

GMR Vemagiri Power Generation Limited



Plant Office:
Vemagiri, Kadiam Mandal,
East Godavari Dist.
A.P -533125
CIN U23201KA1997PLC032964
+91-883-2452313 - 317
+91-883-2452312
www.gmrgroup.in

Ref: GVPGL-RJY/O&M/18/ 60
DT: 18/06/2018

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 - 600034.

Sub: -Submission of Six Monthly Environmental Compliance report.

Dear Sir,

We are here with submitting Six monthly Environmental Compliance report (From Oct-17 to Mar-18). Kindly acknowledge.

Thanking you,

Yours faithfully,

For GMR VEMAGIRI POWER GENERATION LIMITED

Mathews.P
Plant Head

CC To

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



Registered Office:
Skip House, 25/1, Museum Road,
Bengaluru - 560 025

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Ref: GVPGL-RJY/O&M/18/ 59
DT: 18/06/2018

To,
The Member Secretary,
Andhra Pradesh Pollution Control Board,
Paryavaran Bhavan A-3, Industrial Estate
Hyderabad-500018.

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Plant Office:
Vemagiri, Kadapa Mandal,
East Godavari Dist.
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+91-883-2452303 - 317
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www.gmrgroup.in

Ref: GVPGL-RJY/O&M/18/ 5TH
DT: 18/06/2018

To,
**The Regional Environmental Engineer,
Andhra Pradesh Pollution Control Board,
5.532, Shanthinagar,
Opp.DIC Office, Ramansayyapeta,
Kakinada-533005.**

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Skip House, 25/1, Museum Road,
Bangalore - 560 025

 First Flight st Flight Couriers Ltd. <small>R.H.O. :5/5 & 5/7, 5th Floor, Babukhan Estate, Basheerbagh, Hyderabad - 500 001. Tel.: 9533619048 / 9014551281</small>	CONSIGNOR COPY <small>CUSTOMER CODE</small>		 * A 9 9 1 B 4 0 4 2 8 0 9 *	
	Date: <u>20/06</u> <input type="checkbox"/> Dox <input type="checkbox"/> Nondox	Content: <u>DOA</u>	Quantity: <u> </u>	Value Declared: <u> </u>
Origin: <u>Rom</u> <u>KOA</u>	Consignee: <u> </u> Pincode: <u> </u> Contact No.: <u> </u>	AMOUNT Courier Charges Fuel Surcharges Risk Coverage Charges Other Charges CGST SGST IGST UTGST Total	ACTUAL WEIGHT Kgs Gms	CHARGEABLE WEIGHT Kgs Gms
Signor: <u>GMR</u> <u>Uei</u>	Consignee: <u> </u> Pincode: <u> </u> Contact No.: <u> </u>	<input type="checkbox"/> Cash <input type="checkbox"/> Credit	DIMENSIONS in Cms. Length = <u> </u> x Breadth = <u> </u> x Height = <u> </u>	
Regd. Off. & Corp. Off.: G-1001/02, Lotus Corporate Park, Off Jay Coach Flyover, Western Express Highway, Goregaon (E), Mumbai - 400 063. Tel.: 022 39576666. CIN-U64100MH1988PLC047228				

Call Customer Service
 Tel. : 9346203351
 E-mail : hydcsd@firstflight.net
 Website : www.firstflight.net

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Call Customer Service

**SIX MONTHLY ENVIRONMENTAL COMPLIANCE
REPORT**

**GMR VEMAGIRI POWER
GENERATION LIMITED**

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

October-17 to March-18

GMR VEMAGIRI POWER GENERATION LIMITED

Environment Monitoring Report

October 2017 to March 2018

INTRODUCTION

GMR Vemagiri Power Generation Limited has commissioned 388.5 MW Combined cycle power plant at Vemagiri East Godavari District. The plant was commissioned in combined cycle mode in the month of September-2006 and at present the plant is under operation as per the gas availability.

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°45'&81°50' and Latitude is 16°55'&17° .The site measuring around 70 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 and Kakinada Sea port distance of 60 km from project site. The site is accessible both by road and railway.

GMR VEMAGIRI POWER GENERATION LIMITED

Environment Monitoring Report

October 2017 to March 2018

CONTENTS

- EC,CFE and CFO Compliance
- Meteorological Data
- Stack Emission monitoring for Heat Recovery Steam Generator stack
- Ambient Air Quality monitoring
- Effluent Quality Monitoring
- Noise level measurement inside the plant (Day & Night).
- Water balance report.
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Compliance Status of Consent Order No. APPCB/VSP/RJY/647/CFO/HO/2015 DT: 28.10.2015 and auto renewal done on 26.10.2017, valid upto 30.11.2018

Schedule-A

	Conditions	Status
1.	The applicant should 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 and detailed compliance of CFO compliance.	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 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) Act,1981	Noted and Accepted
3.	The industry should 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.
4.	a) All the fugitive emissions should be controlled with proper measures. b) The applicant should also install the equipment such as wind speed recorder, wind direction recorder.	Complied
5.	The applicant should not change or alter either the quality or the quantity or the rate of the discharge or the route of discharge and should not change or alter either the prescribed quality or the rate of emission without the previous written permission of the Board.	Noted and accepted.
6.	The applicant should, 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 should be stopped.	Noted and accepted.
7.	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 should forth with intimate the fact of such occurrence or the apprehension of such occurrence to this Board, by fax / email under intimation to the Collector and District Magistrate.	Noted and accepted.
8.	In case of such episodal discharges / emissions mentioned in item 6 above, the industry should take immediate action to bring down the discharge / emission below the limits prescribed in this order.	Noted and accepted.
9.	A good housekeeping should be maintained both within the factory and in the premises. All hoods, pipes, valves, sewers and drains should be leak proof. Floor washings	Chemical area (DM Plant) floor washings are connected to the Effluent treatment plant only.

	should be admitted into the effluent collection system only and should not be allowed to find their way into storm drains or open areas.	Good housekeeping is being maintained at all areas.
10.	a) The industry should 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 should 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	Analysis is being carried out at regular intervals and reports are being submitted to the board regularly.
11.	Separate power connection with energy meter should be provided for the Pollution Control Equipment's and record of power consumption and chemicals consumption for the operation of pollution control equipment should be maintained separately.	Energy meters are provided for ETP and Reservoir water system. Air pollution control is integral part of GTG.
12.	The applicant should 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 should 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.
13.	The applicant should 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.
14.	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.
15.	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 should be followed.	Noted and accepted.
16.	All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 should be followed.	Noted and accepted.
17.	The occupier should 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.
18.	For any accident or spillage of hazardous wastes causing damage to the Environment, the occupier or the transporter as the case should be held responsible.	Noted and accepted.
19.	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 should 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 should be treated, as Hazardous Waste and they should be disposed off only to the agencies authorized by APPCB in a safe manner	Noted and accepted.
20.	The occupier should 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	Complied.

	hazardous waste or hazardous waste constituents, which could endanger to human health or environment.	
21.	Packaging, labeling and transportation of Hazardous Wastes should 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 should be based on the composition and hazardous constituent of the waste, however all Hazardous Waste containers should be provided with a general label.	Noted and accepted.
22.	The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter should 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.
23.	No Hazardous Wastes should be mixed with any other wastes or should be discharged to a common, other internal, external sewerage or other drainage system without prior approval of APPCB.	Noted and accepted.
24.	If HDPE bags are used for storing Hazardous Wastes, it should 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 should be ensured that they are perfectly sealed.	Noted and accepted.
25.	The person authorised should not rent, lend, sell, transfer their industrial premises without obtaining prior permission of the State Pollution Control Board.	Noted and accepted.
26.	Any unauthorized change in personnel, equipment as working condition as mentioned in the application by the person authorized should constitute a breach of his authorization.	Noted and accepted.
27.	The industry should comply with the provisions of Batteries (Management & Handling) Rules, 2001.	Noted and accepted
28.	The industry should put up two sign boards (6x4 ft. each) at publicly visible places at the main gate. The first sign board should provide information on specific conditions of CFO and Hazardous Waste Authorization. The second sign board should 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	Sign Boards are provided at the main gate and data being updated regularly.
29.	The applicant should 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.
30.	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.
31.	The authorisation issued under Hazardous Waste (Management and Handling) Rules, 1989 and its amendments thereof, should comply with the provision of the Environment (Protection) Act, 1986.	Noted and accepted.

SCHEDULE - B

1.	The effluent discharged should not contain constituents in excess of the tolerance limits mentioned below.	Complied.
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	<p>Outlet Parameter Limiting Standards 1,2 & 3 pH 6.5 – 8.5 Suspended solids 100 mg/l Oil and grease 10 mg/l Total residual chlorine 1.0 mg/l Dissolved Phosphates 5.0 mg/l Copper 3.0 mg/l Iron 3.0 mg/l BOD 30 mg/l COD 250 mg/l Temperature should not exceed 5 deg C above the receiving water temperature</p>	
2.	<p>The industry shall take steps to reduce water consumption to the extent possible and consumption shall not exceed the quantities mentioned below: S.No. Purpose Total 1. DM Plant 384 KLD 2. Cooling Makeup 14,000 KLD 3. Domestic 16 KLD 4. Gardening 186 KLD Total 14,586 KLD</p>	Complied. Water consumption is being monitored regularly, and water utilized quantity is well below the specified quantities.
3.	<p>The emissions shall not contain constituents in excess of the prescribed limits mentioned below. Chimney No Parameter Emission Standards 1. Particulate Matter 115 mg/NM3 NOx <50 ppm</p>	Complied.
4.	<p>The facility shall comply with emission limits for DG Sets of capacity up to 800 KW as per the notification G.S.R.520 (E),Dt: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:09/07/2012 at serial no.96,under the Environment(Protection) Act,1986.</p>	DG Set stack height provided as per CFE Order No.161/PCB/C.Fstt/RO-RJY/AFE-N/96 -6004 Dt: 10-02-1997.
5.	<p>The facility shall comply with ambient air quality standards of PM10(Particulate Matter size less than 10µm) - 100 µg/m3; PM2.5(Particulate Matter size less than 2.5µm) - 60 µg/m3; SO2 - 80 µg/m3; NOx - 80 µg/m3 outside the factory premises at the periphery of the industry. Standards for 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)</p>	Complied.
6.	<p>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.</p>	GVPGL is regularly submitting the water cess returns in Form-I.
7.	<p>The industry shall not increase the capacity beyond the permitted capacity mentioned in CFE & CFO order of the Board.</p>	Noted and accepted.
8.	<p>The facility shall operate STP for treatment of Domestic Effluents and report the compliance to Regional Office,</p>	GVPGL having the STP for Domestic Effluent treatment

	Kakinada.	purpose.
9.	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.	Being complied with.
10.	The industry shall discharge effluent into Kadiam Ava drain only with the permission given by Irrigation Department, Govt. of A.P.	Industry is having Valid permission for Effluent discharge to Kadiyam Ava drain.
11.	The industry shall maintain greenbelt on 20.4 Ha in their premises.	Present GVPGL is having total 70 acres land. Being complied with accordingly as per MOEF guide lines.
12.	The Industry shall implement the action plan for development of Energy plantation.	Noted.
13.	The industry shall maintain the following records and the same shall be made available to the inspection officials of the board (daily production details, RG-1 records and central exercise returns, Quantity of the effluents generated, log books of the pollution control systems, hazardous waste generated and disposed)	All relevant records are maintaining.
14.	The applicant shall submit Environment Statement in Form-V before 30 th September ever year as per rule no 14 of E(P) rules,1986 & amendments.	Being Complied with.
15.	The conditions are without prejudice to the rights and contentions of this Board in any Court of Law.	Noted and accepted.

SCHEDULE - C

[See rule 5(4)]

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

1.	The Industry shall give top priority for waste Minimization and cleaner production practices.	Complied.
2.	The Industry shall not store Hazardous waste for more than 90 days as per the Hazardous Wastes (Management, Handling and Transboundary movements).Rules, 2008 and amendments thereof.	Noted for Compliance.
3.	The Industry shall store Used/Waste Oil and used Lead acid batteries in a secured way in their premises till its disposal.	Noted for Compliance.
4.	The Industry shall not dispose waste oils to the traders and the same shall be disposed authorized Re processors /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 not dispose spent solvents/mixed spent solvents to the traders.	GVPGL is not generating such type of Hazardous waste.
7.	The Industry shall take necessary practical steps for prevention of oil spillages and carryover of oil from the premises.	Noted and accepted.
8.	The 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	Being complied with.
9.	The industry shall maintain good housekeeping & maintain proper records for Hazardous Waste stated in Authorization.	Being complied with.
10.	The industry shall maintain proper records for Hazardous Waste stated in Authorization in Form-III i.e. quantity of incinerable waste, land disposal waste,recycleable waste etc,and file annual returns in Form-IV as per rule 22(2) of the Hazardous waste(Management,Handling &Transboundary movement) Rules,2008 and amendments thereof.	Form-3 and Annual reports in form -4 are being submitted to the board regularly by GVPGL

11.	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.
12.	The Industry shall dispose of e-Waste to the Authorized recyclers only.	Noted for compliance.

Compliance Status

Compliance Status for EC J-13011/35/96-IA.II (T) dated April 8, 1997		
	Conditions	Status
i)	All the conditions stipulated by the APSPCB vide their letter No.161/PCB/C.Estt/RO-RJY/AEE-N/96/6004 dt: 10.02.1997 & it's Schedule A & B should be strictly implemented.	The statuses of the conditions are provided.
ii)	The sulphur content in the Naphtha to be used as fuel shall not exceed 0.15%.	Plant is running with Natural Gas as fuel. This condition has been deleted as per MOEF memorandum No J.13011/35/96-IA.II (T) dated 9th January 2001.
iii)	Land acquisition will be restricted to 270 acres.	Present GVPGL is having total land: 70 acres.
iv)	Two main stack height of 70 mt & bypass stack height of 70 mt each with continuous stack monitoring arrangement will be provided.	The plant has designed with single GT and single Steam Turbine. Therefore single stack is sufficient. Regarding the bypass stack, as the open cycle operation is not envisaged, only main stack is provided. This stack height is 70 meters as per the norms stipulated by MOEF. Continuous stack emission monitoring is in operation.
v)	The NOx emission should not exceed 100 ppm as stipulated by CPCB.	The NOx emission is less than 50 ppm, which is within the stipulated limit given by the APPCB& MOEF office memorandum No-J-13011/35/96-IA.II (T) dated 9th January 2001. Gas turbine is provided with Dry Low NOx Combustion system (Model DLN2+).
vi)	Closed circuit cooling with cooling towers shall be provided.	The cooling system provided with closed circuit and induced draft system.
vii)	Treated waste water conforming to the prescribed standards shall be used for raising the green belt and remaining water will be discharged into natural drain/Godavari river downstream of the project site after ensuring the quality parameters prescribed for surface water.	Treated wastewater is being utilized for gardening, and water quality parameters are maintained within the limits.
viii)	Adequate precautions shall be taken to ensure that the noise levels do not exceed the prescribed standards. Workers in the high noise area will be provided with ear protection devices & their use by the workers shall be ensured.	Acoustic Enclosures provided for Gas turbine generators and steam turbine generators, also 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.
ix)	A green belt of 100 mt. Width & tree density (1500-2000 ha) with suitably selected species shall be developed all around the power plant. At least one third of the land area shall be covered under the green belt. The guidelines prepared by CPCB for rising of green belt shall be followed in this regard. The plan may be prepared in consultation with the Forest Department authorities & implemented in a time bound manner.	Being complied with.
x)	Regular monitoring of the air quality shall be carried out	Industry has installed four common

	in & around the power plant & records maintained. A periodic report (six monthly) shall be submitted to this Ministry.	ambient monitoring stations. Six monthly compliance status reports being submitted regularly.
xi)	A separate environment monitoring cell with suitably qualified staff shall be set up for implementation of the stipulated environmental safeguards.	GMR Group has set up an environment management cell to manage environmental related issues.
xii)	A half yearly report on the status of implementation of the stipulated conditions & environmental safeguards shall be submitted to this Ministry / RO / CPCB / SPCB.	Six monthly compliance status reports being submitted regularly.
xiii)	Regional Office of MOEF located at Bangalore will monitor the implementation of the stipulated conditions. Complete set of Impact Assessment Report & Management Plan should be forwarded to the Regional Office / CPCB / SPCB for their use during monitoring.	Noted and accepted. Complied.
xiv)	Separate funds should be allocated for implementation of environmental protection measured along with item wise break up. These costs should be included as part of project costs. These funds earmarked for the environment protection measures should not be diverted for other purposes & year wise expenditure should be reported to this Ministry.	Being complied with.
xv)	Necessary permission should be obtained from the Chief Controller of Explosives for the storage of Naphtha.	Presently plant is operating with Natural Gas as fuel and storage license is not applicable.
Compliance Status for EC J- 13011/35/96/IA-II (T) dated 24th September 1998		
2(ii)	Naphtha at the rate of 2011 Ton/day would be used and the sulphur contents should not exceed 0.15% in the fuel.	Presently plant is operating with Natural Gas as fuel and this is not applicable.
2(iii)	Land acquisition for the project will be restricted to 200 acres only.	Present GVPGL is having total land: 70 acres. This is within the limit specified by MOEF.
2(vi)	Fresh water to the tune of 29000 cum / day would be used in the project & closed circuit cooling with cooling towers shall be provided.	Provided closed cycle cooling system and natural draft cooling system. Total water consumption within the stipulated limit only.
Compliance Status for EC J- 13011/35/96/IA-II (T) dated 9th January 2001		
ii)	NOx emission should be restricted to 50ppm and details of technology adopted for this should be submitted to the Ministry within one month.	The NOx emission is less than 50 ppm, which is within the stipulated limit given by the APPCB & MOEF. Gas turbine is provided with Dry Low NOx Combustion system (Model DLN2+).
iii)	A risk assessment & emergency management plan should be submitted to Ministry for the conveyance of natural gas in the power plant premises within one month of issue of this letter.	This has already been submitted.
iv)	For use of natural gas APPCB should be approached for seeking amendments. A copy of APPCB Consent order for Establishment should be submitted to Ministry of Environment & Forests.	APPCB has been approached and amendment has been issued by APPCB vide their order No 161/PCB/C.Estt/RO-Rjy/AEE-N/96-3215 dated 15th February 2001.

GMR VEMAGIRI POWER GENERATION LIMITED

Environment Monitoring Report

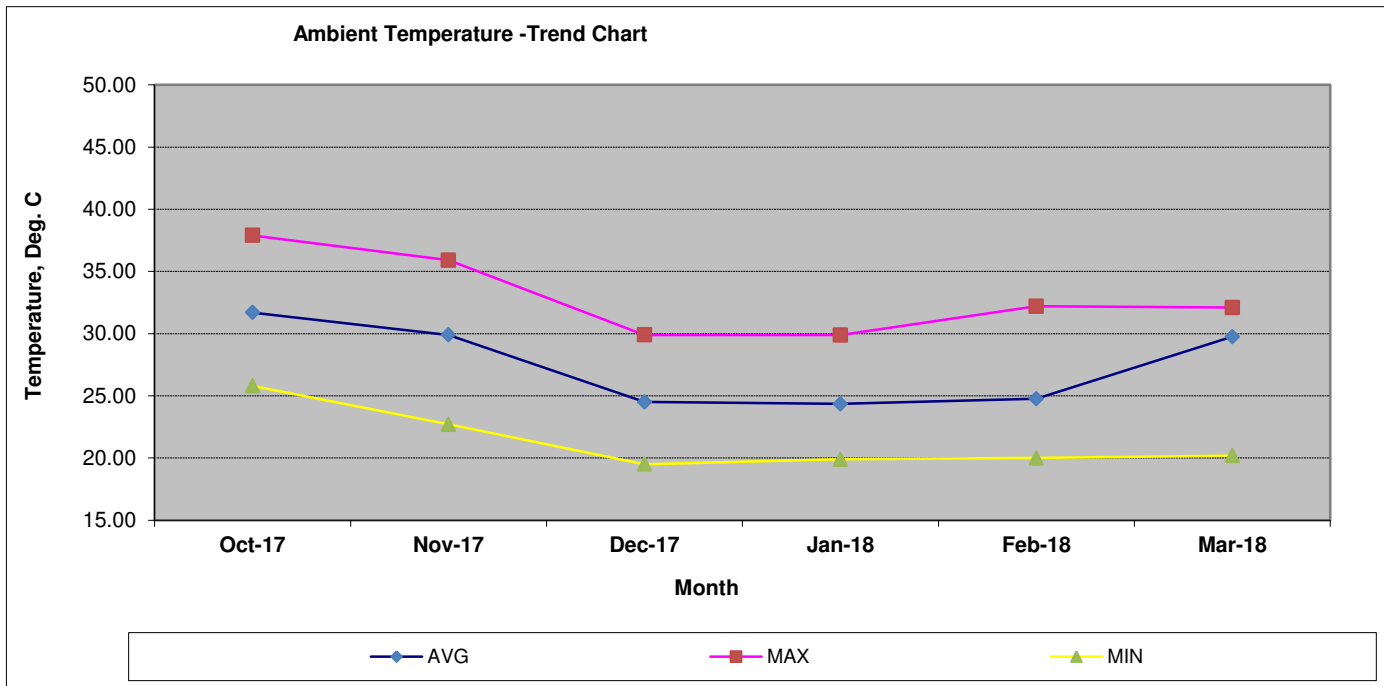
October 2017 to March 2018

WEATHER MONITORING DATA

Monthly Average Ambient Temperature, °C

Oct-17 to Mar-18

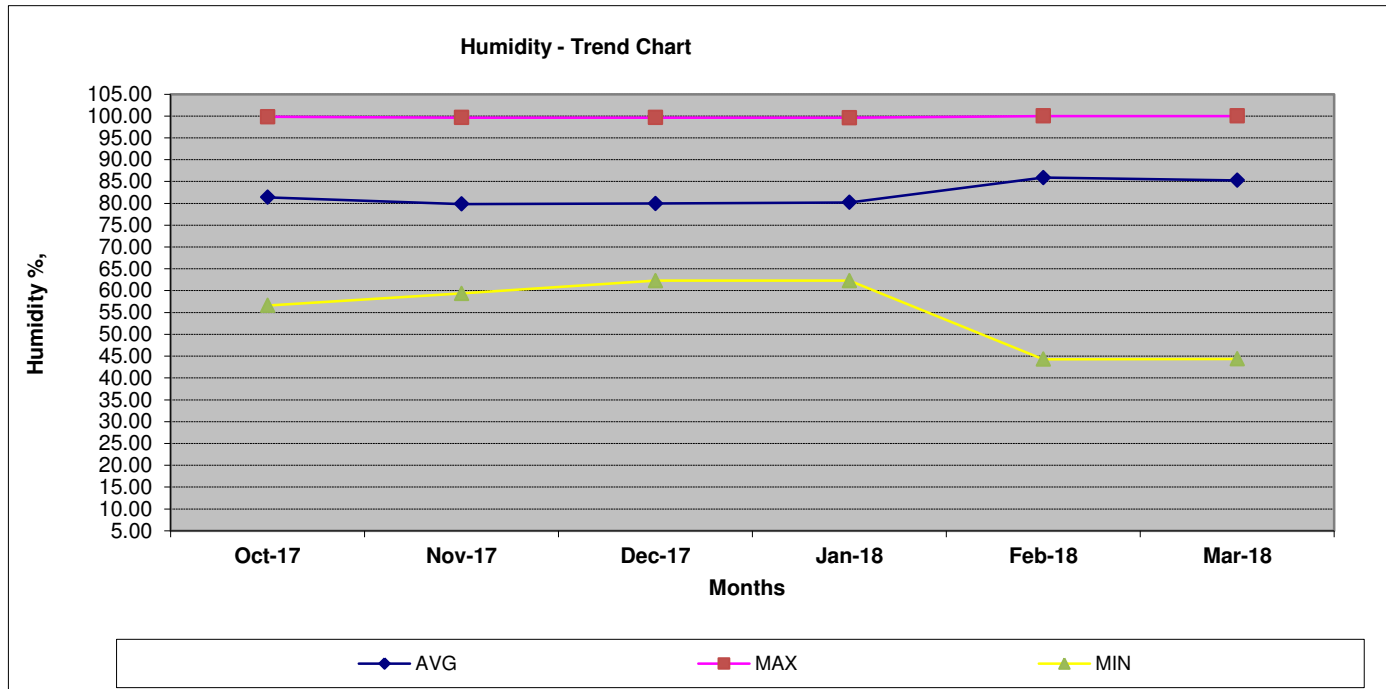
Month	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
AVG	31.70	29.90	24.50	24.35	24.76	29.75	27.20	31.70	24.35
MAX	37.90	35.90	29.90	29.89	32.20	32.10	32.98	37.90	29.89
MIN	25.80	22.70	19.50	19.90	20.00	20.20	21.35	25.80	19.50
AVG							27.18		
MAX								37.90	
MIN									19.50



Monthly Average Humidity, %

Oct-17 to Mar-18

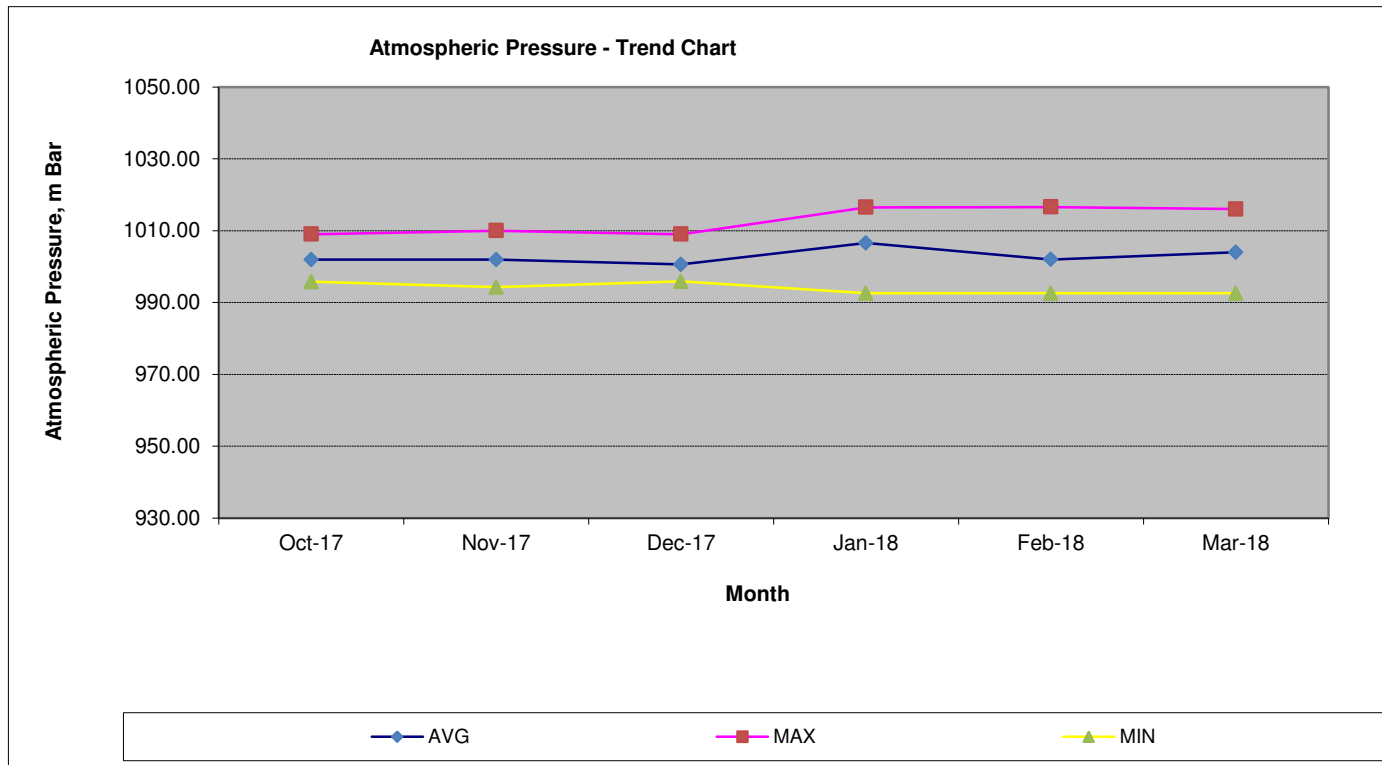
Month	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
AVG	81.37	79.85	79.95	80.22	85.9	85.28	82.09	85.88	79.85
MAX	99.84	99.63	99.63	99.59	100.0	100.00	99.78	100.00	99.59
MIN	56.60	59.34	62.30	62.30	44.3	44.36	54.87	62.30	44.30
AVG							78.91		
MAX								100.00	
MIN									44.30



Monthly Average Atmospheric Pressure, m Bar

Oct-17 to Mar-18

Month	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
AVG	1001.94	1001.93	1000.59	1006.59	1002.0	1004.00	1002.84	1006.59	1000.59
MAX	1009.00	1010.00	1009.00	1016.50	1016.6	1016.00	1012.85	1016.60	1009.00
MIN	995.80	994.30	995.90	992.60	992.6	992.60	993.97	995.90	992.60
AVG							1003.22		
MAX								1016.60	
MIN									992.60

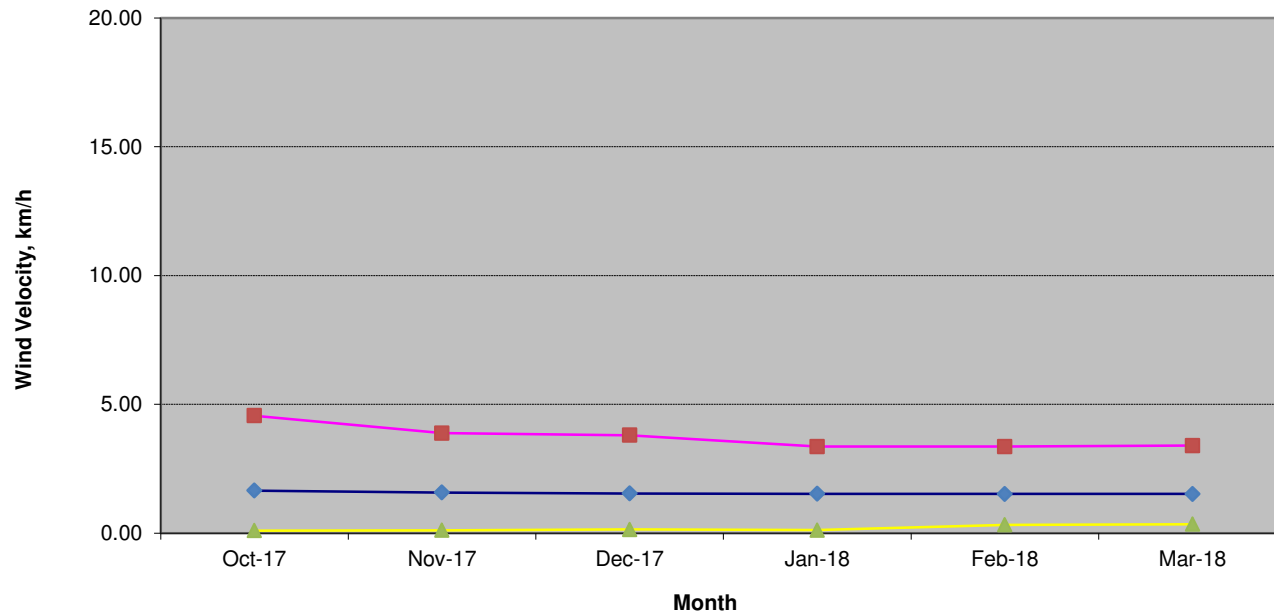


Monthly Average Wind Velocity, m/s

Oct-17 to Mar-18

Month	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
AVG	1.65	1.58	1.54	1.53	1.52	1.52	1.56	1.65	1.52
MAX	4.56	3.88	3.80	3.36	3.36	3.40	3.73	4.56	3.36
MIN	0.10	0.11	0.14	0.12	0.32	0.35	0.19	0.35	0.10
AVG							1.82		
MAX								4.56	
MIN									0.10

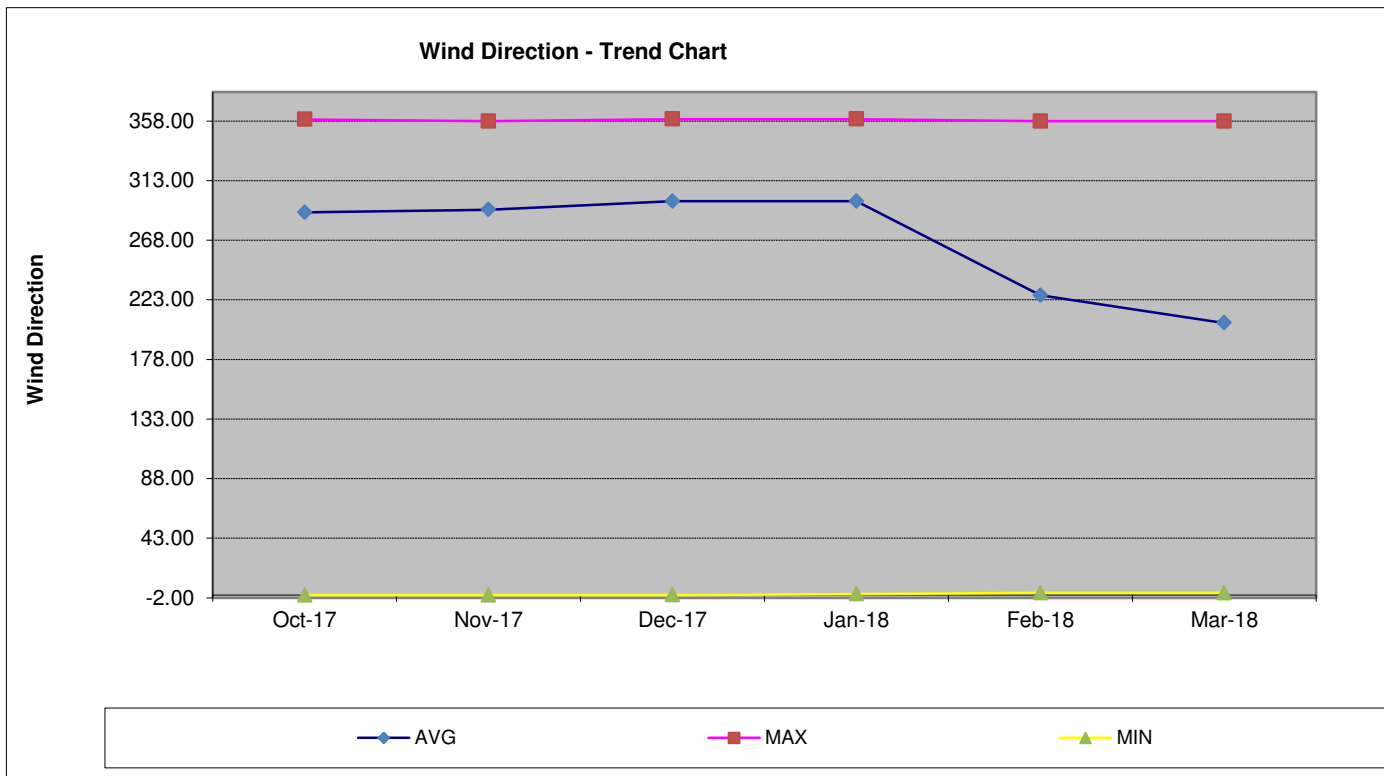
Wind Velocity - Trend Chart



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

Oct-17 to Mar-18

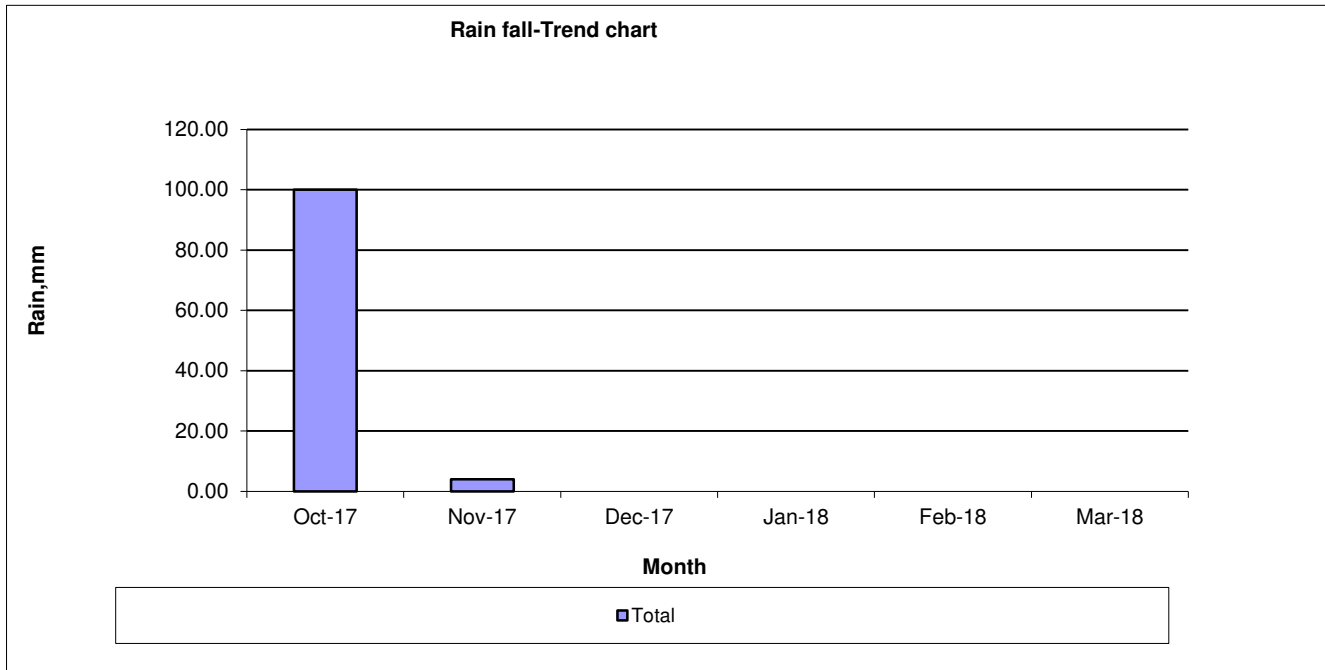
Month	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
AVG	289.00	291.00	297.40	297.40	226.4	205.50	267.78	297.40	205.50
MAX	359.20	357.80	359.40	359.40	357.8	357.80	358.57	359.40	357.80
MIN	0.10	0.10	0.12	0.84	1.8	1.80	0.79	1.80	0.10
AVG							209.05		
MAX								359.40	
MIN									0.10



Monthly Total Rain Fall, mm

Oct-17 to Mar-18

Month	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Total	MIN
Total	100.00	4.00	0.0	0.00	0.00	0.00	104.00	0.00
No of rainy days	7.00	2.00	0.0	0.00	0.00	0.00	9.00	0.00



GMR VEMAGIRI POWER GENERATION LIMITED

Environment Monitoring Report

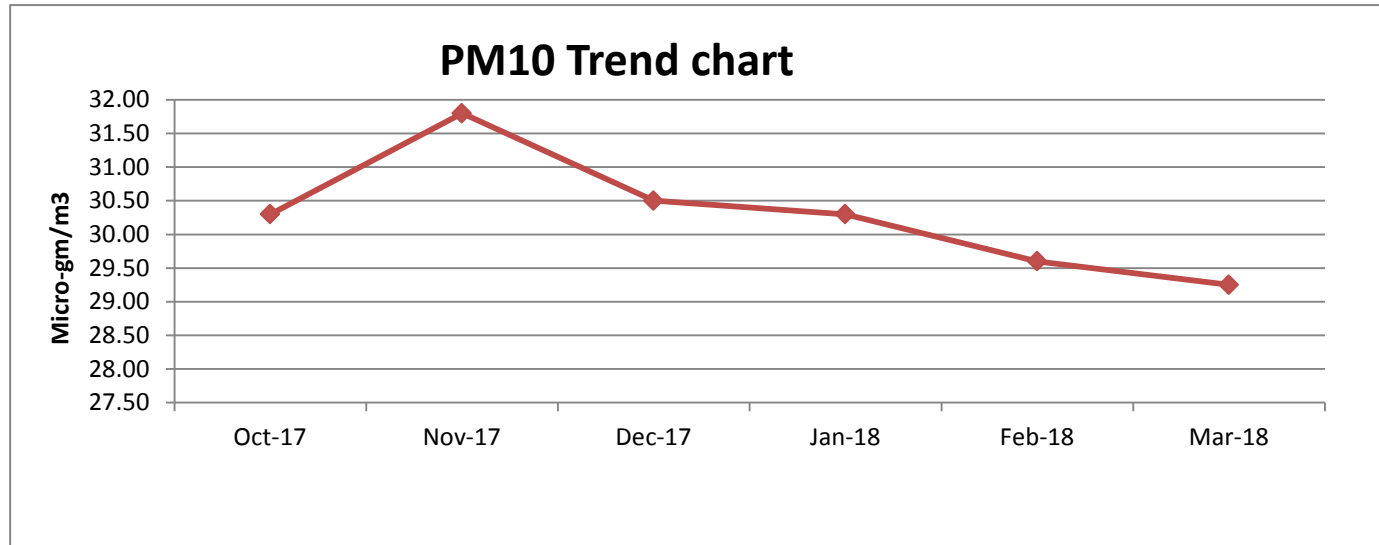
October 2017 to March 2018

AMBIENT AIR QUALITY
MONITORING DATA

Monthly Average PM₁₀ µg/m³

Oct-17 to Mar-18

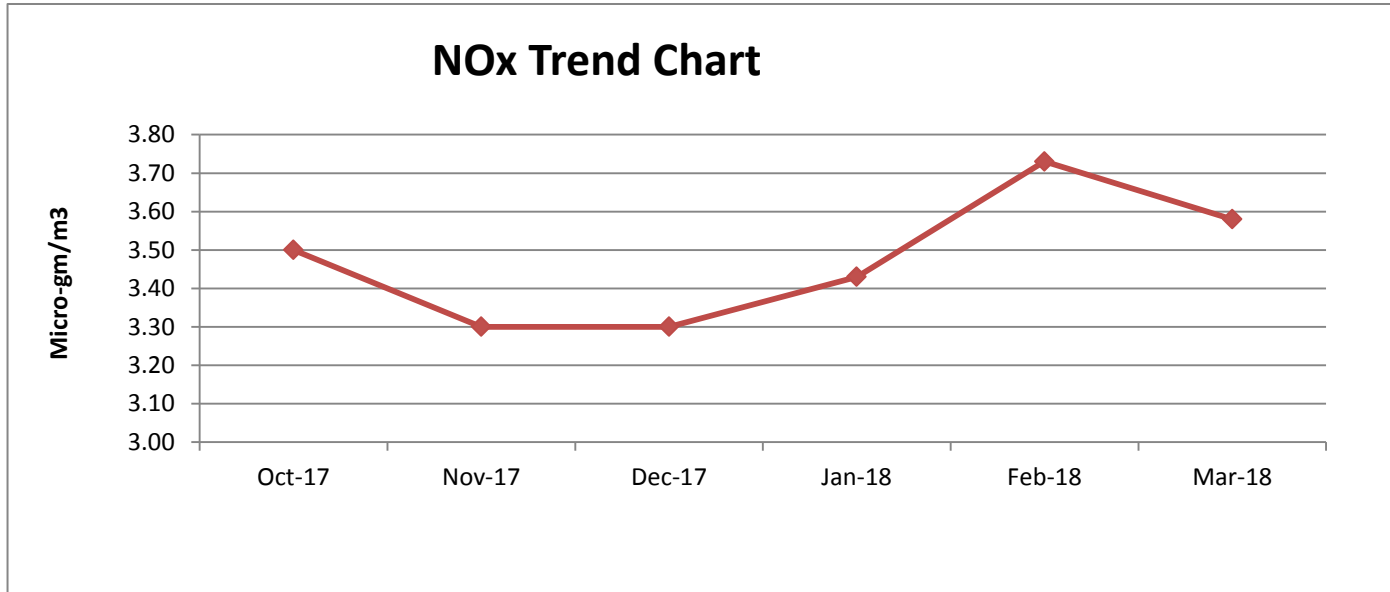
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant Main Gate	30.30	31.80	30.50	30.30	29.60	29.25	30.29	31.80	29.25



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

Oct-17 to Mar-18

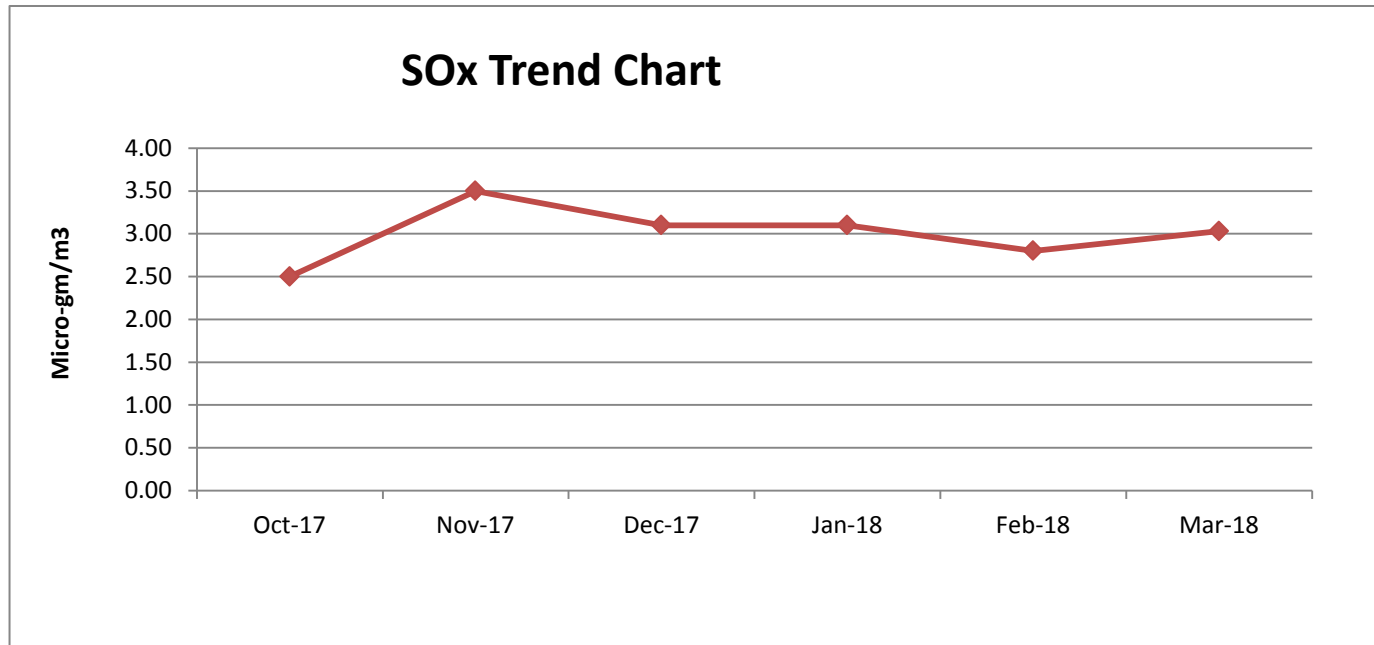
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant Main Gate	3.50	3.30	3.30	3.43	3.73	3.58	3.47	3.73	3.30



Monthly Average SO₂ µg/m³

Oct-17 to Mar-18

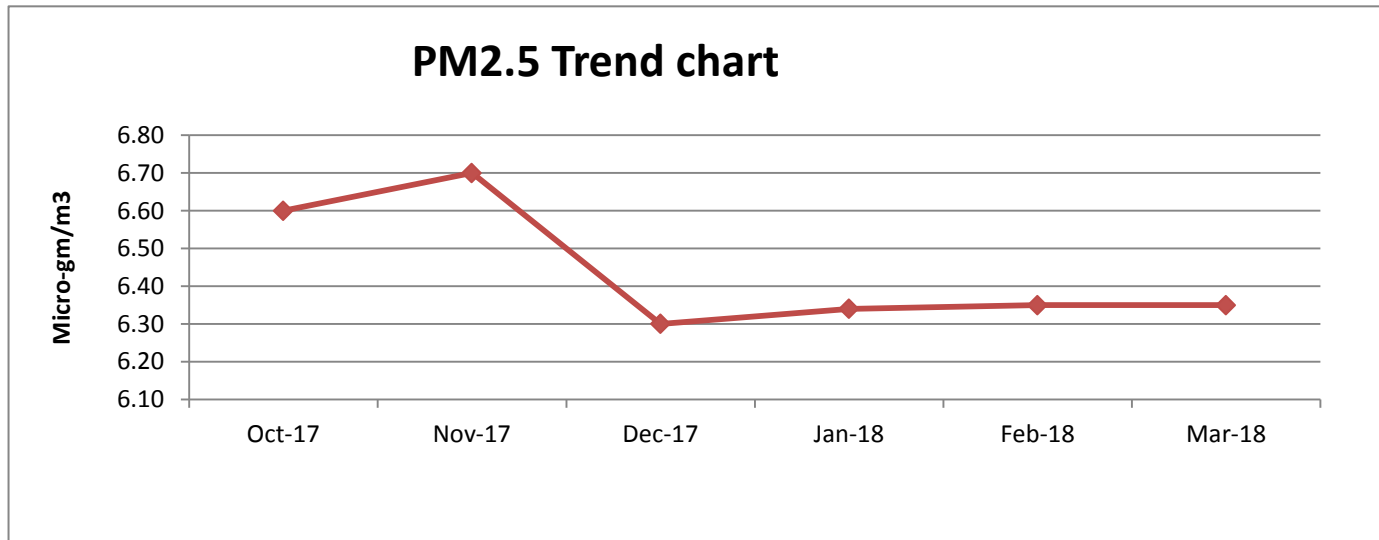
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant Main Gate	2.50	3.50	3.10	3.10	2.80	3.03	3.01	3.50	2.50



Monthly Average PM_{2.5} µg/m³

Oct-17 to Mar-18

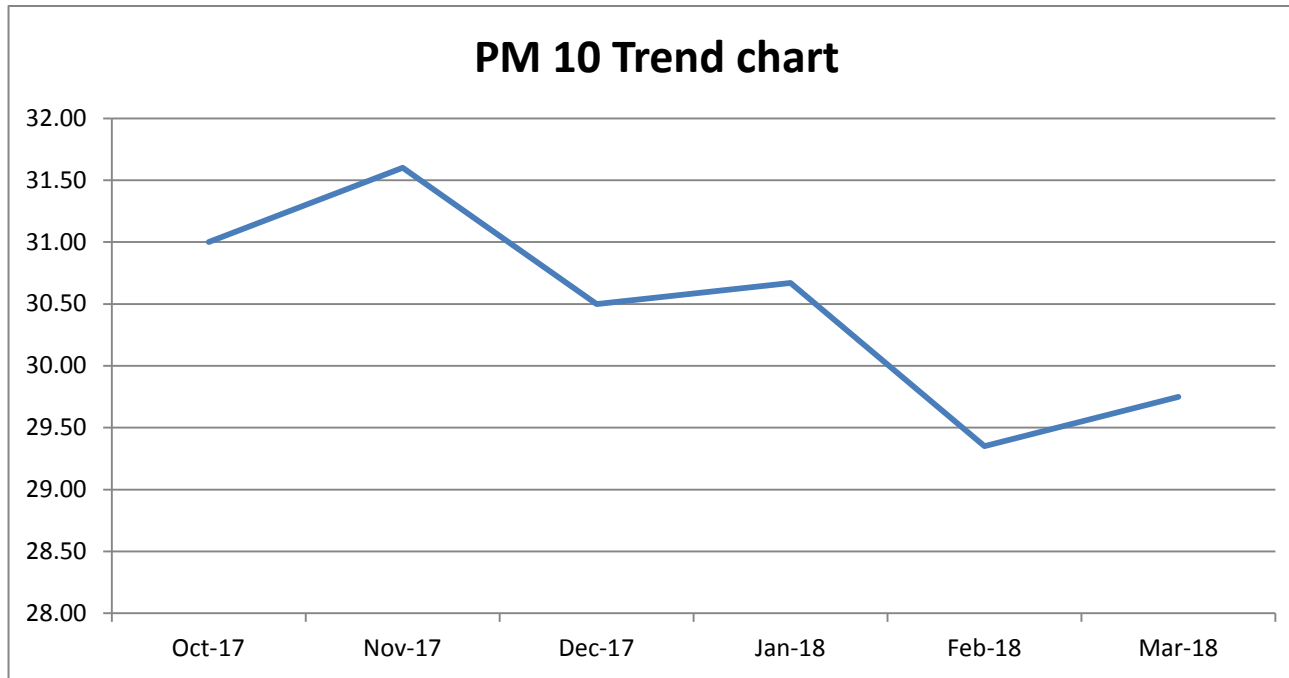
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant Main Gate	6.60	6.70	6.30	6.34	6.35	6.35	6.44	6.70	6.30



Monthly Average PM₁₀ µg/m³

Oct-17 to Mar-18

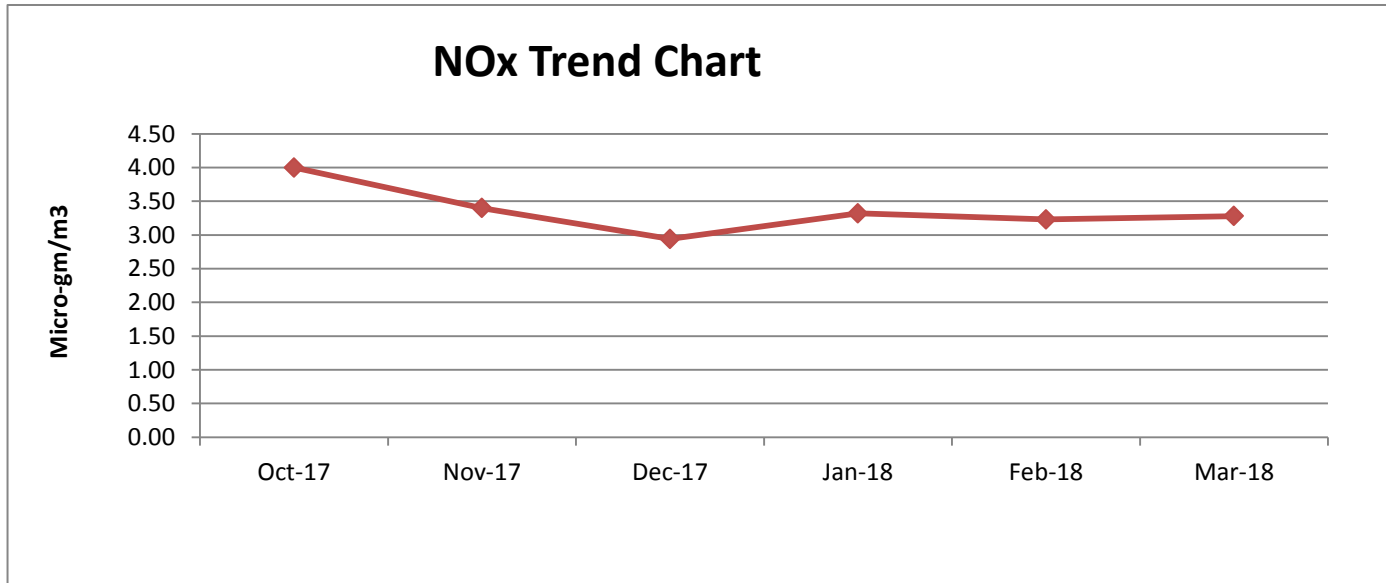
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
South side of the Plant Boundary	31.00	31.60	30.50	30.67	29.35	29.75	30.48	31.60	29.35



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

Oct-17 to Mar-18

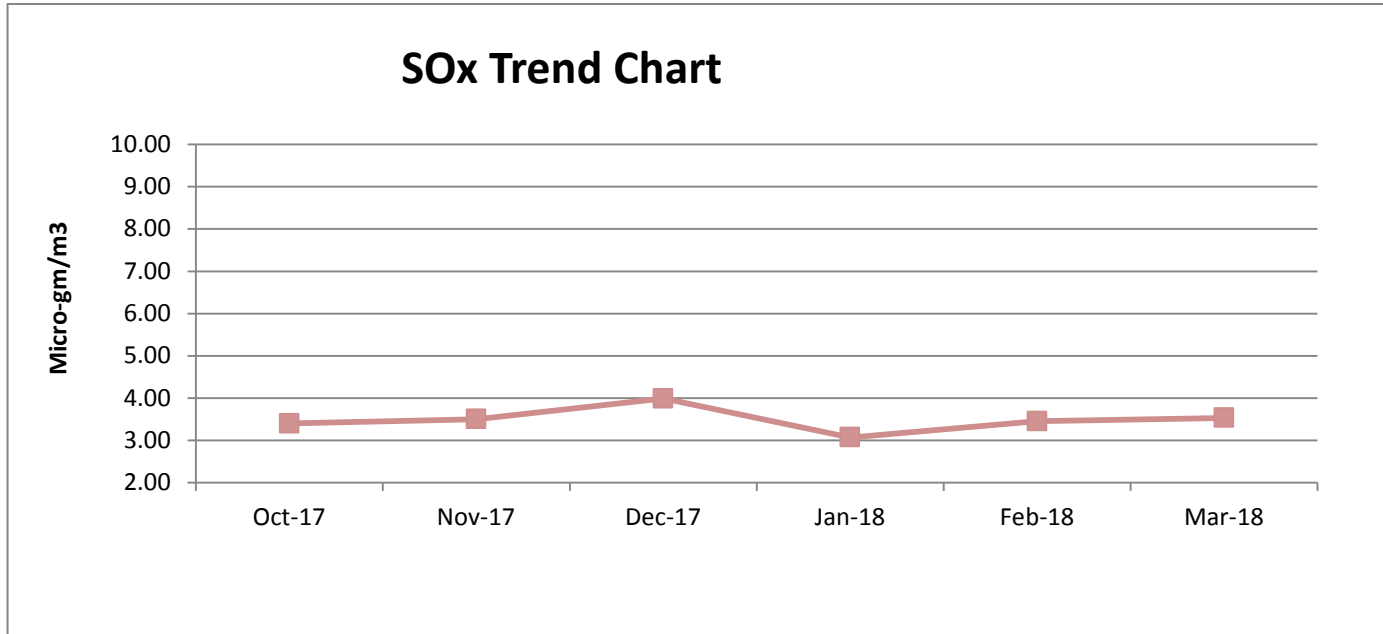
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
South side of the Plant Boundary	4.00	3.40	2.94	3.32	3.23	3.28	3.36	4.00	2.94



Monthly Average SO₂ µg/m³

Oct-17 to Mar-18

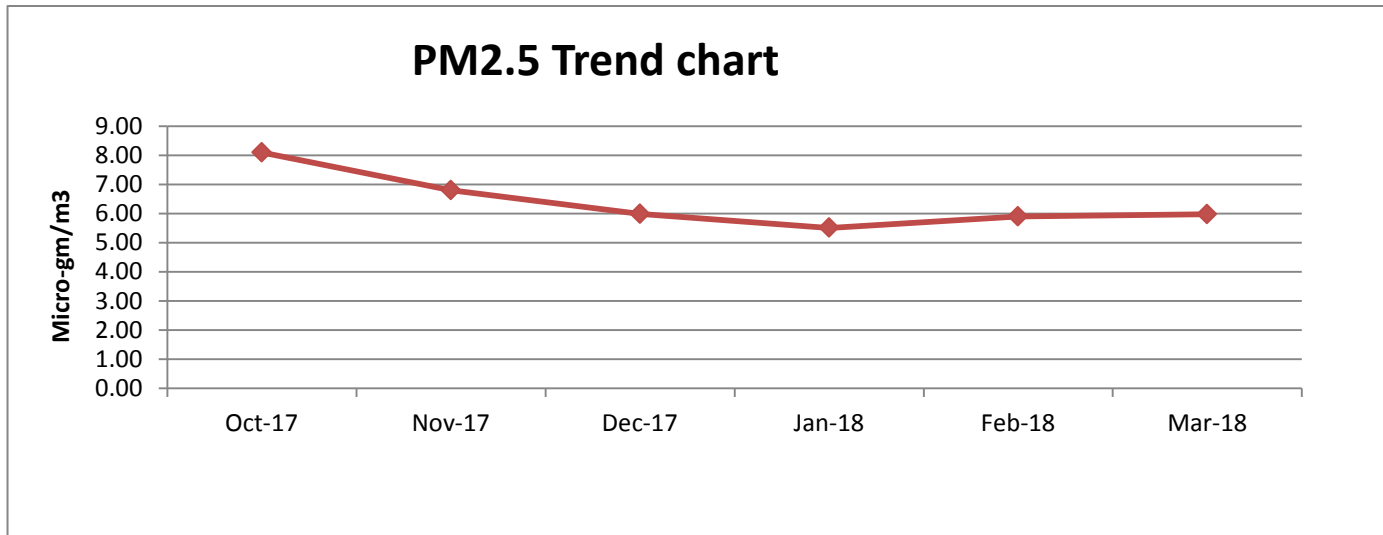
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
South side of the Plant Boundary	3.40	3.50	3.99	3.07	3.45	3.53	3.49	3.99	3.07



Monthly Average PM_{2.5} µg/m³

Oct-17 to Mar-18

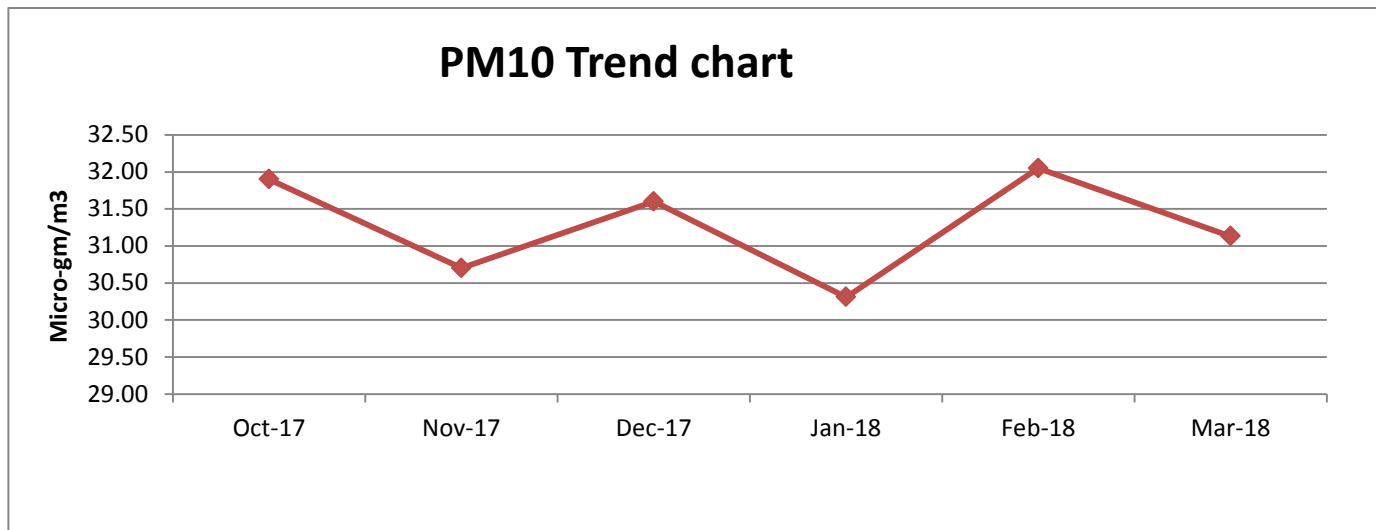
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
South side of the Plant Boundary	8.10	6.80	5.99	5.51	5.90	5.98	6.38	8.10	5.51



Monthly Average PM₁₀ µg/m³

Oct-17 to Mar-18

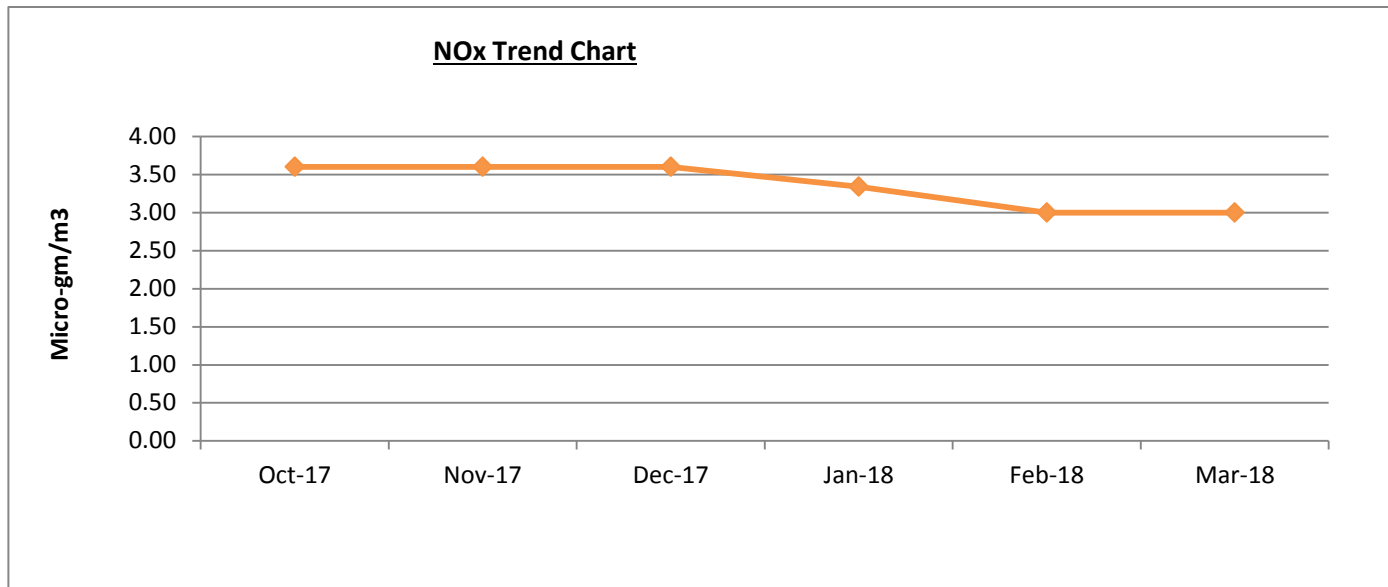
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant North East Boundary Wall	31.90	30.70	31.60	30.31	32.05	31.13	31.28	32.05	30.31



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

Oct-17 to Mar-18

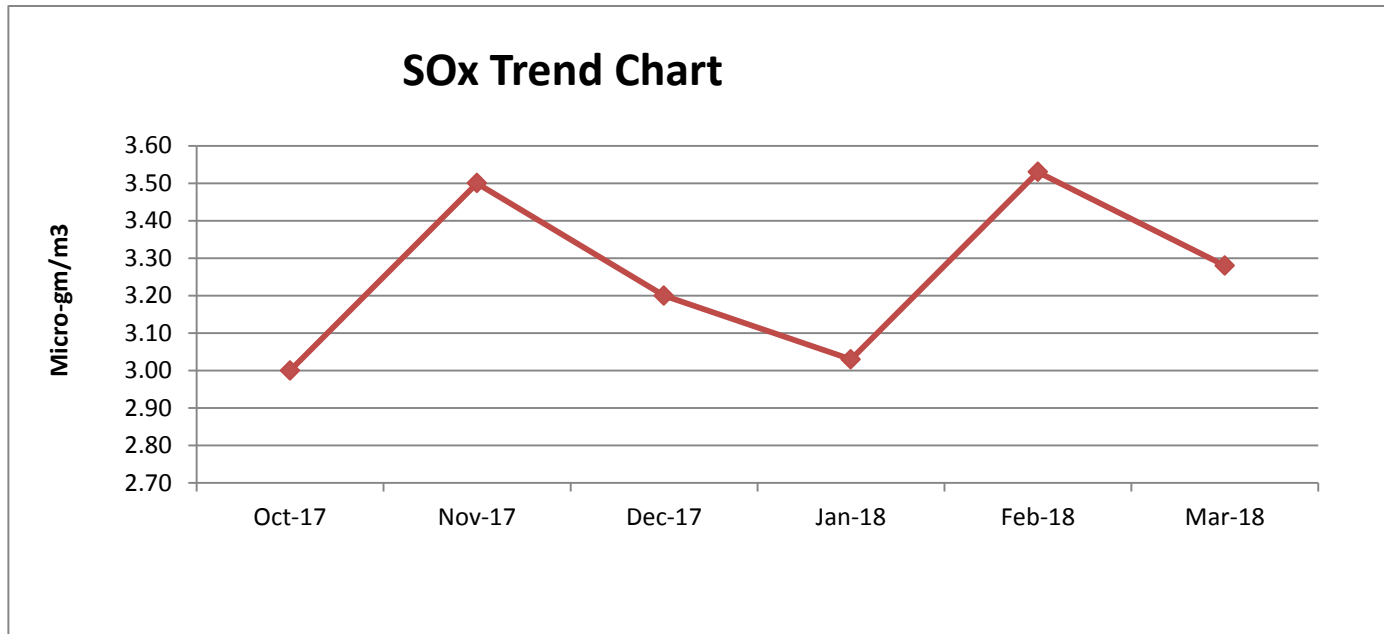
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant North East Boundary Wall	3.60	3.60	3.60	3.34	3.00	3.00	3.36	3.60	3.00



Monthly Average SO₂ µg/m³

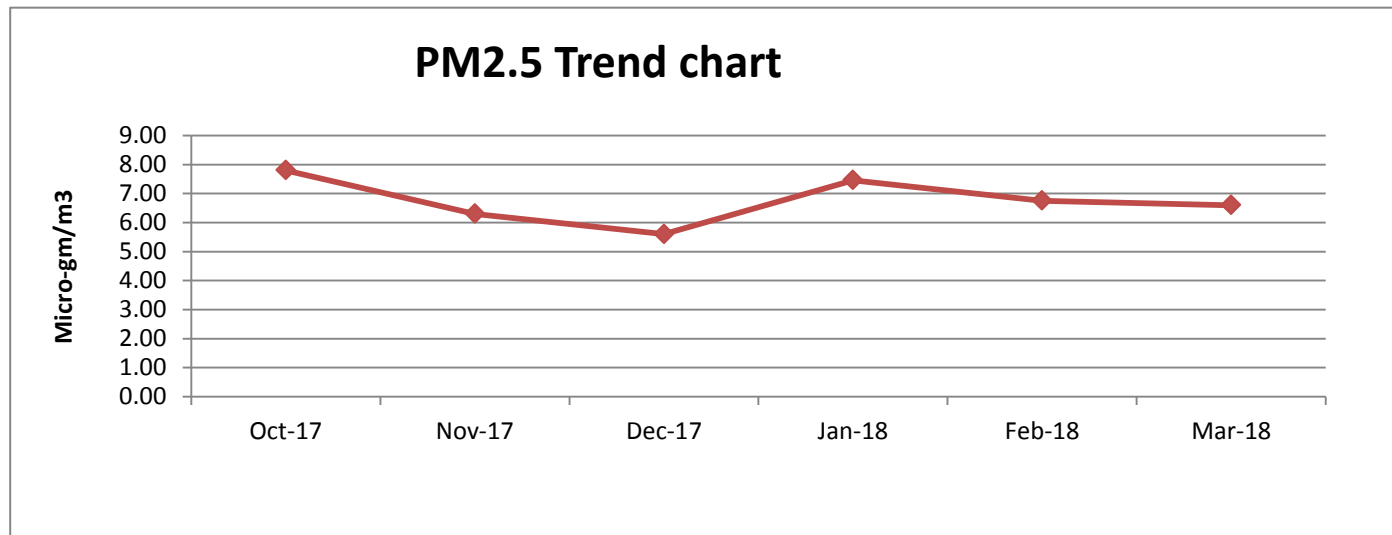
Oct-17 to Mar-18

Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant North East Boundary Wall	3.00	3.50	3.20	3.03	3.53	3.28	3.26	3.53	3.00



Monthly Average PM_{2.5} µg/m³

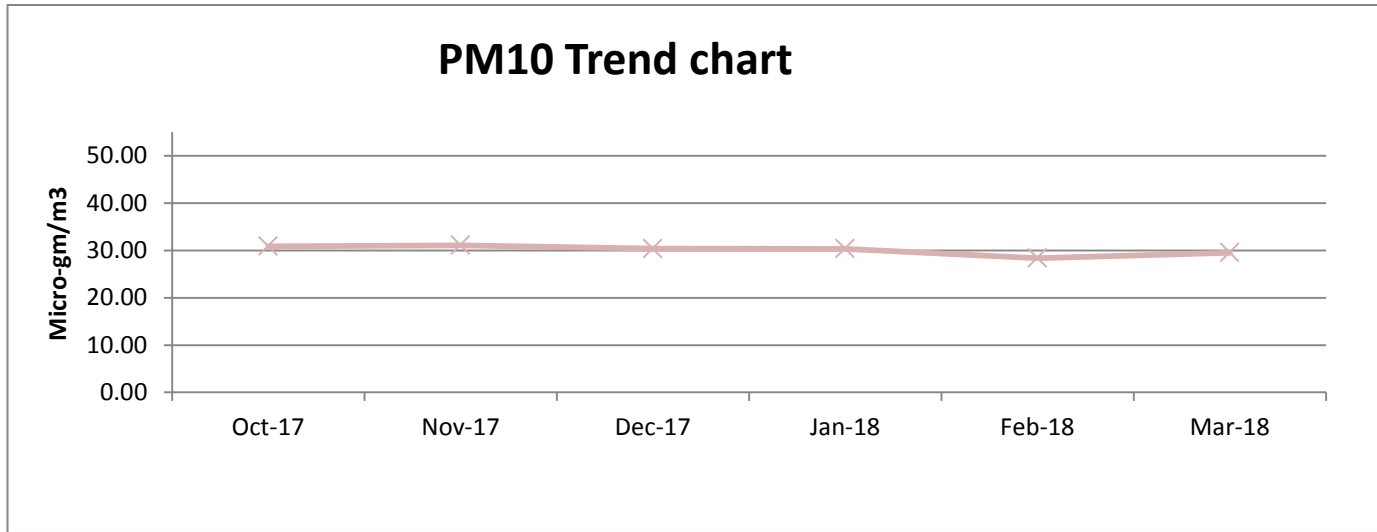
Month / Location	Oct-17 to Mar-18								
	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant North East Boundary Wall	7.80	6.30	5.60	7.46	6.75	6.60	6.75	7.80	5.60



Monthly Average PM₁₀ µg/m³

Oct-17 to Mar-18

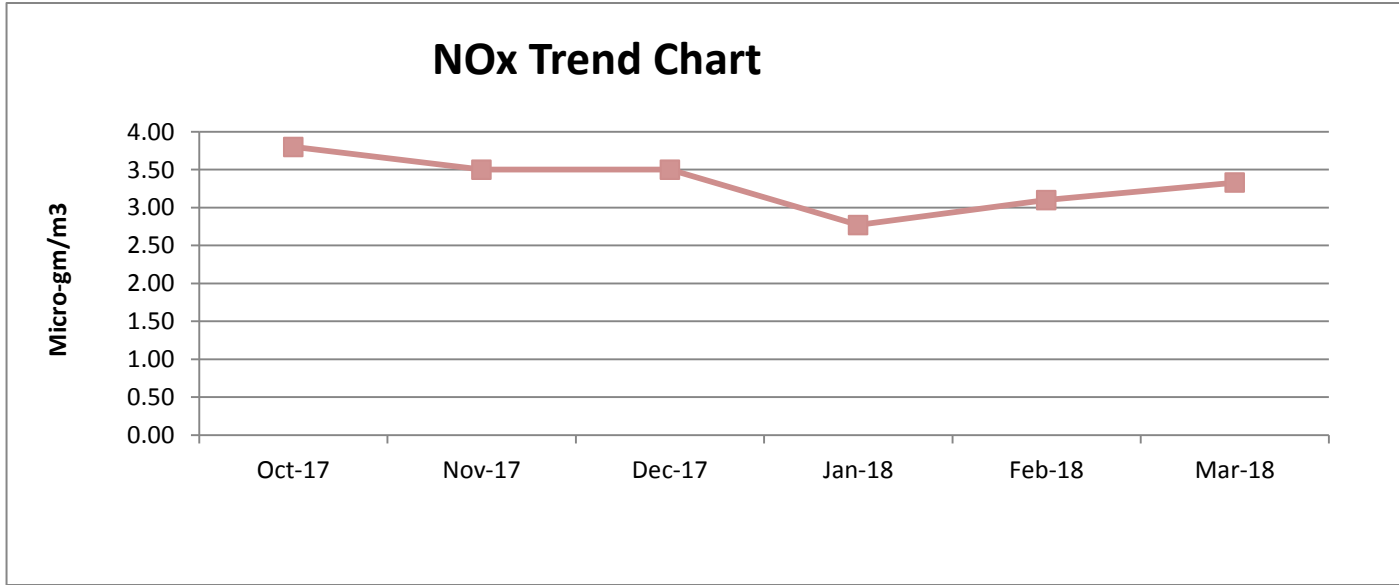
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant North West Boundary Wall	30.90	31.10	30.40	30.37	28.40	29.55	30.12	31.10	28.40



Monthly Average NOx µg/m3

Oct-17 to Mar-18

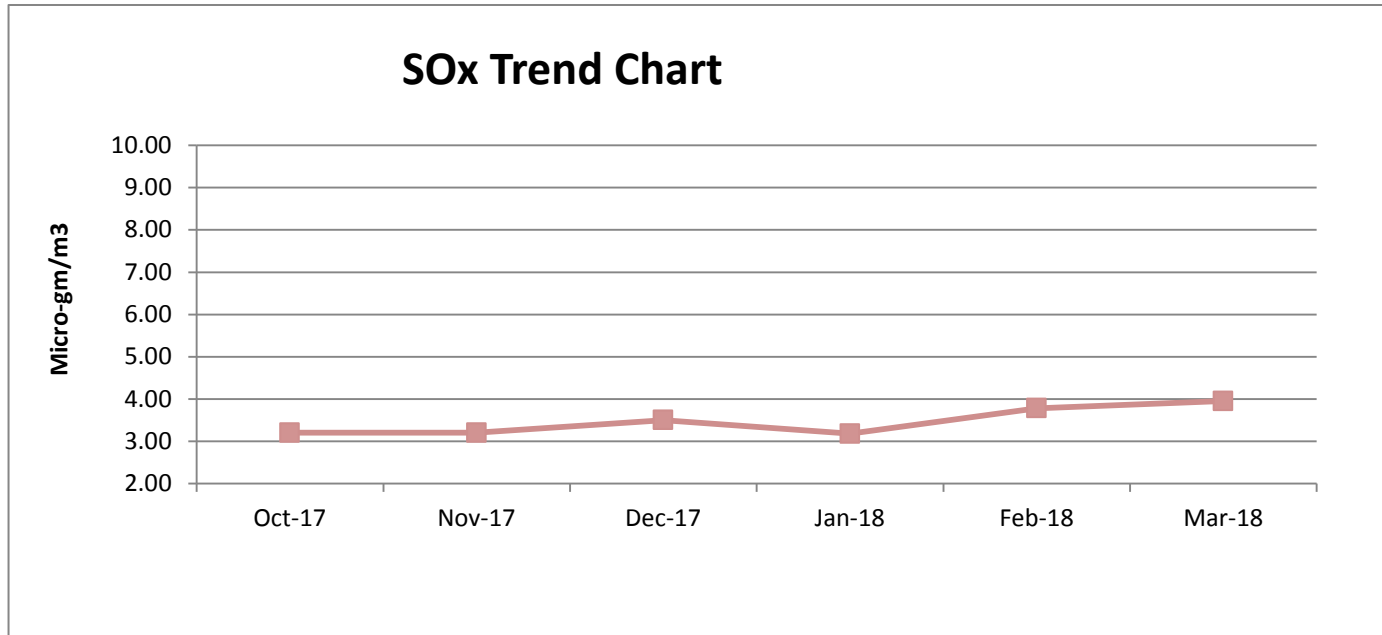
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant North West Boundary Wall	3.80	3.50	3.50	2.77	3.10	3.33	3.33	3.80	2.77



Monthly Average SO₂ µg/m³

Oct-17 to Mar-18

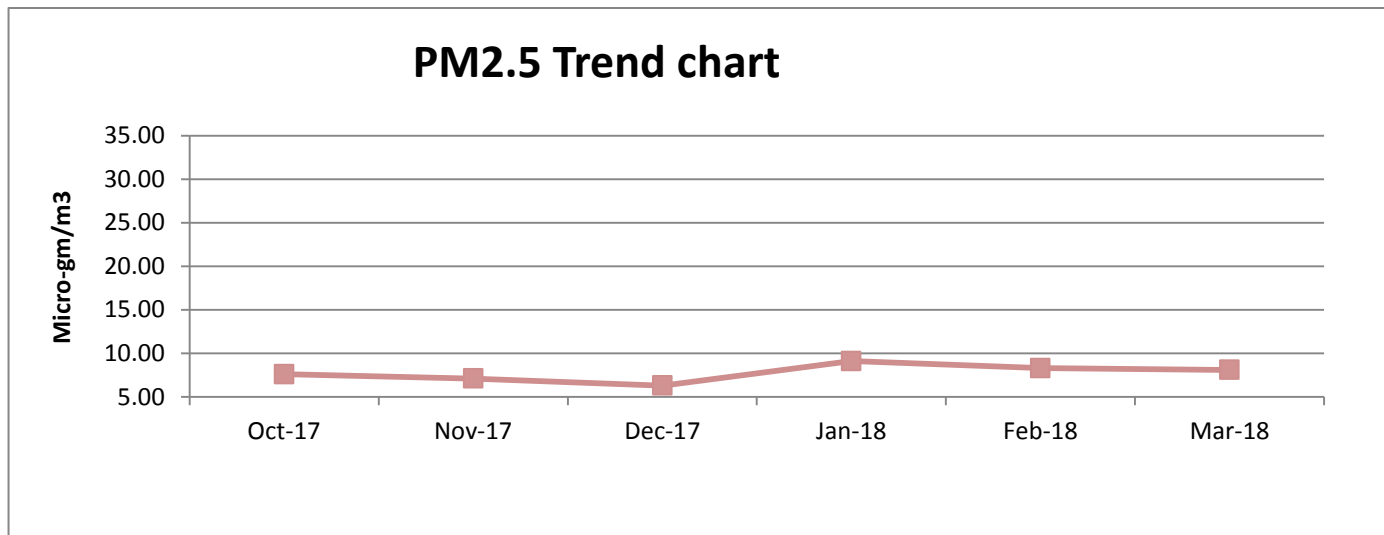
Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant North West Boundary Wall	3.20	3.20	3.50	3.18	3.78	3.95	3.47	3.95	3.18



Monthly Average PM_{2.5} µg/m³

Oct-17 to Mar-18

Month / Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant North West Boundary Wall	7.60	7.10	6.30	9.10	8.30	8.10	7.75	9.10	6.30



GMR VEMAGIRI POWER GENERATION LIMITED

Environment Monitoring Report

October 2017 to March 2018

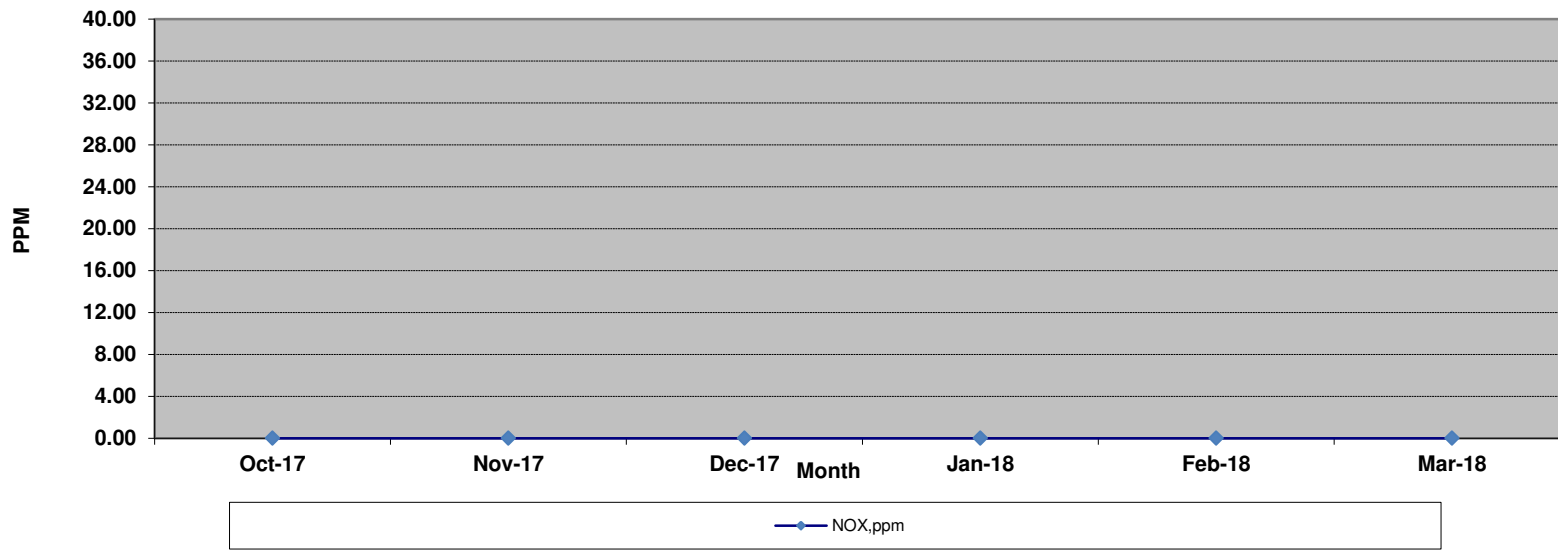
STACK MONITORING DATA

Monthly Average Stack Emission Report

Oct-17 to Mar-18

Month/Parameters	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
NOX,ppm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Stack Emission - Trend Chart



GMR VEMAGIRI POWER GENERATION LIMITED

Environment Monitoring Report

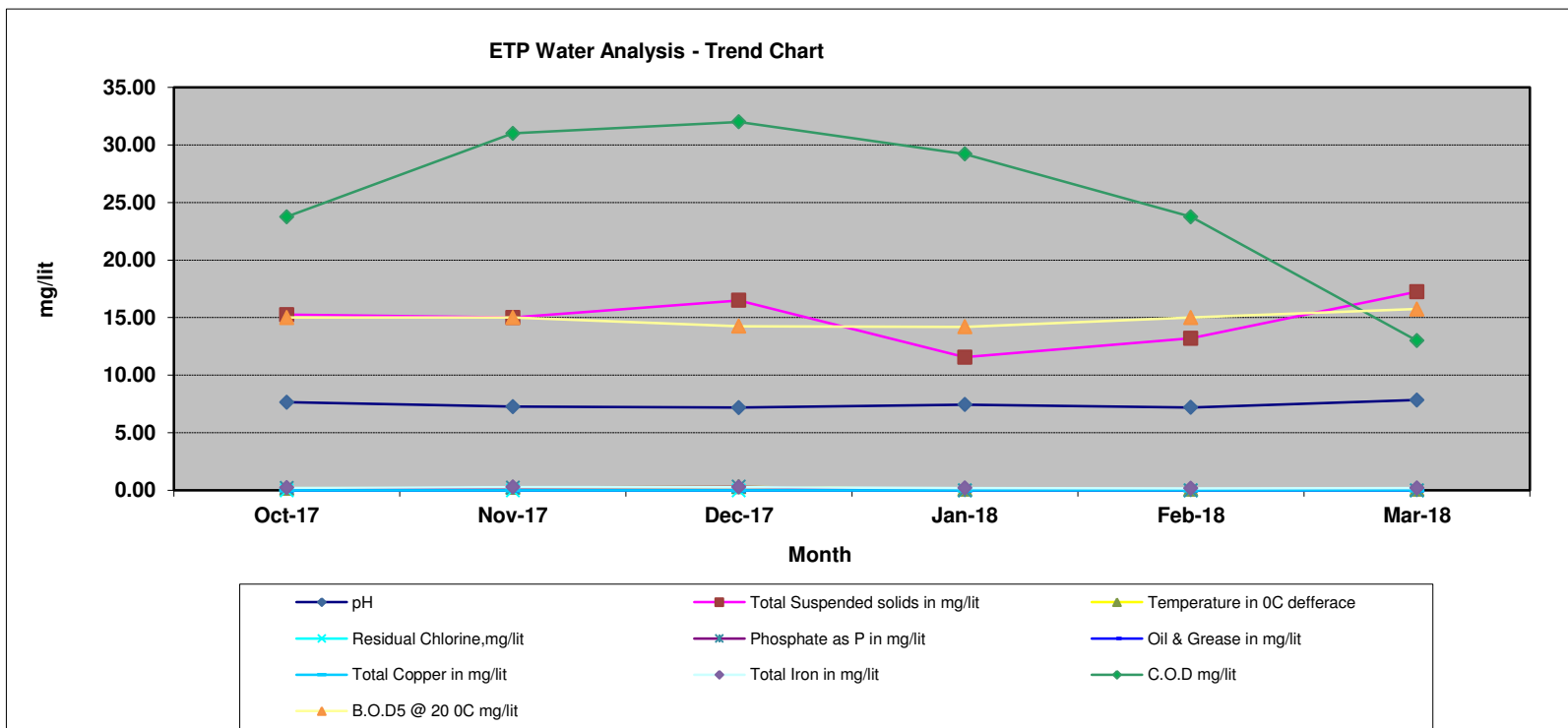
October 2017 to March 2018

EFFLUENT QUALITY MONITORING
RECORD

Monthly Effluent Treatment Plant Water Analysis Report

Oct-17 to Mar-18

Month/Parameters	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
pH	7.65	7.27	7.19	7.45	7.20	7.85	7.44	7.85	7.19
Total Suspended solids in mg/lit	15.3	15.0	16.5	11.6	13.2	17.3	14.79	17.25	11.56
Temperature in °C defferace	0.19	0.26	0.31	0.1	0.1	0.1	0.18	0.31	0.10
Residual Chlorine,mg/lit	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Phosphate as P in mg/lit	0.21	0.25	0.31	BDL	BDL	BDL	0.26	0.31	0.21
Oil & Grease in mg/lit	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Total Copper in mg/lit	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Total Iron in mg/lit	0.23	0.28	0.28	0.20	0.18	0.20	0.23	0.28	0.18
C.O.D mg/lit	23.8	31.0	32.0	29.2	23.8	13.0	25.45	32.00	13.00
B.O.D ₅ @ 20 °C mg/lit	15.0	15.0	14.25	14.2	15.0	15.8	14.87	15.75	14.20



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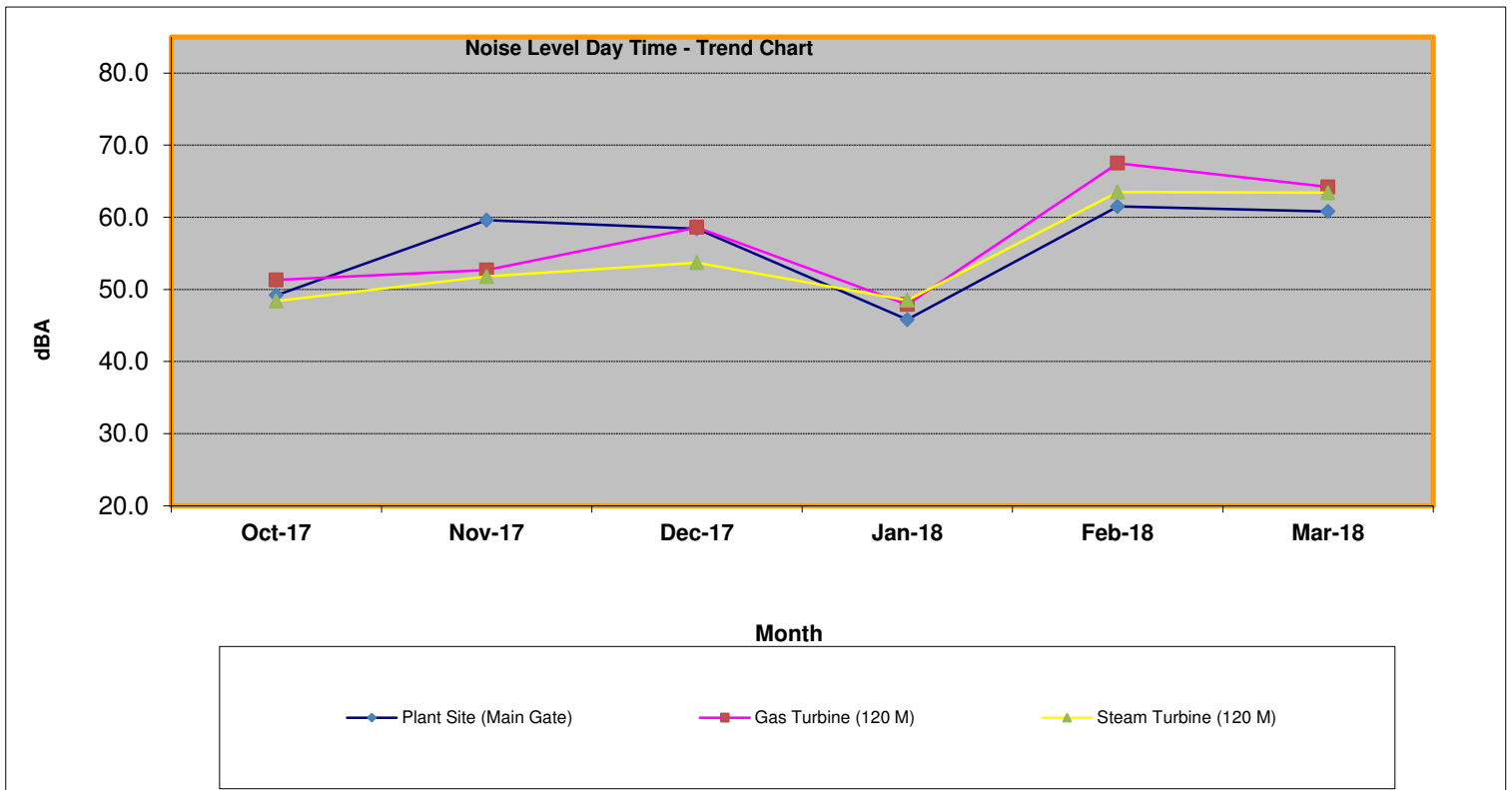
October 2017 to March 2018

NOISE LEVEL MONITORING RECORD

Noise Level Day Time

Oct-17 to Mar-18

Month/Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
Plant Site (Main Gate)	49.2	59.6	58.4	45.8	61.5	60.8	55.88	61.50	45.80
Gas Turbine (120 M)	51.3	52.7	58.6	47.9	67.5	64.2	57.03	67.50	47.90
Steam Turbine (120 M)	48.4	51.8	53.7	48.5	63.5	63.4	54.88	63.50	48.40



GMR VEMAGIRI POWER GENERATION LIMITED

Environment Monitoring Report

October 2017 to March 2018

WATER BALANCE-REPORT

Water Balance Report

Oct-17 to Mar-18

Month/Location	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	AVG	MAX	MIN
DM Plant	0	86	0	0	0	0	14.33	86.0	0
CW Make-up	9726	0	0	0	0	0	1621	9726	0
Domestic	153	213	270	201	178	179	199	270	153
Gardening	0	0	0	0	0	0	0	0	0