

# Environmental Impact Assessment

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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**



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**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

ಎನ್ವಿರಾನ್‌ಮೆಂಟ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್‌ಮೆಂಟ್ ಸೆಂಟರ್  
(ಪರಿಷರ (ಸಂರಕ್ಷಣಾ) ಕಾಯ್ದೆ, 1986 ರ ಕಲಂ 12 ರಡಿ 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 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 : Basavanna Canal in Hospet City (Near Old Amaravathi Village)
2. GPS Location of Monitoring Station : North: 15° 16' 13.8", East: 076° 22' 33.7"
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 - 560 010.
5. Date of Collection : 09.04.2018
6. Particulars of Sample Collected : Ambient Air collected through Fine Particulate Sampler - APM 550 Respirable Dust Sampler - 460NL, CO & O<sub>3</sub> 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.
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/VNC/A/18/04/367
9. Report to be Sent : 17.04.2018
10. Page No : 1 of 1

Sl. No	Parameters	Unit	Results	NAAQ Standards (2009)	Methods
	Period of sampling	Hrs	24 8:00am to 8:00am	24	--
1.	Particulate Matter (PM <sub>10</sub> )	µg/ m <sup>3</sup>	74	100	IS: 5182 (P 23)-2006
2.	Particulate Matter (PM <sub>2.5</sub> )	µg/ m <sup>3</sup>	18	60	USEPA 40 CFR (P 53)
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/ m <sup>3</sup>	7.64	80	IS: 5182 (P2)-2001
4.	Nitrogen dioxide (NO <sub>2</sub> )	µg/ m <sup>3</sup>	13.06	80	IS: 5182 (P6)-2006
5.	Lead (Pb)	µg/m <sup>3</sup>	0.079	1.0 (24 hr Average)	Lab-SOP No. EHSRDC/SOP/ 001 based on -CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-I, 2011
6.	Nickel (Ni)	ng/m <sup>3</sup>	BDL	20.0 (Annual Average)	
7.	Arsenic (As)	ng/m <sup>3</sup>	BDL	6.0 (Annual Average)	
8.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	1.51	4.0 (1 hr Average)	IS: 5182 (P 10)-1999
9.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	3.44	180 (1 hr Average)	Instrument method
10.	Ammonia (NH <sub>3</sub> )	µg/ m <sup>3</sup>	5.77	400.0 (24 hr Average)	CPCB Guidelines Volume-2 NAAQMS/37/2012-2013
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/ m <sup>3</sup>	BDL	5.0 (Annual Average)	IS:5182 (P 11)-2006
12.	Benzo (a) pyrene (BaP)	ng/m <sup>3</sup>	BDL	1.0 (Annual Average)	IS:5182 (P 12)-2004
13.	NMHC (Non Methane Hydro Carbon)	µg/ m <sup>3</sup>	BDL	--	IS: 5182 (P 21) : 2001

Note: BDL: Below Detectable Limit.

**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\*\*\*

*Haveena*  
Government Analyst

**Concern towards protecting Environment**

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

ಕಛೇರಿ ವಿಳಾಸ : ನಂ. 13/2 1ನೇ ಮುಖ್ಯ ರಸ್ತೆ, ಕಾರ್ಖಾನೆಗೂ ಹತ್ತಿರ, ಕಾರ್ಖಾನೆ, ರಾಜಾಜಿನಗರ, ಬೆಂಗಳೂರು - 560 010



**Test Report**

**ANALYSIS REPORT OF AMBIENT AIR QUALITY**

1. Name of the Station : Hulagi Anicut (Near Hole Muddalapura)
2. GPS Location of Monitoring Station : North: 15° 17' 01.5", East: 076° 20' 01.7"
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 - 560 010.
5. Date of Collection : 09.04.2018
6. Particulars of Sample Collected : Ambient Air collected through Fine Particulate Sampler - APM 550 Respirable Dust Sampler - 460NL, CO & O<sub>3</sub> 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.
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/VNC/A/18/04/368
9. Report to be Sent : 17.04.2018
10. Page No : 1 of 1

Sl.No	Parameters	Unit	Results	NAAQ Standards (2009)	Methods
	Period of sampling	Hrs	24 8:30am to 8:30am	24	--
1.	Particulate Matter (PM <sub>10</sub> )	µg/ m <sup>3</sup>	60	100	IS: 5182 (P 23)-2006
2.	Particulate Matter (PM <sub>2.5</sub> )	µg/ m <sup>3</sup>	12	60	USEPA 40 CFR (P 53)
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/ m <sup>3</sup>	6.68	80	IS: 5182 (P2)-2001
4.	Nitrogen dioxide (NO <sub>2</sub> )	µg/ m <sup>3</sup>	10.94	80	IS: 5182 (P6)-2006
5.	Lead (Pb)	µg/m <sup>3</sup>	0.052	1.0 (24 hr Average)	Lab-SOP No. EHSRDC/SOP/ 001 based on -CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-I ,2011
6.	Nickel (Ni)	ng/m <sup>3</sup>	BDL	20.0 (Annual Average)	
7.	Arsenic (As)	ng/ m <sup>3</sup>	BDL	6.0 (Annual Average)	
8.	Carbon Monoxide (CO)	mg/ m <sup>3</sup>	1.08	4.0 (1 hr Average)	IS: 5182 (P 10)-1999
9.	Ozone (O <sub>3</sub> )	µg/ m <sup>3</sup>	2.91	180 (1 hr Average)	Instrument method
10.	Ammonia (NH <sub>3</sub> )	µg/ m <sup>3</sup>	4.78	400.0 (24 hr Average)	CPCB Guidelines Volume-2 NAAQMS/37/2012-2013
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/ m <sup>3</sup>	BDL	5.0 (Annual Average)	IS: 5182 (P 11)-2006
12.	Benzo (a) pyrene (BaP)	ng/ m <sup>3</sup>	BDL	1.0 (Annual Average)	IS:5182 (P 12)-2004
13.	NMHC (Non Methane Hydro Carbon)	µg/ m <sup>3</sup>	BDL	--	IS: 5182 (P 21) : 2001

Note: BDL: Below Detectable Limit.

**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\*\*\*

*Haveena*  
 Government Analyst

**Concern towards protecting Environment**

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

ಕಛೇರಿ ವಿಳಾಸ : ನಂ. 13/2 1ನೇ ಮುಖ್ಯರಸ್ತೆ, ಫೈರ್ ಸ್ಟೇಷನ್ ಹತ್ತಿರ, ರಾಜಾಜಿನಗರ, ಬೆಂಗಳೂರು - 560 010





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## 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)

ವಿಸ್ತರಿಸಿದ ಮೆಟರ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್‌ಮೆಂಟ್ ಸೆಂಟರ್

(ಪರಿಷ್ಕರಣೆ) 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 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 : Turtha Canal in Hampi Town
2. GPS Location of Monitoring Station : North: 15° 19' 34.2", East: 076° 27' 35.9"
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 - 560 010.
5. Date of Collection : 09.04.2018
6. Particulars of Sample Collected : Ambient Air collected through  
Fine Particulate Sampler - APM 550  
Respirable Dust Sampler - 460NL, CO & O<sub>3</sub> 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.
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/VNC/A/18/04/369
9. Report to be Sent : 17.04.2018
10. Page No : 1 of 1

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

Note: BDL: Below Detectable Limit.

#### 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

Concern towards protecting Environment

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



## Test Report

### ANALYSIS REPORT OF AMBIENT AIR QUALITY

1. Name of the Station : Kallaghatta Canal (Near Kallaghatta Village)
2. GPS Location of Monitoring Station : North: 15° 18' 58.9", East: 076° 24' 25.7"
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 - 560 010.
5. Date of Collection : 09.04.2018
6. Particulars of Sample Collected : Ambient Air collected through Fine Particulate Sampler - APM 550 Respirable Dust Sampler - 460NL, CO & O<sub>3</sub> 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.
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/VNC/A/18/04/370
9. Report to be Sent : 17.04.2018
10. Page No : 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 <sub>10</sub> )	µg/ m <sup>3</sup>	71	100	IS: 5182 (P 23)-2006
2.	Particulate Matter (PM <sub>2.5</sub> )	µg/ m <sup>3</sup>	17	60	USEPA 40 CFR (P 53)
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/ m <sup>3</sup>	8.01	80	IS: 5182 (P2)-2001
4.	Nitrogen dioxide (NO <sub>2</sub> )	µg/ m <sup>3</sup>	13.17	80	IS: 5182 (P6)-2006
5.	Lead (Pb)	µg/m <sup>3</sup>	0.023	1.0 (24 hr Average)	Lab-SOP No. EHSRDC/SOP/ 001 based on -CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-I, 2011
6.	Nickel (Ni)	ng/m <sup>3</sup>	BDL	20.0 (Annual Average)	
7.	Arsenic (As)	ng/m <sup>3</sup>	BDL	6.0 (Annual Average)	
8.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	1.40	4.0 (1 hr Average)	IS: 5182 (P 10)-1999
9.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	3.05	180 (1 hr Average)	Instrument method
10.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	5.27	400.0 (24 hr Average)	CPCB Guidelines Volume-2 NAAQMS/37/2012-2013
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	BDL	5.0 (Annual Average)	IS: 5182 (P 11)-2006
12.	Benzo (a) pyrene (BaP)	ng/m <sup>3</sup>	BDL	1.0 (Annual Average)	IS:5182 (P 12)-2004
13.	NMHC (Non-Methane Hydro Carbon)	µg/m <sup>3</sup>	BDL	--	IS: 5182 (P 21): 2001

Note: BDL: Below Detectable Limit.

#### 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

**Concern towards protecting Environment**

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





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(ಪರಿಸರ (ಸಂರಕ್ಷಣಾ) 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) न्यू 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

- Name of the Station : Anegundi Canal (Near Hanumanahalli Village)
- GPS Location of Monitoring Station : North: 15° 20'54.0", East: 076° 27' 58.4"
- 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 Collected : Ambient Air collected through Fine Particulate Sampler - APM 550 Respirable Dust Sampler - 460NL, CO & O<sub>3</sub> 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.
- Date of Sample Receipt : 11.04.2018
- Sample Number : EHSRDC/VNC/A/18/04/371
- Report to be Sent : 17.04.2018
- Page No : 1 of 1

Sl.No	Parameters	Unit	Results	NAAQ Standards (2009)	Methods
	Period of sampling	Hrs	24 10:30am to 10:30am	24	-
1.	Particulate Matter (PM <sub>10</sub> )	µg/ m <sup>3</sup>	69	100	IS: 5182 (P 23)-2006
2.	Particulate Matter (PM <sub>2.5</sub> )	µg/ m <sup>3</sup>	14	60	USEPA 40 CFR (P 53)
3.	Sulphur dioxide (SO <sub>2</sub> )	µg/ m <sup>3</sup>	7.58	80	IS: 5182 (P2)-2001
4.	Nitrogen dioxide (NO <sub>2</sub> )	µg/ m <sup>3</sup>	12.05	80	IS: 5182 (P6)-2006
5.	Lead (Pb)	µg/m <sup>3</sup>	0.080	1.0 (24 hr Average)	Lab-SOP No.
6.	Nickel (Ni)	ng/m <sup>3</sup>	BDL	20.0 (Annual Average)	EHSRDC/SOP/ 001
7.	Arsenic (As)	ng/m <sup>3</sup>	BDL	6.0 (Annual Average)	based on -CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-1, 2011
8.	Carbon Monoxide (CO)	mg/m <sup>3</sup>	1.27	4.0 (1 hr Average)	IS: 5182 (P 10)-1999
9.	Ozone (O <sub>3</sub> )	µg/m <sup>3</sup>	3.30	180 (1 hr Average)	Instrument method
10.	Ammonia (NH <sub>3</sub> )	µg/m <sup>3</sup>	5.43	400.0 (24 hr Average)	CPCB Guidelines Volume-2 NAAQMS/37/2012-2013
11.	Benzene (C <sub>6</sub> H <sub>6</sub> )	µg/m <sup>3</sup>	BDL	5.0 (Annual Average)	IS: 5182 (P 11)-2006
12.	Benzo (a) pyrene (BaP)	ng/m <sup>3</sup>	BDL	1.0 (Annual Average)	IS:5182 (P 12)-2004
13.	NMHC (Non-Methane Hydro Carbon)	µg/m <sup>3</sup>	BDL	-	IS: 5182 (P 21) : 2001

Note: BDL: Below Detectable Limit.

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\*\*\*

*Raveena*

Government Analyst

Concern towards protecting Environment

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



## 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.
3. Date of Collection : 09.04.2018
4. Particulars of Sample Collected : Ambient Noise Level collected through Sound Level Meter( Model C-390) Instrument ID:170507029, Calibration Due:02/10/2018
5. Date of Sample Receipt : 11.04.2018
6. Sample Number : EHSRDC/VNC/N/18/04/372
7. Report to be Sent : 17.04.2018
8. Method Adopted : CPCB Guidelines (Instrument Method)
9. Page No : 1 of 1

Code No	Sample Location	Time Frequency	Parameters			Std.
			Max.	Min.	Leq in dB(A)	
372	Basavanna Canal in Hospet City (Near old Amaravathi Village) GPS Reading: North: 15° 16' 13.3", East: 76° 22' 32.4"	6:01am to 10:00pm	74.5	32.4	53.97	55.0 dB(A) Day
		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)  $L_{eq}$  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\*\*\*

*Praveena*

Government Analyst

**Concern towards protecting Environment**

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





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F 080 23012111 W : www.ehsrdc.in

## ENVIRONMENTAL HEALTH AND SAFETY RESEARCH AND DEVELOPMENT CENTRE

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ಎನ್ವಿರಾನ್ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್‌ಮೆಂಟ್ ಸೆಂಟರ್

(ಪರಿಸರ (ಸಂರಕ್ಷಣೆ) 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 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.
- Date of Collection : 09.04.2018
- Particulars of Sample Collected : Ambient Noise Level collected through Sound Level Meter(Model C-390)  
Instrument ID:140909656, Calibration Due:18/03/2019
- Date of Sample Receipt : 11.04.2018
- Sample Number : EHSRDC/VNC/N/18/04/373
- Report to be Sent : 17.04.2018
- Method Adopted : CPCB Guidelines (Instrument Method)
- Page No : 1 of 1

Code No	Sample Location	Time Frequency	Parameters			Std.
			Max.	Min.	Leq in dB(A)	
373	Hulagi Anicut (Near Hole Muddalapura) GPS Reading: North: 15° 17' 00.3", East: 76° 20' 01.2"	6:01am to 10:00pm	84.2	42.7	54.17	55.0 dB(A) Day
		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\*\*\*

*Praveena*

Government Analyst

Concern towards protecting Environment

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



## 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.
3. Date of Collection : 09.04.2018
4. Particulars of Sample Collected : Ambient Noise Level collected through Sound Level Meter(Model C-390)  
Instrument ID:160508086, Calibration Due:06/08/2018
5. Date of Sample Receipt : 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 No	Sample Location	Time Frequency	Parameters			Std.
			Max.	Min.	Leq in dB(A)	
374	Turttha Canal in Hampi Town GPS Reading: North: 15° 19' 33.9", East: 76° 27' 35.6"	6:01am to 10:00pm	80.5	45.1	52.41	55.0 dB(A) Day
		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
- $L_{eq}$ : 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\*\*\*

*harsena*

Government Analyst

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ಎನ್ವಿರಾನ್‌ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್‌ಮೆಂಟ್ ಸೆಂಟರ್

(ಪರಿಸರ (ಸಂರಕ್ಷಣಾ) 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 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

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.
3. Date of Collection : 09.04.2018
4. Particulars of Sample Collected : Ambient Noise Level collected through Sound Level Meter (Model C-390)  
Instrument ID:170507029, Calibration Due:02/10/2018
5. Date of Sample Receipt : 11.04.2018
6. Sample Number : EHSRDC/VNC/N/18/04/375
7. Report to be Sent : 17.04.2018
8. Method Adopted : CPCB Guidelines (Instrument Method)
9. Page No : 1 of 1

Code No	Sample Location	Time Frequency	Parameters			Std.
			Max.	Min.	Leq in dB(A)	
375	Kallaghatta Canal (Near Kallaghatta Village) GPS Reading: North: 15° 18' 58.3", East: 76° 24' 25.4"	6:01am to 10:00pm	73.2	34.8	51.53	55.0 dB(A) Day
		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

Concern towards protecting Environment

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ಕಛೇರಿ ವಿಳಾಸ : ನಂ. 13/2, 1ನೇ ಮುಖ್ಯ ರಸ್ತೆ, ಅಗ್ನಿ ಸಂರಕ್ಷಣೆ ಕಛೇರಿ ಹತ್ತಿರ, ರಾಜಾಜಿನಗರ, ಬೆಂಗಳೂರು - 560 010.



## 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.
3. Date of Collection : 09.04.2018
4. Particulars of Sample Collected : Ambient Noise Level collected through Sound Level Meter(Model C-390) Instrument ID:170507029, Calibration Due:02/10/2018
5. Date of Sample Receipt : 11.04.2018
6. Sample Number : EHSRDC/VNC/N/18/04/376
7. Report to be Sent : 17.04.2018
8. Method Adopted : CPCB Guidelines (Instrument Method)
9. Page No : 1 of 1

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

*Praveena*

Government Analyst

Concern towards protecting Environment

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**Test Report**

**ANALYSIS REPORT OF WATER QUALITY**

1. Name of the Location : Anegundi Canal (Near Hanumanahalli Village)
2. GPS Location of Monitoring Station : North: 15° 20' 54.3", East: 076° 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 : 09.04.2018
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

Sl. No	Parameters	Unit	Water Quality Criteria					Result	Test Methods
			A	B	C	D	E		
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	-	1500	-	2100	215	APHA 2540 C
4.	Total Hardness	mg/L	-	-	-	-	-	80	APHA 2340 C
5.	Dissolved Oxygen	mg/L	6	5	4	4	-	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 <sub>3</sub>	mg/L	20	-	50	-	-	2.43	APHA 4500-NO <sub>3</sub> E
9.	Chloride as Cl	mg/L	250	-	600	-	600	28.92	APHA 4500-Cl B
10.	Sulphate as SO <sub>4</sub>	mg/L	400	-	400	-	1000	17.39	APHA 4500-SO <sub>4</sub> <sup>2-</sup> E
11.	Fluoride as F	mg/L	1.5	1.5	1.5	-	-	0.30	APHA 4500F D

Note: BOD- Biochemical Oxygen Demand

**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\*\*\*

*Praveena*

Government Analyst

**Concern towards protecting Environment**

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**Test Report**

**ANALYSIS REPORT OF WATER QUALITY**

1. Name of the Location : Turtha Canal in Hampi Town Canal Water
2. GPS Location of Monitoring Station : North: 15° 19'39.1", East: 076° 27' 36.8"
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 : 09.04.2018
6. Particulars of Sample Collected : Surface Water, Grab Sampling
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/ VNC/W/18/04/378
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, 23<sup>rd</sup> Edition

Sl.No	Parameters	Unit	Water Quality Criteria					Result	Test Methods
			A	B	C	D	E		
1.	pH	-	6.5-8.5					7.75	APHA 4500H+ B
2.	Conductivity	µS/cm	-	-	-	1000	2250	510	APHA 2510 B
3.	Total Dissolved Solids	mg/L	500	-	1500	-	2100	305	APHA 2540 C
4.	Total Hardness	mg/L	-	-	-	-	-	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	-	-	5.6	APHA 5210 B
7.	Chemical Oxygen Demand	mg/L	-	-	-	-	-	24.0	APHA 5220 B
8.	Nitrate as NO <sub>3</sub>	mg/L	20	-	50	-	-	3.24	APHA 4500-NO <sub>3</sub> E
9.	Chloride as Cl	mg/L	250	-	600	-	600	44.35	APHA 4500-Cl B
10.	Sulphate as SO <sub>4</sub>	mg/L	400	-	400	-	1000	20.06	APHA 4500-SO <sub>4</sub> ²-E
11.	Fluoride as F	mg/L	1.5	1.5	1.5	-	-	0.08	APHA 4500F D

Note: BOD- Biochemical Oxygen Demand

<b>INFERENCE</b>	<p>Conforms to Class "D"- Criteria with respect to above tested parameters.</p> <ul style="list-style-type: none"> <li>• A- Drinking Water Source without conventional Treatment but after disinfection</li> <li>• B- Outdoor Bathing (Organized).</li> <li>• C- Drinking Water source with conventional treatment followed by disinfection</li> <li>• D- Propagation of wild life, fisheries.</li> <li>• E- Irrigation, industrial cooling, controlled waste Disposal.</li> </ul> <p style="text-align: center;">***End of Report***</p>
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*Haveena*  
 Government Analyst

**Concern towards protecting Environment**

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





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(ಪರಿಷ್ಕರಣೆ/ಸಂರಕ್ಷಣೆ) ಕಾಯ್ದೆ, 1986 ರ ಕೆಲವು 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 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: 15° 19' 09.2", East: 076° 23' 28.1"
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 : 09.04.2018
6. Particulars of Sample Collected : Surface Water, Grab Sampling
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/ VNC/W/18/04/379
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, 23<sup>rd</sup> Edition

Sl.No	Parameters	Unit	Water Quality Criteria					Result	Test Methods
			A	B	C	D	E		
1.	pH	-	6.5-8.5					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	-	-	-	-	-	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	-	-	-	-	-	88	APHA 5220 B
8.	Nitrate as NO <sub>3</sub>	mg/L	20	-	50	-	-	8.38	APHA 4500-NO <sub>3</sub> E
9.	Chloride as Cl	mg/L	250	-	600	-	600	109.92	APHA 4500-Cl B
10.	Sulphate as SO <sub>4</sub>	mg/L	400	-	400	-	1000	39.04	APHA 4500-SO <sub>4</sub> ²-E
11.	Fluoride as F	mg/L	1.5	1.5	1.5	-	-	0.53	APHA 4500F D

Note: BOD- Biochemical Oxygen Demand

INFERENCE

Conforms to Class "E"- 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\*\*\*

*Praveena*

Government Analyst

Concern towards protecting Environment

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



## Test Report

### ANALYSIS REPORT OF WATER QUALITY

1. Name of the Location : Basavanna Canal in Hospet City (Near Old Amaravathi Village) Canal Village
2. GPS Location of Monitoring Station : North: 15° 16' 09.6", East: 076° 22' 23.5"
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 : 09.04.2018
6. Particulars of Sample Collected : Surface Water, Grab Sampling
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/ VNC/W/18/04/380
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
13. Protocol : APHA, 23<sup>rd</sup> Edition

Sl.No	Parameters	Unit	Water Quality Criteria					Result	Test Methods
			A	B	C	D	E		
1.	pH	-	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	APHA 2540 C
4.	Total Hardness	mg/L	-	-	-	-	-	132	APHA 2340 C
5.	Dissolved Oxygen	mg/L	6	5	4	4	-	5.6	APHA 4500-O C
6.	BOD(3 Days @ 27°C)	mg/L	2	3	3	-	-	9.2	APHA 5210 B
7.	Chemical Oxygen Demand	mg/L	-	-	-	-	-	64	APHA 5220 B
8.	Nitrate as NO <sub>3</sub>	mg/L	20	-	50	-	-	4.29	APHA 4500-NO <sub>3</sub> E
9.	Chloride as Cl	mg/L	250	-	600	-	600	57.85	APHA 4500-Cl B
10.	Sulphate as SO <sub>4</sub>	mg/L	400	-	400	-	1000	26.29	APHA 4500-SO <sub>4</sub> <sup>2-</sup> E
11.	Fluoride as F	mg/L	1.5	1.5	1.5	-	-	0.15	APHA 4500F D

Note: BOD- Biochemical Oxygen Demand

INFERENCE	Conforms to Class "D"- Criteria with respect to above tested parameters.
	<ul style="list-style-type: none"> <li>• A- Drinking Water Source without conventional Treatment but after disinfection</li> <li>• B- Outdoor Bathing (Organized).</li> <li>• C- Drinking Water source with conventional treatment followed by disinfection</li> <li>• D- Propagation of wild life, fisheries.</li> <li>• E- Irrigation, industrial cooling, controlled waste Disposal..</li> </ul>

\*\*\*End of Report\*\*\*

*Praveena*  
Government Analyst

Concern towards protecting Environment

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## Test Report

### ANALYSIS REPORT OF WATER QUALITY

1. Name of the Location : Hulugi Anicut Canal Water
2. GPS Location of Monitoring Station : North: 15° 17'41.9", East: 076° 20' 25.8"
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 : 09.04.2018
6. Particulars of Sample Collected : Surface Water, Grab Sampling
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/ VNC/W/18/04/381
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, 23<sup>rd</sup> Edition

Sl. No	Parameters	Unit	Water Quality Criteria					Result	Test Methods
			A	B	C	D	E		
1.	pH	-	6.5-8.5					7.72	APHA 4500H+ B
2.	Conductivity	µS/cm	-	-	-	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	APHA 2340 C
5.	Dissolved Oxygen	mg/L	6	5	4	4	-	5.0	APHA 4500-O C
6.	BOD (3 Days @ 27°C)	mg/L	2	3	3	-	-	6.8	APHA 5210 B
7.	Chemical Oxygen Demand	mg/L	-	-	-	-	-	48	APHA 5220 B
8.	Nitrate as NO <sub>3</sub>	mg/L	20	-	50	-	-	4.19	APHA 4500-NO <sub>3</sub> E
9.	Chloride as Cl	mg/L	250	-	600	-	600	40.49	APHA 4500-Cl B
10.	Sulphate as SO <sub>4</sub>	mg/L	400	-	400	-	1000	19.17	APHA 4500-SO <sub>4</sub> ²-E
11.	Fluoride as F	mg/L	1.5	1.5	1.5	-	-	0.53	APHA 4500F D

Note: BOD- Biochemical Oxygen Demand

INFERENCE	Conforms to Class "D"- Criteria with respect to above tested parameters.
	<ul style="list-style-type: none"> <li>• A- Drinking Water Source without conventional Treatment but after disinfection</li> <li>• B- Outdoor Bathing (Organized).</li> <li>• C- Drinking Water source with conventional treatment followed by disinfection</li> <li>• D- Propagation of wild life, fisheries.</li> <li>• E- Irrigation, industrial cooling, controlled waste Disposal..</li> </ul>

\*\*\*End of Report\*\*\*

*Praveena*  
Government Analyst

Concern towards protecting Environment

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## Test Report

### ANALYSIS REPORT OF WATER QUALITY

1. Name of the Location : Anegundi Canal (Near Hanumanahalli Village)
2. GPS Location of Monitoring Station : North: 15° 20' 53.4", East: 076° 27' 57.8"
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 : 09.04.2018
6. Particulars of Sample Collected : Ground Water, Grab Sampling
7. 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
11. Sent to be Report : 17.04.2018
12. Page No : 1 of 1
13. Protocol : APHA, 23<sup>rd</sup> Edition

Sl. 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	APHA 2320 B	mg/L	180	200	600
3.	Conductivity	APHA 2510 B	µS/cm	506	-	
4.	Total Dissolved Solids	APHA 2540 C	mg/L	352	500	2000
5.	Total Hardness	APHA 2340 C	mg/L	172	200	600
6.	Turbidity	APHA 2130 B	NTU	3.22	1	5
7.	Chloride as Cl	APHA 4500-Cl B	mg/L	36.64	250	1000
8.	Sulphate as SO <sub>4</sub>	APHA 4500-SO <sub>4</sub> <sup>2-</sup> E	mg/L	19.87	200	400
9.	Fluoride as F	APHA 4500F D	mg/L	0.13	1	1.5

AL - Acceptable Limit, PL - Permissible Limit

#### 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\*\*\*

*Praveena*  
 Government Analyst

**Concern towards protecting Environment**

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

ಕಛೇರಿ ವಿಳಾಸ : ನಂ. 13/2, 1ನೇ ಮುಖ್ಯ ರಸ್ತೆ, ಅಗ್ನಿ ಸಂರಕ್ಷಣೆ ಸಂಸ್ಥೆ, ರಾಜಾಜಿನಗರ, ಬೆಂಗಳೂರು - 560 010.





ENVIRONMENTAL HEALTH AND SAFETY  
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## 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)

ಎನ್ವಿರಾನ್ಮೆಂಟಲ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್‌ಮೆಂಟ್ ಸೆಂಟರ್

(ಪರಿಷದ್ (ಸಂರಕ್ಷಣಾ) 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 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 : Turtha Canal in Hampi Town
2. GPS Location of Monitoring Station : North: 15° 20' 03.03", East: 076° 27' 54.7"
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 : 09.04.2018
6. Particulars of Sample Collected : Ground Water, Grab Sampling
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/ VNC/W/18/04/383
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, 23<sup>rd</sup> Edition

Sl. No	Parameters	Test Methods	Unit	Result	Std. IS 10500:2012 (Second Revision)	
					AL	PL
1.	pH	APHA 4500H* B	-	6.96	6.5-8.5	
2.	Alkalinity	APHA 2320 B	mg/L	260	200	600
3.	Conductivity	APHA 2510 B	µS/cm	832	-	
4.	Total Dissolved Solids	APHA 2540 C	mg/L	571	500	2000
5.	Total Hardness	APHA 2340 C	mg/L	236	200	600
6.	Turbidity	APHA 2130 B	NTU	0.06	1	5
7.	Chloride as Cl	APHA 4500-Cl B	mg/L	75.21	250	1000
8.	Sulphate as SO <sub>4</sub>	APHA 4500-SO <sub>4</sub> <sup>2-</sup> E	mg/L	37.96	200	400
9.	Fluoride as F	APHA 4500F D	mg/L	0.64	1	1.5

AL - Acceptable Limit, PL - Permissible Limit

**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\*\*\*

*haveena*

Government Analyst

Concern towards protecting Environment

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**Test Report**

**ANALYSIS REPORT OF WATER QUALITY**

1. Name of the Location : Kallaghatta Canal (Near Kallaghatta Village)
2. GPS Location of Monitoring Station : North: 15° 18' 58.9", East: 076° 24' 28.9"
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 : 09.04.2018
6. Particulars of Sample Collected : Ground Water, Grab Sampling
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/ VNC/W/18/04/384
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, 23<sup>rd</sup> Edition

Sl. No	Parameters	Test Methods	Unit	Result	Std. IS 10500:2012 (Second Revision)	
					AL	PL
1.	pH	APHA 4500H* B	-	7.10	6.5-8.5	
2.	Alkalinity	APHA 2320 B	mg/L	308	200	600
3.	Conductivity	APHA 2510 B	µS/cm	965	-	
4.	Total Dissolved Solids	APHA 2540 C	mg/L	710	500	2000
5.	Total Hardness	APHA 2340 C	mg/L	356	200	600
6.	Turbidity	APHA 2130 B	NTU	2.96	1	5
7.	Chloride as Cl	APHA 4500-Cl B	mg/L	92.56	250	1000
8.	Sulphate as SO <sub>4</sub>	APHA 4500-SO <sub>4</sub> <sup>2-</sup> E	mg/L	49.43	200	400
9.	Fluoride as F	APHA 4500F D	mg/L	0.84	1	1.5

AL - Acceptable Limit, PL - Permissible Limit

<b>INFERENCE</b>	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.
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\*\*\*End of Report\*\*\*

*Praveena*  
 Government Analyst

**Concern towards protecting Environment**

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## ENVIRONMENTAL HEALTH AND SAFETY RESEARCH AND DEVELOPMENT CENTRE

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ವಿಸ್ತರಿಸಿದ ಮೆಟ್ರಿಕ್ ಹೆಲ್ತ್ ಅಂಡ್ ಸೇಫ್ಟಿ ರಿಸರ್ಚ್ ಅಂಡ್ ಡೆವಲಪ್‌ಮೆಂಟ್ ಸೆಂಟರ್

(ಪರಿಷ್ಕರಣೆ (ಸಂರಕ್ಷಣೆ) 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) न्यू 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 : Basavanna Canal in Hospet City (Near Old Amaravathi Village)
2. GPS Location of Monitoring Station : North: 15° 16' 13.8", East: 076° 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 & Development Centre, Bangalore - 560010.
5. Date of Collection : 09.04.2018
6. Particulars of Sample Collected : Ground Water, Grab Sampling
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/ VNC/W/18/04/385
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

Sl. 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	-	
4.	Total Dissolved Solids	APHA 2540 C	mg/L	905	500	2000
5.	Total Hardness	APHA 2340 C	mg/L	432	200	600
6.	Turbidity	APHA 2130 B	NTU	0.48	1	5
7.	Chloride as Cl	APHA 4500-Cl B	mg/L	167.77	250	1000
8.	Sulphate as SO <sub>4</sub>	APHA 4500-SO <sub>4</sub> <sup>2-</sup> E	mg/L	53.48	200	400
9.	Fluoride as F	APHA 4500F D	mg/L	0.49	1	1.5

AL - Acceptable Limit, PL - Permissible Limit

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\*\*\*

*Praveena*  
Government Analyst

Concern towards protecting Environment

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

ಕಛೇರಿ ವಿಳಾಸ : ನಂ. 13/2, 1ನೇ ಮುಖ್ಯ ರಸ್ತೆ, ಕರೀಗುಡಿಯ ಬಳಿ, ಕಾರ್ಖಾನೆ ನಗರ, ರಾಜಾಜಿನಗರ, ಬೆಂಗಳೂರು - 560 010.



**Test Report**

**ANALYSIS REPORT OF WATER QUALITY**

1. Name of the Location : Hulagi Canal (Near Hole Muddalapura Village)
2. GPS Location of Monitoring Station : North: 15° 17' 05.4", East: 76° 20' 02.3"
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 : 09.04.2018
6. Particulars of Sample Collected : Ground Water, Grab Sampling
7. Date of Sample Receipt : 11.04.2018
8. Sample Number : EHSRDC/ VNC/W/18/04/386
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, 23<sup>rd</sup> Edition

Sl.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	APHA 2320 B	mg/L	264	200	600
3.	Conductivity	APHA 2510 B	µS/cm	863	-	
4.	Total Dissolved Solids	APHA 2540 C	mg/L	595	500	2000
5.	Total Hardness	APHA 2340 C	mg/L	300	200	600
6.	Turbidity	APHA 2130 B	NTU	0.22	1	5
7.	Chloride as Cl	APHA 4500-Cl B	mg/L	80.99	250	1000
8.	Sulphate as SO <sub>4</sub>	APHA 4500-SO <sub>4</sub> <sup>2-</sup> E	mg/L	45.87	200	400
9.	Fluoride as F	APHA 4500F D	mg/L	0.55	1	1.5

AL - Acceptable Limit, PL - Permissible Limit

**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\*\*\*

*Pravara*

Government Analyst

**Concern towards protecting Environment**

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