

Ref: GREL-RJY/O&M/17/28  
DT: 05/04/2017

To,

**Additional Principal Chief Conservator of Forests (C),**  
Ministry of Environment, Forest and Climate Change,  
Regional Office (SEZ),  
Ist and IInd Floor, Handloom Export Promotion Council,  
34, Cathedral Garden Road, Nungambakkam,  
Chennai - 34

**Sub:** -Submission of Six Monthly Environmental Compliance report.

Dear Sir,

We are here with submitting six monthly Environmental Compliance report (**From October-16 to March-17**).Kindly acknowledge.

Thanking you,

Yours faithfully,

For GMR Rajahmundry Energy Limited



Mathews. P  
Vice President

CC To

The Member secretary, APPCB, Hyderabad.  
The Regional Environmental Engineer, APPCB, Kakinada.

**ENVIRONMENTAL MONITORING REPORT**

**GMR RAJAHMUNDRY ENERGY LIMITED**

**Vemagiri Village,  
Kadium Mandal, East Godavari District,  
Andhra Pradesh  
Pin-533125, India**

**October-16 to March-17**

# **GMR RAJAHMUNDRY ENERGY LIMITED**

## **Environment Monitoring Report**

**October 16 to March 17**

### **INTRODUCTION**

GMR Rajahmundry Energy Ltd., promoted by GMR Group of companies with an installed capacity of 2X383.779 MW at Vemagiri village, Kadiyam Mandal of East Godavari District, Andhra Pradesh.

In order to establish baseline status, GMR Rajahmundry Energy Ltd had undertaken the post project Environment monitoring study in and around the plant site.

### **SITE LOCATION**

The project is located near village Vemagiri, about 12 kms South-East of Rajahmundry town in the East Godavari District of Andhra Pradesh, India. The site location Longitude is 81°48'57.61" to 81°48'16.27".Latitude is 16°55'44.08" to 16°55'12.24".

The site measuring around 80 acres is very close to Rajahmundry-Kakinada High Way No.NH5 at a distance of 1.5 km.Rajahmundry is nearest Railway Station located at a distance of 12 km and Rajahmundry is nearest Airport at a distance of 32 km & Kakinada Sea Port distance of 60 km from project site. The site is accessible both by road and railway.



# **GMR RAJAHMUNDRY ENERGY LIMITED**

## **Environment Monitoring Report**

**October 16 to March 17**

### **CONTENTS**

- EC,CFE and CFO Compliance
- Meteorological Data
- Noise level measurement inside the plant (Day & Night)
- Stack Emission Data
- Ambient Air Quality monitoring Data.
- Effluent Quality Data
- Water Balance



**Compliance Status for Consent for Establishment order No.316/PCB/CFE/RO-KKD/HO/2009-558 dated May 31, 2010**

**SCHEDULE-A**

	<b>Conditions</b>	<b>Status</b>
1.	Progress on implementation of the project shall be reported to the concerned Regional Office.A.P.Pollution Control Board once in six months.	Complied. Six monthly compliance status reports being submitted regularly.
2.	Separate energy meters shall be provided for Effluent Treatment Plant (ETP) and Air pollution Control equipments to record energy consumed.	Effluent treatment plant is common for both GMR Vemagiri Power Generation Ltd and GMR Rajahmundry Energy Limited. Meter is provided for common effluent discharge. Air pollution control system is the integral part of GTG, and separate record of the energy consumption provided for Effluent treatment plant and reservoir water system.
3.	The proponent shall obtain Consents for Operation (CFO) from APPCB, as required Under Sec.25/26 of the Water (P&C of P) Act, 1974 and under sec.21/22 of the Air (P&C of P) Act, 1981, before commencement of the activity.	Having a valid CFO APPCB/VSP/RY/10097/CFO/HO/2015-3548,DT: 19.08.2015, Valid up to 31/08/2017.
4.	Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves its right and power Under Sec.27 (2) of water (Prevention and Control of Pollution) Act.1974 and Under Sec.21 (4) of Air (Prevention and Control of Pollution) Act, 1981 to review any or all the conditions imposed herein and to make such alternation as deemed fit and stipulate any additional conditions by the Board.	Accepted and noted.
5.	The consent of the Board shall be exhibited in the factory premises at a conspicuous place for the inspecting officers of different departments.	Complied.
6.	Compensation is to be paid for any environmental damage caused by it, as fixed by the Collector and District Magistrate as civil liability.	Not applicable.
7.	Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas. The industry shall maintain a good housekeeping. All pipe valves, sewers; drains shall be leak proff.Dyke walls shall constructed around storage of chemicals.	Chemical area (DM Plant) floor washings are connected to the Effluent treatment plant only. Provided leak proof effluent discharge system. Industry is maintaining good housekeeping in and around the plant premises.
8.	Rain Water Harvesting(RWH) structure (s) Shall be established on the plant site. The proponent shall ensure that not enter the Rain Water harvesting structure.	GVPGL and GREL are located in the same complex. Existing Common rain water harvesting system connected to the total complex.
9.	The rules and regulations notified by Ministry of Law and Justice, GOI, regarding the Public Liability Insurance Act, 1991 shall be followed.	Noted and accepted.
10.	This order is valid for period of 5 years from the date of issue.	Noted and accepted.



**SCHEDULE-B**

<p>1.</p>	<p>The source of water is River Godavari and the maximum permitted water consumption after expansion is 36236 KLD.</p> <table border="1" data-bbox="268 324 877 571"> <thead> <tr> <th>Sl. No.</th> <th>Purpose</th> <th>Existing (KLD)</th> <th>Proposed (KLD)</th> <th>Total after expansion (KLD)</th> </tr> </thead> <tbody> <tr> <td>a)</td> <td>DM Plant Regeneration and back wash</td> <td>115</td> <td>136</td> <td>251</td> </tr> <tr> <td>b)</td> <td>HRSG Boiler feed</td> <td>269</td> <td>768</td> <td>1037</td> </tr> <tr> <td>c)</td> <td>Cooling Makeup</td> <td>14000</td> <td>20736</td> <td>34736</td> </tr> <tr> <td>d)</td> <td>Domestic</td> <td>16</td> <td>10</td> <td>26</td> </tr> <tr> <td>e)</td> <td>Gardening</td> <td>186</td> <td>Nil</td> <td>186</td> </tr> <tr> <td colspan="2"><b>Total</b></td> <td><b>14586</b></td> <td><b>21650</b></td> <td><b>36236</b></td> </tr> </tbody> </table>	Sl. No.	Purpose	Existing (KLD)	Proposed (KLD)	Total after expansion (KLD)	a)	DM Plant Regeneration and back wash	115	136	251	b)	HRSG Boiler feed	269	768	1037	c)	Cooling Makeup	14000	20736	34736	d)	Domestic	16	10	26	e)	Gardening	186	Nil	186	<b>Total</b>		<b>14586</b>	<b>21650</b>	<b>36236</b>	<p>Expansion project Name changed From GMR Vemagiri Power Generation Limited to GMR Rajahmundry Energy Limited. Granted water consumption for GMR Rajahmundry Energy Limited is 21650 KLD.</p>
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<p>2.</p>	<p>The maximum Waste Water Generation (KLD) shall not exceed the following.</p> <table border="1" data-bbox="268 667 877 936"> <thead> <tr> <th>Sl. No.</th> <th>Purpose</th> <th>Existing (KLD)</th> <th>Proposed (KLD)</th> <th>Total after expansion (KLD)</th> </tr> </thead> <tbody> <tr> <td>a)</td> <td>DM Plant Regeneration &amp; Back wash</td> <td>115</td> <td>136</td> <td>251</td> </tr> <tr> <td>b)</td> <td>HRSG Boiler blow down</td> <td>244</td> <td>288</td> <td>532</td> </tr> <tr> <td>c)</td> <td>Cooling tower blow down</td> <td>2064</td> <td>3640</td> <td>5904</td> </tr> <tr> <td>d)</td> <td>Domestic and Floor washing</td> <td>11</td> <td>7</td> <td>18</td> </tr> <tr> <td colspan="2"><b>Total</b></td> <td><b>2434</b></td> <td><b>4271</b></td> <td><b>6705</b></td> </tr> </tbody> </table>	Sl. No.	Purpose	Existing (KLD)	Proposed (KLD)	Total after expansion (KLD)	a)	DM Plant Regeneration & Back wash	115	136	251	b)	HRSG Boiler blow down	244	288	532	c)	Cooling tower blow down	2064	3640	5904	d)	Domestic and Floor washing	11	7	18	<b>Total</b>		<b>2434</b>	<b>4271</b>	<b>6705</b>	<p>Complied</p>					
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<p>3.</p>	<p>The Effluent Treatment Plant (ETP) &amp; Sewage treatment plant (STP) shall be constructed and commissioned along with the commissioning of the activity. All the units of the ETP shall be impervious to prevent ground water pollution.</p>	<p>Existing GVPGL STP is in operation. GVPGL and GREL are located in the same complex. Common effluent treatment system shall be utilized for both GMR Units.</p>																																			
<p>4.</p>	<p>The effluents shall be treated to the on land for irrigation/surface water standards as applicable as stipulated under Environment(Protection)Rules,1986,notified and published by Ministry of Environment and Forests,Governemnt of India as specified in Schedule VI vide G.S.R.422(E),dt.19.05.1993 and its amendments thereof, and additional standards/conditions stipulated by APPCB.</p>	<p>Noted and accepted.</p>																																			
<p>5.</p>	<p>Industry shall adopt closed cycle cooling system to conserve the water required for cooling purposes.</p>	<p>Provided closed cycle cooling system and induced draft cooling system.</p>																																			
<p>6.</p>	<p>The industry shall take following mitigation measures to control fugitive emissions during construction and operational state. Vehicles shall be managed to avoid traffic congestions and shall provide parking facilities. Automated mechanical water sprinkling shall be provided on roads and at dusty construction material storage areas, for suppression of dust. Mechanized handling equipment shall be used for loading &amp; unloading operations. All the vehicles involved in transportation shall be covered with tarpaulin. Vehicles shall comply with emission standards shall have valid PUC certification. Procurement of machinery/construction equipment in accordance to the specifications confirming to source noise levels of 85 dB (A).</p>	<p>Being complied with.</p>																																			



7.	The industry shall provide necessary storm water drains to avoid flooding of surrounding lands during heavy rains.	Industry has provided separate storm water drain system.																								
8.	Separate meters with necessary pipe-line shall be provided for assessing the quantity of water used for each of the purposes mentioned below. a) Industrial cooling, boiler feed. b) Domestic purposes. c) Processing, whereby water gets polluted and pollutants are easily bio-degradable. d) Processing, whereby water gets polluted and pollutants are not easily bio-degradable.	Complied																								
9.	The Air pollution Control equipment shall be installed along with the commissioning of the activity and shall comply with the following for controlling air pollution. <table border="1" data-bbox="268 696 874 913"> <thead> <tr> <th>S. No</th> <th>Details of Stack</th> <th>Stack 1 &amp; 2</th> <th>Stack 3 &amp; 4</th> </tr> </thead> <tbody> <tr> <td>a)</td> <td>Attached to</td> <td>Boiler ( 2 Nos.)</td> <td>DG Set ( 2 Nos.)</td> </tr> <tr> <td>b)</td> <td>Capacity</td> <td>2 X 377 TPH HRSG boiler</td> <td>2 x 1250 KVA</td> </tr> <tr> <td>c)</td> <td>Fuel form</td> <td>Natural gas</td> <td>Deisel</td> </tr> <tr> <td>d)</td> <td>Stack height :</td> <td>2 X70 Mtrs.</td> <td>2 X 13 m</td> </tr> <tr> <td>e)</td> <td>Control equipment</td> <td>Acoustic Enclosures to each boiler</td> <td>Silencer</td> </tr> </tbody> </table>	S. No	Details of Stack	Stack 1 & 2	Stack 3 & 4	a)	Attached to	Boiler ( 2 Nos.)	DG Set ( 2 Nos.)	b)	Capacity	2 X 377 TPH HRSG boiler	2 x 1250 KVA	c)	Fuel form	Natural gas	Deisel	d)	Stack height :	2 X70 Mtrs.	2 X 13 m	e)	Control equipment	Acoustic Enclosures to each boiler	Silencer	Complied
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10.	The industry shall provide dry low NOx combustion technology burners and it shall be ensured that NOx emission from individual stack shall be limited to 50 ppm.	Plant is designed with latest technology of DLN 2 Burner system in Gas Turbine for controlling NOx emissions.																								
11.	Continuous online monitoring equipments shall be provided to the two stacks and the exit velocity of flue gases shall not be less than 25 m/s.	Complied																								
12.	The industry shall install and commission continuous Ambient air monitoring stations(AAQM) within the plant as per the specifications of CPCB for online monitoring of SO2,NOx,PM2.5,PM10 At any stage these levels are found to exceed the prescribed limits, necessary control measures shall be taken immediately.	Industry has installed common AAQ Stations for GREL and GVPGL. Monitoring is being going on. Common Continues Ambient Air Quality monitoring station installation done for GVPGL & GREL.																								
13.	The location of the monitoring stations and frequency of monitoring shall be decided in consultation of the Board. Periodic reports shall be submitted to the concerned Regional Officer.	Ambient monitoring stations locations fixed by the consultation with APPCB, Regional officer and reports being submitted regularly.																								
14.	A sampling port with removable dummy of not less than 15 cm diameter shall be provided in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc. A platform with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with instruments. A 15 AMP 250 V plug point shall be provided on the platform.	Sampling- system provided as per the guide lines.																								
15.	The generator shall be installed in a closed area with silencer and suitable noise absorption systems. The ambient noise level shall not exceed 75dB(A) during day time and 70 dB(A) during night time.	Acoustic Enclosures provided for Gas turbine generators and other high noise generating equipments. In addition to these enclosures Ear protection devices provided for Workers exposed to high noise areas and ensuring their usage.																								



16.	The proponent shall comply with the following:	Accepted and noted.																
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17.	Fire detection and firefighting facilities with adequate water storage facility shall be provided in fire prone area in consultation with Directorate of Firefighting.	Complied.																
18.	Onsite & offsite Disaster Management plan shall be prepared to meet any eventually in case of any accident. Mock drills shall be conducted at least twice a year and modifications required if any shall be incorporated in Disaster Management Plan.	Onsite Emergency preparedness plan prepared and mock drills are being conducted regularly.																
19.	The following rules and regulations notified by the MOE&F, GOI shall be implemented. a) Hazardous waste (Management, Handling and Transboundry Movement), Rules, 2008. b) Manufacture, Storage and import of Hazardous Chemicals Rules 1989.	Noted and accepted.																
20.	Green belt consisting of 3 tiers of plantations around the plant of 150m width and density not less than 2500 saplings per ha. shall be developed with area not less than 33% of total area. Existing Green belt shall not be distributed in the proposed expansion/construction activity.	Complied.																
21.	The recommendations/commitments made during the Public Hearing held on 4.2.2009 at Main gate of industry, Vemagiri (V), Kadiyam (M), East Godavari District shall explicitly be followed from pollution control point of view.	Noted and accepted.																
22.	The industry shall comply with all the conditions stipulated in the Environmental Clearance issued vide order dt.28.1.2010 issued by MOE&F, GOI.	Noted and accepted																

**Compliance Status of Consent Order No. APPCB/VSP/RJY/10097/CFO/HO/2015-3548,DT:19.08.2015**

**SCHEDULE – A**

	<b>Conditions</b>	<b>Status</b>
1.	The applicant shall make applications through online for renewal of Consent (under Water and Air Acts) and Authorisation under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorization of the Board along with detailed compliance to the conditions stipulated in the CFO and HWA Order.	Complied.
2.	Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water(Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air(Prevention and Control of Pollution) Act, 1981.	Noted and accepted.
3	All other conditions stipulated in the schedule-A of the earlier CFO & HWA order No : APPCB/VSP/RJY/316/CFO/HO/2011-2625 dated 18.11.2011 remains same. The industry shall ensure consistent compliance of each condition of Schedule-A.	Noted and accepted.
4.	The industry may explore the possibility of tapping the solar energy for their energy requirements.	Will be explored.
5.	The industry shall immediately submit the revised application for consent to this Board in the event of any change in the raw material used, processes employed, quantity of trade effluents & quantity of emissions etc.	Noted and accepted.
6.	a) All the fugitive emissions shall be controlled with proper measures. b) The applicant shall also install the equipment such as wind speed recorder, wind direction recorder.	GREL has installed continuous emission monitoring systems for the HRSG stacks and common weather monitoring station is operational for GVPGL and GREL.
7.	The applicant shall not change or alter either the quality or the quantity or the rate of the discharge or the route of discharge and shall not change or alter either the prescribed quality or the rate of emission without the previous written permission of the Board.	Noted and accepted.
8.	The applicant shall, not later than 30 days from the date of issue of this consent order, certify in writing to the Board that the applicant has installed or provided for an alternative electric power source sufficient to operate all facilities installed by the applicant, to comply with the terms and conditions of this consent. In absence of alternative electric power source sufficient to operate all facilities installed by the applicant, to comply with the terms and conditions of this consent, production shall be stopped.	Complied
9.	Any up-set condition in any plant/plants of the industry, which result in, increased effluent discharge and/ or violation of standards stipulated in this order or the emission of any Air Pollutant into the environment in excess of the standards laid down by the Board, occurs or is apprehended to occur due to accident, or other unforeseen act or event, the person-in-charge of the premises, from where such discharge / emission occurs or is apprehended to occur shall forth with intimate the fact	Noted and accepted.



	of such occurrence or the apprehension of such occurrence to this Board, by fax / email under intimation to the Collector and District Magistrate.	
10.	In case of such episodal discharges / emissions mentioned in item 6 above, the industry shall take immediate action to bring down the discharge / emission below the limits prescribed in this order.	Noted and accepted.
11.	A good housekeeping shall be maintained both within the factory and in the premises. All hoods, pipes, valves, sewers and drains shall be leak proof. Floor washings shall be admitted into the effluent collection system only and shall not be allowed to find their way into storm drains or open areas.	Chemical area (DM Plant) floor washings are connected to the Neutralization system only. Good housekeeping is being maintained at all areas.
12.	a) The industry shall carryout analysis of waste water discharges or emissions through chimneys, for the parameters mentioned in Schedule - B of this order at regular intervals. b) The industry shall maintain following records to accessible to the Board, whenever required. 1. Analysis reports of waste water/ emissions. 2. Log book for operation of pollution control systems. 3. Inspection book	Effluent Treatment Plant is common for both GREL and GVPGL. Analysis will be carried out at regular intervals and reports will be submitted to the board regularly.
13.	The applicant shall setup Three Ambient Air Quality stations for continuous recording of relevant critical parameters mentioned in Schedule-B as per the CPCB guidelines and submit monthly reports.	One common Ambient Air Quality station (For GVPGL&GREL) for continues recording installed. Other common AAQ stations installed in consultation with APPCB, R.O, Kakinada.
14.	Separate power connection with energy meter shall be provided for the Pollution Control Equipment's and record of power consumption and chemicals consumption for the operation of pollution control equipment shall be maintained separately.	Being a common complex GMR Rajahmundry Energy Limited will utilize GMR Vemagiri Power generation Limited ETP for final water disposal. Common Energy meter provided for ETP and Reservoir water system. Air pollution control is integral part of GTG.
15.	The applicant shall comply with the directives/orders issued by the Board in this order and at all subsequent times without any negligence on his part. The applicant shall be liable for such legal action against him as per provisions of the Law/Act in case if non-compliance of any order/directive issued at any time and/or violation of the terms and conditions of this consent order.	Noted and accepted.
16.	The applicant shall furnish to the visiting officer and / or the Board any information regarding the construction, installation or operation of the effluent treatment system / air pollution control equipment / secured storage area of Hazardous Waste and such other particulars as may be pertinent for preventing and controlling pollution.	Noted and accepted.
17.	The industry is liable to pay compensation for any environmental damage caused by it, as fixed by the Collector and District Magistrate as Civil liability.	Noted and accepted.
18.	All the rules & regulations notified by Ministry of Environment and Forests, Government of India in respect of management, handling, transportation and storage of hazardous chemicals and wastes shall be followed.	Noted and accepted.
19.	All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 shall be followed.	Noted and accepted.
20.	The occupier shall educate the workers and nearby public of possible accidents and remedial measures.	Regularly conducting mock drills and Providing Assistance



		to local people through GMR Varalakshmi Foundation.
21.	For any accident or spillage of hazardous wastes causing damage to the Environment, the occupier or the transporter as the case shall be held responsible.	Noted and accepted.
22.	In case of closure of industry, the un-used/not consumed raw materials falling under the category of Hazardous Chemicals and mentioned in Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and Amendment Rules, 2003 shall be removed and sold to other units within 90 days from the date of closure to prevent any possibility of occurrence of an accident. In case the above hazardous chemicals have lost their properties originally acquired, then they shall be treated, as Hazardous Waste and they shall be disposed off only to the agencies authorized by APPCB in a safe manner.	Noted and accepted.
23.	The occupier shall prepare/update Emergency preparedness plan for safe handling of hazardous waste from time to time and submit the same to APPCB. Emergency preparedness plan must be implemented immediately whenever there is fire, explosion or release of hazardous waste or hazardous waste constituents, which could endanger to human health or environment.	Noted and accepted.
24.	Packaging, labeling and transportation of Hazardous Wastes shall be in accordance with the provisions of the rules issued by the Central Govt. under the Motor Vehicles Act, 1988 and other guidelines issued from time to time. The packaging and labeling shall be based on the composition and hazardous constituent of the waste, however all Hazardous Waste containers shall be provided with a general label.	Noted and accepted.
25.	The driver who transports Hazardous Waste shall be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter shall carry a Transport Emergency (TREM) Card (as given in the guidelines for management and handling of hazardous wastes) duly filled by the Hazardous Waste generator.	Noted and accepted.
26.	Containers/container liners of Hazardous chemicals and Hazardous Wastes shall be thoroughly detoxified before selling to the agencies Authorized by APPCB. Proper records, specific to each Hazardous chemical/Hazardous Waste containers/container liners shall be maintained in the following way. 1. Number of containers received. 2. Date and method of detoxification. 3. Name of agencies to whom containers were sold with quantities. 4. Transportation particulars.	Not applicable.
27.	No Hazardous Wastes shall be mixed with any other wastes or shall be discharged to a common, other internal, external sewerage or other drainage system without prior approval of APPCB.	Noted and accepted.
28.	If HDPE bags are used for storing Hazardous Wastes, it shall be ensured that they are perfectly sealed mechanically or double hot sealed. If MS/HDPE bags or drums are used for storing Hazardous Wastes, these drums / bags shall be ensured that they are perfectly sealed.	Noted and accepted.
29.	The person authorized shall not rent, lend, sell, and transfer their industrial premises without obtaining prior permission of the State Pollution Control Board.	Noted and accepted.
30.	Any unauthorized change in personnel, equipment as working condition as mentioned in the application by the	Noted and accepted.



	person authorized shall constitute a breach of his authorization.	
31.	The industry shall comply with the provisions of Batteries (Management & Handling) Rules, 2001.	Noted and accepted.
32.	The industry shall put up two sign boards (6x4 ft. each) at publicly visible places at the main gate. The first sign board shall provide information on specific conditions of CFO and Hazardous Waste Authorization. The second sign board shall display online data on quantity and nature of hazardous chemicals being used in the plant, as well as water, air emissions and solid waste generated within the factory premises	At Main gate board installation work completed and being updated regularly CFO and Hazardous Waste Authorization conditions compliance.
33.	The applicant shall exhibit the Consent & HW Authorization order of the Board in the factory premises at a prominent place for the information of the inspecting officers of the different departments.	Complied.
34.	Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves the right and powers under Section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and its amendments thereof and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and its amendments thereof to review any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.	Noted and accepted.
35.	The authorisation issued under Hazardous Waste (Management ,Handling and trans boundary movement) Rules, 2008 and its amendments thereof, shall comply with the provision of the Environment (Protection) Act, 1986.	Noted and accepted.

**SCHEDULE – B**

1.	The industry shall hand over the original consent order NO APPCB/VSP/RJY/10097/CFO/HO/2013-5915, dated 23.12.2013, having validity up to 31.08.2015, to the RO, Kakinada after receipt of this order and the same stands cancelled from the date of receipt of this order	Noted and accepted.
2.	The effluent discharged shall not contain constituents in excess of the tolerance limits mentioned below.  Outlet Parameter Limiting Standards 1,2,3 & 4 pH – 6.5 to 8.5 Suspended solids 100 mg/l Oil and grease 20 mg/l Total residual chlorine 1.0 mg/l Dissolved Phosphates 5.0 mg/l Copper 1.0 mg/l Iron 1.0 mg/l Zinc 1.0 mg/l Chromium(Total) 0.2 mg/l BOD 30 mg/l COD 250 mg/l Temperature shall not exceed 5 deg C above the receiving water temperature.	complied
3.	The water consumption shall not exceed the quantities mentioned below: S.No. Purpose Total 1. DM Plant regeneration and Back wash 136 KLD 2. Cooling Makeup 20736 KLD 3. HRSG Boiler feed 768 KLD 4. Domestic 10 KLD	complied



	Total 21650 KLD. The industry shall maintain separate meters with necessary pipe-line for assessing the quantity of water used for each purpose.	
4.	The industry shall file the water cess returns in Form-I as required under section (5) of Water (Prevention and Control of Pollution) Cess Act, 1977 on or before the 5th of every calendar month, showing the quantity of water consumed in the previous month, along with water meter readings. The industry shall remit water cess as per the assessment orders as and when issued by the Board.	Complied. Water consumption is being monitored regularly. It is below the given quantities.
4.	The industry shall maintain separate water meters to assess the quantity of water consumed at various sections with necessary pipeline for assessing the quantity of water used for each of the purposes mentioned below:  a. Industrial cooling, boiler feed. b. Domestic purposes. c. Processing, whereby water gets polluted and pollutants are easily biodegradable. d. Processing, whereby water gets polluted and pollutants are not easily biodegradable.	Complied
5.	The industry shall submit the ETP performance reports every month to the EE, RO, Kakinada.	Being Complied with.
6.	The Industry shall maintain closed cycle cooling system to conserve the water required for cooling purposes.	Provided closed cooling system to conserve the water required for cooling purpose.
7.	The industry shall maintain storm water drains to avoid flooding of surrounding lands during heavy rains.	Industry has provided separate storm water drain system.
8.	The industry shall not discharge any wastewater outside the factory premises and maintain zero discharge of effluents.	Accepted and noted
9.	The emissions shall not contain constituents in excess of the prescribed limits mentioned below. Particulate matter 100 mg/NM3 and NOx <50 ppm	Complied
10.	The Industry shall comply with emission limits for DG Sets of capacity up to 800KW as per the notification G.S.R.520(E),Dated:01/07/2003 under the Environment (Protection) Amendment Rules,2003 and G.S.R.448(E),Dated:12/07/2004 under the Environment(Protection) second amendment rules,2004.In case of DG Sets of capacity more than 800 KW Shall comply with emission limits as per the notification G.S.R.489(E) ,Dated:09/07/2002 at serial no. 96,under the Environment(Protection) Act,1986.	Noted and Accepted
11.	The industry shall comply with ambient air quality standards of PM10 (Particulate matter size <10µm) - 100 µg/m3; PM2.5 (Particulate matter size <2.5µm) - 60 µg/m3; SO2 - 80 µg/m3; NOx - 80 µg/m3.Out side the factory premises at the periphery of the industry. Standards of other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I,Dated:18/11/2009. Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A) Night time (10 PM to 6 AM) - 70 dB (A)	Being Complied with.
12.	The industry shall not manufacture any product, other than the mentioned in this order.	Accepted and noted.



13	The industry shall inform RO-kakinada in advance of restarting of operations	Accepted and noted.
14.	The industry shall provide dry low NOx combustion technology burners and it shall be ensured that NOx emission from individual stack shall be limited to 50 ppm.	Gas turbine is provided with Dry Low NOx Combustion system to control NOx.
15.	The industry shall calibrate the continuous online stack monitoring system every 3 months to ensure that values are correct and submit the reports to RO Kakinada.	Noted and accepted.
16.	The Industry shall maintain continuous ambient air monitoring stations(AAQM) within the plant as per the specification of CPCB for online monitoring of SO2,NOx,PM2.5,PM10.	One common Ambient Air Quality station, (For GVPGL&GREL) for continues recording installation done.
17.	The industry shall discharge effluent into Kadiam Ava drain only with the permission given by Irrigation Department, Govt. of A.P.	Noted and accepted.
18.	The industry shall maintain greenbelt consisting of 3 tiers of plants around the plant of 150 m width and density not less than 2500 samplings per ha shall be developed with area not less than 33% of total area.	33% Green belt development is completed.
19.	The Industry shall implement the action plan for development of Energy plantation.	Noted.
20.	The Industry shall comply with all the conditions stipulated in the CFE(Expansion) order No.316/PCBCFE/RO-KKD/HO/2009,Dated 31.05.2010 and 03.03.2011.	Accepted and noted.
21.	The Industry shall comply with all the conditions stipulated in the EC(Expansion) order dated 28.01.2010.	Accepted and noted.
22.	The applicant shall submit Environment Statement in Form-V before 30th September ever year as per rule no 14 of E(P) rules,1986 & amendments thereof.	complied.
23.	The conditions are without prejudice to the rights and contentions of this Board in the Hon'ble Court of India.	Accepted and noted.

#### **SCHEDULE - C**

[See rule 5(4)]

#### **[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]**

1.	Industry shall give top priority for waste Minimization and cleaner production practices.	Noted and accepted.
2.	The Industry shall not store Hazardous waste for more than 90 days as per the Hazardous Wastes (Management, Handling and Transboundary movement) Rules, 2008 and amendment thereof.	Noted and accepted.
3.	The industry shall store Used/Waste oils and Used Lead Acid Batteries in a secured way in their premises till its disposal.	Noted and accepted.
4.	The industry shall not dispose Waste oils to the traders and same shall be disposed to the authorized Reprocessors/Recyclers.	Noted and accepted.
5.	The industry shall dispose Used Lead Acid Batteries to the manufacturers/dealers on buyback basis.	Noted and accepted.
6.	The industry shall take necessary practical steps for prevention of oil spillages and carryover of oil from the premises.	Noted and accepted.
7.	Industry shall maintain 6 copy manifest system for transportation of waste generated and a copy shall be submitted to Board Office and concerned Regional Office.	Noted and accepted.
8.	The industry shall maintain good house keeping&maintain proper records for Hazardous Wastes stated in	Noted and accepted.

	Authorization.	
9.	The industry shall maintain proper records for Hazardous Wastes stated in Authorization in Form-3 i.e. quantity of incinerable waste, land disposal waste, recyclable waste etc, and file annual returns in Form-4 as per rule 22(2) of the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules,2008 and amendments thereof.	Noted and accepted.
10.	The industry shall submit the condition wise compliance report of the conditions stipulated in Schedule B & C of this order on half yearly basis to Board Office, Hyderabad and concerned Regional Office	Being Complied with.
11.	The industry shall dispose of e-waste to the authorized recyclers only.	Noted and accepted.



**Compliance Status for EC J-13012/82/2008-IA.II (T) dated January 28, 2010**

	<b>Conditions</b>	<b>Status</b>
I	It is noted that Natural gas will be used as fuel for the power plant. In case the fuel is changed from natural gas to any other fuel, liquid or solid, the proponent shall apply for such a change in environmental clearance along with necessary requisite documents as per the EIA Notification, 2006 (and its amendments). In such a case, the requirement of holding fresh public hearing/consultation will be determined by the Expert Appraisal Committee.	GMR Rajahmundry Energy Ltd units are designed for Natural Gas firing only.
II	Two stacks of 70 m each shall be provided with continuous online monitoring equipments. Exit velocity of flue gases shall not be less than 25 m/sec.	Two stacks of 70 m each installation completed along with continuous online monitoring equipment's.
III	Closed cycle cooling system with natural draft cooling tower shall be provided. The effluents shall be treated to conform to prescribed norms.	Provided closed cycle cooling system and induced draft cooling system. Effluents shall be treated and will be complied the norms.
IV	No ground water shall be extracted for the project work at any stage.	Noted and accepted.
V	The treated effluent conforming to the prescribed standards only shall be discharged.	The monitoring of liquid effluents shall be carried out regularly by self and third party
VI	A sewage treatment plant shall be provided and the treated sewage shall be used for raising greenbelt / plantation. Continuous monitoring of effluent discharge shall be undertaken and it shall be ensured that when discharge enters the natural drain the temperature of effluent shall be at ambient.	Existing GVPGL STP is in operation.GVPGL and GREL are located in the same complex. Common effluent treatment system shall be utilized for both GMR Units.
VII	Rainwater harvesting should be adopted. Central Groundwater Authority Board shall be consulted for finalization of appropriate rainwater harvesting technology within a period of three months from the date of clearance and details shall be furnished.	GVPGL and GREL are located in the same complex. Existing Common rain water harvesting system connected to the total complex.
VIII	Adequate safety measures shall be provided in the plant area to check / minimize spontaneous fires in the gas storage area, especially during summer season. Copy of these measures with full details along with location in plant layout shall be submitted to the ministry as well as to the Regional Office of the ministry.	The unit has set up an EHS dept. to manage safety and fire related issues. Details of safety measures shall be submitted to the Board.
IX	Storage facilities for auxiliary liquid fuel such as LDO and HFO/LSHS (if any) shall be made in the plant area in consultation with department of explosives; Nagpur Sulphur content in the liquid fuel will not exceed 0.5%. Disaster management plan shall be prepared to meet any eventuality in case of any accident taking place due to storage of oils.	Plant is designed for 100% natural gas firing only.
X	Green Belt consisting of 3 tiers of plantations around the plant of 150 m width and adequate tree density not less than 2500 per ha with survival rate not less than 70% shall be developed. In areas where 100 m width is not possible at least not less than 50 m width shall be raised with adequate justification submitted to the	33% Green belt development program was completed against built up area as per consent order



	Regional Office of the Ministry.	
XI	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	complied
XII	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dB (A. For people working in the high noise area, requisite personal protective equipment like earplugs/ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc. shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non-noisy/less noisy areas.	Personnel protective equipment provided to the high noise area people. Regular noise level monitoring is being carried out.
XIII	Regular monitoring of ground level concentration of SO <sub>2</sub> , NO <sub>x</sub> , RSPM (PM <sub>10</sub> & PM <sub>2.5</sub> ) etc. shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.	complied
XIV	Action plan for R&R (as applicable) with suitable package for the project affected persons shall be submitted and implemented at least as per prevalent R&R policy within three months from the date of issue of this letter.	Not applicable.
XV	An amount of Rs 10.0 Crores shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs 2.0 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.	Being complied with. CSR Programmes are being conducted thorough GMR Varalakshmi Foundation
XVI	As part of CSR programme the company shall conduct need based assessment for the nearby villages to study economic measures with action plan which can help in up liftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self-employment and jobs.	Complied. CSR Programmes are being conducted thorough GMR Varalakshmi Foundation.
XVII	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche, etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	complied
XVIII	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in	The information was published in local newspaper.



	the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a>	
XIX	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad / Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions/representations, if any, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Documents have been submitted.
XX	A dedicated Environment management Cell with suitable qualified personnel shall be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	GMR Group has set up an environment management cell to manage environmental related issues.
XXI	The proponent shall upload the status of compliance of the stipulated EC conditions. Including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely, RSPM (PM10 & PM2.5), SO2, NOx, (ambient as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.	Regular monitoring is being carried out and compliance data shall be uploaded in the company web site. Display board installation completed.
XXII	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well by e-mail) to the respective Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB.	The compliance report is being prepared once in six months and sent Regional office of MOEF and CPCB at Chennai.
XXIII	The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986. As amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.	Shall be complied
XXIV	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	The compliance report is being prepared once in six months and sent Regional office of MOEF and CPCB at Chennai regularly. Compliance data shall be uploaded in the Web site.
XXV	Regional Office of the Ministry of Environment & Forests will monitor the implementation of the	complied



	stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and up-date the same from time to time at least on a six monthly basis. Criteria pollutants levels including NOx (from stack & ambient air) shall be displayed at the main gate of the power plant.	
XXVI	Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	Noted and accepted
XVII	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.	complied
.XXVII I	Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bangalore / CPCB/ SPCB who would be monitoring the compliance of environmental status.	Noted and accepted.

**GMR RAJAHMUNDRY ENERGY LIMITED**

**Environment Monitoring Report**

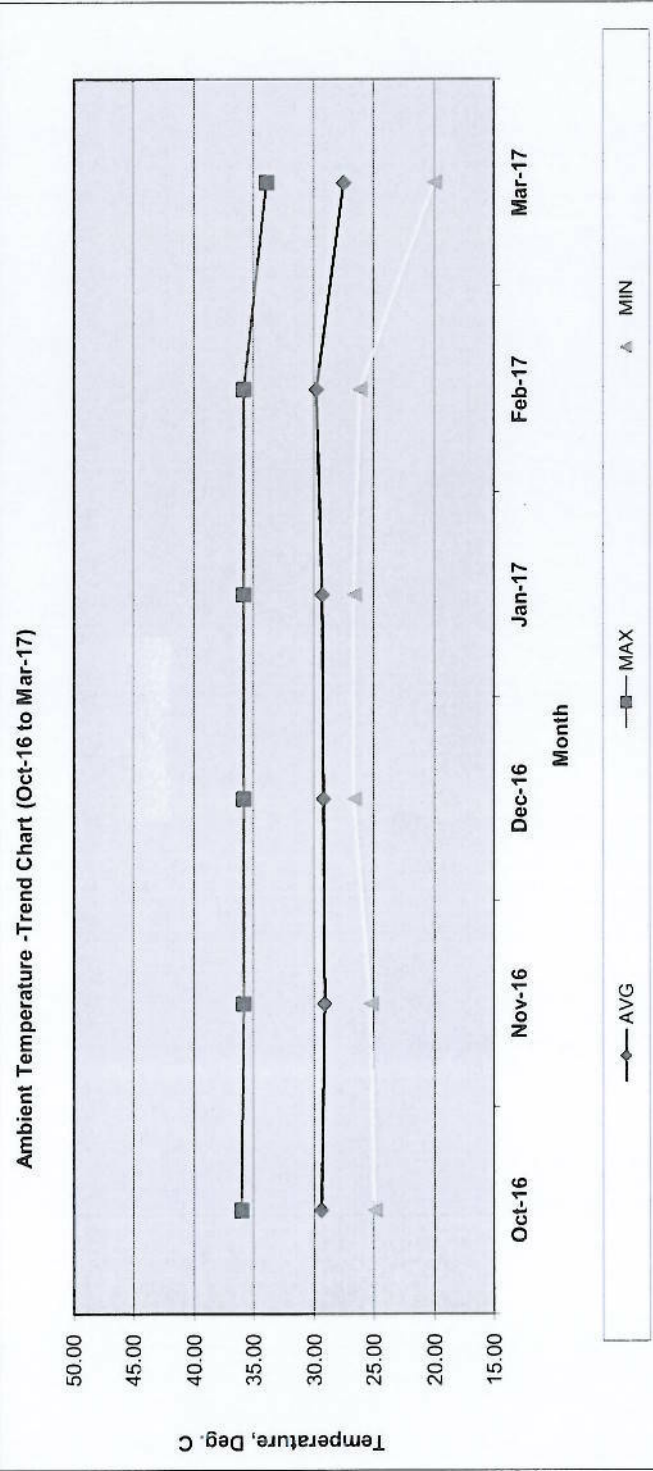
**October 16 to March 17**

**WEATHER MONITORING DATA**



Monthly Average Ambient Temperature, °C Oct-16 to Mar-17

Month	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
AVG	29.40	29.10	29.20	29.30	29.80	27.50	27.20	29.80	27.50
MAX	36.00	35.80	35.80	35.80	35.80	33.90	35.52	36.00	33.90
MIN	24.90	25.20	26.60	26.60	26.10	20.00	24.90	26.60	20.00
AVG							29.21		
MAX								36.00	
MIN									20.00

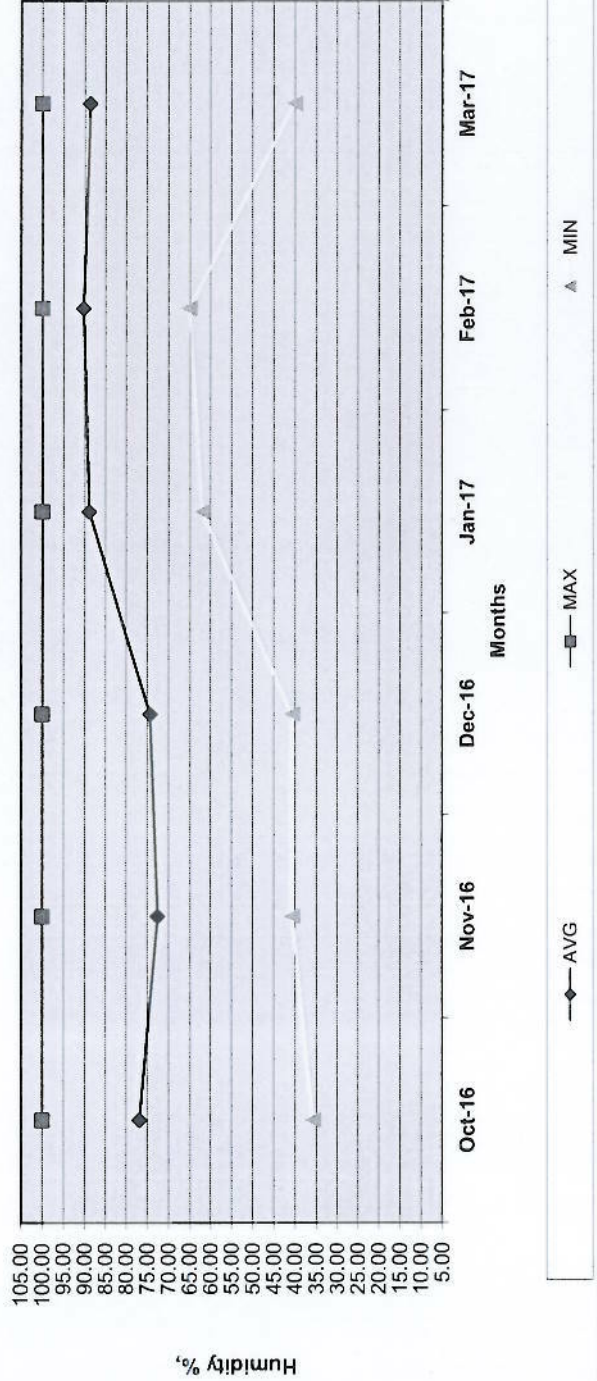


Monthly Average Humidity, %

Oct-16 to Mar-17

Month	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
AVG	76.80	72.50	74.30	88.90	90.3	88.70	81.92	90.30	72.50
MAX	100.00	100.00	100.00	100.00	100.0	100.00	100.00	100.00	100.00
MIN	35.70	40.60	40.60	61.90	65.0	40.00	47.30	65.00	35.70
AVG							76.41		
MAX								100.00	
MIN									35.70

Humidity - Trend Chart (Apr-16 to Sep-16)

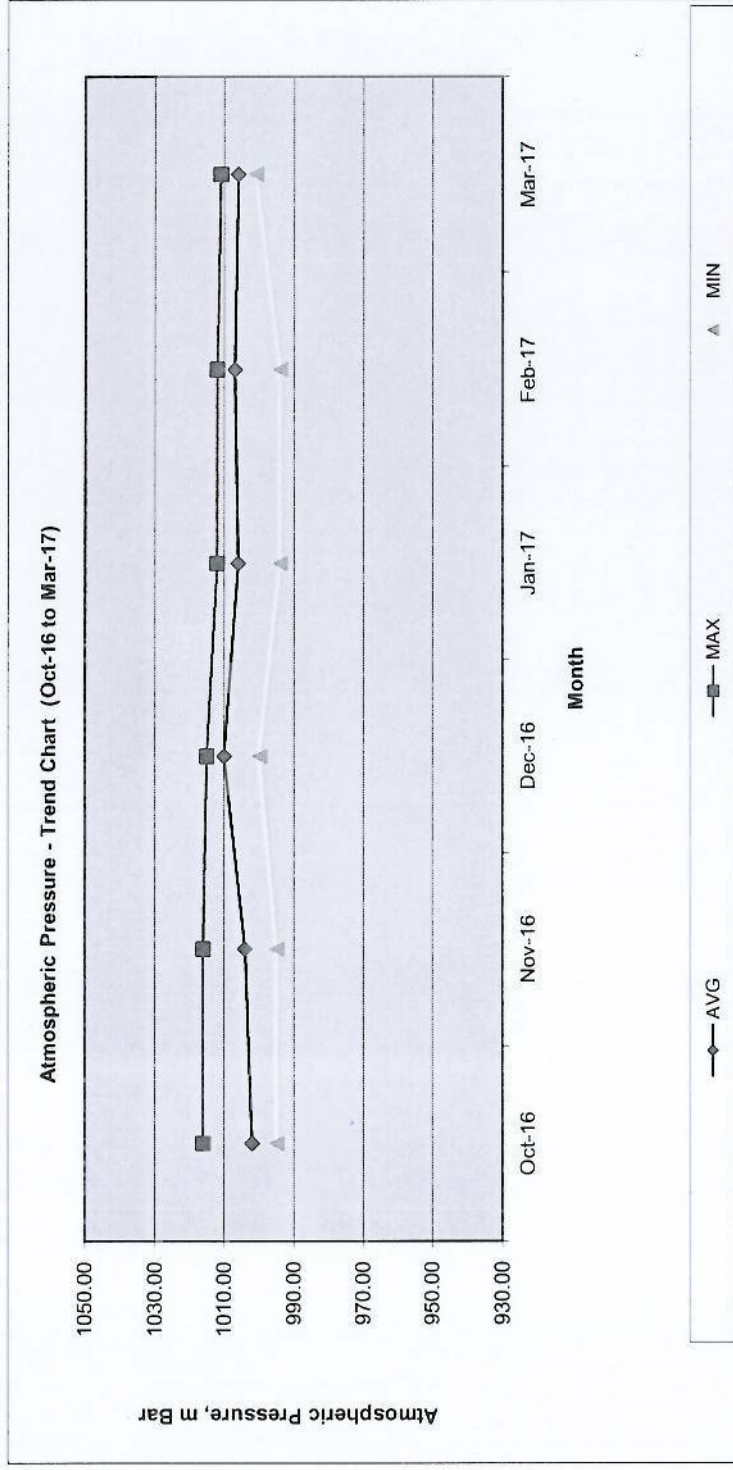




Monthly Average Atmospheric Pressure, m Bar

Oct-16 to Mar-17

Month	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
AVG	1002.00	1004.00	1010.00	1006.00	1007.0	1006.00	1005.83	1010.00	1002.00
MAX	1016.00	1016.00	1015.00	1012.00	1012.0	1011.00	1013.67	1016.00	1011.00
MIN	995.00	995.00	1000.00	994.00	994.0	1001.00	996.50	1001.00	994.00
AVG							1005.33		
MAX								1016.00	
MIN									994.00

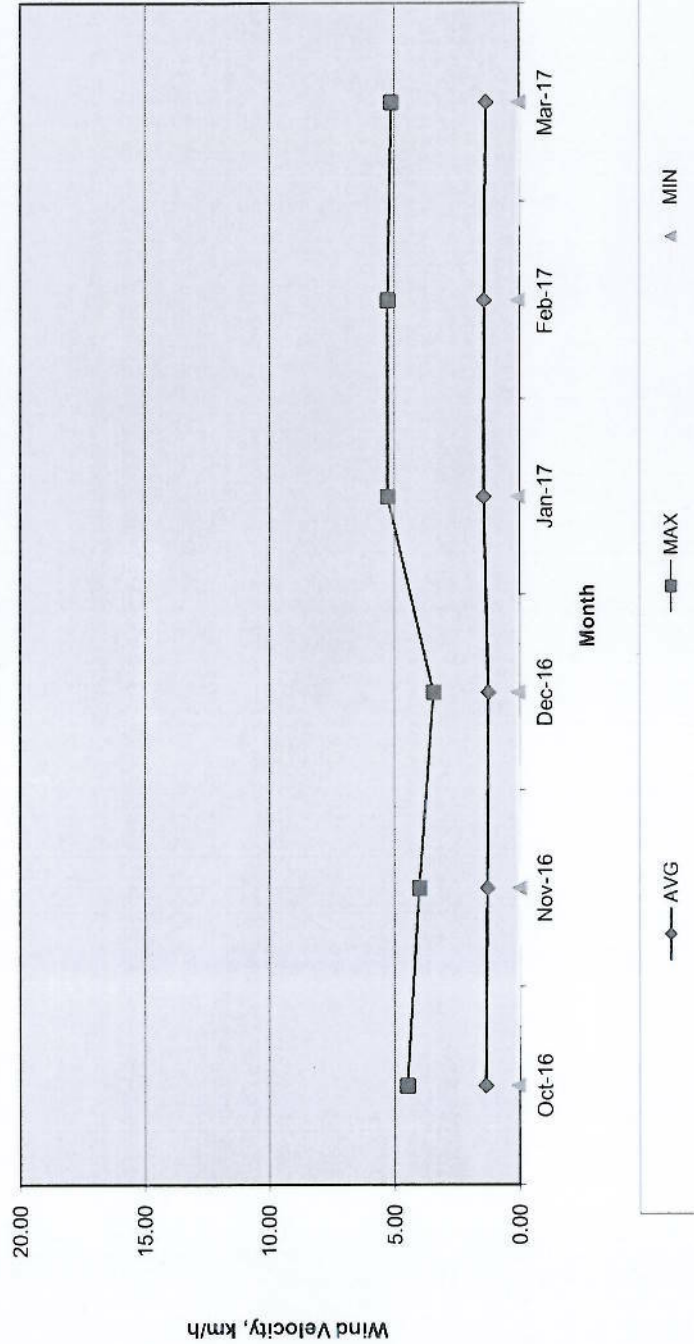


Monthly Average Wind Velocity, m/s

Month	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
AVG	1.35	1.28	1.24	1.43	1.41	1.33	1.34	1.43	1.24
MAX	4.50	4.03	3.46	5.27	5.27	5.13	4.61	5.27	3.46
MIN	0.06	0.00	0.05	0.06	0.06	0.02	0.04	0.06	0.00
AVG							2.00		
MAX								5.27	
MIN									0.00

Oct-16 to Mar-17

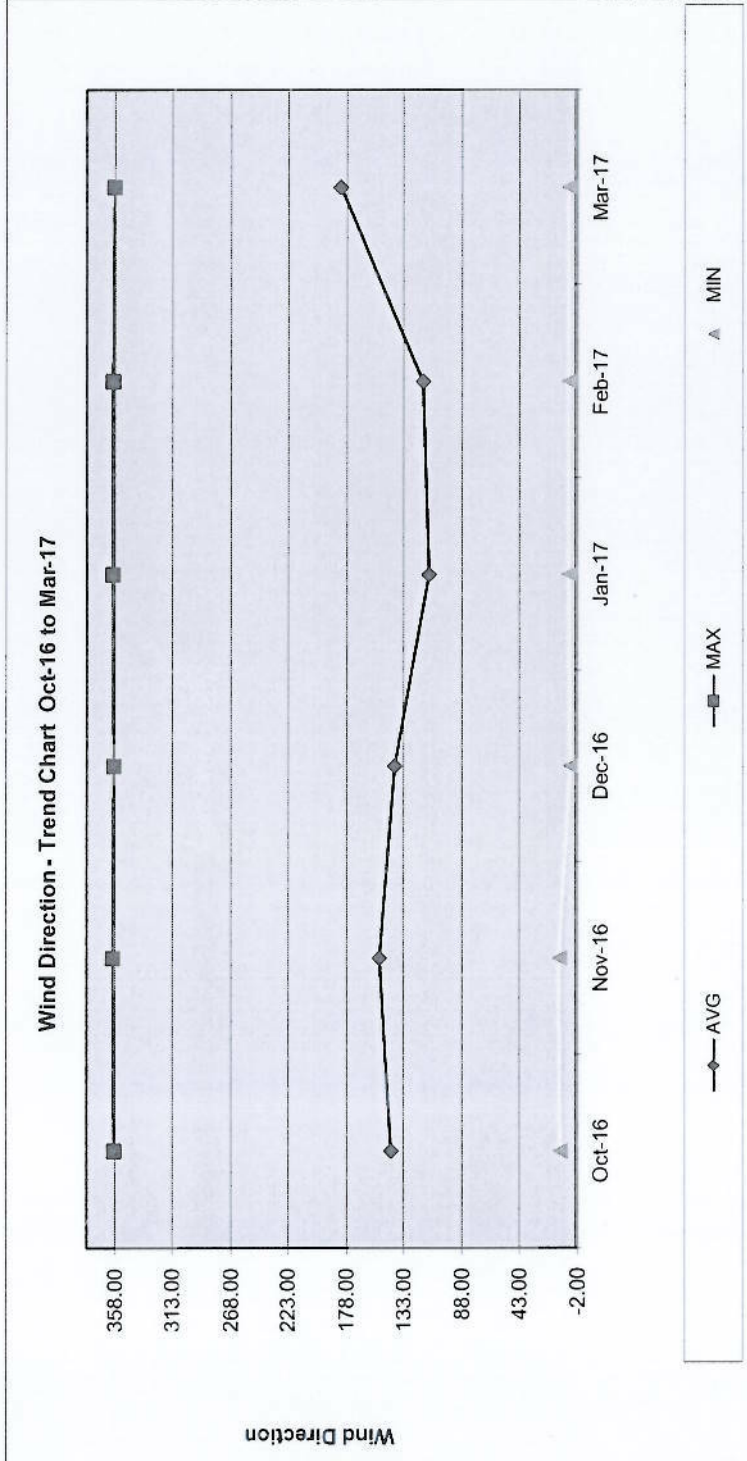
Wind Velocity - Trend Chart Oct-16 to Mar-17





Monthly Average Wind Direction, Degree (Reference-North 0°)

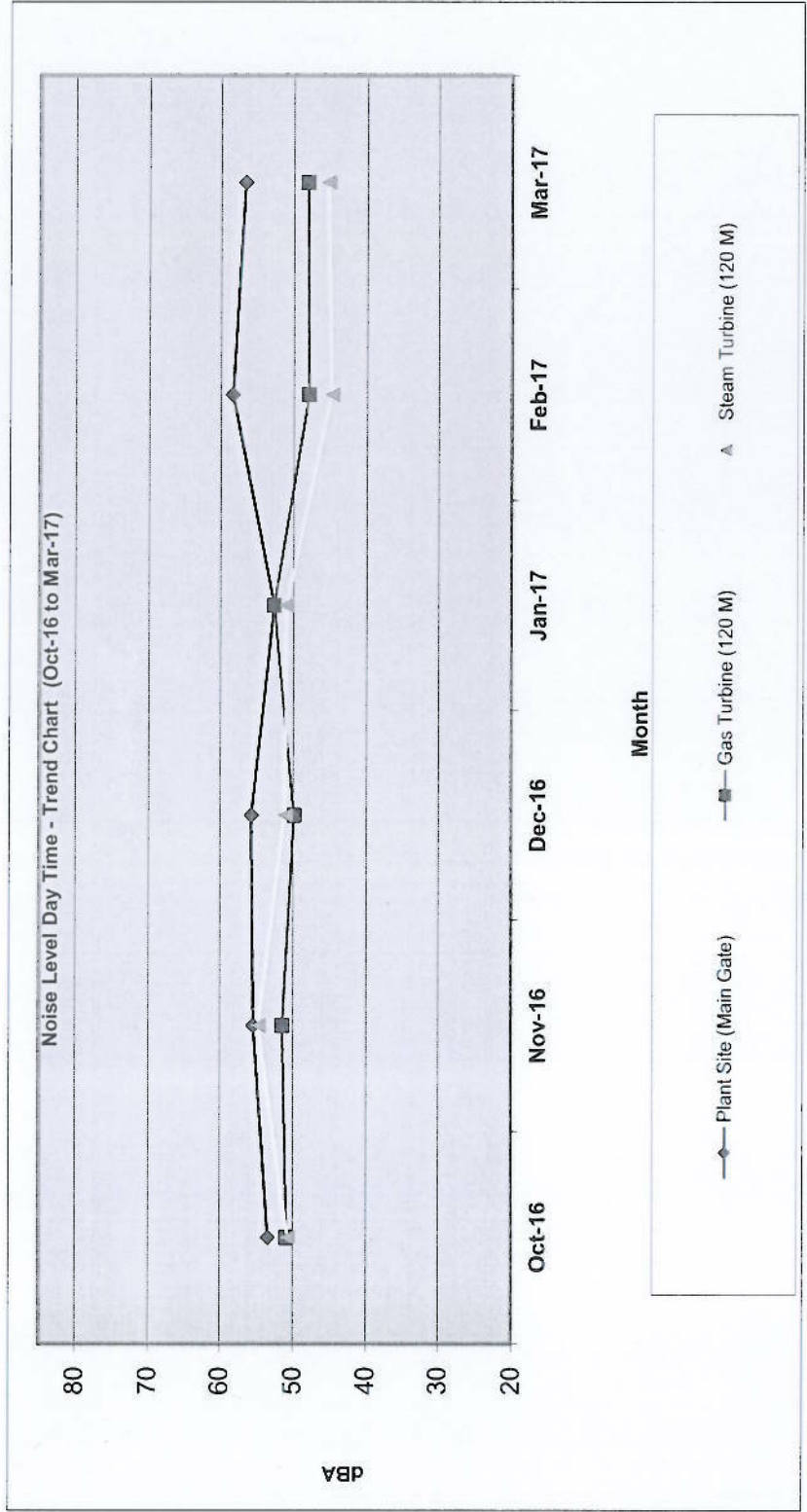
Month	Oct-16 to Mar-17					
	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17
AVG	143.00	152.00	140.00	113.20	117.9	182.70
MAX	359.00	359.90	359.00	359.70	359.7	358.60
MIN	11.00	11.90	3.00	4.20	4.2	4.10
AVG						169.06
MAX						359.90
MIN						3.00



Noise Level Day Time

Oct-16 to Mar-17

Month/Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant Site (Main Gate)	53.5	55.5	55.8	52.7	58.4	56.7	55.43	58.40	52.70
Gas Turbine (120 M)	50.9	51.5	49.9	52.7	47.9	48.1	50.17	52.70	47.90
Steam Turbine (120 M)	50.7	54.8	51.1	50.9	44.7	45.2	49.57	54.80	44.70

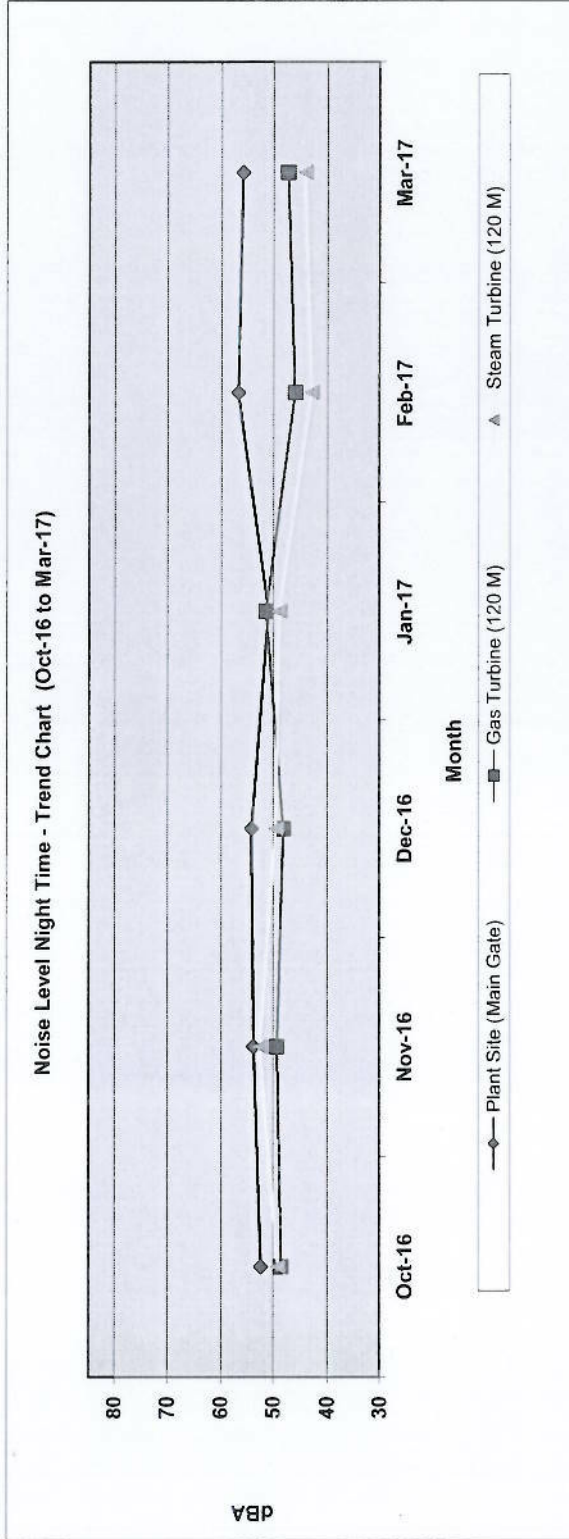




Oct-16 to Mar-17

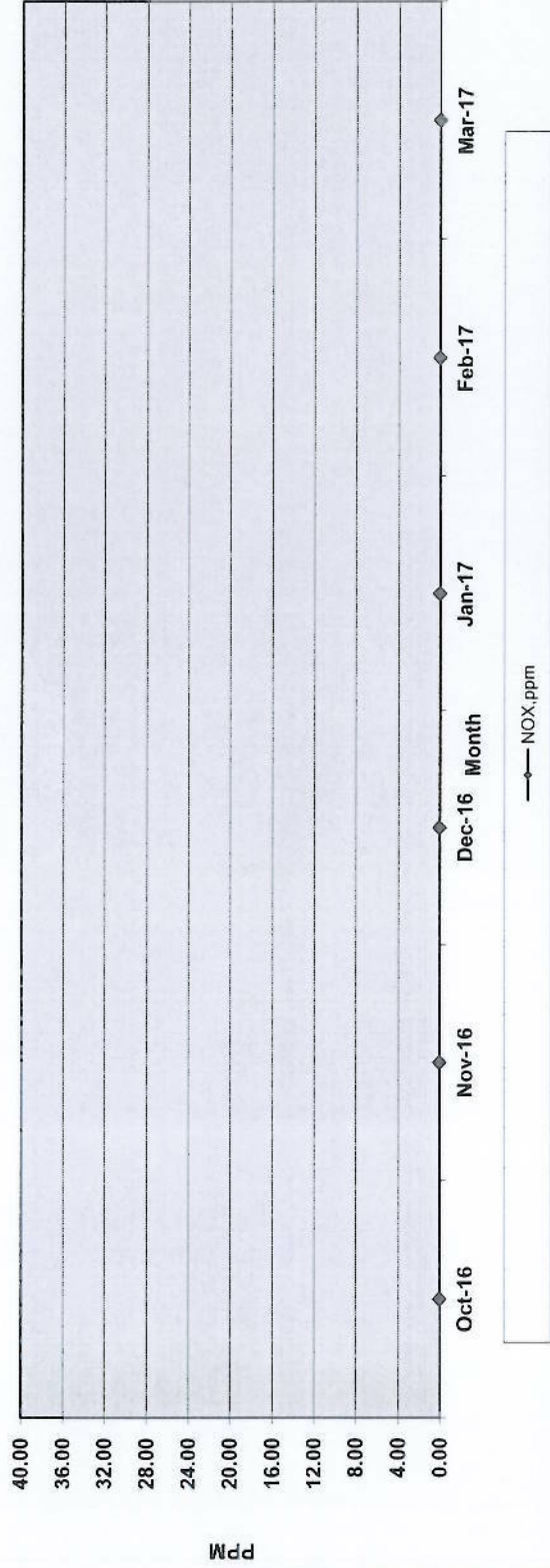
Noise Level Night Time

Month/Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant Site (Main Gate)	52.3	53.7	54.1	50.9	56.7	55.8	53.92	56.70	50.90
Gas Turbine (120 M)	48.5	49.3	48.1	51.4	46.0	47.3	48.43	51.40	46.00
Steam Turbine (120 M)	49.1	52.4	49.5	48.8	42.9	44.1	47.80	52.40	42.90



Monthly Average Stack Emission Report		(Oct-16 to Mar-17)							
Month/Parameters	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
NOX,ppm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plant Not in operation									

Stack Emission - Trend Chart (Oct-16 to Mar 17)





**GMR RAJAHMUNDRY ENERGY LIMITED**

**Environment Monitoring Report**

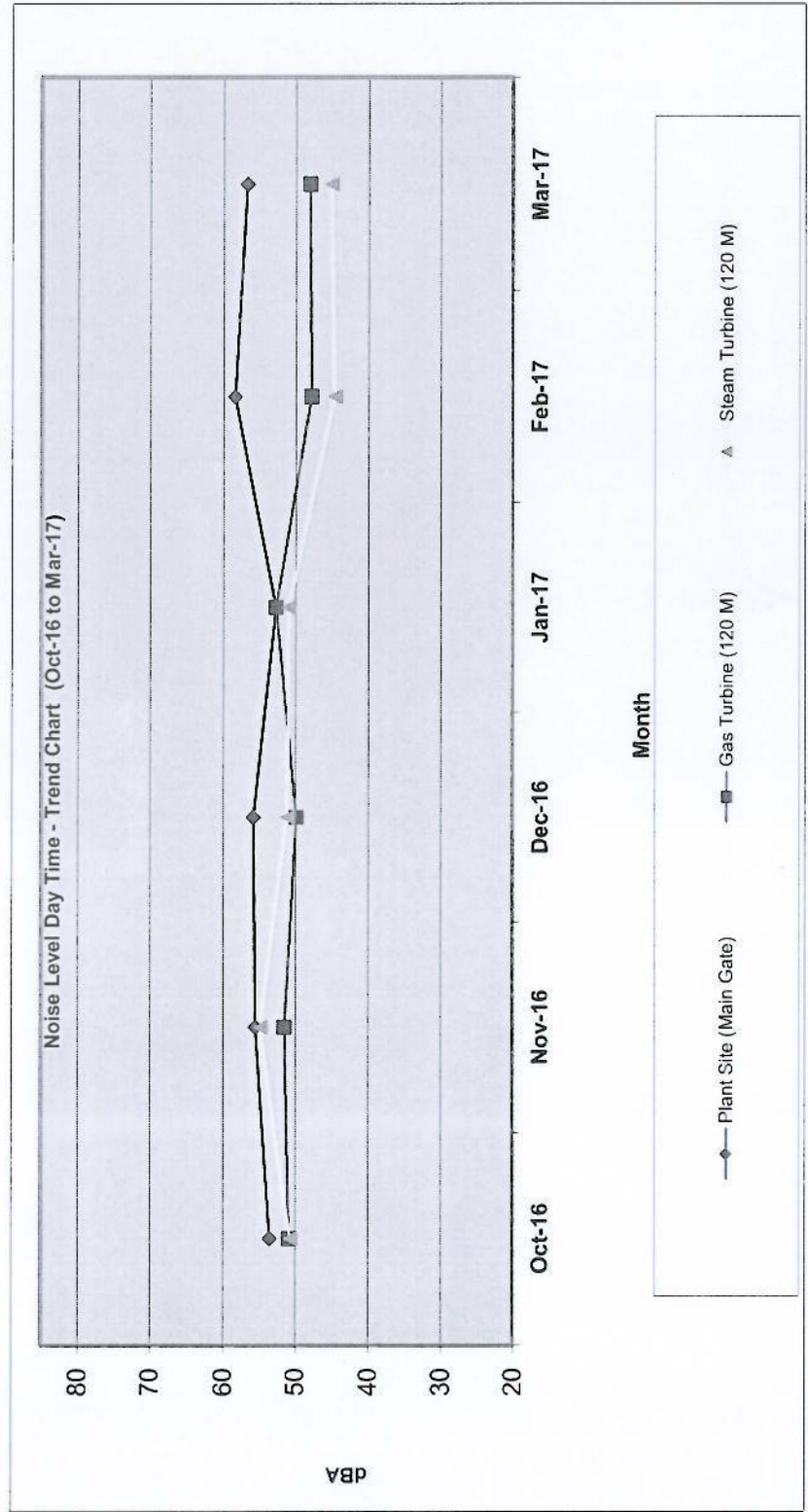
**October 16 to March 17**

**NOISE LEVEL MONITORING RECORD**

Noise Level Day Time

Oct-16 to Mar-17

Month/Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant Site (Main Gate)	53.5	55.5	55.8	52.7	58.4	56.7	55.43	58.40	52.70
Gas Turbine (120 M)	50.9	51.5	49.9	52.7	47.9	48.1	50.17	52.70	47.90
Steam Turbine (120 M)	50.7	54.8	51.1	50.9	44.7	45.2	49.57	54.80	44.70

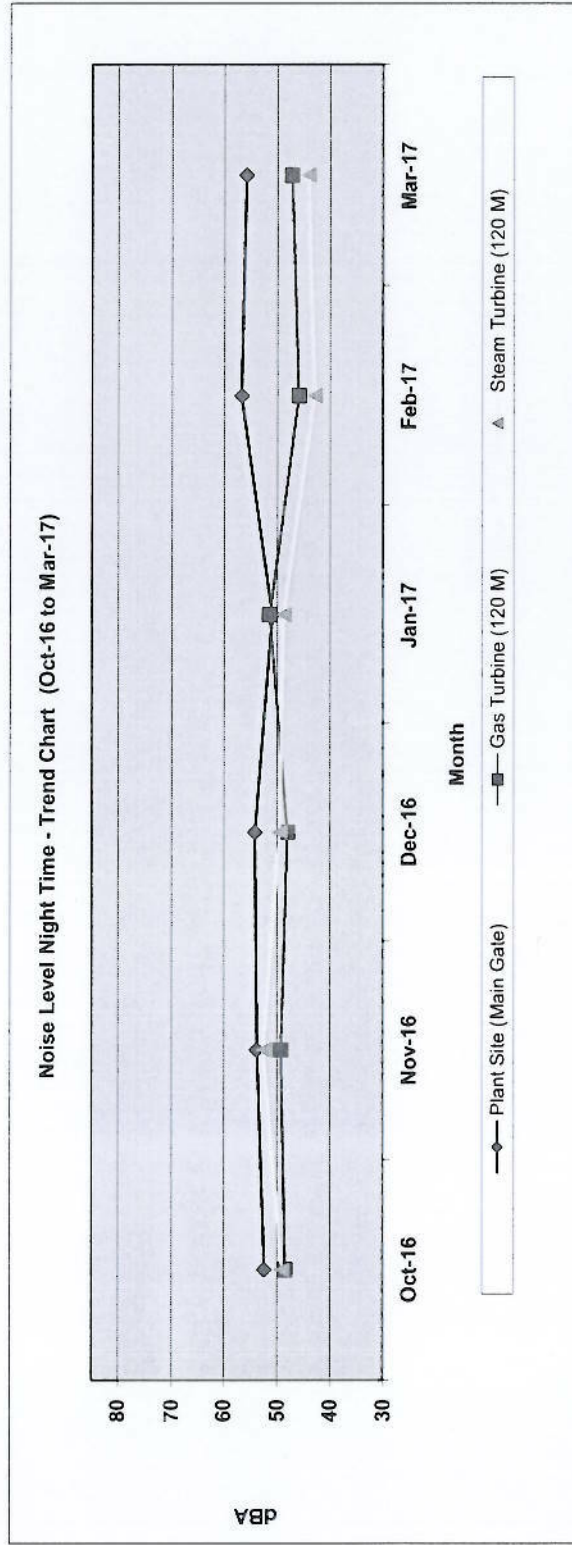




**Noise Level Night T ime**

Oct-16 to Mar-17

Month/Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant Site (Main Gate)	52.3	53.7	54.1	50.9	56.7	55.8	53.92	56.70	50.90
Gas Turbine (120 M)	48.5	49.3	48.1	51.4	46.0	47.3	48.43	51.40	46.00
Steam Turbine (120 M)	49.1	52.4	49.5	48.8	42.9	44.1	47.80	52.40	42.90



**GMR RAJAHMUNDRY ENERGY LIMITED**

**Environment Monitoring Report**

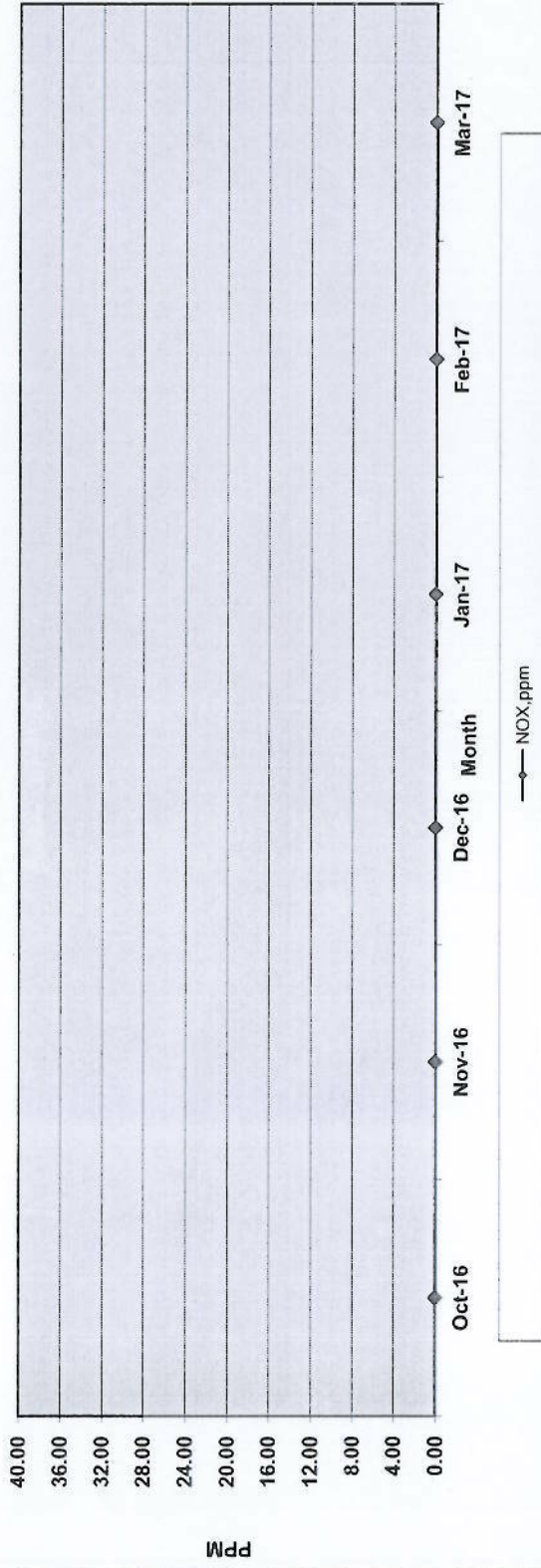
**October 16 to March 17**

**STACK EMISSION DATA**



Monthly Average Stack Emission Report										(Oct-16 to Mar-17)		
Month/Parameters	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN			
NOX,ppm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Plant Not in operation		

Stack Emission - Trend Chart (Oct-16 to Mar 17)



**GMR RAJAHMUNDRY ENERGY LIMITED**

**Environment Monitoring Report**

**October 16 to March 17**

**AMBIENT AIR QUALITY MONITORING**  
**DATA**

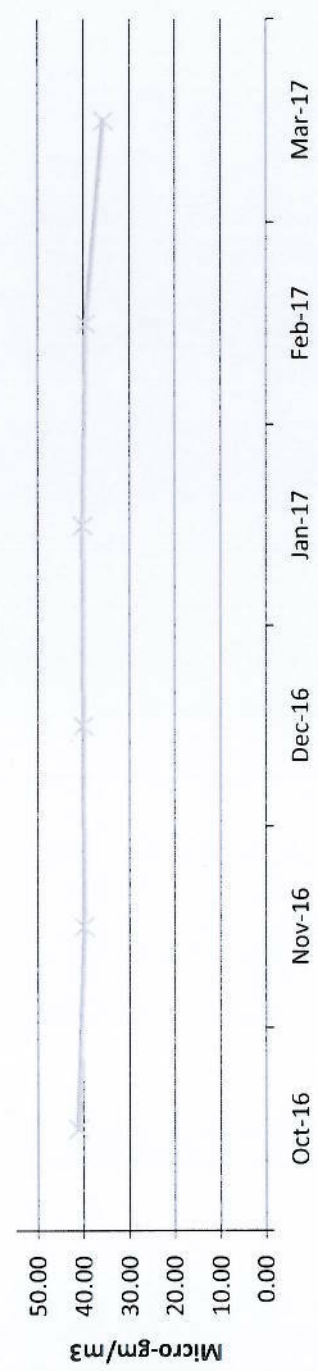


Monthly Average PM<sub>10</sub> µg/m<sup>3</sup>

Oct-16 to Mar-17

Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant North West Boundary Wall	41.00	39.70	39.90	40.10	39.40	35.70	39.30	41.00	35.70

PM10 Trend chart (Oct-16 to Mar-17)



Monthly Average NOx  $\mu\text{g}/\text{m}^3$

Oct-16 to Mar-17

Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant North West Boundary Wall	4.20	4.10	4.20	3.90	4.00	3.50	3.98	4.20	3.50

NOx Trend Chart (Oct-16 to Mar-17)

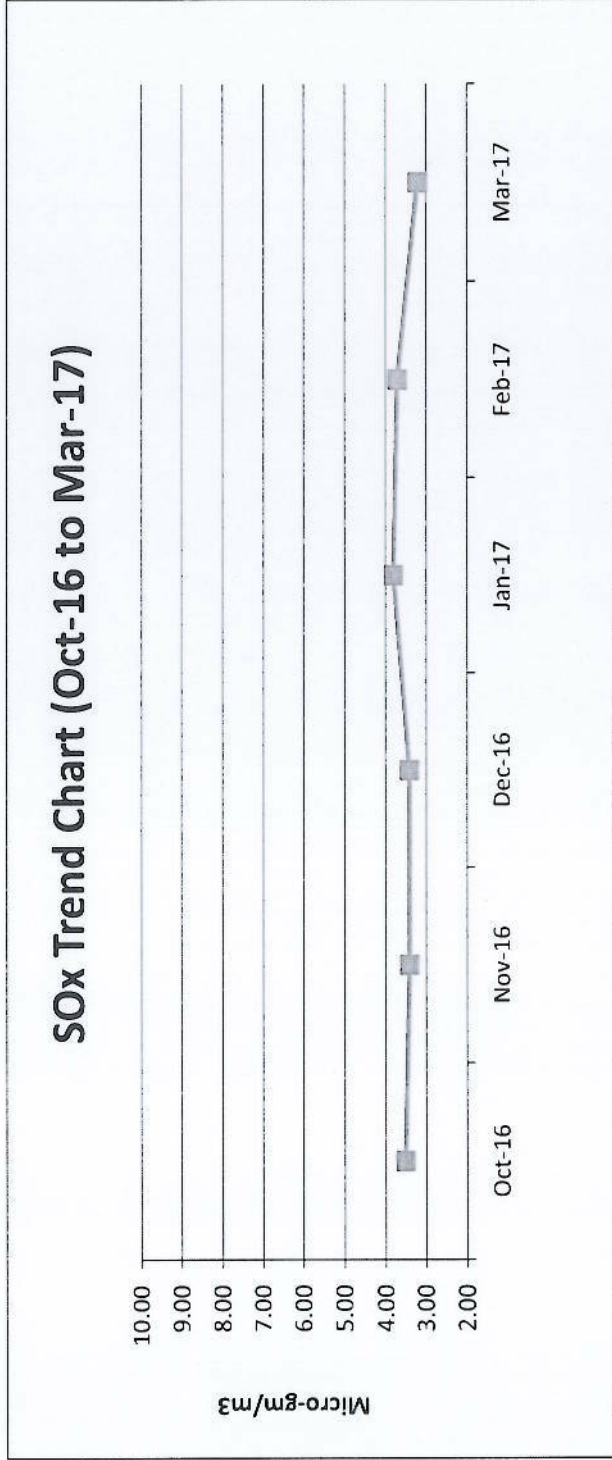




Monthly Average SO<sub>2</sub> µg/m<sup>3</sup>

Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant North	3.50	3.40	3.40	3.80	3.70	3.20	3.50	3.80	3.20
West Boundary Wall									

Oct-16 to Mar-17



Monthly Average PM<sub>2.5</sub> µg/m<sup>3</sup>

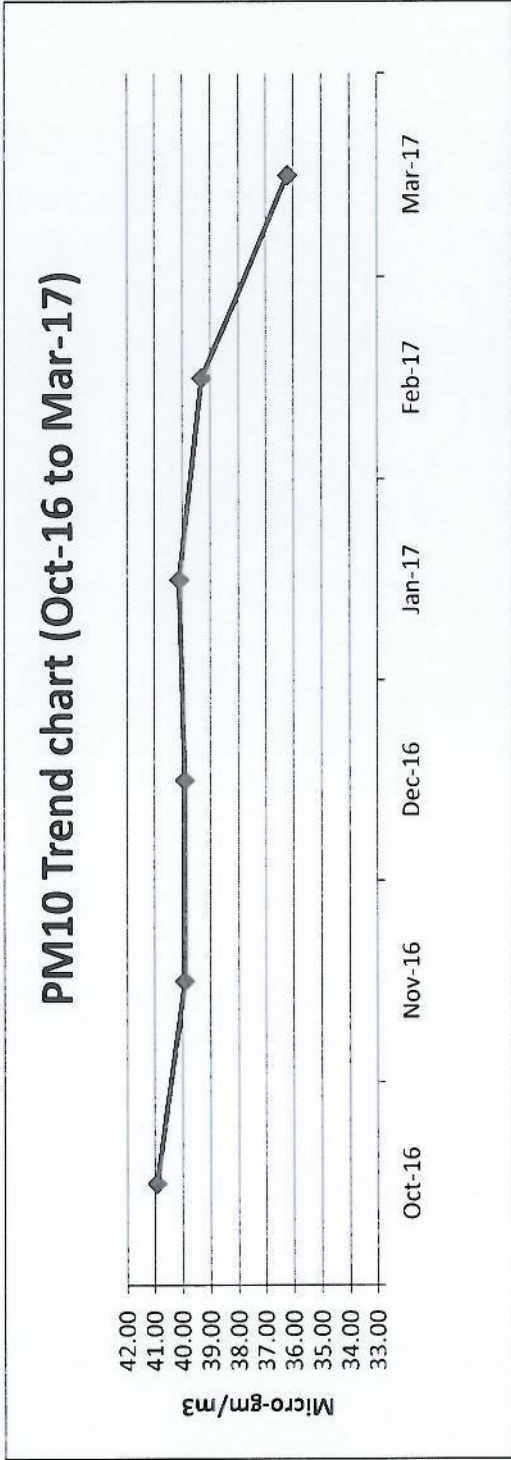
Month / Location	Oct-16 to Mar-17									
	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN	
Plant North West Boundary Wall	12.90	12.30	12.10	12.00	11.70	10.60	11.93	12.90	10.60	

PM2.5 Trend chart (Oct-16 to Mar-17)

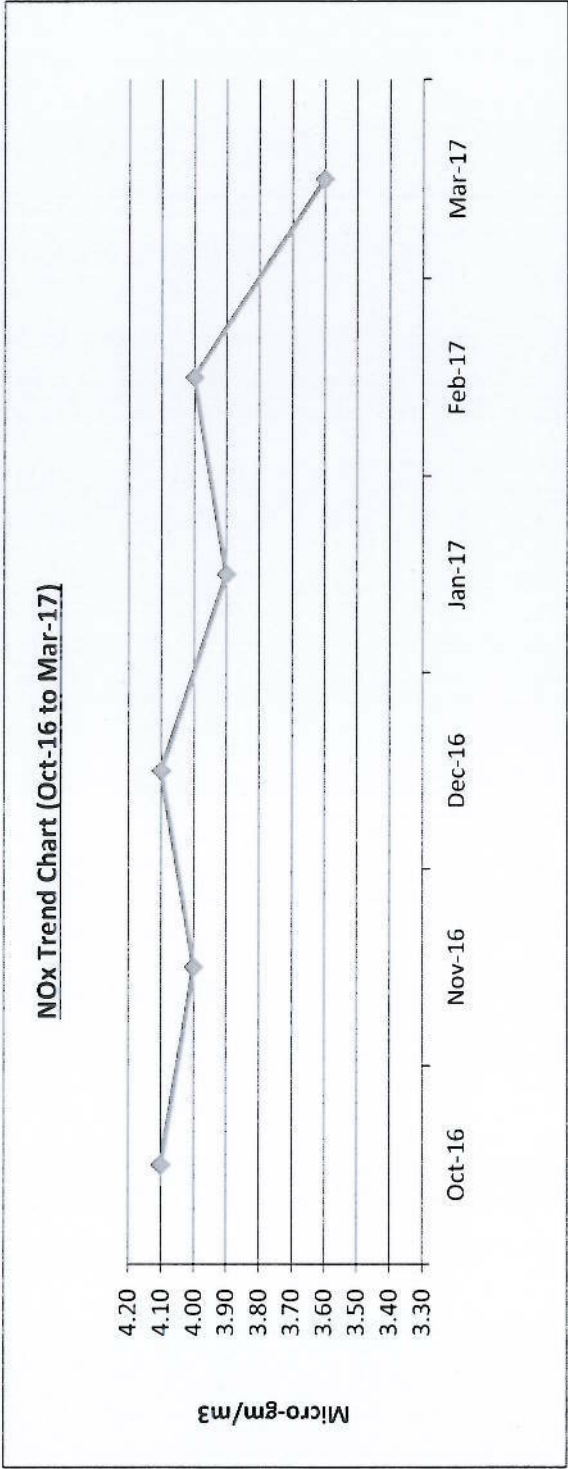




Monthly Average PM <sub>10</sub> µg/m <sup>3</sup>		Oct-16 to Mar-17							
Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant North East Boundary Wall	40.90	39.90	39.90	40.10	39.30	36.20	39.38	40.90	36.20



Monthly Average NOx $\mu\text{g}/\text{m}^3$		Oct-16 to Mar-17									
Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN		
Plant North East Boundary Wall	4.10	4.00	4.10	3.90	4.00	3.60	3.95	4.10	3.60		

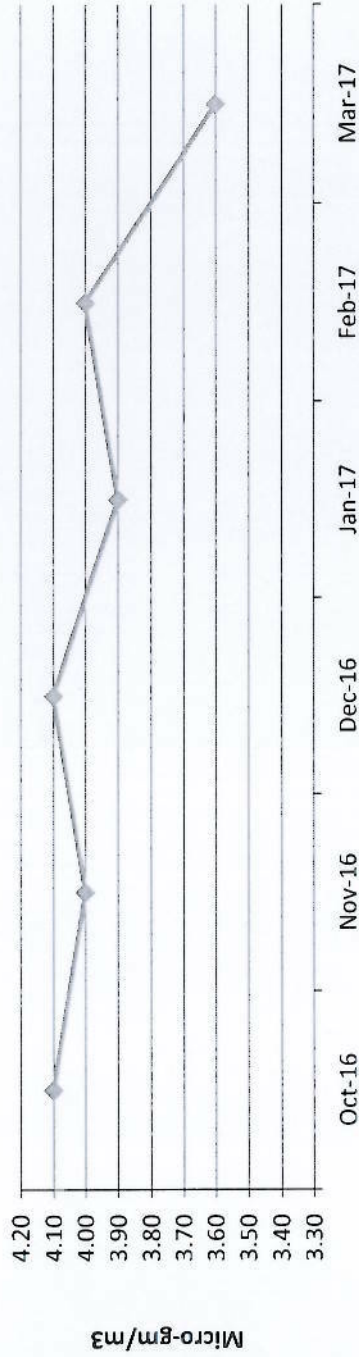




Monthly Average NOx  $\mu\text{g}/\text{m}^3$

Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant North East Boundary Wall	4.10	4.00	4.10	3.90	4.00	3.60	3.95	4.10	3.60

NOx Trend Chart (Oct-16 to Mar-17)

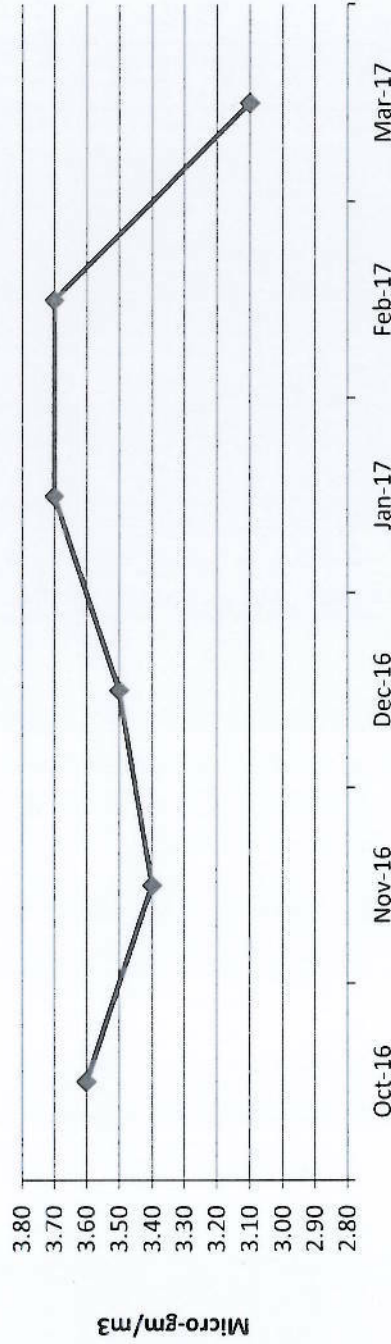


Monthly Average SO<sub>2</sub> µg/m<sup>3</sup>

Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant North East Boundary Wall	3.60	3.40	3.50	3.70	3.70	3.10	3.50	3.70	3.10

Oct-16 to Mar-17

SO<sub>x</sub> Trend Chart (Oct-16 to Mar-17)

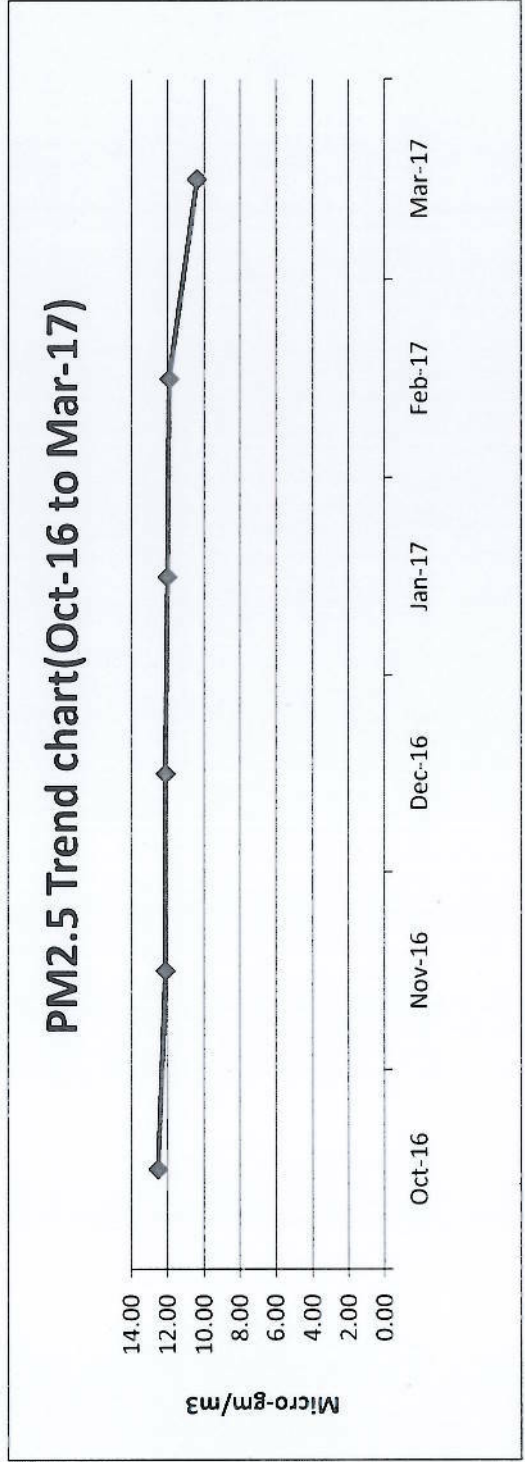




Monthly Average PM<sub>2.5</sub>  $\mu\text{g}/\text{m}^3$

Oct-16 to Mar-17

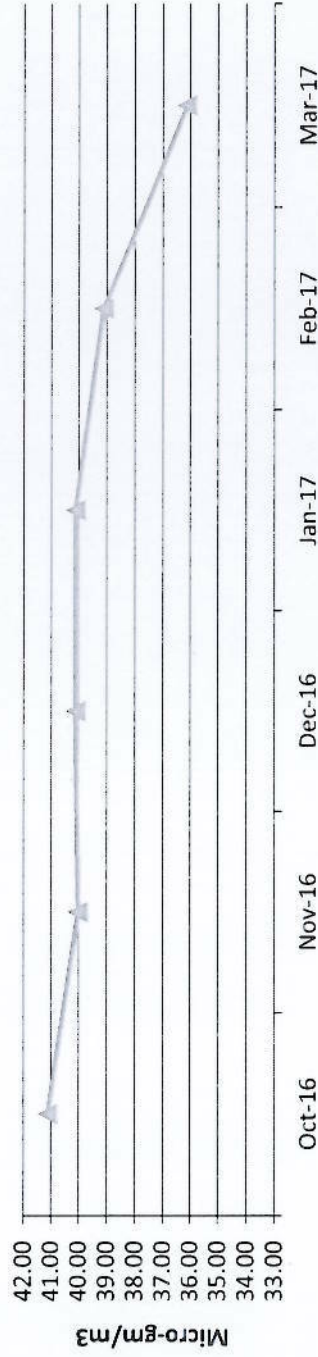
Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant North East Boundary Wall	12.50	12.10	12.10	12.00	11.90	10.40	11.83	12.50	10.40



Monthly Average PM<sub>10</sub> µg/m<sup>3</sup>

Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
South side of the Plant Boundary	41.10	40.00	40.10	40.10	39.10	36.10	39.42	41.10	36.10

PM10 Trend chart (Oct-16 to Mar-17)

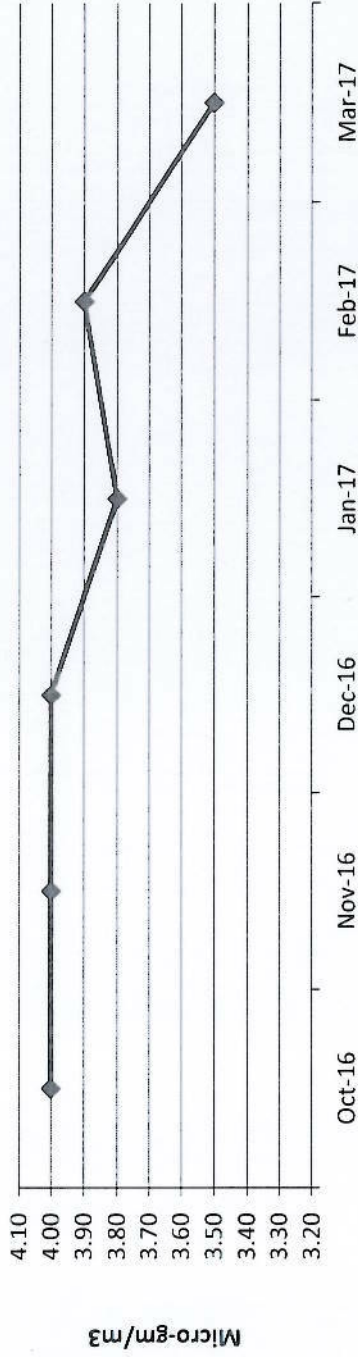




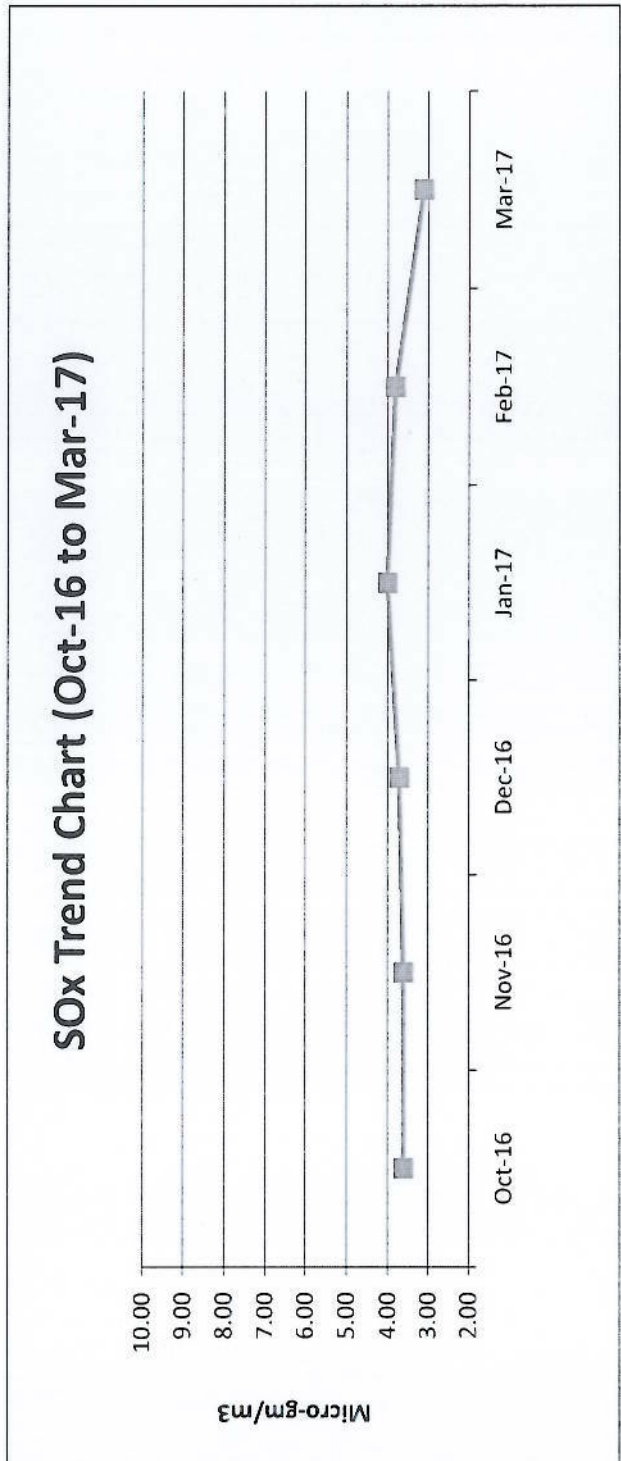
Monthly Average NOx  $\mu\text{g}/\text{m}^3$

Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
South side of the Plant Boundary	4.00	4.00	4.00	3.80	3.90	3.50	3.87	4.00	3.50

NOx Trend Chart (Oct-16 to Mar-17)



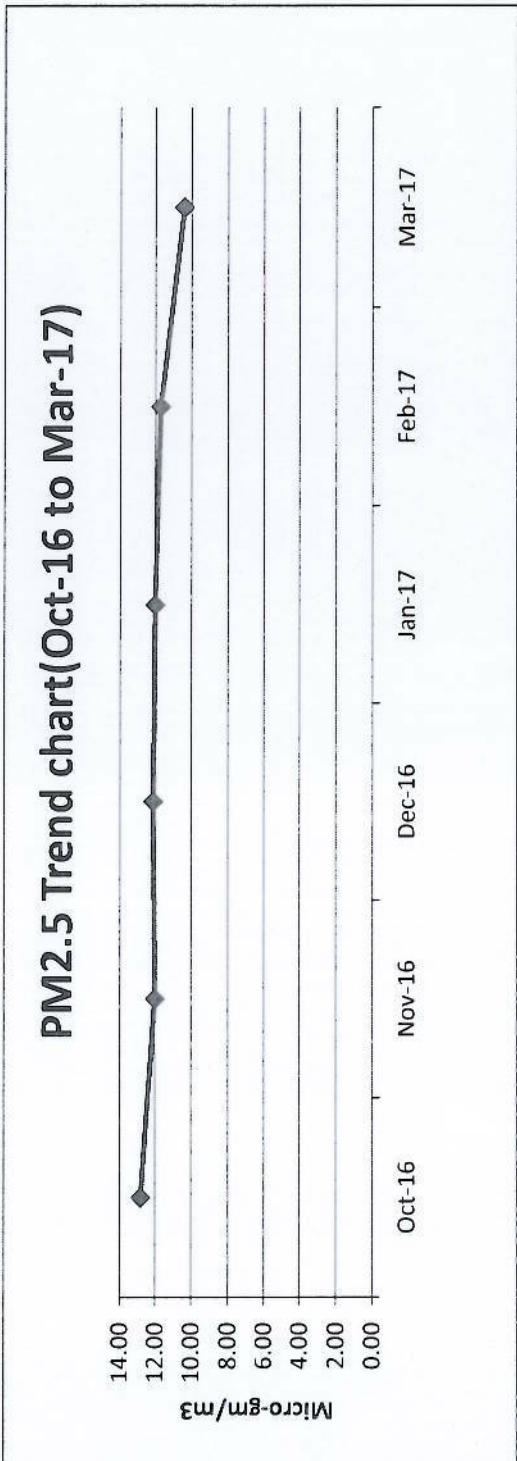
Monthly Average SO <sub>2</sub> µg/m <sup>3</sup>		Oct-16 to Mar-17							
Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
South side of the Plant Boundary	3.60	3.60	3.70	4.00	3.80	3.10	3.63	4.00	3.10



Monthly Average PM<sub>2.5</sub>  $\mu\text{g}/\text{m}^3$

Oct-16 to Mar-17

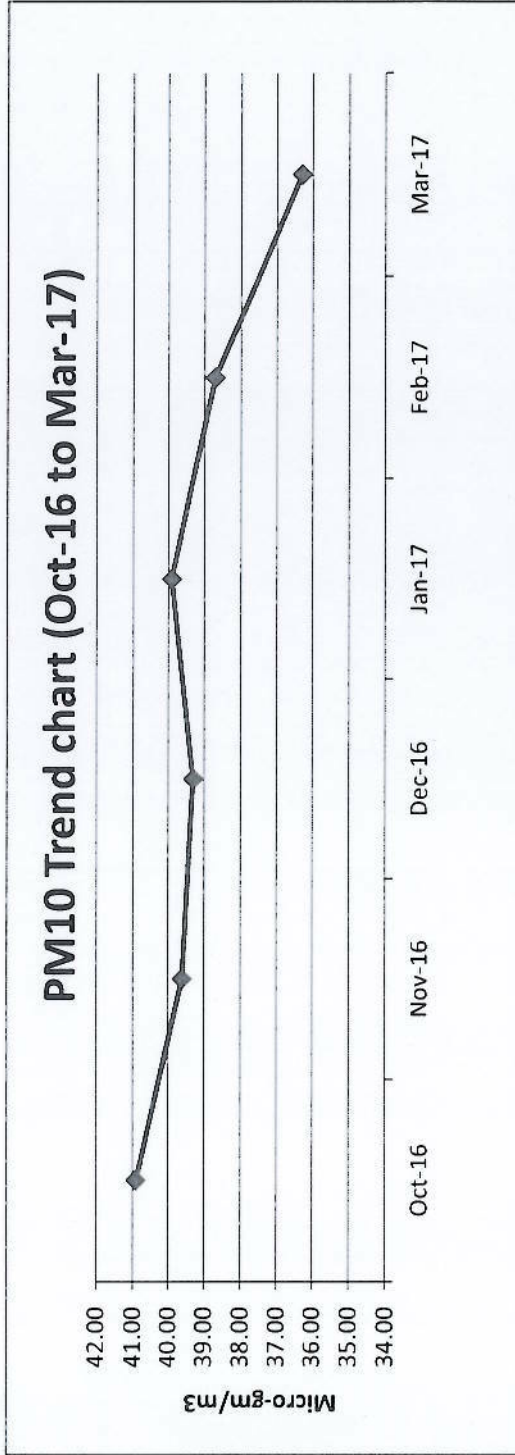
Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
South side of the Plant Boundary	12.80	12.00	12.10	12.00	11.70	10.40	11.83	12.80	10.40





Monthly Average PM<sub>10</sub> µg/m<sup>3</sup> Oct-16 to Mar-17

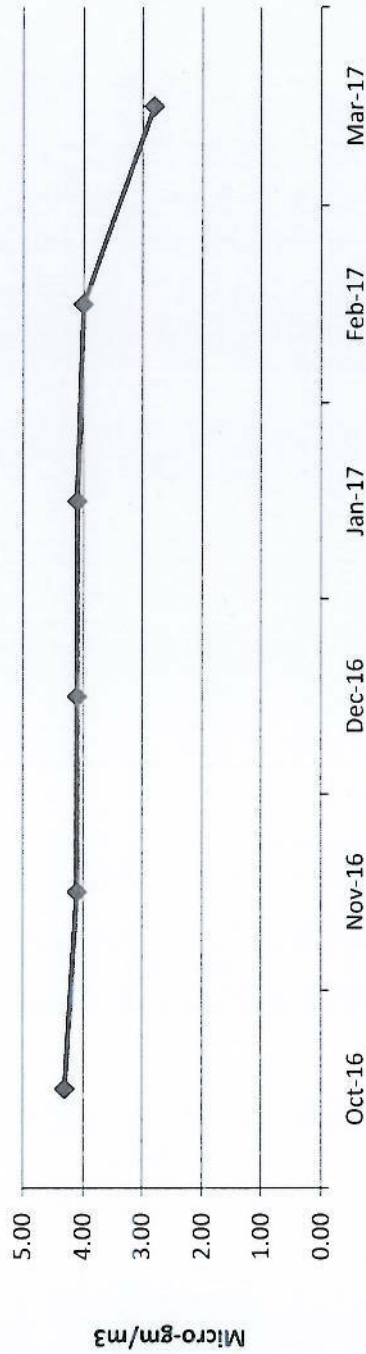
Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant Main Gate	40.90	39.60	39.30	39.90	38.70	36.30	39.12	40.90	36.30



Monthly Average NOx  $\mu\text{g}/\text{m}^3$

Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant Main Gate	4.30	4.10	4.10	4.10	4.00	2.80	3.90	4.30	2.80

NOx Trend Chart (Oct-16 to Mar-17)

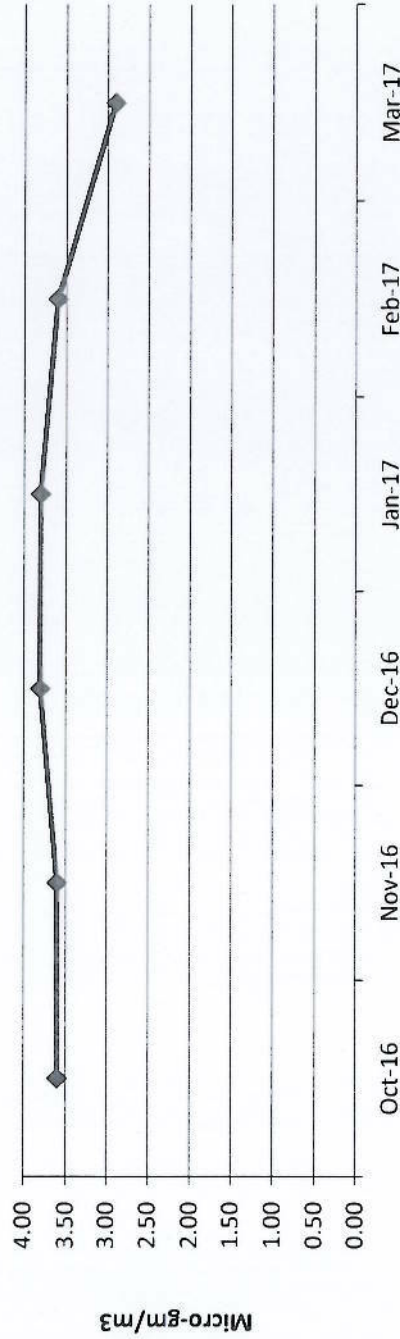


Monthly Average SO<sub>2</sub> µg/m<sup>3</sup>

Oct-16 to Mar-17

Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant Main Gate	3.60	3.60	3.80	3.80	3.60	2.90	3.55	3.80	2.90

SOx Trend Chart (Oct-16 to Mar-17)

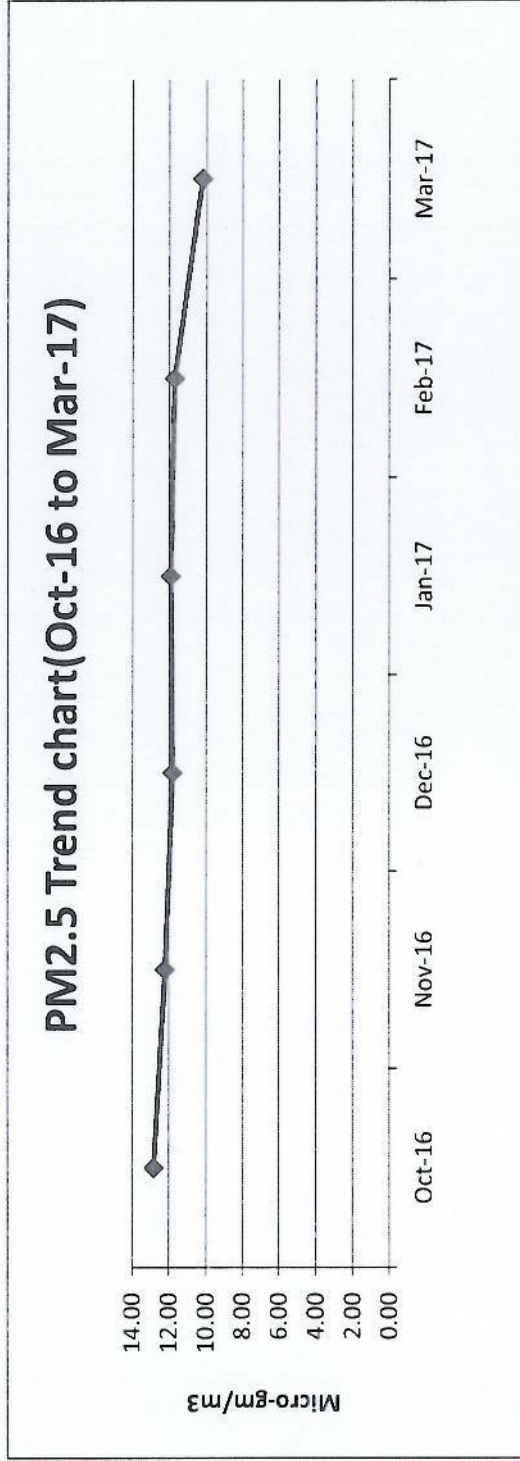




Monthly Average PM<sub>2.5</sub> µg/m<sup>3</sup>

Oct-16 to Mar-17

Month / Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
Plant Main Gate	12.80	12.20	11.80	11.90	11.70	10.20	11.77	12.80	10.20



**GMR RAJAHMUNDRY ENERGY LIMITED**

**Environment Monitoring Report**

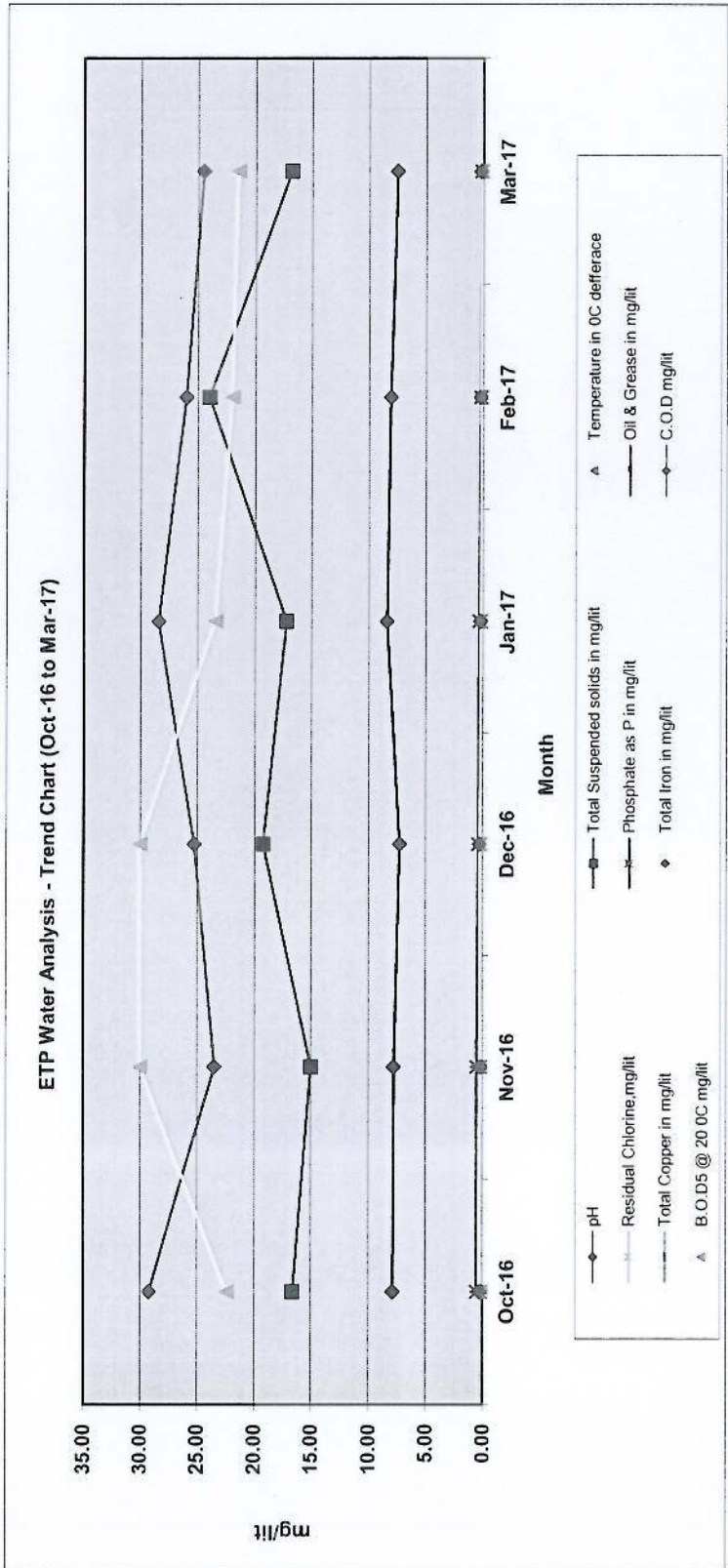
**October 16 to March 17**

**EFFLUENT QUALITY DATA**

Monthly Effluent Treatment Plant Water Analysis Report

Oct-16 to Mar-17

Month/Parameters	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
pH	7.86	7.78	7.27	8.41	8.09	7.50	7.82	8.41	7.27
Total Suspended solids in mg/lit	16.6	15.0	19.3	17.2	24.0	16.8	18.14	24.00	15.00
Temperature in °C defferace	0.1	0.2	0.3	0.2	0.2	0.2	0.20	0.30	0.12
Residual Chlorine.m g/lit	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Phosphate as P in mg/lit	0.55	0.52	0.41	0.36	0.25	0.22	0.39	0.55	0.22
Oil & Grease in mg/lit	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Total Copper in m g/lit	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Total Iron in m g/lit	0.24	0.19	0.26	0.20	0.20	0.20	0.22	0.26	0.19
C.O.D mg/lit	29.2	23.5	25.3	28.4	26.0	24.5	26.14	29.20	23.50
B.O.D <sub>5</sub> @ 20 °C mg/lit	22.4	30.0	30.0	23.4	22.0	21.5	24.88	30.00	21.50





**GMR RAJAHMUNDRY ENERGY LIMITED**

**Environment Monitoring Report**



**October 16 to March 17**

**WATER BALANCE**

**Water Balance Report**

**Oct-16 to Mar-17**

Month/Location	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	AVG	MAX	MIN
CW Make-up	0	0	0	0	0	0	0	0	0
Domestic	127	167	132	90	108	122	124	167	90



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Date: <u>05/11/17</u> Time: <u>11:00</u> <input type="checkbox"/> Dox <input type="checkbox"/> Nondox Content: <u>Additional principle chieft conservation of Forests (s)</u>		<b>PAPER WORKS</b> Waybill <input type="checkbox"/> Invoice <input type="checkbox"/> Form No. <input type="checkbox"/> Modvat <input type="checkbox"/>		<b>AMOUNT</b> Courier Charges Fuel Surcharges Risk Coverage Charges Other Charges		<b>ACTUAL WEIGHT</b> Kgs Gms <u>300g</u>	
Origin: <u>                    </u> Dest: <u>                    </u>		Quantity: <u>                    </u> Value Declared: <u>                    </u>		Service Tax Edu. Cess Hr. Edu. Cess Total <input type="checkbox"/> Cash <input type="checkbox"/> Credit		<b>CHARGEABLE WEIGHT</b> Kgs Gms	
Consignor: <u>GMR GREI</u> <u>Half yearly compliance report</u> <u>Oct 16 To Nov 17</u>		Consignee: <u>                    </u> <u>                    </u> Pincode: <u>                    </u>		Contact No.: <u>                    </u>		<b>DIMENSIONS in Cms.</b> Length = <u>                    </u> x Breadth = <u>                    </u> x Height = <u>                    </u>	
Items banned by Narcotics Dept., Liquid, Gases, Chemicals of Explosive nature, Bearer cheques, personal mail, Cash, Jewellery, Contraband, Drugs, Dangerous Goods or Prohibited Items are strictly not accepted. I/We hereby agree with and accept the Conditions of Carriage set forth on the reverse of this Consignor's Copy of this non-negotiable waybill and warrant that the information contained on this waybill is true and correct.				<b>Call Customer Service</b> Tel. : 040 - 39444444 E-mail : <a href="mailto:hydcsd@firstflight.net">hydcsd@firstflight.net</a> Website : <a href="http://www.firstflight.net">www.firstflight.net</a>			
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Employee Sign		Consignor's Sign					

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Consignor: <u>GMR GREI</u> <u>Half yearly compliance report</u> <u>Oct 16 To Nov 17</u>		Consignee: <u>                    </u> <u>Reginald Environmental Engneer</u> Pincode: <u>APPCB</u>		Contact No.: <u>                    </u>		<b>DIMENSIONS in Cms.</b> Length = <u>                    </u> x Breadth = <u>                    </u> x Height = <u>                    </u>	
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Origin: <u>                    </u> Dest: <u>                    </u>		Quantity: <u>                    </u> Value Declared: <u>                    </u>		Service Tax Edu. Cess Hr. Edu. Cess Total <input type="checkbox"/> Cash <input type="checkbox"/> Credit		<b>CHARGEABLE WEIGHT</b> Kgs Gms	
Consignor: <u>GMR GREI</u> <u>Half yearly compliance report</u> <u>Oct 16 To Nov 17</u>		Consignee: <u>                    </u> <u>Member Secretary</u> Pincode: <u>APPCB</u>		Contact No.: <u>                    </u>		<b>DIMENSIONS in Cms.</b> Length = <u>                    </u> x Breadth = <u>                    </u>	
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