OF THE SUMS AS MAY BE PAYABLE BY US TO YOU.

PAYMENT: UNLESS OTHERWISE STIPULATED PAYMENT WILL BE MADE WITHIN 30 DAYS OR SUCH OTHER LONGER PERIOD AS MAY BE AGREED TO FROM THE DATE OF RECEIPT OF GOODS AND BILLS IN DUPLICATED COMPLETE IN ALL RESPECT, BEARING THE REFERENCE TO THE ORDER, YOUR CHALLAN REFERENCE AND ACCOMPANIED BY REQUISITE DOCUMENTS. HOWEVER, NO INTEREST WILL BE PAYABLE BY US ON OVERDUE ACCOUNT. DESPATCH MUST REACH US IN TIME TO TAKE DELIVERY OF THE GOODS FREE OF DAMAGE AND ANY SUCH CHARGES IF INCURRED SHALL BE TO YOUR ACCOUNT.

FREIGHT & INSURANCE: UNLESS AND OTHERWISE EXPLICITLY STATED FREIGHT &INSURANCE CHARGES SHALL BE BORNE BY YOU.

INSPECTION: ALL GOODS SUPPLIED AGAINST THE ORDER SHALL BE SUBJECT TO OUR INSPECTION AND APPROVAL AT ANY TIME WITHIN THIRTY DAYS OF THE DATE OF THE RECEIPT AND / OR USE WHICHEVER IS LATER , ANY REJECTION ,SHORTAGE, DAMAGE, BREAKAGE ETC SHALL BE TO YOUR ACCOUNT. ALL GOODS REJECTED FOR ANY REASON WHATSOEVER SHALL BE RETURNED OR REPLACED FREE OF COST AT OUR OPTION. IN THE EVENT OF REJECTION OR REPLACEMENTS THE INWARD / OUTWARD FREIGH AND OTHER INCIDENTAL CHARGES SHALL ALSO BE BORNE BY YOU. YOU KEEP US INDEMNIFIED AGAINST ANY ACTION, LOSS PENALITIES AND DAMAGES IF GOODS SUPPLIED AGAINST THE PURCHASE ORDER INFRINGES ANY DESIGN, PATENT OR TRADE MARK.

SPARES & ACCESSORIES: MACHINERY DESPATCHES / RECEIVED WITHOUT ALL THE REQUISITE SPARES AND ACCESSORIES SPECIFIED BY US ARE LIABLE FOR REJECTION AND RETURN AT YOUR RISK AND COST.

CONSIGNMENT: OUT-STATION SUPPLIER SHOULD MENTION LR-RR-PWB-AW-BILL-POST PARCEL NUMBER ETC . ON REFERENCE THEIR INVOICE.

FORECE MAJEURE: THE COMPANY WILL NOT BE IN ANY WAY LIABLE FOR NON - PERFORMANCE EITHER IN WHOLE OR IN PART OF ANY CONTRACT OR FOR ANY DELAY IN PERFORMANCE THEREOF AS A CONSEQUENCE OF STRIKE, SHORTAGE OF LABOUR OR COMBINATION OF WORKMEN OR LOCK-OUT BREAKDOWN OR ACCIDENT TO MACHINERY OR OTHER ACCIDENT TO MACHINERY OR OTHER ACCIDENT OF WHATEVER NATURE OR FAILURE ON THE PART OF THE RAILWAYS TO SUPLY SUFFICIENT WAGONS TO CARRY ESSENTIAL MATERIALS TO AND THE FINISHED PRODUCTS FROM THE WORKS AND ALL CAUSE OF WHATEVER NATURE BEYOND THE COMPANY'S CONTROL.

ARBITRATION: ANY DISPUTES ARISING OUT OF THIS CONTRACT SHALL BE WITHIN THE JURISDICTION OF COURT IN HYDERABAD.

SV ENVIRO LABS & CONSULTANTS

(Environmental Engineers & Consultants in Pollution Control)

Corporate Office & Laboratory : Enviro House, B-1, Block-B, IDA, Autonagar, Visakhapatnam-530012
www.svenvirolabs.com, Ph:0891-2755528, Cell: +91 9440338628
info@svenvirolabs.com, svenviro_labs@yahoo.co.in

Branch Office : 2-53, Mahipala Street, Yanam - 533464.

Recognized by Govt.of India-MoEF & CC, New Delhi, Accredited by : NABL & NABET

Ref: SVELC/HIL/22-10/02

Date: 14-11-2022

NAME AND ADDRESS : **HETERO INFRASTRUCTURE LIMITED**
NARASAPURAM (V),
NAKKAPALLI (M),
VISAKHAPATNAM.

SAMPLE PARTICULARS : GROUND WATER

SOURCE OF COLLECTION : 1. BORE WELL – Inside Factory
2. BORE WELL – Near compound wall

DATE OF COLLECTION : 28-10-2022

DATE OF RECEIPT : 29-10-2022

TEST REPORT

S. NO.	PARAMETER	UNIT	1	2
1.	Colour	Hazen	<1.0	<1.0
2.	Odour	--	Agreeable	Agreeable
3.	Turbidity	NTU	7.89	1.02
4.	pH	--	7.72	8.01
5.	Total Dissolved Solids	mg/l	10989	10425
6.	Total Alkalinity as $CaCO_3$	mg/l	696	558
7.	Total Hardness as $CaCO_3$	mg/l	1346	1277
8.	Calcium as Ca	mg/l	424	405
9.	Magnesium as Mg	mg/l	69.5	64.3
10.	Chlorides as Cl^-	mg/l	6523	6289
11.	Fluorides as F^-	mg/l	1.18	1.06
12.	Nitrates as NO^-_3	mg/l	14.3	12.9
13.	Sulphates as SO^{-2}_4	mg/l	505	442
14.	Iron as Fe	mg/l	0.24	0.20
15.	Residual, free Chlorine	mg/l	Nil	Nil
16.	Phenolic Compounds as	mg/l	Nil	Nil
17.	Copper as Cu	mg/l	< 0.01	< 0.01
18.	Manganese as Mn	mg/l	< 0.01	< 0.01
19.	Mercury as Hg	mg/l	< 0.0005	< 0.0005

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20.	Cadmium as Cd	mg/l	< 0.001	< 0.001
21.	Arsenic as As	mg/l	< 0.001	< 0.001
22.	Lead as Pb	mg/l	< 0.005	< 0.005
23.	Zinc as Zn	mg/l	1.06	0.79
24.	Chromium as Cr^{6+}	mg/l	< 0.01	< 0.01
25.	Aluminum as Al	mg/l	< 0.01	< 0.01
26.	Nickel as Ni	mg/l	< 0.01	< 0.01
27.	Boron as B	mg/l	0.015	0.011
28.	Cyanide as CN	mg/l	NIL	NIL
29.	Ammonical Nitrogen	mg/l	< 0.02	< 0.02
30.	Sulphide	mg/l	NIL	NIL
31.	Pesticides	mg/l	Absent	Absent
32.	Anionic Detergents (as MBAS)	mg/l	NIL	NIL
33.	Barium as Ba	mg/l	< 0.01	< 0.01

Note: All the above Parameters are analyzed as per APHA 23rd Ed, 2017.

CHECKED BY

SV ENVIRO LABS & CONSULTANTS VISAKHAPATNAM

SV ENVIRO LABS & CONSULTANTS

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Recognized by **Govt.of India-MoEF & CC, New Delhi, Accredited by : NABL & NABET**

Ref: SVELC/HIL/22-10/01

Date: 14-11-2022

NAME AND ADDRESS : **HETERO INFRASTRUCTURE LIMITED**
NARASAPURAM (V),
NAKKAPALLI (M),
VISAKHAPATNAM.

SAMPLE PARTICULARS : SOIL

SOURCE OF COLLECTION :
1. HETERO LABS –III UNIT
2. HETERO LABS-IX
3. HETERO DRUGS UNIT-IX

DATE OF COLLECTION : 28-10-2022

DATE OF RECEIPT : 29-10-2022

TEST REPORT

S.NO	PARAMETER	UNIT	1	2	3
1.	pH	-	8.11	8.36	8.28
2.	Conductivity	ms/cm	0.484	0.457	0.422
3.	Moisture	%	5.29	6.41	5.08
4.	Bulk density	g/cc	1.38	1.52	1.44
5.	Porosity	%	52	55	50
6.	Organic Matter	%	0.91	0.72	1.35
7.	Nitrogen as N	mg/100gm	0.38	0.42	0.48
8.	Phosphorus as P	mg/100gm	5.5	4.6	5.1
9.	Potassium as K	mg/100gm	2.5	3.4	2.8

CHECKED BY

SV ENVIRO LABS & CONSULTANTS

HETERO INFRASTRUCTURE SEZ LIMITED

NOISE LEVEL MONITORING

LOCATION: ETP **DATE: 04.01.2022** FREQUENCY: QUATERLY

S. No.	Location	TLV dBA	Day time reading		Night time reading		Remarks
			Ground floor	First floor	Ground floor	First floor	
1	Cooling tower	85 dBA	75		70	-	
2	ATFD	85 dBA	82		80		
3	Vacuum Pump	85 dBA	75		70		
4	Air Blower (Aerator)	85 dBA	80		78		
5	Air Blower (Guard Pond)	85 dBA	80		80		
6	RO Plant	85 dBA	83		82		
7	STP	85 dBA	73		70		

Done By: R. Ajay

Date : 04/01/2022

Checked By:

Date : 04/01/22

HETERO INFRASTRUCTURE SEZ LIMITED

NOISE LEVEL MONITORING

LOCATION: POWER PLANT **DATE: 11.04.2022** FREQUENCY: QUATERLY

S. No.	Location	TLV dBA	Day time reading		Night time reading		Remarks
			Ground floor	First floor	Ground floor	First floor	
1	FANS AREA	85 dBA	74	-	72	-	
2	FEED PUMP	85 dBA	83	-	81		
3	DM PLANT	85 dBA	75	-	71		
4	COAL CRUSHER	85 dBA	81	-	79		
5	TG SET	85 dBA	82	84	81	84	EAR MUFF should be used
6	COMPRESSOR AREA	85 dBA	83	-	80		
7	COOLING TOWER	85 dBA	77	-	73		

Done By: R.Ajay

Date : 11/04/2022

Checked By:

Date : 11/04/2022

HETERO INFRASTRUCTURE SEZ LIMITED

NOISE LEVEL MONITORING

LOCATION: ETP **DATE: 11.07.2022** FREQUENCY: QUATERLY

S. No.	Location	TLV dBA	Day time reading		Night time reading		Remarks
			Ground floor	First floor	Ground floor	First floor	
1	Cooling tower	85 dBA	78		77	-	
2	ATFD	85 dBA	81		80		
3	Vacuum Pump	85 dBA	79		74		
4	Air Blower (Aerator)	85 dBA	81		80		
5	Air Blower (Guard Pond)	85 dBA	81		80		
6	RO Plant	85 dBA	80		79		
7	STP	85 dBA	75		74		

Done By: R. Ajay

Date : 11/07/2022

Checked By:

Date :

HETERO INFRASTRUCTURE SEZ LIMITED

NOISE LEVEL MONITORING

LOCATION: ETP **DATE: 06.10.2022** FREQUENCY: QUATERLY

S. No.	Location	TLV dBA	Day time reading		Night time reading		Remarks
			Ground floor	First floor	Ground floor	First floor	
1	Cooling tower	85 dBA	77		75	-	
2	ATFD	85 dBA	80		78		
3	Vacuum Pump	85 dBA	78		75		
4	Air Blower (Aerator)	85 dBA	82		80		
5	Air Blower (Guard Pond)	85 dBA	81		80		
6	RO Plant	85 dBA	82		80		
7	STP	85 dBA	74		72		

Done By: R. Ajay

Date : 06/10/2022

Checked By:

Date : 06/10/22

HETERO INFRASTRUCTURE SEZ LIMITED

NOISE LEVEL MONITORING

LOCATION: POWER PLANT **DATE: 04.01.2022** FREQUENCY: QUATERLY

S. No.	Location	TLV dBA	Day time reading		Night time reading		Remarks
			Ground floor	First floor	Ground floor	First floor	
1	FANS AREA	85 dBA	78	-	75	-	
2	FEED PUMP	85 dBA	82	-	80	-	
3	DM PLANT	85 dBA	74	-	72	-	
4	COAL CRUSHER	85 dBA	79	-	78	-	
5	TG SET	85 dBA	80	85	80	85	EAR MUFF should be used
6	COMPRESSOR AREA	85 dBA	84	-	82	-	
7	COOLING TOWER	85 dBA	72	-	70	-	

Done By: R.Ajal

Date : 04/01/2022

Checked By:

Date : 04/01/22

HETERO INFRASTRUCTURE SEZ LIMITED

NOISE LEVEL MONITORING

LOCATION: ETP **DATE: 11.04.2022** FREQUENCY: QUATERLY

S. No.	Location	TLV dBA	Day time reading		Night time reading		Remarks
			Ground floor	First floor	Ground floor	First floor	
1	Cooling tower	85 dBA	74		72	-	
2	ATFD	85 dBA	80		79		
3	Vacuum Pump	85 dBA	77		73		
4	Air Blower (Aerator)	85 dBA	81		79		
5	Air Blower (Guard Pond)	85 dBA	82		80		
6	RO Plant	85 dBA	81		80		
7	STP	85 dBA	75		73		

Done By: R. Ajay

Date : 11/04/2022

Checked By:

Date : 11/04/22

HETERO INFRASTRUCTURE SEZ LIMITED

NOISE LEVEL MONITORING

LOCATION: POWER PLANT **DATE: 11.07.2022** FREQUENCY: QUATERLY

S. No.	Location	TLV dBA	Day time reading		Night time reading		Remarks
			Ground floor	First floor	Ground floor	First floor	
1	FANS AREA	85 dBA	78	-	75	-	
2	FEED PUMP	85 dBA	81	-	80		
3	DM PLANT	85 dBA	77	-	73		
4	COAL CRUSHER	85 dBA	81	-	80		
5	TG SET	85 dBA	82	84	81	85	EAR MUFF should be used
6	COMPRESSOR AREA	85 dBA	81	-	80		
7	COOLING TOWER	85 dBA	75	-	73		

Done By: R. Ajay

Date : 11/07/2022

Checked By:

Date :

HETERO INFRASTRUCTURE SEZ LIMITED

NOISE LEVEL MONITORING

LOCATION: POWER PLANT **DATE: 06.10.2022** FREQUENCY: QUATERLY

S. No.	Location	TLV dBA	Day time reading		Night time reading		Remarks
			Ground floor	First floor	Ground floor	First floor	
1	FANS AREA	85 dBA	76	-	74	-	
2	FEED PUMP	85 dBA	80	-	80		
3	DM PLANT	85 dBA	78	-	75		
4	COAL CRUSHER	85 dBA	82	-	80		
5	TG SET	85 dBA	80	88	85	84	EAR MUFF should be used
6	COMPRESSOR AREA	85 dBA	82	-	82		
7	COOLING TOWER	85 dBA	74	-	72		

Done By: R. Ajay

Date : 06/10/2022

Checked By:

Date : 06/10/22

PERFORMANCE EVALUATION REPORT

M/s. HETERO INFRASTRUCTURE SEZ LTD
N. NARASAPURAM (V),
NAKKAPALLI (M), VISAKHAPATNAM,
ANDHRA PRADESH

Dec. 2021

PREPARED BY

SV ENVIRO LABS & CONSULTANTS
Environmental Engineers & Consultants in Pollution Control

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CHAPTER-1
INTRODUCTION

1.1 INTRODUCTION:

M/s. Hetero Infrastructure SEZ Limited is located at N.Narasapuram Village, Nakkapalli Mandal, Visakhapatnam District, Andhra Pradesh.

Hetero, research driven pharmaceutical company, is committed to the development, manufacturing and marketing of active pharmaceutical ingredients (APIs), intermediates and finished dosages. Hetero is recognized as a world leader in process chemistry, API manufacturing, formulation development, manufacturing and commercialization.

The pharmaceutical industries are established wastewater treatment plants as per the stipulations of regulatory body to control pollution before disposal. Generally the pharmaceutical waste waters will have High Total Dissolved Solids (HTDS) and another stream consists of Low TDS which are the main concern for the treatment system. The parameters looked into are pH, BOD, COD, TDS. A bulk drug industry Hetero Infrastructure SEZ Limited in Nakkapalli is studied in order to understand the efficiency of treatment units designed & achievement performance of individual units.

Hetero is committed towards leveraging its expertise in the area of pharmaceuticals, it is also focusing on Biotechnology and also on developing New Chemical Entities (NCEs) in select therapeutic areas.

SV ENVIRO LABS & CONSULTANTS evaluated the performance of Effluent Treatment Plant. Effluent samples were collected at different stages of treatment plant and analyzed each for the major parameters such as pH, TSS, TDS, BOD stage in removing the pollutants.

Effluent samples were collected at different stages of treatment units and analyzed for the major effluent quality parameters, such as pH, BOD, COD, Oil & Grease, Total Suspended Solids and Total Dissolved Solids. The performance efficiency of each unit in treating the pollutants was calculated. The generated data presented evidence that the Effluent Treatment Plant has been working with the norms of APPCB and meeting the discharge standard limits.

1.2 PROJECT DETAILS

M/s Hetero Drugs Ltd and M/s Hetero Labs Ltd is a Bulk Drug Manufacturing Complex with four units situated at N. Narasapuram, Nakkapalli – Mandal, Visakhapatnam –Dist of Andhra Pradesh. Out of four units one unit is in Non SEZ and three are in Special Economic Zone (SEZ) in the name of Hetero Infrastructure SEZ Ltd. The SEZ is also having the required infrastructure and pollution control facilities to operate the industrial estate.

The industrial estate is situated in Sy.Nos: 215, 286/1, 286/2, 283/1 in Ch. Lamxipuram village, 312/1 to 312/5, 312/10 to 312/12, 313/1 to 313/7 of Rajayyapeta village, 19(part) in PedaTeenarla village, 117/1 to 117/3, 119/1, 119/2, 120/1, 120/2, 125, 126, 129/1 to 129/9, 138, 142, 150, 215, N. Narsapuram village, Nakkapalli Mandal, Visakhapatnam District spread over an area of 139.856 ha.

The water requirement of the project is being met with the Sea water Desalination Plants installed in the premises of Hetero Infrastructure SEZ Ltd.

- Stripper
- Multiple Effect Evaporator,
- Agitated Thin Film Drier (ATFD),
- Effluent Treatment Plant
- RO Plant
- Guard Ponds
- Dedicated Hazardous Waste Storage Shed
- Dedicated detoxification Shed

The treated water quality is meeting the disposal norms prescribed by APPCB and the marine disposal monitoring is completely under the control of APPCB, Visakhapatnam.

Domestic and sewage wastewater is being treated in the dedicated sewage treatment plant and the treated water is being used for gardening/ green belt development.

Water conservation measures are adopted to reduce water consumption by installing push button vales and collecting roof top rainwater etc.

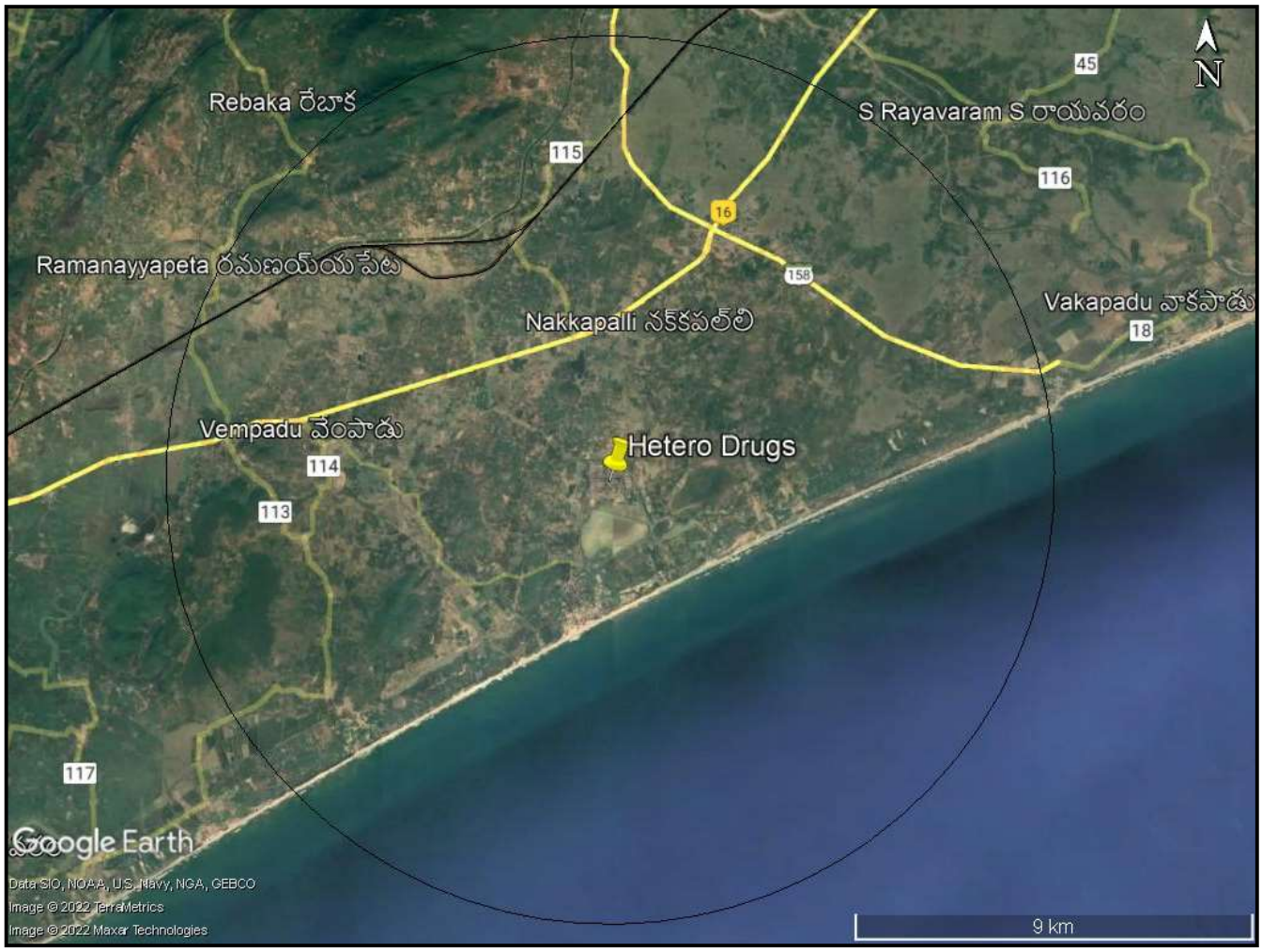
Amenities and utilities:

A number of amenities and utilities are provided in each unit and centralized provision made for pollution control facilities.

SITE PARTICULARS

S.No.	Particulars	Details
1.	Name of the Project	Hetero Infrastructure SEZ Ltd
2.	Location of the project	N. Narasapuram Village, Nakkapalli Mandal, Visakhapatnam District, Andhra Pradesh
3.	Climatic conditions	Annual Max Temp 45^{o}C
		Annual Min Temp 29^{o}C
4.	Latitude	17°22'47.52"N
5.	Longitude	82°43'22.65"E
6.	Predominant wind direction	SW
7.	Nearest Railway Station	Narsipatnam Railway station at 7.40 kms
8.	Nearest Highway	NH- 16 at 2.7 kms
9.	Major Settlement	Nakkapalli at 2.5 kms
10.	Hills and mountains	Nil
11.	Ecological sensitive zones	No reserved forests

GOOGLE MAP AROUND 10 KM RADIUS



Use of Pharmaceuticals:

Pharmaceutical chemicals are used for benefit of human health and animal health. The production volumes and the usage rates of most pharmaceutical active ingredients (referred to here as pharmaceutical chemicals or pharmaceuticals) used for either human or animal health consumption are small relative to many consumer products.

Manufacturing Process:

Chemical Synthesis products are the majority of drugs currently in the market. Chemical synthesis consists of four steps – reaction, storage, separation, purification and drying. Large volumes of solvents are used during chemical synthesis, extractions and solvent inter changes. The manufacturing process of the above mentioned molecules involve various types of reactions like acetylation, Oxidation, Reduction, hydrogenation, hydrolysis etc.

1.3 NEED FOR THE STUDY

Rapid growth of industries has not only enhanced the productivity but also resulted in the production and release of toxic substances into the environment, creating health hazards and effected normal operations, flora and fauna. These wastes are potential pollutants when they produce harmful effects on the environment and generally released in the form of solids, liquid effluent and slurries containing a spectrum of organic and inorganic chemicals. Thus pollution is a necessary evil of all development. To combat the plethora of environmental evils of present day society, efficient and environmentally safe organic waste treatment technologies are needed.

The chemical based industry in India is expected to grow rapidly and the waste generation and related environmental problems are also assumed to increase. Poorly treated wastewater with high levels of pollutants caused by poor design, operation or treatment systems creates major environmental problems when discharge to surface water or land.

Such problems include

- Contamination and deoxygenating of streams and waterways by direct discharge or run off of inadequately treated wastewater.
- Excessive concentration of nutrients such as nitrogen and phosphorus in surface and subsurface water bodies. This contribute to excessive growth of plants and algae blooms, which makes the downstream water unsuitable for domestic, agriculture and industrial use
- High Salinity
- Low/High pH
- Over application of wastewater to land resulting in contaminated ground water.

1.4 OBJECTIVE AND SCOPE

Objective of the present study can be explicitly stated as the following

- To monitor performance of Effluent Treatment Plant and air pollution control equipment's
- Evaluation of operating and design parameters

The study included

- Characterization of Effluent Streams.
- Evaluation towards pollution control parameters of Effluent and air check whether treatment units are working with designed efficiency or not.
- Observations and Recommendations.

CHAPTER-2

DISPOSAL, CHARACTERISTICS & MONITORING DATA

2.1 METHODOLOGY

Samples were collected from various units of Effluent Treatment Plant at the below sampling points, analyzed for parameters pH, TDS, TSS, COD, BOD and removal efficiency is calculated.

HIGH TDS TREATMENT SYSTEM

1. Oil & Grease Chamber (O & G) Inlet
2. Oil & Grease Chamber Outlet
3. Equalization tank Outlet
4. Clarifier Outlet
5. Stripper Outlet
6. MEE Outlet

MEE CONDENSATE AND LOW TDS TREATMENT SYSTEM

7. Oil & Grease Chamber Inlet
8. Oil & Grease Chamber Outlet
9. Equalization Tank Outlet
10. Tube Deck Outlet
11. Bio tower Inlet
12. Bio tower Outlet
13. Aeration Tank -1 Outlet
14. Secondary Clarifier -1 Outlet
15. Aeration Tank – 2 Outlet
16. Secondary Clarifier – 2 Outlet
17. Pressure Sand Filter Outlet
18. Activated Carbon Filter Outlet
19. RO Permeate Outlet
20. RO Reject Outlet

2.2 THE SAMPLING PROGRAM:

The representative samples from various treatment units of the treatment plant were collected. Thus collected samples were used to analyze the parameters such as pH, TDS, BOD and COD. It is also used to analyze the performance evaluation of the waste water treatment plant. The methodology proposed for the study includes (1) Collection of representative samples (2) analysis of samples collected and preserved to estimate the parameters. The sampling plan is the first step for characterization of the wastewater at different points in a treatment flow. The wastewater characterization studies include wastewater sampling and the analysis of the samples to estimate the concentrations of the parameters of the wastewater. In general, there is no universal procedure for sampling; sampling programs must be individually tailored to fit each situation. Sampling programs are undertaken for a variety of reasons such as to obtain (1) routine operating data on overall plant performance (2) data that can be used to document the performance of a given treatment operation or process (3) data that can be used to implement proposed new programs and (4) data needed for reporting regulatory compliance.

2.3 COLLECTION OF SAMPLES

The sampling was done for characterization of industrial effluent at different points and evaluation of the Effluent water treatment plant. A representative sample will give better results in characterization of the wastewater. The sampling interval of one day is maintained during the collection of the part of the sample.

2.4 ANALYSIS OF THE SAMPLES

The samples collected for the assessment of the performance of the industrial waste water treatment plant have been analyzed for the concentration of pH, Total Dissolved Solids (TDS), Temperature, Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) These are the key parameters in the waste water to be observed and these parameters are used to check the performance of the ETP. The methods prescribed in the Standard Methods for Examination of Water and Wastewaters (American Public Health Association, 1998) were used to estimate the pH, TDS, temperature, BOD and COD for the characterization of wastewater at the selected points in the wastewater treatment plant. The preservation methods are generally limited to chemical addition, pH control, refrigeration methods are generally limited to chemical addition, pH control, refrigeration and freezing.

2.5 CPCB Standards for Marine Disposal

S.No.	Parameter	Concentration not to exceed mg/l Except pH
1.	pH	5.5-9.0
2.	BOD	100
3.	COD	250
4.	Oil and grease	20
5.	Suspended solids	a) For process waste water 100 b) For cooling water effluent 10 percent above total suspended matter of influent
6.	Temperature	Shall not exceed 5°C above the receiving water temperature
7.	Total residual Chlorine	1.0
8.	Ammonical nitrogen	50
9.	Free ammonia	5.0
10.	Arsenic	0.2
11.	Mercury	0.01
12.	Lead	2.0
13.	Cadmium	2.0
14.	Hexavalent Chromium	1.0
15.	Total chromium	2.0
16.	Copper	3.0
17.	Zinc	15
18.	Nickel	5.0
19.	Fluoride	15
20.	Sulphide	5.0
21.	Phenolic compounds	5.0

2.6 RESULTS

Table 2.1: The observed concentrations of the constituents obtained from the analysis of sample collected in High TDS Stream

Days	O & G Chamber Inlet					O & G Chamber Outlet					Equalization tank				
	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)
Day 1	8.74	1983	36920	42484	19368	8.93	1854	38940	40246	18546	6.67	1976	36542	38249	17549
Day 2	9.32	1586	37426	43686	20476	9.12	1493	35268	41989	19283	7.54	1684	36148	39246	16346
Day 3	9.12	1238	43312	37540	17648	8.85	1142	45746	35648	17248	6.89	1356	42137	36549	17243
Day 4	8.96	992	32543	40389	18769	9.09	892	30568	38427	18624	7.83	1023	32634	37428	16546
Day 5	9.25	1638	36737	33546	15583	9.36	1526	37946	31685	14983	8.32	1694	35436	33743	15639
Days	**PC Outlet**					**Stripper Outlet**					**MEE Outlet**				
	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)
Day 1	7.59	349	33249	35946	15486	7.24	362	35496	29548	13249	7.75	BDL	835	11820	5492
Day 2	7.23	287	32546	36248	17543	7.05	313	34498	28746	12546	7.82	BDL	746	10548	5102
Day 3	6.94	253	38248	33143	14947	6.75	283	40126	26847	11768	7.54	BDL	894	9458	4249
Day 4	8.23	242	28596	34546	16248	8.01	279	31547	27649	12945	9.1	BDL	756	10129	4843
Day 5	8.01	321	29546	29748	13549	7.86	349	32953	22549	10249	8.54	BDL	768	9126	4456

Table 2.2: The observed concentrations of the constituents obtained from the analysis of sample collected in MEE Condensate and Low TDS Stream

Days	O & G Chamber Inlet					O & G Chamber Outlet				
	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)
Day 1	10.3	836	6576	11786	5234	9.4	786	6432	9214	4058
Day 2	8.2	919	5583	8678	3873	7.8	856	5216	7147	3015
Day 3	9.6	728	7127	12345	5137	9.1	678	6928	10842	4794
Day 4	9.4	795	5124	9214	4101	8.9	701	4986	7986	3543
Day 5	8.7	658	6215	10942	4956	8.3	594	5986	8748	3987
Days	**Equalization Tank Outlet**					**Tube Deck Outlet**				
	pH	**TSS (mg/l)**	**TDS (mg/l)**	**COD (mg/l)**	**BOD (mg/l)**	**pH**	**TSS (mg/l)**	**TDS (mg/l)**	**COD (mg/l)**	**BOD (mg/l)**
Day 1	7.74	725	7536	8685	3985	7.21	186	7216	8326	3526
Day 2	7.42	812	6318	6783	2792	6.9	210	5986	6437	2597
Day 3	8.2	626	7627	9589	4248	7.67	145	7157	9218	3987
Day 4	7.85	657	5975	7127	3143	7.12	154	5538	6855	2984
Day 5	7.2	524	6629	8592	3579	6.86	122	6123	8129	3316

Days	Bio tower Inlet					Bio tower Outlet					Aeration tank Outlet				
	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)
Day 1	7.98	148	4095	7216	3258	7.12	132	3059	2756	1126	6.84	3000	3426	435	207
Day 2	7.36	164	2826	6129	2755	6.89	145	2657	2467	912	6.49	3100	2987	356	152
Day 3	8.24	126	3985	7845	3457	7.38	113	3496	3018	1286	6.96	2900	3758	514	213
Day 4	7.72	132	2789	6594	3016	7.05	117	2523	2219	985	6.75	3300	2835	323	135
Day 5	7.45	115	3258	6957	3104	6.93	102	2985	2648	1028	6.67	3250	3314	397	174
Days	**Secondary Clarifier Outlet**					**Aeration Tank - 2 Outlet**					**Secondary Clarifier -2 Outlet**				
	pH	**TSS (mg/l)**	**TDS (mg/l)**	**COD (mg/l)**	**BOD (mg/l)**	**pH**	**TSS (mg/l)**	**TDS (mg/l)**	**COD (mg/l)**	**BOD (mg/l)**	**pH**	**TSS (mg/l)**	**TDS (mg/l)**	**COD (mg/l)**	**BOD (mg/l)**
Day 1	7.13	89	3286	398	185	6.54	4250	3308	206	98	6.59	93	3123	194	92
Day 2	6.98	97	2812	327	143	6.65	4300	2876	183	81	6.68	106	2758	178	75
Day 3	7.35	85	3578	402	177	6.72	4420	3412	225	95	6.79	91	3217	205	91
Day 4	7.21	72	2765	303	126	6.49	4100	2823	164	76	6.53	78	2734	156	68
Day 5	7.07	70	3107	376	159	6.38	3950	2949	191	87	6.44	85	2776	183	82

Days	Pressure Sand Filter Outlet					Activated Carbon Filter Outlet					
	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	Phosphate (mg/l)
Day 1	6.67	61	2985	182	83	6.82	55	2745	149	68	18.7
Day 2	6.65	65	2543	164	71	6.74	59	2456	128	57	20.1
Day 3	6.82	58	3018	185	84	6.93	51	2839	151	63	19.5
Day 4	6.63	49	2596	147	62	6.78	44	2387	123	56	17.6
Day 5	6.51	54	2579	171	76	6.65	48	2493	132	53	18.2

Days	RO Permeate					
	pH	TSS (mg/l)	TDS (mg/l)	COD (mg/l)	BOD (mg/l)	Phosphate (mg/l)
Day 1	6.34	<1.0	612	49	23	2.4
Day 2	6.56	<1.0	598	45	19	1.9
Day 3	7.12	<1.0	654	58	25	2.6
Day 4	6.84	<1.0	563	39	18	1.7
Day 5	6.28	<1.0	498	47	21	2.2

CHAPTER-5

TREATMENT SYSTEM DETAILS

EFFLUENT TREATMENT PLANT

5.1 TREATMENT SCHEME:

Preliminary Treatment:

Removal of wastewater constituents such as rags, sticks, floatables, grit and grease that may cause maintenance or operational problems with the treatment operations, processes, and ancillary systems. Removal of a portion of the suspended solids and organic matter from wastewater.

Secondary Treatment:

Removal of biodegradable organic matter (in solution or suspension) and suspended solids. Disinfection is also typically included in the definition of conventional secondary treatment. Removal of biodegradable organics, suspended solids, and nutrients (nitrogen, phosphorous, or both nitrogen and phosphorus).

Tertiary Treatment:

Removal of residual suspended solids (after secondary treatment), usually by granular medium filtration or micro screens. Disinfection is also typically a part of tertiary treatment. Nutrient removal is often included in this definition.

5.2 TREATMENT SYSTEM

TREATMENT SYSTEM OF HIGH TDS STREAMS

1. Grit and Oil & Grease Chamber
2. Equalization cum Neutralization tank
3. Flash mixer
4. Flocculator
5. Clarifier
6. MEE Feed tank
7. Stripper – 3 No's.
8. MEE – I, Stripper - 1
9. MEE – II, Stripper – 2+1
10. ATFD

TREAMENT SYSTEM OF MEE CONDENSATE AND LOW TDS STREAMS

1. Grit and Oil & Grease Chamber
2. Equalization cum Neutralization tank
3. Flash mixer
4. Flocculator
5. Tube Deck
6. Intermediate Feed Tank
7. Bio Tower
8. Aeration Tank - I
9. Secondary Clarifier - I & II
10. Aeration Tank – II
11. Secondary Clarifier – III & IV
12. Treated Effluent Tank
13. Pressure Sand Filter
14. Activated Carbon Filter
15. Sludge Filter Press
16. RO Plant

5.3 EFFLUENT TREATMENT PLANT DIMENSIONS AND CAPACITY DETAILS

Units	Size	Capacity	No. of Units
High TDS Effluent Treatment Plant			
Oil & Grease Chamber	-	40 KL	1
Equalization cum Neutralization tank	15mx15mx15m	675 KL	2
Flash Mixer	0.6mx0.6mx1.2m	0.432 KL	2
Flocculator	1.68mx1.68mx2.0m	5.64 KL	1
Primary Clarifier	6m Dia	70 KL	1
MEE Feed Tank	10.3mx8.4mx2.3m	200 KL	1
Stripper	-	15 KL/hr	3
MEE – I	-	10 KL/hr	1
MEE - II	-	15 KL/hr	1
MEE Condensate & Low TDS Effluent Treatment Plant			
Oil & Grease Chamber	-	20 KL	1
Equalization cum Neutralization tank	15mx15mx3.0m	675 KL	2
Flash Mixer	0.6mx0.6mx1.2m	0.432 KL	1
Flocculator	1.68mx1.68mx2.0m	5.64 KL	1
Tube Deck	2.35mx2.35mx2.25m	12.42 KL	1
Intermediate Feed Tank	14.1mx6.9mx2.6m	250 KL	1
Aeration Tank – I	45mx35mx3.5m	5500 KL	1
Secondary Clarifier-I&II	6m dia x 3 m height	70 KL	2
Aeration Tank - II	35mx22mx2.85m	2200 KL	1
Secondary Clarifier –III&IV	6m dia x 3m height	70 KL	2
Treated Effluent Tank	10.3mx10.3mx1m	100 KL	1
Pressure Sand Filter	2m dia x 2.5 m height	8.0 KL	1
Activated Carbon Filter	2m dia x 2.5 m height	8.0 KL	1
RO Plant			
Sludge Blender	3.1mx3.1mx3.0m	29 KL	1
Sludge Thickener	-	85 KL	1
Guard Pond – I & II	-	960 KL	2
Guard Pond - III	-	1000 KL	1
Guard Pond – IV&V	-	1200 KL	2

5.4 UNITS DESCRIPTION

5.4.1 Grit and Oil & Grease Chamber:

In this Oil/Grit chamber removing oil and grease from waste waters. The oil/grit separator unit operates by settling sediment and particulate matter, screening debris and separating free surface oils from storm water runoff. The oil chamber is designed to trap and separate free surface oils and grease from the storm water runoff.

5.4.2 Equalization & Neutralization:

At this stage the coming waste water is neutralized to reduce the fluctuation of pH of further treatment units. In this flow equalization and chemical neutralization are two important components of water and wastewater treatment. Here chemical neutralization is employed to balance the excess acidity or alkalinity in water, whereas flow equalization is a process of controlling flow velocity and flow composition. Chemical neutralization is the adjustment of pH to achieve the desired treatment.

5.4.3 Flash mixer:

Flash Mixer having the mechanical agitator. This is used for mixing the dosing chemicals. Flash mixers are specially designed and fabricated for the process requirement of water and wastewater treatment. The mixer design ensures efficient, minimum energy consumption and long life. This equipment blends coagulants and other chemicals with water / wastewater prior to flocculation. The aggressive agitation results in instantaneous and effective mixing of chemicals. This unit is also useful for general mixing.

5.4.4 Primary clarifier:

Primary clarifiers reduce the content of suspended solids and pollutants embedded in those suspended solids. Because of the large amount of reagent necessary to treat domestic wastewater, preliminary chemical coagulation and flocculation are generally not used, remaining suspended solids being reduced by following stages of the system. However, coagulation and flocculation can be used for building a compact treatment plant or for further polishing of the treated water.

5.4.5 Stripper:

In this Stripping section by using physical separation process here one or more components are removed from a liquid stream by a vapor stream. In this the liquid and vapor streams can have co-current or countercurrent flows. Stripping works on the basis of mass transfer. Steam is also frequently used as a stripping agent for water treatment. Volatile organic compounds are partially soluble in water. In this stripping section removal of volatile organic compounds takes place.

5.4.6 Multiple Effect Evaporators (MEE):

Evaporation plants are used as a thermal separation technology, for the concentration or separation of liquid solutions, suspensions and emulsions. A liquid concentrate that can still be pumped is generally the desired product. Evaporation may however also aim at separating the volatile constituents as would be the case in a solvent separation system. During these processes, it is usual that product qualities are maintained and preserved. These together with many other requirements result in a wide variety of evaporator types, operating modes and arrangements. The operating costs of an evaporation plant are largely determined by the energy consumption. Under steady-state conditions there must be a balance between the energy entering and leaving the system.

5.4.7 Agitated Thin Film Dryer (ATFD):

In Agitated Thin Film Dryer the feed product is evenly distributed by the rotor and its wipers over the heating surface, forming a thin liquid film of uniform thickness. Highly turbulent swirls are produced at the tip of the rotor blades and wipers with intensive mixing and agitation of the product, as it comes into contact with the heating surface. This assures excellent heat transfer combined with constant renewal of the product film and provides an even heating and short residence time of the product through the heated zone.

5.4.8 Aeration tank-I: -

Aeration tank is used for reduction of COD and BOD mainly, and by addition of air by maintaining the required dissolved oxygen and Mixed Liquor Suspended Solids (MLSS). Supernatant from the primary treatment over flows into the aeration tank.

Where the organic matter in the effluent is biologically decomposed under aerobic conditions. The mixed liquor in the tank is aerated. The mixed liquor from this tank overflows in to secondary clarifier.

5.4.9 Secondary clarifier-I:

The secondary clarifier is the most important part of the secondary treatment process. Then remains to separate out the microorganisms so that just clean water is left. This is done in a secondary clarifier which operates in the same manner as the primary clarifier. Some of the solids collected in secondary clarifier are sent to the aeration tank to treat more wastewater.

5.4.10 Aeration Tank – II:

The effluent from the secondary clarifier entering into Aeration Tank – II. In this Aeration Tank reduction of COD and BOD takes place. This Aeration Tank –II which operates in the same manner as the Aeration Tank-I. In this Aeration provides oxygen to bacterial for treating and stabilizing the waste water. Oxygen needed by bacteria to allow biodegradation to occur.

5.4.11 Secondary clarifier-II:

In this secondary clarifier remove solid particulates or suspended solids from liquid for clarification. The effluent from the Aeration Tank-II over flows into the Secondary Clarifier – II. It works similarly as Secondary Clarifier – I. Some of the solids collected in secondary clarifier are sent to the Pressure sand filter for further treatment.

5.4.12 Pressure Sand Filter:

In sand filtration remove suspended solids from water. The filtration medium consists of a multiple layer of sand with a variety in size and specific gravity. Raw water pump is used for generating necessary operating pressure in the pressure sand filter. Raw water is passed through Sand Filter at some pressure to reduce the suspended solids present in the raw water.

5.4.13 Activated Carbon Filter: -

Activated Carbon filter is a method of filtering that uses a piece of activated carbon to remove contaminants and impurities, utilizing chemical adsorption. Each piece of carbon is designed to provide a large section of surface area, in order to allow contaminants the most possible exposure to the filter media.

5.4.14 SLUDGE FILTER PRESS- 2 No's

Sludge Drying beds are open beds of land, consists of thick graded layers of gravel or crushed stone varying in size from bottom to top, and over lain by thick coarse sand layer. Open jointed under drain pipes are laid below the gravel layer. The beds are surrounded by brick walls. The sludge is pumped and spread over the top of the drying beds to depth, through distribution troughs having openings .A portion of the moisture drains through the bed, while most of it is evaporated to the atmosphere. Filtered effluent collected in sump and transferred to collection tank for treatment. The dried sludge is removed from beds, and they are dumped in low-lying areas or can be used as manure to fields.

CHAPTER-6

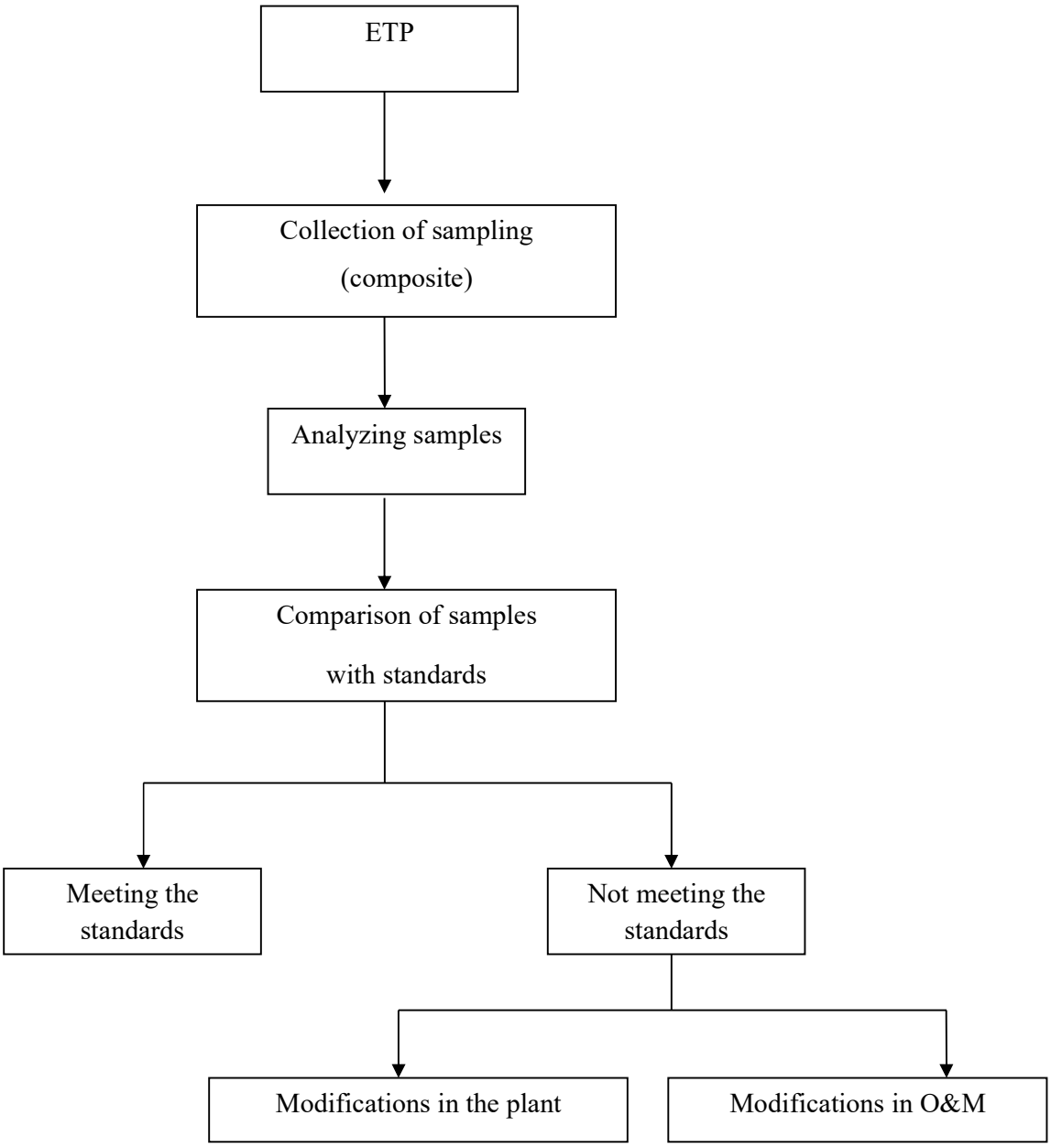
PERFORMANCE OF INDIVIDUAL UNITS OF ETP

6.1 DETERMINATION OF EFFLUENT TREATMENT PLANT (ETP) PERFORMANCE

The treatment efficiencies are estimated based on the influent to the ETP and the effluent from the ETP. For each selected treatment units the efficiencies were also estimated by considering the characteristics of the wastewater influent which is entering into the each of the units and effluent which is leaving the respective treatment unit.

Efficiency of the removal = (inflow characteristics – outflow characteristics)/inflow characteristics) * 100

Using the results of the sampling analysis for various characteristics of the effluents at different points or locations of the treatment plant, the efficiencies of some of the selected treatment units in the effluent treatment plant area assessed. Upon the efficiencies, the performance of the selected treatment units and the treatment plant as a whole will be assessed. Recommendations in operation and maintenance (O&M) in selected treatment units or modification of unit process of the wastewater treatment plant will be advised. The results and discussions are mentioned in the subsequent chapters. The efficiencies of the quality parameters were compared with the standards prescribed by the (American Public Health Association, 1998). The computed efficiencies of the wastewater treatment plant were used to know whether the ETP was meeting the design standards at which the plant was designed or requires any modification. If the experimented values are not in compliance with the standards then there is no need for modifications.



6.1. Flow chart for the performance evaluation of ETP

PERFORMANCE OF INDIVIDUAL TREATMENT UNITS:

The performance of evaluation involves the assessment of overall ETPs efficiency and performance of individual units. Particularly the key unit operation and process of the treatment plant. Therefore the assessment of overall efficiency of the treatment plant with reference to the COD and BOD was made.

6.2 Removal Efficiency of Preliminary Treatment of High TDS Effluent treatment plant:

The removal efficiency of the preliminary treatment units for the removal of dissolved solids, BOD and COD is generally limited (Environmental Protection Agency 1995). The same is observed in the present study. Even though the percentage removal is less, but the actual concentration reduction is notable as the reduction is notable as they reduce the load on the subsequent treatment unit.

High TDS wastewater stream discharges the waste water into the Grit and Oil & Grease Chamber. The contents of the Oil & Grit Chamber are entering the Equalization cum Neutralization tank. After neutralization the waste water passes through Primary Clarifier to remove the suspended particles. This indicates that the removal of TDS, COD and BOD is limited due to the combined effect of these treatment units. It is due to the fact that these treatment units are meant for removal of suspended matter but not dissolved substances. However, in terms of percentage reduction, the contribution of the pre & primary units many not be notable. But in terms of total concentration, these are reducing the total volumetric organic loading on to the subsequent treatment units of the High TDS effluent treatment plant.

6.2.1 Removal Efficiency of Oil & Grease Chamber

The High TDS Effluent enters into the Oil & Grease Chamber. In this chamber Oil & Grease present is removed.

Table 6.1 The waste water constituent removal efficiencies of the Oil & Grease Chamber computed from the analysis of the sample collected in ETP.

Days	Inlet O&G (mg/l)	Outlet O&G (mg/l)	Oil & Grease Removal Efficiency
1	416	125	69.95%
2	395	119	69.87%
3	323	108	66.56%
4	296	98	66.89%
5	354	112	68.36%

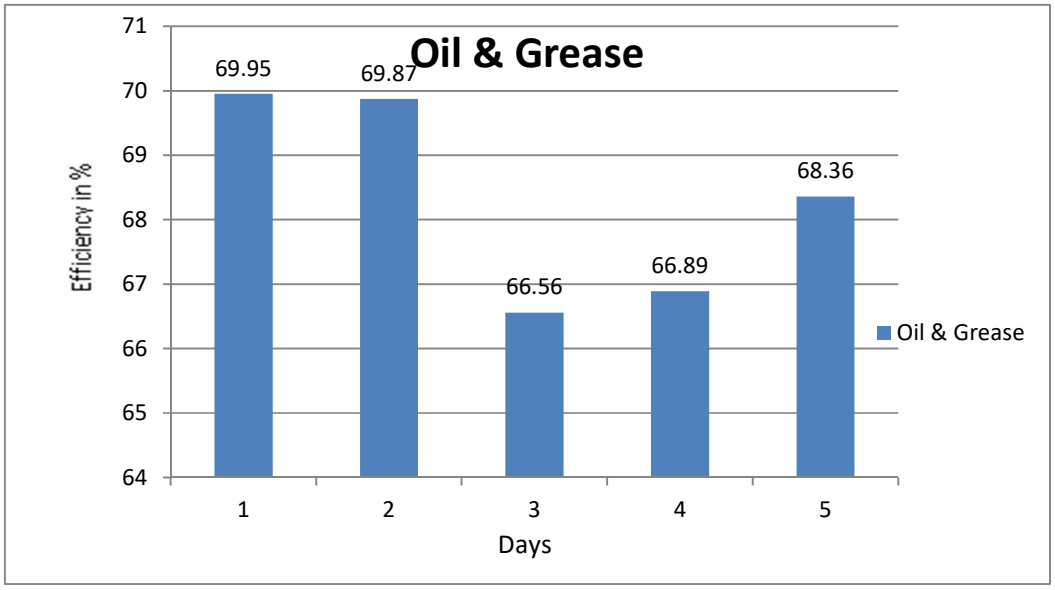


Figure 6.1: The percentage removal efficiencies of Oil & Grease Chamber

Oil & Grease ranges between 66.56% to 69.95%. The average removal efficiency of Oil & Grease chamber is 68.32%.

6.2.2 Equalization & neutralization tank:

The equalization is also used for neutralization the pH value of high TDS effluent entering into the equalization tank inlet varies. The neutralization is effectively taking

place the pH range is suitable for the primary and secondary treatment process. Hence the same neutralization process may be continued.

Table 6.2: The wastewater constituent removal efficiencies of the equalization & neutralization tank computed from the analysis of sample collected in ETP.

Days	Inlet pH	Outlet pH
1	8.93	6.67
2	9.12	7.54
3	8.85	6.89
4	9.09	7.83
5	9.36	8.32

The equalization is also used for neutralization the pH value of Inlet effluent entering into the equalization tank inlet varies between 8.85 and 9.36. Because of the neutralization the pH of the waste water at the outlet of the equalization cum neutralization tank lies under 6.67 and 8.32.

6.2.3 Removal Efficiency of Primary Clarifier

The primary clarifier is meant for the removal of suspended solids. The effluent from equalization cum neutralization tank passes through the flash mixer coagulant is being added to the waste water entering the flash mixer. It might convert the dissolved solids into suspended solids. Thus formed suspended solids along with the already existing suspended solids are removed in Primary Clarifier. Because of the conversion of the dissolved solids into suspended solids, the TDS removal efficiency was observed in the primary treatment. The fluctuations in the removal efficiencies of the primary treatment with reference to the TSS are significant.

Table 6.3: The wastewater constituent removal efficiencies of the Primary Clarifier Computed from the analysis of sample collected in ETP.

Days	Inlet TSS (mg/l)	Outlet TSS (mg/l)	TSS Removal Efficiency
1	1976	349	82.33%
2	1684	287	82.95%
3	1356	253	81.34%
4	1023	242	76.34%
5	1694	321	81.05%

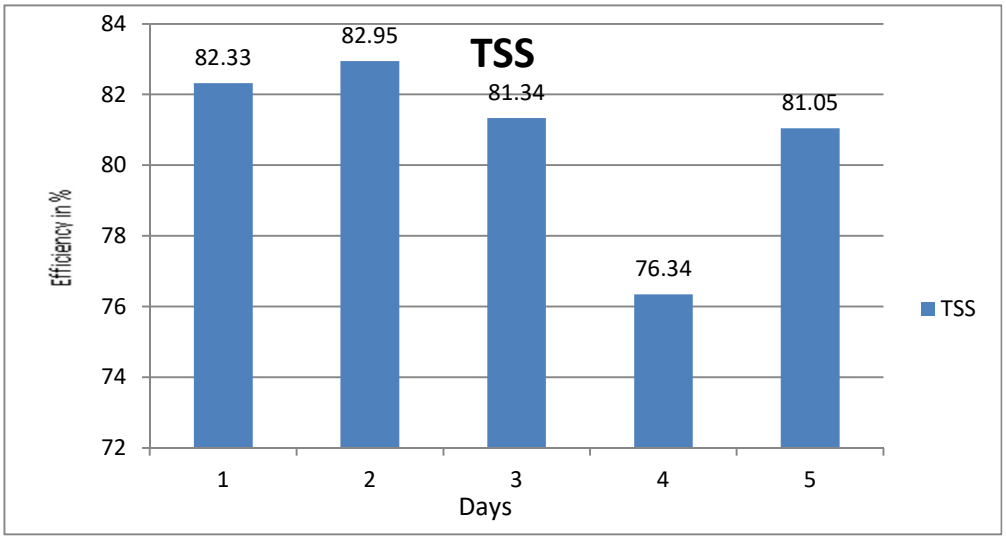


Figure 6.2: The Percentage Removal Efficiencies of Primary Clarifier

The TSS percentage removal efficiency varies between 76.34 % to 82.95%. In primary Clarifier it was observed that average reduction in the TSS about 80.80% which shows that effective removal of TSS takes place in Primary Clarifier.

6.2.4 Removal Efficiency of MEE:

The stripper effluent is joining to the multiple effective evaporators. In multiple effective evaporator, the thermal process separates the liquid which is being collected as MEE condensate. The MEE Concentrated is once again sent to Agitated Thin Film Dryer (ATFD). The ATFD further concentrates its content. The condensate ATFD is sent to the secondary treatment and concentrate salts are dispatched to the Treatment Storage and Disposal Facility (TSDF). The performance of the Stripper column and Multiple Effect Evaporator (MEE) together is evaluated with reference to the removal of TDS. The percentage removal of each of these constituents by the stripper column and MEE.

Table 6.4: The wastewater constituent removal efficiencies of the MEE computed from the analysis of sample collected in ETP.

Days	Inlet TDS (mg/l)	Outlet TDS (mg/l)	TDS Removal Efficiency
1	35496	953	97.31%
2	34498	746	97.83%
3	40126	992	97.52%
4	31547	589	98.13%
5	32953	892	97.29%

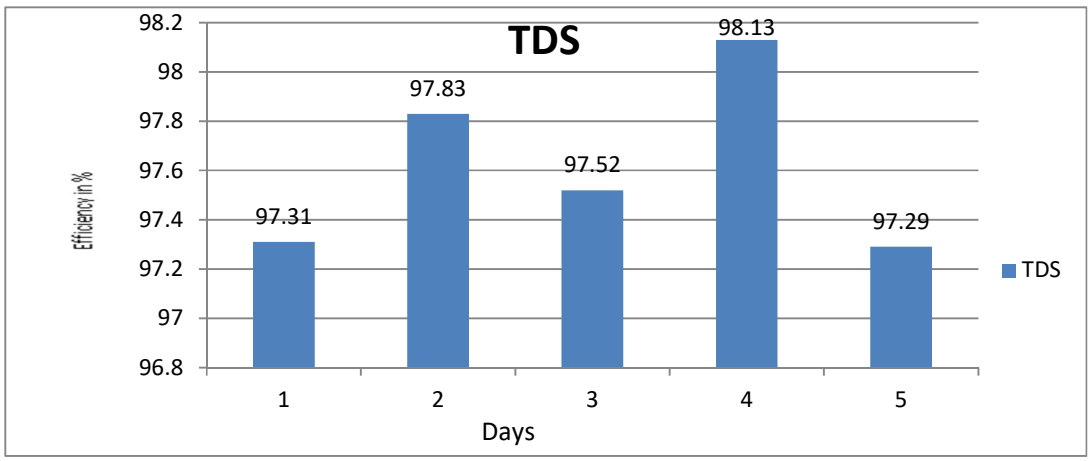


Figure 6.3: The Percentage Removal Efficiencies of MEE

High TDS stream from preliminary treatment enter into stripper column. In stripper column solvent is separated from the pre treated waste water. From stripper column the high TDS waste water enter into multiple effect evaporators. In evaporators dissolved matter is separated. In the combined effect it is observe the efficiency of stripper and Multiple effect evaporators are high in reducing the TDS ranges between 97.29% to 98.13%. It indicates that TDS removal efficiency of stripper column and MEE is satisfactory.

6.3 Removal Efficiency of MEE condensate and Low TDS Effluent Treatment plant Unit:

6.3.1 Removal Efficiency of Oil & Grease Chamber

The Low TDS effluent enters into the Oil & Grease Chamber. The Preliminary treatment consists of Grit and oil & grease chamber is provided for removal of oil & grease matter. The percentage removal efficiency of the Grit and oil& grease removal process with reference to the removal of Oil & Grease computed.

Table 6.5: The wastewater constituent removal efficiencies of the Oil & Grease Chamber computed from the analysis of sample collected in ETP.

Days	Inlet O&G (mg/l)	Outlet O&G (mg/l)	Oil & Grease Removal Efficiency
1	217	97	55.29%
2	262	102	61.06%
3	279	126	54.83%
4	184	95	48.36%
5	176	91	48.29%

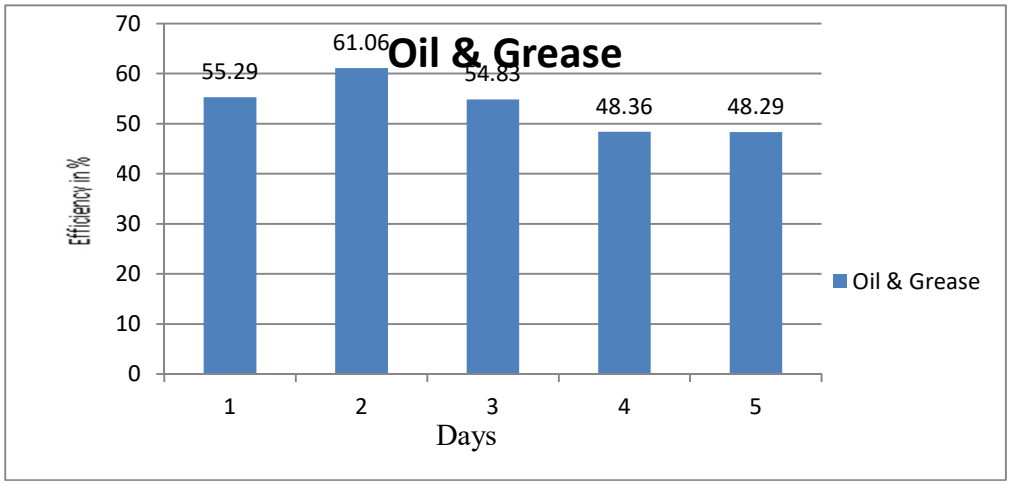


Figure 6.4: The Percentage Removal Efficiencies of Oil & Grease chamber

These results show that the efficiency of Oil & Grease Chamber are reducing the Oil & Grease ranges between 48.29% to 61.06%. The average reduction of the oil & grease is 53.57%.

6.3.2 Removal Efficiency of equalization & neutralization tank:

The equalization tank is primarily meant for damping of variations or fluctuations in the inflow rates. The constituent concentration reductions may be an additional advantage of the process. The present treatment plant employed/adopted the neutralization process in the same reactors. Hence the pH reduction/increase has been studied.

Table 6.6: The wastewater constituent removal efficiencies of the Equalization and Neutralization tank computed from the analysis of sample collected in ETP.

Days	pH Inlet	pH Outlet
1	9.4	7.74
2	7.8	7.42
3	9.1	8.2
4	8.9	7.85
5	8.3	7.2

The pH value of Low TDS effluent entering into the equalization tank varies between 7.8 and 9.4. Because of the neutralization the pH of the wastewater at the outlet of equalization cum neutralization tank lies under 7.2 to 8.2. The neutralization is effectively taking place the pH range is suitable for the primary and secondary treatment process. Hence the same neutralization process may be continued.

6.3.3 Removal Efficiency of Tube Deck:

The Tube Deck is meant for the removal of suspended solids. However, the Low TDS Effluent plant consists of a flash mixer before Tube Deck. The effluent from equalization cum neutralization tank passes through the flash mixer coagulant is being added to the wastewater entering the flash mixer. It might convert the dissolved solids into suspended solids. Thus formed suspended solids along with the already existing Suspended solids are removed in Tube Deck. Because of the conversion of the dissolved solids into suspended solids, the TDS removal efficiency was observed in the primary treatment.

Table 6.7: The wastewater constituent removal efficiencies of the Tube Deck computed from the analysis of sample collected in ETP.

Days	Inlet TSS (mg/l)	Outlet TSS (mg/l)	TSS Removal Efficiency
1	725	186	74.34%
2	812	210	74.13%
3	626	145	76.83%
4	657	154	76.56%
5	524	122	76.71%

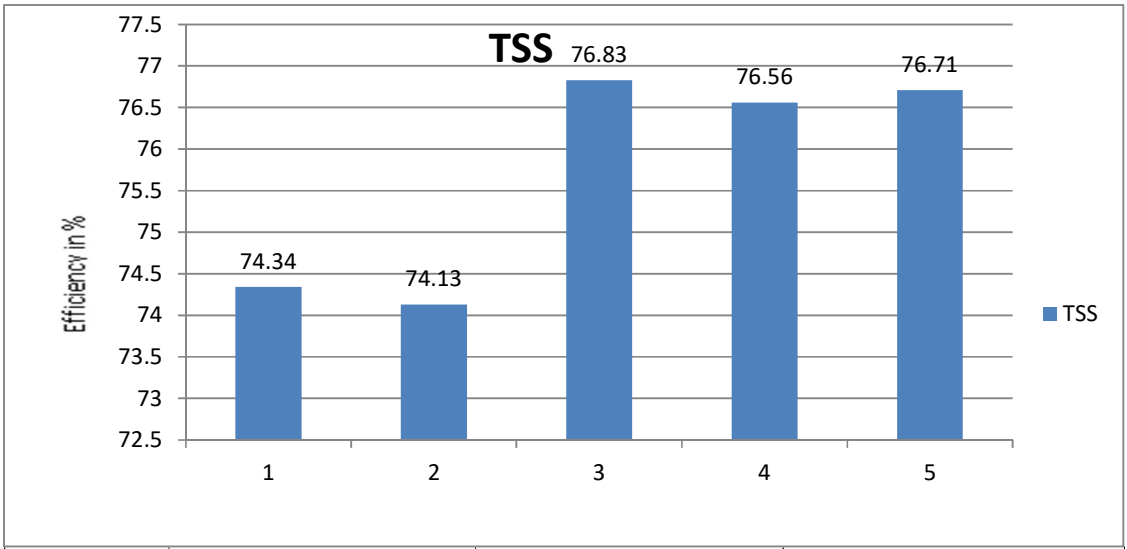


Figure 6.5: The Percentage Removal Efficiencies of Tube Deck

The TSS removal efficiency varies between 74.13% and 76.83%. In tube deck it was observed that average reduction in the TSS about 75.71% which shows that effective removal of TSS takes place in primary treatment.

6.3.4 Removal Efficiency of Bio Tower

The Bio Tower is meant for removal of organic matter present in the effluent. From the tube deck the effluent enters into the Bio Tower.

Table 6.8: The wastewater constituent removal efficiencies of the Bio Tower computed from the analysis of sample collected in ETP.

Days	Inlet COD (mg/l)	Outlet COD (mg/l)	COD Removal Efficiency	Inlet BOD (mg/l)	Outlet BOD (mg/l)	BOD Removal Efficiency
1	7216	2756	61.80%	3258	1126	65.43%
2	6129	2467	59.74%	2755	912	66.89%
3	7845	3018	61.52%	3457	1286	62.80%
4	6594	2219	66.34%	3016	985	67.34%
5	6957	2648	61.93%	3104	1028	66.88%

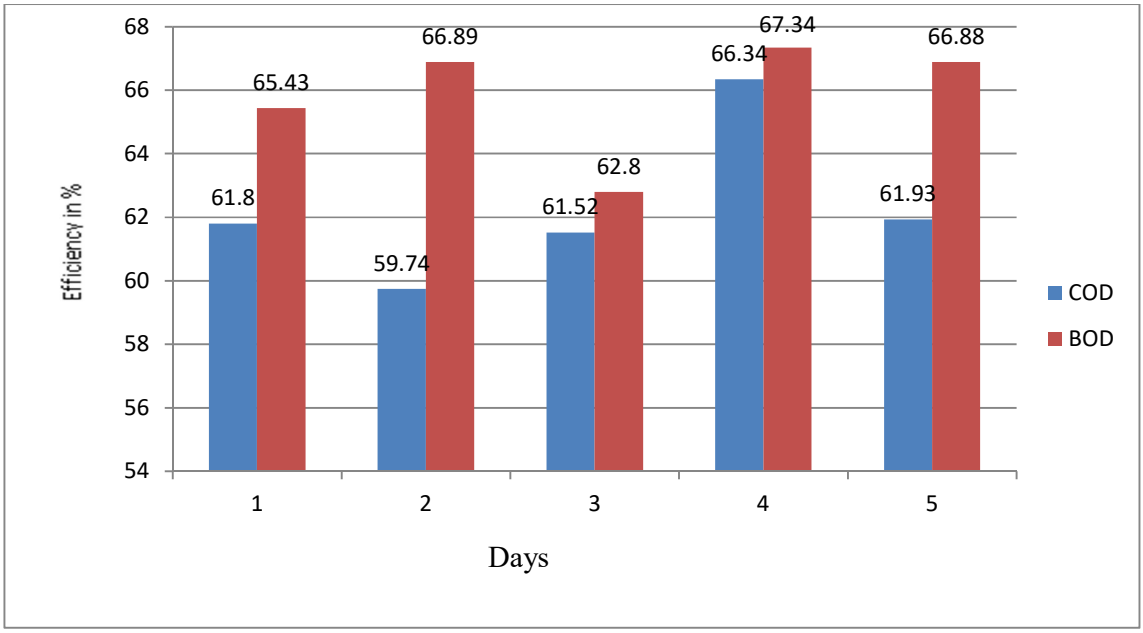


Figure 6.6: The Percentage Removal Efficiency of Bio Tower

The range of percentage removal efficiencies COD, BOD are 59.74 to 66.34%, 62.8 to 67.34%. The average COD and BOD removal efficiencies are about 62.27%. and 65.87%.

6.3.5 Removal Efficiency of Aeration Tank – I

The effluent from the Bio tower is entering into Aeration Tank. Aeration tank is used for reduction of COD and BOD mainly, and by addition of air by maintaining the required dissolved oxygen.

Table 6.9: The wastewater constituent removal efficiencies of the Aeration Tank – I computed from the analysis of sample collected in ETP.

Days	Inlet COD (mg/l)	Outlet COD (mg/l)	Removal Efficiency of COD	Inlet BOD (mg/l)	Outlet BOD (mg/l)	Removal Efficiency of BOD
1	2756	435	84.21%	1126	207	81.61%
2	2467	356	85.56%	912	152	83.33%
3	3018	514	82.96%	1286	213	83.43%
4	2219	323	85.44%	985	135	86.29%
5	2648	397	85.00%	1028	174	83.07%

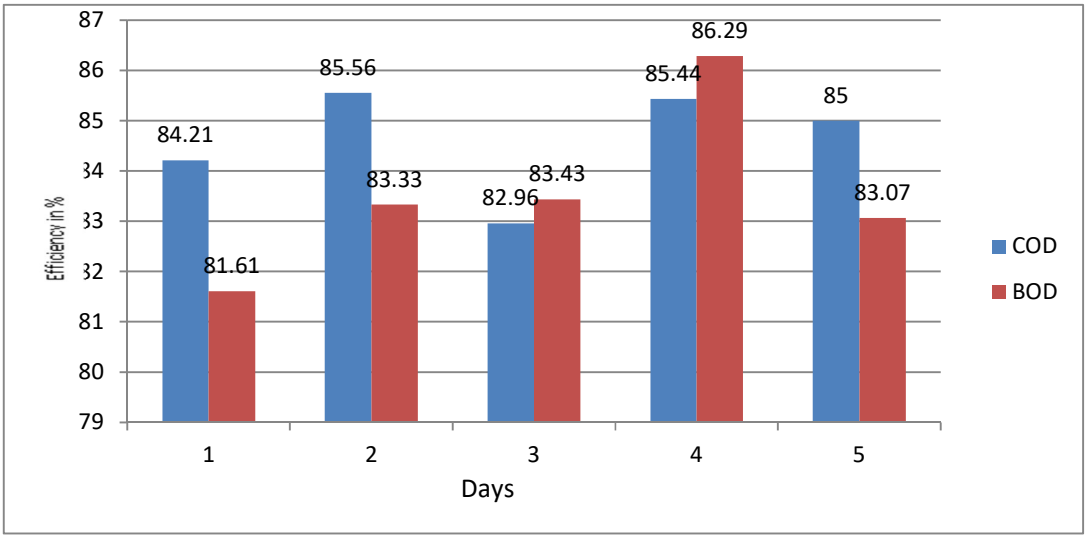


Figure 6.7: The percentage Removal Efficiencies of Aeration Tank - I

The range of percentage removal efficiencies COD, BOD are 82.96 to 85.56%, 81.61 to 86.29%. In Aeration tank it was observed that average reduction in the BOD and COD about 83.55% and 84.64% which shows that removal of BOD and COD takes place in Aeration Tank.

6.3.6 Removal Efficiency of Secondary Clarifier – I

The effluent from Aeration tank passes through the Secondary Clarifier. Secondary clarifiers remove flocs of biological growth created in some methods of secondary treatment including activated sludge, and rotating biological contactors.

Table 6.10: The wastewater constituent removal efficiencies of the Secondary Clarifier – I computed from the analysis of sample collected in ETP.

Days	Inlet TSS (mg/l)	Outlet TSS (mg/l)	TSS Removal Efficiency
1	3000	89	97.0
2	3100	97	96.8
3	2900	85	97.0
4	3300	72	97.8
5	3250	70	97.8

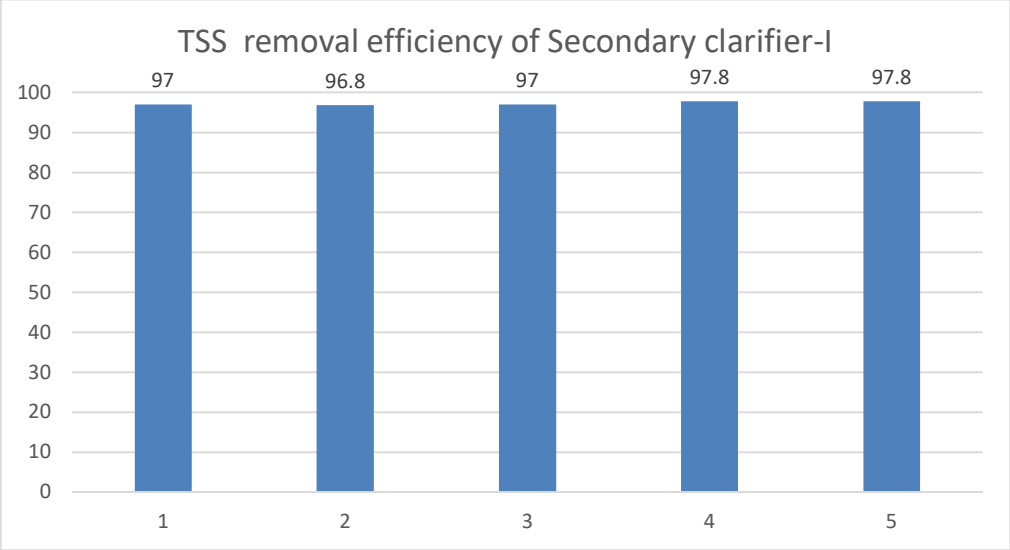


Figure 6.8: The Percentage Removal Efficiencies of Secondary Clarifier -I

The TSS removal efficiency varies between 96.8 % and 97.8 % in Secondary Clarifier. In secondary clarifier it was observed that average reduction in the TSS about 97.2% .

6.3.7 Removal Efficiency of Aeration Tank-2

The effluent from the Secondary Clarifier enters into the Aeration Tank – II. Removal of organic matter takes place in this aeration tank.

Table 6.11: The wastewater constituent removal efficiencies of the Aeration Tank –II computed from the analysis of sample collected in ETP.

Days	Inlet COD (mg/l)	Outlet COD (mg/l)	COD Removal Efficiency	Inlet COD (mg/l)	Outlet COD (mg/l)	BOD Removal Efficiency
1	398	206	48.24%	185	98	47.02%
2	327	183	44.03%	143	81	43.35%
3	402	225	44.02%	177	95	46.32%
4	303	164	45.87%	126	76	39.68%
5	376	191	49.20%	159	87	45.28%

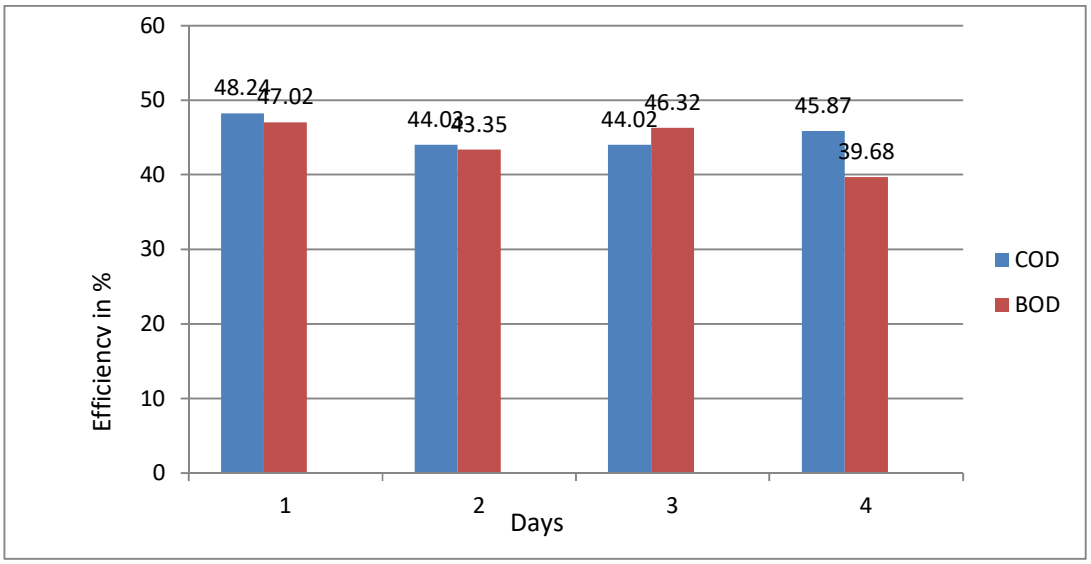


Figure 6.9: The Percentage Removal Efficiencies of Aeration Tank - II

The range of percentage removal efficiencies COD and BOD are 44.02% to 49.20% and 39.68% to 46.32% respectively. The average COD and BOD removal efficiencies are about 46.27% and 44.33%.

6.3.8 Removal Efficiency of Secondary Clarifier – II

The effluent from the Aeration tank – II enters into the Secondary Clarifier – II. The removal of suspended solids takes places in the secondary clarifier.

Table 6.12: The wastewater constituent removal efficiencies of the Secondary Clarifier –II computed from the analysis of sample collected in ETP.

Days	**Inlet TSS (mg/l)**	**Outlet TSS (mg/l)**	**TSS Removal Efficiency**
1	4250	93	97.8
2	4300	106	97.5
3	4420	91	97.9
4	4100	78	98.0
5	3950	85	97.8

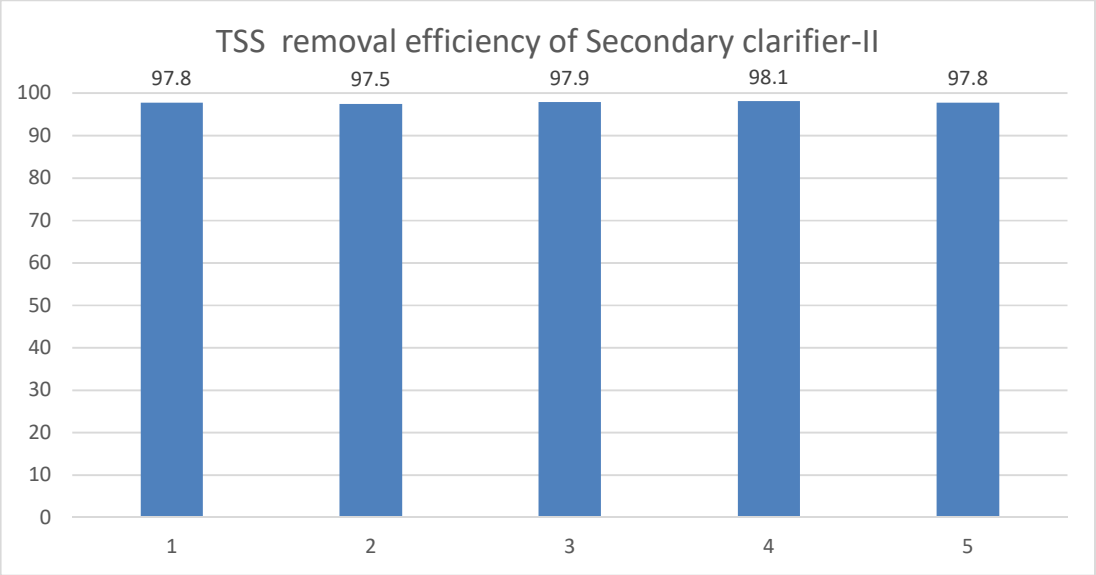


Figure 6.10: The Percentage Removal Efficiencies of Secondary Clarifier- II

The average TSS reduction is 97.8%. This shows that there is reduction of TSS is taking place in the secondary clarifier.

Removal Efficiency of PSF & ACF:

The treated effluent collected is further treated with the help of Pressure Sand Filter and activated carbon filter. The filters are part of tertiary treatment. The treated effluent from these filters will be sending to guard ponds before the final disposal.

6.3.9 Removal Efficiency of Pressure Sand Filter

Table 6.13: The wastewater constituent removal efficiencies of the Pressure Sand Filter computed from the analysis of sample collected in ETP.

Days	Inlet TSS (mg/l)	Outlet TSS (mg/l)	TSS Removal Efficiency
1	93	61	34.40%
2	106	65	38.67%
3	91	58	36.26%
4	78	49	37.17%
5	85	54	36.47%

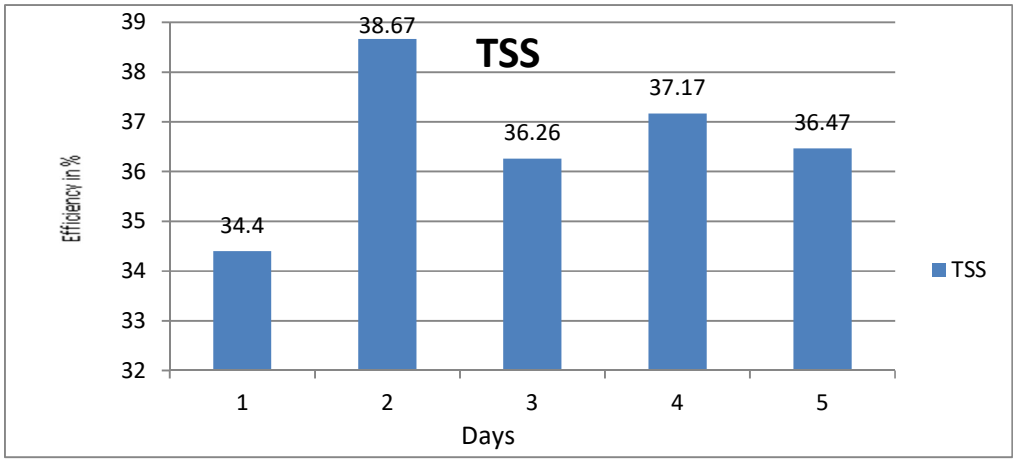


Figure 6.11 The Percentage Removal Efficiencies of Pressure Sand Filter

The TSS removal efficiency varies between 34.40% to 38.67%. The average TSS reduction reduction is 36.60%.

6.3.10 Activated Carbon Filter

Table 6.14: The wastewater constituent removal efficiencies of the Activated Carbon Filter computed from the analysis of sample collected in ETP.

Days	Inlet TSS (mg/l)	Outlet TSS (mg/l)	TSS Removal Efficiency
1	61	49	19.67%
2	65	55	15.38%
3	58	47	18.96%
4	49	39	20.40%
5	54	42	22.22%

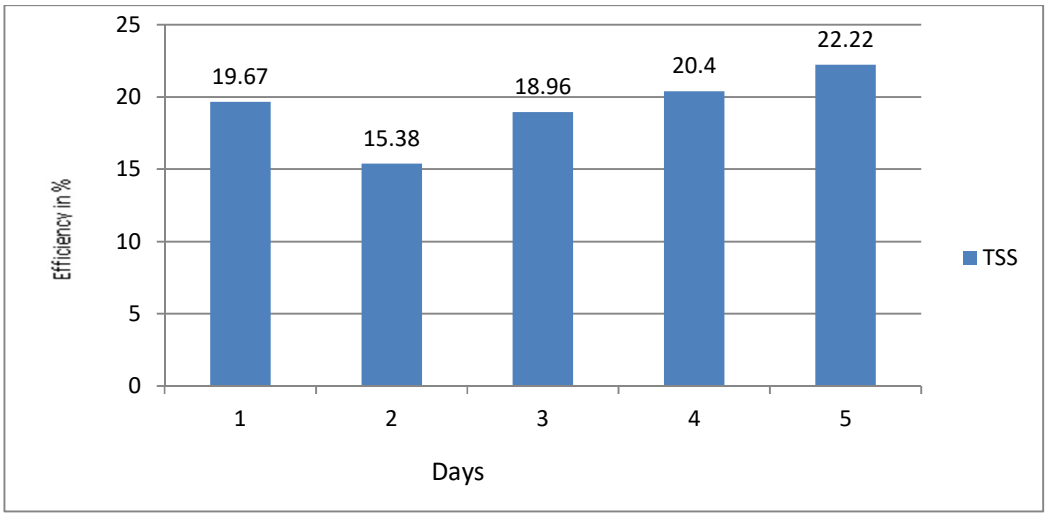


Figure 6.12 The Percentage Removal Efficiencies of Activated Carbon Filter

The percentage removal efficiency of TSS varies between 15.38% and 22.22%. The average TSS removal efficiency is about 19.33%.

6.3.10 RO Plant

Table 6.14: The wastewater constituent removal efficiencies of the RO plant computed from the analysis of sample collected in ETP.

Days	Inlet TDS (mg/l)	Outlet TDS (mg/l)	Inlet Phosphate (mg/l)	Outlet Phosphate (mg/l)
1	2545	612	18.7	2.4
2	2234	598	20.1	1.9
3	2782	654	19.5	2.6
4	2234	563	17.6	1.7
5	2159	498	18.2	2.2

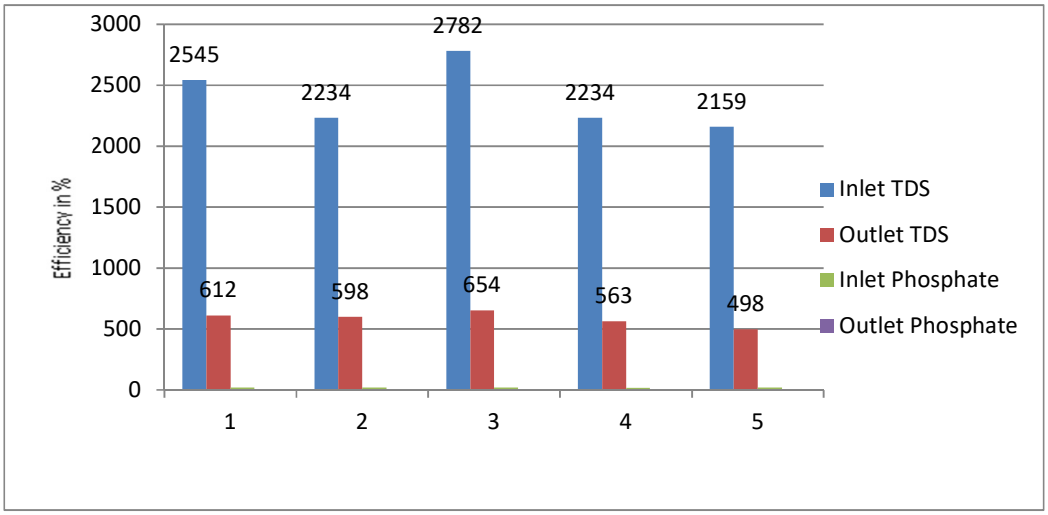


Figure 6.12 The Percentage Removal Efficiencies of RO Plant

The inlet TDS varies between 2159 and 2782 mg/l & outlet TDS varies between 498-654 mg/l. The inlet phosphate varies between 17.6-20.1 mg/l and outlet varies between 1.7-2.6 mg/l.

6.4 Performance of ESP attached to 45 TPH Boiler

6.4.1 Emissions from Chimney(ESP Outlet) attached to 45 TPH Boiler

S.No.	Description	Unit	Result	Method	PCB Standard
1.	Stack gas temperature	^0C	132	IS:11255-P-3	-
2	Flue Gas Velocity	m/sec	6.28	IS:11255-P-3	-
3.	Particulate Matter – PM	mg/Nm^3	49.6	IS:11255-P-1	115
4.	Sulphur Dioxide – SO_2	mg/Nm^3	52.4	IS:11255-P-2	-
5.	Oxides of Nitrogen - NOx	mg/Nm^3	58.9	IS:11255-P-7	

6.4.2 Emissions from 1010 KVA and 1250 KVA DG Sets

S.No.	Description	Unit	1010 KVA	1250 KVA	Method	PCB Standard
1.	Stack gas temperature	^0C	206	225	IS:11255-P-3	-
2	Flue Gas Velocity	m/sec	14.8	16.8	IS:11255-P-3	-
3.	Particulate Matter – PM	mg/Nm^3	60.2	62.6	IS:11255-P-1	115
4.	Sulphur Dioxide – SO_2	mg/Nm^3	39.9	40.4	IS:11255-P-2	-
5.	Oxides of Nitrogen - NOx	mg/Nm^3	43.7	48.6	IS:11255-P-7	

The emissions from the 45 TPH boiler and DG Set emissions were found to be within the prescribed PCB standards.

CHAPTER – 7

PHOTOGRAPHS

EFFLUENT TREATMENT PLANT PHOTOGRAPHS


SAND FILTER
ACTIVATED CARBON FILTER


SECONDRY CLARIFIER - II


SECONDRY CLARIFIER - I


M.E.E - I

CHAPTER-8

OBSERVATIONS & RECOMMENDATIONS

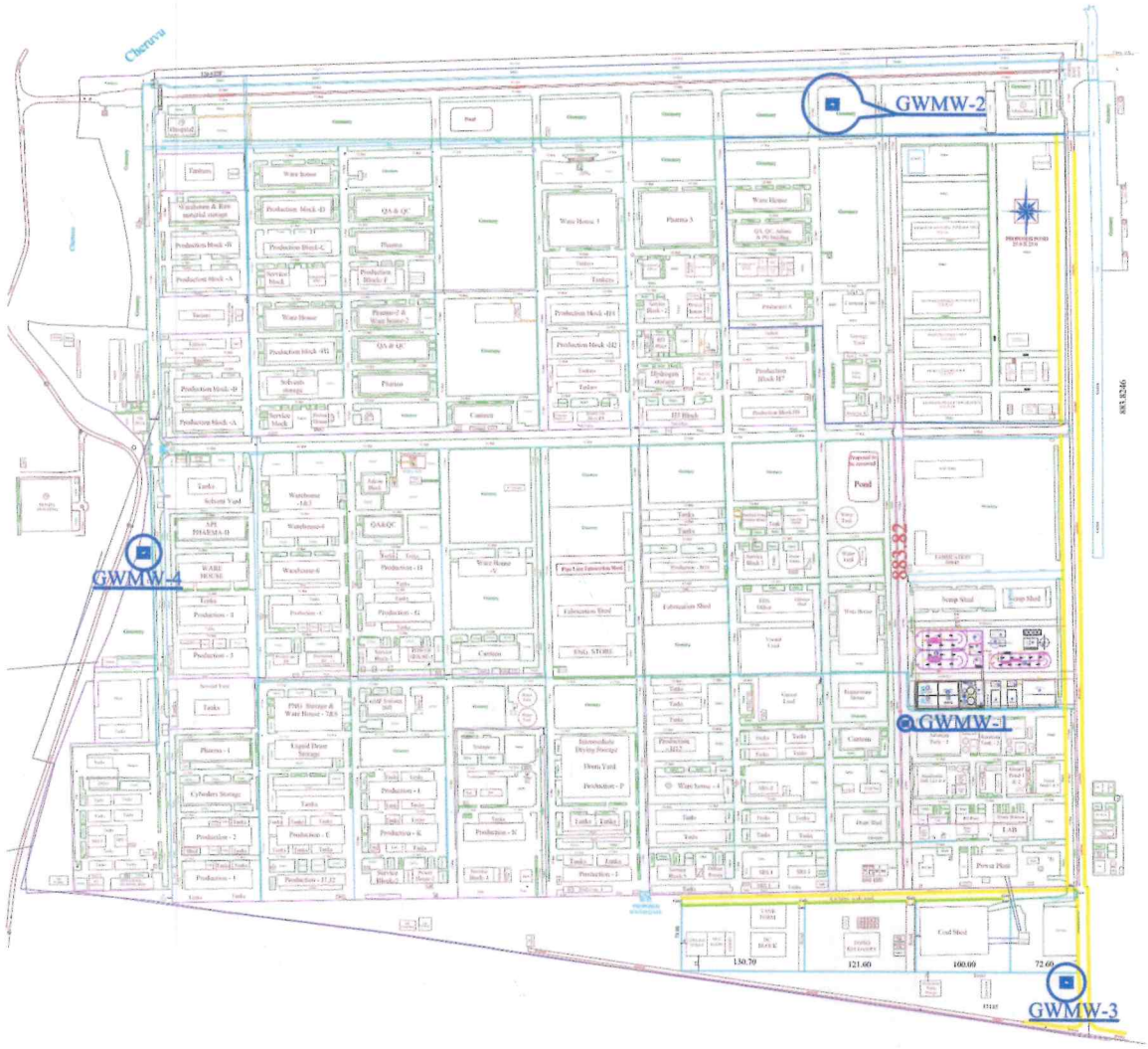
8.1 Observations & Recommendations:

1. Removal of Oil & Grease at primary treatment

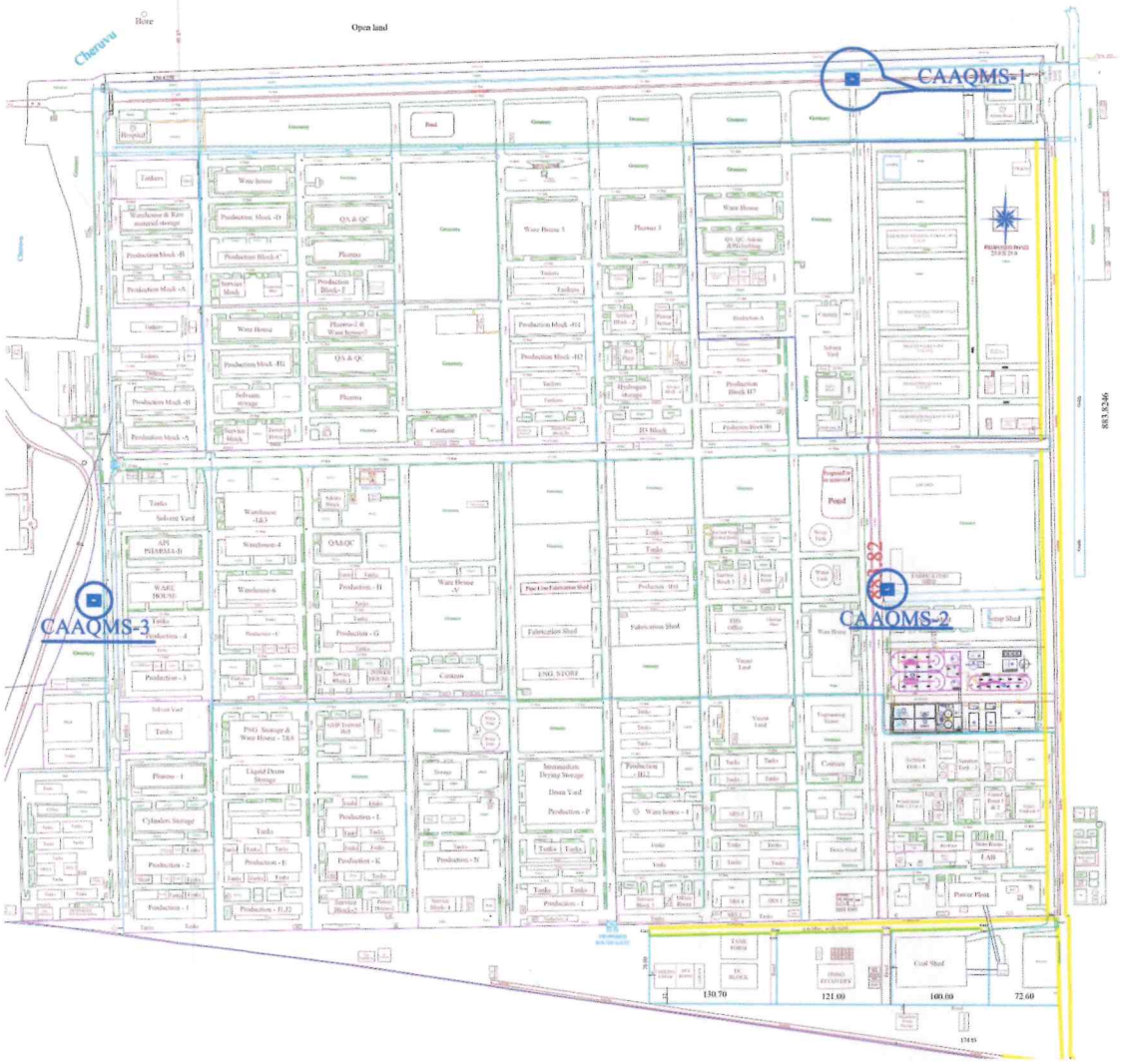
   Oil & Grease removal efficiency very less at collection tank due to high alkaline conditions and no proper mechanism for collection of O&G from raw effluent.

   - pH to be adjusted to slightly acidic.
   - Installation of automatic oil & grease mechanism at existing channel of syphon system.
2. Push pull system to be arranged to collect the VOCs at collection tank.
3. Change of Activated carbon filter media with 90 grade crystals of activated carbon.
4. Low DO observed in aeration system and need to install additional blowers.
5. Adequate scrubbing system is provided to all the reactors where acidic reactions are being carried. The industry is sending scrubbing media to ETP for treatment.
6. pH indicators are not connected to all scrubbers.
7. pH of Scrubber liquid showing less than 3.0. Periodic replacement of scrubber liquid is to be done after it is saturated.
8. Few of the scrubbers are single stage which can be modified to double stage for efficiently neutralizing emissions.
9. The industry is maintaining the records of in-house regular monitoring of the scrubbers.

GROUND WATER MONITORING WELL LOCATIONS



CAAQMS LOCATIONS



SV ENVIRO LABS & CONSULTANTS

(Environmental Engineers & Consultants in Pollution Control)

Corporate Office & Laboratory : Enviro House, B-1, Block-B, IDA, Autonagar, Visakhapatnam-530012
www.svenvirolabs.com Tele : 0891-2755528, Fax : 0891-2755529
E-mail: info@svenvirolabs.com, svenviro_labs@yahoo.co.in

B.O : 2-53, Mahipala Street, Yanam - 533464, Cell: 91-9440338628

Recognized by Govt.of India-MoEF & CC, New Delhi ,Accredited by: QCI-NABET for EIA

An ISO 9001:2008 Organization

Ref: SVELC/HISL/22-04/02 Date:07-12-2022

NAME AND ADDRESS : **HETERO INFRASTRUCTURE LIMITED**
NARASAPURAM (V),
NAKKAPALLI (M),
VISAKHAPATNAM.

SAMPLE PARTICULARS : **WATER**

SOURCE OF COLLECTION :
1.BORE WELL - 1 (Near ETP)
2. BORE WELL - 2 (Near Honour Labs)
3. BORE WELL - 3 (Near labour Shed)
4. BORE WELL – 4 (Near HLL-3)

DATE OF COLLECTION : **30.11.2022**

TEST REPORT

S.NO	PARAMETER	UNIT	1	2	3	4
1.	pH	Mg/L	8.53	7.33	7.79	7.93
2.	Total Dissolved Solids	Mg/L	7560	30250	13100	13605
3.	Total Alkalinity as $CaCo_3$	Mg/L	476	356	415	536
4.	Total Hardness as $CaCo_3$	Mg/L	960	9038	1640	1760
5.	Calcium as Ca	Mg/L	48.1	577	144	192
6.	Magnesium as Mg	Mg/L	204	1846	311	312
7.	Chlorides as Cl^-	Mg/L	3242	13962	5226	5681
8.	Copper as Cu	Mg/L	<0.01	<0.01	<0.01	<0.01
9.	Manganese as Mn	Mg/L	0.26	2.9	0.56	0.06
10.	Zinc as Zn	Mg/L	0.4	0.5	0.09	0.19
11.	Aluminium as Al	Mg/L	0.17	0.62	0.04	0.18
12.	Boron as B	Mg/L	1.8	0.86	1.3	1.1
13.	Barium as Ba	Mg/L	0.16	0.08	0.05	0.1

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14.	Selenium as Se	Mg/L	0.02	0.06	0.04	0.04
15.	Silver as Ag	Mg/L	<0.01	<0.01	<0.01	<0.01
16.	Cadmium as Cd	Mg/L	<0.01	<0.01	<0.01	<0.01
17.	Cyanide as CN	Mg/L	<0.01	<0.01	<0.01	<0.01
18.	Lead as Pb	Mg/L	<0.01	<0.01	<0.01	<0.01
19.	Mercury as Hg	Mg/L	<0.01	<0.01	<0.01	<0.01
20.	Nickel as Ni	Mg/L	0.04	<0.01	<0.01	<0.01
21.	Total Arsenic as As	Mg/L	0.05	0.13	0.06	0.03
22.	Total Chromium as Cr	Mg/L	<0.01	<0.01	<0.01	<0.01
23.	Iron as Fe	Mg/L	0.21	0.12	0.1	0.08

Note: All the above parameters are tested as per APHA methods, 23rd Edition, 2017

CHECKED BY

SV ENVIRO LABS & CONSULTANTS

SV ENVIRO LABS & CONSULTANTS * MARRIPALEM * VISAKHAPATNAM-18 *

सत्यमेव जयते
भारत सरकार
Government of India
वाणिज्य और उद्योग मंत्रालय
Ministry of Commerce & Industry
पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पेसो)
Petroleum & Explosives Safety Organisation (PESO)
पाँचवा तल, ए-ब्लाक, सी.जी.ओ.कॉम्प्लेक्स, सेमिनरी हिल्स,
नागपुर- 440006
5th Floor, A-Block, CGO Complex, Seminary Hills,
Nagpur - 440006

E-mail : explosives@explosives.gov.in

Phone/Fax No : 0712-2510248, Fax-2510577

संख्या /No. : P/HQ/AP/15/3852 (P250196)

दिनांक /Dated : 23/12/2014

सेवा में /To,

M/s. Hetero Drugs Limited (Unit IX),
Hetero Corporate, 7-2-A2,
Indl. Estate, Sanath Nagar,
Hyderabad,
District: HYDERABAD,
State: TELANGANA
PIN: 500018

विषय /Sub : Plot No, Sy. No. 119/1A to 119/1F, 119/2A to 119/2F, 119/3 & 120/1, 120/2A to 120/2L, NA, N. Narasapuram (v), Nakkapally (m), District: VISAKHAPATNAM, State: Andhra Pradesh, PIN: 999999 में स्थित पेट्रोलियम वर्ग A,B अधिष्ठापन - पेट्रोलियम नियम 2002 के अंतर्गत प्रपत्र XV में जारी अनुज्ञप्ति सं P/HQ/AP/15/3852 (P250196) – संशोधन के संदर्भ में ।

Existing Petroleum Class A,B installation at Plot No, Sy. No. 119/1A to 119/1F, 119/2A to 119/2F, 119/3 & 120/1, 120/2A to 120/2L, NA, N. Narasapuram (v), Nakkapally (m), District: VISAKHAPATNAM, State: Andhra Pradesh, PIN: 999999- Licence No. P/HQ/AP/15/3852 (P250196) - granted in form XV under Petroleum Rules 2002 - Amendment regarding

महोदय /Sir (s),

कृपया आपके उपर्युक्त विषय से संबंधित पत्र संख्या explo/petro/unit/02/2014-15 दिनांक 29/10/2014 का संदर्भ ग्रहण करें ।
Reference to your letter No. explo/petro/unit/02/2014-15 dated 29/10/2014 on the above subject.

दिनांक 31/12/2024 तक वैध अनुज्ञप्ति संख्या P/HQ/AP/15/3852 (P250196) दिनांक 23/12/2014 निम्नलिखित वर्ग एवं मात्राओं में पेट्रोलियम भंडारण के लिए यथा संशोधित कर इस पत्र के साथ लौटाई जा रही है ।
Licence No. P/HQ/AP/15/3852 (P250196) dated 23/12/2014 valid upto 31/12/2024 is returned herewith duly amended with respect to Capacity Amendment,

पेट्रोलियम का विवरण /Description of Petroleum	किलोलीटरों में अनुज्ञप्ति क्षमता /Quantity licenced in KL
वर्ग क प्रपुंज पेट्रोलियम /Petroleum Class A, in bulk	620.00 KL
वर्ग क प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class A, otherwise than in bulk	NIL
वर्ग ख प्रपुंज पेट्रोलियम /Petroleum Class B, in bulk	124.00 KL
वर्ग ख प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class B, otherwise than in bulk	NIL
वर्ग ग प्रपुंज पेट्रोलियम /Petroleum Class C, in bulk	NIL
वर्ग ग प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class C,otherwise than in bulk	NIL
कुल क्षमता /Total	744.00 KL

कृपया पावती दें।
Please acknowledge the receipt.

Note : ~~Your Balance Amount with the Organisation is Rs(0000), which will be used for processing of the same Licence in future.~~

भवदीय /Yours faithfully,

(आर.पी.सिंह)
(R.P.Singh)
उप मुख्य विस्फोटक नियंत्रक
Dy. Chief Controller of Explosives
कृते मुख्य विस्फोटक नियंत्रक
For Chief Controller of Explosives
नागपुर
Nagpur

Copy forwarded to :-
1. The The District Revenue Officer & Additional District Magistrate, Visakhapatnam , VISAKHAPATNAM(Andhra Pradesh) with reference to his NOC No 2897/2010/C6, Dated 20/05/2011
2. Jt. Chief Controller of Explosives, South Circle Office, CHENNAI. A Copy of the licence along with approved plan is enclosed.
3. Dy. Chief Controller of Explosives, Visakhapatanam, VISAKHAPATNAM. A Copy of the licence along with approved plan is enclosed.

For Chief Controller of Explosives
Nagpur

1823

FORM XV
(see Article 6 of the First Schedule)

LICENCE TO IMPORT AND STORE PETROLEUM IN AN INSTALLATION

Licence No. : **P/HQ/AP/15/3852(P250196)** Fee Rs. **11660/-** per year

Licence is hereby granted to **M/s. Hetero Drugs Limited (Unit IX), Hetero Corporate, 7-2-A2, Indl. Estate, Sanath Nagar, Hyderabad, District: HYDERABAD, State: TELANGANA, PIN: 500018** valid only for the importation and storage of **744.00 KL** Petroleum of the class(es) and in quantities as herein specified and storage thereof in the place described below and shown on the approved plan No **P/HQ/AP/15/3852(P250196)** dated **20/07/2011** attached hereto subject to the provisions of the Petroleum Act, 1934 and the rule made thereunder and to the further conditions of this Licence.

The Licence shall remain in force till the 31st day of December **2024**

Description of Petroleum	Quantity licenced in KL
Petroleum Class A, in bulk	**620.00 KL**
Petroleum Class A, otherwise than in bulk	**NIL**
Petroleum Class B, in bulk	**124.00 KL**
Petroleum Class B, otherwise than in bulk	**NIL**
Petroleum Class C, in bulk	**NIL**
Petroleum Class C,otherwise than in bulk	**NIL**
Total:	**744.00 KL**

July 20, 2011

Chief Controller of Explosives

1). Amendment dated - 16/02/2012
2). Amendment dated - 23/12/2014

DESCRIPTION AND LOCATION OF THE LICENSED PREMISES

The licensed premises, the layout , boundaries and other particulars of which are shown in the attached approved plan are situated at **Plot No: Sy. No. 119/1A to 119/1F, 119/2A to 119/2F, 119/3 & 120/1, 120/2A to 120/2L, NA, N. Narasapuram (v), Nakkapally (m), District: VISAKHAPATNAM, State: Andhra Pradesh, PIN: 999999** and consists of Twenty aboveground **Petroleum Class A & Four aboveground Petroleum Class B storage tanks together with connected facilities.** together with connected facilities.

भारत सरकार
Government of India
वाणिज्य और उद्योग मंत्रालय
Ministry of Commerce & Industry
पेट्रोलियम तथा विस्फोटक सुरक्षा संगठन (पैसो)
Petroleum & Explosives Safety Organisation (PESO)
पांचवा तल, ए-ब्लाक, सी.जी.ओ.कॉम्प्लेक्स, सेमिनरी हिल्स
नागपुर- 440006
5th Floor, A-Block, CGO Complex, Seminary Hills,
Nagpur - 440006

E-mail : explosives@explosives.gov.in
Phone/Fax No : 0712 -2510248, Fax-2510577

या /No. : P/HQ/AP/15/3853 (P250194)

दिनांक /Dated : 02/02/2015

में /To,

M/s. M/s. Hetero Labs Ltd., (Unit IX),
Hetero Corporate, 7-2-A2,,
Indl. Estate, Sanath Nagar,
Hyderabad,
District: HYDERABAD,
State: TELANGANA
PIN: 500018

/Sub : Plot No, Sy. No. 119/1A to 119/1F, 119/2A to 119/2F, 119/3 & 120/1, 120/2A to 120/2L, NA, N.Narasapuram (v), Nakkapally (m), Nakkapalle, Taluka: Nakkapalle, District: VISAKHAPATNAM, State: Andhra Pradesh, PIN: 999999 में स्थित पेट्रोलियम वर्ग A,B अधिष्ठापन - पेट्रोलियम नियम 2002 के अंतर्गत प्रपत्र XV में जारी अनुज्ञप्ति सं P/HQ/AP/15/3853 (P250194) – संशोधन के संदर्भ में ।

Existing Petroleum Class A,B installation at Plot No, Sy. No. 119/1A to 119/1F, 119/2A to 119/2F, 119/3 & 120/1, 120/2A to 120/2L, NA, N.Narasapuram (v), Nakkapally (m), Nakkapalle, Taluka: Nakkapalle, District: VISAKHAPATNAM, State: Andhra Pradesh, PIN: 999999- Licence No. P/HQ/AP/15/3853 (P250194) - granted in form XV under Petroleum Rules 2002 - Amendment regarding

य /Sir

कृपया आपके उपर्युक्त विषय से संबंधित पत्र संख्या Explo/Petro/Unit-IX/03/2014-15 दिनांक 26/12/2014 का संदर्भ ग्रहण करें ।
Reference to your letter No. Explo/Petro/Unit-IX/03/2014-15 dated 26/12/2014 on the above subject.

दिनांक 31/12/2024 तक वैध अनुज्ञप्ति संख्या P/HQ/AP/15/3853 (P250194) दिनांक 02/02/2015 निम्नलिखित वर्ग एवं मात्राओं में पेट्रोलियम भंडारण के लिए यथा संशोधित कर इस पत्र के साथ लौटाई जा रही है ।
Licence No. P/HQ/AP/15/3853 (P250194) dated 02/02/2015 valid upto 31/12/2024 is returned herewith duly amended with respect to Lay out Amendment,

पेट्रोलियम का विवरण /Description of Petroleum	किलोलीटरों में अनुज्ञप्ति क्षमता /Quantity licenced in KL
वर्ग क प्रपुंज पेट्रोलियम /Petroleum Class A, in bulk	328.00 KL
वर्ग क प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class A, otherwise than in bulk	NIL
वर्ग ख प्रपुंज पेट्रोलियम /Petroleum Class B, in bulk	112.00 KL
वर्ग ख प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class B, otherwise than in bulk	NIL
वर्ग ग प्रपुंज पेट्रोलियम /Petroleum Class C, in bulk	NIL
वर्ग ग प्रपुंज पेट्रोलियम से भिन्न /Petroleum Class C,otherwise than in bulk	NIL
कुल क्षमता /Total	440.00 KL

कृपया पावती दें।
Please acknowledge the receipt.

Note : Your Balance Amount with the Organisation is Rs.[redacted], which will be used for processing of the same Licence in future.

भवदीय /Yours faithfully,

(आर.पी.सिंह)
(R.P.Singh)
उप मुख्य विस्फोटक नियंत्रक
Dy. Chief Controller of Explosives
कृते मुख्य विस्फोटक नियंत्रक
For Chief Controller of Explosives
नागपुर
Nagpur

warded to :-
e District Revenue Officer & Additional District Magistrate, Visakhapatnam , VISAKHAPATNAM(Andhra Pradesh) with reference to his NOC No 2898/2010/C6 Dated 20/05/2011
f Controller of Explosives, South Circle Office, CHENNAI. A Copy of the licence along with approved plan is enclosed.
ef Controller of Explosives, Visakhapatanam, VISAKHAPATNAM. A Copy of the licence along with approved plan is enclosed.

For Chief Controller of Explosives
Nagpur

(अधिक जानकारी जैसे आवेदन की स्थिति, शुल्क तथा अन्य विवरण के लिए हमारी वेबसाईट : http://peso.gov.in देखें)
(For more information regarding status,fees and other details please visit our website: http://peso.gov.in)

69

FORM XV
(see Article 6 of the First Schedule)

LICENCE TO IMPORT AND STORE PETROLEUM IN AN INSTALLATION

Licence No. : **P/HQ/AP/15/3853(P250194)** Fee Rs. **7100/-** per year

Licence is hereby granted to **M/s. M/s. Hetero Labs Ltd., (Unit IX), Hetero Corporate, 7-2-A2,, Indl. Estate, Sanath Nagar, Hyderabad, District: HYDERABAD, State: TELANGANA, PIN: 500018** valid only for the importation and storage of **440.00 KL** Petroleum of the class(es) and in quantities as herein specified and storage thereof in the place described below and shown on the approved plan No **P/HQ/AP/15/3853(P250194)** dated **20/07/2011** attached hereto subject to the provisions of the Petroleum Act, 1934 and the rule made thereunder and to the further conditions of this Licence.

The Licence shall remain in force till the 31st day of December **2024**

Description of Petroleum	Quantity licenced in KL
Petroleum Class A, in bulk	**328.00 KL**
Petroleum Class A, otherwise than in bulk	**NIL**
Petroleum Class B, in bulk	**112.00 KL**
Petroleum Class B, otherwise than in bulk	**NIL**
Petroleum Class C, in bulk	**NIL**
Petroleum Class C,otherwise than in bulk	**NIL**
Total	**440.00 KL**

July 20, 2011

Chief Controller of Explosives

1). Amendment dated - 16/02/2012
2). Amendment dated - 02/02/2015

DESCRIPTION AND LOCATION OF THE LICENSED PREMISES

The licensed premises, the layout , boundaries and other particulars of which are shown in the attached approved plan are situated at **Plot No: Sy. No. 119/1A to 119/1F, 119/2A to 119/2F, 119/3 & 120/1, 120/2A to 120/2L, NA, N.Narasapuram (v), Nakkapally (m), Nakkapalle, Taluka: Nakkapalle, District: VISAKHAPATNAM, State: Andhra Pradesh, PIN: 999999** and consists of **Twenty Four aboveground Petroleum Class A & Two aboveground Petroleum Class B storage tanks together with connected facilities.** together with connected facilities.

GOVERNMENT OF ANDHRA PRADESH
STATE DISASTER RESPONSE & FIRE SERVICES DEPARTMENT

From :
The Director General,
State Disaster Response and Fire Services,
Andhra Pradesh, Vijayawada.

To :
The Management,
M/s Hetero Infrastructure SEZ Limited,
Sy.No.125, 138,150 N.Narasapuram Village,
Nakkapalli Mandal, Anakapalli District

Rc.No.15566/VSP/RFO/2020 MSB-ER, SDP Dated:22-07-2022.

Sir,

Sub: A.P. State Disaster Response and Fire Services Department-MSB Section-Issuance of Renewal of No Objection Certificate to Existing Building of M/s Hetero Infrastructure SEZ Limited, Sy.No.125, 138,150 N.Narasapuram Village, Nakkapalli Mandal, Anakapalli District -Regarding.

Ref: 1. Occupancy NOC issued vide Rc.No: 15566/VSP/RFO/2020, Dated:23-12-2020 of Regional Fire Officer, Eastern Region, Vijayawada.
2. Application of M/s.Hetero Infrastructure SEZ Limited, Sy.No.125, 138,150 N.Narasapuram Village, Nakkapalli Mandal, Anakapalli District

* * * * * * *

The Management of M/s Hetero Infrastructure SEZ Limited, Sy.No.125, 138,150 N.Narasapuram Village, Nakkapalli Mandal, Anakapalli District has requested to issue Renewal of No Objection Certificate by duly remitting the Renewal Fee towards Fire Precautionary Fee vide reference 2nd cited.

2) The No Objection Certificate for Occupancy Certificate was issued vide reference 1st cited to the existing Application of M/s Hetero Infrastructure SEZ Limited, Sy.No.125, 138,150 N.Narasapuram Village, Nakkapalli Mandal, Anakapalli District with (15) Blocks with total built up area of 12612Sq. Mtrs., for Industrial Occupancy (Category-G2)

3) Block Wise Details.

Sl. No	Name of the Block	No of Floors	Height of the Building	Built up Area in Sq.Mtrs	No. of Staircase
1	Incinerator	Ground Floor	08.45	200.00	--
2	Waste Hazardous Shed	Ground Floor	03.66	840.00	--
3	Coal Shed 1 & 2	Ground Floor	11.60	3610.00	--
4	DMSO Palnt Storage Shed-2	Ground Floor	10.00	900.00	--
5	20TPH Boiler-	Ground +02UF	14.00	720.00	--
6	45TPH Boiler	Ground +02UF	15.00	2513.00	2 Nos.
7	15TPH Boiler	Ground Floor	14.39	480.00	--
8	ETP Office , RO Plant	Ground Floor	05.82	306.00	--
9	12TPH Boiler	Ground Floor	10.00	150.00	--
10	Control Room, Degass Sump, ETP, RO Plant	Ground Floor	05.82	300.00	--
11	12TPH Boiler	Ground Floor	05.82	300.00	--
12	RO Plant & Lab Shed	Ground Floor	12.00	486.00	--

(Contd..2p)

13	Detoxification Shed	Ground Floor	05.78	1400.00	--
14	RO Plant	Ground Floor	05.05	200.00	--
15	Vermi Compost Shed	Ground Floor	05.05	207.00	--
			Total	**12612.00**	

4) The management has submitted the self-Certification report / Affidavit and stated that the furnished information is correct and to maintained the conventional systems (existing Firefighting systems) are in good working condition along with the following Fire Safety Measures keeping in view of practicality, an extra safety precaution, maintenance and resilience and also, it is noticed at any time that the information provided is false, they understand that Renewal NOC deemed may be cancelled by the concerned authority.

5) In view of the above and taking into consideration of the larger public interest and in the context of the COVID-19 pandemic across the country and also based on the Self-Certification/Affidavit submitted by the management, the Renewal of No Objection Certificate is issued to the Existing Building of M/s Hetero Infrastructure SEZ Limited, Sy.No.125, 138,150 N.Narasapuram Village, Nakkapalli Mandal, Anakapalli District with (15) Blocks with total built up area of 12612Sq. Mtrs., for Industrial Occupancy (Category-G2)

6) It is suggested to the Management for providing the following Fire Safety Measures keeping in view of practicality, maintenance and resilience:

Sl. No.	**Fire Fighting Equipment**	**Prescribed**	**Provided**	**Deficit**
1	Fire Extinguishers	ABC type	122Nos.	Nil
2	Temperature Sensors	Temperature Sensors connected " Hooter " and that can give alerts through Cell phone instead of Sprinklers	Provided	Nil
3	Manual Call Point System	One Number per Floor	25 Nos.	Nil
4	Under Ground Static Water Tank (or) Terrace Water Tank	5,000 Ltrs. (Minimum)	1,00,000 Ltrs	Nil
5	Provide as per Hazard analysis and Risk assessment report or Third Party Fire safety Audit report or Chief Engineer of the Company and submit Photos	Electrical Pump 6833 LPM-01 No. Diesel Pump 6833LPM-01 No Jockey Pump-180 LPM-01 No.	Provided as per Third Party Fire Safety Audit Report	Nil

Note:-Further the management has also provided the (02) Nos.of 5 HP triplex pumps.

(Contd..3p)

7) **Electrical Safety System.**

(i) Miniature Circuit Breakers, MCB's.	:	Yes/Provided
(ii) No Overloading of Power Sockets..	:	Yes, ensured
(iii) 10 years old wiring to be changed specially wherever A/c is there ?	:	Yes, ensured
(iv) LED Lights in Closed Rooms, Corridors, Staircases connected to Inverter (Battery).	:	Yes, Connected
(v) Grounding/Earthing is provided	:	Yes/Provided
(vi) Lightening Conductor is provided	:	Yes/Provided
(vii) The above shall be certified by authorized Electrical Contractor/ Supervisor.	:	Yes/Certified

8) In view of the above and based on the Affidavit submitted by the Management, the Renewal No Objection Certificate is hereby issued to the M/s Hetero Infrastructure SEZ Limited, Sy.No.125, 138,150 N.Narasapuram Village, Nakkapalli Mandal, Anakapalli District

9) Further, the Management has submitted the following documents.
   i. Hazard Assessment and Risk analysis report
   ii. On site/Off site emergency plan.
   iii. Third party safety audit.

10) Further, the Management has to submit the following information in self certification format to the website which will be intimated soon as shown below.

SELF CERTIFICATION (to be uploaded)					
Name and address of the industry / premises:					
S.No	Name of the Chemical	Storage Quantity at Present	No.of Days The quantity received	Nearest Fire Station with Phone No	Last Information given to Fire Services on Date
The above information is true to the best of my Knowledge					
Date			Signature Authority		

(b) **LIST OF HAZARDOUS CHEMICALS EMERGENCY INFORMATION**

Name of the Industry:															
Address:															
S. No	Chemical Name	Nature of chemical/toxic/ poisonous/flammable/explosive/hazardous	In case of Fire: Fire Fighting Media and instructions	Spill Cleanup procedure	Contact with eye/skin	Incompatible with	PPE	Flash point OC	Boiling Point OC	LEL%	UEL %	MSDS CODE	STORAGE Quantity	Geo Coordinates	
														Latitude	Longitude

11) Fire Safety Suggestions:

Sl. No.	As Builder	As Occupant	As Security personnel
1.	All the Fire protection arrangements shall be maintained in good working condition at all time.	The Escape/Exit roots shall not be kept Locked/Blocked or Encroached.	All the occupants must be trained the correct method of operation of the Fire Fighting System installed.

(Contd..4p)

Sl. No.	As Builder	As Occupant	As Security personnel
2.	Any loss of life or property due to non-functioning of Fire Safety Measures and other Installations shall be the responsibility of the management.	All occupants shall be trained to operate the Fire Safety Equipment during Emergency.	Mock Drills should be conducted once in 03 months for initial two years. Thereafter, once in every 06 months.
3.	Addition/Alteration, if any in the Building may be verified by Building Authority.	Mock Drills should be conducted once in 03 months for initial two years. Thereafter, once in every 06 months.	All Security Personnel shall be trained to operate the Fire Safety Equipment during Emergency.
4.	This Renewal Fire Certificate is only from Fire Safety Point of View.	Raise the alarm If the fire cannot be controlled; Evacuate the area completely at once with nearest Safe Exit.	Attack the Fire using available Fire Equipment only if you feel capable of controlling it. If not, take all steps to isolate the area by closing Doors and Windows.

11) The Management is responsible all risks involved in case of Fire Accident.

12) This Renewal of No Objection Certificate is valid for a period of Five years from the date of issue of this letter to the Management M/s Hetero Infrastructure SEZ Limited, Sy.No.125, 138,150 N.Narasapuram Village, Nakkapalli Mandal, Anakapalli District subject to the compliance of above Fire and Electrical Safety Measures. *The Owner/Occupier/Builder/Management concerned of the Building shall submit Self Declaration/Certification with regard to working condition of above Fire Safety System every year in the prescribed format and submit/upload the photographs of the Mock Drills conducted in the premises.* It is the responsibility of the Builder to maintain the Fire Safety Equipment in good working condition at all times and apply for next Periodical Renewal of No Objection Certificate, duly remitting the User Charges vide G.O.Ms.No.90, Home (Prisons & Fire Services) Department Dated:13-08-2021 & G.O.Ms.No.120, Home (Prisons & Fire Services) Department Dated:25.10.2021, two (02) months before expiry of this Renewal of No Objection Certificate.

Yours Sincerely,

Director General,
State Disaster Response and Fire Services,
Andhra Pradesh, Vijayawada.

Copy to the Director of Industries, 8th floor, APIIC Towers, Mangalagiri-522503

Note: In case of any emergency call to 101 or State Fire Control Room-9100108101.

CLASSIFIEDS

JOBS

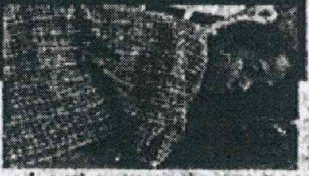
SECURITY GUARDS

FACULTY / TEACHERS

...బోధనేతర సిబ్బంది మహాధర్నా 7న

ముచ్చటగా మూడేళ్లు.. వడివడిగా అడుగులు

జ్వరంతో చిన్నారి మృతి



CIN : U45200TG2006PLC049668

HETERO INFRASTRUCTURE SEZ LTD.

Ch. Lakshmipuram (Vill.), N. Narasapuram (Vill.), Rajayyapeta (Vill.), Nakkapally (Mandal)
VISAKHAPATNAM (Dist.) - 531 081. A.P., India. Tel : 08931- 227307, Fax : 08931- 227200
E-mail : contact@heterodrugs.com. URL : http//www.heterodrugs.com.

27/10/2022

Letter No: HIS/EHS/APPCB/2022-23/16

The Environmental Engineer
Regional Office
A.P. Pollution Control Board
Visakhapatnam

Dear Sir,

Sub : Submission of Environmental Statement in Form-V of M/s Hetero Infrastructure SEZ Ltd for the Financial year 2021-22 - Regarding

Ref : APPCB/VSP/VSP/219/CFO/HO/2017 Dated 11/12/2017 and amendment dated 25/06/2019

With reference to above, we are herewith submitting the environmental statement in Form-V for the financial year 2021-22 for your information and perusal.

You are requested to kindly acknowledge the receipt.

Thanking you Sir,

Yours faithfully,
For Hetero Infrastructure SEZ Ltd

S. Kullayi Reddy
Associate Vice President -EHS

Enclosures : As Above

PROFILE

M/s. HETERO INFRASTRUCTURE SEZ Ltd, obtained EC & consent for establishment for setting up of 17 manufacturing facilities for producing Bulk Drug intermediates & APIs and also got Consent for operation for the same SEZ. Out of 17 permitted units, Hetero constructed following 03 units in Hetero Infrastructure SEZ Ltd,

- Hetero Drugs Ltd, Unit-IX (Plot No:1)
- Hetero Labs Ltd, Unit-IX (Plot No: 2 & 3)
- Honour Lab Ltd, Unit-III (Plot No:4)

All above mentioned units are producing Bulk Drugs & API and all these products are being manufactured on Regular basis. Manufacturing of the products is being undertaken as per the consent conditions.
Hetero Infrastructure is providing services like Water, Steam, Effluent Treatment Plant, Sewage Treatment plant, Vermi Compost plant, Scrap Yard, Hazardous waste managment etc to all the above mentioned units.

Apart from above mentioned units, the other unit Hetero Labs Ltd, Unit-III is making use of these facilities of Hetero Infrastructure SEZ Ltd as per the CFE & CFO.

Salient features of
M/s. Hetero Infrastructure SEZ Limited

Total Site Area	340 Acres
Built up Area	180 Acres
Area of Green Belt Developed	100 Acres
Area available for Green Belt Development	50 Acres
Year of Establishment	2010
Year of Commissioning	2011
Capital Cost	120 Crores
Type of plant	Facilitator for Bulk Drug Manufacturing units
Water Consumption as on date	242 KLD
Investment on Pollution Control	
• Capital Investment	100 Crore
• Recurring O & M	300 Lakhs/annum
Employment	300

MINISTRY OF ENVIRONMENT AND FORESTS NOTIFICATION
New Delhi, the 22nd April 1993
(PART II, SECTION 3, SUB-SECTION (1)

"FORM - V"
ENVIRONMENTAL STATEMENT FOR
THE FINANCIAL YEAR ENDING THE 31ST MARCH 2022

PART – A

Name and address of the owner/ Occupier of the industry, operation Or process	:	**Dr. C. Mohan Reddy, Director** 7-2-A2, Hetero Corporate, Industrial Estate Sanathnagar Hyderabad -500018
Registered Office Address	:	**M/s. Hetero Infrastructure SEZ Ltd,** 7-2-A2, Hetero Corporate Industrial Estate Sanathnagar Hyderabad -5000018 Tel: 040- 23704923/24/25
Works address	:	**M/s. Hetero Infrastructure SEZ Ltd,** N.Narsapuram (V), Nakkapally (Md), Visakhapatnam Dist - 531081.
Industry Category	:	Red.
Production Capacity	:	NA (Only Services)
Month and Year of Establishment	:	2010.
Date of Last Environmental Statement Submitted	:	September 2021

PART-B
Water and Raw Material Consumption

Water Consumption (m^3/day)

S.No	Water Consumption	Quantity (KL/day) Including power plant	Quantity (KL/day) Including power plant
1.	Process & Washing	837	-
2.	Cooling tower Make up	250	-
3.	Boiler Feed	330	242
4.	Domestic	120	-
5.	Raw water RO make up	107	
Total		**1644**	**242**

PART-C

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

	Quality ofPollutants discharged (mass/day)	Concentrations of Pollutants discharges (Mass/volume)	Percentage of variation from prescribed standards with reasons.
1.Ambient Air Quality	**Analysis Report Enclosed**		Within the limits
2.Stack Emissions			
3.Noise levels			
4.Effluent			

PART-D

HAZARDOUS WASTES

(As specified under 1[Hazardous Wastes (Management, Handling and Transboundry Movement) Rules, 2008)]

Hazardous Wastes	Total Quantity (Kg.)	
	During the previous financial Year (2020-21)	During the current financial Year (2021-22)
Forced Evaporation Salts	2205.4 Tons	1676.84
ETP Sludge	53.21 Tons	47.46
Incinerator Ash	6.12	0

PART-E

Solid Wastes

Solid waste	Total Quantity	
	During the previous financial year (2020-21)	During the current financial year (2021-22)
Boiler ash	7650 Tons	9418 Tons

PART-F

Characteristics in terms of Composition and quantum of hazardous as well as solid wastes and the disposal practices adopted by them

Fly Ash from Boiler : To Brick Manufacturers
Spent Carbon from Process : To TSDF , Parawada / Cement Industries
Forced Evaporation Salts : To TSDF , Parawada
Organic Residue : To TSDF , Parawada and Cement Industries

PART-G

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

The industry has adopted following measures for the conservation of natural resources:

- Sea water Desalination Plant for meeting the water requirement of the industry.
- Sewage Treatment Plant for reuse of Domestic wastewater for gardening purposes.
- Usage of vermicomposting for green belt and grounding purpose as a replacement for chemical fertilizers.
- Green belt Development for abatement of pollution

The industry adopted all possible pollution control measures (Common Facility located at M/s Hetero Infrastructure SEZ Ltd) which includes Equipment's for Conservation of energy, Effluent Treatment Plants (Stripper, MEE, ATFD Bio-tower & Dual stage aerobic Treatment plant based on ASP), Sewage Treatment plants, Equipments for controlling fugitive emissions (Scrubbers, Condensers) for the abatement of pollution. To avoid any chances of ground water/ Soil contamination, the industry has constructed all above Ground tanks for ETP, STP etc.

Further the industry has installed 03 nos of Continuous Ambient Air Quality Monitoring (CAAQM) stations for monitoring the quality of the air, Online effluent monitoring system (OEMS) for various parameters to check the quality of treated effluents being disposed into Sea, Portable & online VOC meters for measuring organic vapours concentration in and around factory area.

PART-H

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

The industry has already invested around Rs. 100.00 Crores towards installation of pollution control devices in Hetero Infrastructure SEZ Ltd and developed green belt in and around the factory Premises in an area of more than 40% of the total area of the Industry. Green belt consists of various plants like Ganuga, Neem, Almond, Silver oak, Plintoform, casurina, Eucalyptus and Conacorpous etc.

All installed Pollution control equipments are periodically evaluated and necessary modifications/replacements are being made for improvement in their performances from time to time as and when required irrespective of Budget allocations.

The industry proposed to invest additional amount of Rs 100 crore towards installation of new 1.2 MLD Effluent Treatment plant and associated facilities.

PART-I

Any other particulars for improving the quality of the environment

- Increasing the greenbelt area by planting more plants, lawns, bushes etc.
- Industry is maintaining good housekeeping, mitigating fugitive emissions, reducing spills of raw material by taking all possible measures.
- Recovering of solvents from the effluents in stripper thereby reducing the organic vapours entry into the atmosphere and effective biological treatment.
- Rainwater harvesting by collecting complete run off in an open pond for recharging of ground water as well as for reuse.
- Captive power generation of 6.1 MW in connection to the existing 45 TPH Boiler.
-

CONCLUSION

Hetero Infrastructure SEZ limited is taking all possible measures for the abatement of pollution and certain steps are in consideration for workplace improvement and cost reduction. The following are the pollution abatement measures taken by the industry:

Taking all steps required to assure low emission levels, without any prejudice to the quantum of production.

1. Utilization of domestic wastewater discharges for development of greenery after treating in Sewage Treatment Plants.
2. Giving due importance to the greenery and ultimately taken care in abating the pollution.
3. Rainwater harvesting by way of collecting rainwater in a pond created by the industry
4. Online instruments for monitoring the pollution levels in and around factory premises.
5. Operating Effluent Treatment Plant (Common) for bringing the pollution levels well within the norms of the Board.
6. Regular monitoring of air, water, effluent and Ground water by third party once in a month to keep watch on the pollution levels.

****

Annexure IV

SV ENVIRO LABS & CONSULTANTS Environmental
Engineers & Consultants in Pollution Control
Enviro House,B-1, Block - B, IDA
Autonagar, Visakhapatnam
Phone: 9440338628
Email:info@svenvirolabs.com
(Recognized by GOI, Ministry of Environment & Forests)
(An ISO 9001 Certified and NABET Accredited for EIA)

Ref Code	: SVELC/HISEZL/22-09/001	**Date : 08-10-2022**
Name and Address	: **M/s. HETERO INFRASTRUCTURE SEZ LIMITED,** N.Narasapuram Village, Nakkapally Mandal, Visakhapatnam (Dt).	
Sample Particulars	: Effluent Analysis	
Source of Collection	: ETP OUTLET	
Sample Code	: SVELC/22/EFF/1191	
Date of Collection	: 29-09-2022	
Date of Receipt	: 29-09-2022	

TEST REPORT

S No	Parameter	Unit	Result	Method	Standard
1	pH	-	7.63	APHA 4500-H+B, 23rd Ed,2017	5.5-9.0
2	Suspended Solids, SS	mg/l	21.0	APHA 2540-D, 23rd Ed,2017	100
3	Total Dissolved Solids, TDS	mg/l	1649	APHA,2540-C,23rd Ed, 2017	-
4	Chemical Oxygen Demand(COD)	mg/l	183	APHA 5220-B, 23rd Ed,2017	250
5	BOD 3d 27°C	mg/l	64.0	IS 3025 Part 44	100
6	Chlorides as Cl^-	mg/l	401	APHA,4500-Cl B,23rd Ed, 2017	1000
7	Oil & Grease	mg/l	2.3	APHA,5520-D,5-38,23rd Ed, 2017	10
8	Sulphide as S	mg/l	0.25	APHA,4500S^2 D, 23rd Ed,2017	2.0
9	Phenolic compounds (C_6H_5OH)	mg/l	0.04	APHA,5530-C, 23rd Ed,2017	1.0
10	Cyanide as CN	mg/l	BDL	APHA,4500-CN^- E , 23rd Ed,2017	0.2
11	Hexavalent chromium as Cr^{+6}	mg/l	BDL	APHA,3500-Cr B , 23rd Ed,2017	0.1
12	Lead as Pb	mg/l	BDL	APHA,3120-B , 23rd Ed,2017	0.1

Note: BDL denotes Below Detectable Level

ANALYZED BY

SV ENVIRO LABS & CONSULTANTS VISAKHAPATNAM

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(An ISO 9001 Certified and NABET Accredited for EIA)

Ref Code	: SVELC/HISEZL3/22-09/002	**Date : 08-10-2022**
Name and Address	: **M/s. HETERO INFRASTRUCTURE SEZ LIMITED,** N. Narasapuram Village, Nakkapally Mandal, Visakhapatnam (Dt).	
Sample Particulars	: Stack Monitoring	
Source of Collection	: 45 TPH Boiler Chimney	
Sample Code	: SVELC/22/SE/1192	
Date and Time of Start	: 28-09-2022 11:15 hr	
Duration of Sampling	: 60 MINS	

TEST REPORT

STACK DETAILS

S.No	Description	Unit	Result
1	Pitot Coefficient	-	0.87
2	Specific Gravity of Fluid	-	1.0
3	Temperature @ DGM	°C	32
4	Stack Temperature	°C	134
5	Nozzle Diameter	mm	10
6	Exit Velocity	m/sec	6.82
7	Duration of Sampling	minutes	60
8	Fuel Used	-	Coal

EMISSION DATA

S.No	Parameter	Unit	Result	Method	Standard
1	Particulate Matter – PM	mg/nm^3	51.2	IS:11255 – P-1	115
2	Sulphur Dioxide – SO_2	mg/nm^3	55.6	IS:11255 – P-2	-
3	Oxides of Nitrogen – NO_x	mg/nm^3	43.1	IS:11255 – P-7	-

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SV ENVIRO LABS & CONSULTANTS