TOOWOOMBA REGION

Rich traditions. Bold ambitions.

Our Reference: DM#7533483-v3
Your Reference: MAN19640
Contact Officer: John Mills
Telephone: 0407 124 099

29 September 2017

Compliance Delivery Manager
Department of Environment and Heritage Protection
P.O. Box 731
TOOWOOMBA QLD 4350

Attn: Sarah Horton

Dear Ms Horton

Re: TEP Progress Report #2 Clifton WWTP for Period to 30 September 2017(MAN19640)

The following progress report has been prepared and submitted in accordance with the reporting requirements of the approved Transitional Environmental Program MAN19640 that came into effect on the 12 April 2017 and remains in force for the period 12 April 2017 to 30 October 2019.

Actions Undertaken to 30 September 2017

1.	**Desludge Lagoon 4:**	**Status:** Completed	**Target Date:** 30/07/2017	**Completed:** 07/08/2017
2.	**Power to site:**	**Status:** In Progress	**Target Date:** 30/12/2017	**Progress:** On Track
3.	**Aeration System:**	**Status:** In Progress	**Target Date:** 30/12/2017	**Progress:** On Track
4.	**Baffle curtain:**	**Status:** In Progress	**Target Date:** 30/12/2017	**Progress:** On Track
5.	**Licence Monitoring:**	**Status:** In Progress	**Target Date:** 30/11/2018	**Progress:** On Track

Comments:

1. Desludging

The desludging program is complete for Lagoon 4 with approximately 2500m^3 of sludge removed. The volume of sludge was considerably more than anticipated and has resulted in delay with the refilling of the lagoon. Arkwood has removed the excavated sludge temporarily stored on site to Pittsworth for beneficial reuse. Refilling and reinstatement of the floating wetland system was completed on 26-09-2017.

2. Licence Monitoring

Licence monitoring in accordance with the requirements of the TEP commenced on 9 March 2017. The results of monitoring can be found in **Attachment 2**.

There has been a Quality Control (QC) issue with some of the BOD_5 results and this was reported the Department through exceedance reports and email. The effect of the QC failure in some samples is to reduce the confidence in the results for those specific samples and as such, the results cannot be issued under a NATA certificate. For the sake of completeness, the attached BOD_5 Data Table includes these "results" and they can be identified in the Table as a red highlighted result.

Toowoomba Regional Council's Principal Scientist has now resolved this issue.

3. Milestones Achieved

1.	Investigate Floating Wetland removal options with SPEL:	Status:	Completed		17-05-17
2.	Determine temporary storage options for sludge:	Status:	Completed		21-04-17
3.	Isolation of lagoon 4 and new temporary discharge point:	Status:	Completed		17-05-17
4.	Identify risks to effluent quality:	Status:	Completed		01-03-17
5.	Assess risk of desludging to lagoon integrity:	Status:	Completed		30-07-17
6.	Undertake Desludging Works:	Status:	Completed		08-08-17
7.	Refilling and reinstate floating wetland:	Status:	Completed		26-09-17
Power to Site					
8.	Scope additional power requirements:	Status:	In progress	Target	31-12-17
9.	Location of infrastructure:	Status:	In progress	Target	31-12-17
10.	Ergon/contractor timelines:	Status:	In progress	Target	31-12-17
11.	Installation of Infrastructure:	Status:	Not started	Target	31-12-17
Aeration System					
12.	Design and implement an aeration system:	Status:	In progress	Target	31-12-17
13.	Investigate preferred models and supply times:	Status:	In progress	Target	31-12-17
14.	Investigate fixing method and location:	Status:	In progress	Target	31-12-17
15.	Assessment of need to reinforce embankments:	Status:	In progress	Target	31-12-17
16.	Establish site access for installation:	Status:	In progress	Target	31-12-17
17.	Undertake works:	Status:	Not Started	Target	31-12-17
Baffle Curtain					
18.	Scope baffle curtain requirements length/depth/materials:	Status:	In progress	Target	31-12-17
19.	Source providers:	Status:	In progress	Target	31-12-17
20.	Engage contractor:	Status:	In progress	Target	31-12-17
21.	Undertake works:	Status:	Not Started	Target	31-12-17

4. Actions to be under-taken in the next three (3) months.

1.	Power augmentation to site:	Target Date:	31/12/2017
2.	Installation of Aeration System Lagoon 4:	Target Date:	31/12/2017
3.	Install baffle curtain wall Lagoon 4:	Target Date:	31/12/2017
4.	Licence Monitoring :	Target Date:	Ongoing for period

If you require further clarification on the content of this report, please contact Mr David Gleeson Principal Management Systems on 0407657338.

Kindest Regards

John Mills
Manager Water Operations

Attachment #1

Compliance Evaluation

(All Action Items)

TABLE 1

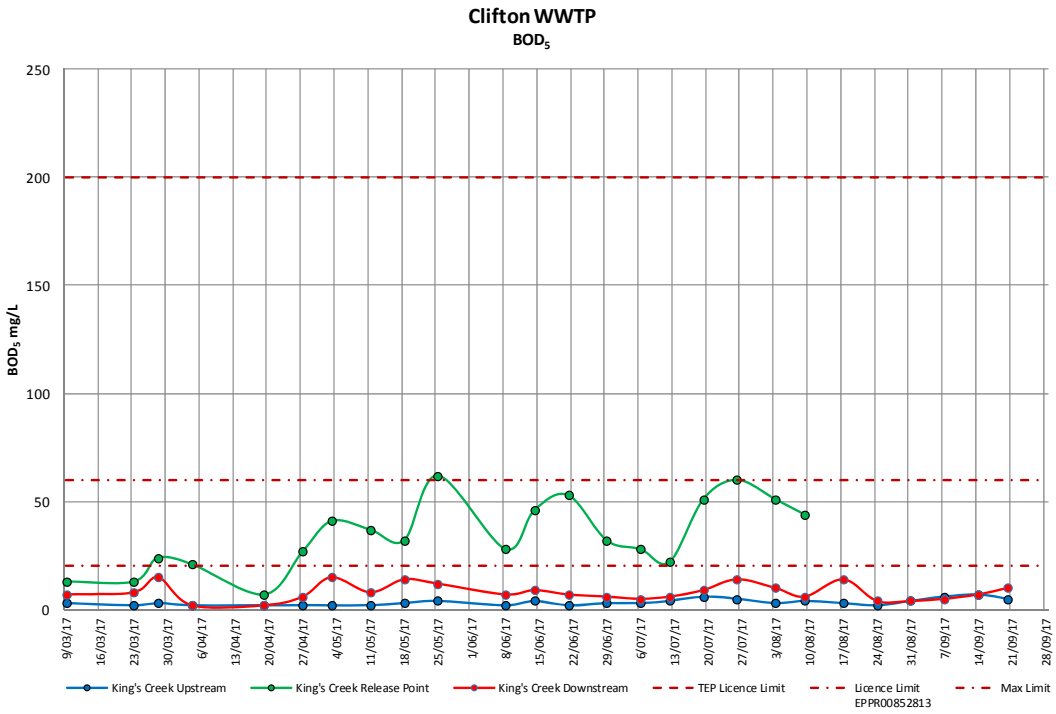
Actions	Start date	Compliance and End date
1. Desludge Lagoon 4: • Investigate Floating Wetland removal options with SPEL • Determine temporary storage options for sludge, • Options for isolation of lagoon 4 and new temporary discharge point. • Identify risks to effluent quality. • Assess risk of desludging to lagoon integrity. (Monitor desludging closely) • Undertake works. • Reinstate floating wetland.	12 April 2017	• **Completed** • **Completed** • **Completed** • **Completed** • **Completed** • **Completed** • **Completed**
2. Power augmentation to site: • Scope additional power requirements. (See action Item 3 and 7) • Total power requirement. (Aerators + contingency filtration depending on performance of aerators.) • Location of infrastructure. • Ergon/contractor timelines. • Installation of Infrastructure.	30 June 2017	• **In progress**-Target 31 Dec 2017 • **In progress**-Target 31 Dec 2017 • **In progress**-Target 31 Dec 2017 • **In progress**-Target 31 Dec 2017 • **Not Started**-Target 31 Dec 2017
3. Installation of Aeration System Lagoon 4: • Design and implement an aeration system to treat wastewater on site and to release effluent compliant with Condition (C9) to waters at location W1. • Investigate preferred models and supply times. • Investigate fixing method and location. • Assessment of need to reinforce embankments. • Establish site access for installation. • Undertake works.	30 June 2017	• **In progress**-Target 31 Dec 2017 • **In progress**-Target 31 Dec 2017 • **In progress**-Target 31 Dec 2017 • **In progress**-Target 31 Dec 2017 • **In progress**-Target 31 Dec 2017 • **Not Started**-Target 31 Dec 2017
4. Install baffle curtain wall • Scope requirements length/depth/materials • Source providers • Engage contractor • Undertake works	30 June 2017	• **In progress**-Target 31 Dec 2017 • **In progress**-Target 31 Dec 2017 • **In progress**-Target 31 Dec 2017 • **In progress**-Target 31 Dec 2017 • **Not Started**-Target 31 Dec 2017
5. Licence Performance Monitoring (4 Seasons) • Frequency Weekly (review as program proceeds) • Analysis (As required by licence)	Pre-Aeration 1 January 2017 Post Aeration 1 January 2018	Pre-Aeration **In Progress**- Target 31 Dec 2017 Post Aeration- **Future-Target** 30 Nov 2018
6. Assess seasonal process performance and need for contingency plan to meet licence discharge limits. • Review effluent data and compliance performance • Assess need for contingency plan activation (eg filter system) • Advise EHP of outcome. • If required activate contingency plan.	1 Dec 2018	**Future**- Target 1 January 2019
7. Contingency Plan (Filtration System) • Installation • Monitor for 3 months	Installation 1 January 2019 Monitor 1 April 2019	**Not Required to Date** Installation 31 March 2019 **Not Required to Date** Monitor 30 June 2019
8. TEP Progress reports against Action plan • Evaluate Performance against licence. (EHP Report) • TEP Annual Return • Final Report to EHP (Includes Contingency Timeframe)	Ongoing Ongoing End of program	**In Progress**-Target 3 monthly **Future**-12 monthly **Future**-30 October 2019
Performance indicators	**Start date**	**End date**

1. A Registered Professional Engineer supervises the design and installation of treatment system infrastructure.	3 January 2017	**Compliant**-Target 30 Sept 2019
2. Regular performance reviews which include a statement of achievement against the Action Plan to be submitted to EHP.	3 Monthly	**Compliant-** Target 30 Sept 2019
3. Each performance review will include Table(s) and Graph(s) of all water quality in-situ monitoring results and laboratory results.	3 Monthly	**Compliant**-Target 30 Sept 2019
4. Each performance review will include a compliance statement for Condition (C9).The release of contaminants to waters, at the sampling and in situ measurement point specified In Schedule H, with each of the limits specified in schedule C Table 1 for each quality characteristic in Environmental Authority EPPR00852813 of WT0076 Amendment 2.	3 Monthly	**Compliant**-Target 30 Sept 2019
Monitoring	**Start date**	**End date**
1. Suitably qualified Water Operations staff will undertake all monitoring and water quality samples are to be analysed by TRC's NATA accredited laboratory.	1 January 2017	**Compliant**-Target 31 August 2019
2. All water quality sampling will be undertaken by Water Operations staff under the guidance of TRC's NATA certified Laboratory and with reference to the Queensland's Government Monitoring and Sampling	1 January 2017	**Compliant**-Target 31 Aug 2019
3. Monitor the release of contaminants to waters which is to comply, at the sampling and in situ measurement point W1 specified in Schedule H, with each of the limits specified in Schedule C Table 1 for each quality characteristic in Environmental Authority EPPR00852813. (See Attach 2 and Attach 5 - Table 1 and 2)	Frequency Weekly	**Commenced-**Target 31 Aug 2019
4. Monitor Kings Creek 50m upstream and 50m downstream of Release Point W1 for each quality characteristic specified in schedule C Table 1 Environmental Authority EPPR00852813. (See Attachment 5)	Frequency Weekly	**Commenced** –Target 31 Aug 2019
Reporting	**Start date**	**End date**
1. A three (3) monthly progress report will be prepared and submitted to EHP by the Principal Management Systems detailing the actions taken, milestones achieved and the forecasted actions to be undertaken for the following three (3) months. Three (3) monthly progress reports will also include tables and graphs of water quality monitoring results taken at the sampling and in situ measurement point W1 and 50m upstream and 50m downstream of W1.	Ongoing	31 March 2017-**Not required** 30 June 2017-**Completed** 30 Sept 2017-**Completed** 31 Dec 2017- **Future** 31 March 2018- **Future** 30 June 2018- **Future** 30 Sept 2018- **Future** 31 Dec 2018- **Future** 31 March 2019- **Future** 30 June 2019- **Future** 30 Sept 2019- **Future**
2. A final report describing how the objectives of the TEP have been achieved will be provided to EHP within one (1) month after completion of the actions of the TEP and prior to the end date of the TEP.	30 Sept 2019	30 October 2019- **Future**

Attachment #2
Data and Graphs

Graph 1-BOD_5

Clifton WWTP		King's Creek Upstream	King's Creek Release Point	King's Creek Downstream	Result	Licence Limits		
Reg. Date	Test	Result-<	Result	Result	Units	TEP Licence Limit	Licence Limit EPPR00852813	Max Limit
9/03/2017	BOD5	3	13	7	mg/L	200	20	60
23/03/2017	BOD5	2	13	8	mg/L	200	20	60
28/03/2017	BOD5	3	24	15	mg/L	200	20	60
4/04/2017	BOD5	2	21	2	mg/L	200	20	60
19/04/2017	BOD5	2	7	2	mg/L	200	20	60
27/04/2017	BOD5	2	27	6	mg/L	200	20	60
3/05/2017	BOD5	2	41	15	mg/L	200	20	60
11/05/2017	BOD5	2	37	8	mg/L	200	20	60
18/05/2017	BOD5	3	32	14	mg/L	200	20	60
25/05/2017	BOD5	4	62	12	mg/L	200	20	60
8/06/2017	BOD5	2	28	7	mg/L	200	20	60
21/06/2017	BOD5	2	53	7	mg/L	200	20	60
14/06/2017	BOD5	4	46	9	mg/L	200	20	60
29/06/2017	BOD5	3	32	6	mg/L	200	20	60
6/07/2017	BOD5	3	28	5	mg/L	200	20	60
12/07/2017	BOD5	4	22	6	mg/L	200	20	60
19/07/2017	BOD5	6	51	9	mg/L	200	20	60
26/07/2017	BOD5	5	60	14	mg/L	200	20	60
3/08/2017	BOD5	3	51	10	mg/L	200	20	60
9/08/2017	BOD5	4	44	6	mg/L	200	20	60
17/08/2017	BOD5	3		14	mg/L	200	20	60
24/08/2017	BOD5	2		4	mg/L	200	20	60
31/08/2017	BOD5	4		4	mg/L	200	20	60
7/09/2017	BOD5	6		5	mg/L	200	20	60
14/09/2017	BOD5	7		7	mg/L	200	20	60
20/09/2017	BOD5	5		10	mg/L	200	20	60
28/09/2017	BOD5				mg/L	200	20	60
	BOD5				mg/L	200	20	60

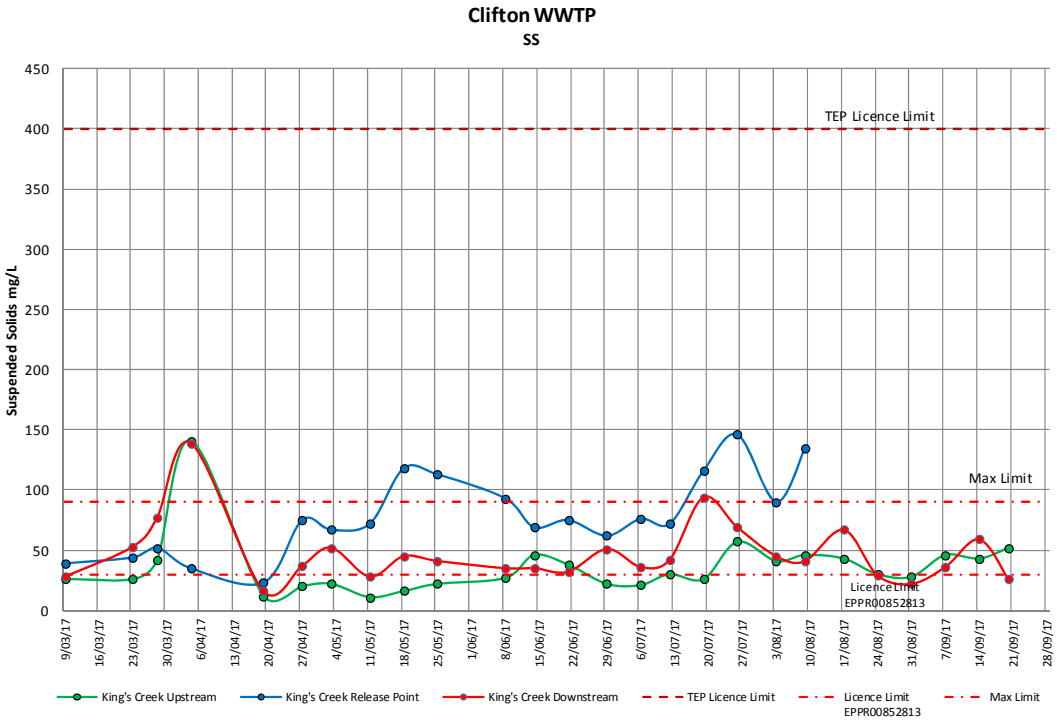


Note: no discharge to Kings Creek from 10-08-2017 due to refilling of Lagoon 4

Note: Results marked red are results obtained without full QC compliance
Note: "<" have been removed from the data for graphing purposes.

Graph 2-Suspended Solids

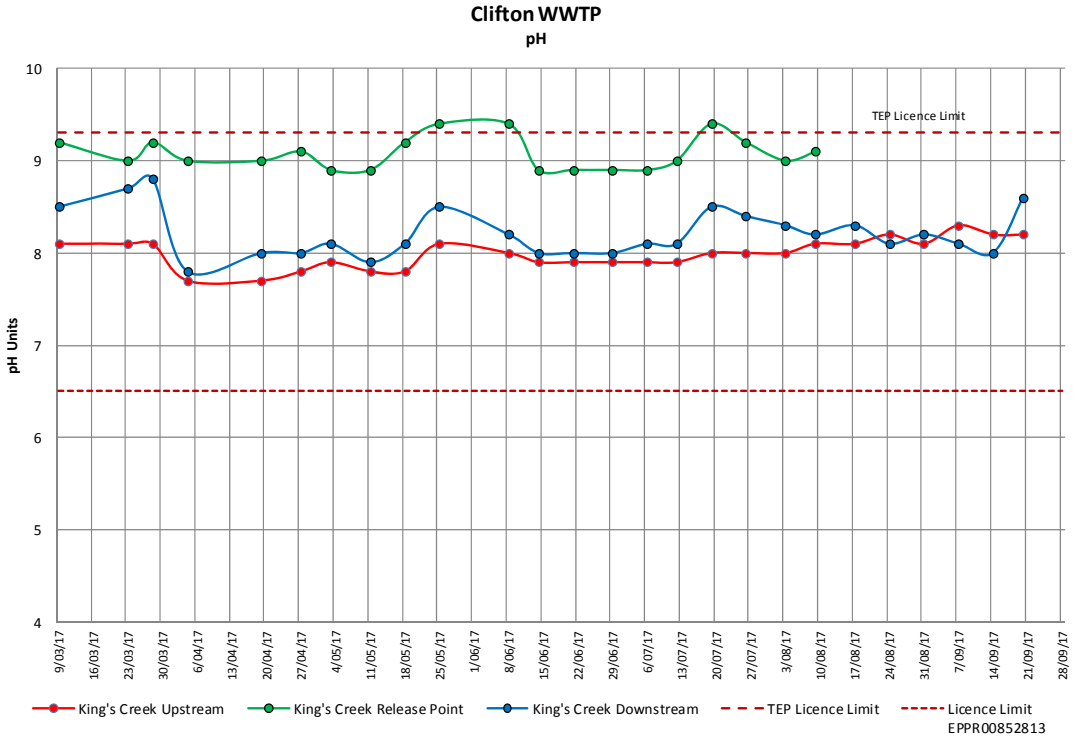
Clifton WWTP		King's Creek Upstream	King's Creek Release Point	King's Creek Downstream	Result	Licence Limits		
Reg. Date	Test	Result-<	Result	Result	Units	TEP Licence Limit	Licence Limit EPPR00852813	Max Limit
9/03/2017	SS	26	39	28	mg/L	400	30	90
23/03/2017	SS	26	44	53	mg/L	400	30	90
28/03/2017	SS	42	52	77	mg/L	400	30	90
4/04/2017	SS	141	35	139	mg/L	400	30	90
19/04/2017	SS	12	23	16	mg/L	400	30	90
27/04/2017	SS	20	75	37	mg/L	400	30	90
3/05/2017	SS	22	67	52	mg/L	400	30	90
11/05/2017	SS	11	72	28	mg/L	400	30	90
18/05/2017	SS	16	118	45	mg/L	400	30	90
25/05/2017	SS	22	113	41	mg/L	400	30	90
8/06/2017	SS	27	93	35	mg/L	400	30	90
21/06/2017	SS	38	75	32	mg/L	400	30	90
14/06/2017	SS	46	69	35	mg/L	400	30	90
29/06/2017	SS	22	62	51	mg/L	400	30	90
6/07/2017	SS	21	76	36	mg/L	400	30	90
12/07/2017	SS	30	72	42	mg/L	400	30	90
19/07/2017	SS	26	116	94	mg/L	400	30	90
26/07/2017	SS	57	146	69	mg/L	400	30	90
3/08/2017	SS	41	90	45	mg/L	400	30	90
9/08/2017	SS	46	135	41	mg/L	400	30	90
17/08/2017	SS	43		67	mg/L	400	30	90
24/08/2017	SS	30		29	mg/L	400	30	90
31/08/2017	SS	28		22	mg/L	400	30	90
7/09/2017	SS	46		36	mg/L	400	30	90
14/09/2017	SS	43		59	mg/L	400	30	90
20/09/2017	SS	52		26	mg/L	400	30	90
28/09/2017	SS				mg/L	400	30	90
	SS				mg/L	400	30	90



Note: no discharge to Kings Creek from 10-08-2017 due to refilling of Lagoon 4

Graph 3-pH

Clifton WWTP		King's Creek Upstream	King's Creek Release Point	King's Creek Downstream	Result	Licence Limits		
Reg. Date	Test	Result-<	Result	Result	Units	TEP Licence Limit	Licence Limit EPPR00852813	Max Limit
9/03/2017	PH	8.1	9.2	8.5	UNITS	9.3	6.5	9.3
23/03/2017	PH	8.1	9.0	8.7	UNITS	9.3	6.5	9.3
28/03/2017	PH	8.1	9.2	8.8	UNITS	9.3	6.5	9.3
4/04/2017	PH	7.7	9.0	7.8	UNITS	9.3	6.5	9.3
19/04/2017	PH	7.7	9.0	8.0	UNITS	9.3	6.5	9.3
27/04/2017	PH	7.8	9.1	8.0	UNITS	9.3	6.5	9.3
3/05/2017	PH	7.9	8.9	8.1	UNITS	9.3	6.5	9.3
11/05/2017	PH	7.8	8.9	7.9	UNITS	9.3	6.5	9.3
18/05/2017	PH	7.8	9.2	8.1	UNITS	9.3	6.5	9.3
25/05/2017	PH	8.1	9.4	8.5	UNITS	9.3	6.5	9.3
8/06/2017	PH	8.0	9.4	8.2	UNITS	9.3	6.5	9.3
21/06/2017	PH	7.9	8.9	8.0	UNITS	9.3	6.5	9.3
14/06/2017	PH	7.9	8.9	8.0	UNITS	9.3	6.5	9.3
29/06/2017	PH	7.9	8.9	8.0	UNITS	9.3	6.5	9.3
6/07/2017	PH	7.9	8.9	8.1	UNITS	9.3	6.5	9.3
12/07/2017	PH	7.9	9.0	8.1	UNITS	9.3	6.5	9.3
19/07/2017	PH	8.0	9.4	8.5	UNITS	9.3	6.5	9.3
26/07/2017	PH	8.0	9.2	8.4	UNITS	9.3	6.5	9.3
3/08/2017	PH	8.0	9.0	8.3	UNITS	9.3	6.5	9.3
9/08/2017	PH	8.1	9.1	8.2	UNITS	9.3	6.5	9.3
17/08/2017	PH	8.1		8.3	UNITS	9.3	6.5	9.3
24/08/2017	PH	8.2		8.1	UNITS	9.3	6.5	9.3
31/08/2017	PH	8.1		8.2	UNITS	9.3	6.5	9.3
7/09/2017	PH	8.3		8.1	UNITS	9.3	6.5	9.3
14/09/2017	PH	8.2		8.0	UNITS	9.3	6.5	9.3
20/09/2017	PH	8.2		8.6	UNITS	9.3	6.5	9.3
28/09/2017	PH				UNITS	9.3	6.5	9.3
	PH				UNITS	9.3	6.5	9.3

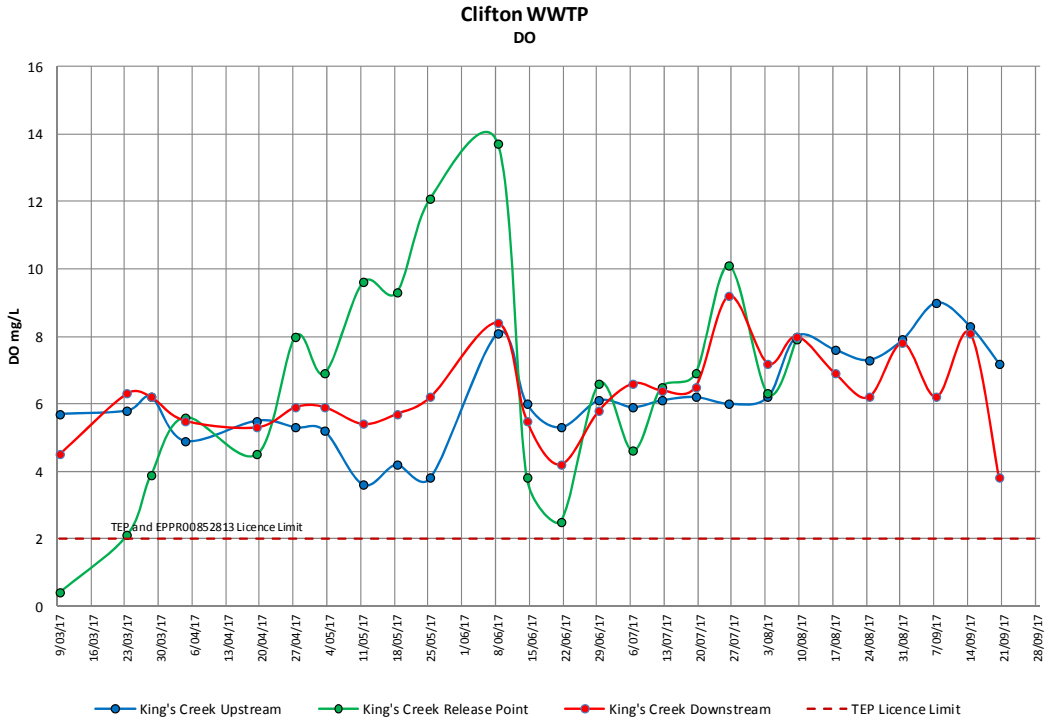


Note: no discharge to Kings Creek from 10-08-2017 due to refilling of Lagoon 4

Graph 4-Dissolved Oxygen

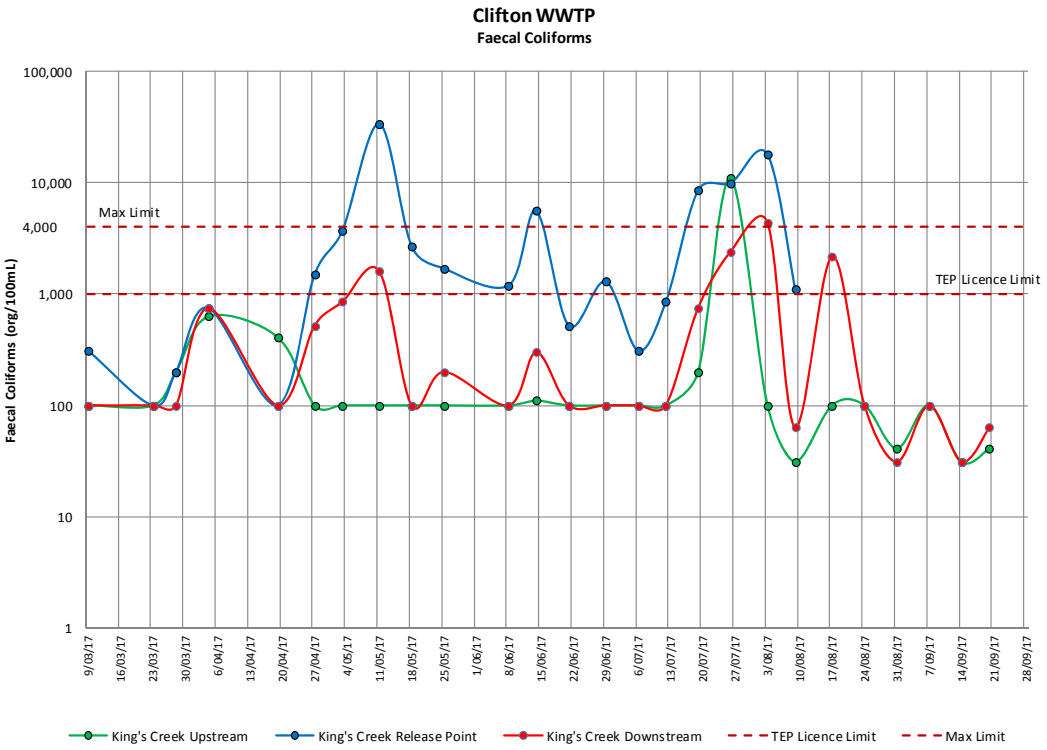
Clifton WWTP		King's Creek Upstream	King's Creek Release Point	King's Creek Downstream	Result	Licence Limits		
Reg. Date	Test	Result-<	Result	Result	Units	TEP Licence Limit	Licence Limit EPPR00852813	Max Limit
9/03/2017	DO	5.7	0.4	4.5	mg/L	2.0	2.0	
23/03/2017	DO	5.8	2.1	6.3	mg/L	2.0	2.0	
28/03/2017	DO	6.2	3.9	6.2	mg/L	2.0	2.0	
4/04/2017	DO	4.9	5.6	5.5	mg/L	2.0	2.0	
19/04/2017	DO	5.5	4.5	5.3	mg/L	2.0	2.0	
27/04/2017	DO	5.3	8.0	5.9	mg/L	2.0	2.0	
3/05/2017	DO	5.2	6.9	5.9	mg/L	2.0	2.0	
11/05/2017	DO	3.6	9.6	5.4	mg/L	2.0	2.0	
18/05/2017	DO	4.2	9.3	5.7	mg/L	2.0	2.0	
25/05/2017	DO	3.8	12.1	6.2	mg/L	2.0	2.0	
8/06/2017	DO	8.1	13.7	8.4	mg/L	2.0	2.0	
21/06/2017	DO	5.3	2.5	4.2	mg/L	2.0	2.0	
14/06/2017	DO	6.0	3.8	5.5	mg/L	2.0	2.0	
29/06/2017	DO	6.1	6.6	5.8	mg/L	2.0	2.0	
6/07/2017	DO	5.9	4.6	6.6	mg/L	2.0	2.0	
12/07/2017	DO	6.1	6.5	6.4	mg/L	2.0	2.0	
19/07/2017	DO	6.2	6.9	6.5	mg/L	2.0	2.0	
26/07/2017	DO	6.0	10.1	9.2	mg/L	2.0	2.0	
3/08/2017	DO	6.2	6.3	7.2	mg/L	2.0	2.0	
9/08/2017	DO	8.0	7.9	8.0	mg/L	2.0	2.0	
17/08/2017	DO	7.6		6.9	mg/L	2.0	2.0	
24/08/2017	DO	7.3		6.2	mg/L	2.0	2.0	
31/08/2017	DO	7.9		7.8	mg/L	2.0	2.0	
7/09/2017	DO	9.0		6.2	mg/L	2.0	2.0	
14/09/2017	DO	8.3		8.1	mg/L	2.0	2.0	
20/09/2017	DO	7.2		3.8	mg/L	2.0	2.0	
28/09/2017	DO				mg/L	2.0	2.0	
	DO				mg/L	2.0	2.0	

Note: no discharge to Kings Creek from 10-08-2017 due to refilling of Lagoon 4



Graph 5-Faecal Coliforms

Clifton WWTP		King's Creek Upstream	King's Creek Release Point	King's Creek Downstream	Result	Licence Limits		
Reg. Date	Test	Result-<	Result-<	Result-<	Units	TEP Licence Limit	Licence Limit EPPR00852813	Max Limit
9/03/2017	COLI-FAECAL-MPN	100	310	100	MPN/100 mL	1000	1000	4000
23/03/2017	COLI-FAECAL-MPN	100	100	100	MPN/100 mL	1000	1000	4000
28/03/2017	COLI-FAECAL-MPN	200	200	100	MPN/100 mL	1000	1000	4000
4/04/2017	COLI-FAECAL-MPN	630	750	750	MPN/100 mL	1000	1000	4000
19/04/2017	COLI-FAECAL-MPN	410	100	100	MPN/100 mL	1000	1000	4000
27/04/2017	COLI-FAECAL-MPN	100	1500	520	MPN/100 mL	1000	1000	4000
3/05/2017	COLI-FAECAL-MPN	100	3700	850	MPN/100 mL	1000	1000	4000
11/05/2017	COLI-FAECAL-MPN	100	34000	1600	MPN/100 mL	1000	1000	4000
18/05/2017	COLI-FAECAL-MPN	100	2700	100	MPN/100 mL	1000	1000	4000
25/05/2017	COLI-FAECAL-MPN	100	1700	200	MPN/100 mL	1000	1000	4000
8/06/2017	COLI-FAECAL-MPN	100	1200	100	MPN/100 mL	1000	1000	4000
21/06/2017	COLI-FAECAL-MPN	100	520	100	MPN/100 mL	1000	1000	4000
14/06/2017	COLI-FAECAL-MPN	110	5600	300	MPN/100 mL	1000	1000	4000
29/06/2017	COLI-FAECAL-MPN	100	1300	100	MPN/100 mL	1000	1000	4000
6/07/2017	COLI-FAECAL-MPN	100	310	100	MPN/100 mL	1000	1000	4000
12/07/2017	COLI-FAECAL-MPN	100	850	100	MPN/100 mL	1000	1000	4000
19/07/2017	COLI-FAECAL-MPN	200	8600	750	MPN/100 mL	1000	1000	4000
26/07/2017	COLI-FAECAL-MPN	11000	9900	2400	MPN/100 mL	1000	1000	4000
3/08/2017	COLI-FAECAL-MPN	100	18000	4400	MPN/100 mL	1000	1000	4000
9/08/2017	COLI-FAECAL-MPN	31	1100	63	MPN/100 mL	1000	1000	4000
17/08/2017	COLI-FAECAL-MPN	100		2200	MPN/100 mL	1000	1000	4000
24/08/2017	COLI-FAECAL-MPN	100		100	MPN/100 mL	1000	1000	4000
31/08/2017	COLI-FAECAL-MPN	41		31	MPN/100 mL	1000	1000	4000
7/09/2017	COLI-FAECAL-MPN	100		100	MPN/100 mL	1000	1000	4000
14/09/2017	COLI-FAECAL-MPN	31		31	MPN/100 mL	1000	1000	4000
20/09/2017	COLI-FAECAL-MPN	41		63	MPN/100 mL	1000	1000	4000
28/09/2017	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000



Note: no discharge to Kings Creek from 10-08-2017 due to refilling of Lagoon 4

Attachment #3
Photographs

Photograph 1 - Lagoon 4- Rainfall delayed drying of sludge.



Photograph 2 - Lagoon 4 - Early stage sludge removal with high moisture content due to rainfall.



Photograph 3 - Lagoon 4 – Later stage sludge removal after further drying (Note improved consistency for handling)



Photograph 4 – Lagoon 4 Desludged. (Note left bank yet to be compacted.)



Photograph 5 – Sludge storage area for removal by Arkwood.

