

Environmental Monitoring Report
Of
M/s. Gujarat Industries Power Company Limited
(Vastan Lignite Opencast Mine)

Village: Vastan, Ta: Mangrol,

Di: Surat 394110

For the Month of January-2018 to March-2018



Prepared By:

M/s. Greenleaf Envirotech Pvt. Ltd.

304, Kankavati Complex, Singanpore Cauzway Road,

Katargam, Surat.

Methodology for Environment Monitoring:

M/s. Gujarat industries Power Company Limited has awarded the work of monthly environmental monitoring of its Vastan Lignite Mine to Greenleaf Envirotech Pvt. Ltd. Greenleaf team visits the Vastan Lignite mines bimonthly to carry out environmental monitoring.

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

Water & waste quality monitoring:

Ground and surface water samples are collected at their source point using grab sampling. Surface and ground water sample are collected from core and buffer zones located near the mining area. Preserved samples are brought to Greenleaf laboratory for analysis. For sampling & analysis methods various IS & APHA methods are followed. The samples are analyzed for physic-chemical and 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 location are chosen such that at least one station falls in opposite wind direction from all stationary sources. The samples are collected using Respirable dust sampler and fine particulate sampler for 24 hours, preserved and brought to Greenleaf's laboratory for analysis. For sampling & analysis methods IS 5182 & CPCB manual is followed. The main pollutants analyzed are PM 10, PM2.5, sulfur dioxide, oxides of nitrogen & carbon monoxide.

Weather Monitoring:

Monitoring station for weather is selected based on Wind direction. The station is so selected that it remains unobstructed from upcoming 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 equipment used are wind wane, anemometer and thermo hygrometer.

Noise level Monitoring:

The main sources of noise are lignite handling and transportation equipments and systems in the mines. All the sources of noise are first identified and noise level is monitored in the immediate vicinity of the source. Then the noise level is monitored at distance of aprx. 10-20 mtr. Away and nearby area where the human presence in continuous. Two sets of data are collected for day time and night time monitoring. The noise level is monitored using digital sound level meter.

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 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 the 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 a crucible after evaporation. Total mass gain is measured gravimetrically. The dust fall is measured using jars as per the standard practice as per IS-5182.

Scope of work
(Vastan Lignite Open cast Mine)

1) Water & Waste water quality monitoring:

Sr. No.	Location	No.	Frequency	Parameter
1	8 nos. Bore well water sample located both in core & buffer zones	9	Bimonthly	Physico-Chemical, Heavy Metals, Biological & Microbiological parameter

2) Ambient Air Monitoring:

Sr. No.	Location	No.	Frequency	Duration	Parameter
1	8 Nos. within the radius of 10 km from the core zone	12	Bimonthly	24 hrs.	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x

3) Dust Fall Measurement:

Sr. No.	Location	No.	Frequency	Duration	Parameter
1	7 No. of location within the radius of 10 km from the core Zone	9	Bimonthly	1 month	Dust fall

4) Weather Monitoring:

Sr. No.	Location	Frequency	Duration	Parameter
1	1 No. at site office of the mine	Bimonthly	24 hrs.	Dry & wet Bulb temperature, Rain fall, Relative humidity, Wind speed, & Direction, Max. & Min. Temp.

5) Noise Monitoring:

Sr. No.	Location	Frequency	No.	Duration	Parameter
1	8 No. at various location in plant premises	Bimonthly	11	2 Min/ Location	Day & Night Noise Level

Work order No: SLPP/Mines/Envt. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report
Ambient Sample Analysis Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110	Report No: GLEPL/070218/21/01 Issue Date: 02/04/2018
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Lab ID Code	:	GLEPL/070218/AM ₁ , AM ₂ , AM ₃ , AM ₄			
Date of Sampling	:	07-08/02/2018	Purpose	:	Environment Monitoring
Date of Sample Received	:	08/02/2018	Sample collected by	:	GLEPL Team
			Sampling Time	:	24 hrs.
Date of starting Analysis	:	08/02/2018	Test Parameters	:	As per PO
			Sampling procedure	:	IS 5182 (P-14) 2000 Ref-2010
Date of completion Analysis	:	13/02/2018	Quantity/No. of sample	:	Filter Paper for PM ₁₀ , PM _{2.5} & approx. 35ml of abs. sol. For SO _x & NO _x (Each)
			Packed/Seal	:	Packed
Weather Condition:					
Wind Speed (Km/h)	:	14.3	Temp. (°C)	:	25.5
Wind Direction	:	N-S	Humidity (%)	:	40.1

Result Table

Sr. No.	Test Parameter	Test Method	Unit	Result				GPCB LIMIT
				Lignite cutting Area (Vastan Lignite Mine)	Over burden Area (Vastan Lignite Mine)	Mines Haul Area (On mines Boundry) (Vastan Lignite Mine)	Tadkeshwar village (Vastan Lignite Mine)	
1	Particulate Matter (PM ₁₀)	IS:5182(P-23): 2006 (Reaffirmed 2012)	µg/m ³	77.5	79.6	71.0	53.7	100
2	Particulate Matter (PM _{2.5})	As per CPCB, Reaffirmed 2012 (NAAQS Volume I)	µg/m ³	43.7	40.3	38.2	27.9	60
3	Sulphur Dioxide (SO ₂)	IS:5182 (P-2):2001 (Reaffirmed 2012)	µg/m ³	35.2	26.9	27.5	20.3	80
4	Nitrogen Dioxide (NO _x)	IS:5182 (P-6):2006 (Reaffirmed 2012)	µg/m ³	29.0	21.4	23.6	18.8	80
5	Carbon Monoxide (CO)	IS:5182 (P-10):1999 (Reaffirmed 2014)	µg/m ³	1367.0	1159.0	1287.0	1120.0	2000

Chemist

Authorized Signatory
Keta Jariwala

Note:

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- 4) Perishable samples will be destroyed after testing, others after 7 days from the date of issue of the report, unless otherwise agreed with the customer or as required by the applicable regulations.

Work order No: SLPP/Mines/Env. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report
Ambient Sample Analysis Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110.	Report No: GLEPL/080218/21/02 Issue Date: 02/04/2018
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Lab ID Code	:	GLEPL/080218/AM ₅ , AM ₆ , AM ₇ , AM ₈		
Date of Sampling	:	08-09/02/2018	Purpose	: Environment Monitoring
Date of Sample Received	:	09/02/2018	Sample collected by	: GLEPL Team
			Sampling Time	: 24 hrs.
Date of starting Analysis	:	09/02/2018	Test Parameters	: As per PO
			Sampling procedure	: IS 5182 (P-14) 2000 Ref-2010
Date of completion Analysis	:	13/02/2018	Quantity/No. of sample	: Filter Paper for PM ₁₀ , PM _{2.5} & approx. 35ml of abs. sol. For SO _x & NO _x (Each)
Packed/Seal	:	Packed		
Weather Condition:				
Wind Speed (Km/h)	:	14.9	Temp. (°C)	: 24.3
Wind Direction	:	NW-SE	Humidity (%)	: 43.4

Result Table

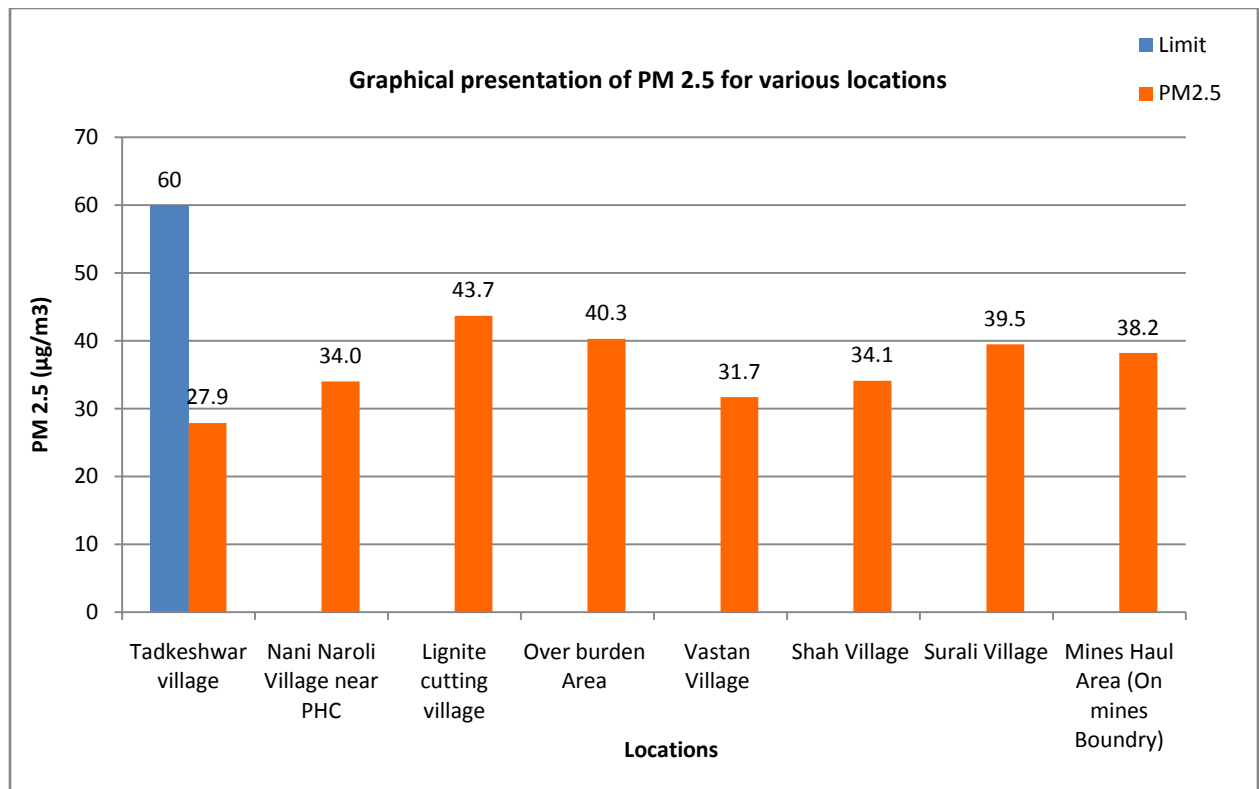
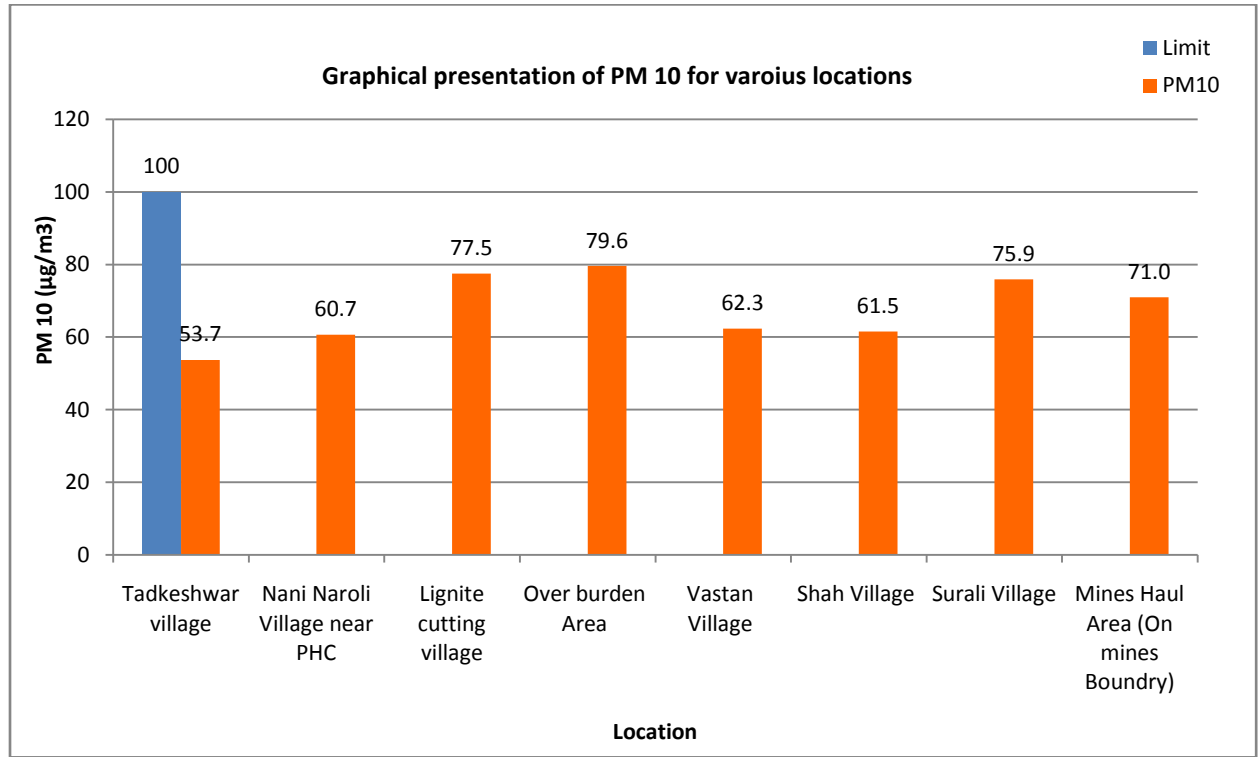
Sr. No.	Test Parameter	Test Method	Unit	Result				GPCB LIMIT
				Vastan Village (Vastan Lignite Mine)	Shah Village (Vastan Lignite Mine)	Surali Village (Vastan Lignite Mine)	Nani Naroli Village near PHC (Vastan Lignite Mine)	
1	Particulate Matter (PM ₁₀)	IS:5182 (P-23): 2006 (Reaffirmed 2012)	µg/m ³	62.3	61.5	75.9	60.7	100
2	Particulate Matter (PM _{2.5})	As per CPCB, Reaffirmed 2012 (NAAQS Volume I)	µg/m ³	31.7	34.1	39.5	34.0	60
3	Sulphur Dioxide (SO ₂)	IS:5182 (P-2):2001 (Reaffirmed 2012)	µg/m ³	25.2	29.0	25.3	31.1	80
4	Nitrogen Dioxide (NO _x)	IS:5182 (P-6):2006 (Reaffirmed 2012)	µg/m ³	23.9	27.4	19.6	27.2	80
5	Carbon Monoxide (CO)	IS:5182 (P-10):1999 (Reaffirmed 2014)	µg/m ³	1066.0	1249.0	1129.0	1347.0	2000

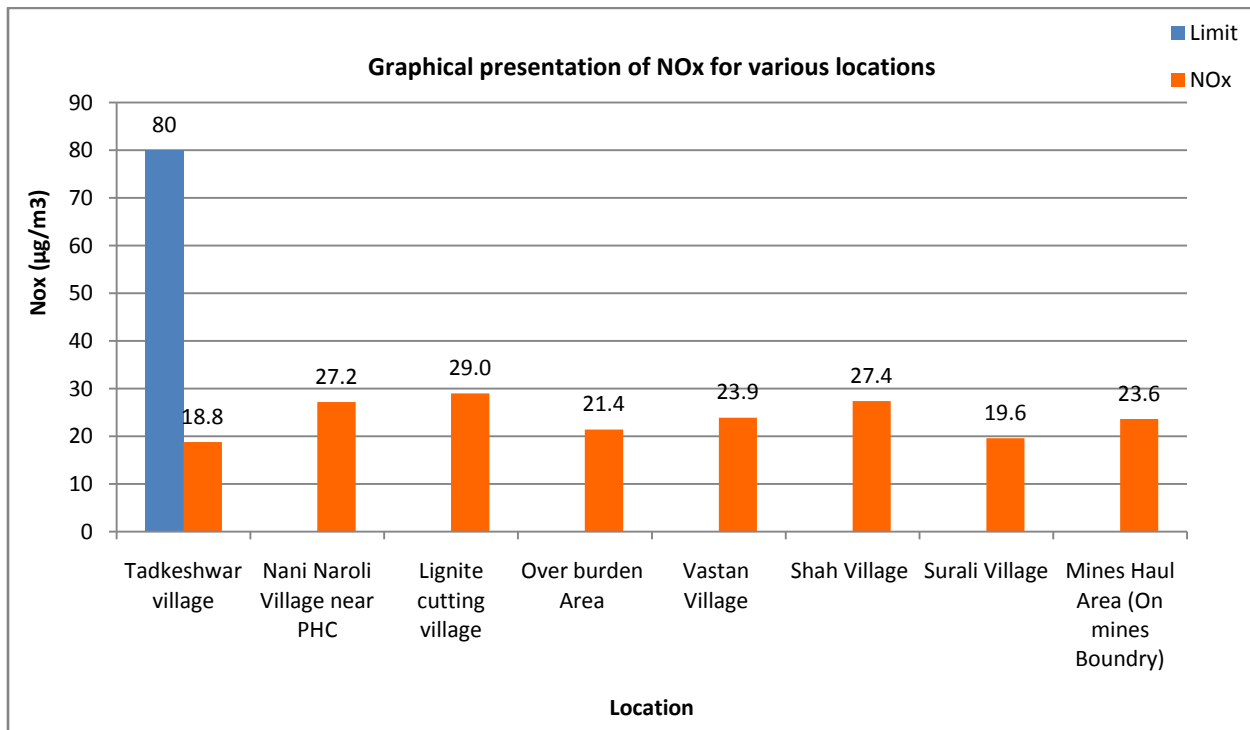
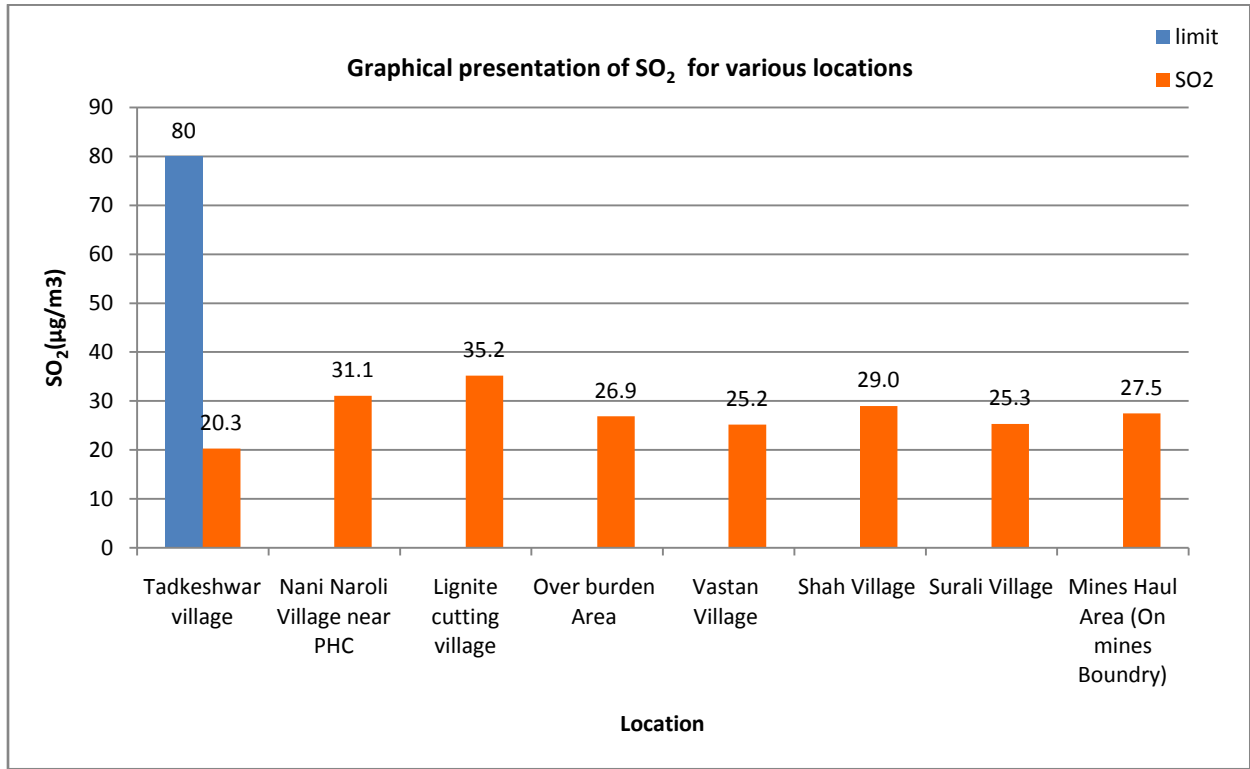
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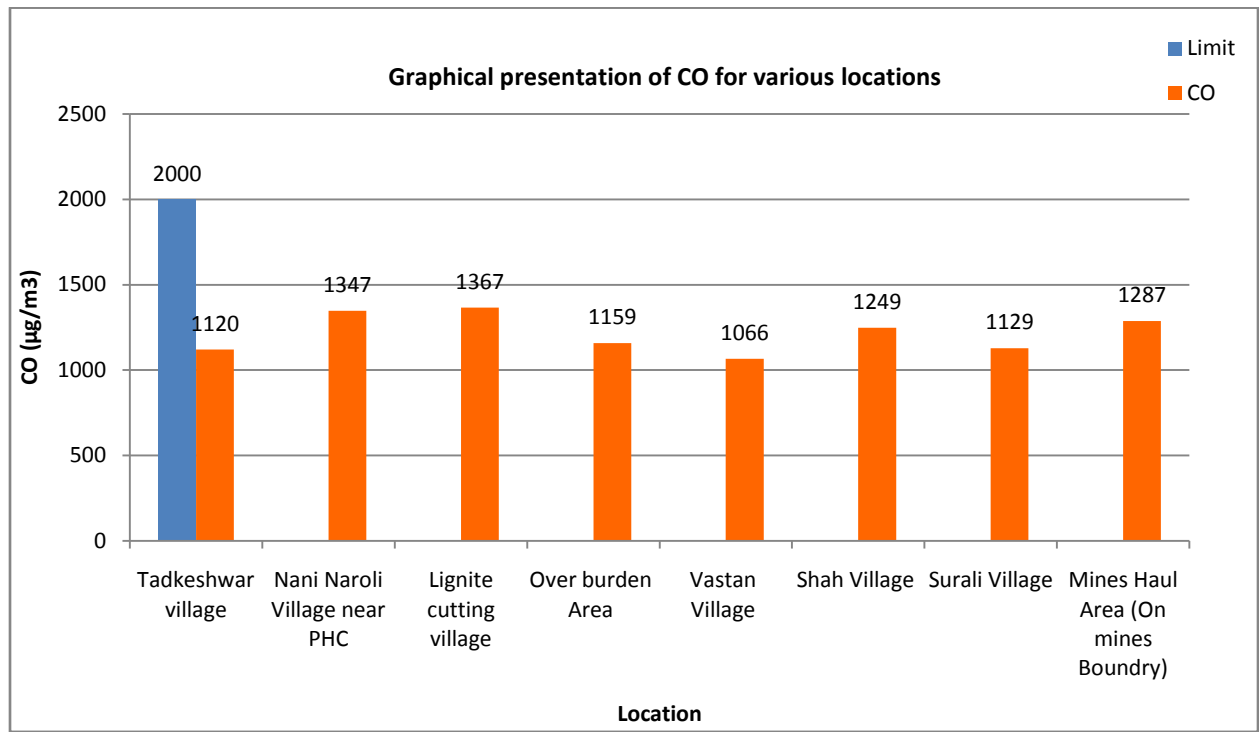
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Work order No: SLPP/Mines/Envt. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report
Dust fall Analysis Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110	Report No: GLEPL/070218/21/03 Issue Date: 02/04/2018
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Lab ID Code	:	GLEPL/090218/DT ₁ to DT ₇			
Date of Sampling	:	10/01/2018 to 09/02/2018	Purpose	:	Environment Monitoring
Date of Sample Received	:	08/02/2018	Sample collected by	:	GLEPL Team
			Sampling Time	:	1 month
Date of starting Analysis	:	08/02/2018	Test Parameters	:	As per PO
Date of completion Analysis	:	13/02/2018	Packed/Seal	:	Packed

Result Table

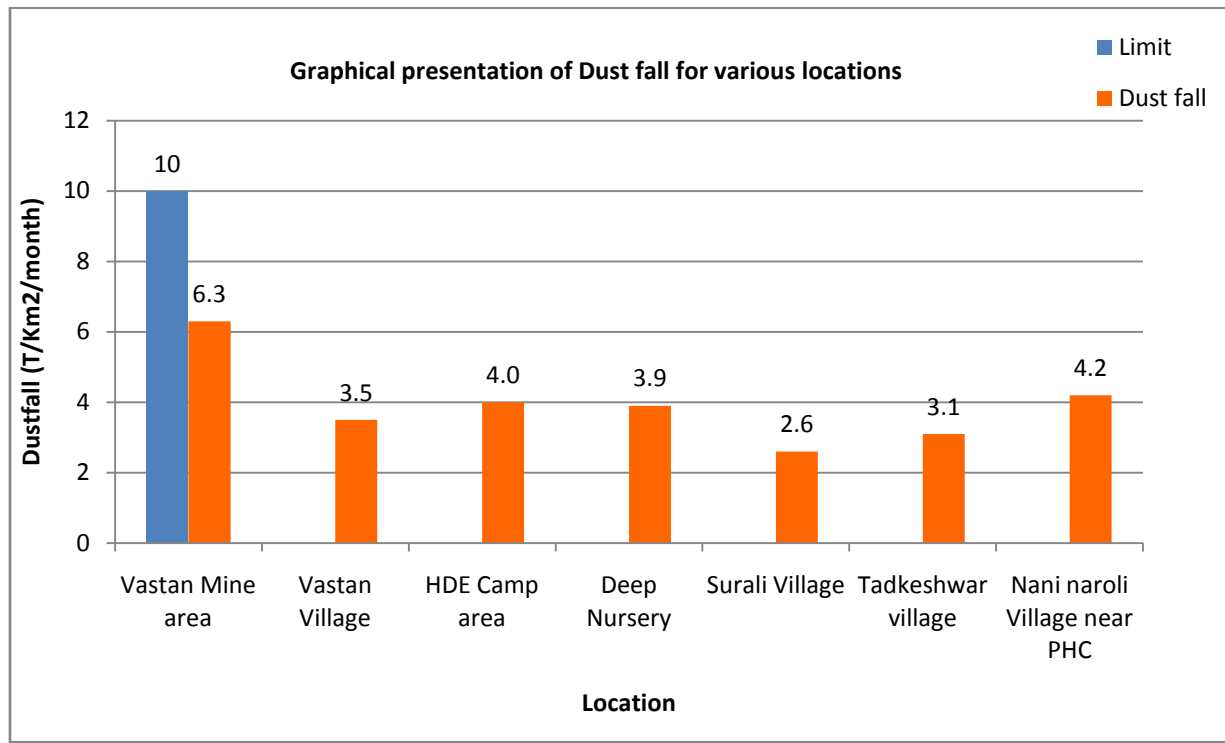
Sr. No.	Location	Test Method	Unit	Result	GPCB Limit
1	Vastan Mine area	IS 5182(Part-1):2006 (Reaffirmed 2012)	T/Km ² /month	6.3	10
2	Vastan Village		T/Km ² /month	3.5	
3	HDE Camp area		T/Km ² /month	4.0	
4	Deep Nursery		T/Km ² /month	3.9	
5	Surali Village		T/Km ² /month	2.6	
6	Tadkeshwar village		T/Km ² /month	3.1	
7	Nani naroli Village near PHC		T/Km ² /month	4.2	

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Work order No: SLPP/Mines/Envt. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report
Micro Meteorological Data

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110	Report No: GLEPL/070218/21/04 Issue Date: 02/04/2018
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Lab ID Code	: GLEPL/070218/WM ₁	Location	: Vastan Lignite Mines
Date of Sampling	: 07/02/2018 & 08/02/2018	Purpose	: Environment Monitoring
Sampling Time	: 24 hrs.	Sample collected by	: GLEPL Team

Result Table

Sr. No.	Time In Hours	Dry bulb Temp. (°C)	Wet bulb Temp. (°C)	Temp. (°C)	Atmospheric Pressure (mm Hg)	Relative Humidity (%)	Wind Direction	RAIN FALL (mm)	Wind Speed (km/hr)
01	09.00	22	18	22	761.3	24	NNE-SSW	0.0	15
02	10.00	21	17	21	761.2	24	NNE-SSW	0.0	15
03	11.00	22	18	22	761.2	23	NNE-SSW	0.0	14
04	12.00	30	26	30	760.6	22	ESE-WNW	0.0	11
05	13.00	30	26	30	761.6	21	ESE-WNW	0.0	10
06	14.00	29	25	29	760.5	22	ESE-WNW	0.0	10
07	15.00	31	27	31	759.8	31	WNW-ESE	0.0	13
08	16.00	30	26	30	759.7	30	WNW-ESE	0.0	13
09	17.00	31	27	31	759.8	30	WNW-ESE	0.0	13
10	18.00	27	23	27	759.1	27	WNW-ESE	0.0	23
11	19.00	25	21	25	759.0	26	WNW-ESE	0.0	22
12	20.00	26	22	26	759.1	27	WNW-ESE	0.0	23
13	21.00	24	21	24	759.8	24	NW-SE	0.0	20
14	22.00	24	21	24	759.8	22	NW-SE	0.0	20
15	23.00	25	22	25	759.7	23	NW-SE	0.0	19
16	00.00	24	21	24	760.6	42	N-S	0.0	13
17	01.00	25	22	25	760.5	41	N-S	0.0	12
18	02.00	24	21	24	760.4	41	N-S	0.0	13
19	03.00	23	20	23	759.8	38	WSW-ENE	0.0	13
20	04.00	22	19	22	759.7	37	WSW-ENE	0.0	13
21	05.00	23	20	23	759.7	39	WSW-ENE	0.0	12
22	06.00	22	19	22	759.8	35	N-S	0.0	14
23	07.00	21	18	21	759.7	34	N-S	0.0	15
24	08.00	21	18	21	759.6	33	N-S	0.0	15
24 Hours Maximum		31	27	31	761.3	41	WNW-ESE	0.0	20
24 Hours Minimum		21	17	21	759.0	21	NW-SE	0.0	10
24 Hours Average		25.1	21.6	25.1	760.1	29.8	N-S	0.0	15.0

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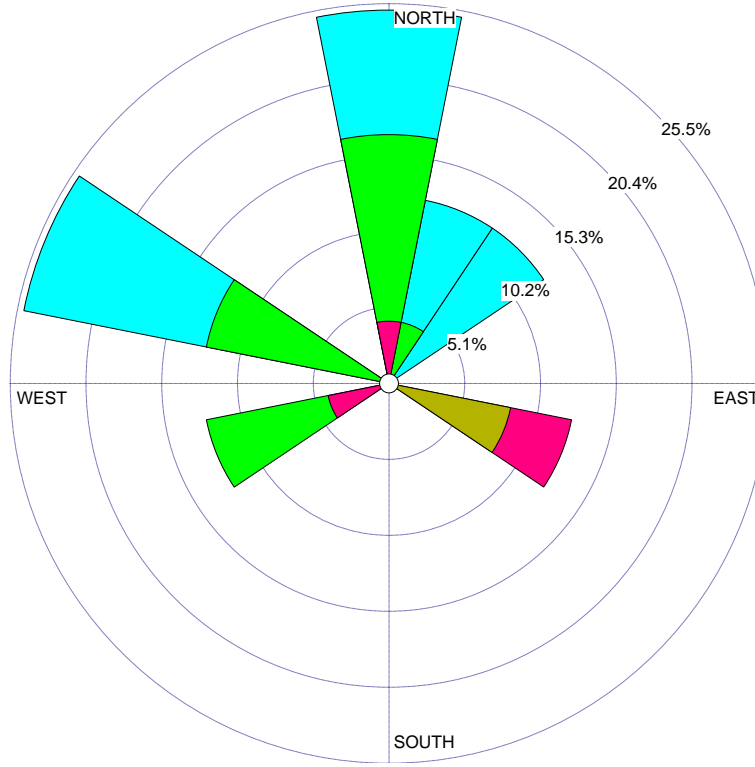
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WIND ROSE PLOT:
GIPCL Vastan

DISPLAY:
**Wind Speed
Direction (blowing from)**



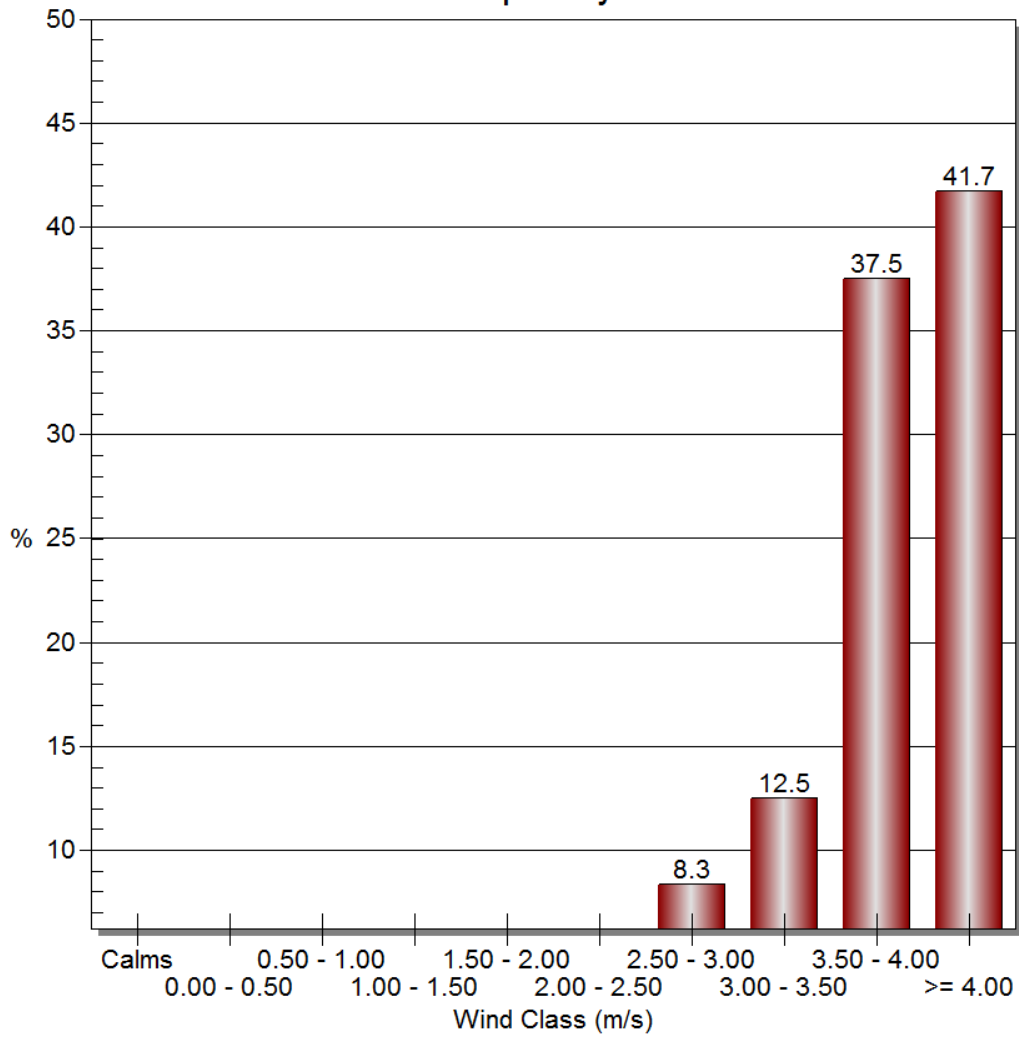
WIND SPEED (m/s)

- >= 4.00
- 3.50 - 4.00
- 3.00 - 3.50
- 2.50 - 3.00
- 2.00 - 2.50
- 1.50 - 2.00
- 1.00 - 1.50
- 0.50 - 1.00
- 0.00 - 0.50

Calms: 0.00%

COMMENTS:	DATA PERIOD: Start Date: 07/02/2017 - 00:00 End Date: 08/02/2017 - 08:00	COMPANY NAME: GIPCL Vastan	
		MODELER: Greenleaf Envirotech Pvt. Ltd.	
	CALM WINDS: 0.00%	TOTAL COUNT: 24 hrs.	
	AVG. WIND SPEED: 4.19 m/s	DATE: 10/03/2018	PROJECT NO.: 04

Wind Class Frequency Distribution



Work order No: SLPP/Mines/Env. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report
Water Analysis Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka: Mangrol, Dist: Surat-394110	Report No: GLEPL/310118/21/05 Issue Date: 02/04/2018
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Lab ID Code	:	GLEPL/310118/WL ₁			
Sample Description	:	Borewell water (Hand pump in Dungri village)	Purpose	:	Environment Monitoring
			Sampling procedure	:	IS 3025 (P-1) 1997 Ref-2014
Date of Sampling	:	31/01/2018	Sample collected by	:	GLEPL Team
Date of Sample Received	:	01/02/2018	Test Parameters	:	As per PO
Date of starting Analysis	:	01/02/2018	Quantity/No. of sample	:	2 Lit./1
Date of completion Analysis	:	12/02/2018	Packed/Seal	:	Packed

Result Table

Sr. No.	Test Parameters	Test Method	Unit	Results	Limits: Ministry of Environment & forests (MoEF), vide notification No. GSR 742 (E),Dt.25/09/2000 Inland surface water
1	Temperature	IS:3025(P-9):1984 (Reaffirmed 2006)	°C	25.2	Shall not exceed 5 °C above the receiving water temp.
2	pH @ 25°C	IS:3025(P-11):1983 (Reaffirmed 2012)	pH unit	7.10	5.5-9.0
3	Colour	APHA & AWWA.21st Ed. 2120 B.(2-2)	Pt Co scale	<5.0	-
4	Total Suspended Solids (TSS @ 105°C)	IS:3025(P-17):1984(Reaffirmed 2012)	mg/L	10.8	100
5	Total Dissolved Solids (TDS @ 105°C)	IS:3025 (P-16):1984 (Reaffirmed 2012)	mg/L	1920.0	2100
6	Total volatile solids	IS:3025 (P-18):1984 (Reaffirmed 2012)	mg/L	BDL	--
7	BOD (5 days at 20°C)	IS:3025 (P-44):1993 (Reaffirmed 2014)	mg/L	--	30
8	COD	IS:3025 (P-58):2006 (Reaffirmed 2012)	mg/L	--	250
9	Oil & Grease	IS:3025 (P-39):1991 (Reaffirmed 2014)	mg/L	6.8	10
10	Chloride	IS:3025 (P-32):1988 (Reaffirmed 2014)	mg/L	463.2	1000
11	Sulphate	IS-3025 (P-24):1986 (Reaffirmed 2014)	mg/L	101.5	300
12	Phosphate	IS:3025 (P-31):1988 (Reaffirmed 2014)	mg/L	BDL	--
13	Phenolic Compound	IS:3025 (P-43):1992 (Reaffirmed 2014)	mg/L	BDL	1.0
14	Flouride	IS:3025 (P-60):2008 (Reaffirmed 2013)	mg/L	BDL	2.0
15	Total residual chlorine	IS:3025 (P-26):1986 (Reaffirmed 2014)	mg/L	Nil	1.0
16	Free available chlorine	IS:3025 (P-25):1986 (Reaffirmed 2014)	mg/L	Nil	--
17	Total Hardness	IS:3025 (P-21):2009 (Reaffirmed 2014)	mg/L	891.0	--
18	Total Alkalinity	IS:3025 (P-23):1986 (Reaffirmed 2014)	mg/L	330.0	--
19	Iron	IS:3025 (P-53):2003 (Reaffirmed 2014)	mg/L	1.9	3.0
20	Copper	IS:3025 (P-42):1992 (Reaffirmed 2014)	mg/L	BDL	3.0
21	Total Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	2.0
22	Hexavalent Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	0.1
23	Zinc	IS:3025 (P-49):1994 (Reaffirmed 2014)	mg/L	BDL	5.0
24	Lead	IS:3025 (P-47):1994 (Reaffirmed 2014)	mg/L	BDL	0.1
25	Calcium	IS:3025 (P-40):1991 (Reaffirmed 2014)	mg/L	166.6	--
26	Magnesium	IS:3025 (P-46):1994 (Reaffirmed 2014)	mg/L	115.5	--
27	Percent sodium	IS 3025 (P-45) 1993 & APHA, AWWA, WEF 21 st Edition 2005	%	26.8	--
28	Coliform organism (MPN)	APHA & AWWA.21 st Ed. 9221(9-48)	CFU/100 ml	Nil	--
29	Bioassay test	APHA & AWWA.21st Ed.10600(10-76)	% survival of fish after 96 hrs in 100% effluent	93	90 % survival of fish after 96 Hrs. in100 % effluent

Note: - BDL=below detection limit Detection limit: Phosphate: 0.01 mg/L, Volatile solid: 0.0001 mg/L, Phenol: 0.01 mg/L, fluoride:0.02 mg/L, Copper:0.01 mg/L, Total Chromium:0.01 mg/L, Hexavalent Chromium:0.01 mg/L, Zinc:0.01 mg/L, Lead:0.01 mg/L

Chemist

Authorized Signatory
Keta Jariwala

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Work order No: SLPP/Mines/Envt.Monitoring 2017-18/3027 Dated 15.07.2017

Test Report
Water Analysis Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110	Report No: GLEPL/310118/21/06 Issue Date: 02/04/2018
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Lab ID Code	:	GLEPL/310118/WL ₂		
Sample Description	:	Borewell water (Near Tadkeshwar Village)	Purpose	: Environment Monitoring
			Sampling procedure	: IS 3025 (P-1) 1997 Ref-2014
Date of Sampling	:	31/01/2018	Sample collected by	: GLEPL Team
Date of Sample Received	:	01/02/2018	Test Parameters	: As per PO
Date of starting Analysis	:	01/02/2018	Quantity/No. of sample	: 2 Lit./1
Date of completion Analysis	:	12/02/2018	Packed/Seal	: Packed

Result Table

Sr. No.	Test Parameters	Test Method	Unit	Results	Limits: Ministry of Environment & forests (MoEF), vide notification No. GSR 742 (E),Dt.25/09/2000 Inland surface water
1	Temperature	IS:3025(P-9):1984 (Reaffirmed 2006)	°C	25.6	Shall not exceed 5 °C above the receiving water temp.
2	pH @ 25°C	IS:3025(P-11):1983 (Reaffirmed 2012)	pH unit	7.31	5.5-9.0
3	Colour	APHA & AWWA.21st Ed. 2120 B.(2-2)	Pt Co scale	<5.0	-
4	Total Suspended Solids (TSS @ 105°C)	IS:3025(P-17):1984(Reaffirmed 2012)	mg/L	4.9	100
5	Total Dissolved Solids (TDS @ 105°C)	IS:3025 (P-16):1984 (Reaffirmed 2012)	mg/L	1540.0	2100
6	Total volatile solids	IS:3025 (P-18):1984 (Reaffirmed 2012)	mg/L	BDL	--
7	BOD (5 days at 20°C)	IS:3025 (P-44):1993 (Reaffirmed 2014)	mg/L	--	30
8	COD	IS:3025 (P-58):2006 (Reaffirmed 2012)	mg/L	--	250
9	Oil & Grease	IS:3025 (P-39):1991 (Reaffirmed 2014)	mg/L	4.8	10
10	Chloride	IS:3025 (P-32):1988 (Reaffirmed 2014)	mg/L	271.0	1000
11	Sulphate	IS-3025 (P-24):1986 (Reaffirmed 2014)	mg/L	65.0	300
12	Phosphate	IS:3025 (P-31):1988 (Reaffirmed 2014)	mg/L	BDL	--
13	Phenolic Compound	IS:3025 (P-43):1992 (Reaffirmed 2014)	mg/L	BDL	1.0
14	Flouride	IS:3025 (P-60):2008 (Reaffirmed 2013)	mg/L	0.7	2.0
15	Total residual chlorine	IS:3025 (P-26):1986 (Reaffirmed 2014)	mg/L	Nil	1.0
16	Free available chlorine	IS:3025 (P-25):1986 (Reaffirmed 2014)	mg/L	Nil	--
17	Total Hardness	IS:3025 (P-21):2009 (Reaffirmed 2014)	mg/L	603.9	--
18	Total Alkalinity	IS:3025 (P-23):1986 (Reaffirmed 2014)	mg/L	320.0	--
19	Iron	IS:3025 (P-53):2003 (Reaffirmed 2014)	mg/L	BDL	3.0
20	Copper	IS:3025 (P-42):1992 (Reaffirmed 2014)	mg/L	BDL	3.0
21	Total Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	2.0
22	Hexavalent Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	0.1
23	Zinc	IS:3025 (P-49):1994 (Reaffirmed 2014)	mg/L	BDL	5.0
24	Lead	IS:3025 (P-47):1994 (Reaffirmed 2014)	mg/L	BDL	0.1
25	Calcium	IS:3025 (P-40):1991 (Reaffirmed 2014)	mg/L	126.9	--
26	Magnesium	IS:3025 (P-46):1994 (Reaffirmed 2014)	mg/L	67.8	--
27	Percent sodium	IS 3025 (P-45) 1993 & APHA, AWWA, WEF 21 st Edition 2005	%	25.8	--
28	Coliform organism (MPN)	APHA & AWWA.21 st Ed. 9221(9-48)	CFU/100 ml	Nil	--
29	Bioassay test	APHA & AWWA.21st Ed.10600(10-76)	% survival of fish after 96 hrs in 100% effluent	93	90 % survival of fish after 96 Hrs. in100 % effluent

Note: - BDL=below detection limit Detection limit: Phosphate: 0.01 mg/L, Volatile solid: 0.0001 mg/L, Phenol: 0.01 mg/L, Iron: 0.1 mg/L, Copper:0.01 mg/L, Total Chromium:0.01 mg/L, Hexavalent Chromium:0.01 mg/L, Zinc:0.01 mg/L, Lead:0.01 mg/L

Chemist

Authorized Signatory
Keta Jariwala

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Work order No: SLPP/Mines/Envt. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report

Water Analysis Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110	Report No: GLEPL/310118/21/07 Issue Date: 02/04/2018
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Lab ID Code	:	GLEPL/310118/WL ₃		
Sample Description	:	Borewell water(Hand pump In Surali village)	Purpose	: Environment Monitoring
			Sampling procedure	: IS 3025 (P-1) 1997 Ref-2014
Date of Sampling	:	31/01/2018	Sample collected by	: GLEPL Team
Date of Sample Received	:	31/01/2018	Test Parameters	: As per PO
Date of starting Analysis	:	01/02/2018	Quantity/No. of sample	: 2 Lit./1
Date of completion Analysis	:	12/02/2018	Packed/Seal	: Packed

Result Table

Sr. No.	Test Parameters	Test Method	Unit	Results	Limits: Ministry of Environment & forests (MoEF), vide notification No. GSR 742 (E),Dt.25/09/2000 Inland surface water
1	Temperature	IS:3025(P-9):1984 (Reaffirmed 2006)	°C	25.5	Shall not exceed 5 °C above the receiving water temp.
2	pH @ 25°C	IS:3025(P-11):1983 (Reaffirmed 2012)	pH unit	7.23	5.5-9.0
3	Colour	APHA & AWWA.21st Ed. 2120 B.(2-2)	Pt Co scale	<5.0	-
4	Total Suspended Solids (TSS @ 105°C)	IS:3025(P-17):1984(Reaffirmed 2012)	mg/L	33.7	100
5	Total Dissolved Solids (TDS @ 105°C)	IS:3025 (P-16):1984 (Reaffirmed 2012)	mg/L	1970.0	2100
6	Total volatile solids	IS:3025 (P-18):1984 (Reaffirmed 2012)	mg/L	BDL	--
7	BOD (5 days at 20°C)	IS:3025 (P-44):1993 (Reaffirmed 2014)	mg/L	--	30
8	COD	IS:3025 (P-58):2006 (Reaffirmed 2012)	mg/L	--	250
9	Oil & Grease	IS:3025 (P-39):1991 (Reaffirmed 2014)	mg/L	6.1	10
10	Chloride	IS:3025 (P-32):1988 (Reaffirmed 2014)	mg/L	517.4	1000
11	Sulphate	IS:3025 (P-24):1986 (Reaffirmed 2014)	mg/L	81.1	300
12	Phosphate	IS:3025 (P-31):1988 (Reaffirmed 2014)	mg/L	0.82	--
13	Phenolic Compound	IS:3025 (P-43):1992 (Reaffirmed 2014)	mg/L	BDL	1.0
14	Flouride	IS:3025 (P-60):2008 (Reaffirmed 2013)	mg/L	0.6	2.0
15	Total residual chlorine	IS:3025 (P-26):1986 (Reaffirmed 2014)	mg/L	Nil	1.0
16	Free available chlorine	IS:3025 (P-25):1986 (Reaffirmed 2014)	mg/L	Nil	--
17	Total Hardness	IS:3025 (P-21):2009 (Reaffirmed 2014)	mg/L	643.5	--
18	Total Alkalinity	IS:3025 (P-23):1986 (Reaffirmed 2014)	mg/L	475.0	--
19	Iron	IS:3025 (P-53):2003 (Reaffirmed 2014)	mg/L	2.0	3.0
20	Copper	IS:3025 (P-42):1992 (Reaffirmed 2014)	mg/L	BDL	3.0
21	Total Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	2.0
22	Hexavalent Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	0.1
23	Zinc	IS:3025 (P-49):1994 (Reaffirmed 2014)	mg/L	BDL	5.0
24	Lead	IS:3025 (P-47):1994 (Reaffirmed 2014)	mg/L	BDL	0.1
25	Calcium	IS:3025 (P-40):1991 (Reaffirmed 2014)	mg/L	83.3	--
26	Magnesium	IS:3025 (P-46):1994 (Reaffirmed 2014)	mg/L	105.9	--
27	Percent sodium	IS 3025 (P-45) 1993 & APHA, AWWA, WEF 21 st Edition 2005	%	42.0	--
28	Coliform organism (MPN)	APHA & AWWA.21 st Ed. 9221(9-48)	CFU/100 ml	Nil	--
29	Bioassay test	APHA & AWWA.21st Ed.10600(10-76)	% survival of fish after 96 hrs in 100% effluent	92	90 % survival of fish after 96 Hrs. in100 % effluent

Note: - BDL=below detection limit Detection limit: Volatile solid: 0.0001 mg/L ,Phenol: 0.01 mg/L, Copper: 0.01 mg/L, Total Chromium: 0.01 mg/L, Hexavalent Chromium: 0.01 mg/L, Zinc :0.01 mg/L, Lead: 0.01 mg/L

Chemist

Authorized Signatory
Keta Jariwala

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Work order No: SLPP/Mines/Envt. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report

Water Analysis Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110	Report No: GLEPL/310118/21/08 Issue Date: 02/04/2018
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Lab ID Code	:	GLEPL/310118/WL ₄		
Sample Description	:	Borewell water (Mosali Char rasta)	Purpose	: Environment Monitoring
Date of Sampling	:	31/01/2018	Sampling procedure	: IS 3025 (P-1) 1997 Ref-2014
Date of Sample Received	:	31/01/2018	Sample collected by	: GLEPL Team
Date of starting Analysis	:	01/02/2018	Test Parameters	: As per PO
Date of completion Analysis	:	09/02/2018	Quantity/No. of sample	: 2 Lit./1
			Packed/Seal	: Packed

Result Table

Sr. No.	Test Parameters	Test Method	Unit	Results	Limits: Ministry of Environment & forests (MoEF), vide notification No. GSR 742 (E), Dt.25/09/2000 Inland surface water
1	Temperature	IS:3025(P-9):1984 (Reaffirmed 2006)	°C	25.6	Shall not exceed 5 °C above the receiving water temp.
2	pH @ 25°C	IS:3025(P-11):1983 (Reaffirmed 2012)	pH unit	7.43	5.5-9.0
3	Colour	APHA & AWWA.21st Ed. 2120 B.(2-2)	Pt Co scale	<5.0	-
4	Total Suspended Solids (TSS @ 105°C)	IS:3025(P-17):1984(Reaffirmed 2012)	mg/L	9.7	100
5	Total Dissolved Solids (TDS @ 105°C)	IS:3025 (P-16):1984 (Reaffirmed 2012)	mg/L	2750.0	2100
6	Total volatile solids	IS:3025 (P-18):1984 (Reaffirmed 2012)	mg/L	BDL	--
7	BOD (5 days at 20°C)	IS:3025 (P-44):1993 (Reaffirmed 2014)	mg/L	--	30
8	COD	IS:3025 (P-58):2006 (Reaffirmed 2012)	mg/L	--	250
9	Oil & Grease	IS:3025 (P-39):1991 (Reaffirmed 2014)	mg/L	6.5	10
10	Chloride	IS:3025 (P-32):1988 (Reaffirmed 2014)	mg/L	1005.2	1000
11	Sulphate	IS-3025 (P-24):1986 (Reaffirmed 2014)	mg/L	69.9	300
12	Phosphate	IS:3025 (P-31):1988 (Reaffirmed 2014)	mg/L	BDL	--
13	Phenolic Compound	IS:3025 (P-43):1992 (Reaffirmed 2014)	mg/L	BDL	1.0
14	Flouride	IS:3025 (P-60):2008 (Reaffirmed 2013)	mg/L	BDL	2.0
15	Total residual chlorine	IS:3025 (P-26):1986 (Reaffirmed 2014)	mg/L	Nil	1.0
16	Free available chlorine	IS:3025 (P-25):1986 (Reaffirmed 2014)	mg/L	Nil	--
17	Total Hardness	IS:3025 (P-21):2009 (Reaffirmed 2014)	mg/L	673.2	--
18	Total Alkalinity	IS:3025 (P-23):1986 (Reaffirmed 2014)	mg/L	95.0	--
19	Iron	IS:3025 (P-53):2003 (Reaffirmed 2014)	mg/L	0.13	3.0
20	Copper	IS:3025 (P-42):1992 (Reaffirmed 2014)	mg/L	BDL	3.0
21	Total Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	2.0
22	Hexavalent Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	0.1
23	Zinc	IS:3025 (P-49):1994 (Reaffirmed 2014)	mg/L	BDL	5.0
24	Lead	IS:3025 (P-47):1994 (Reaffirmed 2014)	mg/L	BDL	0.1
25	Calcium	IS:3025 (P-40):1991 (Reaffirmed 2014)	mg/L	246.0	--
26	Magnesium	IS:3025 (P-46):1994 (Reaffirmed 2014)	mg/L	14.4	--
27	Percent sodium	IS 3025 (P-45) 1993 & APHA, AWWA, WEF 21 st Edition 2005	%	52.5	--
28	Coliform organism (MPN)	APHA & AWWA.21 st Ed. 9221(9-48)	CFU/100 ml	Nil	--
29	Bioassay test	APHA & AWWA.21st Ed.10600(10-76)	% survival of fish after 96 hrs in 100% effluent	91	90 % survival of fish after 96 Hrs. in 100 % effluent

Note: - BDL=below detection limit Detection limit: Phosphate: 0.01 mg/L, Volatile solid: 0.0001 mg/L, Phenol: 0.01 mg/L, fluoride: 0.02 mg/L, Copper:0.01 mg/L, Total Chromium:0.01 mg/L, Hexavalent Chromium:0.01 mg/L, Zinc:0.01 mg/L, Lead:0.01 mg/L

Chemist

Authorized Signatory
Keta Jariwala

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Work order No: SLPP/Mines/Envt. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report
Water Analysis Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110	Report No: GLEPL/310118/21/09 Issue Date: 02/04/2018
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Lab ID Code	:	GLEPL/310118/WL ₅	Purpose	:	Environment Monitoring
Sample Description	:	Borewell water (Nani Naroli village)	Sampling procedure	:	IS 3025 (P-1) 1997 Ref-2014
Date of Sampling	:	31/01/2018	Sample collected by	:	GLEPL Team
Date of Sample Received	:	31/01/2018	Test Parameters	:	As per PO
Date of starting Analysis	:	01/02/2018	Quantity/No. of sample	:	2 Lit./1
Date of completion Analysis	:	09/02/2018	Packed/Seal	:	Packed

Result Table

Sr. No.	Test Parameters	Test Method	Unit	Results	Limits: Ministry of Environment & forests (MoEF), vide notification No. GSR 742 (E),Dt.25/09/2000 Inland surface water
1	Temperature	IS:3025(P-9):1984 (Reaffirmed 2006)	°C	25.4	Shall not exceed 5 °C above the receiving water temp. 5.5-9.0
2	pH @ 25°C	IS:3025(P-11):1983 (Reaffirmed 2012)	pH unit	7.50	
3	Colour	APHA & AWWA.21st Ed. 2120 B.(2-2)	Pt Co scale	<5.0	-
4	Total Suspended Solids (TSS @ 105°C)	IS:3025(P-17):1984(Reaffirmed 2012)	mg/L	1.5	100
5	Total Dissolved Solids (TDS @ 105°C)	IS:3025 (P-16):1984 (Reaffirmed 2012)	mg/L	542.0	2100
6	Total volatile solids	IS:3025 (P-18):1984 (Reaffirmed 2012)	mg/L	BDL	--
7	BOD (5 days at 20°C)	IS:3025 (P-44):1993 (Reaffirmed 2014)	mg/L	--	30
8	COD	IS:3025 (P-58):2006 (Reaffirmed 2012)	mg/L	--	250
9	Oil & Grease	IS:3025 (P-39):1991 (Reaffirmed 2014)	mg/L	5.0	10
10	Chloride	IS:3025 (P-32):1988 (Reaffirmed 2014)	mg/L	59.1	1000
11	Sulphate	IS-3025 (P-24):1986 (Reaffirmed 2014)	mg/L	22.8	300
12	Phosphate	IS:3025 (P-31):1988 (Reaffirmed 2014)	mg/L	BDL	--
13	Phenolic Compound	IS:3025 (P-43):1992 (Reaffirmed 2014)	mg/L	BDL	1.0
14	Flouride	IS:3025 (P-60):2008 (Reaffirmed 2013)	mg/L	BDL	2.0
15	Total residual chlorine	IS:3025 (P-26):1986 (Reaffirmed 2014)	mg/L	Nil	1.0
16	Free available chlorine	IS:3025 (P-25):1986 (Reaffirmed 2014)	mg/L	Nil	--
17	Total Hardness	IS:3025 (P-21):2009 (Reaffirmed 2014)	mg/L	316.8	--
18	Total Alkalinity	IS:3025 (P-23):1986 (Reaffirmed 2014)	mg/L	325.0	--
19	Iron	IS:3025 (P-53):2003 (Reaffirmed 2014)	mg/L	BDL	3.0
20	Copper	IS:3025 (P-42):1992 (Reaffirmed 2014)	mg/L	BDL	3.0
21	Total Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	2.0
22	Hexavalent Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	0.1
23	Zinc	IS:3025 (P-49):1994 (Reaffirmed 2014)	mg/L	BDL	5.0
24	Lead	IS:3025 (P-47):1994 (Reaffirmed 2014)	mg/L	BDL	0.1
25	Calcium	IS:3025 (P-40):1991 (Reaffirmed 2014)	mg/L	68.2	--
26	Magnesium	IS:3025 (P-46):1994 (Reaffirmed 2014)	mg/L	35.6	--
27	Percent sodium	IS 3025 (P-45) 1993 & APHA, AWWA,WEF 21 st Edition 2005	%	30.5	--
28	Coliform organism (MPN)	APHA & AWWA.21 st Ed. 9221(9-48)	CFU/100 ml	Nil	--
29	Bioassay test	APHA & AWWA.21st Ed.10600(10-76)	% survival of fish after 96 hrs in 100% effluent	93	90 % survival of fish after 96 Hrs. in100 % effluent

Note: - BDL=below detection limit Detection limit: Phosphate: 0.01 mg/L, Volatile solid: 0.0001 mg/L, Phenol: 0.01 mg/L, Flouride:0.02 mg/L,Iron: 0.1 mg/L, Copper:0.01 mg/L, Total Chromium:0.01 mg/L, Hexavalent Chromium:0.01 mg/L, Zinc:0.01 mg/L, Lead:0.01 mg/L

Chemist

Authorized Signatory
Keta Jariwala

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Work order No: SLPP/Mines/Envt. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report

Water Analysis Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110	Report No: GLEPL/310118/21/10 Issue Date: 02/04/2018
--	--

Lab ID Code	: GLEPL/310118/WL ₆	Purpose	: Environment Monitoring
Sample Description	: Surface water (Vastan Village - Natural Pond)	Sampling procedure	: IS 3025 (P-1) 1997 Ref-2014
Date of Sampling	: 31/01/2018	Sample collected by	: GLEPL Team
Date of Sample Received	: 31/01/2018	Test Parameters	: As per PO
Date of starting Analysis	: 01/02/2018	Quantity/No. of sample	: 2 Lit./1
Date of completion Analysis	: 12/02/2018	Packed/Seal	: Packed

Result Table

Sr. No.	Test Parameters	Test Method	Unit	Results	Limits: Ministry of Environment & forests (MoEF), vide notification No. GSR 742 (E), Dt.25/09/2000 Inland surface water
1	Temperature	IS:3025(P-9):1984 (Reaffirmed 2006)	°C	25.5	Shall not exceed 5 °C above the receiving water temp.
2	pH @ 25°C	IS:3025(P-11):1983 (Reaffirmed 2012)	pH unit	7.10	5.5-9.0
3	Colour	APHA & AWWA.21st Ed. 2120 B.(2-2)	Pt Co scale	<5.0	-
4	Total Suspended Solids (TSS @ 105°C)	IS:3025(P-17):1984(Reaffirmed 2012)	mg/L	7.4	100
5	Total Dissolved Solids (TDS @ 105°C)	IS:3025 (P-16):1984 (Reaffirmed 2012)	mg/L	255.1	2100
6	Total volatile solids	IS:3025 (P-18):1984 (Reaffirmed 2012)	mg/L	BDL	--
7	BOD (5 days at 20°C)	IS:3025 (P-44):1993 (Reaffirmed 2014)	mg/L	--	30
8	COD	IS:3025 (P-58):2006 (Reaffirmed 2012)	mg/L	--	250
9	Oil & Grease	IS:3025 (P-39):1991 (Reaffirmed 2014)	mg/L	2.3	10
10	Chloride	IS:3025 (P-32):1988 (Reaffirmed 2014)	mg/L	20.9	1000
11	Sulphate	IS-3025 (P-24):1986 (Reaffirmed 2014)	mg/L	48.5	300
12	Phosphate	IS:3025 (P-31):1988 (Reaffirmed 2014)	mg/L	3.8	--
13	Phenolic Compound	IS:3025 (P-43):1992 (Reaffirmed 2014)	mg/L	BDL	1.0
14	Flouride	IS:3025 (P-60):2008 (Reaffirmed 2013)	mg/L	0.7	2.0
15	Total residual chlorine	IS:3025 (P-26):1986 (Reaffirmed 2014)	mg/L	Nil	1.0
16	Free available chlorine	IS:3025 (P-25):1986 (Reaffirmed 2014)	mg/L	Nil	--
17	Total Hardness	IS:3025 (P-21):2009 (Reaffirmed 2014)	mg/L	203.8	--
18	Total Alkalinity	IS:3025 (P-23):1986 (Reaffirmed 2014)	mg/L	146.2	--
19	Iron	IS:3025 (P-53):2003 (Reaffirmed 2014)	mg/L	0.3	3.0
20	Copper	IS:3025 (P-42):1992 (Reaffirmed 2014)	mg/L	BDL	3.0
21	Total Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	2.0
22	Hexavalent Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	0.1
23	Zinc	IS:3025 (P-49):1994 (Reaffirmed 2014)	mg/L	BDL	5.0
24	Lead	IS:3025 (P-47):1994 (Reaffirmed 2014)	mg/L	BDL	0.1
25	Calcium	IS:3025 (P-40):1991 (Reaffirmed 2014)	mg/L	22.6	--
26	Magnesium	IS:3025 (P-46):1994 (Reaffirmed 2014)	mg/L	41.4	--
27	Percent sodium	IS 3025 (P-45) 1993 & APHA, AWWA, WEF 21 st Edition 2005	%	0.07	--
28	Coliform organism (MPN)	APHA & AWWA.21 st Ed. 9221(9-48)	CFU/100 ml	Nil	--
29	Bioassay test	APHA & AWWA.21st Ed.10600(10-76)	% survival of fish after 96 hrs in 100% effluent	91	90 % survival of fish after 96 Hrs. in100 % effluent

Note: - BDL=below detection limit Detection limit: Volatile solid: 0.0001 mg/L, Phenol: 0.01 mg/L, Copper:0.01 mg/L, Total Chromium:0.01 mg/L, Hexavalent Chromium:0.01 mg/L, Zinc:0.01 mg/L, Lead:0.01 mg/L

Chemist

Authorized Signatory
Keta Jariwala

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Work order No: SLPP/Mines/Envt. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report
Water Analysis Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110	Report No: GLEPL/310118/21/11 Issue Date: 02/04/2018
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Lab ID Code	:	GLEPL/310118/WL ₇		
Sample Description	:	Borewell water (Vastan village)	Purpose	: Environment Monitoring
			Sampling procedure	: IS 3025 (P-1) 1997 Ref-2014
Date of Sampling	:	31/01/2018	Sample collected by	: GLEPL Team
Date of Sample Received	:	31/01/2018	Test Parameters	: As per PO
Date of starting Analysis	:	01/02/2018	Quantity/No. of sample	: 2 Lit./1
Date of completion Analysis	:	12/02/2018	Packed/Seal	: Packed

Result Table

Sr. No.	Test Parameters	Test Method	Unit	Results	Limits: Ministry of Environment & forests (MoEF), vide notification No. GSR 742 (E),Dt.25/09/2000 Inland surface water
1	Temperature	IS:3025(P-9):1984 (Reaffirmed 2006)	°C	25.2	Shall not exceed 5 °C above the receiving water temp.
2	pH @ 25°C	IS:3025(P-11):1983 (Reaffirmed 2012)	pH unit	7.03	5.5-9.0
3	Colour	APHA & AWWA.21st Ed. 2120 B.(2-2)	Pt Co scale	5.0	-
4	Total Suspended Solids (TSS @ 105°C)	IS:3025(P-17):1984(Reaffirmed 2012)	mg/L	63.7	100
5	Total Dissolved Solids (TDS @ 105°C)	IS:3025 (P-16):1984 (Reaffirmed 2012)	mg/L	1700.0	2100
6	Total volatile solids	IS:3025 (P-18):1984 (Reaffirmed 2012)	mg/L	BDL	--
7	BOD (5 days at 20°C)	IS:3025 (P-44):1993 (Reaffirmed 2014)	mg/L	--	30
8	COD	IS:3025 (P-58):2006 (Reaffirmed 2012)	mg/L	--	250
9	Oil & Grease	IS:3025 (P-39):1991 (Reaffirmed 2014)	mg/L	4.2	10
10	Chloride	IS:3025 (P-32):1988 (Reaffirmed 2014)	mg/L	349.9	1000
11	Sulphate	IS-3025 (P-24):1986 (Reaffirmed 2014)	mg/L	110.2	300
12	Phosphate	IS:3025 (P-31):1988 (Reaffirmed 2014)	mg/L	BDL	--
13	Phenolic Compound	IS:3025 (P-43):1992 (Reaffirmed 2014)	mg/L	BDL	1.0
14	Flouride	IS:3025 (P-60):2008 (Reaffirmed 2013)	mg/L	BDL	2.0
15	Total residual chlorine	IS:3025 (P-26):1986 (Reaffirmed 2014)	mg/L	Nil	1.0
16	Free available chlorine	IS:3025 (P-25):1986 (Reaffirmed 2014)	mg/L	Nil	--
17	Total Hardness	IS:3025 (P-21):2009 (Reaffirmed 2014)	mg/L	910.2	--
18	Total Alkalinity	IS:3025 (P-23):1986 (Reaffirmed 2014)	mg/L	365.0	--
19	Iron	IS:3025 (P-53):2003 (Reaffirmed 2014)	mg/L	1.1	3.0
20	Copper	IS:3025 (P-42):1992 (Reaffirmed 2014)	mg/L	BDL	3.0
21	Total Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	2.0
22	Hexavalent Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	0.1
23	Zinc	IS:3025 (P-49):1994 (Reaffirmed 2014)	mg/L	BDL	5.0
24	Lead	IS:3025 (P-47):1994 (Reaffirmed 2014)	mg/L	BDL	0.1
25	Calcium	IS:3025 (P-40):1991 (Reaffirmed 2014)	mg/L	130.9	--
26	Magnesium	IS:3025 (P-46):1994 (Reaffirmed 2014)	mg/L	141.9	--
27	Percent sodium	IS 3025 (P-45) 1993 & APHA, AWWA, WEF 21 st Edition 2005	%	17.6	--
28	Coliform organism (MPN)	APHA & AWWA.21 st Ed. 9221(9-48)	CFU/100 ml	Nil	--
29	Bioassay test	APHA & AWWA.21st Ed.10600(10-76)	% survival of fish after 96 hrs in 100% effluent	92	90 % survival of fish after 96 Hrs. in100 % effluent

Note: - BDL=below detection limit Detection limit: Volatile solid: 0.0001 mg/L, Fluoride:0.02 mg/L ,Phenol: 0.01 mg/L, Copper:0.01 mg/L, Total Chromium:0.01 mg/L, Hexavalent Chromium:0.01 mg/L, Zinc:0.01 mg/L, Lead:0.01 mg/L

Chemist

Authorized Signatory
Keta Jariwala

Note:

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Work order No: SLPP/Mines/Envt. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report
Water Analysis Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110	Report No: GLEPL/310118/21/12 Issue Date: 02/04/2018
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Lab ID Code	:	GLEPL/310118/WL ₈	Purpose	:	Environment Monitoring
Sample Description	:	Ansodla village	Sampling procedure	:	IS 3025 (P-1) 1997 Ref-2014
Date of Sampling	:	31/01/2018	Sample collected by	:	GLEPL Team
Date of Sample Received	:	31/01/2018	Test Parameters	:	As per PO
Date of starting Analysis	:	01/02/2018	Quantity/No. of sample	:	2 Lit./1
Date of completion Analysis	:	12/02/2018	Packed/Seal	:	Packed

Result Table

Sr. No.	Test Parameters	Test Method	Unit	Results	Limits: Ministry of Environment & forests (MoEF), vide notification No. GSR 742 (E),Dt.25/09/2000 Inland surface water
1	Temperature	IS:3025(P-9):1984 (Reaffirmed 2006)	°C	25.4	Shall not exceed 5 °C above the receiving water temp.
2	pH @ 25°C	IS:3025(P-11):1983 (Reaffirmed 2012)	pH unit	7.20	5.5-9.0
3	Colour	APHA & AWWA.21st Ed. 2120 B.(2-2)	Pt Co scale	5.0	-
4	Total Suspended Solids (TSS @ 105°C)	IS:3025(P-17):1984(Reaffirmed 2012)	mg/L	6.5	100
5	Total Dissolved Solids (TDS @ 105°C)	IS:3025 (P-16):1984 (Reaffirmed 2012)	mg/L	1320.0	2100
6	Total volatile solids	IS:3025 (P-18):1984 (Reaffirmed 2012)	mg/L	BDL	--
7	BOD (5 days at 20°C)	IS:3025 (P-44):1993 (Reaffirmed 2014)	mg/L	--	30
8	COD	IS:3025 (P-58):2006 (Reaffirmed 2012)	mg/L	--	250
9	Oil & Grease	IS:3025 (P-39):1991 (Reaffirmed 2014)	mg/L	7.2	10
10	Chloride	IS:3025 (P-32):1988 (Reaffirmed 2014)	mg/L	280.9	1000
11	Sulphate	IS:3025 (P-24):1986 (Reaffirmed 2014)	mg/L	71.3	300
12	Phosphate	IS:3025 (P-31):1988 (Reaffirmed 2014)	mg/L	BDL	--
13	Phenolic Compound	IS:3025 (P-43):1992 (Reaffirmed 2014)	mg/L	BDL	1.0
14	Flouride	IS:3025 (P-60):2008 (Reaffirmed 2013)	mg/L	0.19	2.0
15	Total residual chlorine	IS:3025 (P-26):1986 (Reaffirmed 2014)	mg/L	Nil	1.0
16	Free available chlorine	IS:3025 (P-25):1986 (Reaffirmed 2014)	mg/L	Nil	--
17	Total Hardness	IS:3025 (P-21):2009 (Reaffirmed 2014)	mg/L	564.3	--
18	Total Alkalinity	IS:3025 (P-23):1986 (Reaffirmed 2014)	mg/L	345.0	--
19	Iron	IS:3025 (P-53):2003 (Reaffirmed 2014)	mg/L	BDL	3.0
20	Copper	IS:3025 (P-42):1992 (Reaffirmed 2014)	mg/L	BDL	3.0
21	Total Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	2.0
22	Hexavalent Chromium	IS:3025 (P-52):2003 (Reaffirmed 2014)	mg/L	BDL	0.1
23	Zinc	IS:3025 (P-49):1994 (Reaffirmed 2014)	mg/L	BDL	5.0
24	Lead	IS:3025 (P-47):1994 (Reaffirmed 2014)	mg/L	BDL	0.1
25	Calcium	IS:3025 (P-40):1991 (Reaffirmed 2014)	mg/L	87.3	--
26	Magnesium	IS:3025 (P-46):1994 (Reaffirmed 2014)	mg/L	84.2	--
27	Percent sodium	IS 3025 (P-45) 1993 & APHA, AWWA, WEF 21 st Edition 2005	%	26.5	--
28	Coliform organism (MPN)	APHA & AWWA.21 st Ed. 9221(9-48)	CFU/100 ml	Nil	--
29	Bioassay test	APHA & AWWA.21st Ed.10600(10-76)	% survival of fish after 96 hrs in 100% effluent	93	90 % survival of fish after 96 Hrs. in100 % effluent

Note: - BDL=below detection limit Detection limit:,Phosphate: 0.01mg/L, Volatile solid: 0.0001 mg/L, Phenol: 0.01 mg/L, Iron:0.1 mg/L, Copper:0.01 mg/L, Total Chromium:0.01 mg/L, Hexavalent Chromium:0.01 mg/L, Zinc:0.01 mg/L, Lead:0.01 mg/L

Chemist

Authorized Signatory
Keta Jariwala

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Work order No: SLPP/Mines/Envt. Monitoring 2017-18/3027 Dated 15.07.2017

Test Report

Noise Level Monitoring Report

Client's Name & Address: GUJARAT INDUSTRIES POWER COMPANY LIMITED (Vastan Lignite opencast Mine) Village: Vastan, Taluka : Mangrol, Dist: Surat-394110	Report No: GLEPL/070218/21/13 Issue Date: 02/04/2018
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Lab ID Code	:	GLEPL/070218/N ₁ -N ₈			
Date of Monitoring	:	07/02/2018	Purpose	:	Environment Monitoring
Date of Measurement & Completion	:	07/02/2018	Test Parameters	:	As per PO
			Sampling procedure	:	IS 4758: 1968 Ref-2017
Noise level Monitored by	:	GLEPL Team	Quantity/No. of sample	:	08 Nos.

Result Table

Sr. No.	Location	Day Time dB (A)		Night Time dB (A)	
		75		70	
GPCB Limit		Max.	Min.	Max.	Min.
1	Lignite cutting area	64.8	62.7	59.4	57.8
2	Overburden cutting area	62.5	60.1	60.1	58.3
3	Mines boundary	59.0	57.3	57.5	55.0
4	Overburden dumping area	61.4	59.6	62.3	60.2
5	Mine site office	58.1	56.8	58.6	56.1
6	Vastan Village	65.3	63.5	61.0	59.5
7	Surali village	66.7	64.2	56.7	54.9
8	Tadkeshwar village	60.9	58.4	59.9	57.4

Day Time: 06.00 A.M. to 10.00 P.M. ,Night Time: 10.00 P.M. to 06.00 A.M.

Chemist

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