

Table – 1 Water Quality of Taladanda Canal with respect to Criteria parameters during 2013 (January-October)

Sl. No	Location	No. of Obs.	Annual average values (Range of values) Parameters					Frequency of violation (Percent of violation) from designated criteria value			Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100 ml)	FC (MPN/100 ml)	BOD	TC	FC			
			1.	Jobra*	4	7.9 (7.5 – 8.3)	7.6 (6.8 – 8.5)	3.7 (1.3 – 9.7)	58475 (7900 – 160000)	33475 (4900 – 92000)			
2.	Ranihat*	4	7.7 (7.3 – 8.1)	8.3 (6.3 – 12.3)	8.9 (2.5 – 25.6)	106750 (28000 – 160000)	95500 (13000 – 160000)	3 (75)	4 (100)	4 (100)	Does not conform to Class B & C	BOD, TC,FC	Human activities and waste water of Cuttack town
3.	Chhatrabazar*	4	7.6 (7.1 – 8.0)	5.3 (0 – 7.9)	7.8 (3.5 – 19.5)	116250 (35000– 160000)	84750 (17000 – 160000)	4 (100)	4 (100)	4 (100)			
4.	Nuabazar*	4	7.6 (7.2 – 7.9)	5.5 (1.9 – 6.9)	5.0 (2.4 – 11.9)	99000 (22000 – 160000)	90725 (7900 – 160000)	2 (50)	4 (100)	4 (100)			
5.	Biribati*	4	7.8 (7.4 – 8.0)	7.4 (6.2 – 9.1)	4.8 (2.0 – 12.8)	66250 (35000 – 160000)	55250 (13000 – 160000)	1 (25)	4 (100)	4 (100)			
6.	Atharabanki**	10	7.8 (7.2 – 8.0)	5.4 (0.9 – 8.5)	4.9 (1.6 – 9.8)	113317 (4900 – 160000)	108883 (2300 – 160000)	5 (50)	9 (90)	9 (90)	Does not conform to Class B & C	BOD, TC,FC	Human activities
***Class 'C'			6.5-8.5	4 and above	3 or less	5000 or less					Drinking water source with conventional treatment followed by disinfection		
***Class 'B'			6.5-8.5	5 and above	3 or less	500 or less					Outdoor bathing		
Water quality criteria for bathing water (MOEF Notification G.S.R. No. 742(E) Dt. 25.09.2000)			6.5-8.5	5 and above	3 or less		500 (Desirable) 2500 (Permissible)				Water use for organised outdoor bathing		

* Data for the period July-October, 2013 ** Data for the period January-October, 2013 *** Tolerance limit for Inland Surface water bodies (IS-2296-1982)

Note : The criteria of non-compliance with respect to TC has been calculated on the following basis:
 TC values with more than 5% of samples show more than 20,000 MPN/100 ml and more than 20% of the samples show more than 5000 MPN/ 100 ml.
 (Ref : IS 2296-1982 foot note)

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Sl. No	Location	No. of Obs.	Annual average value (Range of values)				Frequency of violation (Percent of violation) from designated criteria value			Existing Class	Parameters responsible for downgrading the water quality	Possible Reason
			Parameters				EC	SAR	B			
			pH	EC (micro Siemens /cm)	SAR	B (mg/l)						
1.	Jobra*	4	7.9 (7.5 – 8.3)	189 (152-215)	0.29 (0.21-0.41)	0.080 (0.045-0.117)	0	0	0	Conform to Class E		
2.	Ranihat*	4	7.7 (7.3 – 8.1)	255 (157-464)	1.34 (0.64-3.12)	0.090 (0.022-0.185)	0	0	0			
3.	Chhatrabazar*	4	7.6 (7.1 – 8.0)	257 (141-482)	1.00 (0.42-2.60)	0.139 (0.068-0.245)	0	0	0			
4.	Nuabazar*	4	7.6 (7.2 – 7.9)	275 (152-535)	1.11 (0.55-2.72)	0.187 (0.018-0.442)	0	0	0			
5.	Biribati*	4	7.8 (7.4 – 8.0)	273 (149-531)	0.92 (0.34-2.44)	0.103 (0.052-0.154)	0	0	0			
6.	Atharabanki**	10	7.8 (7.2 – 8.0)	408 (195-938)	2.56 (0.39-6.89)	0.229 (0.003-1.069)		0	0			
*** Class 'E'			6.5-8.5	2250 or less	26 or less	2 or less				Irrigation, Industrial Cooling or controlled waste disposal		

* Data for the period July-October, 2013

** Data for the period January-October, 2013

*** Tolerance limit for Inland Surface water bodies (IS-2296-1982)

Table-2 Water Quality of Taladanda Canal with respect to other parameters during 2013 (January-October)

Sl. No.	Sampling Location	Physical parameters		Organic pollution Indicators				Mineral constituents				
		Annual average values (Range of values)										
		TSS	Total alkalinity	COD	NH ₄ -N	Free NH ₃ -N	TKN	TDS	TH	Cl	SO ₄	F
		(mg/l)		(mg/l)				(mg/l)				
1.	Jobra*	105 (44-262)	75 (56-92)	21.4 (10.2-343.5)	0.575 (0.168-1.570)	0.021 (0.005-0.033)	2.57 (1.96-3.02)	109 (90-120)	72 (60-78)	9.4 (6.6-13.5)	6.09 (5.10-7.58)	0.414 (0.217-0.881)
2.	Ranihat*	119 (32-308)	86 (56-128)	35.9 (17.9-67.2)	0.294 (0.224-0.336)	0.009 (0.004-0.015)	2.23 (1.68-2.50)	144 (96-248)	77 (50-116)	20.7 (8.6-52.2)	8.39 (4.60-11.69)	0.297 (0.214-0.461)
3.	Chhatrabazar*	114 (40-246)	87 (52-132)	33.8 (19.7-49.9)	0.266 (0.112-0.448)	0.006 (0.001-0.011)	2.79 (1.66-3.88)	144 (86-263)	80 (46-134)	21.1 (7.7-59.5)	6.96 (4.35-8.96)	0.243 (0.196-0.276)
4.	Nuabazar*	128 (50-256)	91 (60-130)	25.5 (17.0-36.2)	0.336 (0.168-0.616)	0.009 (0.002-0.013)	2.23 (1.94-2.77)	153 (92-288)	82 (48-136)	21.7 (7.7-60.1)	8.72 (2.98-18.96)	0.250 (0.231-0.279)
5.	Biribati*	128 (66-260)	87 (52-132)	25.6 (13.6-55.2)	0.364 (0.112-0.728)	0.010 (0.004-0.017)	2.22 (1.68-2.75)	155 (88-294)	78 (44-128)	22.6 (6.6-66.3)	9.09 (5.22-18.71)	0.247 (0.169-0.295)
6.	Atharabanki**	75 (38-128)	100 (68-156)	27.9 (7.7-55.7)	0.264 (0.220-0.330)	0.011 (0.003-0.017)	3.48 (2.24-4.15)	134 (17-172)	104 (64-172)	74.0 (13.2-235.2)	24.58 (2.36-46.02)	0.247 (0.091-0.359)
***Class 'C'		-	-	-	-	-	-	-	-	600	400	1.5
***Class 'E'								2100	-	600	1000	-

* Data for the period July-October, 2013

** Data for the period January-October, 2013

*** Tolerance limit for Inland Surface water bodies (IS-2296-1982)

Class 'C' : Drinking water source with conventional treatment followed by disinfection

Class 'E' : Irrigation water quality

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Sl. No.	Sampling Location	Nutrients		Heavy metals								
		Annual average values (Range of values)										
		NO ₃ ⁻	PO ₄ ³⁻ -P	Cr(VI)	T. Cr	Fe	Ni [#]	Cu [#]	Zn [#]	Cd [#]	Hg	Pb [#]
		(mg/l)		(mg/l)								
1.	Jobra*	2.123 (0.372- 4.969)	0.024 (0.019- 0.036)	0.001 (BDL- 0.005)	0.037 (0.028- 0.046)	5.130 (1.251- 10.669)	-	-	-	-	BDL	-
2.	Ranihat*	11.166 (1.082- 37.08)	0.258 (0.035- 0.864)	0.002 (BDL- 0.005)	0.033 (0.020- 0.052)	4.752 (0.217- 12.206)	-	-	-	-	BDL	-
3.	Chhatrabazar*	8.638 (0.634- 31.159)	0.234 (0.032- 0.542)	BDL (BDL- 0.003)	0.038 (0.018- 0.047)	4.755 (0.763- 11.999)	-	-	-	-	BDL	-
4.	Nuabazar*	11.834 (0.334- 42.178)	0.230 (0.029- 0.731)	0.003 (BDL- 0.008)	0.031 (0.020- 0.040)	3.130 (0.276- 4.232)	-	-	-	-	BDL	-
5.	Biribati*	11.447 (0.447- 38.374)	0.402 (0.049- 1.248)	BDL (BDL- 0.002)	0.038 (0.027- 0.053)	3.822 (0.705- 5.316)	-	-	-	-	BDL	-
6.	Atharabanki**	6.358 (2.777- 14.177)	0.116 (0- 0.414)	BDL (BDL- 0.005)	0.026 (0.001- 0.070)	3.584 (0.312- 10.499)	0.002	0.005	0.01	0.001	BDL	0.009
***Class 'C'		50	-	0.05	-	50	-	1.5	15.0	0.01	-	0.10
***Class 'E'		-	-	-	-	-	-	-	-	-	-	-

* Data for the period June-October, 2013

** Data for the period March-October, 2013

*** Tolerance limit for Inland Surface water bodies (IS-2296-1982)

Data for the period Feb, 2013

BDL = Below Detection Limit

Class 'C' : Drinking water source with conventional treatment followed by disinfection

Class 'E' : Irrigation water quality