

**Ground water Quality Status (Tube well) of Cuttack, Bhubaneswar and Puri cities (2012)**

Location → Parameter (Permissible limit, max.- IS :10500 :1991) ↓	Month	Cuttack					Bhubaneswar						Puri			
		Jagatpur Industrial area	Madhupatna- Kalyan nagar area	Bidanasi – Tulsipur area	Badambadi area	Ranihat – Mangalabag area	Khandagiri area	Capital Hospital	Samantaraypur	Jharpada	Chandrasekhar pur	Secretariat - Governor House- area	Badadanda	Mausima Mandir	Sea beach site	Baliapanda
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
pH (6.5 to 8.5)	A	7.3	6.8	7.2	7.3	7.3	5.2	6.2	6.2	6.0	6.4	5.2	7.1	7.2	7.5	8.1
	O	7.1	7.4	7.8	8.0	7.6	6.1	7.0	7.3	5.5	7.2	7.0	7.4	7.4	7.4	7.4
Conductivity, µS/cm	A	504	317	146	348	231	185	218	463	213	184	227	919	608	1532	307
	O	509	252	167	304	282	184	179	438	125	186	169	602	520	811	340
Biological Oxygen Demand, mg/l	A	0.8	1.0	0.3	1.0	0.6	1.4	1.9	1.6	1.6	1.4	2.1	0.7	0.6	0.6	0.5
	O	0.8	1.0	1.2	1.0	0.9	0.7	0.6	0.7	0.8	0.3	1.1	0.2	0.4	0.9	0.2
Chemical Oxygen Demand, mg/l	A	5.7	7.6	3.8	7.6	7.6	7.6	9.5	15.2	11.4	7.6	17.1	11.8	3.9	3.9	11.8
	O	10.1	8.1	4.0	6.1	6.1	8.0	12.0	4.0	6.0	12.0	2.0	3.6	5.4	3.6	5.4
Turbidity, NTU (10)	A	5	60	1	18	40	6	66	74	52	64	14	8	7	8	7
	O	3.8	3.2	4.1	4.8	2.1	2.2	4.8	4.2	3.8	4.2	3.6	3.2	4.1	3.9	3.4
Total Dissolved Solids, mg/l (2000)	A	275	177	95	221	150	181	124	286	118	117	135	542	389	1017	164
	O	323	163	108	184	179	119	113	259	76	117	104	395	363	561	179
Total Fixed Solids, mg/l	A	276	210	88	214	162	108	158	316	132	146	140	532	378	960	174
	O	317	158	102	178	170	101	128	267	77	126	98	362	342	520	178
Total Alkalinity, mg/l (600)	A	382	112	56	126	118	16	24	100	16	44	16	272	200	260	72
	O	76	98	68	96	124	46	68	110	24	76	88	164	134	148	98
T. Hardness (as CaCO <sub>3</sub> ), mg/l (600)	A	72	112	50	112	100	46	24	98	34	38	44	260	184	460	74
	O	80	92	62	110	130	46	74	98	40	86	90	218	162	230	80

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Ca, mg/l (200)	A	15.2	27.2	15.2	22.4	24	9.6	4.8	24	8.8	10.4	8	48.8	35.2	80	12.8
	O	19.2	27.2	19.2	24.8	28.8	9.6	20.8	24	10.4	21.6	24.8	52	41.6	63.2	19.2
Mg, mg/l(100)	A	8.3	10.7	2.9	13.6	9.7	5.4	2.9	9.3	2.9	2.9	5.8	36.1	23.4	63.4	10.2
	O	7.8	5.8	3.4	11.7	14.1	5.4	5.4	9.3	3.4	7.8	6.8	21.4	14.1	17.5	7.8
Chloride, mg/l (1000)	A	110.5	28.8	14.4	46.9	13.4	32.8	53.8	94.2	44.2	14.4	44.8	129.7	81.7	264.3	40.4
	O	125	28	14	32	24	26	8	72	8	16	3	82	98	145	42.0
Sulphate, mg/l (400)	A	7.13	8.61	9.11	15.45	5.64	8.50	5.94	9.50	8.50	11.03	13.86	55.16	34.21	181.91	3.82
	O	5.2	7.7	10.7	16.1	5.7	9.5	12.7	11.1	12.3	7.5	6.2	66.6	32.3	110.6	4.5
Nitrate as NO <sub>3</sub> , mg/l (45)	A	1.0	2.5	2.2	2.7	3.1	38.7	5.6	22.3	2.4	2.1	40.8	47.9	26.6	50.7	3.9
	O	46.0	1.2	3.2	21.8	3.3	44.5	19.8	41.0	30.9	10.7	1.2	59.0	54.7	51.4	6.3
Ammonium-N, mg/l	A	0.392	0.560	1.290	0.168	0.224	0.448	0.336	0.672	0.672	0.224	0.784	0.224	0.336	0.336	0.112
	O	0.112	0.224	0.112	0.112	0.112	0.224	0.392	0.224	0.112	0.448	0.112	0.336	0.336	0.336	0.336
Total Kjeldahl Nitrogen, mg/l	A	5.04	1.12	3.36	3.36	2.24	3.36	1.68	1.68	3.36	4.48	2.80	1.68	0.84	1.12	1.12
	O	2.2	2.8	2.2	2.8	1.7	1.7	2.2	3.9	2.8	2.8	1.7	2.2	1.7	1.7	1.7
Fluoride, mg/l (1.5)	A	0.302	0.209	0.129	0.644	0.225	0.166	0.103	0.145	0.133	0.112	0.161	0.102	0.191	0.164	0.161
	O	0.168	0.184	0.141	0.132	0.214	0.146	0.161	0.122	0.184	0.138	0.154	0.164	0.148	0.122	0.146
Phosphate-P, mg/l	A	0.031	0.025	0.011	0.062	0.019	0.015	0.043	0.013	0.037	0.025	0.035	ND	ND	ND	ND
	O	0.036	0.022	0.020	0.028	0.046	0.061	0.166	0.072	0.046	0.124	0.154	0.182	0.206	0.146	0.064
Sodium, mg/l	A	64.8	17.8	8.4	28.7	9.0	16.6	29.1	52.3	26.1	8.4	26.4	71.1	48.6	171.1	26.6
	O	76.8	15.4	7.6	18.9	11.2	14.2	4.6	45.8	4.9	8.4	1.3	46.8	56.2	86.4	25.2
Potassium, mg/l	A	3.1	3.1	1.9	2.2	2.6	5.2	4.3	15.3	4.1	0.9	5.2	23.6	16.0	33.6	8.7
	O	12.6	4.6	2.3	6.7	2.4	2.8	1.6	9.4	1.3	2.4	0.9	8.9	12.6	22.4	7.2
Boron, mg/l (5.0)	A	0.045	0.023	0.019	0.011	0.034	0.007	0.026	0.057	0.019	0.015	0.034	0.121	0.128	0.333	0.204
	O	0.048	0.036	0.026	0.016	0.032	0.042	0.026	0.008	0.016	0.024	0.083	0.084	0.068	0.098	0.096
Chromium (VI), mg/l (0.05)	A	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	O	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chromium, Total, mg/l	A	0.012	0.02	0.025	0.038	0.046	0.036	0.056	0.028	0.026	0.02	0.01	0.02	0.01	0.017	0.015
	O	0.046	0.052	0.048	0.036	0.054	0.024	0.044	0.032	0.038	0.054	0.036	0.048	0.037	0.064	0.026
Iron, Total, mg/l (1.0)	A	1.267	11.27	0.648	2.035	2.554	2.635	19.565	8.736	10.963	45.984	2.294	0.552	0.43	0.931	0.451
	O	4.74	2.64	9.56	4.61	3.98	11.21	5.69	9.28	13.24	6.78	4.32	0.69	0.51	0.87	1.14

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Nickel , mg/l	A	0.005	0.003	0.005	0.005	0.007	0.005	0.003	0.008	0.003	0.001	0.002	0.009	0.008	0.008	0.005
	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper, mg/l(1.5)	A	0.002	0.001	0.002	0.002	0.002	0.002	0.007	0.003	0.009	0.002	0.003	0.002	0.000	0.001	0.001
	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc, mg/l (15)	A	0.008	0.003	0.005	0.006	0.008	0.002	0.003	0.008	0.016	0.018	0.004	0.010	0.004	0.014	0.002
	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium, mg/l (0.01)	A	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.002	0.002
	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury, mg/l(0.001)	A	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	O	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Lead, mg/l (0.05)	A	0.005	0.006	0.007	0.008	0.005	0.007	0.006	0.009	0.007	0.005	0.006	0.010	0.004	0.006	0.001
	O	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Coliform, MPN/100ml (10)	A	<2	4	<2	8	<2	<2	<2	240	<2	<2	<2	2	130	<2	<2
	O	<2	<2	<2	<2	<2	<2	<2	49	<2	<2	<2	<2	<2	<2	49
Fecal Coliform, MPN/100ml (Absent)	A	<2	2	<2	4	<2	<2	<2	79	<2	<2	<2	<2	49	<2	<2
	O	<2	<2	<2	<2	<2	<2	<2	23	<2	<2	<2	<2	<2	<2	17

BDL = Below Detection Limit

A : April

O : October