

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

SIX MONTHLY

**ENVIRONMENTAL MONITORING & ANALYSIS
REPORT**

**FOR THE PERIOD OF
JANUARY - 2017 TO JUNE - 2017**



ENPRO
Environment.
Energy. Water
Project Consultant

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, TalukaMangrol. 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 concerted 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 approx. 120° and at a distance of approx. 2 Kms, from nearby stationary 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 stationary 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 (PM₁₀), 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 µm 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 nd 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 2016-17/3756 Date: 18 / 07 / 2016

Monthly Variation in January-2017 to June-2017

Report Period: January-2017 to June-2017

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

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			17/03/17 11:10 am	11/05/17 01:30 pm	05/07/17 11:30 am
General Parameters					
1.	pH (at 26 ^o C)	-	7.37	7.54	6.93
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	^o C	30	35	28
4.	Total Suspended Solids (TSS)	mg/L	26	42	68
5.	Total Dissolved Solids (TDS)	mg/L	469	394	680
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	0.4	1.5	0.32
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27 ^o C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	64	43	89
11.	Sulphate (as SO ₄ ⁻²)	mg/L	55	51	76
12.	Phosphate (as PO ₄)	mg/L	1.9	2.2	1.7
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	1.2	1.1	0.6
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	105	94	130
18.	Total Alkalinity	mg/L	140	155	90

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			17/03/17 11:10 am	11/05/17 01:30 pm	05/07/17 11:30 am
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.72	0.63	0.81
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ⁺)	mg/L	0.42	0.35	0.29
22.	Hexavalent Chromium (asCr ⁺⁶)	mg/L	0.05	0.06	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	41	38	45
26.	Magnesium (as Mg)	mg/L	5.4	7.1	6.7
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 2016-17/3756 Date: 18 / 07 / 2016

Monthly Variation in January-2017 to June-2017

Report Period: January-2017 to June-2017

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

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			17/03/17 11:20 am	11/05/17 02:00 pm	05/07/17 12:05 pm
General Parameters					
1.	pH (at 26 ^o C)	-	7.45	7.23	7.31
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	^o C	30	35	28
4.	Total Suspended Solids (TSS)	mg/L	34	52	24
5.	Total Dissolved Solids (TDS)	mg/L	394	456	196
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 ^o C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	39	57	39
11.	Sulphate (as SO ₄ ⁻²)	mg/L	21	38	18
12.	Phosphate (as PO ₄)	mg/L	2.7	2.5	1.3
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.4	0.6	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	150	195	90
18.	Total Alkalinity	mg/L	80	95	100

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			17/03/17 11:20 am	11/05/17 02:00 pm	05/07/17 12:05 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.54	0.42	0.66
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ³⁺)	mg/L	0.36	0.24	0.11
22.	Hexavalent Chromium (as Cr ⁺⁶)	mg/L	BDL	BDL	0.02
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	44	56	40
26.	Magnesium (as Mg)	mg/L	14.2	13.5	17.1
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.


ANALYSED BY


CHECKED BY

Work Order No: SLPP/Mines/Env't. Monitoring 2016-17/3756 Date: 18 / 07 / 2016

Monthly Variation in January-2017 to June-2017

Report Period: January-2017 to June-2017

Sample: Bore well water Shah Village (Mangrol Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			17/03/17 12:20 pm	11/05/17 02:20 pm	05/07/17 12:25 pm
General Parameters					
1.	pH (at 26 ^o C)	-	7.60	7.45	7.11
2.	Color	Pt.Co.	Colorless	colorless	Colorless
3.	Temperature	^o C	30	34	28
4.	Total Suspended Solids (TSS)	mg/L	18	22	12
5.	Total Dissolved Solids (TDS)	mg/L	596	780	468
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 ^o C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	125	169	116
11.	Sulphate (as SO ₄ ⁻²)	mg/L	34	53	40
12.	Phosphate (as PO ₄)	mg/L	1.1	1.3	1.9
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.5	0.7	1.2
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	155	160	140
18.	Total Alkalinity	mg/L	290	275	230

...contd



Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			17/03/17 12:20 pm	11/05/17 02:20 pm	05/07/17 12:25 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.41	0.38	0.25
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ³⁺)	mg/L	0.32	0.46	0.51
22.	Hexavalent Chromium (asCr ⁺⁶)	mg/L	BDL	BDL	0.02
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	55	51	48
26.	Magnesium (as Mg)	mg/L	15.4	16.2	11.6
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.


ANALYSED BY


CHECKED BY

Work Order No: SLPP/Mines/Env. Monitoring 2016-17/3756 Date: 18 / 07 / 2016

Monthly Variation in January-2017 to June-2017

Report Period: January-2017 to June-2017

Sample: Bore well water Mosali Village (Mangrol Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			17/03/17 12:30 pm	11/05/17 02:30 pm	05/07/17 12:50 pm
General Parameters					
1.	pH (at 26 ^o C)	-	7.29	7.33	7.72
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	^o C	30	35	28
4.	Total Suspended Solids (TSS)	mg/L	32	36	36
5.	Total Dissolved Solids (TDS)	mg/L	972	1125	1304
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 ^o C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	179	202	321
11.	Sulphate (as SO ₄ ⁻²)	mg/L	141	156	205
12.	Phosphate (as PO ₄)	mg/L	1.6	1.0	2.4
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.8	0.65	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	255	278	480
18.	Total Alkalinity	mg/L	390	481	550

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			17/03/17 12:30 pm	11/05/17 02:30 pm	05/07/17 12:50 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.61	0.72	0.56
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ³⁺)	mg/L	0.39	0.39	0.45
22.	Hexavalent Chromium (asCr 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	60	78	95
26.	Magnesium (as Mg)	mg/L	13.9	14.7	21.3
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.


ANALYSED BY


CHECKED BY

Monthly Variation in January-2017 to June-2017

Report Period: January-2017 to June-2017

Sample: Bore Water Charetha Village (Mangrol Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			17/03/17 12:40 pm	11/05/17 02:35 pm	05/07/17 01:20 pm
General Parameters					
1.	pH (at 26 ^o C)	-	7.54	7.69	7.33
2.	Color	Pt. Co.	Colorless	Colorless	Colorless
3.	Temperature	^o C	32	36	28
4.	Total Suspended Solids (TSS)	mg/L	40	38	46
5.	Total Dissolved Solids (TDS)	mg/L	980	1140	1056
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 ^o C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	94	115	100
11.	Sulphate (as SO ₄ ⁻²)	mg/L	73	78	66
12.	Phosphate (as PO ₄)	mg/L	1.0	1.5	0.9
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.3	0.7	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	320	335	411
18.	Total Alkalinity	mg/L	510	458	352

...contd



ENPRO
Environment
Energy Water
Project Consultant

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			17/03/17 12:40 pm	11/05/17 02:35 pm	05/07/17 01:20 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.45	0.48	0.68
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr)	mg/L	0.26	0.39	0.29
22.	Hexavalent Chromium (asCr ⁺⁶)	mg/L	0.03	0.05	0.04
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	36	47	89
26.	Magnesium (as Mg)	mg/L	23.4	24.6	38.5
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/Envt. Monitoring 2016-17/3756 Date: 18 / 07 / 2016

Monthly Variation in January-2017 to June-2017

Report Period: January-2017 to June-2017

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

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 03:35 pm	12/05/17 10:20 am	06/07/17 11:20 am
General Parameters					
1.	pH (at 26 ^o C)	-	7.22	6.95	7.74
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	^o C	30	35	28
4.	Total Suspended Solids (TSS)	mg/L	32	66	36
5.	Total Dissolved Solids (TDS)	mg/L	712	828	665
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	0.32	0.16	0.8
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27 ^o C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	342	423	297
11.	Sulphate (as SO ₄ ⁻²)	mg/L	81	87	64
12.	Phosphate (as PO ₄)	mg/L	0.8	0.4	0.2
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.5	1.2	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	173	205	120
18.	Total Alkalinity	mg/L	290	230	380

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 03:35 pm	12/05/17 10:20 am	06/07/17 11:20 am
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.48	0.55	0.52
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr')	mg/L	0.30	0.41	0.21
22.	Hexavalent Chromium (asCr ⁺⁶)	mg/L	0.05	0.07	0.03
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	42	32
26.	Magnesium (as Mg)	mg/L	15.5	21.3	20.4
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 2016-17/3756 Date: 18 / 07 / 2016

Monthly Variation in January-2017 to June-2017

Report Period: January-2017 to June-2017

Sample: Bore well water Anoi Village (Valia Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 03:50 pm	12/05/17 10:30 am	06/07/17 12:50 pm
General Parameters					
1.	pH (at 26 ^o C)	-	7.05	7.61	7.14
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	^o C	30	34	26
4.	Total Suspended Solids (TSS)	mg/L	50	78	52
5.	Total Dissolved Solids (TDS)	mg/L	674	540	768
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	0.24	0.66	1.0
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27 ^o C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	215	191	271
11.	Sulphate (as SO ₄ ⁻²)	mg/L	59	42	70
12.	Phosphate (as PO ₄)	mg/L	0.7	0.9	1.0
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.3	BDL	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	210	175	390
18.	Total Alkalinity	mg/L	275	360	270

...contd



ENPRO
Environment
Energy Water
Project Consultant

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 03:50 pm	12/05/17 10:30 am	06/07/17 12:50 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.66	0.23	0.58
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ⁺)	mg/L	0.51	0.36	0.29
22.	Hexavalent Chromium (asCr ⁺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	72	37	130
26.	Magnesium (as Mg)	mg/L	30	17.6	34
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/Envt. Monitoring 2016-17/3756 Date: 18 / 07 / 2016

Monthly Variation in January-2017 to June-2017

Report Period: January-2017 to June-2017

Sample: Bore well water Kosmadi Village (Valia Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 04:00 pm	12/05/17 10:35 am	06/07/17 11:55 am
General Parameters					
1.	pH (at 26 ^o C)	-	7.52	7.63	7.28
2.	Color	Pt. Co.	Colorless	Colorless	Colorless
3.	Temperature	^o C	30	36	28
4.	Total Suspended Solids (TSS)	mg/L	16	24	20
5.	Total Dissolved Solids (TDS)	mg/L	824	636	734
6.	Total Volatile Solids (TVS)	mg/L	BDL	BDL	BDL
7.	Oil & Grease	mg/L	1.6	1.4	2.0
8.	COD	mg/L	-	-	-
9.	BOD (3 days at 27 ^o C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	145	126	192
11.	Sulphate (as SO ₄ ⁻²)	mg/L	136	114	165
12.	Phosphate (as PO ₄)	mg/L	0.5	1.2	0.4
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.63	0.44	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	280	235	290
18.	Total Alkalinity	mg/L	410	385	270

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 04:00 pm	12/05/17 10:35 am	06/07/17 11:55 am
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.49	0.66	0.74
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ³⁺)	mg/L	0.58	0.29	0.49
22.	Hexavalent Chromium (asCr ⁺⁶)	mg/L	0.08	0.02	0.07
23.	Zinc (as Zn)	mg/L	BDL	BDL	BDL
24.	Lead (as Pb)	mg/L	BDL	BDL	BDL
25.	Calcium (as Ca)	mg/L	140	92	115
26.	Magnesium (as Mg)	mg/L	40.3	53.6	46
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't. Monitoring 2016-17/3756 Date: 18 / 07 / 2016

Monthly Variation in January-2017 to June-2017

Report Period: January-2017 to June-2017

Sample: Bore well water Bhaga Village (Valia Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 04:20 pm	12/05/17 10:50 am	06/07/17 10:25 am
General Parameters					
1.	pH (at 26 ^o C)	-	7.21	6.87	7.42
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	^o C	30	35	28
4.	Total Suspended Solids (TSS)	mg/L	24	40	50
5.	Total Dissolved Solids (TDS)	mg/L	1012	954	642
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 ^o C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	398	376	284
11.	Sulphate (as SO ₄ ⁻²)	mg/L	149	132	120
12.	Phosphate (as PO ₄)	mg/L	1.2	0.5	0.7
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	0.7	0.62	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	350	285	220
18.	Total Alkalinity	mg/L	320	260	315

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 04:20 pm	12/05/17 10:50 am	06/07/17 10:25 am
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.35	0.43	0.22
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr)	mg/L	0.29	0.20	0.32
22.	Hexavalent Chromium (asCr ⁺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	54	46	62.14
26.	Magnesium (as Mg)	mg/L	16.1	22.8	25
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 2016-17/3756 Date: 18 / 07 / 2016

Monthly Variation in January-2017 to June-2017

Report Period: January-2017 to June-2017

Sample: Bore well water Dansoli Village (Valia Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 04:35 pm	12/05/17 11:05 am	06/07/17 03:05 pm
General Parameters					
1.	pH (at 26 ^o C)	-	6.93	7.23	7.09
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	^o C	30	34	28
4.	Total Suspended Solids (TSS)	mg/L	84	38	40
5.	Total Dissolved Solids (TDS)	mg/L	830	586	692
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 ^o C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	242	164	253
11.	Sulphate (as SO ₄ ⁻²)	mg/L	173	153	139
12.	Phosphate (as PO ₄)	mg/L	0.8	0.6	1.2
13.	Phenolic Compound	mg/L	BDL	BDL	BDL
14.	Fluorides (as F ⁻)	mg/L	BDL	0.23	BDL
15.	Free available Chlorine	mg/L	Nil	Nil	Nil
16.	Total Residual Chlorine	mg/L	Nil	Nil	Nil
17.	Total Hardness	mg/L	290	195	260
18.	Total Alkalinity	mg/L	200	220	380

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 04:35 pm	12/05/17 11:05 am	06/07/17 03:05 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.51	0.39	0.42
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr)	mg/L	0.68	0.55	0.26
22.	Hexavalent Chromium (asCr ⁺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	60	68
26.	Magnesium (as Mg)	mg/L	17.4	26.3	21.9
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.


ANALYSED BY


CHECKED BY

Work Order No: SLPP/Mines/Envnt. Monitoring 2016-17/3756

Date: 18 / 07 / 2016

Monthly Variation in January-2017 to June-2017

Report Period: January-2017 to June-2017

Sample: Bore well water Harsani Village (Valia Block)

Sr. no.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 04:00 pm	12/05/17 12:40 pm	06/07/17 12:05 pm
General Parameters					
1.	pH (at 26 ^o C)	-	6.84	7.35	7.03
2.	Color	Pt.Co.	Colorless	Colorless	Colorless
3.	Temperature	^o C	30	34	28
4.	Total Suspended Solids (TSS)	mg/L	62	28	40
5.	Total Dissolved Solids (TDS)	mg/L	806	794	722
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 ^o C)	mg/L	-	-	-
Chemical Parameters					
10.	Chlorides (as Cl ⁻)	mg/L	175	160	169
11.	Sulphate (as SO ₄ ⁻²)	mg/L	161	143	126
12.	Phosphate (as PO ₄)	mg/L	0.7	1.4	0.4
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	240	225	145
18.	Total Alkalinity	mg/L	210	250	205

...contd

Sr. No.	TEST PARAMETER	UNIT	SAMPLING DATE & TIME		
			Bi Monthly: Jan-17 to Feb-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
			20/03/17 04:00 pm	12/05/17 12:40 pm	06/07/17 12:05 pm
Heavy Metals					
19.	Iron (as Fe)	mg/L	0.42	0.27	0.33
20.	Copper (as Cu)	mg/L	BDL	BDL	BDL
21.	Total Chromium (as Cr ⁺)	mg/L	0.34	0.51	0.19
22.	Hexavalent Chromium (asCr ⁺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	39.2	25.6	32.3
26.	Magnesium (as Mg)	mg/L	10.2	12.9	9.6
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.


ANALYSED BY


CHECKED BY

**BORE WATER'S
COMPARATIVE ANALYSIS
REPORTS**

Comparative Results For the Period of: January-2017 to June-2017

Parameter : TSS (mg/L)

Period : January-2017 to June-2017



ENPRO
ENVIRONMENT,
ENERGY & WATER
Project Consultant

COMPARATIVE RESULTS OF TSS FOR VARIOUS LOCATIONS

Description	Charetha Shah Nala (Down Stream)	Shah Nailah (UP Stream)	Bore Water Shah Village	Bore Water Mosali Village	Bore Water Charetha Village
Bi Monthly: Jan-17 to Feb-17	26	34	18	32	40
Bi Monthly: March-17 to April-17	42	52	22	36	38
Bi Monthly: May-17 to June-17	68	24	12	36	46

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



Comparative Results For the Period of: January-2017 to June-2017

Parameter : TDS (mg/L)

Period : January-2017 to June-2017



ENPRO
Environment
Energy, Water
Project Consultancy

COMPARATIVE RESULTS OF TDS FOR VARIOUS LOCATIONS

Description	Charetha Shah Nala (Down Steam)	Shah Nallah (UP Stream)	Bore Water Shah Village	Bore Water Mosali Village	Bore Water Charetha Village
BI Monthly: Jan-17 to Feb-17	469	394	596	972	980
BI Monthly: March-17 to April-17	394	456	780	1125	1140
BI Monthly: May-17 to June-17	680	196	468	1304	1056



Comparative Results For the Period of: January-2017 to June-2017

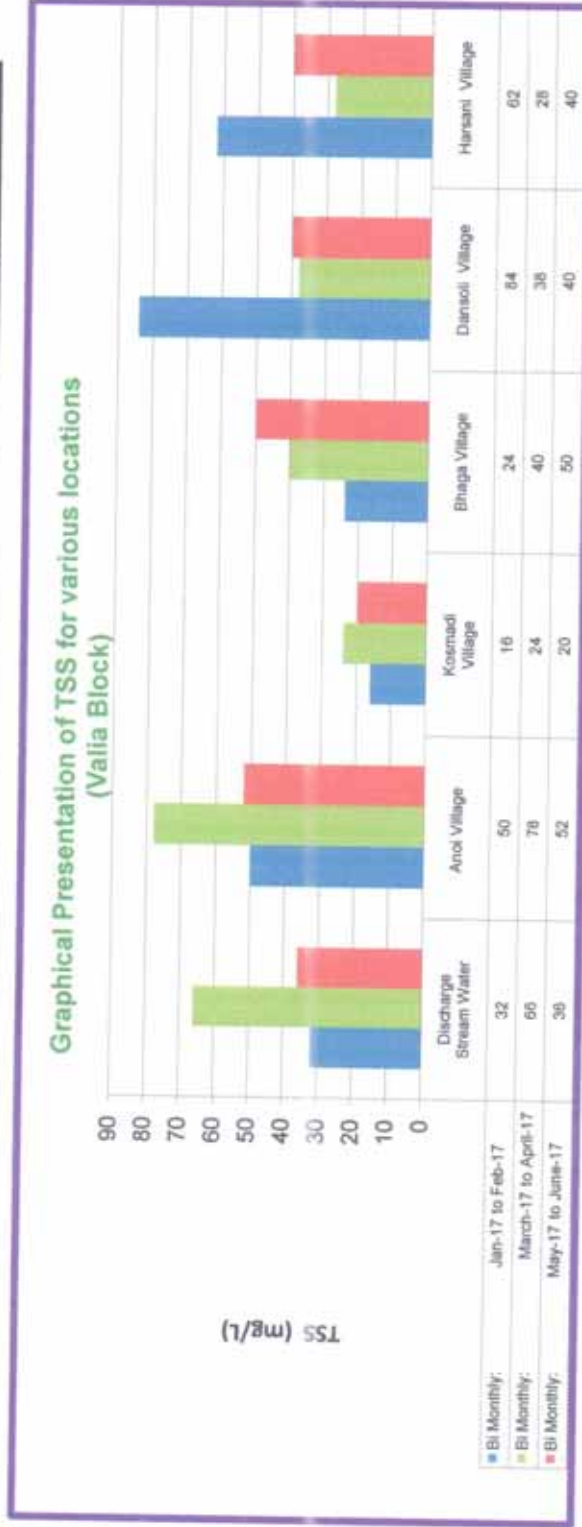
Parameter : TSS (mg/L)

Period : January-2017 to June-2017



COMPARATIVE RESULTS OF TSS FOR VARIOUS LOCATIONS

Description	Discharge Stream Water	Anol Village	Kosmadi Village	Bhaga Village	Dansoli Village	Harsani Village
Bi Monthly: Jan-17 to Feb-17	32	50	16	24	84	62
Bi Monthly: March-17 to April-17	66	78	24	40	38	28
Bi Monthly: May-17 to June-17	36	52	20	50	40	40



Comparative Results For the Period of: January-2017 to June-2017

TDS (mg/L) (mg/L)

Period : January-2017 to June-2017



ENPRO
Environment,
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-17 to Feb-17	712	674	824	1012	830	806
Bi Monthly: March-17 to April-17	828	540	636	954	586	794
Bi Monthly: May-17 to June-17	665	768	734	642	692	722



**AMBIENT AIR
COMPARATIVE ANALYSIS
REPORTS**

Comparative Results For the Period of: January-2017 to June-2017
Parameter : PM₁₀ (Particulate Matter) (µg/m³)
Period : January-2017 to June-2017



ENPRO
 Environmental
 Energy, Water
 Project Consultants

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-17 to Feb.-17	70.8	72.9	53.7	67.3	75.3	69.6	70.0
BI Monthly: March-17 to April-17	78.3	69.4	60.7	70.7	73.6	75.1	81.9
BI Monthly: May-17 to June-17	72.6	62.6	64.7	81.3	79.2	59.4	87.1
GPCB Limit	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Graphical Presentation of PM₁₀ for various locations (Mangroi Block)



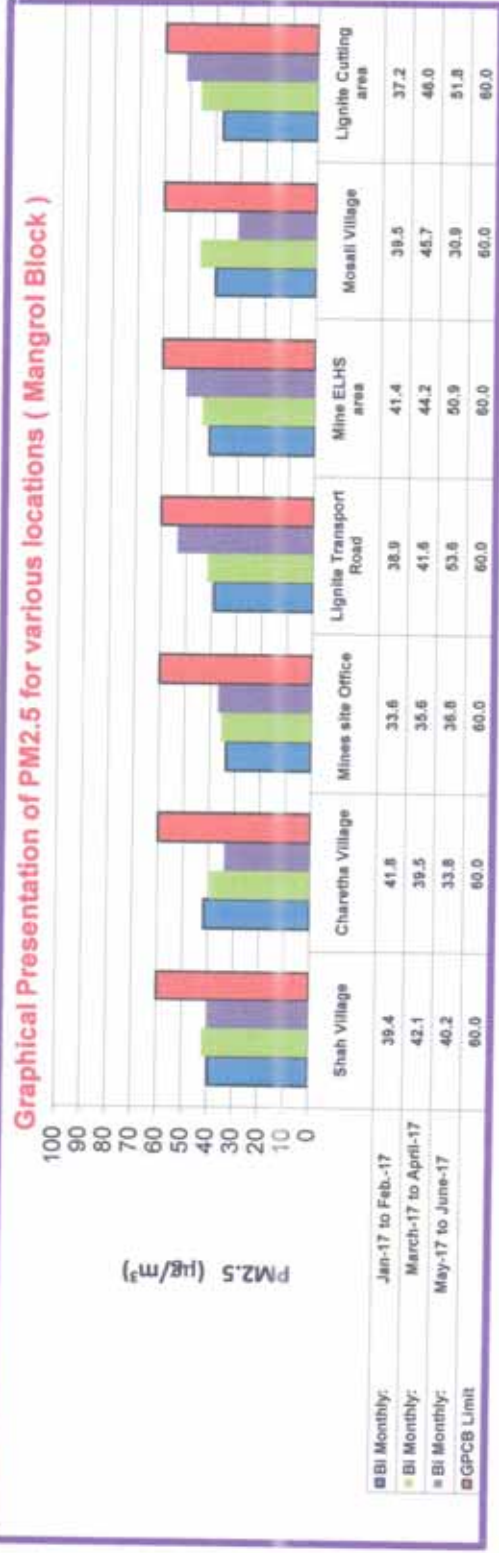
Comparative Results For the Period of: January-2017 to June-2017
Parameter : PM_{2.5} (Particulate Matter) (µg/m³)
Period : January-2017 to June-2017



ENPRO
 ENVIRONMENTAL
 ENERGY & WATER
 PROJECT CONSULTANT

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-17 to Feb.-17	39.4	41.8	33.6	38.9	41.4	39.5	37.2
Bi Monthly: March-17 to April-17	42.1	39.5	35.6	41.6	44.2	45.7	46.0
Bi Monthly: May-17 to June-17	40.2	33.8	36.8	53.6	50.9	30.9	51.8
GPCB Limit	60.0	60.0	60.0	60.0	60.0	60.0	60.0



Comparative Results For the Period of: January-2017 to June-2017

Parameter : Sulfur Dioxide (SO₂) (µg/m³)

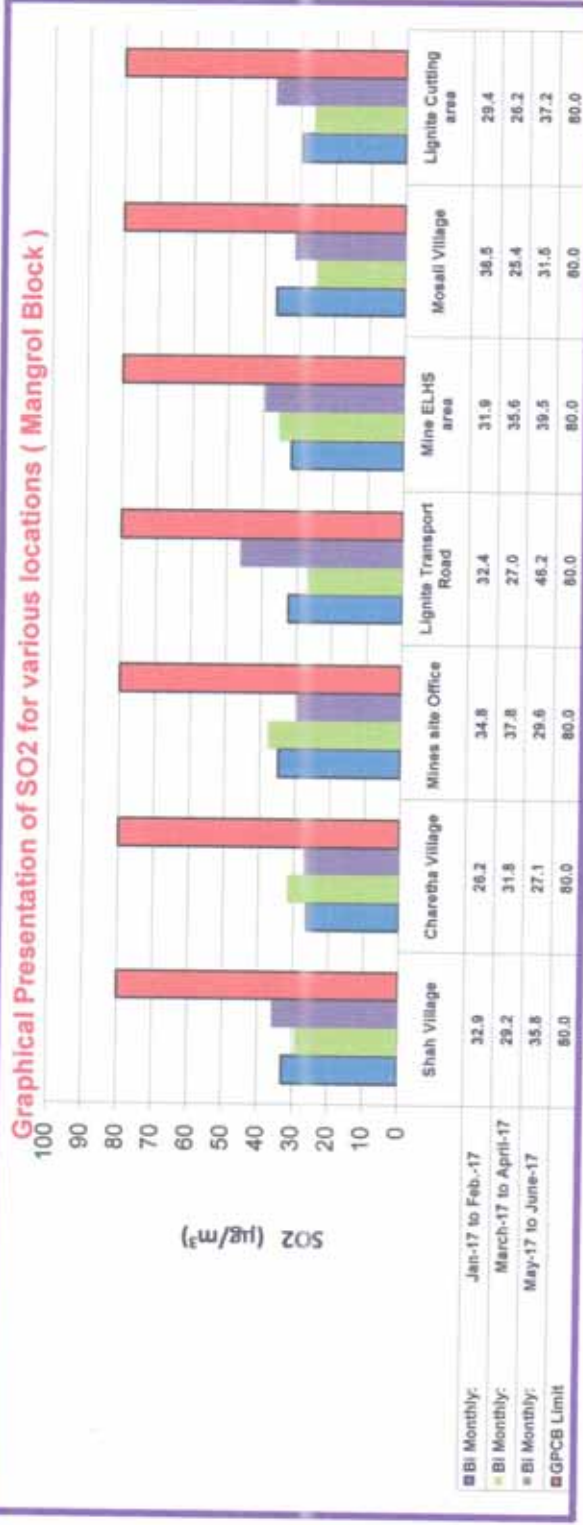
Period : January-2017 to June-2017



ENPRO
Environment,
Energy, Water
Project Consultants

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-17 to Feb.-17	32.9	26.2	34.8	32.4	31.9	36.5	29.4
BI Monthly: March-17 to April-17	29.2	31.8	37.8	27.0	35.6	25.4	26.2
BI Monthly: May-17 to June-17	35.8	27.1	29.6	46.2	39.5	31.5	37.2
GPCB Limit	80.0	80.0	80.0	80.0	80.0	80.0	80.0



Comparative Results For the Period of: January-2017 to June-2017

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

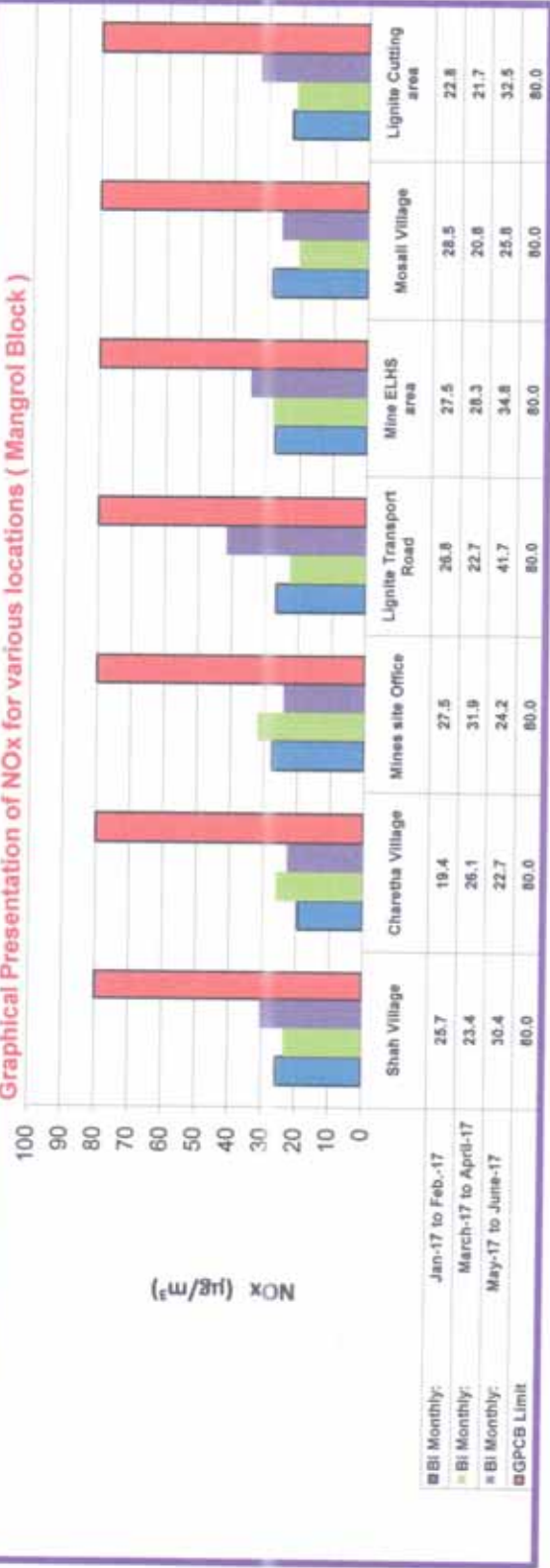
Period : January-2017 to June-2017



COMPARATIVE RESULTS OF NO_x 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-17 to Feb.-17	25.7	19.4	27.5	26.8	27.5	28.5	22.8
Bi Monthly: March-17 to April-17	23.4	26.1	31.9	22.7	28.3	20.8	21.7
Bi Monthly: May-17 to June-17	30.4	22.7	24.2	41.7	34.8	25.8	32.5
GPCB Limit	80.0	80.0	80.0	80.0	80.0	80.0	80.0

Graphical Presentation of NO_x for various locations (Mangrol Block)



Comparative Results For the Period of: January-2017 to June-2017

Parameter : Carbon Monoxide (CO)($\mu\text{g}/\text{m}^3$)
 Period : January-2017 to June-2017

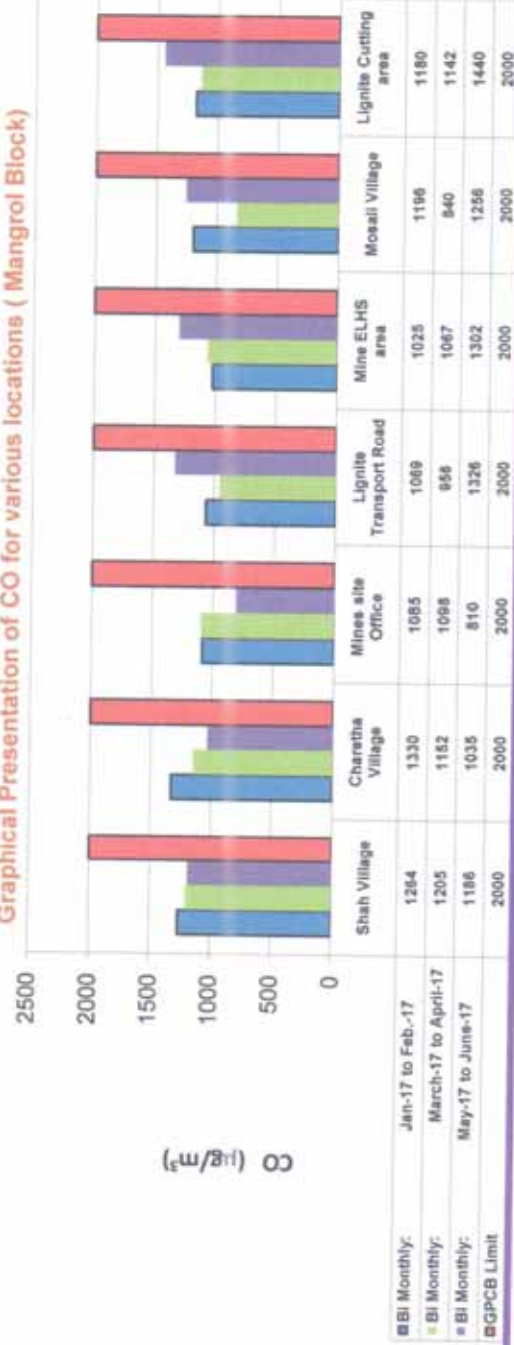


ENPRO
 Environment
 Energy, Water
 Project Consultant

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-17 to Feb.-17	1284	1330	1085	1069	1025	1196	1180
Bi Monthly: March-17 to April-17	1205	1152	1098	956	1067	840	1142
Bi Monthly: May-17 to June-17	1186	1035	810	1326	1302	1256	1440
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-2017 to June-2017

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

Period : January-2017 to June-2017

COMPARATIVE RESULTS OF PM₁₀ FOR VARIOUS LOCATIONS

Description	Mines Cutting Area	Over Burden Dump	Bhaga Village	Kosmali Village	Dansoli Village	Moramballi Village	Harsani Village	Feeder Breaker Area
Bi Monthly: Jan-17 to Feb.-17	81.4	78.2	52.0	68.5	66.8	68.2	63.1	75.0
Bi Monthly: March-17 to April-17	89.2	83.5	60.7	72.6	70.2	71.8	69.0	80.3
Bi Monthly: May-17 to June-17	61.4	67.2	56.4	65.4	51.7	57.5	53.6	84.9
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 (Vallia Block)



Comparative Results For the Period of: January-2017 to June-2017

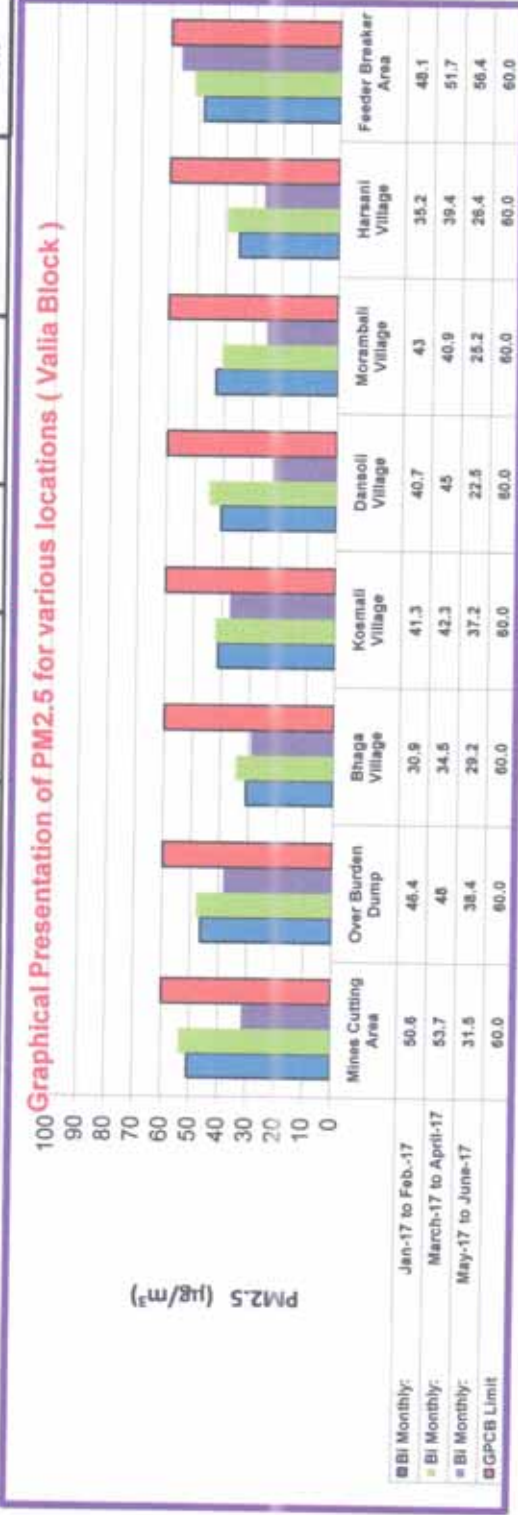
Parameter : PM_{2.5} (Particulate Matter) (µg/m³)

Period : January-2017 to June-2017



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-17 to Feb.-17	50.6	46.4	30.9	41.3	40.7	43	35.2	48.1
BI Monthly: March-17 to April-17	53.7	48	34.5	42.3	45	40.9	39.4	51.7
BI Monthly: May-17 to June-17	31.5	38.4	29.2	37.2	22.5	25.2	26.4	56.4
GPCB Limit	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0



Comparative Results For the Period of: January-2017 to June-2017

Parameter : Sulfur Dioxide (SO₂) (µg/m³)
 Period : January-2017 to June-2017



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-17 to Feb-17	39.1	30.3	37.5	29.7	32.1	29.7	23.0	34.0
Bi Monthly: March-17 to April-17	45.2	37.1	29.3	33.4	25.1	23.2	32.6	41.3
Bi Monthly: May-17 to June-17	28.9	34.9	26.1	31.5	20.3	17.7	22.9	38.6
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 (Valia Block)



Comparative Results For the Period of : January-2017 to June-2017

Parameter : Oxide of Nitrogen (NO_x) (µg/m³)
 Period : January-2017 to June-2017



COMPARATIVE RESULTS OF NO_x FOR VARIOUS LOCATIONS

Description	Mines Cutting Area	Over Burden Dump	Bhaga Village	Kosmali Village	Dansoli Village	Moramballi Village	Harsani Village	Feeder Breaker Area
Bi Monthly: Jan-17 to Feb.-17	31.5	24.2	32.0	22.1	24.0	22.0	17.5	28.3
Bi Monthly: March-17 to April-17	37.4	28.2	23.5	25.0	18.7	16.8	23.2	32.1
Bi Monthly: May-17 to June-17	20.1	25.8	21.9	27.7	16.8	13.6	19.2	29.8
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 (Vaia Block)



Comparative Results For the Period of: January-2017 to June-2017

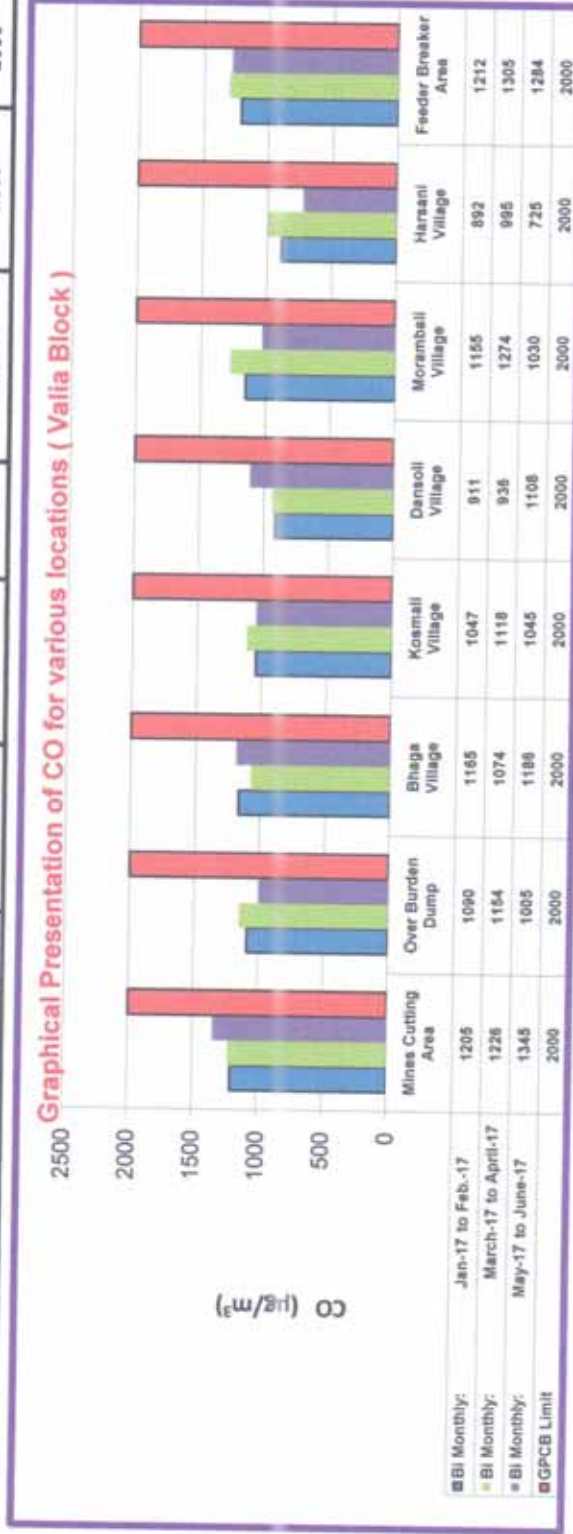
Parameter : Carbon Monoxide (CO)($\mu\text{g}/\text{m}^3$)

Period : January-2017 to June-2017



COMPARATIVE RESULTS OF CARBON MONOXIDE FOR VARIOUS LOCATIONS

Description	Mines Cutting Area	Over Burden Dump	Bhaga Village	Koamali Village	Dansoli Village	Moramali Village	Harsani Village	Feeder Breaker Area
Bi Monthly: Jan-17 to Feb.-17	1205	1090	1165	1047	911	1155	892	1212
Bi Monthly: March-17 to April-17	1226	1154	1074	1118	936	1274	995	1305
Bi Monthly: May-17 to June-17	1345	1005	1186	1045	1108	1030	725	1284
GPCB Limit	2000	2000	2000	2000	2000	2000	2000	2000



**DUST FALL MONITORING
COMPARATIVE ANALYSIS
REPORTS**

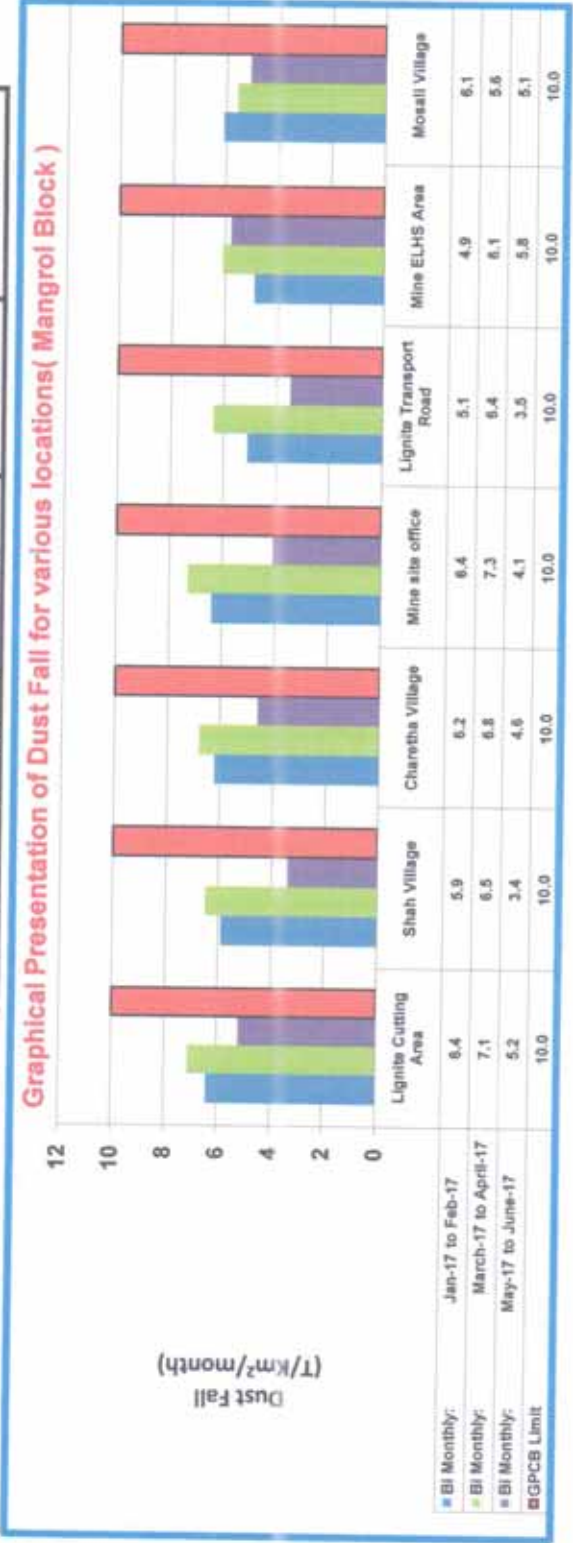
Comparative Results For the Period of: January-2017 to June-2017

Parameter : Dust Fall (T/Km²/month)
 Period : January-2017 to June-2017



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-17 to Feb-17	6.4	5.9	6.2	6.4	5.1	4.9	6.1
Bi Monthly: March-17 to April-17	7.1	6.5	6.8	7.3	6.4	6.1	5.6
Bi Monthly: May-17 to June-17	5.2	3.4	4.6	4.1	3.5	5.8	5.1
GPCB Limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0



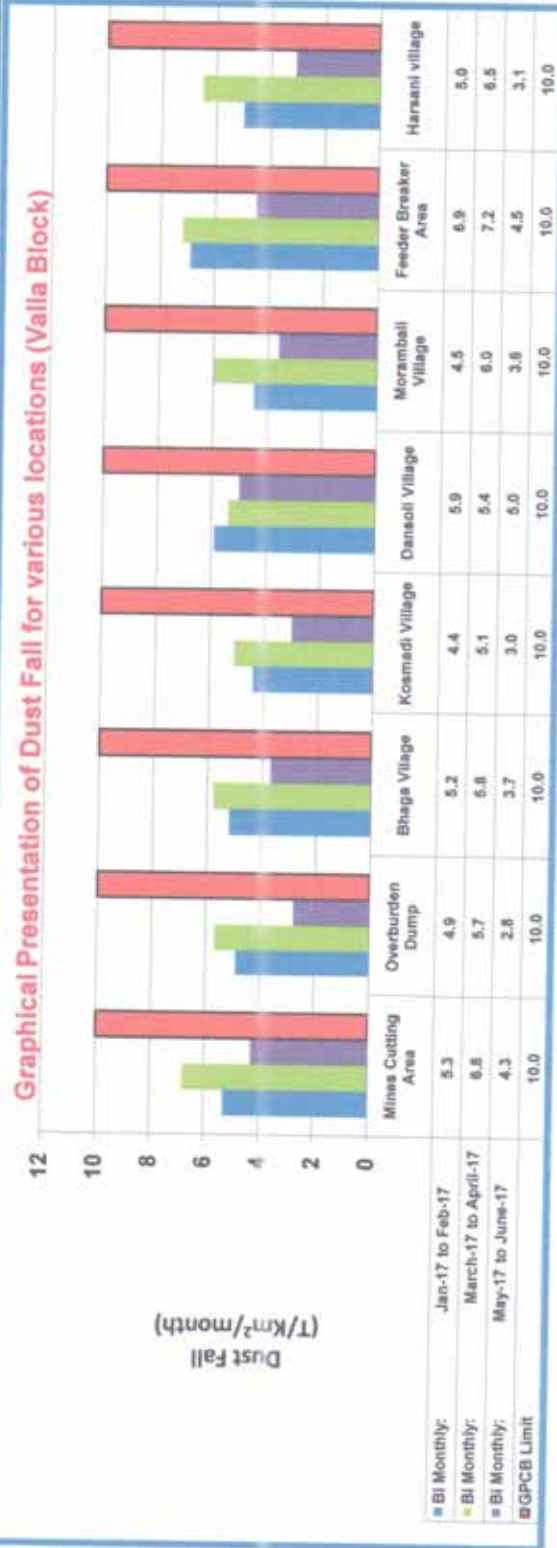
Comparative Results For the Period of: January-2017 to June-2017

Parameter : Dust Fall (T/Km²/month)
 Period : January-2017 to June-2017



COMPARATIVE RESULTS OF DUST FALL FOR VARIOUS LOCATIONS

Description	Mines Cutting Area	Overburden Dump	Bhaga Village	Kosmadi Village	Dansoli Village	Morambali Village	Feeder Breaker Area	Harsani village
Bi Monthly: Jan-17 to Feb-17	5.3	4.9	5.2	4.4	5.9	4.5	6.9	5.0
Bi Monthly: March-17 to April-17	6.8	5.7	5.8	5.1	5.4	6.0	7.2	6.5
Bi Monthly: May-17 to June-17	4.3	2.8	3.7	3.0	5.0	3.6	4.5	3.1
GPCB Limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0



**NOISE LEVEL
COMPARATIVE ANALYSIS
REPORTS**

Comparative Results For the Period of: January-2017 to June-2017

Parameter : Noise Level (For Day Time) dB(A)Leq.

Period : January-2017 to June-2017



ENPRO
ENGINEERING
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-17 to Feb-17	65.3	67.6	64.1		60.2	61.4	71.6	72.7
Bi Monthly: March-17 to April-17	67.9	70.2	66.7		62.8	64.0	74.2	74.3
Bi Monthly: May-17 to June-17	59.7	68.4	57.3		58.7	61.9	63.4	65.7
Limits as per GPCB – CC & A	75	75	75		75	75	75	75



Comparative Results For the Period of: January-2017 to June-2017

Parameter : Noise Level (For Night Time) dB(A)Leq.

Period : January-2017 to June-2017



ENPRO
ENVIRONMENTAL
ENERGY & WATER
Project Consultant

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-17 to Feb-17	60.7	63	59.5		55.6	56.8	67	68.1		
Bi Monthly: March-17 to April-17	62.5	64.8	61.3		57.4	58.6	68.8	69.9		
Bi Monthly: May-17 to June-17	54.1	59.9	52.4		55.7	56.3	60.6	60.1		
Limits as per GPCB - CC & A	70	70	70		70	70	70	70		



Comparative Results For the Period of: January-2017 to June-2017

Parameter : Noise Level (For Day Time) dB(A)Leq.
 Period : January-2017 to June-2017



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

Description	Mines Cutting Area	Overburden Dump	Bhaga Village	Kosmadi Village	Dansoli Village	Morambali Village	Harsani Village	Feeder Breaker area
BI Monthly: Jan-17 to Feb-17	68.6	64.7	56.4	58.3	62.8	55.6	62.8	71.6
BI Monthly: March-17 to April-17	71.9	68.0	59.7	61.6	66.1	58.4	66.2	73.9
BI Monthly: May-17 to June-17	66.8	70.2	64.7	54.8	63.2	66.5	69.7	71.4
Limits as per GPCB – CC & A	75	75	75	75	75	75	75	75

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



Comparative Results For the Period of: January-2017 to June-2017

Parameter : Noise Level (For Night Time) dB(A)Leq.

Period : January-2017 to June-2017



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

Description	Mines Cutting Area	Overburden Dump	Bhaga Village	Kosmadi Village	Dansoli Village	Morambali Village	Harsani Village	Feeder Breaker area
Bi Monthly: Jan-17 to Feb-17	63.5	59.8	51.2	53.1	55.8	50.5	57.5	66.0
Bi Monthly: March-17 to April-17	66.3	62.4	54.1	56.0	60.5	52.8	62.6	69.3
Bi Monthly: May-17 to June-17	62.3	64.1	57.2	51.7	58.8	60.1	59.7	66.2
Limits as per GPCB – CC & A	70	70	70	70	70	70	70	70





ENPRO
Environment
Energy, Water
Project Consultant

Work Order No: SLPP/Mines/Envt. Monitoring 2016-17/3756 Date: 18 / 07 / 2016

Variation in Temperature for the period of
January-2017 to June-2017 (Mangrol Block)

Sr. No.	Time in Hrs.	MONITORING DATE		
		Bi Monthly: Jan-17 to Feb.-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
		17 / 03 / 17 & 18 / 03 / 17	11 / 05 / 17 & 12 / 05 / 17	05 / 07 / 17 & 06 / 07 / 17
1.	11:00	32.0	37.0	28.5
2.	12:00	33.0	38.0	29.5
3.	13:00	33.5	38.5	30.0
4.	14:00	34.0	39.0	31.0
5.	15:00	35.0	40.0	32.0
6.	16:00	35.0	40.0	31.5
7.	17:00	34.0	39.0	30.5
8.	18:00	33.0	38.0	29.0
9.	19:00	32.0	37.0	28.0
10.	20:00	30.0	35.0	27.5
11.	21:00	30.0	35.0	27.5
12.	22:00	29.0	34.0	27.0
13.	23:00	27.0	32.5	26.5
14.	24:00	26.0	31.0	25.0
15.	01:00	25.0	30.0	24.5
16.	02:00	24.0	29.5	23.5
17.	03:00	23.0	28.0	22.0
18.	04:00	22.0	27.0	22.0
19.	05:00	23.0	28.0	22.5
20.	06:00	24.0	29.0	23.5
21.	07:00	26.0	31.0	24.0
22.	08:00	28.0	33.0	25.5
23.	09:00	30.0	35.0	26.5
24.	10:00	31.0	36.0	27.0
	24 hrs. Max.	35.0	40.0	32.0
	24 hrs. Min.	22.0	27.0	22.0
	24 hrs. Avg.	29.1	34.2	26.9


ANALYSED BY


CHECKED BY

Work Order No: SLPP/Mines/Envnt. Monitoring 2016-17/3756 Date: 18 / 07 / 2016

**Variation in Temperature for the period of
January-2017 to June-2017 (Valia Block)**

Sr. No.	Time in Hrs.	MONITORING DATE		
		Bi Monthly: Jan-17 to Feb.-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
		20 / 03 / 17 & 21 / 03 / 17	12 / 05 / 17 & 13 / 05 / 17	07 / 07 / 17 & 08 / 07 / 17
1.	11:00	29.0	36.0	26.0
2.	12:00	30.0	37.0	27.5
3.	13:00	31.0	38.0	28.0
4.	14:00	32.0	39.0	28.5
5.	15:00	33.0	40.0	28.0
6.	16:00	32.5	39.5	27.5
7.	17:00	31.5	38.5	27.0
8.	18:00	31.0	38.0	26.5
9.	19:00	30.0	37.0	25.5
10.	20:00	29.0	36.0	24.5
11.	21:00	28.0	35.5	23.5
12.	22:00	27.0	34.0	22.5
13.	23:00	26.0	33.0	21.5
14.	24:00	25.0	32.5	21.0
15.	01:00	24.0	31.0	20.5
16.	02:00	23.0	30.0	20.0
17.	03:00	22.0	29.0	19.5
18.	04:00	21.0	28.0	19.0
19.	05:00	20.0	25.0	18.5
20.	06:00	21.0	28.0	17.0
21.	07:00	22.0	29.0	19.5
22.	08:00	23.0	30.0	21.5
23.	09:00	25.0	32.0	23.0
24.	10:00	27.0	34.0	24.5
	24 hrs. Max.	33.0	40.0	28.5
	24 hrs. Min.	20.0	25.0	17.0
	24 hrs. Avg.	26.8	33.8	23.4


ANALYSED BY


CHECKED BY



ENPRO
Environment,
Energy, Water
Project Consultant

Work Order No: SLPP/Mines/Envt. Monitoring 2016-17/3756 Date: 18 / 07 / 2016

**Variation in Relative Humidity for the period of
January-2017 to June-2017(Mangrol Block)**

Sr. No.	Time in Hrs.	MONITORING DATE		
		Bi Monthly: Jan-17 to Feb.-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
		17 / 03 / 17 & 18 / 03 / 17	11 / 05 / 17 & 12 / 05 / 17	05 / 07 / 17 & 06 / 07 / 17
1.	11:00	40	32	54
2.	12:00	36	32	50
3.	13:00	36	30	48
4.	14:00	34	29	44
5.	15:00	30	28	42
6.	16:00	30	32	43
7.	17:00	34	33	45
8.	18:00	36	34	49
9.	19:00	40	34	52
10.	20:00	44	36	56
11.	21:00	44	39	58
12.	22:00	49	40	62
13.	23:00	52	40	64
14.	24:00	56	41	68
15.	01:00	60	42	72
16.	02:00	62	42	74
17.	03:00	65	42	76
18.	04:00	68	44	76
19.	05:00	65	42	74
20.	06:00	63	40	72
21.	07:00	58	39	70
22.	08:00	50	37	68
23.	09:00	45	35	64
24.	10:00	42	34	60
24 hrs. Max.		68.0	44.0	76.0
24 hrs. Min.		30.0	28.0	42.0
24 hrs. Avg.		47.5	36.5	60.0


ANALYSED BY


CHECKED BY



ENPRO
Environment,
Energy, Water
Project Consultant

Work Order No: SLPP/Mines/Envt. Monitoring 2016-17/3756 Date: 18 / 07 / 2016

**Variation in Relative Humidity for the period of
January-2017 to June-2017 (Valia Block)**

Sr. No.	Time in Hrs.	MONITORING DATE		
		Bi Monthly: Jan-17 to Feb.-17	Bi Monthly: March-17 to April-17	Bi Monthly: May-17 to June-17
		20 / 03 / 17 & 21 / 03 / 17	12 / 05 / 17 & 13 / 05 / 17	07 / 07 / 17 & 08 / 07 / 17
1.	11:00	52	36	53
2.	12:00	46	34	52
3.	13:00	42	33	50
4.	14:00	38	30	48
5.	15:00	34	29	46
6.	16:00	35	28	46
7.	17:00	41	31	46
8.	18:00	43	32	47
9.	19:00	48	33	47
10.	20:00	53	36	48
11.	21:00	56	37	48
12.	22:00	59	38	50
13.	23:00	61	39	53
14.	24:00	63	39	53
15.	01:00	66	39	56
16.	02:00	68	40	56
17.	03:00	70	40	59
18.	04:00	71	41	59
19.	05:00	71	42	62
20.	06:00	70	42	65
21.	07:00	68	40	59
22.	08:00	65	39	58
23.	09:00	59	38	56
24.	10:00	55	38	55
	24 hrs. Max.	71.0	42.0	65.0
	24 hrs. Min.	34.0	28.0	46.0
	24 hrs. Avg.	55.6	36.4	53.0


ANALYSED BY


CHECKED BY

**WEATHER MONITORING
DATA**

Comparative Results For the Period of: January-2017 to June-2017

Period : January-2017 to June-2017



WEATHER MONITORING AT MANGROL BLOCK

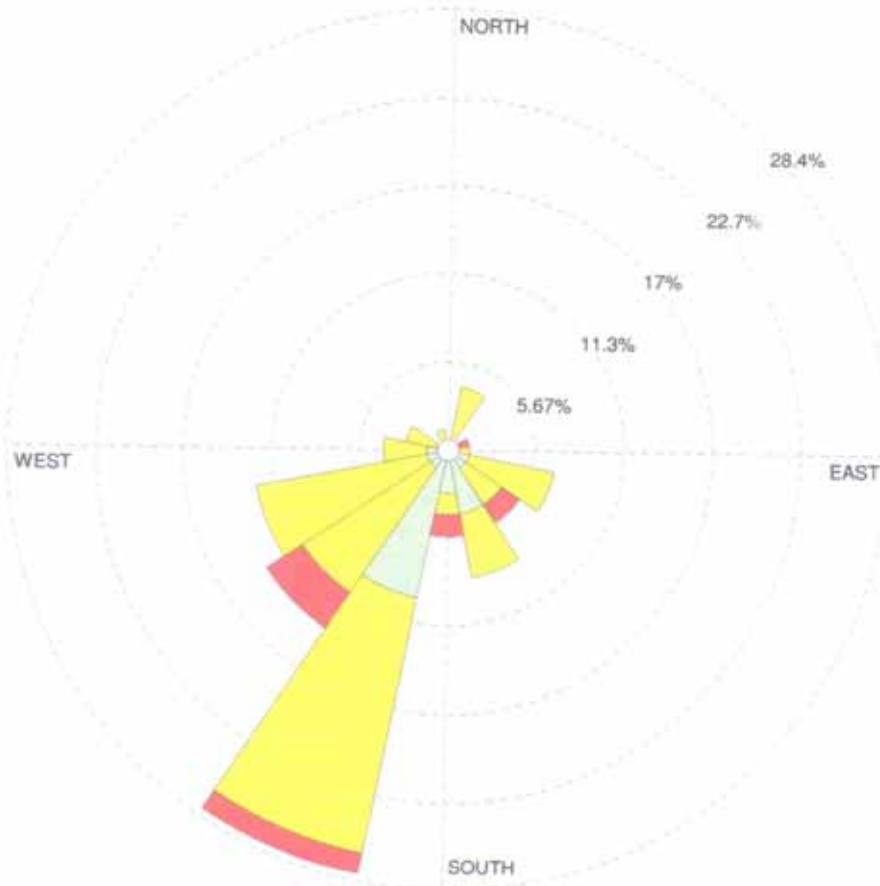
Description	Relative Humidity (%)	Wind Speed (Km/hr)	Temperature (°C)
Max	63	13.0	35.7
Min	33	3.0	23.7

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



WIND ROSE PLOT:
Station # 01

DISPLAY:
Wind Speed
Direction (blowing from)

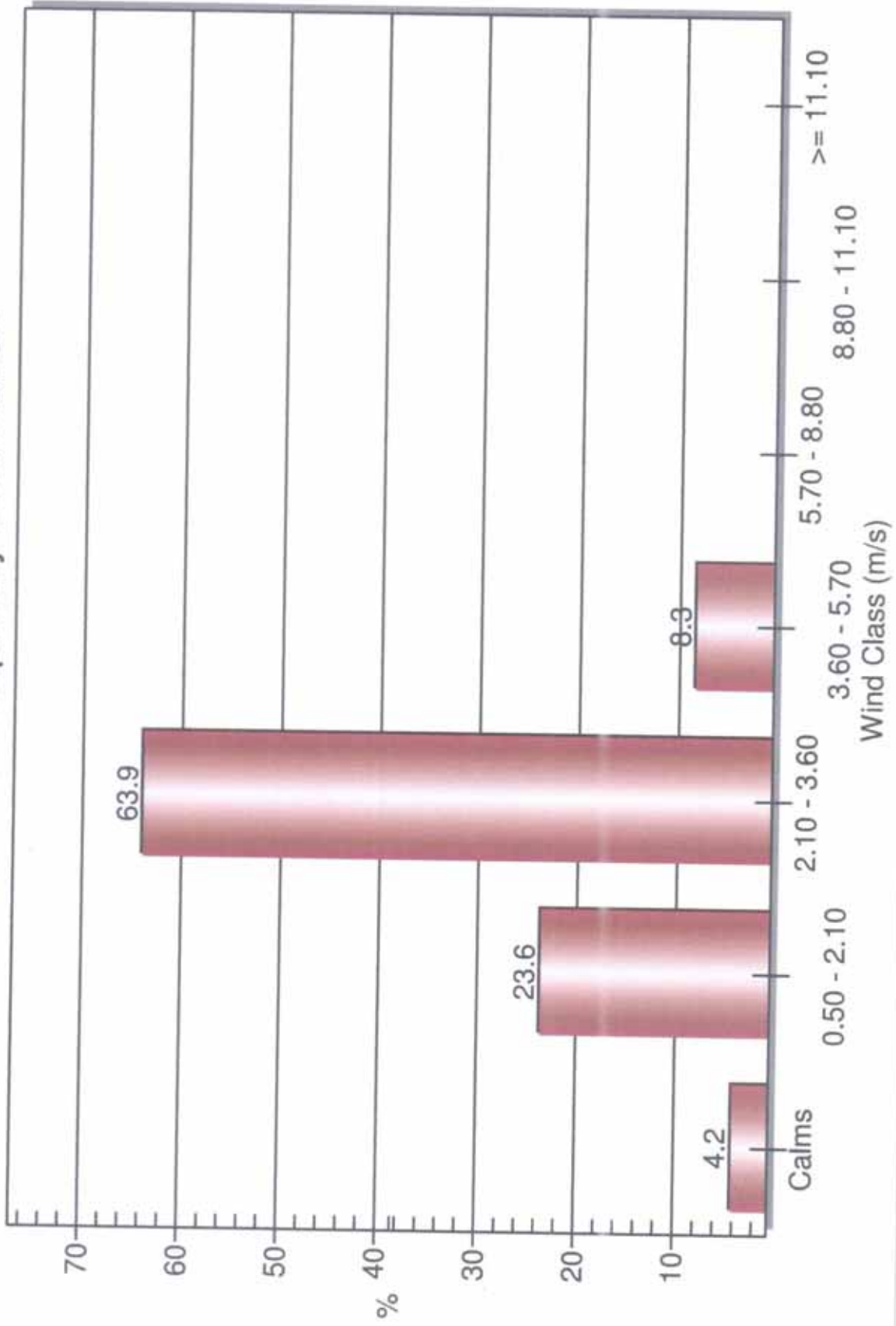


WIND SPEED
(m/s)

- >= 11.10
 - 8.80 - 11.10
 - 5.70 - 8.80
 - 3.60 - 5.70
 - 2.10 - 3.60
 - 0.50 - 2.10
- Calms: 4.17%

COMMENTS:	DATA PERIOD: Start Date: 17/03/2017 - 00:00 End Date: 06/07/2017 - 10:00	COMPANY NAME:	
	CALM WINDS: 4.17%	MODELER: ENPRO ENVIRO TECH AND ENGINEERS PVT. LTD.	PROJECT NO.:
	AVG. WIND SPEED: 2.35 m/s	TOTAL COUNT: 72 hrs.	
		DATE: 17/07/2017	

Wind Class Frequency Distribution



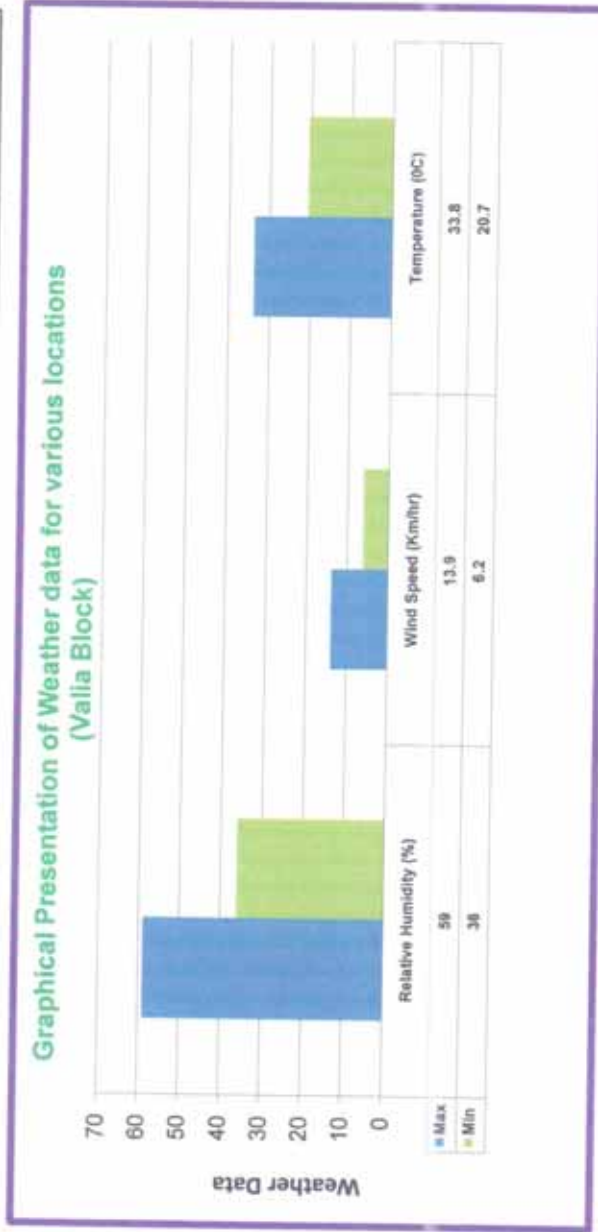
Comparative Results For the Period of: January-2017 to June-2017

Period : January-2017 to June-2017



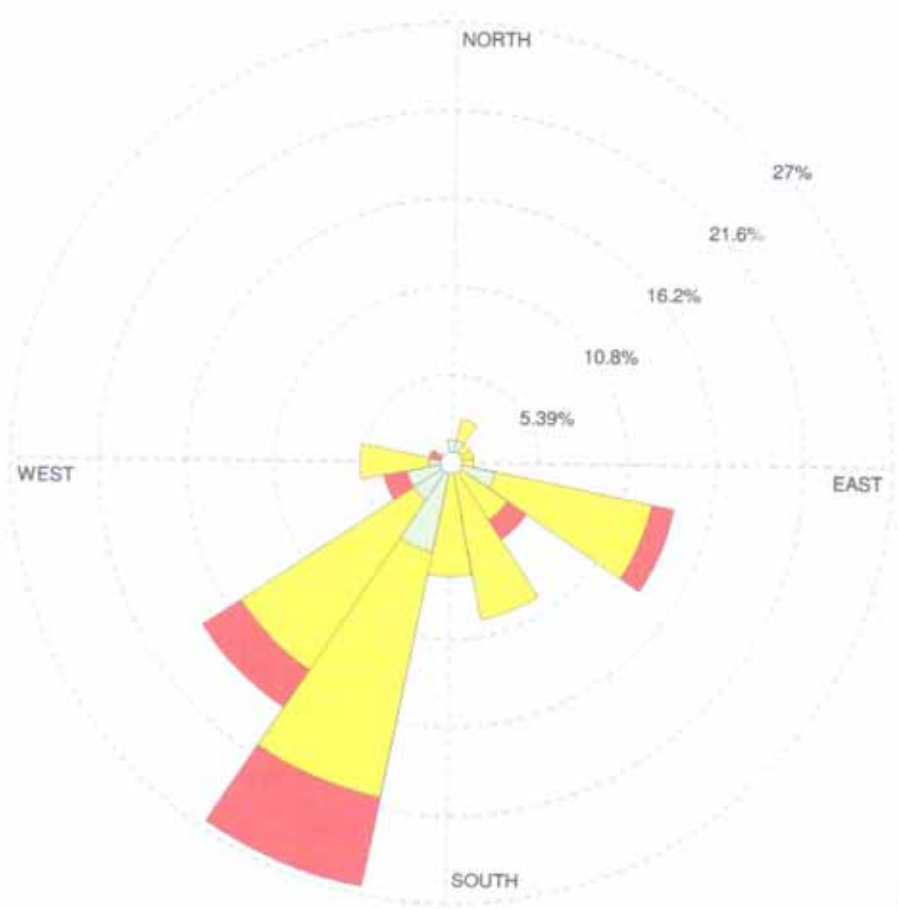
WEATHER MONITORING AT VALIA BLOCK

Description	Relative Humidity (%)	Wind Speed (Km/hr)	Temperature (°C)
Max	59	13.9	33.8
Min	36	6.2	20.7



WIND ROSE PLOT:
Station # 02

DISPLA
Wind Speed
Direction (blowing from)



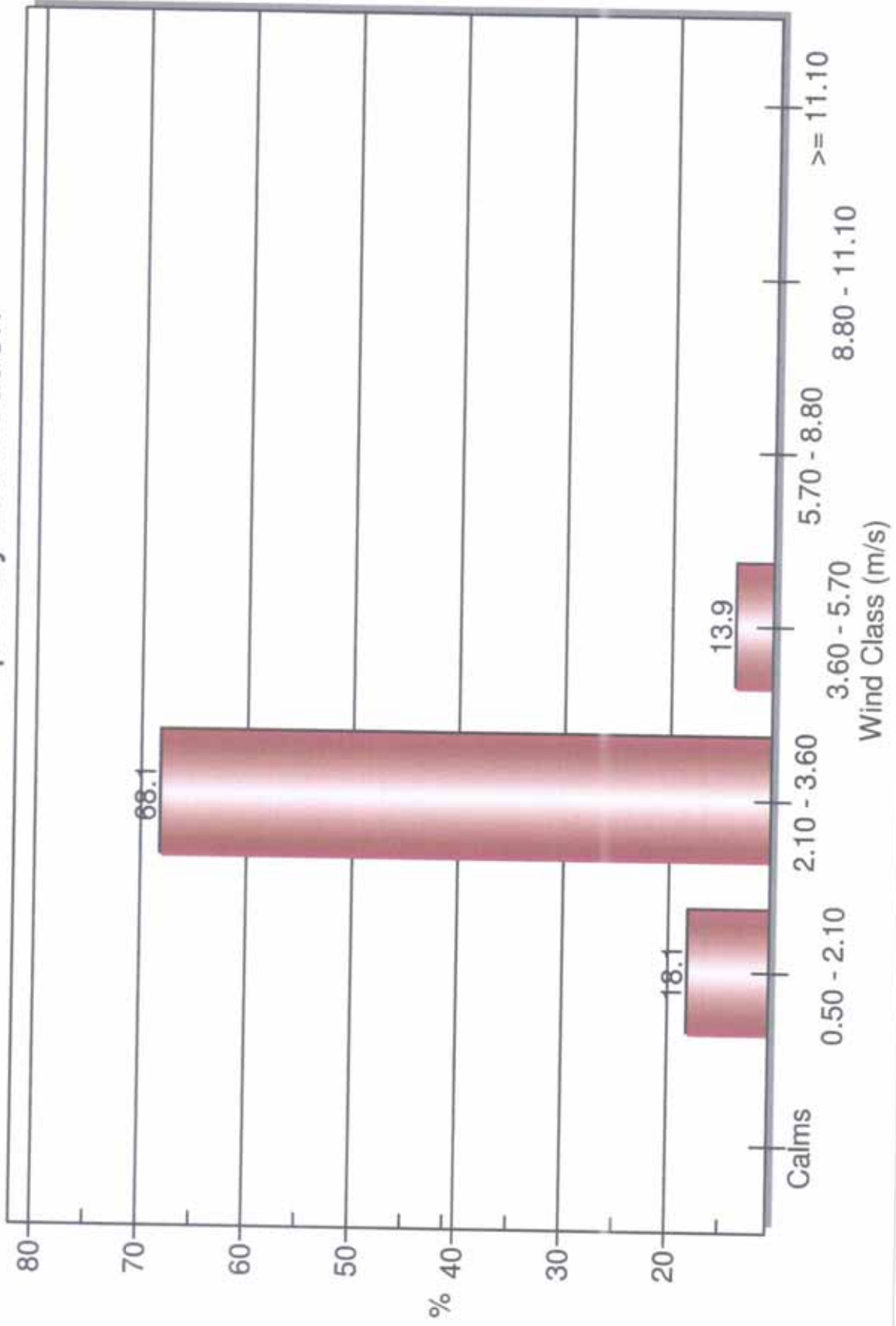
WIND SPEED (m/s)

- >= 11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.50 - 2.10

Calms: 0.00%

COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 20/03/2017 - 00:00 End Date: 09/07/2017 - 10:00	MODELER:	ENPRO ENVIRO TECH AND ENGINEERS PVT. LTD.
	CALM WINDS:	TOTAL COUNT:	
0.00%	72 hrs.	DATE:	PROJECT NO.:
AVG. WIND SPEED:	2.70 m/s	17/07/2017	

Wind Class Frequency Distribution



**COMPARATIVE
REPORTS OF PEIOZOMETER
READING**



ENPRO
Environment,
Energy, Water
Project Consultant

Work Order No: SLPPI/Mines/Envnt. Monitoring 2016-17/3756

Date: 18 / 07 / 2016

Variation in Peizometer Reading for the period of
January-2017 to June-2017 (Vailia Block)

FEBRUARY-2017						
DATALOGGER ID	DATE/TIME	BATTERY VOLTAGE (V)	WATER LEVEL (mWC)	TEMPERATURE (degC)	BAROMETRIC (hPa)	
B009	1/30/2017 23:00	3.1	-4.79	-99.9	1007	
B009	1/31/2017 14:00	3.1	-4.81	28.4	1006.1	
B009	2/2/2017 14:00	3.1	-4.78	28.4	1005.9	
B009	2/4/2017 14:00	3.1	-4.77	28.4	1005.1	
B009	2/6/2017 14:00	3.1	-4.90	28.4	1007.6	
B009	2/8/2017 14:00	3.1	-5.03	28.4	1005.9	
B009	2/10/2017 14:00	3.1	-4.86	28.4	1003.2	
B009	2/12/2017 14:00	3.1	-4.91	28.4	1006.6	
B009	2/14/2017 14:00	3.1	-4.87	28.4	1009.3	
B009	2/16/2017 14:00	3.1	-4.94	28.4	1007.7	
B009	2/18/2017 14:00	3.1	-5.02	28.4	1007.5	
B009	2/20/2017 14:00	3.1	-4.93	28.4	1003.1	
B009	2/22/2017 14:00	3.1	-4.97	28.4	1005.1	
B009	2/24/2017 14:00	3.1	-5.03	28.4	1006.8	
B009	2/26/2017 14:00	3.1	-5.00	28.4	1003.5	
B009	2/28/2017 14:00	3.1	-5.07	28.4	1004.3	

Work Order No: SLPP/Mines/Envt. Monitoring 2016-17/3756

Date: 18 / 07 / 2016

Variation in Peizometer Reading for the period of
January-2017 to June-2017 (Vallia Block)

MARCH - 2017						
DATALOGGER ID	DATE/TIME	BATTERY VOLTAGE (V)	WATER LEVEL (mWC)	TEMPERATURE (degC)	BAROMETRIC (hPa)	
B009	3/2/2017 14:00	3.1	-5.00	28.4	1002.9	
B009	3/4/2017 14:00	3.1	-5.10	28.4	1000.6	
B009	3/6/2017 14:00	3.1	-5.18	28.4	1000.7	
B009	3/8/2017 14:00	3.1	-5.19	28.4	1000.9	
B009	3/10/2017 14:00	3.1	-5.24	28.4	1000.8	
B009	3/12/2017 14:00	3.1	-5.15	28.4	1005.7	
B009	3/14/2017 14:00	3.1	-5.16	28.4	1004.3	
B009	3/16/2017 14:00	3.1	-5.23	28.4	1003.4	
B009	3/18/2017 14:00	3.1	-5.30	28.4	1004.3	
B009	3/20/2017 14:00	3.1	-5.30	28.4	1004.1	
B009	3/22/2017 14:00	3.1	-5.26	28.4	1003.9	
B009	3/24/2017 14:00	3.1	-5.40	28.4	1002.8	
B009	3/26/2017 14:00	3.1	-5.47	28.4	1004.2	
B009	3/28/2017 14:00	3.1	-5.51	28.4	1003	
B009	3/30/2017 14:00	3.1	-5.58	28.4	1003.3	

Work Order No: SLPP/Mines/Envt. Monitoring 2016-17/3756

Date: 18 / 07 / 2016

Variation in Peizometer Reading for the period of
January-2017 to June-2017 (Vaila Block)

APRIL - 2017						
DATALOGGER ID	DATE/TIME	BATTERY VOLTAGE (V)	WATER LEVEL (mWC)	TEMPERATURE (degC)	BAROMETRIC (hPa)	
B009	4/1/2017	14:00	3.1	-5.54	28.4	1002.4
B009	4/3/2017	14:00	3.1	-5.57	28.4	1001.5
B009	4/5/2017	14:00	3.1	-5.63	28.4	1001.3
B009	4/7/2017	14:00	3.1	-5.71	28.4	1003.2
B009	4/9/2017	14:00	3.1	-5.73	28.4	1001.4
B009	4/11/2017	14:00	3.1	-5.76	28.4	1001.3
B009	4/13/2017	14:00	3.1	-5.76	28.4	1000.9
B009	4/15/2017	14:00	3.1	-5.81	28.4	999
B009	4/17/2017	14:00	3.1	-5.87	28.4	1001
B009	4/19/2017	14:00	3.1	-5.85	28.4	998.9
B009	4/21/2017	14:00	3.1	-5.91	28.4	1000
B009	4/23/2017	14:00	3.1	-5.87	28.4	1001.6
B009	4/25/2017	14:00	3.1	-5.89	28.4	1002.5
B009	4/27/2017	14:00	3.1	-5.96	28.4	1002.1
B009	4/29/2017	14:00	3.1	-5.97	28.4	1002.6



Work Order No: SLPP/Mines/Envt. Monitoring 2016-17/3756

Date: 18 / 07 / 2016

Variation in Piezometer Reading for the period of
January-2017 to June-2017 (Vailia Block)

MAY - 2017						
DATALOGGER ID	DATE/TIME	BATTERY VOLTAGE (V)	WATER LEVEL (mWC)	TEMPERATURE (degC)	BAROMETRIC (hPa)	
B009	5/1/2017	14:00	3.1	-6.00	28.4	1001.5
B009	5/3/2017	14:00	3.1	-6.03	28.4	1002
B009	5/5/2017	14:00	3.1	-6.05	28.4	1001.1
B009	5/7/2017	14:00	3.1	-5.99	28.4	1003
B009	5/9/2017	14:00	3.1	-5.91	28.4	1000.1
B009	5/11/2017	14:00	3.1	-6.04	28.4	1001.1
B009	5/13/2017	14:00	3.1	-6.09	28.4	999
B009	5/15/2017	14:00	3.1	-6.12	28.4	999
B009	5/17/2017	14:00	3.1	-6.15	28.4	998.4
B009	5/19/2017	14:00	3.1	-6.14	28.4	1000.7
B009	5/21/2017	14:00	3.1	-6.18	28.4	998.8
B009	5/23/2017	14:00	3.1	-6.20	28.4	999.8
B009	5/25/2017	14:00	3.1	-6.22	28.4	996.8
B009	5/27/2017	14:00	3.1	-6.20	28.4	997
B009	5/29/2017	14:00	3.1	-6.24	28.4	995.1
B009	5/31/2017	14:00	3.1	-6.21	28.4	993.3



Work Order No: SLPP/Mines/Envnt. Monitoring 2016-17/3756

Date: 18 / 07 / 2016

Variation in Peizometer Reading for the period of
January-2017 to June-2017 (Valia Block)

JUNE - 2017						
DATALOGGER ID	DATE/TIME	BATTERY VOLTAGE (V)	WATER LEVEL (mWC)	TEMPERATURE (degC)	BAROMETRIC (hPa)	
B009	6/2/2017 14:00	3.1	-6.20	28.4	996.3	
B009	6/4/2017 14:00	3.1	-6.29	28.4	998	
B009	6/6/2017 14:00	3.1	-6.08	28.4	999.1	
B009	6/8/2017 14:00	3.1	-6.04	28.4	998.9	
B009	6/10/2017 14:00	3.1	-6.04	28.4	996.5	
B009	6/12/2017 14:00	3.1	-6.08	28.4	994.8	
B009	6/14/2017 14:00	3.1	-6.08	28.4	998.5	
B009	6/16/2017 14:00	3.1	-6.10	28.4	997	
B009	6/18/2017 14:00	3.1	-6.14	28.4	997.6	
B009	6/20/2017 14:00	3.1	-6.14	28.4	996.1	
B009	6/22/2017 14:00	3.1	-6.16	28.4	996.7	
B009	6/24/2017 14:00	3.1	-6.10	28.4	993.5	
B009	6/26/2017 14:00	3.1	-6.06	28.4	992.4	
B009	6/28/2017 14:00	3.1	-6.03	28.4	992.8	
B009	6/30/2017 14:00	3.1	-5.93	28.4	992.5	