

Utlei WWTP - AO Required Monitoring												
Sampling Date	Effluent Flow	Influent					Effluent					
		Ammonia (N)	Nitrate +Nitrite (N)	TKN	Total N	Total P	Ammonia (N)	Nitrate +Nitrite (N)	TKN	Total N	Total P	Turbidity
		MGD	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	NTU
12/19/2011	1.4	13	0.15	18	18	1.8	12	0.15	15	15	1.4	50
01/29/2012	1.5	9	0.15	12	12	1.3	9.3	0.15	13	13	1.3	49.1
02/26/2012	1.4	12	0.15	17	17	2.7	9.7	0.15	13	13	4.3	71.2
03/18/2012	1.7	8.5	0.15	13	13	6	6.8	0.15	9.6	9.6	4.9	36
04/22/2012	1.3	9.6	0.15	7.5	7.5	1.3	8.8	0.06	6.2	6.2	2.3	63.3
05/27/2012	1.9	9	0.25	12	12	1.4	6.2	0.25	7.9	7.9	0.96	10.8
06/24/2012	1.2	15	0.25	19	19	3.7	12	0.25	14	14	1.5	66.1
07/16/2012	1.3	12	0.25	14	14	3.6	10	0.25	12	12	2	69.4
08/20/2012	1.1	15	0.25	12	12	4.9	13	0.25	9.6	9.6	3.2	32.2
09/24/2012	1.2	16	0.25	20	20	1.6	12	0.25	16	16	1.3	25.6
10/29/2012	1.1	13	0.05	28	28	3.2	13	0.05	14	14	2.1	59
11/12/2012	1.7	6.4	0.12	9	9.1	3.6	6.5	0.1	7.4	7.4	3.3	48.1
12/17/2012	1.6	12	0.05	16	16	3.4	9.8	0.05	11	11	2.3	30.2
01/28/2013	1.3	11	0.05	14	14	3.8	9.7	0.05	13	13	1.2	48.1
02/25/2013	1.3	12	0.05	13	13	2	12	0.05	15	15	3.7	52.3
03/27/2013	1.2	14	0.05	20	20	3.8	12	0.05	15	15	1.5	39.7
04/29/2013	1.4	20	0.05	24	24	5	12	0.05	14	14	2	58
05/27/2013	1.2	12	0.05	15	15	2	12	0.05	14	14	1.4	55
06/24/2013	1.2	11	0.05	14	14	1.5	12	0.05	14	14	1.4	52.1
07/22/2013	1.7	9.8	0.05	14	14	1	12	0.25	16	16	1.4	72.4
08/26/2013	1.3	37	0.06	42	42	2.6	44	0.05	52	52	5.5	37.3
09/23/2013	1.4	14	0.05	15	15	5.1	13	0.05	16	16	4.7	55.6
10/28/2013	1.2	30	0.05	27	27	4.1	16	0.05	18	18	3.4	52.4
11/25/2013	1.3	8	0.05	12	12	2.6	6.5	0.05	8.2	8.2	2.2	49.3
12/16/2013	1.2	15	0.05	21	21	1.9	11	0.05	5	5	4.9	52.4
01/27/2014	1.5	12	0.05	19	19	2.5	8.6	0.05	11	11	0.92	21.9
02/24/2014	1.8	12	0.05	15	15	1.3	11	0.05	14	14	1.1	39.5
03/17/2014	1.5	16	0.05	19	19	1.6	11	0.05	12	12	0.88	42.6
04/28/2014	1.9	8.8	0.05	15	15	1.6	6.7	0.05	9	9	0.7	31.4
05/26/2014	1.3	x	x	x	x	x	13	0.05	14	14	2.6	46.2
06/16/2014	1.2	14	0.25	19	19	1.6	13	0.25	16	16	2.7	55.3
07/28/2014	0.7	13	0.25	16	16	2.3	10	0.25	13	13	0.62	73.6
08/25/2014	1.2	13	0.05	20	20	0.82	11	0.05	14	14	0.62	43.1
09/29/2014	1.2	13	0.05	19	19	0.19	9.5	0.05	17	17	0.92	64.1
10/29/2014	1.2	15	0.25	24	24	2.3	13	0.25	17	17	1.1	38.6
11/24/2014	1.7	8.9	0.25	12	12	2.6	7.3	0.25	8.1	8.1	4.6	49.3
12/31/2014	1.4	9.6	0.05	13	13	3.5	8.1	0.05	8.8	8.8	2.7	32.1
01/30/2015	2.7	3.2	0.05	5	5	5	3.2	0.05	4.4	4.4	3	21.7
02/23/2015	1.9	7	0.05	10	10	2.7	5.9	0.05	8.8	8.8	2.3	42.3
03/30/2015	1.5	7.5	0.25	9	9	1.8	6.7	0.25	8.6	8.6	5.3	56.2
04/27/2015	1.7	10	0.05	12	12	2.9	8.5	0.05	8.9	8.9	1.5	48.1
05/25/2015	2.3	5.9	0.05	8.2	8.2	5.5	5	0.05	5.8	5.8	5	50.4
06/29/2015	1.1	11	0.05	16	16	3	10	0.05	31	31	2.4	51.8
07/27/2015	1.5	15	0.05	14	14	2.7	11	0.05	13	13	2.7	48.1
08/31/2015	1.3	12	0.05	16	16	2.8	12	0.05	14	14	1.9	50.4
09/28/2015	1.3	11	0.05	13	x	1.2	9.4	0.05	11	11	1.7	56.5
10/26/2015		16	0.05	23	23	3.8	12	0.05	14	14	2.2	38.4
11/30/2015		17	0.05	15	15	3.8	11	0.05	9.8	9.8	1.8	43.1
12/28/2015		2.7	0.31	3.4	3.7	2.3	2.6	0.05	2.8	3.3	3.5	41.67
01/25/2016	2.6	16	0.05	22	22	3.4	16	0.05	17	17	2.8	30.1
02/22/2016	2	14	0.05	14	14	1.1	13	0.05	12	12	0.88	37.3
03/28/2016	1.9	6.4	0.32	8.6	8.9	2.3	4.1	0.31	7	7.3	2.5	43.1
04/24/2016	2.6	16	0.05	20	20	3.6	11	0.05	12	12	1.5	43.1
05/15/2016	1.7	20	0.05	21	21	3.8	19	0.05	18	18	2.9	58
06/28/2016	1.59	16	0.05	21	21	6.1	20	0.05	22	22	5	49.4
07/24/2006	1.57	18	0.25	22	22	3.1	15	0.05	16	16	2.9	54.1
08/28/2016	1.4	13	0.05	14	14	4.3	22	0.05	25	25	3	49.1
09/19/2016	1.72	12	0.05	15	15	3.5	18	0.05	16	16	2.1	48.2
10/17/2019	2	9.4	0.05	11	11	3.1	9.7	0.05	11	11	2.9	51.1
11/14/2016	2.6	13	0.05	16	16	3.3	14	0.05	16	16	3	57.3
12/12/2016	1.87	15	0.05	18	18	2.8	16	0.05	16	16	2.4	66.2
01/30/2017	1.75	24	0.05	12	12	2.8	20	0.05	12	12	3	57.5
02/27/2017	1.93	27	0.052	14	14	2.2	19	0.05	11	11	1.1	51.3
03/27/2017	1.81	14	0.05	15	15	3.1	17	0.05	20	20	3	49.7
04/24/2017	1.67	21	0.05	19	19	3.2	16	0.05	14	14	2.4	50.7
05/22/2017	2.3	8.6	0.05	11	11	2.4	13	0.05	8.8	8.8	2	49.3
06/26/2017	1.78	20	0.05	15	15	2.1	18	0.05	14	14	2	51.3
07/31/2017	1.5	18	0.05	13	13	3.2	16	0.078	12	12	3.5	45
08/28/2017	1.5	22	0.05	17	17	5.5	20	0.05	13	13	5.3	46.4
09/25/2017	1.9	10	0.05	9.6	9.6	2.1	12	0.078	9	9.1	2.4	52.1
10/30/2017	1.52	3	0.39	4.7	5.1	4.8	3.4	0.43	4.8	5.2	0.17	43.3
11/27/2017	1.97	14	0.05	12	12	3.2	10	0.052	8.4	8.4	4.4	45.6
12/18/2017	2.45	8.5	0.15	7.5	7.6	1.4	6.1	0.12	7.3	7.4	1.4	44.2
01/29/2018	1.9	8.4	0.25	12	12	2.3	7.5	0.25	10	10	2	49.3
02/26/2018	0.6	12	0.25	12	12	5.2	11	0.25	9.4	9.4	2	41.7
03/26/2018	1.6	8.9	0.25	11	11	3.9	17	0.25	22	22	2.9	47.3
Total Samples in Database	73	76	76	76	76	76	76	76	76	76	76	76
Number of Numeric Samples	73	75	75	75	74	75	76	76	76	76	76	76
Number of Removed Samples	0	1	1	1	2	1	0	0	0	0	0	0
Number of Samples Assessed	73	75	75	75	74	75	76	76	76	76	76	76
Maximum	2.7	37	0.39	42	42	6.1	44	0.43	52	52	5.5	73.6
Average	1.59	13.15	0.11	15.35	15.40	2.93	11.90	0.10	13.14	13.16	2.45	47.81
Minimum	0.6	2.7	0.05	3.4	3.7	0.19	2.6	0.05	2.8	3.3	0.17	10.8
Standard Deviation	0.42	5.70	0.09	5.84	5.85	1.29	5.65	0.09	6.53	6.51	1.29	11.59
Rejection Criterion (Low)	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.05
Rejection Criterion (High)	2.85	30.26	0.38	32.87	32.94	6.81	28.85	0.37	32.72	32.67	6.32	82.57

Utulei WWTP - AO Required Monitoring												
Sampling Date	Effluent Flow MGD	Influent					Effluent					
		Ammonia (N) mg/L	Nitrate +Nitrite (N) mg/L	TKN mg/L	Total N mg/L	Total P mg/L	Ammonia (N) mg/L	Nitrate +Nitrite (N) mg/L	TKN mg/L	Total N mg/L	Total P mg/L	Turbidity NTU
		12/19/2011	1.4	13	0.15	18	18	1.8	12	0.15	15	15
01/29/2012	1.5	9	0.15	12	12	1.3	9.3	0.15	13	13	1.3	49.1
02/26/2012	1.4	12	0.15	17	17	2.7	9.7	0.15	13	13	4.3	71.2
03/18/2012	1.7	8.5	0.15	13	13	6	6.8	0.15	9.6	9.6	4.9	36
04/22/2012	1.3	9.6	0.15	7.5	7.5	1.3	8.8	0.06	6.2	6.2	2.3	63.3
05/27/2012	1.9	9	0.25	12	12	1.4	6.2	0.25	7.9	7.9	0.96	-
06/24/2012	1.2	15	0.25	19	19	3.7	12	0.25	14	14	1.5	66.1
07/16/2012	1.3	12	0.25	14	14	3.6	10	0.25	12	12	2	69.4
08/20/2012	1.1	15	0.25	12	12	4.9	13	0.25	9.6	9.6	3.2	32.2
09/24/2012	1.2	16	0.25	20	20	1.6	12	0.25	16	16	1.3	25.6
10/29/2012	1.1	13	0.05	28	28	3.2	13	0.05	14	14	2.1	59
11/12/2012	1.7	6.4	0.12	9	9.1	3.6	6.5	0.1	7.4	7.4	3.3	48.1
12/17/2012	1.6	12	0.05	16	16	3.4	9.8	0.05	11	11	2.3	30.2
01/28/2013	1.3	11	0.05	14	14	3.8	9.7	0.05	13	13	1.2	48.1
02/25/2013	1.3	12	0.05	13	13	2	12	0.05	15	15	3.7	52.3
03/27/2013	1.2	14	0.05	20	20	3.8	12	0.05	15	15	1.5	39.7
04/29/2013	1.4	20	0.05	24	24	5	12	0.05	14	14	2	58
05/27/2013	1.2	12	0.05	15	15	2	12	0.05	14	14	1.4	55
06/24/2013	1.2	11	0.05	14	14	1.5	12	0.05	14	14	1.4	52.1
07/22/2013	1.7	9.8	0.05	14	14	1	12	0.25	16	16	1.4	72.4
08/26/2013	1.3	-	0.06	-	-	2.6	-	0.05	-	-	5.5	37.3
09/23/2013	1.4	14	0.05	15	15	5.1	13	0.05	16	16	4.7	55.6
10/28/2013	1.2	30	0.05	27	27	4.1	16	0.05	18	18	3.4	52.4
11/25/2013	1.3	8	0.05	12	12	2.6	6.5	0.05	8.2	8.2	2.2	49.3
12/16/2013	1.2	15	0.05	21	21	1.9	11	0.05	5	5	4.9	52.4
01/27/2014	1.5	12	0.05	19	19	2.5	8.6	0.05	11	11	0.92	21.9
02/24/2014	1.8	12	0.05	15	15	1.3	11	0.05	14	14	1.1	39.5
03/17/2014	1.5	16	0.05	19	19	1.6	11	0.05	12	12	0.88	42.6
04/28/2014	1.9	8.8	0.05	15	15	1.6	6.7	0.05	9	9	0.7	31.4
05/26/2014	1.3	-	-	-	-	-	13	0.05	14	14	2.6	46.2
06/16/2014	1.2	14	0.25	19	19	1.6	13	0.25	16	16	2.7	55.3
07/28/2014	0.7	13	0.25	16	16	2.3	10	0.25	13	13	0.62	73.6
08/25/2014	1.2	13	0.05	20	20	0.82	11	0.05	14	14	0.62	43.1
09/29/2014	1.2	13	0.05	19	19	0.19	9.5	0.05	17	17	0.92	64.1
10/29/2014	1.2	15	0.25	24	24	2.3	13	0.25	17	17	1.1	38.6
11/24/2014	1.7	8.9	0.25	12	12	2.6	7.3	0.25	8.1	8.1	4.6	49.3
12/31/2014	1.4	9.6	0.05	13	13	3.5	8.1	0.05	8.8	8.8	2.7	32.1
01/30/2015	2.7	3.2	0.05	5	5	5	3.2	0.05	4.4	4.4	3	21.7
02/23/2015	1.9	7	0.05	10	10	2.7	5.9	0.05	8.8	8.8	2.3	42.3
03/30/2015	1.5	7.5	0.25	9	9	1.8	6.7	0.25	8.6	8.6	5.3	56.2
04/27/2015	1.7	10	0.05	12	12	2.9	8.5	0.05	8.9	8.9	1.5	48.1
05/25/2015	2.3	5.9	0.05	8.2	8.2	5.5	5	0.05	5.8	5.8	5	50.4
06/29/2015	1.1	11	0.05	16	16	3	10	0.05	31	31	2.4	51.8
07/27/2015	1.5	15	0.05	14	14	2.7	11	0.05	13	13	2.7	48.1
08/31/2015	1.3	12	0.05	16	16	2.8	12	0.05	14	14	1.9	50.4
09/28/2015	1.3	11	0.05	13	-	1.2	9.4	0.05	11	11	1.7	56.5
10/26/2015	-	16	0.05	23	23	3.8	12	0.05	14	14	2.2	38.4
11/30/2015	-	17	0.05	15	15	3.8	11	0.05	9.8	9.8	1.8	43.1
12/28/2015	-	2.7	0.31	3.4	3.7	2.3	2.6	0.05	2.8	3.3	3.5	41.67
01/25/2016	2.6	16	0.05	22	22	3.4	16	0.05	17	17	2.8	30.1
02/22/2016	2	14	0.05	14	14	1.1	13	0.05	12	12	0.88	37.3
03/28/2016	1.9	6.4	0.32	8.6	8.9	2.3	4.1	0.31	7	7.3	2.5	43.1
04/24/2016	2.6	16	0.05	20	20	3.6	11	0.05	12	12	1.5	43.1
05/15/2016	1.7	20	0.05	21	21	3.8	19	0.05	18	18	2.9	58
06/28/2016	1.59	16	0.05	21	21	6.1	20	0.05	22	22	5	49.4
07/24/2016	1.57	18	0.25	22	22	3.1	15	0.05	16	16	2.9	54.1
08/28/2016	1.4	13	0.05	14	14	4.3	22	0.05	25	25	3	49.1
09/19/2016	1.72	12	0.05	15	15	3.5	18	0.05	16	16	2.1	48.2
10/17/2016	2	9.4	0.05	11	11	3.1	9.7	0.05	11	11	2.9	51.1
11/14/2016	2.6	13	0.05	16	16	3.3	14	0.05	16	16	3	57.3
12/12/2016	1.87	15	0.05	18	18	2.8	16	0.05	16	16	2.4	66.2
01/30/2017	1.75	24	0.05	12	12	2.8	20	0.05	12	12	3	57.5
02/27/2017	1.93	27	0.052	14	14	2.2	19	0.05	11	11	1.1	51.3
03/27/2017	1.81	14	0.05	15	15	3.1	17	0.05	20	20	3	49.7
04/24/2017	1.67	21	0.05	19	19	3.2	16	0.05	14	14	2.4	50.7
05/22/2017	2.3	8.6	0.05	11	11	2.4	13	0.05	8.8	8.8	2	49.3
06/26/2017	1.78	20	0.05	15	15	2.1	18	0.05	14	14	2	51.3
07/31/2017	1.5	18	0.05	13	13	3.2	16	0.078	12	12	3.5	45
08/28/2017	1.5	22	0.05	17	17	5.5	20	0.05	13	13	5.3	46.4
09/25/2017	1.9	10	0.05	9.6	9.6	2.1	12	0.078	9	9.1	2.4	52.1
10/30/2017	1.52	3	-	4.7	5.1	4.8	3.4	-	4.8	5.2	0.17	43.3
11/27/2017	1.97	14	0.05	12	12	3.2	10	0.052	8.4	8.4	4.4	45.6
12/18/2017	2.45	8.5	0.15	7.5	7.6	1.4	6.1	0.12	7.3	7.4	1.4	44.2
01/29/2018	1.9	8.4	0.25	12	12	2.3	7.5	0.25	10	10	2	49.3
02/26/2018	0.6	12	0.25	12	12	5.2	11	0.25	9.4	9.4	2	41.7
03/26/2018	1.6	8.9	0.25	11	11	3.9	17	0.25	22	22	2.9	47.3
Number of Samples	73	74	74	74	73	75	75	75	75	75	76	75
Maximum	2.7	30	0.32	28	28	6.1	22	0.31	31	31	5.5	73.6
Average	1.59	12.8	0.10	15.0	15.0	2.9	11.5	0.10	12.6	12.6	2.5	48.3
Minimum	0.6	2.7	0.05	3.4	3.7	0.19	2.6	0.05	2.8	3.3	0.17	21.7
Standard Deviation	0.42	5.01	0.09	4.97	4.97	1.29	4.27	0.08	4.74	4.72	1.29	10.83
Coefficient of Variation	0.27	0.39	0.83	0.33	0.33	0.44	0.37	0.83	0.38	0.37	0.53	0.22
Confidence Level	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Probability Level (Pl)	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Probability of Maximum (Pn)	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Z of Pn	1.55	1.55	1.55	1.55	1.55	1.56	1.56	1.56	1.56	1.56	1.56	1.56
Z of Pl	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
Standard Deviation (log normal)	0.26	0.38	0.72	0.32	0.32	0.42	0.36	0.73	0.36	0.36	0.49	0.22
Reasonable Potential Multiplier	1.23	1.34	1.75	1.28	1.29	1.38	1.32	1.75	1.32	1.32	1.46	1.19
Reasonable Potential (PL=.99)	3.3	40.2	0.56	36.0	36.0	8.4	29.0	0.54	41.0	40.9	8.0	87.2