Environmental Impact Assessment

Project Number: 43253-026

June 2019

India: Karnataka Integrated and Sustainable Water Resources Management Investment Program – Project 2

Vijayanagara Channels

Annexure 3

Prepared by Project Management Unit, Karnataka Integrated and Sustainable Water Resources Management Investment Program Karnataka Neeravari Nigam Ltd. for the Asian Development Bank. This is an updated version of the draft originally posted in June 2018 available on https://www.adb.org/India:Karnataka Integrated and Sustainable Water

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Air, Noise and Water Quality Analysis Reports



(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ನಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ಸ್ ಅಂಡ್ ಸೇಫ್ಸಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣಾ) ಕಾಯ್ಕೆ 1986 ರ ಕಲಂ 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ : 09.02.2017 ರಿಂದ 08.02.2022

एनवायरमेटल हेल्थ एण्ड सेफ्टी रिसर्च एण्ड डेवलेपमेंट सेंटर

(पर्यावरण (संरक्षण) अधिनियम, 1986 अनुभाग 12 की धारा मान्यता प्राप्त प्रयोगशाला) न्यु दिल्ली, मान्यता तारीख: 09.02.2017 - 08.02.2022

ISO 9001 : 2008, ISO14001 : 2015 & BS OHSAS 18001 : 2007

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the Station

GPS Location of Monitoring Station 2.

3. Name of the Project

4. Sample Collected by

Date of Collection 5.

Particulars of Sample Collected

Date of Sample Receipt

8. Sample Number 9. Report to be Sent

10. Page No Basavanna Canal in Hospet City (Near Old Amaravathi Village)

North: 15º 16'13.8", East: 076º 22' 33.7" Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560 010.

09.04.2018

Ambient Air collected through Pine Particulate Sampler - APM 550

Respirable Dust Sampler - 460NL, CO & O3 Analyzers.

Instrument ID: RDS: 1109-DTG-2012, Calibration Due:29/06/2018, Gaseous Sampler:4932-DTK-2012, Calibration Due:30/06/2018, PM 2.5: FPS: 211-DTA-2016, Calibration Due: 22/01/2019.

11.04.2018

EHSRDC/VNC/A/18/04/367

17.04.2018 1 of 1

SL No	Parameters	Unit	Results	NAAQ Standards (2009)	Methods
	Period of sampling	Hrs	24 8:00am to 8:00am	24	
I.	Particulate Matter (PM 10)	μg/ m ³	74	100	IS: 5182 (P 23)-2006
2,	Particulate Matter (PM 2.5)	$\mu g/m^3$	18	60	USEPA 40 CFR (P 53)
3.	Sulphur dioxide (SO ₂)	μg/ m ³	7.64	80	
4.	Nitrogen dioxide (NO ₂)	μg/ m ³	13.06	80	IS: 5182 (P2)-2001
5.	Lead (Pb)	µg/m³	0.079	1.0 (24 hr Average)	IS: 5182 (P6)-2006
6.	Nickel (Ni)	ng/m³	BDL	20.0 (Annual Average)	Lab-SOP No. EHSRDC/SOP/ 001 based on -CPCB Guidelines for
7.	Arsenic (As)	ng/m³	BDL	6.0 (Annual Average)	the Measurement of Ambient Ai Pollutants Volume-I ,2011
8.	Carbon Monoxide (CO)	mg/m³	1.51	4.0 (1 hr Average)	IS: 5182 (P 10)-1999
9	Ozone (O ₃)	µg/m³	3,44	180 (1 hr Average)	Instrument method
10.	Ammonia (NH ₃)	μg/m³	5.77	400.0 (24 hr Average)	CPCB Guidelines Volume-2 NAAQMS/37/2012-2013
11.	Benzene (C ₆ H ₆)	µg/m³	BDL	5.0 (Annual Average)	IS:5182 (P 11)-2006
12.	Benzo (a) pyrene (BaP)	ng/m³	BDL	1.0 (Annual Average)	
13.	NMHC (Non Methane Hydro Carbon)	μg/m³	BDL	(Attitual Average)	IS:5182 (P 12)-2004 IS: 5182 (P 21) : 2001

INFERENCE

As per NAAQ Standards,

Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standards.

End of Report

Government Analyst

Concern towards protecting Environment

Office Address: No.13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. ಕಟೇವಿ ವಿಲಾಸ್: ನಂ 13/2 1ನೇ ಮುಖಗಳ ಅಗಿಕಾರ್ಯಕರ್ನೇಗಿ ಹತ್ತಿಗೆ ಅಂಡು ಅಗುಂತ ಚಿತ್ರಕ್ ಕಾಲಾಟಕರ ಚಿತ್ರಗಳ ಎಂದ ಕರಣಗಳ



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ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the Station

2. GPS Location of Monitoring Station

3. Name of the Project

4. Sample Collected by

5. Date of Collection

Particulars of Sample Collected

Date of Sample Receipt 8.

Sample Number 9. Report to be Sent

10. Page No

Hulagi Anicut (Near Hole Muddalapura) North: 15º 17'01.5", East: 076º 20' 01.7"

Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560 010.

09.04.2018

Ambient Air collected through Fine Particulate Sampler - APM 550

Respirable Dust Sampler - 460NL, CO & O3 Analyzers.

Instrument ID: RDS: 1092-DTC-2012, Calibration Due: 28/06/2018, Gaseous Sampler:905-DTL-2010, Calibration Due:29/06/2018, PM 2.5; FPS: 118-DTK-2012, Calibration Due: 30/06/2018.

: 11.04.2018

EHSRDC/VNC/A/18/04/368

17.04.2018 1 of 1

Sl.No	Parameters	(2009)		NAAQ Standards (2009)	Methods
	Period of sampling	Hrs	24 8:30am to 8:30am	24	MINISTER THE TOTAL PROPERTY.
1.	Particulate Matter (PM 10)	μg/ m ³	μg/ m ³ 60	100	IS: 5182 (P 23)-2006
2.	Particulate Matter (PM 25)	μg/ m ³	12	60	USEPA 40 CFR (P 53)
3.	Sulphur dioxide (SO ₂)	μg/ m ³	6.68	80	IS: 5182 (P2)-2001
4.	Nitrogen dioxide (NO2)	μg/ m ³	10.94	80	IS: 5182 (P6)-2006
5,	Lead (Pb)	μg/m ³	0.052	1.0 (24 hr Average)	Lab-SOP No.
6.	Nickel (Ni)	ng/m³	BDL	20.0 (Annual Average)	EHSRDC/SOP/ 001 based on -CPCB Guidelines for
7.	7. Arsenic (As)		BDL	6.0 (Annual Average)	the Measurement of Ambient Air Pollutants Volume-I ,2011
8.	Carbon Monoxide (CO)	mg/m³	1.08	4.0 (1 hr Average)	IS: 5182 (P 10)-1999
9.	Ozone (O ₃)	μg/m ³	2.91	180 (1 hr Average)	Instrument method
10.	Ammonia (NH ₃)	μg/m³	4.78	400.0 (24 hr Average)	CPCB Guidelines Volume-2 NAAQMS/37/2012-2013
11.	Benzene (C ₆ H ₆)	μg/m³	BDL	5.0 (Annual Average)	IS: 5182 (P 11)-2006
12.	Benzo (a) pyrene (BaP)	ng/m³	BDL	1.0 (Annual Average)	
13.	NMHC (Non Methane Hydro Carbon) DL: Below Detectable Limit,	μg/m³	BDL	(Fundam Prve(age)	IS:5182 (P 12)-2004 IS: 5182 (P 21) : 2001

INFERENCE

As per NAAQ Standards,

Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standards.

End of Report

Government Analyst

Concern towards protecting Environment

Office Address: No.13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010. ಕರ್ನೆಂಗಿ ವಿಲಾಸ್: ಸೂ 12/9 1ನೇ ಮುಂಗಿಸ್ ಜನಿಕ್ಕಾಗುವವೇನಿನ ವರಿನ ಸ್ವಾರ್ ಸಾಮ್ ಸ್ವಾಸ್ ಸ್ವಾಸ್ ಸ್ವಾಸ್ ಸ್ವಾಸ್ ಸ್ವಾಸ್ ಸ್ವಾಸ್



(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟ್ರಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣ) ಕಾಯ್ದೆ 1986 ರ ಕಲಂ 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ: 09.02.2017 ರಿಂದ 08.02.2022

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(पर्यावरण (संरक्षण) अधिनियम, 1986 अनुभाग 12 की धारा मान्यता प्राप्त प्रयोगशाला) न्यु दिल्ली, मान्यता तारीख. 09.02.2017 - 08.02.2022

ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the Station

2. GPS Location of Monitoring Station

3. Name of the Project

4. Sample Collected by

5. Date of Collection

6. Particulars of Sample Collected

: Turtha Canal in Hampi Town

: North: 15º 19'34.2", East: 076º 27' 35.9"

Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

 M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560 010.

: 09.04.2018

: Ambient Air collected through

Fine Particulate Sampler - APM 550

Respirable Dust Sampler - 460NL, CO & O3 Analyzers.

Instrument ID: RDS: 1725-DTI-2012, Calibration Due:30/06/2018, Gaseous Sampler:909-DTL-2010, Calibration Due:29/06/2018, PM 2.5: FPS: 73-DTE-2012, Calibration Due: 29/06/2018.

Date of Sample Receipt

8. Sample Number

Report to be Sent

10. Page No

: 11.04.2018

: EHSRDC/VNC/A/18/04/369

: 17.04.2018

: 1 of 1

SI, No	Parameters	Unit	Results	NAAQ Standards (2009)	Methods
	Period of sampling	Hrs	24 9:15am to 9:15am	24	
1.	Particulate Matter (PM 10)	µg/ m³	62	100	IS: 5182 (P 23)-2006
2.	Particulate Matter (PM 2.5)	μg/ m ³	15	60	USEPA 40 CFR (P 53)
3.	Sulphur dioxide (SO ₂)	μg/ m ³	7.32	80	IS: 5182 (P2)-2001
4.	Nitrogen dioxide (NO2)	μg/ m ³	11.27	80	IS: 5182 (P6)-2006
5,	Lead (Pb)	μg/m³	BDL	1.0 (24 hr Average)	Lab-SOP No.
6.	Nickel (Ni)	(Ni) ng/m ³		20.0 (Annual Average)	EHSRDC/SOP/ 001 based on -CPCB Guidelines for
7.	Arsenic (As)	ng/m³	BDL	6.0 (Annual Average)	the Measurement of Ambient Ai Pollutants Volume-1,2011
8.	Carbon Monoxide (CO)	mg/m³	1.18	4.0 (1 hr Average)	IS: 5182 (P 10)-1999
9.	Ozone (O ₃)	μg/m³	2.83	180 (1 hr Average)	Instrument method
10.	Ammonia (NH ₃)	μg/m³	4.83	400.0 (24 hr Average)	CPCB Guidelines Volume-2 NAAQMS/37/2012-2013
11.	Benzene (C ₆ H ₆)	μg/m ³	BDL	5.0 (Annual Average)	IS: 5182 (P 11)-2006
12.	Benzo (a) pyrene (BaP)	ng/m³	BDL	1.0 (Annual Average)	IS:5182 (P 12)-2004
13.	NMHC (Non Methane Hydro Carbon)	μg/m³	BDL	-	IS: 5182 (P 21) : 2001

INFERENCE

As per NAAQ Standards,

Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standards.

End of Report

Playerna

Government Analyst

Concern towards protecting Environment

Office Address : No.13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010.



(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ರಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣಾ) ಕಾಯ್ದೆ 1986 ರ ಕಲು 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ : 09.02.2017 ರಿಂದ 08.02.2022

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ISO 9001 : 2008, ISO14001 : 2015 & BS OHSAS 18001 : 2007

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the Station

2. GPS Location of Monitoring Station

3. Name of the Project

4. Sample Collected by

5. Date of Collection

6. Particulars of Sample Collected

Kallaghatta Canal (Near Kallaghatta Village)

North: 15º 18'58.9", East: 076º 24' 25.7"

Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

 M/s. Environmental Health and Safety Research & Development Centre, Bangalore – 560 010.

: 09.04.2018

Ambient Air collected through
 Fine Particulate Sampler – APM 550

Respirable Dust Sampler - 460NL, CO & O3 Analyzers.

Instrument ID: RDS: 1386-DTJ-2016, Calibration Due:08/10/2018,

Gaseous Sampler:4929-DTK-2012, Calibration Due:30/06/2018, PM 2.5: FPS: 119-DTK-2012, Calibration Due: 30/06/2018.

Date of Sample Receipt

8. Sample Number

9. Report to be Sent

10. Page No

: 11.04.2018

: EHSRDC/VNC/A/18/04/370

: 17.04.2018

: 1 of 1

Sl.No	Parameters	Unit	Results	NAAQ Standards (2009)	Methods
	Period of sampling	Hrs	24 9:45am to 9:45am	24	
1.	Particulate Matter (PM 10)	µg/ m³	71	100	IS: 5182 (P 23)-2006
2.	Particulate Matter (PM 2.5)	μg/ m ³	17	60	
3.	Sulphur dioxide (SO ₂)	μg/ m ³	8.01	80	USEPA 40 CFR (P 53)
4.	Nitrogen dioxide (NO2)	μg/ m ³	13.17	80	IS: 5182 (P2)-2001
5.	Lead (Pb)	μg/m³	0.023	1.0 (24 hr Average)	IS: 5182 (P6)-2006
6.	Nickel (Ni)	ng/m³	BDL	20.0 (Annual Average)	Lab-SOP No. EHSRDC/SOP/ 001 based on -CPCB Guidelines for
7.	Arsenic (As)	ng/m³	BDL	6.0 (Annual Average)	the Measurement of Ambient Ai Pollutants Volume-I ,2011
8.	Carbon Monoxide (CO)	mg/m³	1.40	4.0 (1 hr Average)	IS: 5182 (P 10)-1999
9.	Ozone (O ₃)	µg/m³	3.05	180 (1 hr Average)	Instrument method
10.	Ammonia (NH ₃)	μg/m³	5,27	400.0 (24 hr Average)	CPCB Guidelines Volume-2 NAAQMS/37/2012-2013
TI.	Benzene (C ₆ H ₆)	μg/m³	BDL	5.0 (Annual Average)	The state of the s
12.	Benzo (a) pyrene (Bal³)	ng/m³	BDL.	1.0 (Annual Average)	IS: 5182 (P 11)-2006
13.	NMHC (Non-Methane Hydro Carbon)	μg/m³	BDL	(Amindat Average)	IS:5182 (P 12)-2004 IS: 5182 (P 21): 2001

INFERENCE

As per NAAQ Standards,

Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standards.

End of Report

Praveena Government Analyst



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ISO 9001 : 2008, ISO14001 : 2015 & BS OHSAS 18001 : 2007

Test Report

ANALYSIS REPORT OF AMBIENT AIR QUALITY

Name of the Station 1.

2. GPS Location of Monitoring Station

3. Name of the Project

4. Sample Collected by

5. Date of Collection

Particulars of Sample Collected

Date of Sample Receipt 8.

Sample Number 9. Report to be Sent

Page No

Anegundi Canal (Near Hanumanahalli Village)

North: 15º 20'54.0", East: 076º 27' 58.4" Modernization of the VNC Project in

Koppal, Bellary & Raichur Districts M/s. Environmental Health and Safety Research &

Development Centre, Bangalore - 560 010. 09.04.2018

Ambient Air collected through Fine Particulate Sampler - APM 550

Respirable Dust Sampler - 460NL, CO & O3 Analyzers.

Instrument ID: RDS: 1385-DTJ-2016, Calibration Due:08/10/2018, Gaseous Sampler:1816-DTJ-2016, Calibration Due:04/11/2018, PM 2.5: FPS: 115-DTK-2012, Calibration Due: 30/06/2018.

11.04.2018

EHSRDC/VNC/A/18/04/371

17.04.2018 : 1 of 1

SLNo	Parameters	Unit	Results	NAAQ Standards (2009)	Methods	
	Period of sampling	Hrs	24 10:30am to 10:30am	24	NEW THE THE	
1.	Particulate Matter (PM 10)	μg/ m ³	69	100	IS: 5182 (P 23)-2006	
2.	Particulate Matter (PM 25)	μg/ m ³	14	60	USEPA 40 CFR (P 53)	
3.	Sulphur dioxide (SO ₂)	μg/ m ³	7.58	80	IS: 5182 (P2)-2001	
4.	Nitrogen dioxide (NO ₂)	μg/ m ³	12.05	80	IS: 5182 (P6)-2006	
5.	Lead (Pb)	µg/m³	0.080	1.0 (24 hr Average)	Lab-SOP No.	
6.	Nickel (Ni)	ng/m³	BDL	20.0 (Annual Average)	EHSRDC/SOP/ 001 based on -CPCB Guidelines for	
7.	Arsenic (As)	ng/m³	BDL	6.0 (Annual Average)	the Measurement of Ambient Air Pollutants Volume-I ,2011	
8.	Carbon Monoxide (CO)	mg/m³	1.27	4.0 (1 hr Average)	IS: 5182 (P 10)-1999	
9.	Ozone (O ₃)	μg/m³	3.30	180 (1 hr Average)	Instrument method	
10.	Ammonia (NH ₃)	μg/m ³	5.43	400.0 (24 hr Average)	CPCB Guidelines Volume-2 NAAQMS/37/2012-2013	
11,	Benzene (C ₆ H ₆)	µg/m³	BDL	5.0 (Annual Average)	IS: 5182 (P 11)-2006	
12.	Benzo (a) pyrene (BaP)	ng/m³	BDL	1.0 (Annual Average)		
13.	NMHC (Non-Methane Hydro Carbon)	μg/m³	BDL	- (Annual Average)	IS:5182 (P 12)-2004 IS: 5182 (P 21) : 2001	

INFERENCE

As per NAAQ Standards,

Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standards.

End of Report



(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣ) ಕಾಯ್ದಿ 1986 ರ ಕಲಂ 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ: 09.02.2017 ರಿಂದ 08.02.2022

एनवायरमेटल हेल्थ एण्ड सेफ्टी रिसर्च एण्ड डेवलेपमेंट सेंटर

(पर्यावरण (संरक्षण) अधिनियम, 1986 अनुभाग 12 की धारा मान्यता प्राप्त प्रयोगशाला) न्यु दिल्ली, मान्यता तारीख. 09.02.2017 - 08.02.2022

ISO 9001 : 2008, ISO14001 : 2015 & BS OHSAS 18001 : 2007

Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

Name of the Project

Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

Sample Collected by

M/s. Environmental Health and Safety Research &

Development Centre, Bangalore - 560 010.

3. Date of Collection : 09.04.2018

Particulars of Sample Collected

: Ambient Noise Level collected through Sound Level Meter(Model C-390)

5. Date of Sample Receipt

Instrument ID:170507029, Calibration Due:02/10/2018 : 11.04.2018

Sample Number

: EHSRDC/VNC/N/18/04/372

7. Report to be Sent

: 17.04.2018

8. Method Adopted : CPCB Guidelines (Instrument Method)

Page No

Code		1		0.1		
No	Sample Location	Time Frequency	Max.	Min.	Leq in dB(A)	Std.
	Basavanna Canal in Hospet City (Near old Amaravathi Village)	6:01am to 10:00pm	74.5	32.4	53.97	55.0 dB(A) Day
372	GPS Reading: North: 15º 16' 13.3.", East: 76º 22'32.4"	10:01pm to 6:00am	72.1	30	42.32	45.0 dB(A) Night

Note:

- Day Time is reckoned between 6 A.M and 10 P.M
- Night Time is reckoned between 10 P.M and 6 A.M
- L_{eq}: It is energy mean of the noise level over a specified period.
- *dB (A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to Frequency response characteristics of the human ear.

INFERENCE

As per CPCB Standards,

Report Status: - The measured value for the above location is within the standards.

End of Report

Government Analyst



(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟ್ರಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣ) ಕಾಯ್ದೆ 1986 ರ ಕಲು 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ: 09.02.2017 ರಿಂದ 08.02.2022

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ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

1. Name of the Project

 Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

Sample Collected by

M/s. Environmental Health and Safety Research &

Development Centre, Bangalore - 560 010.

3. Date of Collection

: 09.04.2018

L. Particulars of Sample Collected

 Ambient Noise Level collected through Sound Level Meter(Model C-390)

Data vee

Instrument ID:140909656, Calibration Due:18/03/2019

Date of Sample Receipt
 Sample Number

: 11.04.2018 : EHSRDC/VNC/N/18/04/373

7. Report to be Sent

: 17.04.2018

8. Method Adopted

: CPCB Guidelines (Instrument Method)

9. Page No.

: 1 of

Code		Vine and		\$20.00		
No	Sample Location	Time Frequency	Max.	Min.	Leq in dB(A)	Std.
	Hulagi Anicut (Near Hole Muddalapura) GPS Reading:	6:01am to 10:00pm	84.2	42.7	54.17	55.0 dB(A) Day
373	North: 15º 17"00.3", East: 76º 20'01.2"	10:01pm to 6:00am	66.5	36.6	41.77	45.0 dB(A) Night

Note:

- Day Time is reckoned between 6 A.M and 10 P.M
- Night Time is reckoned between 10 P.M and 6 A.M
- L_{eq}: It is energy mean of the noise level over a specified period.
- *dB (A) L_{eq} denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) L_{eq}, denotes the frequency weighting in the measurement of noise and corresponds to Frequency response characteristics of the human ear.

INFERENCE

As per CPCB Standards,

Report Status: - The measured value for the above location is within the standards.

End of Report

haveena

Government Analyst



(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟ್ರಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣಾ) ಕಾಯ್ದಿ 1986 ರ ಕಲಂ 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ: 09.02.2017 ರಿಂದ 08.02.2022

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ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

1. Name of the Project

 Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

2. Sample Collected by

 M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560 010.

: 09.04.2018

Date of Collection
 Particulars of Sample
 Collected

 Ambient Noise Level collected through Sound Level Meter(Model C-390)

5. Date of Sample Receipt

Instrument ID:160508086, Calibration Due:06/08/2018 : 11.04.2018

6. Sample Number

: EHSRDC/VNC/N/18/04/374

7. Report to be Sent

: 17,04.2018

8. Method Adopted

: CPCB Guidelines (Instrument Method)

9. Page No

: 1 of 1

Code				See See		
No	Sample Location	Time Frequency	Max.	Min.	Leq in dB(A)	Std.
2000	Turtha Canal in Hampi Town GPS Reading:	6:01am to 10:00pm	80.5	45.1	52.41	55.0 dB(A) Day
374	North: 15º 19 33.9.", East: 76º 27 35.6"	10:01pm to 6:00am	70.2	39.4	43.01	45.0 dB(A) Night

Note:

- Day Time is reckoned between 6 A.M and 10 P.M
- Night Time is reckoned between 10 P.M and 6 A.M
- L_{ot}: It is energy mean of the noise level over a specified period.
- *dB (A) L_{eq} denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) L_{eq}, denotes the frequency weighting in the measurement of noise and corresponds to Frequency response characteristics of the human ear.

INFERENCE

As per CPCB Standards,

Report Status: - The measured value for the above location is within the standards.

End of Report

Government Analyst

Concern towards protecting Environment

Office Address: No.13/2, 1st Main Road, Near Fire Station, Industrial Town, Rajajinagar, Bangalore - 560 010.



(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಆಂಡ್ ಸೇಫ್ಟ್ರಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣ್) ಕಾಯ್ಕೆ 1986 ರ ಕಲಂ 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲ್ಲಿ ಮಾನ್ಯತಾ ಅವಧಿ : 09.02.2017 ರಿಂದ 08.02.2022

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ISO 9001 : 2008, ISO14001 : 2015 & BS OHSAS 18001 : 2007

Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

Name of the Project : Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

 Sample Collected by : M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560 010.

Date of Collection : 09.04.2018

Particulars of Sample : Ambient Noise Level collected through Sound Level Meter (Model C-390)

Instrument ID:170507029, Calibration Due:02/10/2018

Date of Sample Receipt : 11.04.2018

Sample Number : EHSRDC/VNC/N/18/04/375

7. Report to be Sent : 17.04.2018

8. Method Adopted : CPCB Guidelines (Instrument Method)

Page No : 1 of 1

Code						
No	Sample Location	Time Frequency	Max.	Min.	Leq in dB(A)	Std.
	Kallaghatta Canal (Near Kallaghatta Village)	6:01am to 10:00pm	73.2	34.8	51.53	55.0 dB(A) Day
375	GPS Reading: North: 150 18: 58.3.", East: 760 24 25.4"	10:01pm to 6:00am	68.7	32.8	41.69	45.0 dB(A) Night

Note:

- Day Time is reckoned between 6 A.M and 10 P.M
- Night Time is reckoned between 10 P.M and 6 A.M
- L_{eq}: It is energy mean of the noise level over a specified period.
- *dB (A) L_{eq} denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) L_{eq}, denotes the frequency weighting in the measurement of noise and corresponds to Frequency response characteristics of the human ear.

INFERENCE As per CPCB Standards,
Report Status: - The measured value for the above location is within the standards.

End of Report

haveena

Government Analyst



(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ರಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣ) ಕಾಯ್ದೆ 1986 ರ ಕಲಂ 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ: 09.02.2017 ರಿಂದ 08.02.2022

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ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

AMBIENT NOISE LEVEL MONITORING REPORT

Name of the Project

Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

Sample Collected by

M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560 010.

3. Date of Collection

: 09.04.2018

Particulars of Sample Collected

Ambient Noise Level collected through Sound Level Meter(Model C-390)

5. Date of Sample Receipt Instrument ID:170507029, Calibration Due:02/10/2018

6. Sample Number 11.04.2018

7. Report to be Sent

EHSRDC/VNC/N/18/04/376 17,04,2018

8. Method Adopted : CPCB Guidelines (Instrument Method)

9. Page No

Code				25701		
No	Sample Location	Time Frequency	Max.	Min.	Leq in dB(A)	Std.
	Anegundi Canal (Near Hanumanahalli Village)	6:01am to 10:00pm	77.1	48.9	53.08	55.0 dB(A) Day
376	GPS Reading: North: 15º 20' 54.1", East: 76º 27'58.2"	10:01pm to 6:00am	74.1	46.7	42.74	45.0 dB(A) Night

Note:

- Day Time is reckoned between 6 A.M and 10 P.M.
- Night Time is reckoned between 10 P.M and 6 A.M
- Leq: It is energy mean of the noise level over a specified period.
- *dB (A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A", in dB (A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to Frequency response characteristics of the human ear.

INFERENCE

As per CPCB Standards,

Report Status: - The measured value for the above location is within the standards.

End of Report



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ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

ANALYSIS	REPORT	OF WATER	OHALITY
	Trans Cours	OF LATETACK	COLUMN

1. Name of the Location Anegundi Canal (Near Hanumanahalli Village) 2.

GPS Location of Monitoring Station North: 15º 20'54.3", East: 076º 23' 58.0" 3. Name of the Project Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

4. Sample Collected by M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560010.

5. Date of Collection

6. Particulars of Sample Collected Surface Water, Grab Sampling 7.

Date of Sample Receipt 11.04.2018

8. Sample Number EHSRDC/ VNC/W/18/04/377

9. Analysis started on 11.04.2018 10. Analysis Completed on 16.04.2018 11. Sent to be Report 17.04.2018

12 Page No 1 of 1

13. Protocol APHA,23rd Edition

81. No	Parameters	Unit	District the second	Water	Quality	Criteria	1	19900000000	
		Unit	A	В	C	D	Е	Result	Test Methods
1.	pH	-			6.5-8.5			7.62	APHA 4500H+ B
2.	Conductivity	μS/cm				1000	2250	313	APHA 2510 B
3.	Total Dissolved Solids	mg/L	500	7.	1500	-	2100	215	APHA 2540 C
4.	Total Hardness	mg/L		*	-	-	-	80	APHA 2340 C
5,	Dissolved Oxygen	mg/L	6	5	4	4	12	5.2	APHA 4500-O C
6.	BOD (3 Days @ 27°C)	mg/L	2	3	3	-	-	3.4	APHA 5210 B
7.	Chemical Oxygen Demand	mg/L			-		-	16.0	APHA 5220 B
8.	Nitrate as NO ₃	mg/L	20	2	50	-		2.43	APHA 4500-NO ₃ E
9,	Chloride as CI	mg/L	250		600	-	600	28.92	APHA 4500-CI B
10.	Sulphate as SO ₄	mg/L	400	- E	400	-	1000	17.39	APHA 4500-SO ₄ 2-E
11.	Fluoride as F OD- Biochemical Oxygen D	mg/L	1.5	1.5	1.5		-	0.30	APHA 4500F D

INFERENCE	Conforms to Class "D"- Criteria with respect to above tested parameters. A- Drinking Water Source without conventional Treatment but after disinfection B- Outdoor Bathing (Organized). C- Drinking Water source with conventional treatment followed by disinfection D- Propagation of wild life, fisheries. E- Irrigation, industrial cooling, controlled waste Disposal.	

End of Report***





F 080 23012111 W: www.ehsrdc.in

ENVIRONMENTAL HEALTH AND SAFETY RESEARCH AND DEVELOPMENT CENTRE

(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ಸ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟ್ರಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣ್) ಕಾಯ್ದೆ 1986 ರ ಕಲಂ 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ : 09.02.2017 ರಿಂದ 08.02.2022

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ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

ANALYSIS	REPORT OF	WATER	OHALITY
UNUTION	KETOKI OF	VVAILER	DUALITY

1. Name of the Location

2. GPS Location of Monitoring Station

3. Name of the Project

4. Sample Collected by

5. Date of Collection

6. Particulars of Sample Collected

7. Date of Sample Receipt

8. Sample Number 9.

Analysis started on 10. Analysis Completed on

11. Sent to be Report 12. Page No

13. Protocol

INFERENCE

Turtha Canal in Hampi Town Canal Water

North: 150 1939.1", East: 0760 27 36.8"

Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560010.

09.04.2018

Surface Water, Grab Sampling

11.04.2018

EHSRDC/ VNC/W/18/04/378

11.04.2018 16.04.2018

17.04.2018

1 of 1

APHA,23rd Edition

SI.No	Parameters	Unit		Water	Quality	Criteri	a	and the same of th	Test Methods	
35757/3-70	runnerers	Onit	A	В	C	D	E	Result		
1.	pН	*			6,5-8.5	5		7.75	APHA 4500H+ B	
2.	Conductivity	μS/cm	7.		-	1000	2250	510	APHA 2510 B	
3.	Total Dissolved Solids	mg/L	500	-	1500	-	2100	305	APHA 2540 C	
4.	Total Hardness	mg/L			- 1			156	APHA 2340 C	
5.	Dissolved Oxygen	mg/L	6	5	4	4		5.3	APHA 4500-O C	
6.	BOD(3 Days @ 27°C)	mg/L	2	3	3	4		5.6	APHA 5210 B	
7.	Chemical Oxygen Demand	mg/L				3		24.0	APHA 5220 B	
8.	Nitrate as NO ₃	mg/L	20		50		-	3.24	APHA 4500-NO ₃ E	
9.	Chloride as CI	mg/L	250	-	600	-	600	44.35	The state of the s	
10.	Sulphate as SO ₄	mg/L	400		400		1000	20.06	APHA 4500-Cl B	
11.	Fluoride as F DD- Biochemical Oxygen D	mg/L	1.5	1.5	1.5	-	-	0.08	APHA 4500-SO ₄ 2-E APHA 4500F D	

Conforms to Class "D"- Criteria with respect to above tested parameters.

A- Drinking Water Source without conventional Treatment but after disinfection

B- Outdoor Bathing (Organized).

C- Drinking Water source with conventional treatment followed by disinfection

D- Propagation of wild life, fisheries.

E- Irrigation, industrial cooling, controlled waste Disposal.

End of Report

aveena Government Analyst



(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರ್ರಾನ್ ಮೆಂಟಲ್ ಹಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟ್ರಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡವಲಪ್ ಮಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣಾ) ಕಾಯ್ದಿ 1986 ರ ಕಲಂ 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ : 09.02.2017 ರಿಂದ 08.02.2022

एनवायरमेंटल हेल्थ एण्ड सेफ्टी रिसर्च एण्ड डेवलेपमेंट सेंटर

(प्रचावरण (संरक्षण) अधिनियम, 1986 अनुभाग 12 की धारा मान्यता प्राप्त प्रयोगशाला) न्यु दिल्ली, मान्यता तारीख. 09.02.2017 - 08.02.2022

ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

ANALYSIS REPORT OF WATER QUALITY

1. Name of the Location

Kallaghatta Canal Water

2. GPS Location of Monitoring Station

North: 150 19'09.2", East: 0760 23' 28.1"

3. Name of the Project

Modernization of the VNC Project in

4. Sample Collected by Koppal, Bellary & Raichur Districts

M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560010.

5. Date of Collection

09.04.2018

6. Particulars of Sample Collected

Surface Water, Grab Sampling

7. Date of Sample Receipt

11.04.2018

8. Sample Number 9.

EHSRDC/ VNC/W/18/04/379

Analysis started on 10. Analysis Completed on

11.04.2018

11.

: 16.04.2018 17.04.2018

Sent to be Report 12. Page No

1 of 1

13. Protocol

APHA,23rd Edition

SI.No	Parameters	Unit		Wate	r Quality	Criteria	1	4	44 - 172 - 174	
30711.00	· miniteters	Oint	A	В	C	D	E	Result	Test Methods	
1.	pH	(*)			6.5-8.5	5		7.64	APHA 4500H+ B	
2.	Conductivity	μS/cm	*		-	1000	2250	1085	APHA 2510 B	
3.	Total Dissolved Solids	mg/L	500		1500	-	2100	622	APHA 2540 C	
4.	Total Hardness	mg/L	1	-	1		-	256	APHA 2340 C	
5.	Dissolved Oxygen	mg/L	6	5	4	4		5,3	APHA 4500-O C	
6.	BOD(3 Days @ 27°C)	mg/L	2	3	3			16	APHA 5210 B	
7.	Chemical Oxygen Demand	mg/L					2	88	APHA 5210 B	
8,	Nitrate as NO ₃	mg/L	20		50			8.38	APHA 4500-NO ₃ E	
9.	Chloride as CI	mg/L	250		600		600	109.92		
10.	Sulphate as SO ₄	mg/L	400		400		1000	39.04	APHA 4500-CI B	
11.	Fluoride as F OD- Biochemical Oxygen D	mg/L	1.5	1.5	1.5	-	-	0.53	APHA 4500-SO ₄ 2-E APHA 4500F D	

Conforms to Class "E"- Criteria with respect to above tested parameters.

A- Drinking Water Source without conventional Treatment but after disinfection

INFERENCE

B- Outdoor Bathing (Organized).

C- Drinking Water source with conventional treatment followed by disinfection

D- Propagation of wild life, fisheries.

E- Irrigation, industrial cooling, controlled waste Disposal..

End of Report



INFERENCE

ENVIRONMENTAL HEALTH AND SAFETY RESEARCH AND DEVELOPMENT CENTRE

(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟ್ರಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣ) ಕಾಯ್ದೆ 1986 ರ ಕಲಂ 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ : 09.02.2017 ರಿಂದ 08.02.2022

एनवायरमेंटल हेल्थ एण्ड सेफ्टी रिसर्च एण्ड डेवलेपमेंट सेंटर

(पर्यावरण (संरक्षण) अधिनियम, 1986 अनुभाग 12 की धारा मान्यता प्राप्त प्रयोगशाला) न्यु विल्ली, मान्यता तारीख. 09.02.2017 - 08.02.2022

ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

ANALYSIS	REPORT	OF WA	TER	OUALITY
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Name of the Location : Basavanna Canal in Hospet City (Near Old Amaravathi Village)

Canal Village

GPS Location of Monitoring Station
 North: 15º 16'09.6", East: 076º 22' 23.5"
 Name of the Project
 Modernization of the VNC Project in

4. Sample Collected by

Sample Collected by

M/s. Environmental Health and Safety Research

Development Centre, Bangalore – 560010.

5. Date of Collection : 09.04.2018

6. Particulars of Sample Collected : Surface Water, Grab Sampling
7. Date of Sample Receipt : 11.04.2018

7. Date of Sample Receipt : 11.04.2018 8. Sample Number : EHSRDC/ VNC/W/18/04/380

 9. Analysis started on
 : 11.04.2018

 10. Analysis Completed on
 : 16.04.2018

11. Sent to be Report : 17.04.2018 12. Page No : 1 of 1

Protocol : APHA,23rd Edition

SI.No	Parameters	Unit		Wate	r Quality	Criteria	a	Same Chigas	98.2000.820020 00
enerose.	- Elements Olin	A	В	C	D	E	Result	Test Methods	
1.	pH	-	900		6.5-8.5			7.50	APHA 4500H+ B
2.	Conductivity	μS/cm	+		-	1000	2250	564	APHA 2510 B
3,	Total Dissolved Solids	mg/L	500	-	1500		2100	347	The state of the s
4,	Total Hardness	mg/L		-			-	132	APHA 2540 C
5.	Dissolved Oxygen	mg/L	6	5	4	4		0.000.0	APHA 2340 C
6.	BOD(3 Days @ 27°C)	mg/L	2	3	3	4		5.6	APHA 4500-O C
7.	Chemical Oxygen Demand	mg/L	-	-	-	-		9.2 64	APHA 5210 B APHA 5220 B
8.	Nitrate as NO ₃	mg/L	20		50			4.29	ADILL IERO ME
9.	Chloride as Cl	mg/L	250		600	-	600		APHA 4500-NO ₃ E
10.	Sulphate as SO ₄	mg/L	400		400		- 00000	57.85	APHA 4500-CI B
11.	Fluoride as F	mg/L	110000	1.5			1000	26.29	APHA 4500-SO ₄ 2-E
Joto Ri	OD- Biochemical Oxygen Der	mg/ L	1.5	1.5	1.5			0.15	APHA 4500F D

Conforms to Class "D"- Criteria with respect to above tested parameters.

A- Drinking Water Source without conventional Treatment but after disinfection

B- Outdoor Bathing (Organized).

C- Drinking Water source with conventional treatment followed by disinfection

D- Propagation of wild life, fisheries.

E- Irrigation, industrial cooling, controlled waste Disposal..

End of Report





2.

ENVIRONMENTAL HEALTH AND SAFETY RESEARCH AND DEVELOPMENT CENTRE

(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ರಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣ) ಕಾಯ್ದಿ 1986 ರ ಕಲು 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ: 09.02.2017 ರಿಂದ 08.02.2022

एनवायरमेटल हेल्थ एण्ड सेफ्टी रिसर्च एण्ड डेवलेपमेट सेटर

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ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

ANALYSIS REPORT OF WATER QUALITY

1. Name of the Location

GPS Location of Monitoring Station

3. Name of the Project

4. Sample Collected by

5. Date of Collection

6. Particulars of Sample Collected

7. Date of Sample Receipt

8. Sample Number

9. Analysis started on

10. Analysis Completed on

11. Sent to be Report 12.

Page No 13. Protocol

INFERENCE

Hulugi Anicut Canal Water

North: 150 17'41.9", East: 0760 20' 25.8"

Modernization of the VNC Project in

Koppal, Bellary & Raichur Districts

M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560010.

09.04.2018

Surface Water, Grab Sampling

11.04.2018

EHSRDC/ VNC/W/18/04/381

11.04.2018

16.04.2018 : 17.04.2018

1 of 1

APHA,23rd Edition

SI. No	Parameters	Unit		Wate	r Quality	Criteria	a	447777 4077	000000000000000000000000000000000000000
S00100881	- maniereza	Om	A	В	C	D	E	Result	Test Methods
1.	pH			-	6.5-8.5	,		7.72	APHA 4500H+ B
2.	Conductivity	μS/cm	100	-		1000	2250	406	APHA 2510 B
3.	Total Dissolved Solids	mg/L	500		1500	-	2100	277	APHA 2540 C
4.	Total Hardness	mg/L	+	-			-	108	ADMINISTRAÇÃO
5.	Dissolved Oxygen	mg/L	6	5	4	4		5.0	APHA 2340 C
6.	BOD (3 Days @ 279C)	mg/L	2	3	3				APHA 4500-O C
7.	Chemical Oxygen Demand	mg/L		-	-			6.8	APHA 5210 B APHA 5220 B
8.	Nitrate as NO ₃	mg/L	20		50			4.19	1917 January
9.	Chloride as Cl	mg/L	250		600		600		APHA 4500-NO ₃ I
10.	Sulphate as SO ₄	mg/L	400		400	-	1000	40.49	APHA 4500-CI B
11.	Fluoride as F	mg/L	1.5	1.5	1.5		1000	19,17	APHA 4500-SO ₄ 2-E
Note: BO	DD- Biochemical Oxygen Der	21.6/ 10	2.14	1,3	1.5			0.53	APHA 4500F D

Conforms to Class "D"- Criteria with respect to above tested parameters.

A- Drinking Water Source without conventional Treatment but after disinfection

B- Outdoor Bathing (Organized).

C- Drinking Water source with conventional treatment followed by disinfection

D- Propagation of wild life, fisheries.

E- Irrigation, industrial cooling, controlled waste Disposal..

End of Report

Government Analyst



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ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

ANALYSIS REPORT OF WATER QUALITY

Name of the Location

: Anegundi Canal (Near Hanumanahalli Village)

GPS Location of Monitoring Station

North: 15°20'53.4", East: 076°27'57.8"
 Modernization of the VNC Project in

Name of the Project

Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

Sample Collected by

M/s. Environmental Health and Safety Research
 & Development Centre, Bangalore – 560010.

5. Date of Collection

: 09.04.2018

6. Particulars of Sample Collected

: Ground Water, Grab Sampling

Date of Sample Receipt

: 11.04.2018

8. Sample Number

: EHSRDC/ VNC/W/18/04/382

9. Analysis started on

: 11.04.2018

10. Analysis Completed on

: 16.04.2018

Sent to be Report

: 17.04.2018 : 1 of 1

Page No
 Protocol

: APHA,23rd Edition

SI. No	Parameters	Test Methods	Unit	Result	Std. IS 10500:2012 (Second Revision)	
					AL	PL
1.	pH	APHA 4500H+ B		7.75	6.5-8.5	
2.	Alkalinity	APHA2320 B	mg/L	180	200	600
3.	Conductivity	APHA 2510 B	μS/cm	506	200 000	
4.	Total Dissolved Solids	APHA 2540 C	mg/L	352	500 2000	
5.	Total Hardness	APHA 2340 C	mg/L	172	200	
6.	Turbidity	APHA 2130 B	NTU	3.22	200	600
7-	Chloride as Cl	APHA 4500-Cl B	mg/L	36.64	1	5
8,	Sulphate as SO ₄	APHA 4500-SO ₄ 2- E	mg/L	19.87	250	1000
9.	Fluoride as F	APHA 4500F D		000,000	200	400
L - Acc	eptable Limit, PL - Permissibl		mg/L	0.13	1	1.5

As per IS 10500:2012(Second Revision),

INFERENCE Report Status: - The measured values for the above parameters for those standards have been specified, were observed to be within the said standards.

End of Report



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(पर्यावरण (संरक्षण) अधिनियम, 1986 अनुभाग 12 की धारा मान्यता प्राप्त प्रवीगशाला) न्यु दिल्ली, मान्यता तारीख. 09.02.2017 - 08.02.2022

Turtha Canal in Hampi Town

: Ground Water, Grab Sampling

: EHSRDC/ VNC/W/18/04/383

North: 15º 20'03.03", East: 076º 27'54.7"

Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

: M/s, Environmental Health and Safety Research & Development Centre, Bangalore - 560010.

ISO 9001 : 2008, ISO14001 : 2015 & BS OHSAS 18001 : 2007

Test Report

ANALYSIS REPORT OF WATER QUALITY

Name of the Location 1. 2.

GPS Location of Monitoring Station

3. Name of the Project

4. Sample Collected by

5. Date of Collection

6. Particulars of Sample Collected

7. Date of Sample Receipt

8. Sample Number

Analysis started on 9. 10.

Analysis Completed on 11. Sent to be Report

Protocol

12. Page No

13.

: 11.04.2018 : 16.04.2018

: 11.04.2018

09.04.2018

17.04.2018

: 1 of 1

: APHA,23rd Edition

Sl. No	Parameters	Test Methods	Unit	Result	Std. IS 10500:2012 (Second Revision)	
					AL	PL
1.	pHI	APHA 4500H+ B	TRANSPORT	6.96	6.5-8.5	
2,	Alkalinity	APHA2320 B	mg/L	260	200	600
3.	Conductivity	APHA 2510 B	µS/cm	832	240 000	
4.	Total Dissolved Solids	APHA 2540 C	mg/L	571	500 2000	
5.	Total Hardness	APHA 2340 C	mg/L	236	200	2000
6.	Turbidity	APHA 2130 B	NTU	0.06	200	600
7.	Chloride as Cl	APHA 4500-CLB	mg/L	75.21	1	5
8.	Sulphate as SO ₄	APHA 4500-SO ₄ ² E	The state of the s	1,000,000	250	1000
9.	Fluoride as F	APHA 4500F D	mg/L	37.96	200	400
	eptable Limit, PL - Permissib		mg/L	0.64	1	1.5

As per IS 10500:2012(Second Revision), Report Status: - The measured values for the above parameters for those standards have been specified INFERENCE were observed to be within the said standards.

End of Report





(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣ್) ಕಾಯ್ದೆ 1986 ರ ಕಲಂ 12 ರಲ್ಲಿ ಮಾನ್ನತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ನತಾ ಅವಧಿ : 09.02.2017 ರಿಂದ 08.02.2022

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ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

ANALYSIS REPORT OF WATER QUALITY

Name of the Location

GPS Location of Monitoring Station

3. Name of the Project

4. Sample Collected by

5. Date of Collection

6. Particulars of Sample Collected

7. Date of Sample Receipt

8. Sample Number

Analysis started on

Analysis Completed on

Sent to be Report

12. Page No

13. Protocol

: Kallaghatta Canal (Near Kallaghatta Village)

: North: 15º 18'58.9", East: 076º 24' 28.9"

 Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

: M/s. Environmental Health and Safety Research

& Development Centre, Bangalore - 560010.

: 09.04.2018

: Ground Water, Grab Sampling

: 11.04.2018

: EHSRDC/ VNC/W/18/04/384

: 11.04.2018

: 16.04.2018

: 17.04.2018 : 1 of 1

: APHA,23rd Edition

SI. No	Parameters	Test Methods	Unit	Result	Std. IS 10500:2012 (Second Revision)	
	77.55				AL	PL
1.	pH	APHA 4500H+ B		7.10	6.5	-8.5
2.	Alkalinity	APHA2320 B	mg/L	308	200	600
3.	Conductivity	APHA 2510 B	μS/cm	965	200 000	
4.	Total Dissolved Solids	APHA 2540 C	mg/L	710	7	
5.	Total Hardness	APHA 2340 C	-	0.0700	500	2000
6.	Turbidity	APHA 2130 B	mg/L	356	200	600
7.	Chloride as Cl		NTU	2.96	1	5
8.		APHA 4500-CI B	mg/L	92.56	250	1000
	Sulphate as 5O ₄	APHA 4500-SO ₄ 2- E	mg/L	49.43	200	400
9.	Fluoride as F	APHA 4500F D	mg/L	0.84	200	100,700
L - Acc	eptable Limit, PL - Permissi	de trans	mg/ L	V.04	1	1.5

As per IS 10500:2012(Second Revision),
INFERENCE Report Status: - The measured values for

Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standards.

End of Report



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एनवायरमेंटल हेल्थ एण्ड सेफ्टी रिसर्च एण्ड डेवलेपमेंट सेंटर

(पर्यावरण (संरक्षण) अधिनियम, 1986 अनुभाग 12 की धारा मान्यता प्राप्त प्रयोगशाला) न्यु दिल्ली, मान्यता तारीख. 09.02.2017 - 08.02.2022

ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

ANALYSIS	REPORT	OF WATER	OHALITY
TELLEVELLE	MLI ONI	OFWAIRE	JUALITY

Name of the Location

: Basavanna Canal in Hospet City (Near Old Amaravathi Village)

GPS Location of Monitoring Station

: North: 150 16 13.8", East: 0760 22 33.6"

3. Name of the Project

 Modernization of the VNC Project in Koppal, Bellary & Raichur Districts

4. Sample Collected by

: M/s. Environmental Health and Safety Research

5. Date of Collection

& Development Centre, Bangalore - 560010.

6. Particulars of Sample Collected

: Ground Water, Grab Sampling

Date of Sample Receipt

: 11.04.2018

Sample Number

: EHSRDC/ VNC/W/18/04/385

9. Analysis started on

: 11.04.2018

10. Analysis Completed on

: 16.04,2018 : 17.04,2018

Sent to be Report
 Page No

: 1 of 1

13. Protocol

: APHA,23rd Edition

SI. No	Parameters	Test Methods	Unit	Result	Std. IS 10500:2012 (Second Revision)		
					AL	PL	
1.	pH	APHA 4500H- B		7.62	6.5-8.5		
2,	Alkalinity	APHA2320 B	mg/L	388	200	600	
3.	Conductivity	APHA 2510 B	μS/cm	1489	200 000		
4.	Total Dissolved Solids	APHA 2540 C	mg/L	905	500 2000		
5.	Total Hardness	APHA 2340 C	mg/L	432	500	2000	
6.	Turbidity	APHA 2130 B	NTU		200	600	
7.	Chloride as CI	APHA 4500-CI B		0.48	1	5	
8.	Sulphate as SO ₄	APHA 4500-SO ₄ 2- E	mg/L	167.77	250	1000	
9.	Fluoride as F	The state of the s	mg/L	53.48	200	400	
426	eptable Limit, PL - Permiss.	APHA 4500F D	mg/L	0.49	1	1.5	

INFERENCE

As per IS 10500:2012(Second Revision),

Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standards.

End of Report





(Recognised under section 12 of the Environment (Protection) Act, 1986) New Delhi, Validity 09.02.2017 to 08.02.2022 ಎನ್ವಿರಾನ್ ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟ್ರಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್ ಮೆಂಟ್ ಸೆಂಟರ್ (ಪರಿಸರ (ಸಂರಕ್ಷಣ್) ಕಾಯ್ದಿ 1986 ರ ಕಲಂ 12 ರಲ್ಲಿ ಮಾನ್ಯತೆ ಪಡೆದ ಪ್ರಯೋಗಾಲಯ) ನವ ದೆಹಲಿ, ಮಾನ್ಯತಾ ಅವಧಿ : 09.02.2017 ರಿಂದ 08.02.2022

एनवायरमेंटल हेल्थ एण्ड सेफ्टी रिसर्च एण्ड डेवलेपमेंट सेंटर

(पर्यावरण (संरक्षण) अधिनियम, 1986 अनुभाग 12 की घारा मान्यता प्राप्त प्रयोगशाला) न्यु दिल्ली, मान्यता तारीख. 09.02.2017 - 08.02.2022

ISO 9001: 2008, ISO14001: 2015 & BS OHSAS 18001: 2007

Test Report

ANALYSIS REPORT OF WATER QUALITY

Name of the Location

GPS Location of Monitoring Station

3. Name of the Project

Sample Collected by

Date of Collection

Particulars of Sample Collected

7. Date of Sample Receipt

Sample Number
 Analysis started on

10. Analysis Completed on 11. Sent to be Report

12. Page No 13. Protocol Hulagi Canal (Near Hole Muddalapura Village)

North: 150 17 05.4", East: 760 20 02.3"

Modernization of the VNC Project in

Koppal, Bellary & Raichur Districts

M/s. Environmental Health and Safety Res

 M/s. Environmental Health and Safety Research & Development Centre, Bangalore - 560010.

: 09.04.2018 : Cround W

: Ground Water, Grab Sampling

: 11.04.2018

: EHSRDC/ VNC/W/18/04/386

: 11.04.2018 : 16.04.2018 : 17.04.2018

: 1 of 1

: APHA,23rd Edition

Sl.No	Parameters	Test Methods	Unit	Result	Std. IS 10500:2012 (Second Revision	
					AL	PL
1.	pH	APHA 4500H- B	7	7.75	6.5-8.5	
2,	Alkalinity	APHA2320 B	mg/L	264	200	600
3.	Conductivity	APHA 2510 B	μS/cm	863	000	
4.	Total Dissolved Solids	APHA 2540 C	mg/L	595	500 2000	
5.	Total Hardness	APHA 2340 C	mg/L		1000	2000
6.	Turbidity	APHA 2130 B	NTU NTU	300	200	600
7.	Chloride as CI	APHA 4500-CI B		0,22	1	5
S.	Sulphate as SO ₄		mg/L	80.99	-250	1000
9.		APHA 4500-SO ₄ 2- E	mg/L	45.87	200	400
A COLOR	Fluoride as F ceptable Limit, PL - Permiss	APHA 4500F D	mg/L	0.55	1	1.5

INFERENCE

As per IS 10500:2012(Second Revision),

Report Status: - The measured values for the above parameters for those standards have been specified were observed to be within the said standards.

End of Report

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