

**Gujarat Industries Power Company
Limited
(Mangrol - Valia Lignite Mine)**

**SIX MONTHLY
ENVIRONMENTAL MONITORING & ANALYSIS
REPORT**

For The Period of January -2016 to June - 2016



ENPRO Enviro Tech and Engineers Pvt Ltd.

**Office: 306, Royal Park, Nr. Deepa Complex
Adajan road, Surat-395009**

Ph: +91-261-3295244 Fax: +91-261-2786129

Email: info@enpro.co.in

Web: www.enpro.co.in

Introduction

M/s. Gujarat Industries Power Company Limited (GIPCL) had already set up lignite Fired Pit Head 250 MW (2 X 125 MW) Thermal Power Plant in phase 1st and company has expanded the capacity from 250 MW to 500 MW i.e. 250MW was developed in second phase at Nani Naroli, Taluka Mangrol. GIPCL has developed its own Captive lignite Mines at Mangrol in Surat District & Valia of Bharuch district to meet the fuel supplies for above power capacity.

The total mining lease area of Mangrol -Valia Lignite Mine is 2080 Ha. The total estimated extractable reserves of 2080 Ha is 199.87 Million. The average stripping ratio in the area is about 2:8.36 for Lignite in Tonnes to Cubic Meter of waste. These reserves are sufficient to feed 250 MW Power Plant at an Annual rate of 1.8 Million Tones of Lignite requirement. Hence GIPCL is developing Mangrol-Valia Lignite Mine for an annual Lignite production of 4.2 Million tones Annum (MTPA).

As per the status related to Environment & Ecology, it is necessary to study the adverse environmental impacts likely to be caused in and around the Mining Site before, during & after the execution of the Project and provide necessary mitigative and control measures, so the project authority is required to prepare a detailed Environmental Impact Assessment (EIA) Report and Environment Plan (EMP) and obtain the necessary clearance from the state pollution control board (GPCB) and Ministry of Environment & Forest.

PREFACE

Consciousness at national level in the industrial sector is increasing day by day with the focus on environment and sustainable development. A good environmental management policy requires a constant effort to analyse and monitor various operations and processes, to generate and transmit this information to the inspecting authority.

As per the Air & Water Consent Orders issued by Gujarat Pollution Control Board (GPCB) Gandhinagar & also as per the Environment Clearance certificate issued by Ministry of Environment & Forest (MoEF), Govt. of India, New Delhi. It is mandatory to get the samples of Air / Gaseous Emission & Effluent, collected and analyzed from an approved laboratory Bi-Monthly & its analysis report should be submitted to GPCB & Six monthly analysis submitted to MoEF.

Gujarat Industries Power Company Limited (GIPCL) Mangrol-Valia Lignite Mines has Mangrol pit situated at Tal. Mangrol, Dist. Surat & Valia pit situated at Tal Valia, Dist. Bharuch. This Company engaged in the generation of Electricity. The Industry had awarded contract for monthly monitoring and analysis to M/s. ENPRO ENVIRO TECH AND ENGINEERS PVT. LTD., Surat.

M/s. ENPRO ENVIRO TECH AND ENGINEERS PVT. LTD., is a Leading Environmental Consultancy firm situated at Adajan Road, Surat. And is approved as Schedule -II environmental auditor by Gujarat Pollution Control Board. M/s. ENPRO ENVIRO TECH AND ENGINEERS PVT. LTD. have its own full fledged laboratory to measure the pollution parameters belongs to Air, Water, Hazardous etc.

METHODOLOGY FOR ENVIRONMENTAL MONITORING

M/s Gujarat Industries Power Company Limited has awarded the work of Environmental monitoring of its Mangrol-Valia Lignite Mines to ENPRO Enviro Tech and Engineers Pvt. Ltd. EN-PRO visits the Mangrol-Valia Lignite Mines Bi-monthly to carry out environmental monitoring.

ENPRO follows the following methodology for carrying out monitoring of various components.

Water & Waste Quality Monitoring:

Ground and surface water samples are at their source using grab sampling. Surface and ground water samples are collected from core and buffer zones located near the mining area. Preserved samples are brought to Surat based EN-PRO's laboratory for analysis. For sampling & analysis methods various IS codes and APHA analysis methods are followed. The samples are analyzed for Physico-chemical & bacteriological properties mainly.

Ambient Air Quality Monitoring:

The wind direction and wind speed is monitored first and based on that sampling stations for ambient air quality monitoring are installed. The locations are so chosen such that at least one station falls in opposite wind direction from all stationary sources (Mining Area). The other stations are installed in two arrays. First array comprising minimum two stations located at apprx. 120° and at a distance of apprx. 2 Kms. from nearby stationery source falling in the wind directions. The second array comprising minimum two stations located in wind direction and at a distance of more than 2 Kms. from nearby stationery source falling in the wind directions. Also at two stations are installed in the nearby population area falling in the wind direction. The samples are collected using high volume air samplers for monitoring for 24 hours, preserved and brought to Surat based EN-PRO's laboratory for analysis. For sampling & analysis methods IS-5182& CPCB Manual is followed. Main pollutants analyzed are Particulate matter ($PM_{2.5}$), Respirable particulate matter (PM_{10}), Sulfur dioxide, Oxides of Nitrogen & Carbon Monoxide.

Dust Fall Monitoring:

The dust fall resulting from mining and handling activities of lignite is monitored at several locations in the core and buffer zones. Large solid and liquid particles (typically greater than $10 \mu m$ in aerodynamic diameter) are collected via gravitational settling in an open mouth container for a period of a month. The container is washed with a known volume of distilled water, which is filtered and then evaporated. The mass of insoluble particles are determined by the weight gain of the filter after filtration. The mass of soluble particles are determined by the weight gain of a crucible after evaporation. Total mass gain is measured gravimetrically. The dust fall is measured using jars as per standard practice as per IS - 5182.

Noise Level Monitoring:

The main sources of noise are lignite handling and transportation equipments and systems in the mines. The noise level is monitored in the immediate vicinity of the source. Then the noise level is monitored at the locations falling in the villages in core and buffer zone of mines. Two sets of data are collected for day time and night time monitoring. The noise level is monitored using digital sound level meter.

Weather Monitoring:

Monitoring station for weather is selected based on wind direction. The station is so selected that it remains unobstructed from incoming wind. The micrometeorological data is collected on ambient temperature, humidity, wind speed and direction on hourly basis for 24 hours. For this monitoring IS - 8829 is followed. The equipments used are wind vane, anemometer and thermo hygrometer.

Scope of work for (4 × 125 MW Surat Lignite Power Plant-Mangrol)

1. Ambient Air Monitoring

Sr. No.	No. of Stations and Location	Duration	Frequency of Sampling	Parameter	Method of Analysis
1	7 Nos. within the radius of 10 Km from the Core Zone.	24 hours	Bi-Monthly	PM ₁₀	IS 5182 part 23 2006
				PM _{2.5}	CPCB guideline
				SO ₂	IS 5182 part II 2001
				NO _x	IS 5182 part VI 2006

2. Weather Monitoring Data

Sr. No.	No. of Stations and Location	Duration	Frequency	Parameter	Method of Analysis
1	1 No at Site office of the Mine	24 hours	Bi-Monthly	Dry & Wet Bulb Temp, Relative Humidity, Wind Speed & Direction, Max & Min Tempe.	Using automatic temp recorder wind vane & Anemometer, Max & Min Thermometer &IS 8829.

3. Noise Monitoring Data

Sr. No.	No. of Stations and Location	Duration	Frequency	Parameter	Method of Analysis
1	7 Nos. at various location in the plant premises	2 min./Location	Bi-Monthly	Day & Night Noise level	Using Sound level Meter

4. Water & Waste Water Quality Monitoring

Sr. No.	No. of Stations and Location	Duration	Frequency	Parameter	Method of Analysis
1	4 Nos. of Bore well & 2 No. of Surface Water sample located both in core & Buffer Zones	1	Bi-Monthly	Physico-Chemical, Heavy Metals, Biological & Microbiological parameters.	Analysis report carried out as per APHA 22 st edition 2012 standard method for the examination of water and waste water.

5. Dust Fall Measurement

Sr. No.	No. of Stations and Location	Duration	Frequency	Parameter	Method of Analysis
1	7 Nos. within the radius of 10 km from the Core Zone.	1 Month	Bi-Monthly	Dust fall	Methods of air sampling and analysis, IS – 5182.

Scope of work for (4 × 125 MW Surat Lignite Power Plant-Valia)

1. Ambient Air Monitoring

Sr. No.	No. of Stations and Location	Duration	Frequency	Parameter	Method of Analysis
1	8 Nos. within the radius of 10 Km from the Core Zone.	24 hours	Bi-Monthly	PM ₁₀	IS 5182 part 23 2006
				PM _{2.5}	CPCB guideline
				SO ₂	IS 5182 part II 2001
				NO _x	IS 5182 part VI 2006

2. Weather Monitoring Data

Sr. No.	No. of Stations and Location	Duration	Frequency	Parameter	Method of Analysis
1	1 No at Site office of the Mine	24 hours	Bi-Monthly	Dry & Wet Bulb Temp, Relative Humidity, Wind Speed & Direction, Max & Min Tempe.	Using automatic temp recorder wind vane & Anemometer, Max & Min Thermometer &IS 8829.

3. Noise Monitoring Data

Sr. No.	No. of Stations and Location	Duration	Frequency	Parameter	Method of Analysis
1	8 Nos. at various location in the plant premises	2 min./Location	Bi-Monthly	Day & Night Noise level	Using Sound level Meter

4. Water & Waste Water Quality Monitoring

Sr. No.	No. of Stations and Location	Duration	Frequency	Parameter	Method of Analysis
1	6 Nos. of Bore well water sample	1	Bi-Monthly	Physico-Chemical, Heavy Metals, Biological & Microbiological parameters.	Analysis report carried out as per APHA 22 st edition 2012 standard method for the examination of water and waste water.

5. Dust Fall Measurement

Sr. No.	No. of Stations and Location	Duration	Frequency	Parameter	Method of Analysis
1	8 Nos. within the radius of 10 km from the Core Zone.	1 Month	Bi-Monthly	Dust fall	Methods of air sampling and analysis, IS – 5182.

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

Monthly Variation in January-2016 to June-2016

Report Period: January-2016 to June-2016

Sample: Surface Water in Charetha Shah Nala (Down Stream) (Mangrol Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			25/03/16 11:55 am	12/05/16 01:20 pm	06/07/16 02:20 pm
General Parameters					
1.	pH (at 26°C)	-	6.87	7.57	7.22
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	°C	26	30	28
4.	Total Suspended Solids (TSS)	mg/L	24	16	38
5.	Total Dissolved Solids (TDS)	mg/L	346	432	530
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	0.5	0.6	0.8
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27°C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	49	53	66
11.	Sulphate (as SO ₄ ²⁻)	mg/L	51	45	72
12.	Phosphate (as PO ₄ ³⁻)	mg/L	2.7	1.9	2.1
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	1.0	0.7	1.1
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	90	120	150
18.	Total Alkalinity	mg/L	70	130	100

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			25/03/16 11:55 am	12/05/16 01:20 pm	26/01/15 02:20 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.47	0.62	0.52
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ⁶⁺)	mg/L	0.28	0.52	0.40
22.	Hexavalent Chromium (as Cr ⁶⁺)	mg/L	0.05	0.08	0.06
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	21	30	42
26.	Magnesium (as Mg)	mg/L	6.2	7.6	5.9
27.	Sodium	%	BDL	BDL	BDL
Bio-Assay					
28	Bioassay Test	%	100	100	100
Bacteriological Analysis					
29.	Coliform Organism (MPN)	Per 100ml.	Nil	Nil	Nil

Note: BDL: - Below Detectable Limit.

Shilpa
ANALYSED BY

P.Chellu
CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

Monthly Variation in January-2016 to June-2016

Report Period: January-2016 to June-2016

Sample: Surface Water Shah Nallah (Up Stream) (Mangrol Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			25/03/16 12:10 pm	12/05/16 01:35 pm	06/07/16 01:55 pm
General Parameters					
1.	pH (at 26°C)	-	7.68	6.96	7.03
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	°C	26	30	28
4.	Total Suspended Solids (TSS)	mg/L	68	38	52
5.	Total Dissolved Solids (TDS)	mg/L	430	490	326
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	BDL	BDL	BDL
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27°C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	57	42	31
11.	Sulphate (as SO ₄ ²⁻)	mg/L	24	29	20
12.	Phosphate (as PO ₄ ³⁻)	mg/L	2.1	2.4	1.7
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.5	0.9	0.7
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	150	130	120
18.	Total Alkalinity	mg/L	130	110	150

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			25/03/16 12:10 pm	12/05/16 01:35 pm	06/07/16 01:55 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.40	0.55	0.36
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ⁶⁺)	mg/L	0.16	0.20	0.32
22.	Hexavalent Chromium (as Cr ⁶⁺)	mg/L	BDL	BDL	BDL
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	45	38	41
26.	Magnesium (as Mg)	mg/L	11.3	14.5	12.1
27.	Sodium	%	BDL	BDL	BDL
Bio-Assay					
28	Bioassay Test	%	100	100	100
Bacteriological Analysis					
29.	Coliform Organism (MPN)	Per 100ml.	Nil	Nil	Nil

Note: BDL: - Below Detectable Limit.

Rajesh
ANALYSED BY

Tanish H.U.
CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

Monthly Variation in January-2016 to June-2016

Report Period: January-2016 to June-2016

Sample: Bore well water Shah Village (Mangrol Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			25/03/16 12:25 pm	12/05/16 01:45 pm	06/07/16 11:00 am
General Parameters					
1.	pH (at 26°C)	-	7.25	7.02	7.16
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	°C	26	30	28
4.	Total Suspended Solids (TSS)	mg/L	44	22	16
5.	Total Dissolved Solids (TDS)	mg/L	682	724	562
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	BDL	BDL	BDL
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27°C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	124	132	107
11.	Sulphate (as SO ₄ ²⁻)	mg/L	37	42	30
12.	Phosphate (as PO ₄ ³⁻)	mg/L	1.2	1.4	1.1
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.3	0.5	0.9
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	165	176	145
18.	Total Alkalinity	mg/L	220	240	260

...contd



ENPRO
Environment
Energy Water
Project Consultant

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			25/03/16 12:25 pm	12/05/16 01:45 pm	06/07/16 11:00 am
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.29	0.37	0.44
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr)	mg/L	0.55	0.32	0.41
22.	Hexavalent Chromium (as Cr ⁶⁺)	mg/L	0.03	BDL	BDL
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	38	45	32
26.	Magnesium (as Mg)	mg/L	22	18.3	16.8
27.	Sodium	%	BDL	BDL	BDL
Bio-Assay					
28	Bioassay Test	%	100	100	100
Bacteriological Analysis					
29.	Coliform Organism (MPN)	Per 100ml.	Nil	Nil	Nil

Note: BDL: - Below Detectable Limit.

[Signature]
ANALYSED BY

[Signature]
CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

Monthly Variation in January-2016 to June-2016

Report Period: January-2016 to June-2016

Sample: Bore well water Mosali Village (Mangrol Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			25/03/16 12:35 pm	12/05/16 01:55 pm	06/07/16 12:00 pm
General Parameters					
1.	pH (at 26°C)	-	7.18	7.34	7.65
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	°C	26	30	28
4.	Total Suspended Solids (TSS)	mg/L	58	32	46
5.	Total Dissolved Solids (TDS)	mg/L	1226	1016	1122
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	BDL	BDL	BDL
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27°C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	301	272	297
11.	Sulphate (as SO ₄ ²⁻)	mg/L	182	166	231
12.	Phosphate (as PO ₄ ³⁻)	mg/L	2.3	2.7	2.5
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	1.3	0.8	0.5
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	300	330	350
18.	Total Alkalinity	mg/L	440	510	530

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			25/03/16 12:35 pm	12/05/16 01:55 pm	06/07/16 12:00 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.51	0.75	0.66
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr)	mg/L	0.36	0.41	0.27
22.	Hexavalent Chromium (as Cr ⁺⁶)	mg/L	BDL	BDL	BDL
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	83	91	99
26.	Magnesium (as Mg)	mg/L	25.4	11.6	20.3
27.	Sodium	%	BDL	BDL	BDL
Bio-Assay					
28	Bioassay Test	%	100	100	100
Bacteriological Analysis					
29.	Coliform Organism (MPN)	Per 100ml.	Nil	Nil	Nil

Note: BDL: - Below Detectable Limit.

[Signature]
ANALYSED BY

[Signature]
CHECKED BY

Work Order No: SLPP/Mines/Envt. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

Monthly Variation in January-2016 to June-2016

Report Period: January-2016 to June-2016

Sample: Bore Water Charetha Village (Mangrol Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			25/03/16 12:50 pm	12/05/16 02:10 pm	06/07/16 01:15 pm
General Parameters					
1.	pH (at 26°C)	-	7.55	7.72	6.90
2.	Color	Pt. Co.	Colorless	Colorless	Colorless
3.	Temperature	°C	26	30	28
4.	Total Suspended Solids (TSS)	mg/L	32	48	24
5.	Total Dissolved Solids (TDS)	mg/L	984	1236	1068
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	BDL	BDL	BDL
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27°C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl)	mg/L	106	144	122
11.	Sulphate (as SO ₄ ²⁻)	mg/L	77	93	82
12.	Phosphate (as PO ₄ ³⁻)	mg/L	0.9	1.2	0.8
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F)	mg/L	0.5	0.7	0.2
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	340	440	380
18.	Total Alkalinity	mg/L	490	580	450

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			25/03/16 12:50 pm	12/05/16 02:10 pm	06/07/16 01:15 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.30	0.41	0.29
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr)	mg/L	0.61	0.49	0.65
22.	Hexavalent Chromium (as Cr ⁶⁺)	mg/L	0.07	0.04	0.06
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	40	82	57
26.	Magnesium (as Mg)	mg/L	19.8	28.1	22.5
27.	Sodium	%	BDL	BDL	BDL
Bio-Assay					
28	Bioassay Test	%	100	100	100
Bacteriological Analysis					
29.	Coliform Organism (MPN)	Per 100ml.	Nil	Nil	Nil

Note: BDL: - Below Detectable Limit.

V Patel
ANALYSED BY

Patel H.U
CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

Monthly Variation in January-2016 to June-2016

Report Period: January-2016 to June-2016

Sample: Discharge Stream Water (Mine Water) (Valia Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 3:40 pm	25/05/16 09:45 am	08/07/16 11:20 am
General Parameters					
1.	pH (at 26°C)	-	6.79	7.55	7.70
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	°C	27	30	28
4.	Total Suspended Solids (TSS)	mg/L	60	42	32
5.	Total Dissolved Solids (TDS)	mg/L	712	672	724
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	0.8	0.7	0.4
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27°C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	404	382	423
11.	Sulphate (as SO ₄ ²⁻)	mg/L	92	78	84
12.	Phosphate (as PO ₄ ³⁻)	mg/L	1.2	0.9	0.4
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	1.2	0.8	0.3
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	190	175	180
18.	Total Alkalinity	mg/L	240	270	290

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 3:40 pm	25/05/16 09:45 am	08/07/16 11:20 am
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.39	0.45	0.66
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ⁶⁺)	mg/L	0.26	0.34	0.21
22.	Hexavalent Chromium (as Cr ⁺⁶)	mg/L	0.07	0.05	0.09
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	54	45	60
26.	Magnesium (as Mg)	mg/L	18.1	16.3	23.5
27.	Sodium	%	BDL	BDL	BDL
Bio-Assay					
28	Bioassay Test	%	100	100	100
Bacteriological Analysis					
29.	Coliform Organism (MPN)	Per 100ml.	Nil	Nil	Nil

Note: BDL: - Below Detectable Limit.


ANALYSED BY


CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

Monthly Variation in January-2016 to June-2016

Report Period: January-2016 to June-2016

Sample: Bore well water Anoi Village (Valia Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 3:50 pm	25/05/16 09:55 am	08/07/16 12:55 pm
General Parameters					
1.	pH (at 26°C)	-	7.11	7.23	7.36
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	°C	27	30	28
4.	Total Suspended Solids (TSS)	mg/L	24	36	42
5.	Total Dissolved Solids (TDS)	mg/L	632	704	876
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	0.20	0.22	0.44
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27°C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	204	212	270
11.	Sulphate (as SO ₄ ²⁻)	mg/L	54	62	70
12.	Phosphate (as PO ₄ ³⁻)	mg/L	0.8	0.6	0.7
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.7	0.3	0.4
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	170	190	230
18.	Total Alkalinity	mg/L	280	300	350

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 3:50 pm	25/05/16 09:55 am	08/07/16 12:55 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.71	0.36	0.74
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr)	mg/L	0.52	0.44	0.28
22.	Hexavalent Chromium (as Cr ^{VI})	mg/L	BDL	BDL	BDL
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	87	92	110
26.	Magnesium (as Mg)	mg/L	20	26	32
27.	Sodium	%	BDL	BDL	BDL
Bio-Assay					
28	Bioassay Test	%	100	100	100
Bacteriological Analysis					
29.	Coliform Organism (MPN)	Per 100ml.	Nil	Nil	Nil

Note: BDL: - Below Detectable Limit.


ANALYSED BY


CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

Monthly Variation in January-2016 to June-2016

Report Period: January-2016 to June-2016

Sample: Bore well water Kosmadi Village (Valia Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 4:10 pm	25/05/16 10:05 am	08/07/16 11:50 am
General Parameters					
1.	pH (at 26°C)	-	7.37	7.42	7.28
2.	Color	Pt. Co.	Colorless	Colorless	Colorless
3.	Temperature	°C	27	30	28
4.	Total Suspended Solids (TSS)	mg/L	12	20	16
5.	Total Dissolved Solids (TDS)	mg/L	984	796	816
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	0.4	1.2	0.8
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27°C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	190	152	174
11.	Sulphate (as SO ₄ ²⁻)	mg/L	159	144	156
12.	Phosphate (as PO ₄ ³⁻)	mg/L	0.5	0.7	0.3
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.66	0.48	0.52
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	330	280	250
18.	Total Alkalinity	mg/L	350	370	330

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 4:10 pm	25/05/16 10:05 am	08/07/16 11:50 am
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.43	0.57	0.38
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ⁶⁺)	mg/L	0.45	0.29	0.32
22.	Hexavalent Chromium (as Cr ⁶⁺)	mg/L	0.03	0.09	0.06
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	141	125	136
26.	Magnesium (as Mg)	mg/L	37.4	46.3	52.8
27.	Sodium	%	BDL	BDL	BDL
Bio-Assay					
28	Bioassay Test	%	100	100	100
Bacteriological Analysis					
29.	Coliform Organism (MPN)	Per 100ml.	Nil	Nil	Nil

Note: BDL: - Below Detectable Limit.

A.Patel
ANALYSED BY

T.Zehi H.U.
CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

Monthly Variation in January-2016 to June-2016

Report Period: January-2016 to June-2016

Sample: Bore well water Bhaga Village (Valia Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 4:20 pm	25/05/16 10:25 am	08/07/16 10:40 am
General Parameters					
1.	pH (at 26°C)	-	6.92	7.13	6.87
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	°C	27	30	28
4.	Total Suspended Solids (TSS)	mg/L	36	48	52
5.	Total Dissolved Solids (TDS)	mg/L	850	1051	960
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	BDL	BDL	BDL
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27°C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	303	408	401
11.	Sulphate (as SO ₄ ²⁻)	mg/L	140	172	181
12.	Phosphate (as PO ₄ ³⁻)	mg/L	0.9	1.1	0.8
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.5	0.4	0.8
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	310	330	360
18.	Total Alkalinity	mg/L	210	240	220

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 4:20 pm	25/05/16 10:25 am	08/07/16 10:40 am
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.18	0.24	0.31
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ⁺⁶)	mg/L	0.19	0.26	0.42
22.	Hexavalent Chromium (as Cr ⁺⁶)	mg/L	BDL	BDL	BDL
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	50	65	86
26.	Magnesium (as Mg)	mg/L	11.2	15.4	19.6
27.	Sodium	%	BDL	BDL	BDL
Bio-Assay					
28	Bioassay Test	%	100	100	100
Bacteriological Analysis					
29.	Coliform Organism (MPN)	Per 100ml.	Nil	Nil	Nil

Note: BDL: - Below Detectable Limit.

[Signature]
ANALYSED BY

[Signature]
CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

Monthly Variation in January-2016 to June-2016

Report Period: January-2016 to June-2016

Sample: Bore well water Dansoli Village (Valia Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 4:35 pm	25/05/16 10:35 am	08/07/16 03:10 pm
General Parameters					
1.	pH (at 26° C)	-	7.29	7.05	6.96
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	°C	27	30	28
4.	Total Suspended Solids (TSS)	mg/L	52	66	44
5.	Total Dissolved Solids (TDS)	mg/L	690	728	808
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	BDL	BDL	BDL
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27° C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	247	289	312
11.	Sulphate (as SO ₄ ²⁻)	mg/L	149	160	200
12.	Phosphate (as PO ₄ ³⁻)	mg/L	0.4	0.5	0.7
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	BDL	BDL	BDL
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	200	230	280
18.	Total Alkalinity	mg/L	220	180	170

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 4:35 pm	25/05/16 10:35 am	08/07/16 03:10 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.56	0.64	0.35
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ⁶⁺)	mg/L	0.66	0.71	0.47
22.	Hexavalent Chromium (as Cr ⁶⁺)	mg/L	BDL	BDL	BDL
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	47	56	72
26.	Magnesium (as Mg)	mg/L	9.2	10.6	13.5
27.	Sodium	%	BDL	BDL	BDL
Bio-Assay					
28	Bioassay Test	%	100	100	100
Bacteriological Analysis					
29.	Coliform Organism (MPN)	Per 100ml.	Nil	Nil	Nil

Note: BDL: - Below Detectable Limit.

Wastel
ANALYSED BY

P.C.H.U.
CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

Monthly Variation in January-2016 to June-2016

Report Period: January-2016 to June-2016

Sample: Bore well water Harsani Village (Valia Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 4:55 pm	25/05/16 10:50 am	08/07/16 12:10 pm
General Parameters					
1.	pH (at 26°C)	-	7.17	7.29	7.11
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	°C	27	30	28
4.	Total Suspended Solids (TSS)	mg/L	68	52	40
5.	Total Dissolved Solids (TDS)	mg/L	814	780	796
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	BDL	BDL	BDL
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27°C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	196	188	160
11.	Sulphate (as SO ₄ ²⁻)	mg/L	167	151	130
12.	Phosphate (as PO ₄ ³⁻)	mg/L	0.6	0.3	0.5
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	BDL	BDL	BDL
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	180	170	210
18.	Total Alkalinity	mg/L	190	220	260

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-16 to Feb-16	Bi Monthly: March-16 to April-16	Bi Monthly: May-16 to June-16
			29/03/16 4:55 pm	25/05/16 10:50 am	08/07/16 12:10 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.33	0.41	0.23
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ⁶⁺)	mg/L	0.40	0.37	0.28
22.	Hexavalent Chromium (as Cr ⁶⁺)	mg/L	BDL	BDL	BDL
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	64.7	55.2	40.1
26.	Magnesium (as Mg)	mg/L	16.8	13.5	15.3
27.	Sodium	%	BDL	BDL	BDL
Bio-Assay					
28	Bioassay Test	%	100	100	100
Bacteriological Analysis					
29.	Coliform Organism (MPN)	Per 100ml.	Nil	Nil	Nil

Note: BDL: - Below Detectable Limit.

Shrikant
ANALYSED BY

P.CHEMULU
CHECKED BY

**BORE WATER'S
COMPARATIVE ANALYSIS
REPORTS**

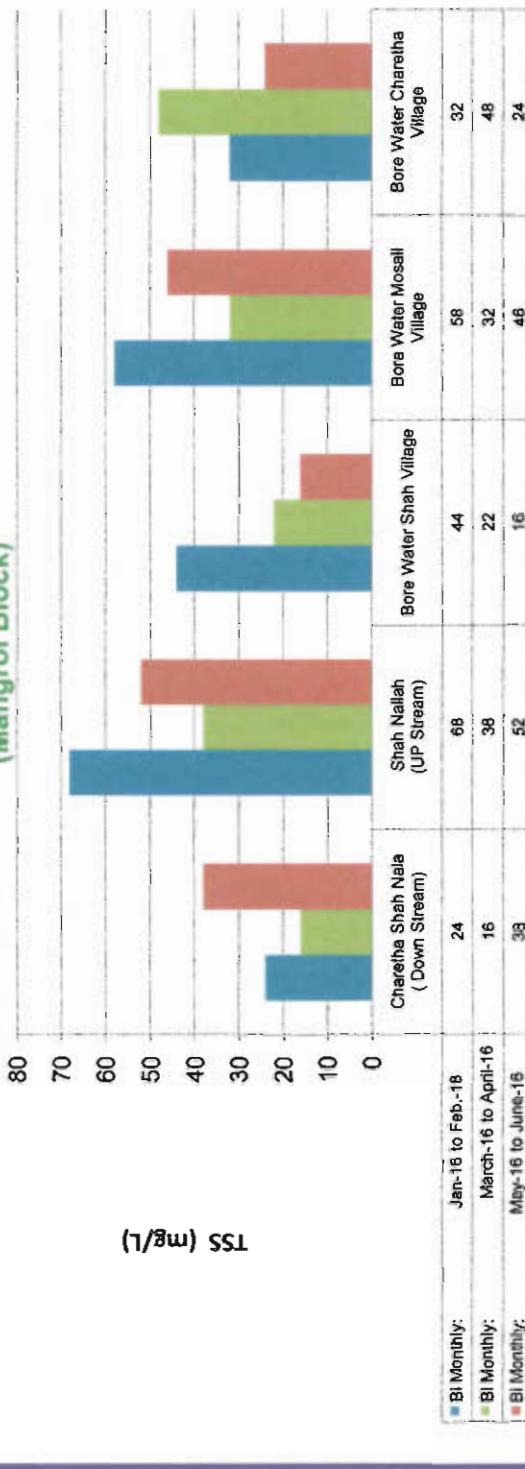
Comparative Results For the Period of: January-2016 to June-2016
Parameter : TSS (mg/L)
Period : January-2016 to June-2016



COMPARATIVE RESULTS OF TSS FOR VARIOUS LOCATIONS

Description	Charetha Shah Nala (Down Stream)	Shah Nallah (UP Stream)	Bore Water Shah Village	Bore Water Mossali Village	Bore Water Charetha Village
Bi Monthly: Jan-16 to Feb.-16	24	68	44	58	32
Bi Monthly: March-16 to April-16	16	38	22	32	48
Bi Monthly: May-16 to June-16	38	52	16	46	24

**Graphical Presentation of TSS for various locations
(Mangrol Block)**



Comparative Results For the Period of: January-2016 to June-2016

Parameter : TDS (mg/L)

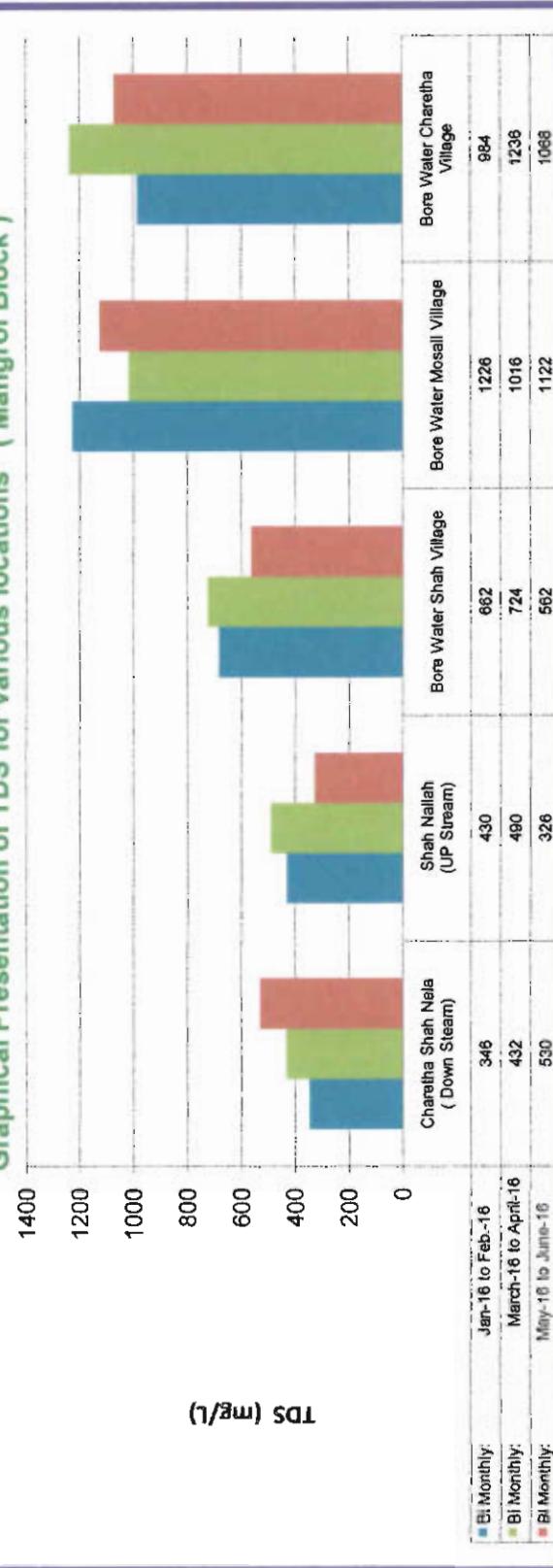
Period : January-2016 to June-2016



COMPARATIVE RESULTS OF TDS FOR VARIOUS LOCATIONS

Description	Charetha Shah Nala (Down Stream)	Shah Nallah (UP Stream)	Bore Water Shah Village	Bore Water Mosai Village	Bore Water Charetha Village
Bi Monthly: Jan-16 to Feb-16	346	430	682	1226	984
Bi Monthly: March-16 to April-16	432	490	724	1016	1236
Bi Monthly: May-16 to June-16	530	326	562	1122	1068

Graphical Presentation of TDS for various locations (Mangrol Block)



Comparative Results For the Period of: January-2016 to June-2016

Parameter : TSS (mg/L)

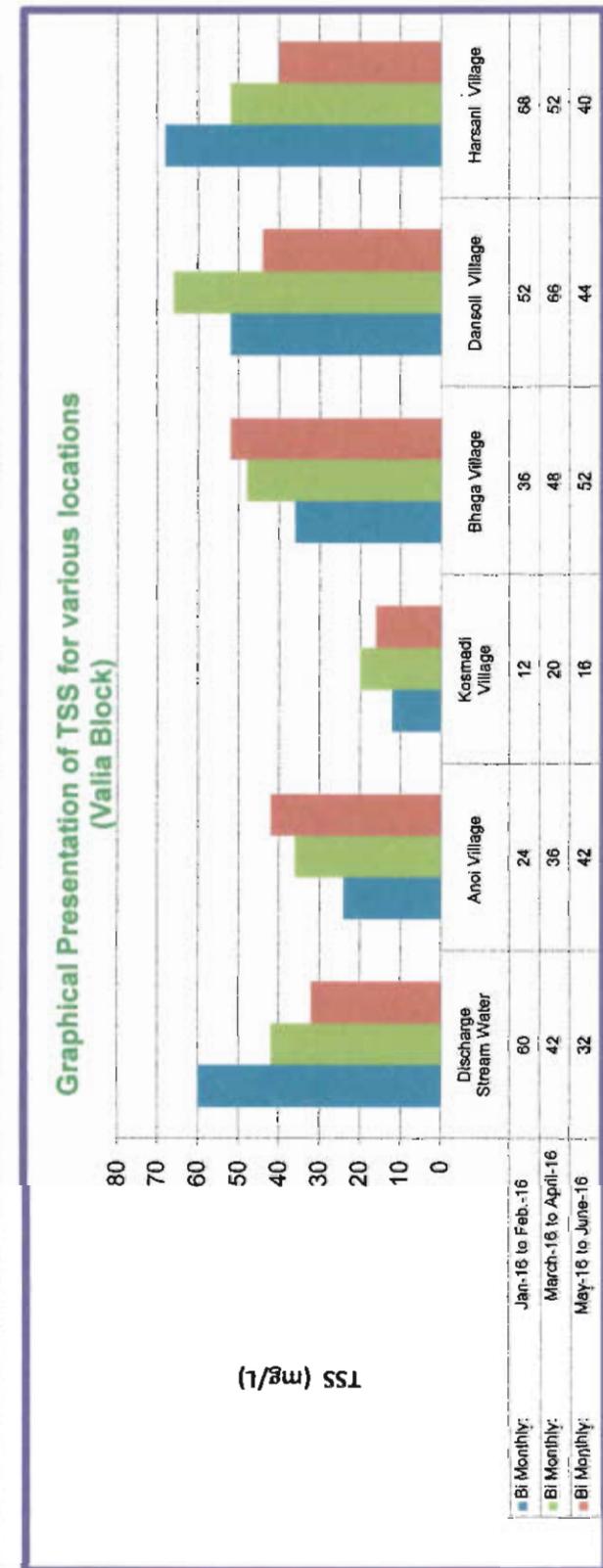
Period : January-2016 to June-2016



COMPARATIVE RESULTS OF TSS FOR VARIOUS LOCATIONS

Description	Discharge Stream Water	Anoi Village	Kosmadi Village	Bhaga Village	Dansoli Village	Harsani Village
Bi Monthly: Jan-16 to Feb-16	60	24	12	36	52	68
Bi Monthly: March-16 to April-16	42	36	20	48	66	52
Bi Monthly: May-16 to June-16	32	42	16	52	44	40

**Graphical Presentation of TSS for various locations
(Valia Block)**



Comparative Results For the Period of: January-2016 to June-2016

TDS (mg/L) (mg/L)
Period : January-2016 to June-2016

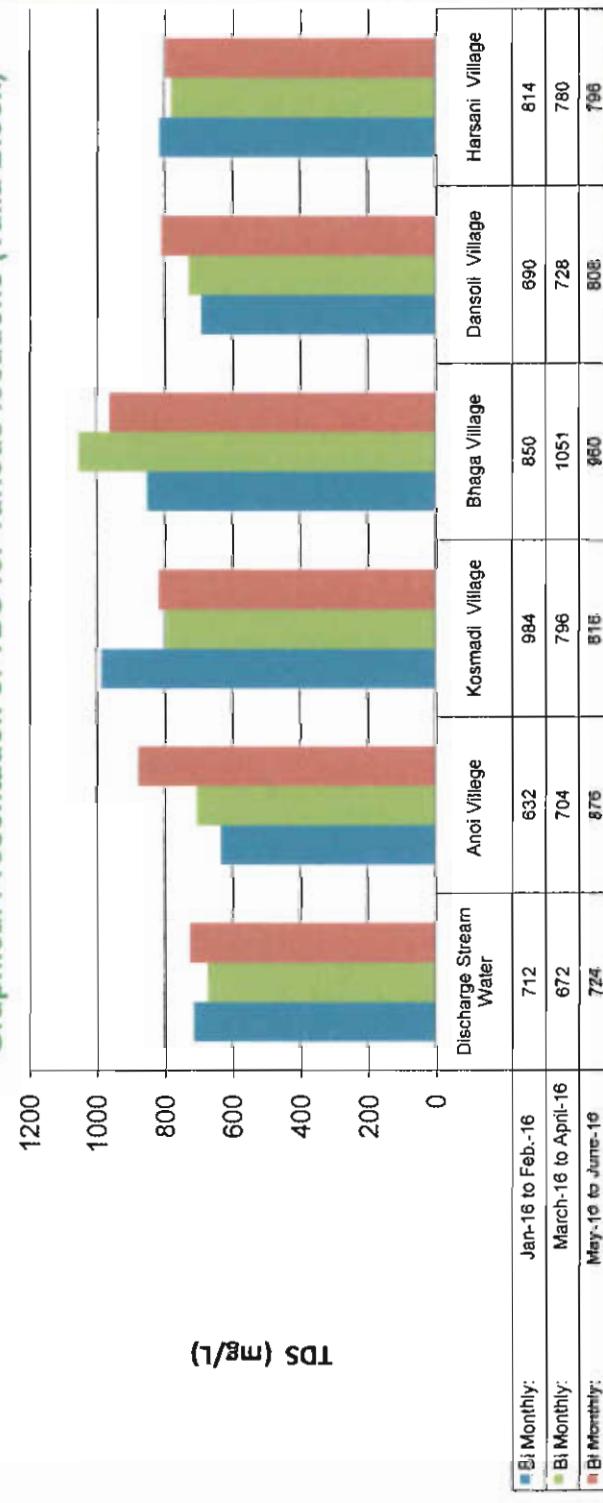


ENPRO
Environmental
Energy, Water
Project Consultant

COMPARATIVE RESULTS OF TDS FOR VARIOUS LOCATIONS

Description	Discharge Stream Water	Anoi Village	Kosmadi Village	Bhaga Village	Dansoli Village	Harsani Village
Bi Monthly: Jan-16 to Feb.-16	712	632	984	850	690	814
Bi Monthly: March-16 to April-16	672	704	796	1051	728	780
Bi Monthly: May-16 to June-16	724	876	816	960	808	796

Graphical Presentation of TDS for various locations (Valia Block)



**AMBIENT AIR
COMPARATIVE ANALYSIS
REPORTS**

Comparative Results For the Period of: January-2016 to June-2016
Parameter : PM₁₀ (Particulate Matter) ($\mu\text{g}/\text{m}^3$)
Period : January-2016 to June-2016



COMPARATIVE RESULTS OF PM₁₀ FOR VARIOUS LOCATIONS

Description	Shah Village	Charetha Village	Mines site Office	Lignite Transport Road	Mine ELHS area	Mosali Village	Lignite Cutting area
Bi Monthly: Jan-16 to Feb.-16	70.8	55.6	52.1	48.7	59.5	50.4	45.8
Bi Monthly: March-16 to April-16	75.2	61.4	58.2	52.8	65.6	56.4	50.5
Bi Monthly: May-16 to June-16	71.9	57.1	55.7	45.3	60.8	48.6	43.2
GPCB Limit	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Graphical Presentation of PM₁₀ for various locations (Mangrol Block)



Comparative Results For the Period of: January-2016 to June-2016

Parameter : PM_{2.5} (Particulate Matter) ($\mu\text{g}/\text{m}^3$)

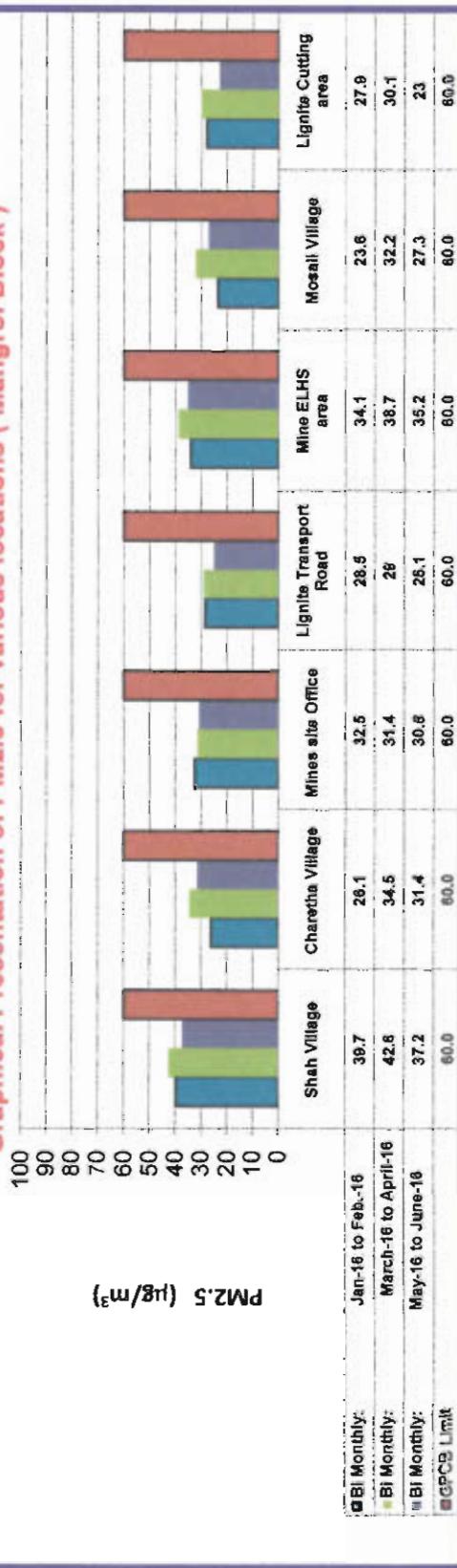
Period : January-2016 to June-2016



COMPARATIVE RESULTS OF PM_{2.5} FOR VARIOUS LOCATIONS

Description	Shah Village	Charetha Village	Mines site Office	Lignite Transport Road	Mine ELHS area	Mosali Village	Lignite Cutting area
Bi Monthly: Jan-16 to Feb.-16	39.7	26.1	32.5	28.5	34.1	23.6	27.9
Bi Monthly: March-16 to April-16	42.6	34.5	31.4	29	38.7	32.2	30.1
Bi Monthly: May-16 to June-16	37.2	31.4	30.8	26.1	35.2	27.3	23
GRPCB Limit	60.0	60.0	60.0	60.0	60.0	60.0	60.0

Graphical Presentation of PM_{2.5} for various locations (Mangrol Block)



Comparative Results For the Period of: January-2016 to June-2016
Parameter : Sulfur Dioxide (SO₂) (µg/m³)
Period : January-2016 to June-2016

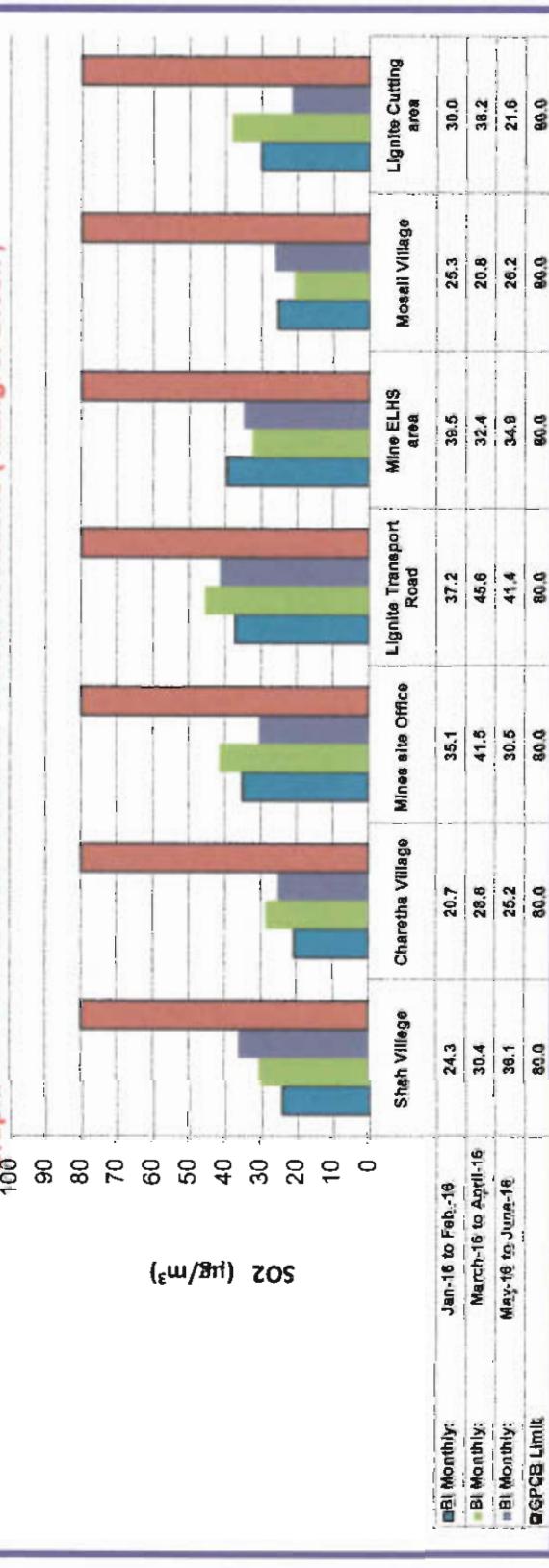


ENPRO
Environment,
Energy, Water
Project Consultant

COMPARATIVE RESULTS OF SO₂ FOR VARIOUS LOCATIONS

Description	Shah Village	Charetha Village	Mines site Office	Lignite Transport Road	Mine ELHS area	Mosali Village	Lignite Cutting area
Bi Monthly:							
Jan-16 to Feb-16	24.3	20.7	35.1	37.2	39.5	25.3	30.0
Bi Monthly:							
March-16 to April-16	30.4	28.6	41.5	45.6	32.4	20.8	38.2
Bi Monthly:							
May-16 to June-16	36.1	25.2	30.5	41.4	34.9	26.2	21.6
GPCB Limit	80.0	80.0	80.0	80.0	80.0	80.0	80.0

Graphical Presentation of SO₂ for various locations (Mangrol Block)



Comparative Results For the Period of: January-2016 to June-2016

Parameter : Oxide of Nitrogen (NOx) ($\mu\text{g}/\text{m}^3$)

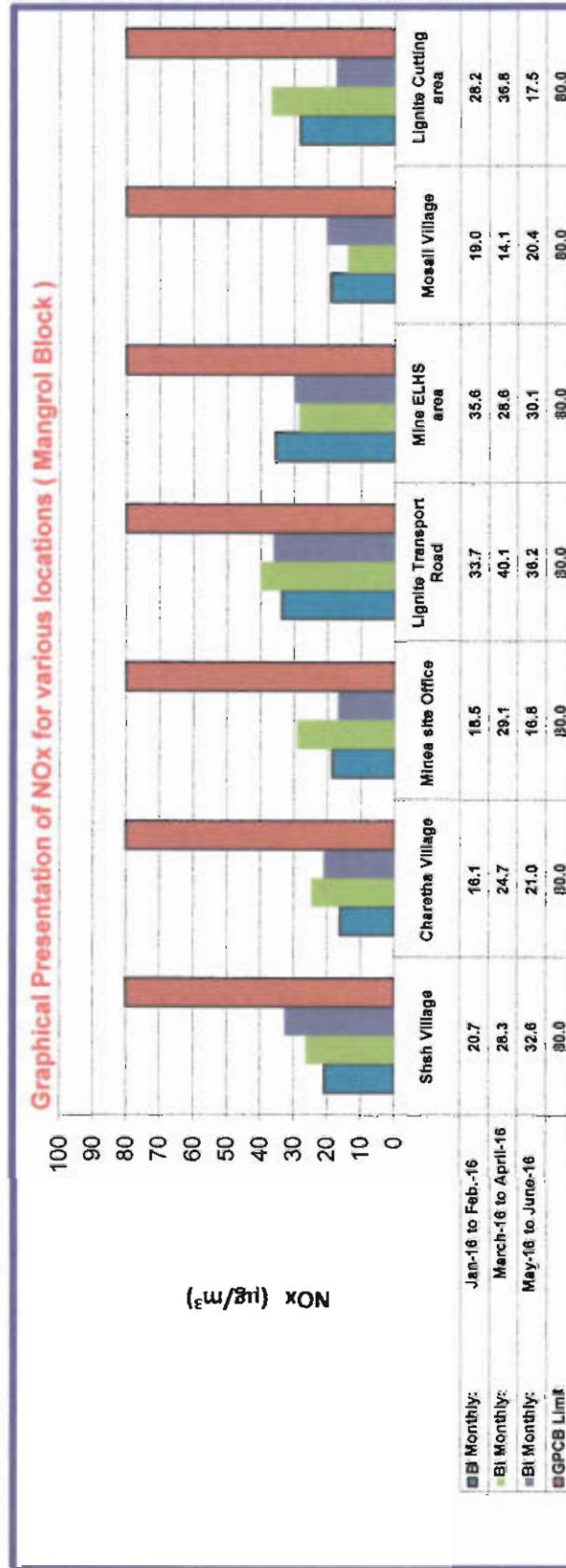
Period : January-2016 to June-2016



COMPARATIVE RESULTS OF NOx FOR VARIOUS LOCATIONS

Description	Shah Village	Charetha Village	Mines site Office	Lignite Transport Road	Mine ELHS area	Mosali Village	Lignite Cutting area
Bi Monthly: Jan-16 to Feb-16	20.7	16.1	18.5	33.7	35.6	19.0	28.2
Bi Monthly: March-16 to April-16	26.3	24.7	29.1	40.1	28.6	14.1	36.8
Bi Monthly: May-16 to June-16	32.6	21.0	16.8	36.2	30.1	20.4	17.5
GPCB Limit	80.0	80.0	80.0	80.0	80.0	80.0	80.0

Graphical Presentation of NOx for various locations (Mangrol Block)



Comparative Results For the Period of: January-2016 to June-2016



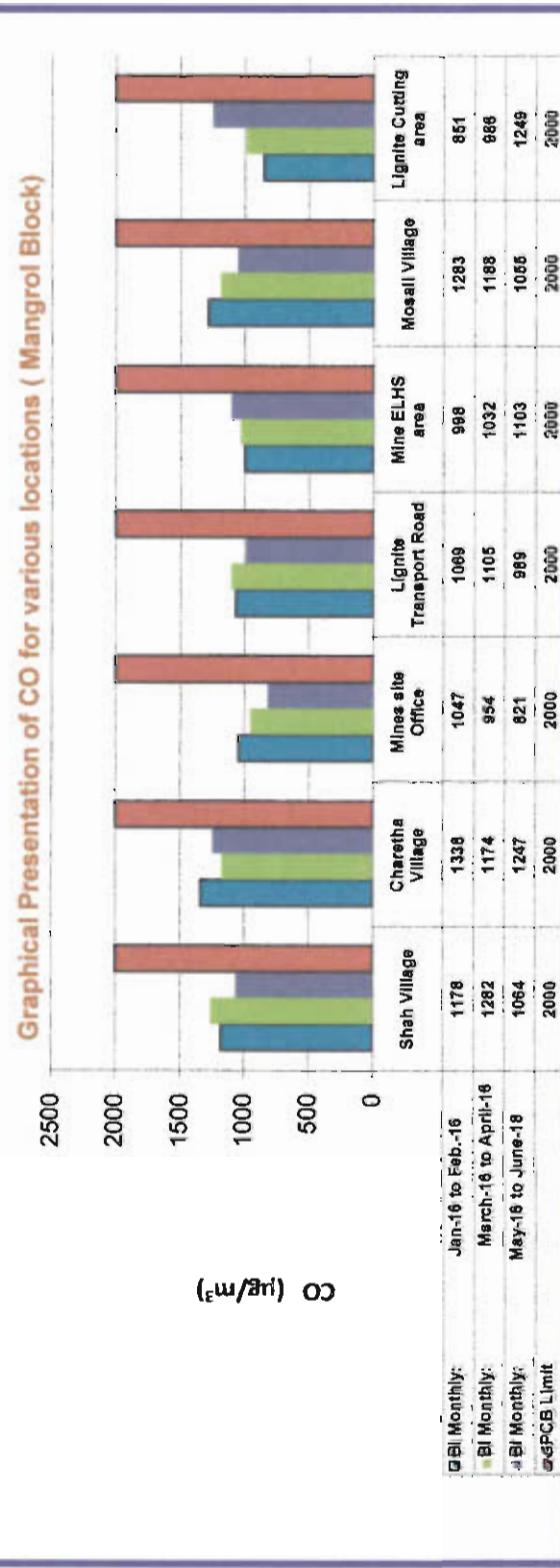
ENPRO
Environment
Energy
Water
Project Consultant

Parameter : Carbon Monoxide (CO)($\mu\text{g}/\text{m}^3$)
 Period : January-2016 to June-2016

COMPARATIVE RESULTS OF CARBON MONOXIDE FOR VARIOUS LOCATIONS

Description	Shah Village	Charetha Village	Mines site Office	Lignite Transport Road	Mine ELHS area	Mosali Village	Lignite Cutting area
Bi Monthly: Jan-16 to Feb-16	1178	1338	1047	1069	998	1283	851
Bi Monthly: March-16 to April-16	1262	1174	954	1105	1032	1188	986
Bi Monthly: May-16 to June-16	1064	1247	821	989	1103	1055	1249
GPCB Limit	2000	2000	2000	2000	2000	2000	2000

Graphical Presentation of CO for various locations (Mangrol Block)



Comparative Results For the Period of: January-2016 to June-2016



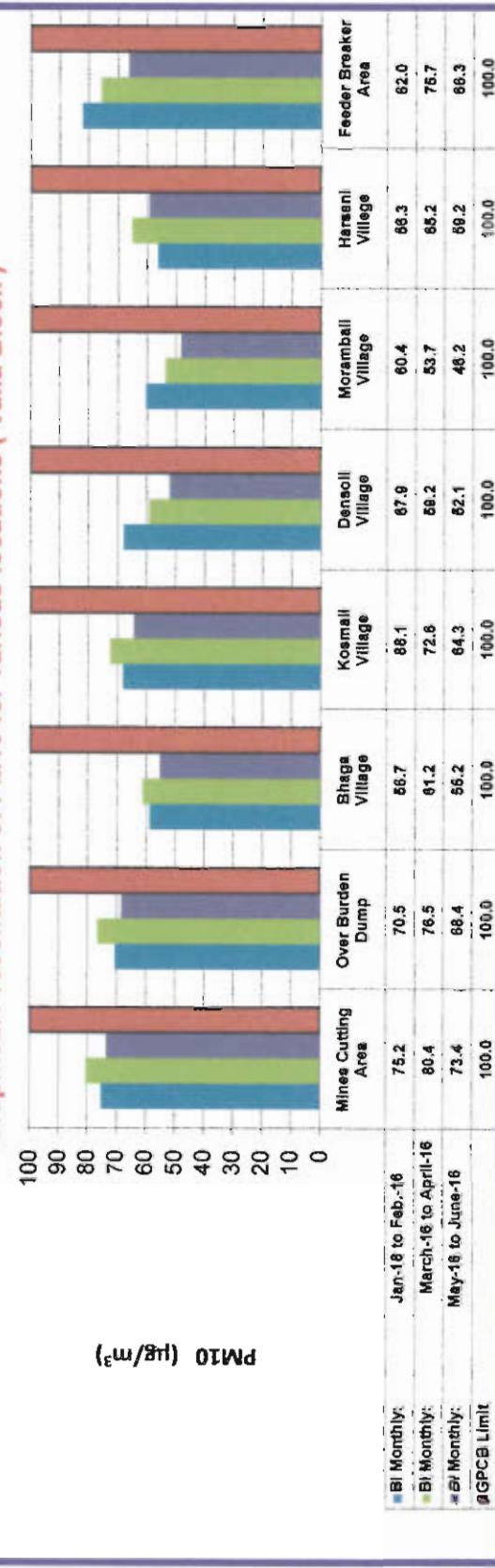
Parameter : PM₁₀ (Particulate Matter) (µg/m³)

Period : January-2016 to June-2016

COMPARATIVE RESULTS OF PM₁₀ FOR VARIOUS LOCATIONS

Description	Mines Cutting Area	Over Burden Dump	Bhaga Village	Kosmali Village	Dansoli Village	Morambali Village	Harsani Village	Feeder Breaker Area
Bi Monthly: Jan-16 to Feb-16	75.2	70.5	58.7	68.1	67.9	60.4	56.3	82.0
Bi Monthly: March-16 to April-16	80.4	76.5	61.2	72.5	59.2	53.7	65.2	75.7
Bi Monthly: May-16 to June-16	73.4	68.4	55.2	64.3	52.1	48.2	59.2	66.3
GPCB Limit	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Graphical Presentation of PM₁₀ for various locations (Valia Block)



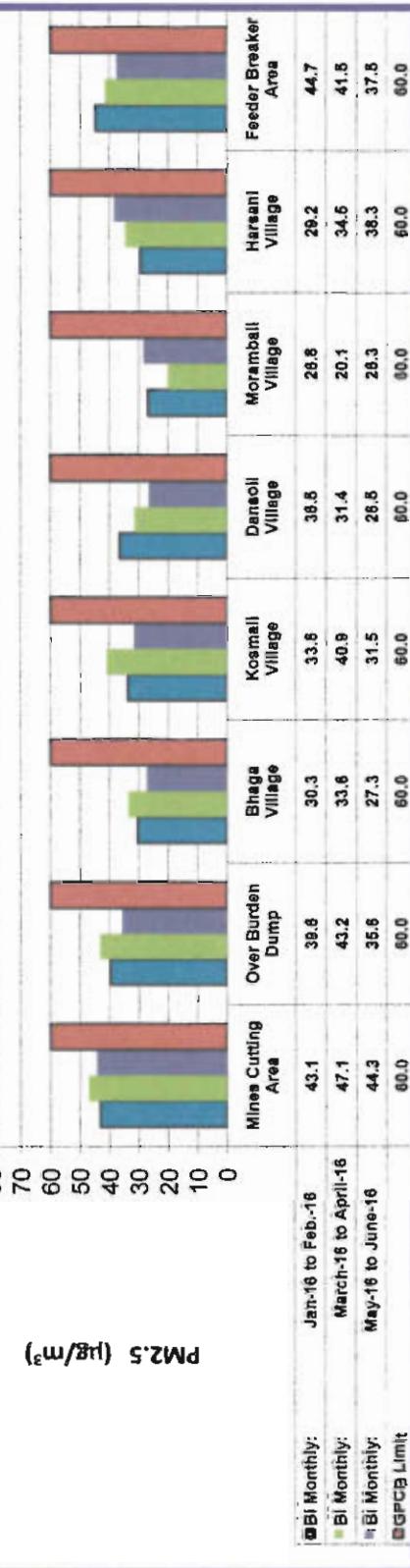
Comparative Results For the Period of: January-2016 to June-2016

Parameter : PM_{2.5} (Particulate Matter) ($\mu\text{g}/\text{m}^3$)
 Period : January-2016 to June-2016

COMPARATIVE RESULTS OF PM_{2.5} FOR VARIOUS LOCATIONS

Description	Mines Cutting Area	Over Burden Dump	Bhaga Village	Kosmali Village	Dansoli Village	Morambali Village	Harsani Village	Feeder Breaker Area
Bi Monthly: Jan-16 to Feb.-16	43.1	39.6	30.3	33.6	36.5	26.8	29.2	44.7
Bi Monthly: March-16 to April-16	47.1	43.2	33.6	40.9	31.4	20.1	34.5	41.5
Bi Monthly: May-16 to June-16	44.3	35.6	27.3	31.5	26.5	28.3	38.3	37.5
GPCB Limit	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0

Graphical Presentation of PM_{2.5} for various locations (Vallia Block)



Comparative Results For the Period of: January-2016 to June-2016

Parameter : Sulfur Dioxide (SO₂) (µg/m³)
Period : January-2016 to June-2016

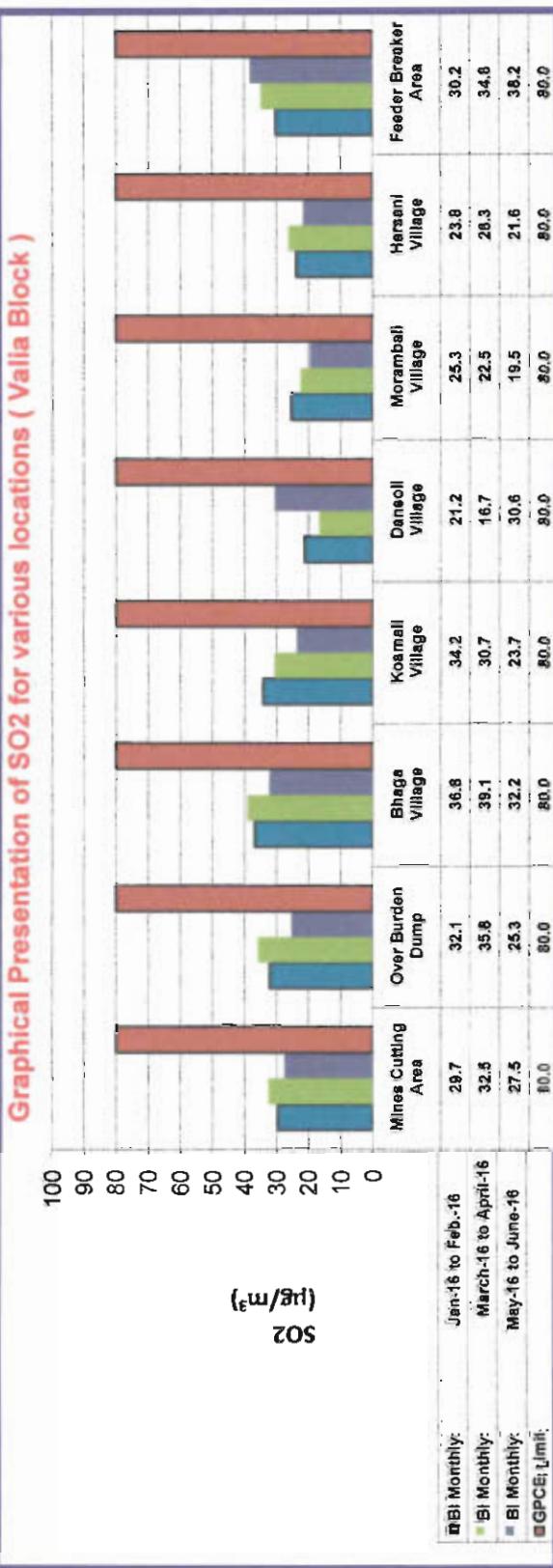


ENPRO
 Environment
 Energy & Water
 Project Consultant

COMPARATIVE RESULTS OF SO₂ FOR VARIOUS LOCATIONS

Description	Mines Cutting Area	Over Burden Dump	Bhaga Village	Kosmali Village	Dansoli Village	Morambali Village	Harsani Village	Feeder Breaker Area
Bi Monthly: Jan-16 to Feb-16	29.7	32.1	36.8	34.2	21.2	25.3	23.8	30.2
Bi Monthly: March-16 to April-16	32.5	35.8	39.1	30.7	16.7	22.5	26.3	34.8
Bi Monthly: May-16 to June-16	27.5	25.3	32.2	23.7	30.6	19.5	21.6	38.2
GPCB Limit	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

Graphical Presentation of SO₂ for various locations (Vallia Block)



Comparative Results For the Period of : January-2016 to June-2016

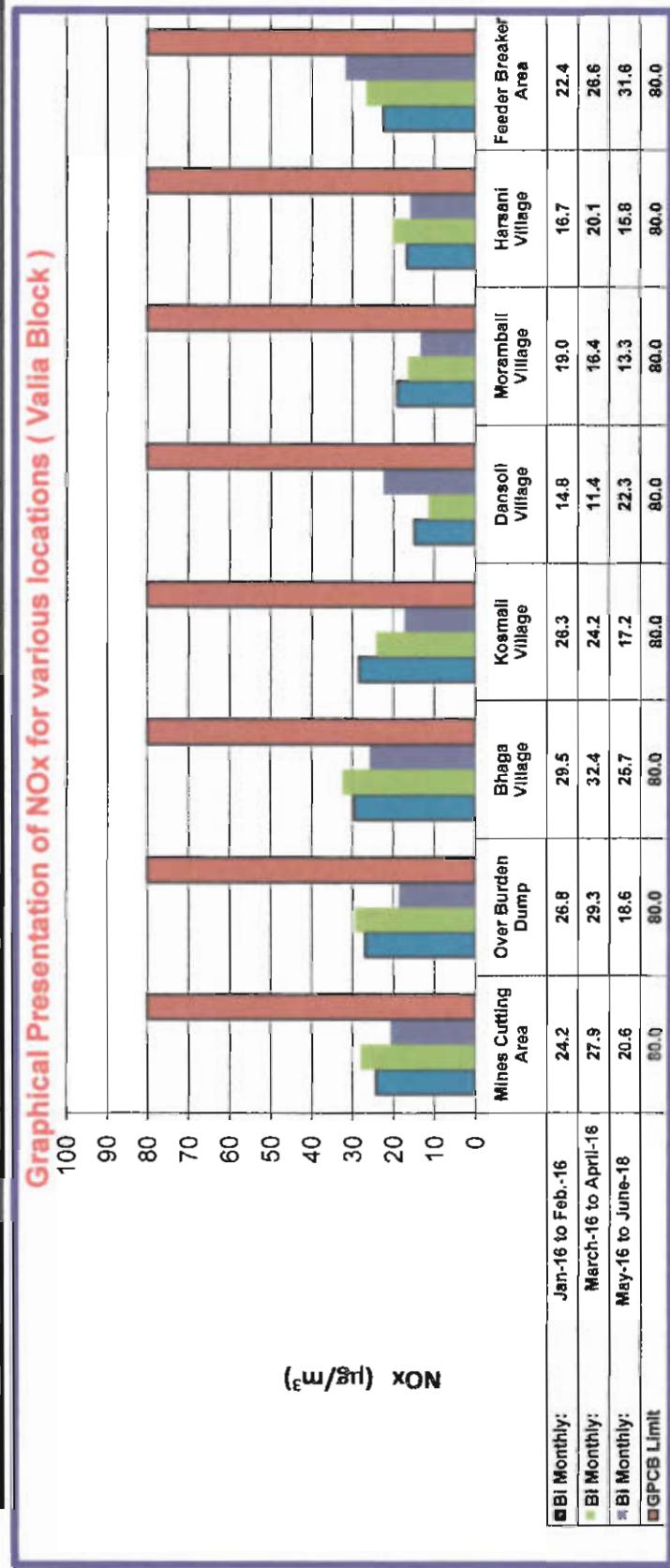
Parameter : Oxide of Nitrogen (NO_x) (µg/m³)

Period : January-2016 to June-2016

COMPARATIVE RESULTS OF NO_x FOR VARIOUS LOCATIONS

Description	Mines Cutting Area	Over Burden Dump	Bhaga Village	Kosmaili Village	Dansoli Village	Moramballi Village	Harsani Village	Feeder Breaker Area
Bi Monthly: Jan-16 to Feb.-16	24.2	26.8	29.5	28.3	14.8	19.0	16.7	22.4
Bi Monthly: March-16 to April-16	27.9	29.3	32.4	24.2	11.4	16.4	20.1	26.6
Bi Monthly: May-16 to June-16	20.6	18.6	25.7	17.2	22.3	13.3	15.8	31.6
GPCB Limit	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0

Graphical Presentation of NO_x for various locations (Valia Block)



Comparative Results For the Period of: January-2016 to June-2016

Parameter : Carbon Monoxide (CO)($\mu\text{g}/\text{m}^3$)
Period : January-2016 to June-2016

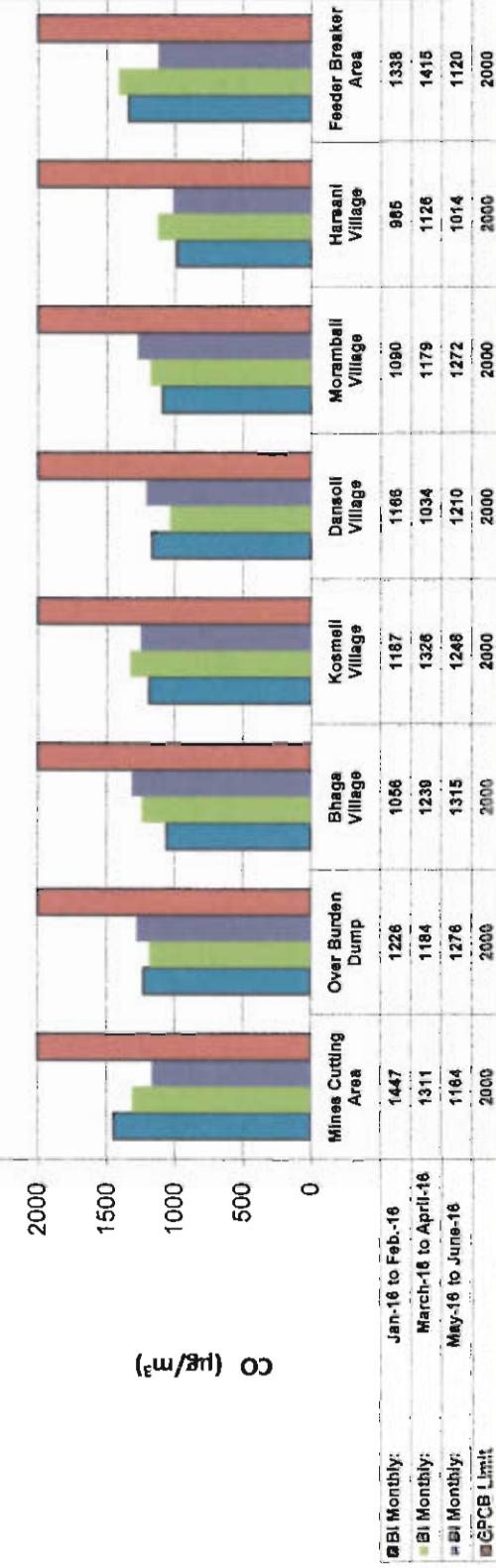


ENPRO
 Environment
 Energy, Water
 Project, Consultancy

COMPARATIVE RESULTS OF CARBON MONOXIDE FOR VARIOUS LOCATIONS

Description	Mines Cutting Area	Over Burden Dump	Bhaga Village	Kosmaili Village	Danaoli Village	Morambari Village	Harsani Village	Feeder Breaker Area
Bi Monthly: Jan-16 to Feb-16	1447	1226	1056	1187	1166	1090	985	1338
Bi Monthly: March-16 to April-16	1311	1184	1239	1328	1034	1179	1126	1415
Bi Monthly: May-16 to June-16	1164	1276	1315	1248	1210	1272	1014	1120
GPCB Limit	2000	2000	2000	2000	2000	2000	2000	2000

Graphical Presentation of CO for various locations (Valia Block)



**DUST FALL MONITORING
COMPARATIVE ANALYSIS
REPORTS**

Comparative Results For the Period of: January-2016 to June-2016

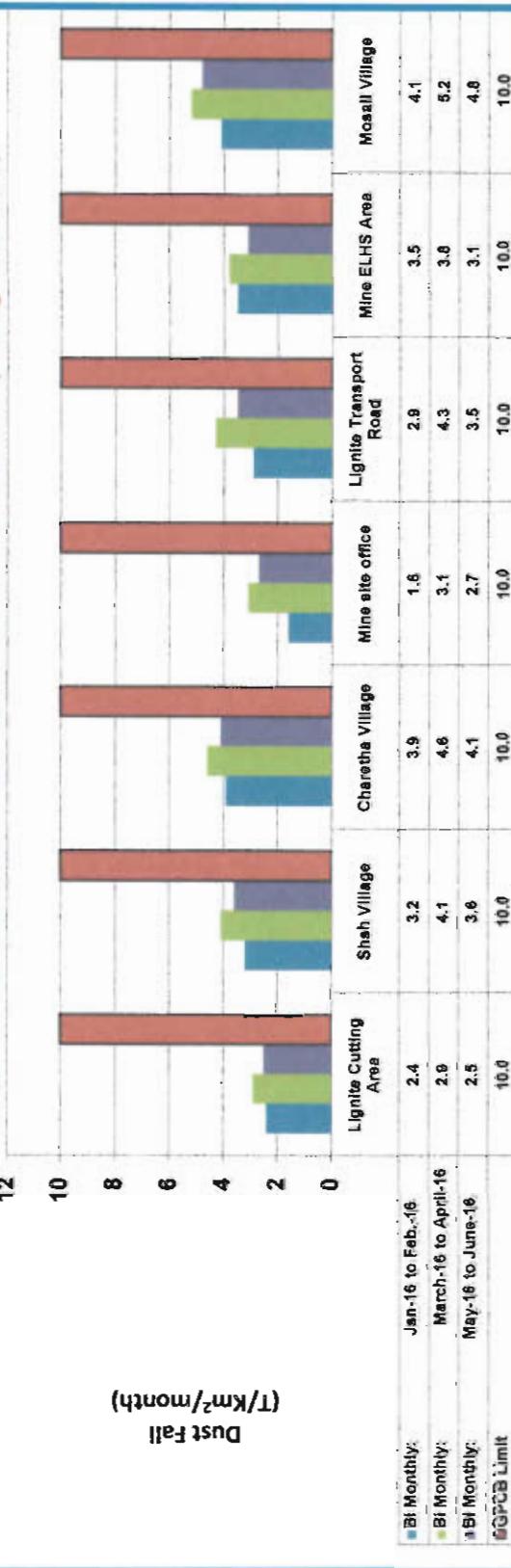


Parameter : Dust Fall (T/Km²/month)
Period : January-2016 to June-2016

COMPARATIVE RESULTS OF DUST FALL FOR VARIOUS LOCATIONS

Description	Lignite Cutting Area	Shah Village	Charetha Village	Mine site Office	Lignite Transport Road	Mine ELHS Area	Mosali Village
Bi Monthly; Jan-16 to Feb-16	2.4	3.2	3.9	1.6	2.9	3.5	4.1
Bi Monthly; March-16 to April-16	2.9	4.1	4.6	3.1	4.3	3.8	5.2
Bi Monthly; May-16 to June-16	2.5	3.6	4.1	2.7	3.5	3.1	4.8
GPCB Limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Graphical Presentation of Dust Fall for various locations(Mangrol Block)



Comparative Results For the Period of: January-2016 to June-2016



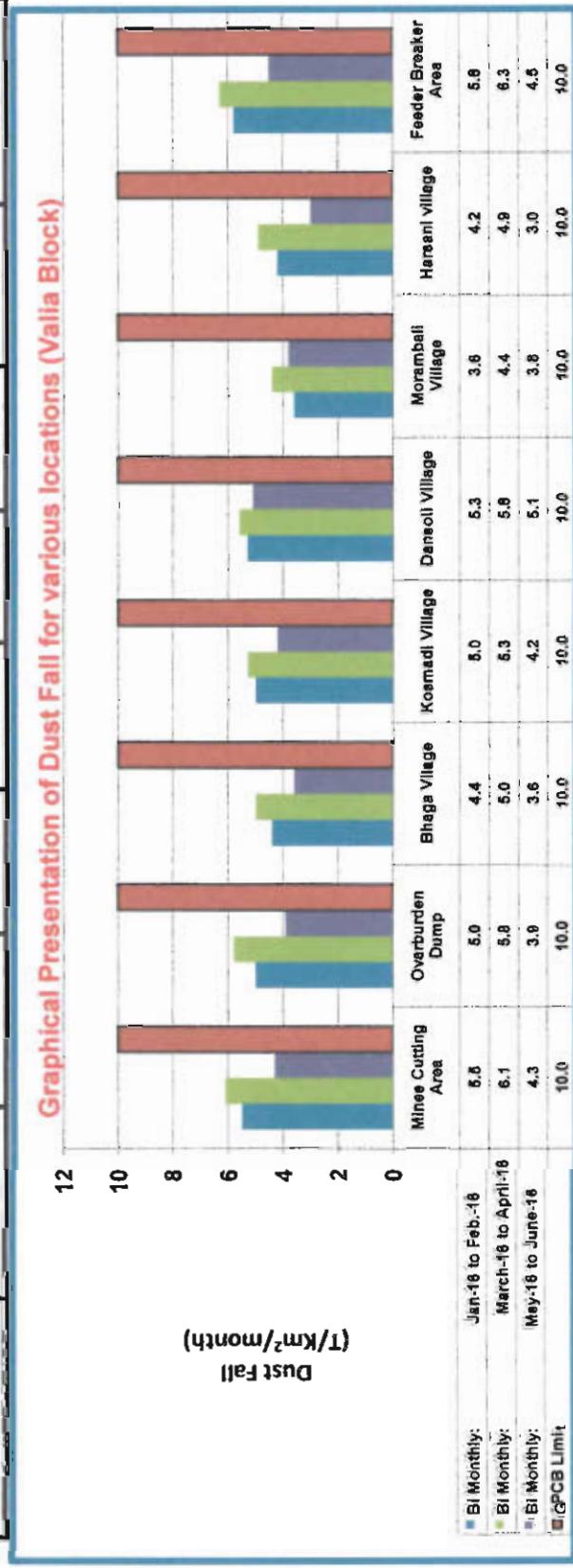
ENPRO
Environment
Energy, Water
project Consultant

Parameter : Dust Fall (T/Km²/month)
Period : January-2016 to June-2016

COMPARATIVE RESULTS OF DUST FALL FOR VARIOUS LOCATIONS

Description	Mines Cutting Area	Overburden Dump	Bhaga Village	Kosimadi Village	Dansoli Village	Morambali Village	Harsani village	Feeder Breaker Area
Bi Monthly: Jan-16 to Feb-16	5.5	5.0	4.4	5.0	5.3	3.6	4.2	5.8
Bi Monthly: March-16 to April-16	6.1	5.8	5.0	5.3	5.6	4.4	4.9	6.3
Bi Monthly: May-16 to June-16	4.3	3.9	3.6	4.2	5.1	3.8	3.0	4.5
GPCB Limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Graphical Presentation of Dust Fall for various locations (Valla Block)



**NOISE LEVEL
COMPARATIVE ANALYSIS
REPORTS**

Comparative Results For the Period of: January-2016 to June-2016

Parameter : Noise Level (For Day Time) dB(A)L_{eq.}
Period : January-2016 to June-2016

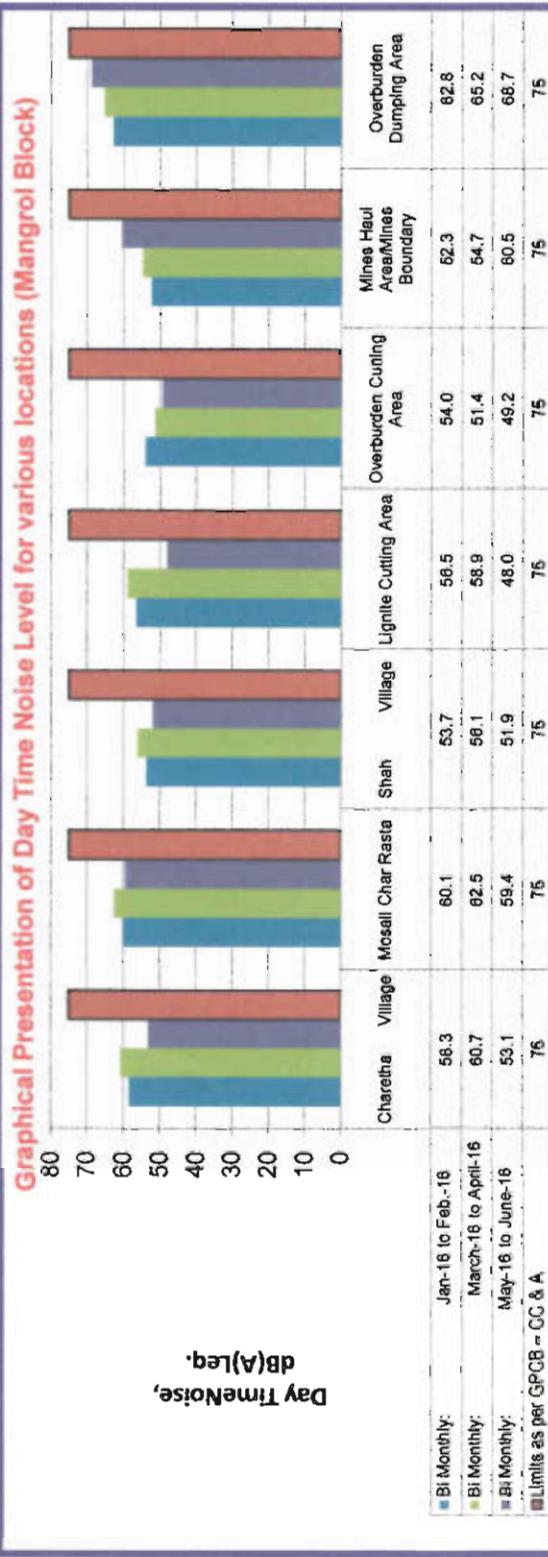


ENPRO
**Environmental
 Water
 Project Consultants**

COMPARATIVE RESULTS OF NOISE LEVEL FOR VARIOUS LOCATIONS (DAY TIME)

Description	Charetha Village	Mosali Char Rasta	Shah Village	Lignite Cutting Area	Overburden Cutting Area	Mines Haul Area/Mines Boundary	Overburden Dumping Area
Bi Monthly: Jan-16 to Feb.-16	58.3	60.1	53.7	56.5	54.0	52.3	62.8
Bi Monthly: March-16 to April-16	60.7	62.5	56.1	58.9	51.4	54.7	65.2
Bi Monthly: May-16 to June-16	53.1	59.4	51.9	48.0	49.2	60.5	68.7
Limits as per GPCB = CG & A	75	75	75	75	75	75	75

Graphical Presentation of Day Time Noise Level for various locations (Mangrol Block)



Comparative Results For the Period of: January-2016 to June-2016



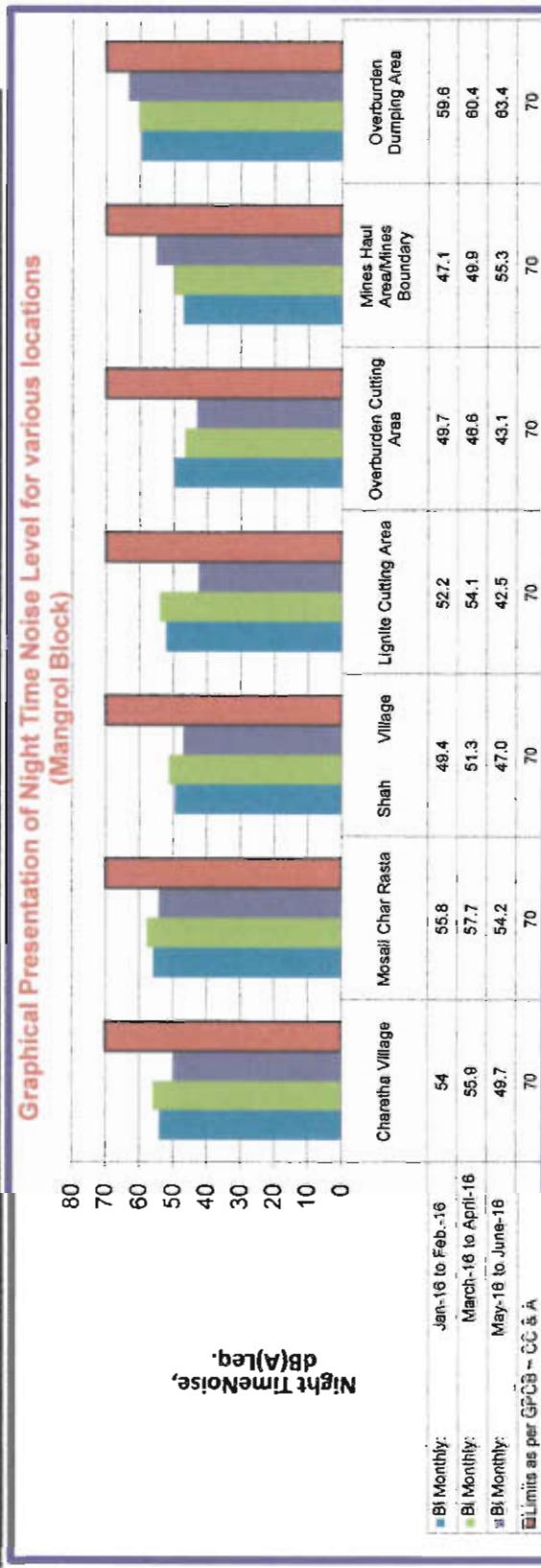
ENPRO
Environment
Energy, Water
Project Consultant

Parameter : Noise Level (For Night Time) dB(A)L_{eq.}
Period : January-2016 to June-2016

COMPARATIVE RESULTS OF NOISE LEVEL FOR VARIOUS LOCATIONS (NIGHT TIME)

Description	Charetha Village	Mosali Char Rasta	Shah Village	Lignite Cutting Area	Overburden Cutting Area	Mines Haul Area/Mines Boundary	Overburden Dumping Area
Bi Monthly: Jan-16 to Feb-16	54	55.8	49.4	52.2	49.7	47.1	59.6
Bi Monthly: March-16 to April-16	55.9	57.7	51.3	54.1	46.6	49.9	60.4
Bi Monthly: May-16 to June-16	49.7	54.2	47.0	42.5	43.1	55.3	63.4
Limits as per GPCB – CC & A	70	70	70	70	70	70	70

**Graphical Presentation of Night Time Noise Level for various locations
(Mangrol Block)**



Comparative Results For the Period of: January-2016 to June-2016

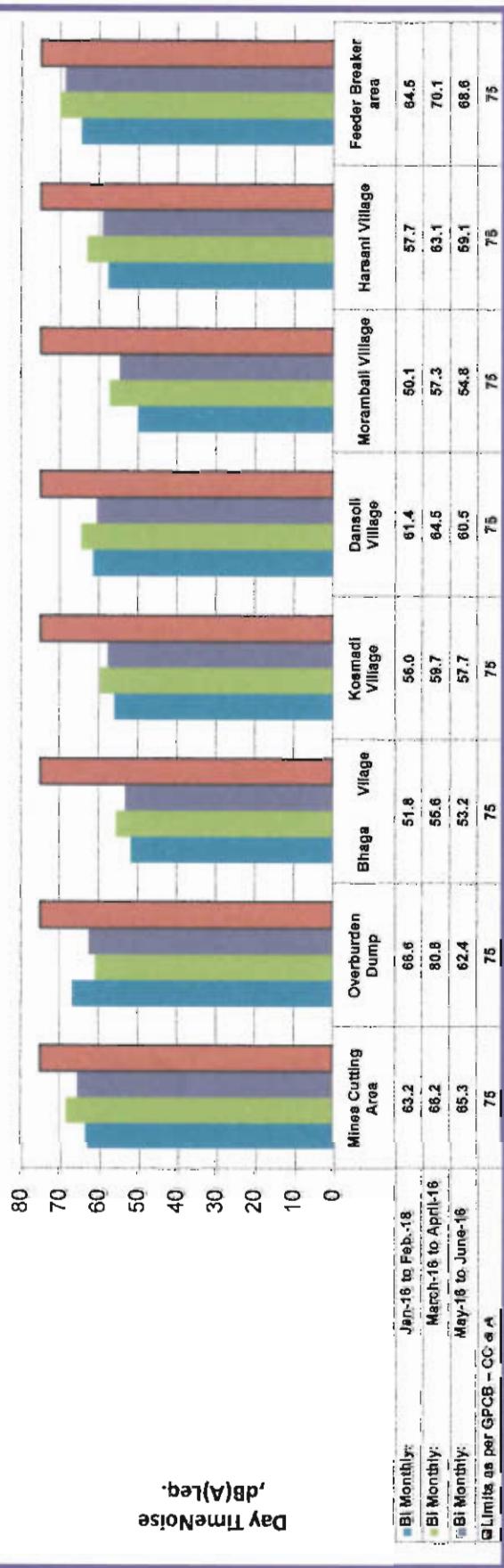
Parameter : Noise Level (For Day Time) dB(A)Leq.
Period : January-2016 to June-2016



COMPARATIVE RESULTS OF NOISE LEVEL FOR VARIOUS LOCATIONS (DAY TIME)

Description	Mines Cutting Area	Overburden Dump	Bhaga Village	Kosmadi Village	Dansoli Village	Moramballi Village	Harsani Village	Feeder Breaker area
Bi Monthly: Jan-16 to Feb-16	63.2	66.6	51.8	56.0	61.4	50.1	57.7	64.5
Bi Monthly: March-16 to April-16	68.2	60.8	55.6	59.7	64.5	57.3	63.1	70.1
Bi Monthly: May-16 to June-16	65.3	62.4	53.2	57.7	60.5	54.8	59.1	68.6
Limits as per GPCB - C.C & A	75	75	75	75	75	75	75	75

Graphical Presentation of Day Time Noise Level for various locations(Valla Block)



Comparative Results For the Period of: January-2016 to June-2016



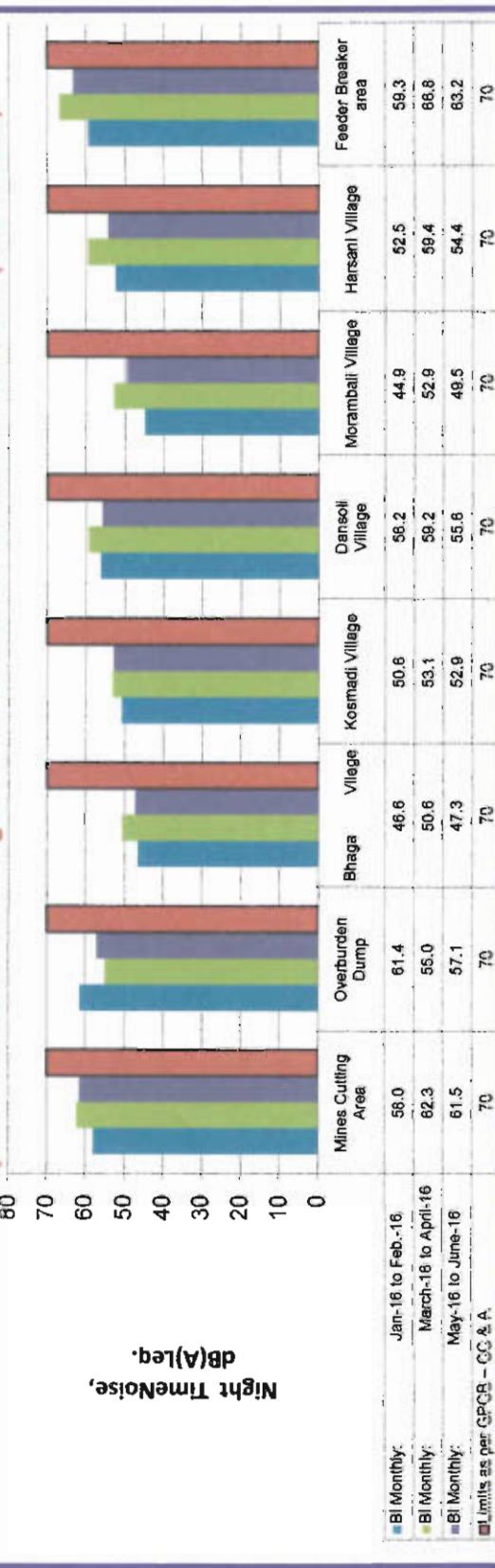
ENPRO
Environmental
Energy, Water,
Project Consultants

Parameter : Noise Level (For Night Time) dB(A)Leq.
Period : January-2016 to June-2016

COMPARATIVE RESULTS OF NOISE LEVEL FOR VARIOUS LOCATIONS (NIGHT TIME)

Description	Mines Cutting Area	Overburden Dump	Bhaga Village	Kosmadi Village	Densoli Village	Morambali Village	Harsani Village	Feeder Breaker area
Bi Monthly: Jan-16 to Feb-16	58.0	61.4	46.6	50.8	56.2	44.9	52.5	59.3
Bi Monthly: March-16 to April-16	62.3	55.0	50.6	53.1	59.2	52.9	59.4	66.8
Bi Monthly: May-16 to June-16	61.5	57.1	47.3	52.9	55.8	49.5	54.4	63.2
Limits as per GPCB – CC & A	70	70	70	70	70	70	70	70

Graphical Presentation of Night Time Noise Level for various locations (Valia Block)



WEATHER MONITORING DATA

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067 Date: 07 / 08 / 2015

**Variation in Temperature for the period of
January-2016 to June-2016 (Mangrol Block)**

Sr. No.	Time in Hrs.	MONITORING DATE		
		Bi Monthly: Jan-16 to Feb.-16	Bi Monthly: March.-16 to April-16	Bi Monthly: May-16 to June-16
		25 / 03 / 16 & 26 / 03 / 16	12 / 05 / 16 & 13 / 05 / 16	06 / 07 / 16 & 07 / 07 / 16
1.	11:00	29.0	38.0	28.5
2.	12:00	32.0	41.0	29.0
3.	13:00	34.0	43.0	29.5
4.	14:00	35.0	44.0	30.0
5.	15:00	34.5	43.5	29.5
6.	16:00	34.0	43.0	29.0
7.	17:00	33.5	42.5	28.5
8.	18:00	33.0	42.0	28.0
9.	19:00	32.0	41.5	27.5
10.	20:00	31.0	40.0	26.0
11.	21:00	30.0	39.5	25.5
12.	22:00	28.0	37.0	24.0
13.	23:00	27.0	36.0	23.5
14.	24:00	26.0	35.0	23.5
15.	01:00	25.0	34.5	23.0
16.	02:00	24.0	33.0	23.5
17.	03:00	23.0	32.0	24.0
18.	04:00	22.0	31.0	25.0
19.	05:00	22.5	31.5	25.5
20.	06:00	23.0	32.0	26.0
21.	07:00	24.0	33.5	26.5
22.	08:00	25.0	34.0	27.0
23.	09:00	26.0	35.0	27.5
24.	10:00	27.0	36.0	28.0
24 hrs. Max.		35.0	44.0	30.0
24 hrs. Min.		22.0	31.0	23.0
24 hrs. Avg.		28.4	37.4	26.6

[Signature]
ANALYSED BY

[Signature]
CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067 Date: 07 / 08 / 2015

Variation in Temperature for the period of
January-2016 to June-2016 (Valia Block)

Sr. No.	Time in Hrs.	MONITORING DATE		
		Bi Monthly: Jan-16 to Feb.-16	Bi Monthly: March.-16 to April-16	Bi Monthly: May-16 to June-16
		28 / 03 / 16 & 29 / 03 / 16	23 / 05 / 16 & 24 / 05 / 16	08 / 07 / 16 & 09 / 07 / 16
1.	11:00	32.0	35.5	29.0
2.	12:00	34.0	37.0	30.0
3.	13:00	35.0	38.5	31.0
4.	14:00	35.5	39.0	31.5
5.	15:00	36.5	40.0	32.0
6.	16:00	36.0	39.5	31.5
7.	17:00	35.0	38.5	30.5
8.	18:00	34.5	38.0	30.0
9.	19:00	34.0	37.5	30.0
10.	20:00	33.5	37.0	29.5
11.	21:00	33.0	36.5	29.5
12.	22:00	32.0	35.5	29.5
13.	23:00	31.0	34.5	29.0
14.	24:00	30.0	33.5	29.0
15.	01:00	29.5	33.0	28.5
16.	02:00	28.5	32.0	28.5
17.	03:00	28.0	31.5	28.0
18.	04:00	27.0	30.5	27.5
19.	05:00	26.0	30.0	27.0
20.	06:00	25.7	29.5	26.5
21.	07:00	26.5	30.0	27.0
22.	08:00	27.5	31.0	27.5
23.	09:00	29.0	32.5	28.0
24.	10:00	31.0	34.5	28.5
	24 hrs. Max.	36.5	40.0	32.0
	24 hrs. Min.	25.7	29.5	26.5
	24 hrs. Avg.	31.3	34.8	29.1

[Signature]
ANALYSED BY

[Signature]
CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067 Date: 07 / 08 / 2015

Variation in Relative Humidity for the period of
January-2016 to June-2016(Mangrol Block)

Sr. No.	Time in Hrs.	MONITORING DATE		
		Bi Monthly: Jan-16 to Feb.-16	Bi Monthly: March.-16 to April-16	Bi Monthly: May-16 to June-16
		25 / 03 / 16 & 26 / 03 / 16	12 / 05 / 16 & 13 / 05 / 16	06 / 07 / 16 & 07 / 07 / 16
1.	11:00	62	26	57
2.	12:00	65	22	55
3.	13:00	66	19	51
4.	14:00	69	17	49
5.	15:00	67	20	52
6.	16:00	65	23	56
7.	17:00	63	25	59
8.	18:00	62	27	62
9.	19:00	60	30	65
10.	20:00	58	34	66
11.	21:00	55	37	66
12.	22:00	52	39	67
13.	23:00	48	41	67
14.	24:00	46	44	69
15.	01:00	44	46	73
16.	02:00	43	49	72
17.	03:00	42	52	70
18.	04:00	40	56	69
19.	05:00	44	50	66
20.	06:00	46	44	65
21.	07:00	48	39	65
22.	08:00	52	35	63
23.	09:00	56	32	62
24.	10:00	60	29	60
24 hrs. Max.		69.0	56.0	73.0
24 hrs. Min.		40.0	17.0	49.0
24 hrs. Avg.		54.7	34.8	62.8

[Signature]
ANALYSED BY

[Signature]
CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2015-16/6067 Date: 07 / 08 / 2015

Variation in Relative Humidity for the period of
January-2016 to June-2016 (Valia Block)

Sr. No.	Time in Hrs.	MONITORING DATE		
		Bi Monthly: Jan-16 to Feb.-16	Bi Monthly: March.-16 to April-16	Bi Monthly: May-16 to June-16
		28 / 03 / 16 & 29 / 03 / 16	23 / 05 / 16 & 24 / 05 / 16	08 / 07 / 16 & 09 / 07 / 16
1.	11:00	52	38	49
2.	12:00	49	34	47
3.	13:00	47	30	45
4.	14:00	46	28	43
5.	15:00	45	25	42
6.	16:00	46	29	45
7.	17:00	48	30	49
8.	18:00	50	32	51
9.	19:00	51	34	53
10.	20:00	52	38	56
11.	21:00	54	40	51
12.	22:00	55	42	53
13.	23:00	57	45	56
14.	24:00	58	48	59
15.	01:00	59	51	62
16.	02:00	60	54	65
17.	03:00	61	55	66
18.	04:00	62	58	69
19.	05:00	63	59	70
20.	06:00	64	59	70
21.	07:00	62	54	65
22.	08:00	60	47	58
23.	09:00	57	45	56
24.	10:00	54	41	52
24 hrs. Max.		64.0	59.0	70.0
24 hrs. Min.		45.0	25.0	42.0
24 hrs. Avg.		54.7	42.3	55.5

[Signature]
ANALYSED BY

[Signature]
CHECKED BY

Comparative Results For the Period of: January-2016 to June-2016

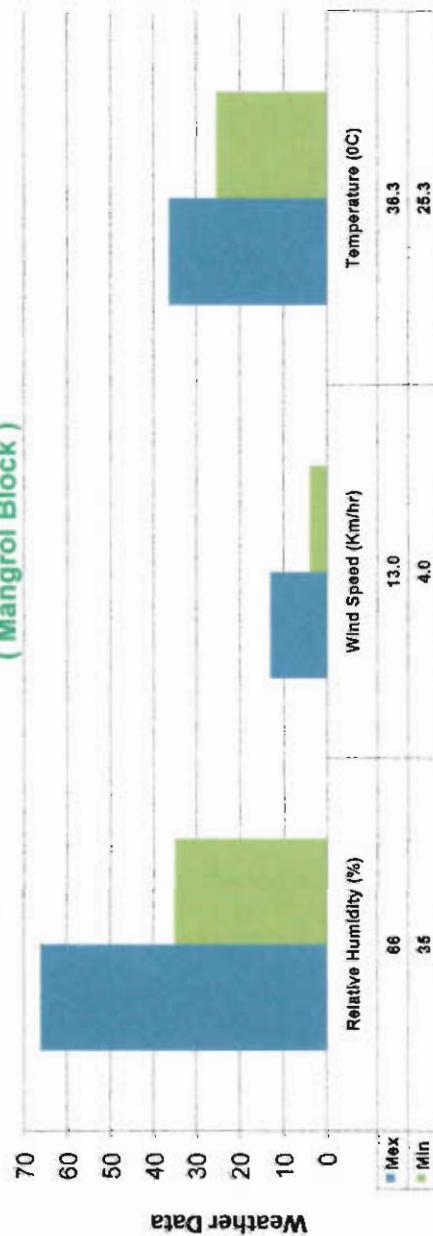
Period : January-2016 to June-2016



WEATHER MONITORING AT MANGROL BLOCK

Description	Relative Humidity (%)	Wind Speed (Km/hr)	Temperature (°C)
Max	66	13.0	36.3
Min	35	4.0	25.3

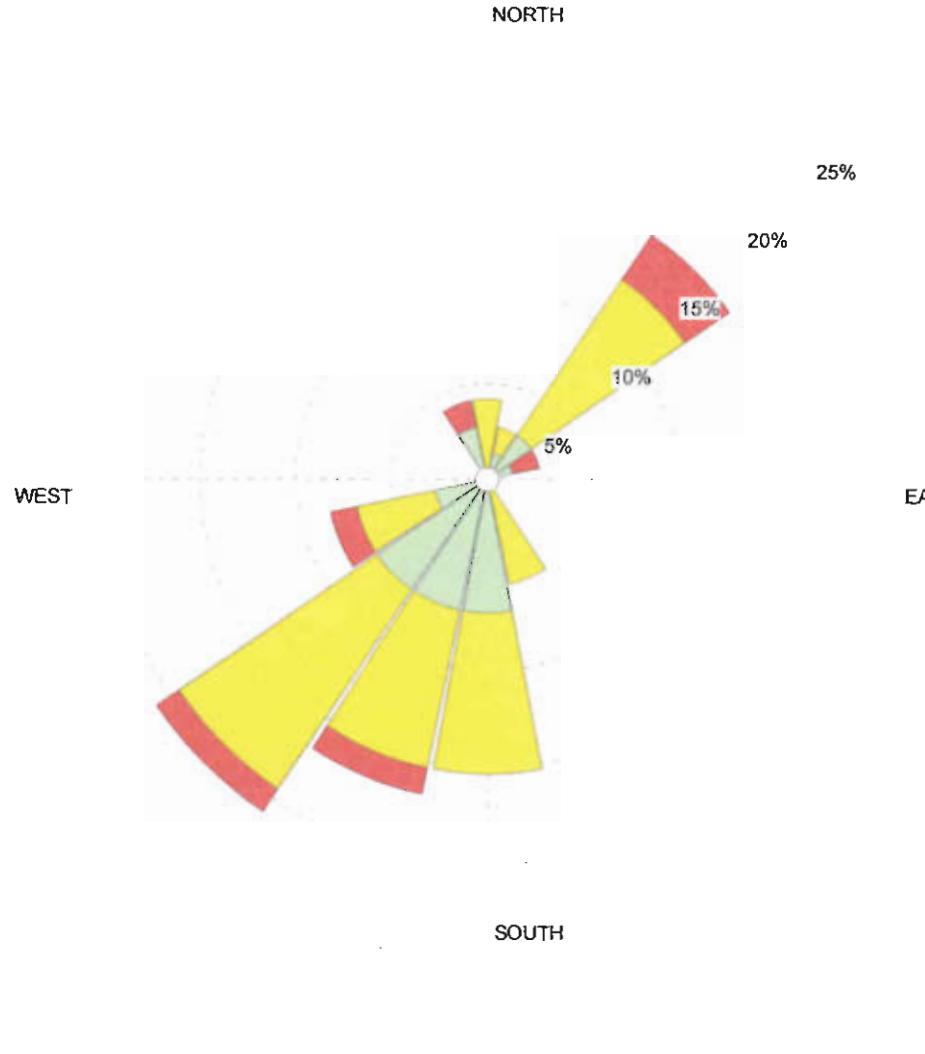
**Graphical Presentation of Weather data for various locations
(Mangrol Block)**



WIND ROSE PLOT:

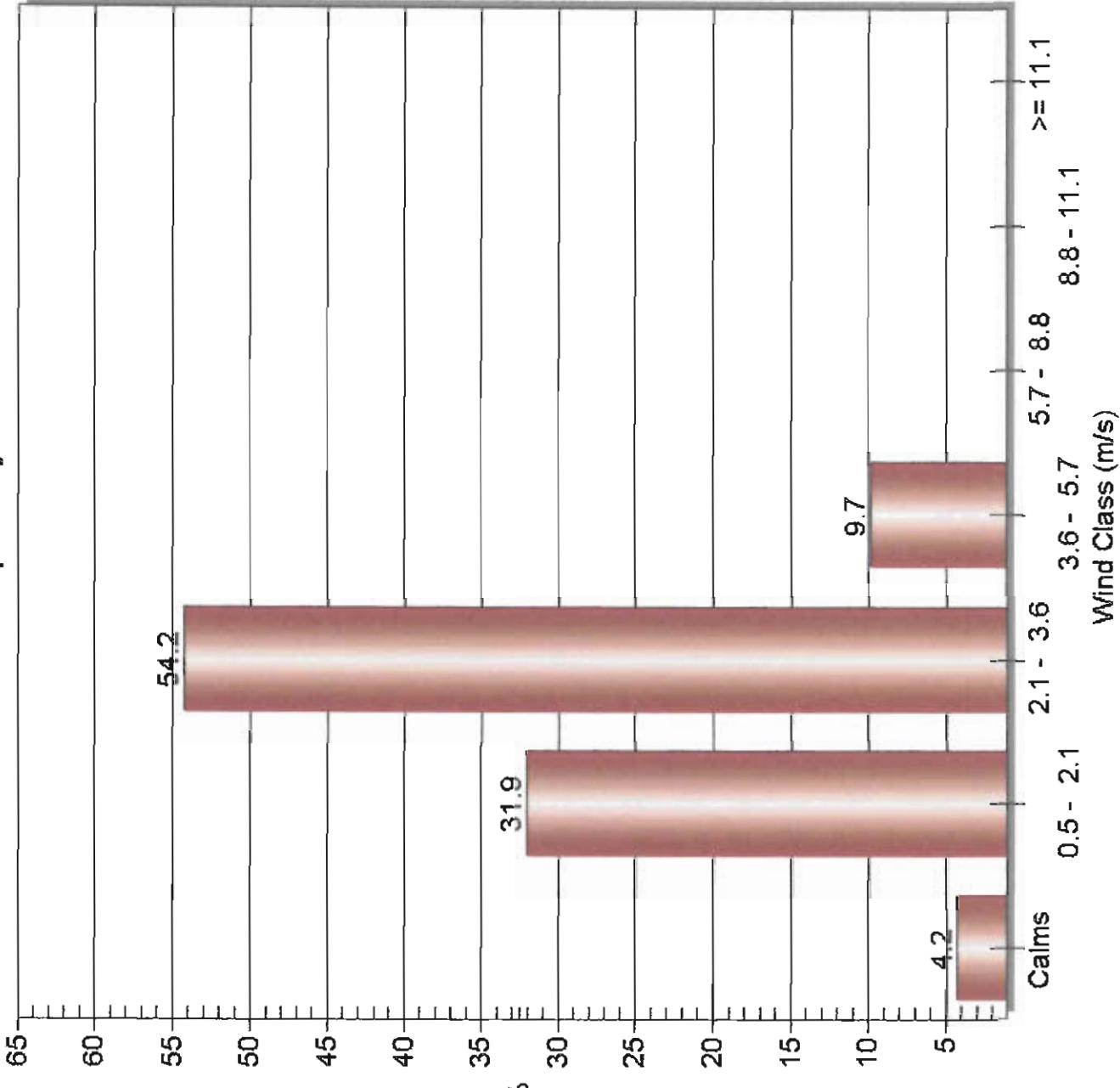
Station # 01

DISPLAY:

**Wind Speed
Direction (blowing from)**

COMMENTS:	DATA PERIOD: Start Date: 3/25/2016 - 00:00 End Date: 7/7/2016 - 10:00	COMPANY NAME: MODELER:
	CALM WINDS: 4.17%	TOTAL COUNT: 72 hrs.
	AVG. WIND SPEED: 2.30 m/s	DATE: 7/26/2016 PROJECT NO.:

Wind Class Frequency Distribution



Comparative Results For the Period of: January-2016 to June-2016

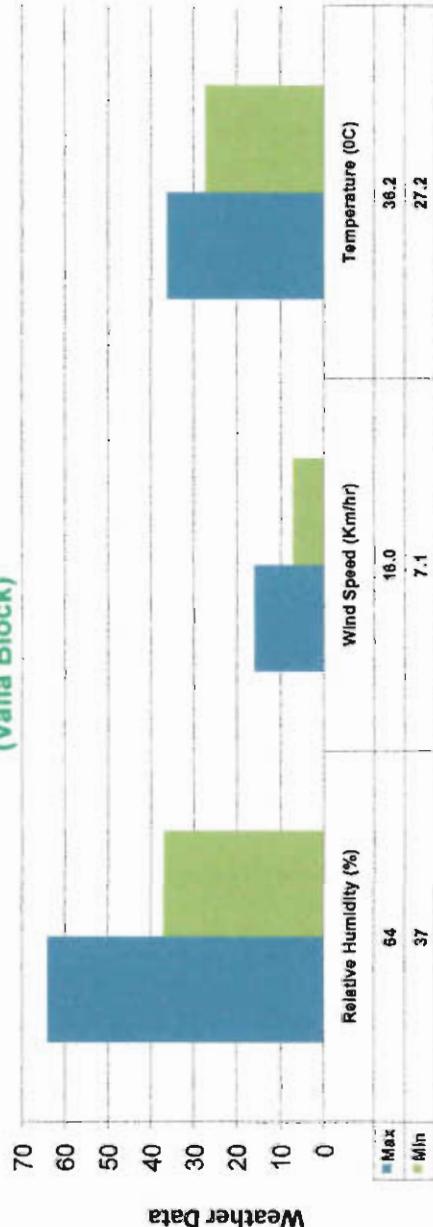
Period : January-2016 to June-2016



WEATHER MONITORING AT VALIA BLOCK

Description	Relative Humidity (%)	Wind Speed (Km/hr)	Temperature (°C)
Max	64	16.0	36.2
Min	37	7.1	27.2

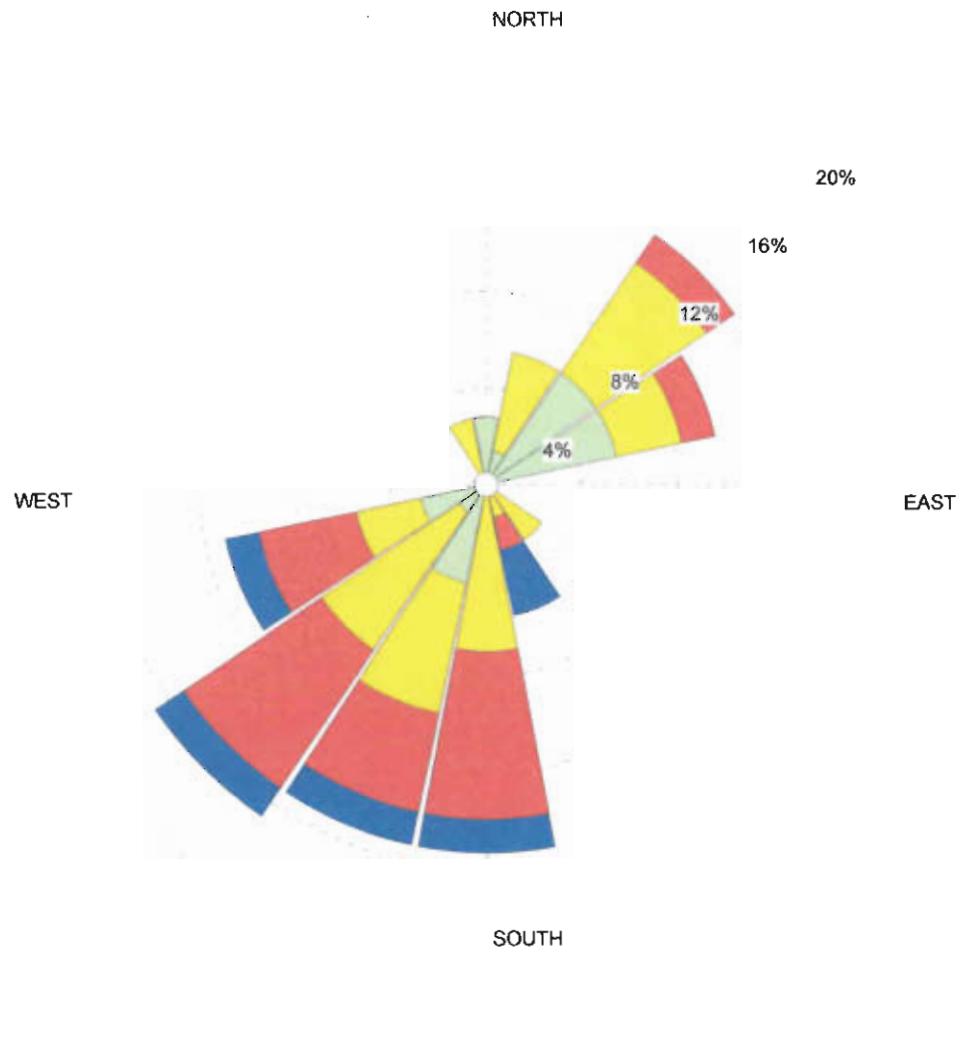
**Graphical Presentation of Weather data for various locations
(Valia Block)**



WIND ROSE PLOT:

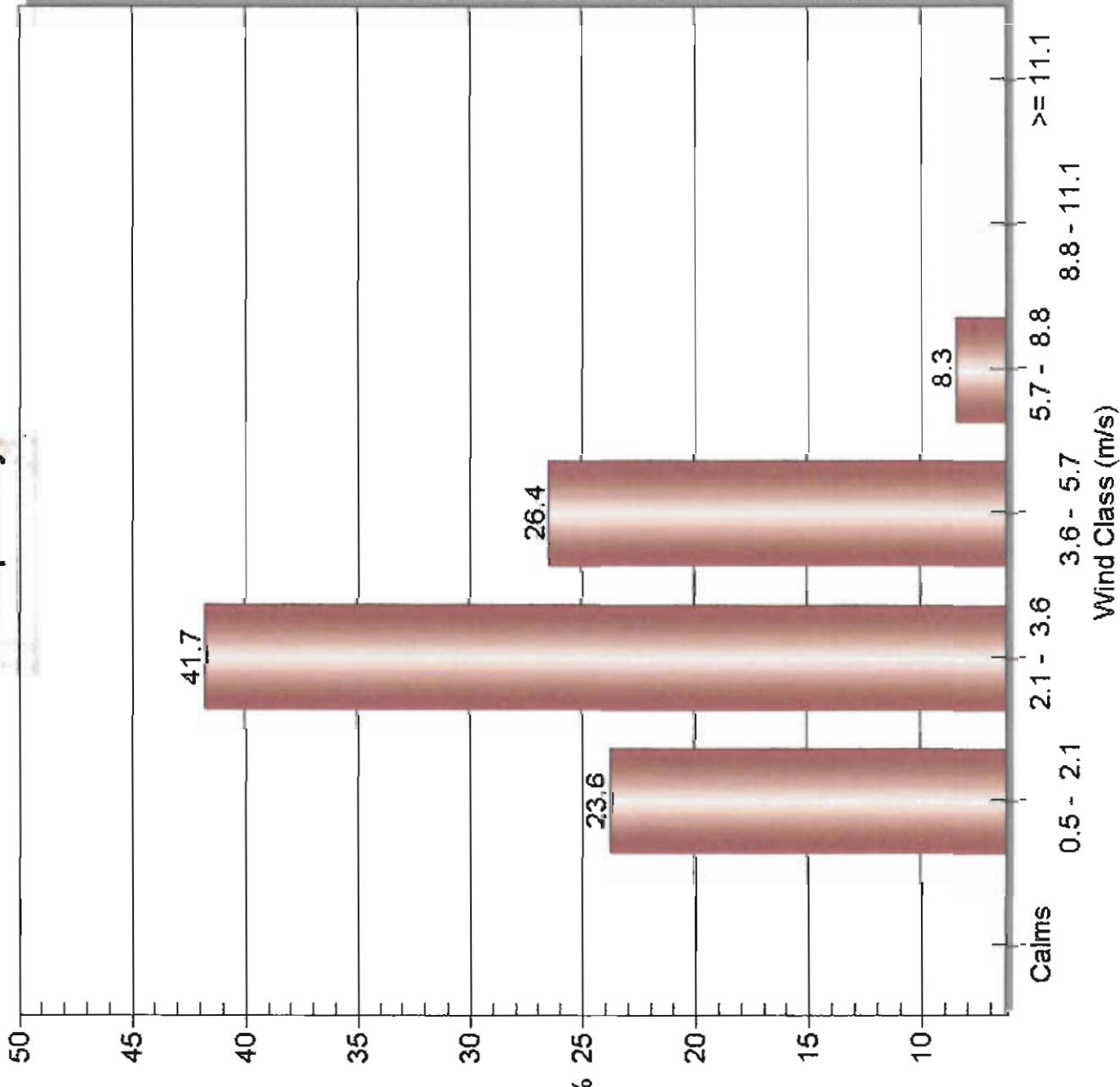
Station # 02

DISPLAY:

**Wind Speed
Direction (blowing from)**

COMMENTS:	DATA PERIOD: Start Date: 3/28/2016 - 00:00 End Date: 7/9/2016 - 10:00	COMPANY NAME: MODELER:
	CALM WINDS: 0.00%	TOTAL COUNT: 72 hrs.
	AVG. WIND SPEED: 3.18 m/s	DATE: 7/26/2016 PROJECT NO.:

Wind Class Frequency Distribution



**COMPARATIVE
REPORTS OF PEIOZOMETER
READING**



**Variation in Piezometer Reading for the period of
January-2016 to June-2016 (Valia Block)**

January-2016						
Logger ID	Date	Time	Battery Voltage	Total Depth of Bore Hole from Ground Level (in mts)	Depth of Sensor form Ground Level (in mts)	Water Level from Sensor to Top (in mts)
						Water Level from Ground Level (in Mts)
B9	1-Jan-16	12:00:00 PM	2.94	51.79	51.00	19.31
B9	3-Jan-16	12:00:00 PM	2.94	51.79	51.00	19.36
B9	5-Jan-16	12:00:00 PM	2.94	51.79	51.00	19.21
B9	7-Jan-16	12:00:00 PM	2.94	51.79	51.00	19.38
B9	9-Jan-16	12:00:00 PM	2.94	51.79	51.00	19.35
B9	11-Jan-16	12:00:00 PM	2.94	51.79	51.00	19.38
B9	13-Jan-16	12:00:00 PM	2.94	51.79	51.00	19.36
B9	15-Jan-16	12:00:00 PM	2.93	51.79	51.00	19.36
B9	17-Jan-16	12:00:00 PM	2.93	51.79	51.00	19.39
B9	19-Jan-16	12:00:00 PM	2.93	51.79	51.00	19.36
B9	21-Jan-16	12:00:00 PM	2.93	51.79	51.00	19.31
B9	23-Jan-16	12:00:00 PM	2.93	51.79	51.00	19.36
B9	25-Jan-16	12:00:00 PM	2.93	51.79	51.00	19.39
B9	27-Jan-16	12:00:00 PM	2.93	51.79	51.00	19.36
B9	29-Jan-16	12:00:00 PM	2.93	51.79	51.00	19.31
B9	31-Jan-16	12:00:00 PM	2.93	51.79	51.00	19.39

Work Order No: SLPP/Mines/Envt. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

**Variation in Peizometer Reading for the period of
January-2016 to June-2016 (Valia Block)**

February-2016						
Logger ID	Date	Time	Battery Voltage	Total Depth of Bore Hole from Ground Level (in mts)	Depth of Sensor form Ground Level (in mts)	Water Level from Sensor to Top (in mts)
B9	2-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.36
B9	4-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.21
B9	6-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.38
B9	8-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.35
B9	10-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.38
B9	12-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.36
B9	14-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.36
B9	16-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.39
B9	18-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.36
B9	20-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.31
B9	22-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.30
B9	24-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.30
B9	26-Feb-16	12:00:00 PM	2.92	51.79	51.00	19.05
B9	28-Feb-16	12:00:00 PM	2.92	51.79	51.00	18.98

Work Order No: SLPP/Mines/Envnt. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

**Variation in Peizometer Reading for the period of
January-2016 to June-2016 (Valia Block)**

March-2016						
Logger ID	Date	Time	Battery Voltage	Total Depth of Bore Hole from Ground Level (in mts)	Water Level from Sensor to Top (in mts)	Water Level from Ground Level (in Mts)
B9	1-Mar-16	12:00:00 PM	2.91	51.79	51.00	18.96
B9	3-Mar-16	12:00:00 PM	2.92	51.79	51.00	19.08
B9	5-Mar-16	12:00:00 PM	2.92	51.79	51.00	18.92
B9	7-Mar-16	12:00:00 PM	2.92	51.79	51.00	18.91
B9	9-Mar-16	12:00:00 PM	2.92	51.79	51.00	18.90
B9	11-Mar-16	12:00:00 PM	2.92	51.79	51.00	18.91
B9	13-Mar-16	12:00:00 PM	2.92	51.79	51.00	18.89
B9	15-Mar-16	12:00:00 PM	2.92	51.79	51.00	18.91
B9	17-Mar-16	12:00:00 PM	2.91	51.79	51.00	18.86
B9	19-Mar-16	12:00:00 PM	2.91	51.79	51.00	18.79
B9	21-Mar-16	12:00:00 PM	2.91	51.79	51.00	18.79
B9	23-Mar-16	12:00:00 PM	2.91	51.79	51.00	18.88
B9	25-Mar-16	12:00:00 PM	2.91	51.79	51.00	18.85
B9	27-Mar-16	12:00:00 PM	2.91	51.79	51.00	18.71
B9	29-Mar-16	12:00:00 PM	2.91	51.79	51.00	18.72
B9	31-Mar-16	12:00:00 PM	2.91	51.79	51.00	18.63



Work Order No: SLPP/Mines/Envnt. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

**Variation in Piezometer Reading for the period of
January-2016 to June-2016 (Valia Block)**

April-2016						
Logger ID	Date	Time	Battery Voltage	Total Depth of Bore Hole from Ground Level (in mts)	Depth of Sensor from Ground Level (in mts)	Water Level from Sensor to Top (in mts)
B9	2-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.67
B9	4-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.68
B9	6-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.59
B9	8-Apr-16	12:00:00 PM	2.92	51.79	51.00	18.59
B9	10-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.69
B9	12-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.58
B9	14-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.57
B9	16-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.54
B9	18-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.71
B9	20-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.67
B9	22-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.44
B9	24-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.50
B9	26-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.47
B9	28-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.44
B9	30-Apr-16	12:00:00 PM	2.91	51.79	51.00	18.51



Work Order No: SLPP/Mines/Envnt. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

**Variation in Peizometer Reading for the period of
January-2016 to June-2016 (Valia Block)**

Logger ID	Date	Time	Battery Voltage	Total Depth of Bore Hole from Ground Level (in mts)	Depth of Sensor form Ground Level (in mts)	Water Level from Sensor to Top (in mts)	Water Level from Ground Level (in Mts)	Temperature	Coefficient of Pressure
									May-2016
B9	2-May-16	12:00:00 PM	2.91	51.79	51.00	18.47	32.53	28.10	1003.10
B9	4-May-16	12:00:00 PM	2.91	51.79	51.00	18.45	32.55	28.10	1003.00
B9	6-May-16	12:00:00 PM	2.91	51.79	51.00	18.35	32.65	28.10	1003.70
B9	8-May-16	12:00:00 PM	2.91	51.79	51.00	18.33	32.67	28.10	1004.30
B9	10-May-16	12:00:00 PM	2.91	51.79	51.00	18.41	32.59	28.10	1003.80
B9	12-May-16	12:00:00 PM	2.91	51.79	51.00	18.37	32.63	28.10	1001.50
B9	14-May-16	12:00:00 PM	2.91	51.79	51.00	18.28	32.72	28.10	1003.20
B9	16-May-16	12:00:00 PM	2.91	51.79	51.00	18.31	32.69	28.10	1000.50
B9	18-May-16	12:00:00 PM	2.91	51.79	51.00	18.33	32.67	28.10	996.60
B9	20-May-16	12:00:00 PM	2.91	51.79	51.00	18.25	32.75	28.10	997.20
B9	22-May-16	12:00:00 PM	2.91	51.79	51.00	18.19	32.81	28.10	1000.50
B9	24-May-16	12:00:00 PM	2.91	51.79	51.00	18.17	32.83	28.10	1001.80
B9	26-May-16	12:00:00 PM	2.91	51.79	51.00	18.26	32.74	28.10	1001.20
B9	28-May-16	12:00:00 PM	2.91	51.79	51.00	18.17	32.83	28.10	1002.30
B9	30-May-16	12:00:00 PM	2.91	51.79	51.00	18.16	32.84	28.10	1000.40



Work Order No: SLPP/Mines/Envt. Monitoring 2015-16/6067

Date: 07 / 08 / 2015

**Variation in Peizometer Reading for the period of
January-2016 to June-2016 (Valia Block)**

June-2016						
Logger ID	Date	Time	Battery Voltage	Total Depth of Bore Hole from Ground Level (in mts)	Depth of Sensor form Ground Level (in mts)	Water Level from Sensor to Top (in mts)
B9	1-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.18
B9	3-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.15
B9	5-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.13
B9	7-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.16
B9	9-Jun-16	12:00:00 PM	2.91	51.79	51.00	18.14
B9	11-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.11
B9	13-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.05
B9	15-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.07
B9	17-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.18
B9	19-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.06
B9	21-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.12
B9	23-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.24
B9	25-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.19
B9	27-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.08
B9	29-Jun-16	12:00:00 PM	2.90	51.79	51.00	18.10
B9	1-Jul-16	12:00:00 PM	2.90	51.79	51.00	18.22