Our Reference: DM#7533483-v9
Your Reference: MAN19640
Contact Officer: David Gleeson
Telephone: 07 4688 6780

12 April 2019

Compliance Delivery Manager
Department of Environment and Science
P.O. Box 731
TOOWOOMBA QLD 4350
Attn: Sarah Horton

Dear Ms Horton

Re: TEP Progress Report #9 Clifton WWTP for Period to 31 March 2019 (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.
In agreement with Department of Environment and Science (DES), this reporting period is for 1 January 2019 to 31 March 2019.

Actions Undertaken to from 1 January 2019 to 31 March 2019

1. Licence Monitoring: Status: In Progress Target Date: 31/03/2019 **Progress:** Completed

Comments:

1. **Aeration system**
   Aeration commenced on 24 June 2018, and has continued operation throughout the reporting period. Oxygen levels have averaged 6.2 mg/L compared to 6.0 mg/L the previous three months. Due to the delayed installation of the aerators, the process monitoring period is also behind schedule.

2. **De-sludging of Lagoon 3**
   Following the sludge removal from lagoon 4 as identified in the TEP information request submission on 27 Feb 2017 (DM#7328359), Council has completed the process of removing the sludge in lagoon 3 in an attempt to increase detention time and improve final effluent quality. Whilst the lagoon was refilling there was no discharge to Kings Creek from 29/11/2018 to 14/02/2019.

3. **Floating Wetlands**
   Migratory duck numbers have decreased from original numbers with large numbers having moved on from the vicinity of the lagoons. New plantings have been completed and are in the early stages of re-establishment.

4. **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. Up-stream and down-stream monitoring has not always been possible because Kings Creek ceased to flow since 1 February 2018.

   Some flow and ponding has occurred since mid February 2019 however upstream and downstream water quality has been impacted by trapped fish in small waterholes and feral pig activity in these waterholes.

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Toowoomba Regional Council ABN 99 788 305 360

It is unlikely that upstream and downstream results are representative of the potential impact of the Clifton STP effluent entering Kings Creek.

BOD_5 results for the last quarter have been compliant with the downstream TEP condition of <200 mg/L above upstream BOD_5 however when effluent flows were re-established, BOD_5 has not achieved consistant compliance with the Environmental Authority maximum limit (1 exceedance) and the 85th percentile limit. (4 out of 6 exceedances) (Refer to Table #1)

Improvement was observed on the 21/03/2019 and 26/03/2019 after super-chlorination of the effluent discharge pipe between lagoon 4 outlet and the release point at Kings Creek. These samples were compliant with the Environmental Authority for BOD_5.

Suspended solids results for the last quarter have been compliant with the downstream TEP condition of <400 mg/L above upstream suspended solids. However, similar to the BOD_5 results, the suspended solids results have not achieved consistant compliance with the Environmental Authority maximum limit (3 out of 6 exceedances) and the 85th percentile limit. (5 out of 6 exceedances) (Refer to Table#2)

pH results have been fully compliant for the last quarter. (Refer Table#3)

Dissolved oxygen results have been compliant for the last quarter. (Refer Table#4)

Faecal coliform results over the last quarter have not been consistantly compliant with the median limit of 1000 cfu/100mL (4 out of 6 exceedances) and the limit of 4 out of 5 samples < 4000 cfu/100mL. (4 out of 6 exceedances)

Faecal coliform counts have generally gone out of compliance due to the influx of migratory ducks which departed on the 05/11/2018 and largely remained out of compliance for the reporting period.

Again improvement in FC counts were observed on the 14/03/2019 and 21/03/2019 after super-chlorination of the effluent discharge pipe between lagoon 4 outlet and the release point at Kings Creek. These samples were compliant with the Environmental Authority for faecal coliforms.

These recent exceedances have been attributed to contamination in the effluent pipeline.

All exceedances have been reported to DES within 28 days of receipt of analysis as required by the EA.

The results to date suggest that activation of contingency plans under the TEP will have to be activated in order to achieve the required outcomes of the TEP. (Please refer to Section 6 of this report)

5. 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: Completed	09-11-17
9.	Location of infrastructure:	Status: Not required	N/A
10.	Ergon/contractor timelines:	Status: Not required	N/A
11.	Installation of Infrastructure:	Status: Not required	N/A
Aeration System			
12.	Design an aeration system:	Status: Completed	24-11-17
13.	Investigate preferred models and supply times:	Status: Completed	24-11-17
14.	Investigate fixing method and location:	Status: Completed	24-11-17
15.	Assessment of need to reinforce embankments:	Status: Completed	26-03-18
16.	Establish site access for installation:	Status: Completed	24-11-17

17. Undertake works:	Status: Completed	14-06-18
Baffle Curtain		
18. Scope baffle curtain requirements length/depth/materials:	Status: Completed	16-11-17
19. Source providers:	Status: Not required	
20. Engage contractor:	Status: Not required	
21. Undertake works:	Status: Completed	01-05-18

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

1. 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 December 2019
2. 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 December 2019
3. 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 (e.g. filter system) • Advise EHP of outcome. • If required activate contingency plan.	1 April 2019	**Future**- Target 1 May 2019

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

Yours Sincerely

John Mills
Manager Water Operations

Attachment #1

Compliance Evaluation

(All Action Items)

TABLE 1

Actions	Start date	End date
4. 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**
5. 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	• **Completed** • **Completed** • **Not required** • **Not required** • **Not required**
6. 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	• **Completed** • **Completed** • **Completed** • **Completed** • **Completed** • **Completed**
7. Install baffle curtain wall • Scope requirements length/depth/materials • ~~Source providers~~ • ~~Engage contractor~~ • Undertake works	30 June 2017	• **Completed** • **Not required** • **Not required** • **Completed**
8. Licence Performance Monitoring (4 Seasons) • Frequency Weekly (review as program proceeds) • Analysis (As required by licence)	Post Aeration 14 June 2018	Post-Aeration 30 March 2019 **(Ongoing)**
9. 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 (e.g. filter system) • Advise EHP of outcome. • If required activate contingency plan.	1 April 2019	**Future**- Target 1 May 2019
10. Contingency Plan (Filtration System) • Installation • Monitor for 3 months	Installation 1 May 2019 Monitor 1 August 2019	**Not Required to Date** Installation 31 July 2019 **Not Required to Date** Monitor 30 October 2019
11. 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**-28 February 2020

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 31 January 2020
2. Regular performance reviews which include a statement of achievement against the Action Plan to be submitted to EHP.	3 Monthly	**Compliant-** Target 31 January 2020
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 31 January 2020
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 31 January 2020
Monitoring	**Start date**	**End date**
12. 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 December 2019
13. 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 Manual.	1 January 2017	**Compliant**-Target 31 December 2019
14. 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 December 2019
15. 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 December 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- **Completed** 31 March 2018- **Completed** 30 June 2018- **Completed** 30 Sept 2018- **Complete** 31 Dec 2018- **Complete** 31 March 2019- **Complete** 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.	31 Jan 2020	28 February 2020- **Future**

Attachment #2
Data and Graphs

Data File: DM#7506820

Table and Graph 1 - BOD5

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
4/01/2018	BOD5	4	7	5	mg/L	200	20	60
11/01/2018	BOD5	5	9	4	mg/L	200	20	60
18/01/2018	BOD5	3	11	20	mg/L	200	20	60
25/01/2018	BOD5	2	9	2	mg/L	200	20	60
1/02/2018	BOD5	No flow in Kings Creek from 1 February 2018	9	No flow in Kings Creek from 1 February 2018	mg/L	200	20	60
8/02/2018	BOD5		12		mg/L	200	20	60
14/02/2018	BOD5		9		mg/L	200	20	60
22/02/2018	BOD5		15		mg/L	200	20	60
1/03/2018	BOD5		10		mg/L	200	20	60
8/03/2018	BOD5		10		mg/L	200	20	60
15/03/2018	BOD5		10		mg/L	200	20	60
21/03/2018	BOD5		13		mg/L	200	20	60
28/03/2018	BOD5		14		mg/L	200	20	60
5/04/2018	BOD5		12		mg/L	200	20	60
11/04/2018	BOD5		11		mg/L	200	20	60
19/04/2018	BOD5		15		mg/L	200	20	60
26/04/2018	BOD5		15		mg/L	200	20	60
2/05/2018	BOD5		14		mg/L	200	20	60
10/05/2018	BOD5		17		mg/L	200	20	60
17/05/2018	BOD5		19		mg/L	200	20	60
23/05/2018	BOD5		20		mg/L	200	20	60
31/05/2018	BOD5		19		mg/L	200	20	60
7/06/2018	BOD5		22		mg/L	200	20	60
15/06/2018	BOD5		20		mg/L	200	20	60
21/06/2018	BOD5		15		mg/L	200	20	60
27/06/2018	BOD5		23		mg/L	200	20	60
5/07/2018	BOD5		23		mg/L	200	20	60
12/07/2018	BOD5		26		mg/L	200	20	60
19/07/2018	BOD5		35		mg/L	200	20	60
26/07/2018	BOD5		24		mg/L	200	20	60
2/08/2018	BOD5		44		mg/L	200	20	60
9/08/2018	BOD5		79		mg/L	200	20	60
16/08/2018	BOD5		77		mg/L	200	20	60
23/08/2018	BOD5		47		mg/L	200	20	60
30/08/2018	BOD5		50		mg/L	200	20	60
6/09/2018	BOD5		50		mg/L	200	20	60
13/09/2018	BOD5		65		mg/L	200	20	60
20/09/2018	BOD5		69		mg/L	200	20	60
27/09/2018	BOD5		60		mg/L	200	20	60
4/10/2018	BOD5		48		mg/L	200	20	60
11/10/2018	BOD5		47		mg/L	200	20	60
18/10/2018	BOD5		72		mg/L	200	20	60
24/10/2018	BOD5		179		mg/L	200	20	60
31/10/2018	BOD5	2	24	10	mg/L	200	20	60
9/11/2018	BOD5	No flow in Kings Creek from 1 February 2018	31	No flow in Kings Creek from 1 February 2018	mg/L	200	20	60
14/11/2018	BOD5		47		mg/L	200	20	60
22/11/2018	BOD5		32		mg/L	200	20	60
29/11/2018	BOD5		Lagoon off line. No discharge from 29 November to 14 February 2019		mg/L	200	20	60
6/12/2018	BOD5				mg/L	200	20	60
13/12/2018	BOD5				mg/L	200	20	60
20/12/2018	BOD5				mg/L	200	20	60
27/12/2018	BOD5				mg/L	200	20	60
3/01/2019	BOD5				mg/L	200	20	60
10/01/2019	BOD5				mg/L	200	20	60
17/01/2019	BOD5				mg/L	200	20	60
24/01/2019	BOD5				mg/L	200	20	60
31/01/2019	BOD5				mg/L	200	20	60
7/02/2019	BOD5				mg/L	200	20	60
14/02/2019	BOD5	30		25	mg/L	200	20	60
21/02/2019	BOD5	65	67	34	mg/L	200	20	60
28/02/2019	BOD5	30	34	32	mg/L	200	20	60
7/03/2019	BOD5	No Flow	56	No Flow	mg/L	200	20	60
14/03/2019	BOD5		30		mg/L	200	20	60
21/03/2019	BOD5	7	15	8	mg/L	200	20	60
26/03/2019	BOD5	5	16	5	mg/L	200	20	60
4/04/2019	BOD5				mg/L	200	20	60

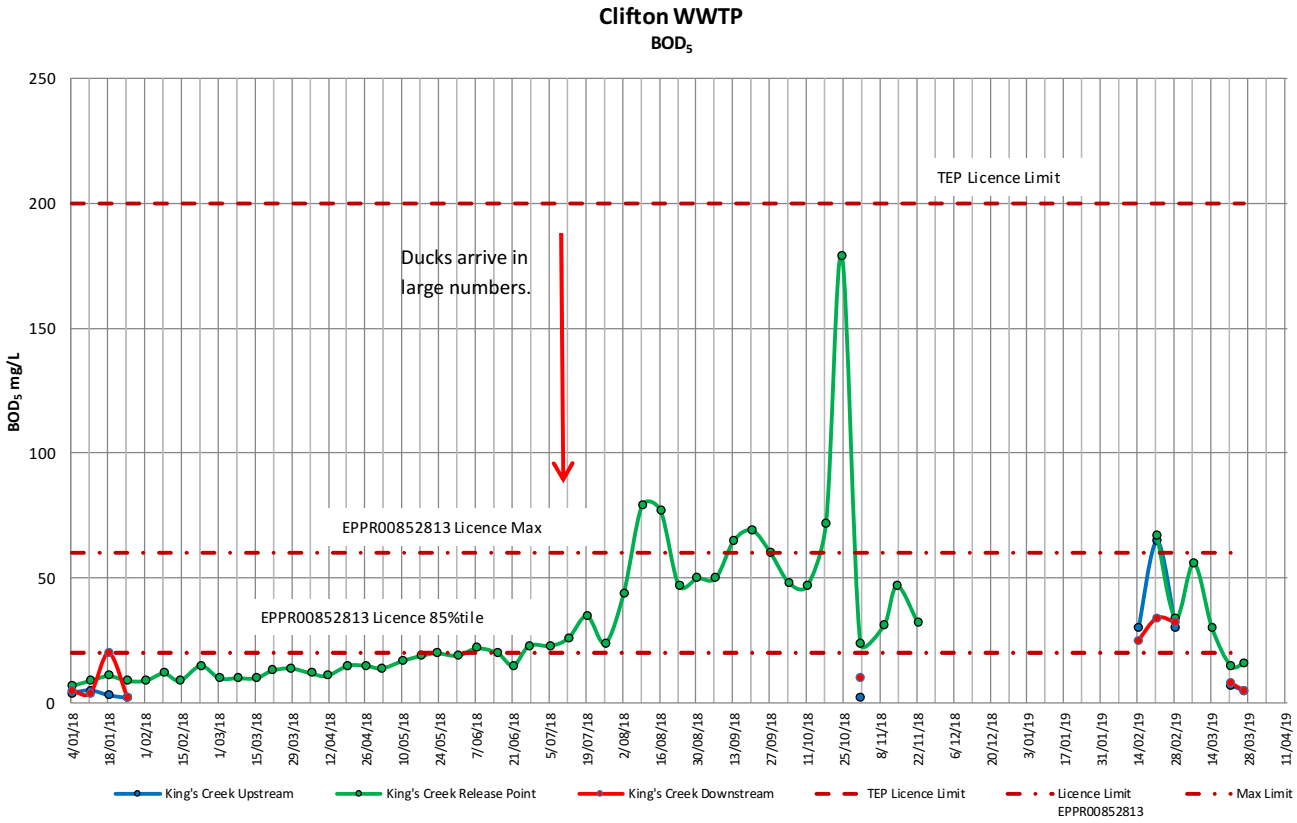

Clifton WWTP
BOD5
BOD5 mg/L
250
200
150
100
50
0
TEP Licence Limit
Ducks arrive in large numbers.
EPPR00852813 Licence Max
EPPR00852813 Licence 85%tile
4/01/18
18/01/18
1/02/18
15/02/18
1/03/18
15/03/18
29/03/18
12/04/18
26/04/18
10/05/18
24/05/18
7/06/18
21/06/18
5/07/18
19/07/18
2/08/18
16/08/18
30/08/18
13/09/18
27/09/18
11/10/18
25/10/18
8/11/18
22/11/18
6/12/18
20/12/18
3/01/19
17/01/19
31/01/19
14/02/19
28/02/19
14/03/19
28/03/19
11/04/19
King's Creek Upstream
King's Creek Release Point
King's Creek Downstream
TEP Licence Limit
Licence Limit EPPR00852813
Max Limit

Table and 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
4/1/2018	SS	22	11	26	mg/L	400	30	90
11/1/2018	SS	27	20	36	mg/L	400	30	90
18/1/2018	SS	18	24	85	mg/L	400	30	90
25/1/2018	SS	17	24	30	mg/L	400	30	90
1/2/2018	SS	No flow in Kings Creek from 1 February 2018	31	No flow in Kings Creek from 1 February 2018	mg/L	400	30	90
8/2/2018	SS		38		mg/L	400	30	90
14/2/2018	SS		30		mg/L	400	30	90
22/2/2018	SS		25		mg/L	400	30	90
1/3/2018	SS		31		mg/L	400	30	90
8/3/2018	SS		34		mg/L	400	30	90
15/3/2018	SS		64		mg/L	400	30	90
21/3/2018	SS		41		mg/L	400	30	90
28/3/2018	SS		46		mg/L	400	30	90
5/4/2018	SS		17		mg/L	400	30	90
11/4/2018	SS		14		mg/L	400	30	90
19/4/2018	SS		22		mg/L	400	30	90
26/4/2018	SS		21		mg/L	400	30	90
2/5/2018	SS		28		mg/L	400	30	90
10/5/2018	SS		19		mg/L	400	30	90
17/5/2018	SS		26		mg/L	400	30	90
23/5/2018	SS		40		mg/L	400	30	90
31/5/2018	SS		42		mg/L	400	30	90
7/6/2018	SS		35		mg/L	400	30	90
15/6/2018	SS		57		mg/L	400	30	90
21/6/2018	SS		37		mg/L	400	30	90
27/6/2018	SS		63		mg/L	400	30	90
5/7/2018	SS		62		mg/L	400	30	90
12/7/2018	SS		46		mg/L	400	30	90
19/7/2018	SS		72		mg/L	400	30	90
26/7/2018	SS		55		mg/L	400	30	90
2/8/2018	SS		62		mg/L	400	30	90
9/8/2018	SS		124		mg/L	400	30	90
16/8/2018	SS		111		mg/L	400	30	90
23/8/2018	SS		110		mg/L	400	30	90
30/8/2018	SS		85		mg/L	400	30	90
6/9/2018	SS		87		mg/L	400	30	90
13/09/180	SS		87		mg/L	400	30	90
20/9/2018	SS		79		mg/L	400	30	90
27/9/2018	SS		63		mg/L	400	30	90
4/10/2018	SS		47		mg/L	400	30	90
11/10/2018	SS		37		mg/L	400	30	90
18/10/2018	SS		77		mg/L	400	30	90
24/10/2018	SS		32		mg/L	400	30	90
31/10/2018	SS	14	41	18	mg/L	400	30	90
9/11/2018	SS	No flow in Kings Creek from 1 February 2018	51	No flow in Kings Creek from 1 February 2018	mg/L	400	30	90
14/11/2018	SS		53		mg/L	400	30	90
22/11/2018	SS		68		mg/L	400	30	90
29/11/2018	SS		Lagoon off line. No discharge from 29 November to 27December		mg/L	400	30	90
6/12/2018	SS				mg/L	400	30	90
13/12/2018	SS				mg/L	400	30	90
20/12/2018	SS				mg/L	400	30	90
27/12/2018	SS				mg/L	400	30	90
3/1/2019	SS				mg/L	400	30	90
10/1/2019	SS				mg/L	400	30	90
17/1/2019	SS				mg/L	400	30	90
24/1/2019	SS				mg/L	400	30	90
31/1/2019	SS				mg/L	400	30	90
7/2/2019	SS				mg/L	400	30	90
14/2/2019	SS	105		65	mg/L	400	30	90
21/2/2019	SS	141	247	205	mg/L	400	30	90
28/2/2019	SS	108	92	209	mg/L	400	30	90
7/3/2019	SS	No Flow	123	No Flow	mg/L	400	30	90
14/3/2019	SS		62		mg/L	400	30	90
21/3/2019	SS	27	27	60	mg/L	400	30	90
26/03/2019	SS	18	37	22	mg/L	400	30	90
4/04/2019	SS				mg/L	400	30	90

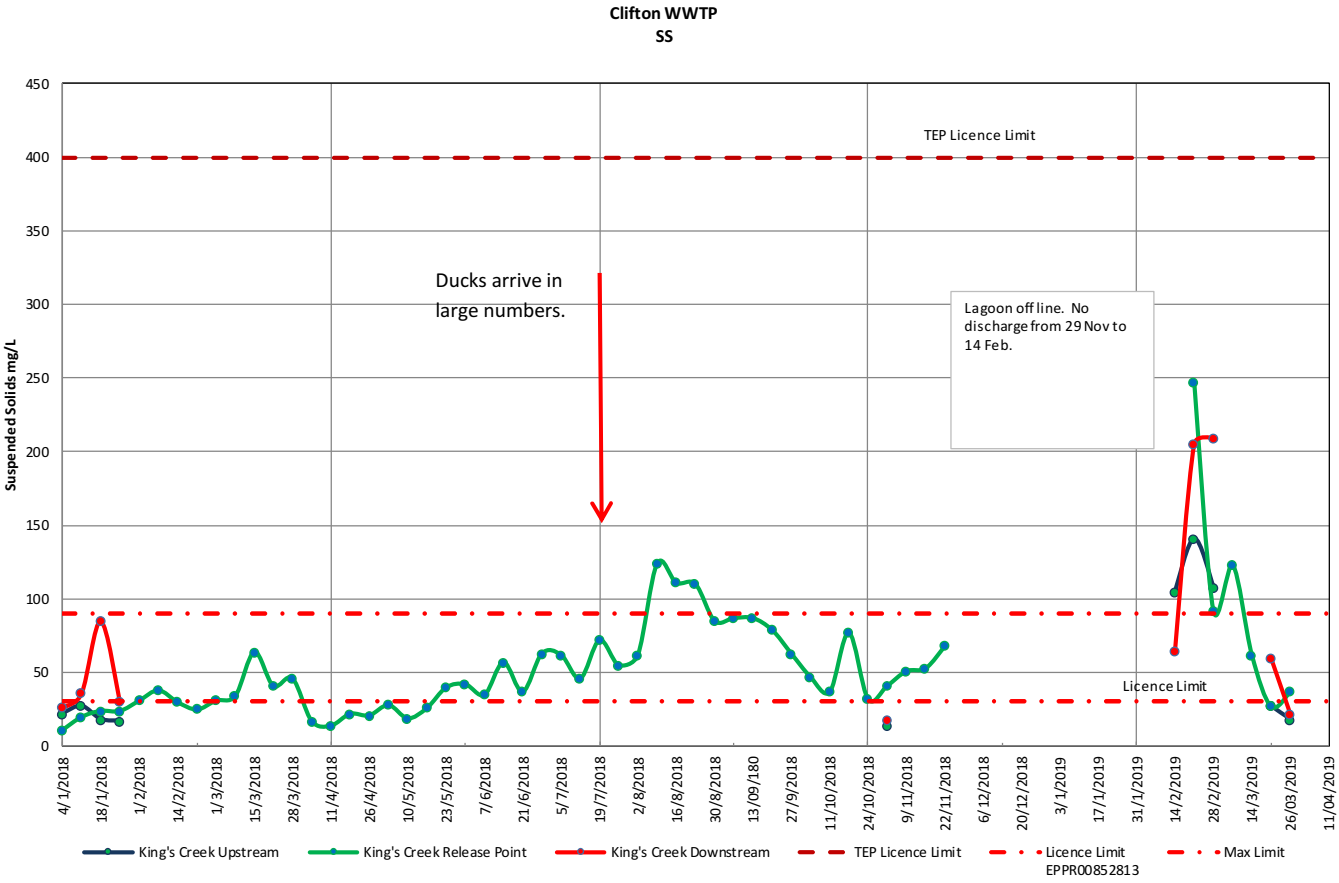

Clifton WWTP
SS
Suspended Solids mg/L
TEP Licence Limit
Ducks arrive in large numbers.
Lagoon off line. No discharge from 29 Nov to 14 Feb.
Licence Limit
King's Creek Upstream
King's Creek Release Point
King's Creek Downstream
TEP Licence Limit
Licence Limit
Max Limit
EPPR00852813

Table and 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
4/01/2018	PH	8.3	9	8.4	UNITS	9.3	6.5	9.3
11/01/2018	PH	8.4	9.2	8.4	UNITS	9.3	6.5	9.3
18/01/2018	PH	8.3	8.9	8.7	UNITS	9.3	6.5	9.3
25/01/2018	PH	8.2	8.9	8.1	UNITS	9.3	6.5	9.3
1/02/2018	PH	No flow in Kings Creek from 1 February 2018	8.9	No flow in Kings Creek from 1 February 2018	UNITS	9.3	6.5	9.3
8/02/2018	PH		9		UNITS	9.3	6.5	9.3
14/02/2018	PH		9.2		UNITS	9.3	6.5	9.3
22/02/2018	PH		8.9		UNITS	9.3	6.5	9.3
1/03/2018	PH		9		UNITS	9.3	6.5	9.3
8/03/2018	PH		8.9		UNITS	9.3	6.5	9.3
15/03/2018	PH		9.1		UNITS	9.3	6.5	9.3
21/03/2018	PH		9.1		UNITS	9.3	6.5	9.3
28/03/2018	PH		9.2		UNITS	9.3	6.5	9.3
5/04/2018	PH		9		UNITS	9.3	6.5	9.3
11/04/2018	PH		8.9		UNITS	9.3	6.5	9.3
19/04/2018	PH		9		UNITS	9.3	6.5	9.3
26/04/2018	PH		9		UNITS	9.3	6.5	9.3
2/05/2018	PH		9.1		UNITS	9.3	6.5	9.3
10/05/2018	PH		9.1		UNITS	9.3	6.5	9.3
17/05/2018	PH		8.9		UNITS	9.3	6.5	9.3
23/05/2018	PH		9		UNITS	9.3	6.5	9.3
31/05/2018	PH		9.2		UNITS	9.3	6.5	9.3
7/06/2018	PH		9.1		UNITS	9.3	6.5	9.3
15/06/2018	PH		9.3		UNITS	9.3	6.5	9.3
21/06/2018	PH		9		UNITS	9.3	6.5	9.3
27/06/2018	PH		9.2		UNITS	9.3	6.5	9.3
5/07/2018	PH		9.1		UNITS	9.3	6.5	9.3
12/07/2018	PH		8.9		UNITS	9.3	6.5	9.3
19/07/2018	PH		8.9		UNITS	9.3	6.5	9.3
26/07/2018	PH		8.8		UNITS	9.3	6.5	9.3
2/08/2018	PH		8.6		UNITS	9.3	6.5	9.3
9/08/2018	PH		9.2		UNITS	9.3	6.5	9.3
16/08/2018	PH		8.7		UNITS	9.3	6.5	9.3
23/08/2018	PH		8.5		UNITS	9.3	6.5	9.3
30/08/2018	PH		8.6		UNITS	9.3	6.5	9.3
6/09/2018	PH		8.4		UNITS	9.3	6.5	9.3
13/09/2018	PH		8.6		UNITS	9.3	6.5	9.3
20/09/2018	PH		8.4		UNITS	9.3	6.5	9.3
27/09/2018	PH		8.5		UNITS	9.3	6.5	9.3
4/10/2018	PH		8.5		UNITS	9.3	6.5	9.3
11/10/2018	PH		7.7		UNITS	9.3	6.5	9.3
18/10/2018	PH		8.6		UNITS	9.3	6.5	9.3
24/10/2018	PH		8.5		UNITS	9.3	6.5	9.3
31/10/2018	PH	8.0	8.3	7.8	UNITS	9.3	6.5	9.3
9/11/2018	PH	No flow in Kings Creek from 1 February 2018	8.7	No flow in Kings Creek from 1 February 2018	UNITS	9.3	6.5	9.3
14/11/2018	PH		8.6		UNITS	9.3	6.5	9.3
22/11/2018	PH		8.8		UNITS	9.3	6.5	9.3
29/11/2018	PH		Lagoon off line. No discharge from 29 November to 14 February		UNITS	9.3	6.5	9.3
6/12/2018	PH				UNITS	9.3	6.5	9.3
13/12/2018	PH				UNITS	9.3	6.5	9.3
20/12/2018	PH				UNITS	9.3	6.5	9.3
27/12/2018	PH				UNITS	9.3	6.5	9.3
3/01/2019	PH				UNITS	9.3	6.5	9.3
10/01/2019	PH				UNITS	9.3	6.5	9.3
17/01/2019	PH				UNITS	9.3	6.5	9.3
24/01/2019	PH				UNITS	9.3	6.5	9.3
31/01/2019	PH				UNITS	9.3	6.5	9.3
7/02/2019	PH				UNITS	9.3	6.5	9.3
14/02/2019	PH	8.4		8.4	UNITS	9.3	6.5	9.3
21/02/2019	PH	8.2	8.3	8.7	UNITS	9.3	6.5	9.3
28/02/2019	PH	9.1	8.7	8.9	UNITS	9.3	6.5	9.3
7/03/2019	PH	No Flow	8.2	No Flow	UNITS	9.3	6.5	9.3
14/03/2019	PH		8.8		UNITS	9.3	6.5	9.3
21/03/2019	PH	8	8.5	8.1	UNITS	9.3	6.5	9.3
26/03/2019	PH	7.8	8.6	7.7	UNITS	9.3	6.5	9.3
4/04/2019	PH				UNITS	9.3	6.5	9.3

No flow in Kings Creek from 1 February 2018

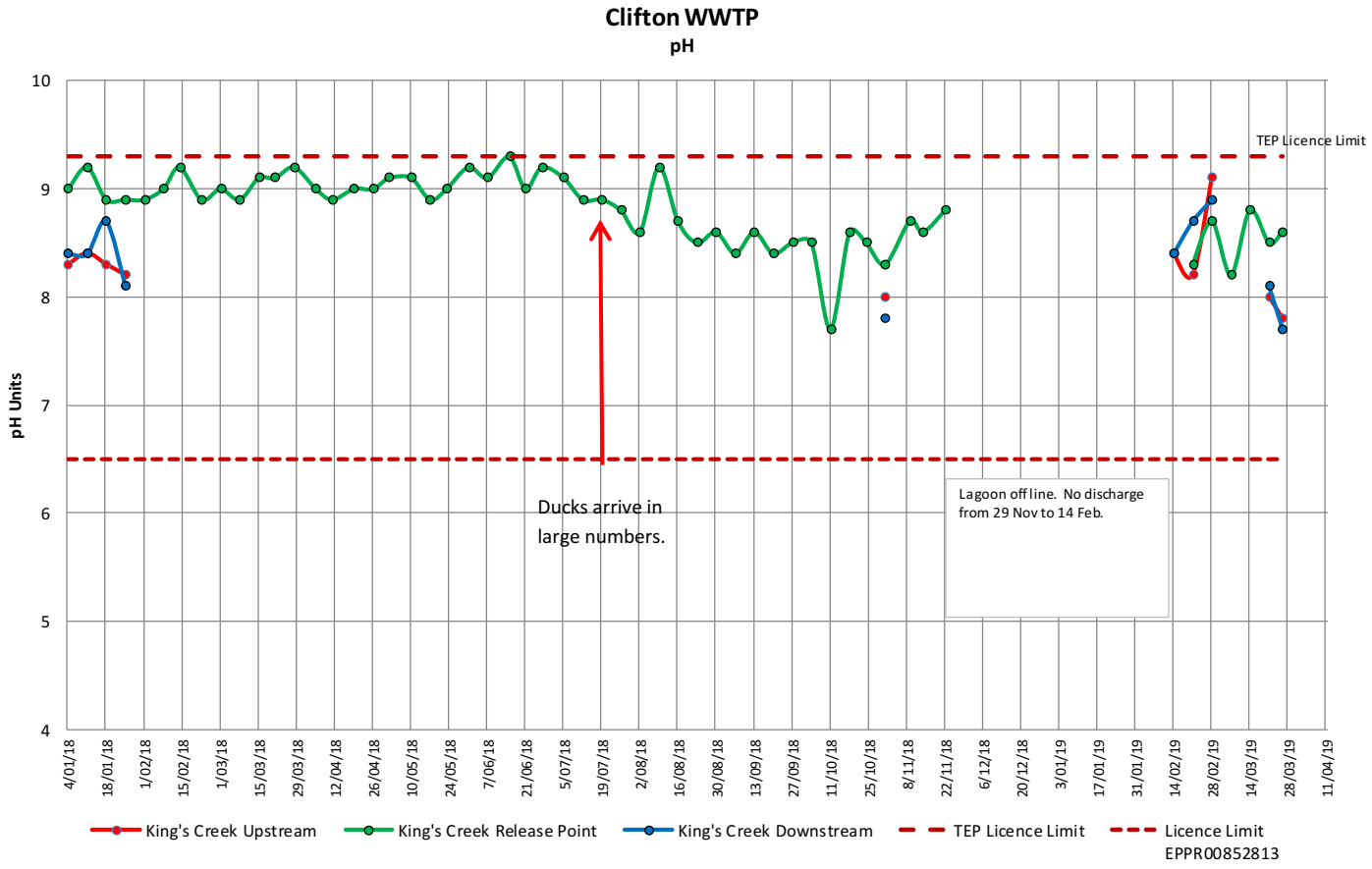

Clifton WWTP
pH
pH Units
10
9
8
7
6
5
4
TEP Licence Limit
Ducks arrive in large numbers.
Lagoon offline. No discharge from 29 Nov to 14 Feb.
4/01/18
18/01/18
1/02/18
15/02/18
1/03/18
15/03/18
29/03/18
12/04/18
26/04/18
10/05/18
24/05/18
7/06/18
21/06/18
5/07/18
19/07/18
2/08/18
16/08/18
30/08/18
13/09/18
27/09/18
11/10/18
25/10/18
8/11/18
22/11/18
6/12/18
20/12/18
3/01/19
17/01/19
31/01/19
14/02/19
28/02/19
14/03/19
28/03/19
11/04/19
King's Creek Upstream
King's Creek Release Point
King's Creek Downstream
TEP Licence Limit
Licence Limit EPPR00852813

Table and 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
4/01/2018	DO	6.5	4.9	6.2	mg/L	2.0	2.0	
11/01/2018	DO	5.2	4.9	5.7	mg/L	2.0	2.0	
18/01/2018	DO	3.6	4	4.2	mg/L	2.0	2.0	
25/01/2018	DO	3	3.1	3.1	mg/L	2.0	2.0	
1/02/2018	DO	No flow in Kings Creek from 1 February 2018	1.8	No flow in Kings Creek from 1 February 2018	mg/L	2.0	2.0	
8/02/2018	DO		1.3		mg/L	2.0	2.0	
14/02/2018	DO		6.1		mg/L	2.0	2.0	
22/02/2018	DO		4		mg/L	2.0	2.0	
1/03/2018	DO		6.6		mg/L	2.0	2.0	
8/03/2018	DO		5.7		mg/L	2.0	2.0	
15/03/2018	DO		7.3		mg/L	2.0	2.0	
21/03/2018	DO		4.4		mg/L	2.0	2.0	
28/03/2018	DO		6.1		mg/L	2.0	2.0	
5/04/2018	DO		4.5		mg/L	2.0	2.0	
11/04/2018	DO		5.2		mg/L	2.0	2.0	
19/04/2018	DO		5.5		mg/L	2.0	2.0	
26/04/2018	DO		4.8		mg/L	2.0	2.0	
2/05/2018	DO		6.3		mg/L	2.0	2.0	
10/05/2018	DO		5.8		mg/L	2.0	2.0	
17/05/2018	DO		7.7		mg/L	2.0	2.0	
23/05/2018	DO		8.3		mg/L	2.0	2.0	
31/05/2018	DO		7.2		mg/L	2.0	2.0	
7/06/2018	DO		8.4		mg/L	2.0	2.0	
15/06/2018	DO		8.3		mg/L	2.0	2.0	
21/06/2018	DO		5.6		mg/L	2.0	2.0	
27/06/2018	DO		8.1		mg/L	2.0	2.0	
5/07/2018	DO		8.9		mg/L	2.0	2.0	
12/07/2018	DO		8.4		mg/L	2.0	2.0	
19/07/2018	DO		9.1		mg/L	2.0	2.0	
26/07/2018	DO		7.5		mg/L	2.0	2.0	
2/08/2018	DO		8.4		mg/L	2.0	2.0	
9/08/2018	DO		6.2		mg/L	2.0	2.0	
16/08/2018	DO		7.7		mg/L	2.0	2.0	
23/08/2018	DO		7.1		mg/L	2.0	2.0	
30/08/2018	DO		6.5		mg/L	2.0	2.0	
6/09/2018	DO		4.5		mg/L	2.0	2.0	
13/09/2018	DO		6.2		mg/L	2.0	2.0	
20/09/2018	DO		5.6		mg/L	2.0	2.0	
27/09/2018	DO		5.1		mg/L	2.0	2.0	
4/10/2018	DO		5.7		mg/L	2.0	2.0	
11/10/2018	DO		6.1		mg/L	2.0	2.0	
18/10/2018	DO		7.2		mg/L	2.0	2.0	
24/10/2018	DO		5.3		mg/L	2.0	2.0	
31/10/2018	DO	8.6	5.8	4	mg/L	2.0	2.0	
9/11/2018	DO	No flow in Kings Creek from 1 February 2018	5.5	No flow in Kings Creek from 1 February 2018	mg/L	2.0	2.0	
14/11/2018	DO		5.8		mg/L	2.0	2.0	
22/11/2018	DO		7.1		mg/L	2.0	2.0	
29/11/2018	DO		Lagoon off line. No discharge from 29 November to 27December		mg/L	2.0	2.0	
6/12/2018	DO				mg/L	2.0	2.0	
13/12/2018	DO				mg/L	2.0	2.0	
20/12/2018	DO				mg/L	2.0	2.0	
27/12/2018	DO				mg/L	2.0	2.0	
3/01/2019	DO				mg/L	2.0	2.0	
10/01/2019	DO				mg/L	2.0	2.0	
17/01/2019	DO				mg/L	2.0	2.0	
24/01/2019	DO				mg/L	2.0	2.0	
31/01/2019	DO				mg/L	2.0	2.0	
7/02/2019	DO				mg/L	2.0	2.0	
14/02/2019	DO	7.1		8.5	mg/L	2.0	2.0	
21/02/2019	DO	7.0	4.6	14.7	mg/L	2.0	2.0	
28/02/2019	DO	14.4	7.3	12.7	mg/L	2.0	2.0	
7/03/2019	DO	No Flow	3.4	No Flow	mg/L	2.0	2.0	
14/03/2019	DO		10.6		mg/L	2.0	2.0	
21/03/2019	DO	4.5	5.9	5.1	mg/L	2.0	2.0	
26/03/2019	DO	3.1	5.2	2.8	mg/L	2.0	2.0	
4/04/2019	DO				mg/L	2.0	2.0	

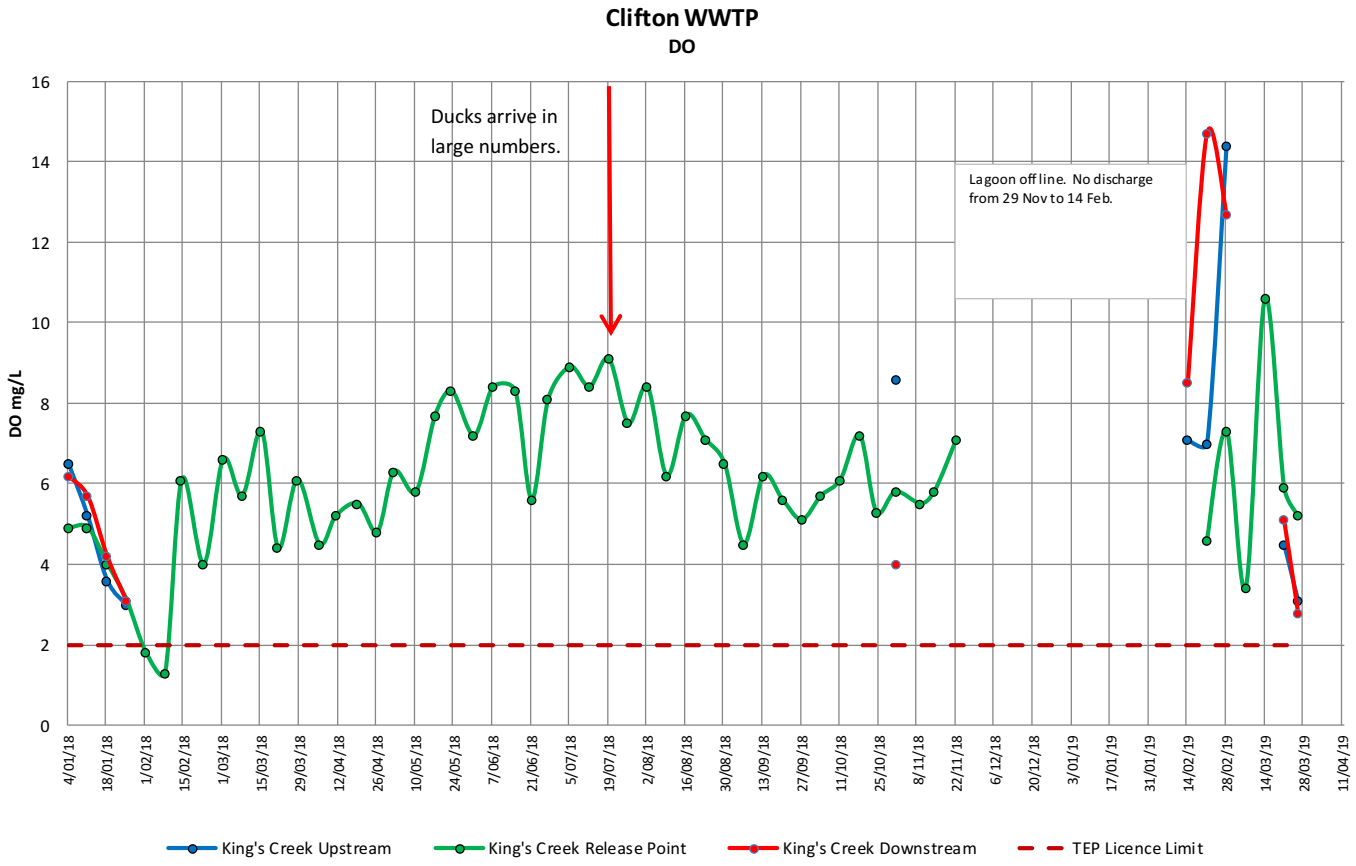
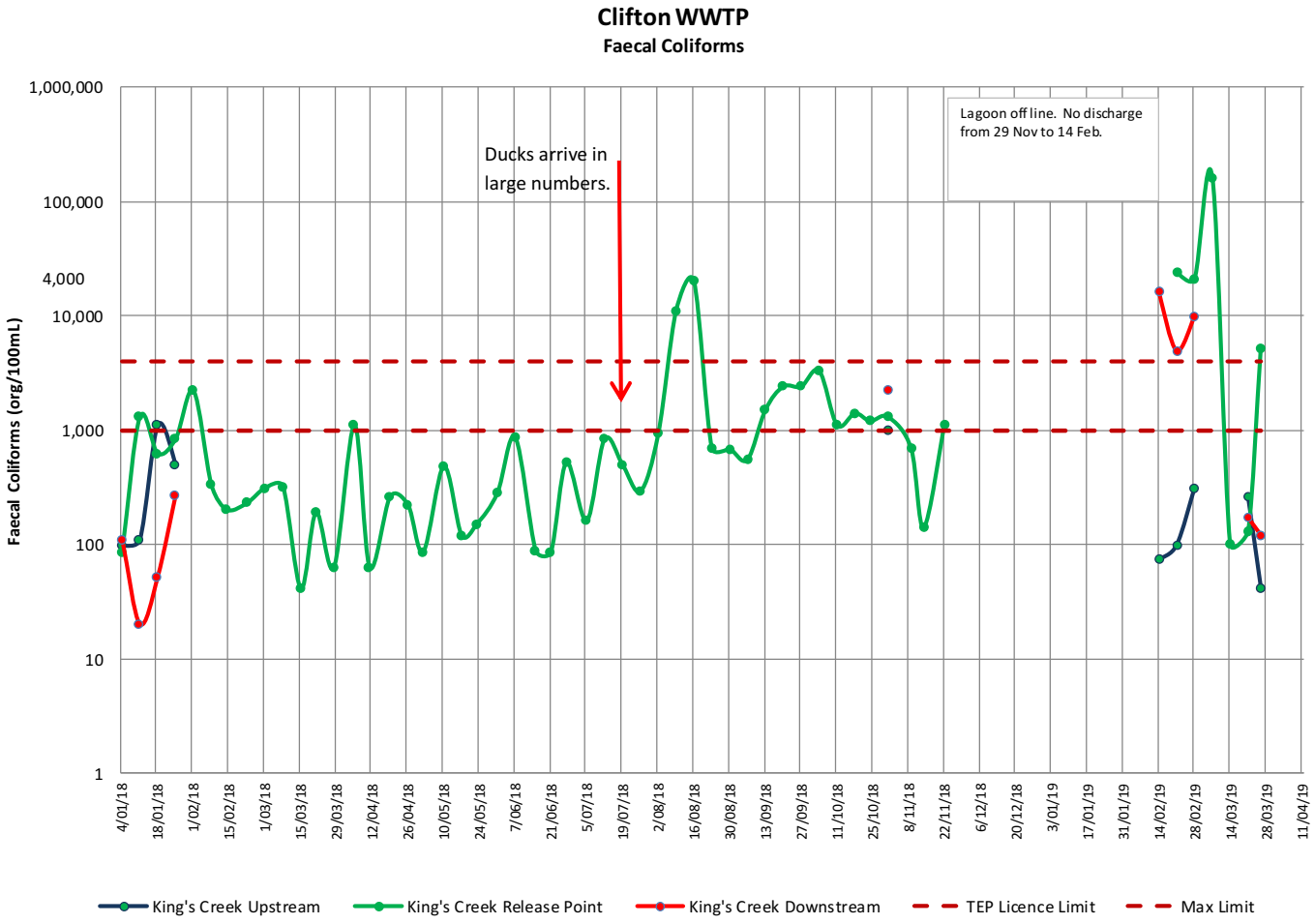

Clifton WWTP
DO
DO mg/L
Ducks arrive in large numbers.
Lagoon off line. No discharge from 29 Nov to 14 Feb.
King's Creek Upstream
King's Creek Release Point
King's Creek Downstream
TEP Licence Limit

Table and 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
4/01/2018	COLI-FAECAL-MPN	97	86	110	MPN/100 mL	1000	1000	4000
11/01/2018	COLI-FAECAL-MPN	110	1300	20	MPN/100 mL	1000	1000	4000
18/01/2018	COLI-FAECAL-MPN	1100	620	52	MPN/100 mL	1000	1000	4000
25/01/2018	COLI-FAECAL-MPN	500	840	270	MPN/100 mL	1000	1000	4000
1/02/2018	COLI-FAECAL-MPN	No flow in Kings Creek from 1 February 2018	2200	No flow in Kings Creek from 1 February 2018	MPN/100 mL	1000	1000	4000
8/02/2018	COLI-FAECAL-MPN		330		MPN/100 mL	1000	1000	4000
14/02/2018	COLI-FAECAL-MPN		200		MPN/100 mL	1000	1000	4000
22/02/2018	COLI-FAECAL-MPN		230		MPN/100 mL	1000	1000	4000
1/03/2018	COLI-FAECAL-MPN		310		MPN/100 mL	1000	1000	4000
8/03/2018	COLI-FAECAL-MPN		320		MPN/100 mL	1000	1000	4000
15/03/2018	COLI-FAECAL-MPN		41		MPN/100 mL	1000	1000	4000
21/03/2018	COLI-FAECAL-MPN		190		MPN/100 mL	1000	1000	4000
28/03/2018	COLI-FAECAL-MPN		63		MPN/100 mL	1000	1000	4000
5/04/2018	COLI-FAECAL-MPN		1100		MPN/100 mL	1000	1000	4000
11/04/2018	COLI-FAECAL-MPN		63		MPN/100 mL	1000	1000	4000
19/04/2018	COLI-FAECAL-MPN		260		MPN/100 mL	1000	1000	4000
26/04/2018	COLI-FAECAL-MPN		220		MPN/100 mL	1000	1000	4000
2/05/2018	COLI-FAECAL-MPN		86		MPN/100 mL	1000	1000	4000
10/05/2018	COLI-FAECAL-MPN		480		MPN/100 mL	1000	1000	4000
17/05/2018	COLI-FAECAL-MPN		120		MPN/100 mL	1000	1000	4000
23/05/2018	COLI-FAECAL-MPN		150		MPN/100 mL	1000	1000	4000
31/05/2018	COLI-FAECAL-MPN		280		MPN/100 mL	1000	1000	4000
7/06/2018	COLI-FAECAL-MPN		860		MPN/100 mL	1000	1000	4000
15/06/2018	COLI-FAECAL-MPN		88		MPN/100 mL	1000	1000	4000
21/06/2018	COLI-FAECAL-MPN		85		MPN/100 mL	1000	1000	4000
27/06/2018	COLI-FAECAL-MPN		520		MPN/100 mL	1000	1000	4000
5/07/2018	COLI-FAECAL-MPN		160		MPN/100 mL	1000	1000	4000
12/07/2018	COLI-FAECAL-MPN		830		MPN/100 mL	1000	1000	4000
19/07/2018	COLI-FAECAL-MPN		500		MPN/100 mL	1000	1000	4000
26/07/2018	COLI-FAECAL-MPN		290		MPN/100 mL	1000	1000	4000
2/08/2018	COLI-FAECAL-MPN		930		MPN/100 mL	1000	1000	4000
9/08/2018	COLI-FAECAL-MPN		11000		MPN/100 mL	1000	1000	4000
16/08/2018	COLI-FAECAL-MPN		20000		MPN/100 mL	1000	1000	4000
23/08/2018	COLI-FAECAL-MPN		690		MPN/100 mL	1000	1000	4000
30/08/2018	COLI-FAECAL-MPN		680		MPN/100 mL	1000	1000	4000
6/09/2018	COLI-FAECAL-MPN		550		MPN/100 mL	1000	1000	4000
13/09/2018	COLI-FAECAL-MPN		1500		MPN/100 mL	1000	1000	4000
20/09/2018	COLI-FAECAL-MPN		2400		MPN/100 mL	1000	1000	4000
27/09/2018	COLI-FAECAL-MPN		2400		MPN/100 mL	1000	1000	4000
4/10/2018	COLI-FAECAL-MPN		3300		MPN/100 mL	1000	1000	4000
11/10/2018	COLI-FAECAL-MPN		1100		MPN/100 mL	1000	1000	4000
18/10/2018	COLI-FAECAL-MPN		1400		MPN/100 mL	1000	1000	4000
24/10/2018	COLI-FAECAL-MPN		1200		MPN/100 mL	1000	1000	4000
31/10/2018	COLI-FAECAL-MPN	990	1300	2200	MPN/100 mL	1000	1000	4000
9/11/2018	COLI-FAECAL-MPN	No flow in Kings Creek from 1 February 2018	690	No flow in Kings Creek from 1 February 2018	MPN/100 mL	1000	1000	4000
14/11/2018	COLI-FAECAL-MPN		140		MPN/100 mL	1000	1000	4000
22/11/2018	COLI-FAECAL-MPN		1100		MPN/100 mL	1000	1000	4000
29/11/2018	COLI-FAECAL-MPN		Lagoon off line. No discharge from 29 November to 27December		MPN/100 mL	1000	1000	4000
6/12/2018	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000
13/12/2018	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000
20/12/2018	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000
27/12/2018	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000
3/01/2019	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000
10/01/2019	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000
17/01/2019	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000
24/01/2019	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000
31/01/2019	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000
7/02/2019	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000
14/02/2019	COLI-FAECAL-MPN	74		16000	MPN/100 mL	1000	1000	4000
21/02/2019	COLI-FAECAL-MPN	98	24000	4900	MPN/100 mL	1000	1000	4000
28/02/2019	COLI-FAECAL-MPN	310	21000	9800	MPN/100 mL	1000	1000	4000
7/03/2019	COLI-FAECAL-MPN	No Flow	160000	No Flow	MPN/100 mL	1000	1000	4000
14/03/2019	COLI-FAECAL-MPN		100		MPN/100 mL	1000	1000	4000
21/03/2019	COLI-FAECAL-MPN	260	130	170	MPN/100 mL	1000	1000	4000
26/03/2019	COLI-FAECAL-MPN	41	5200	120	MPN/100 mL	1000	1000	4000
4/04/2019	COLI-FAECAL-MPN				MPN/100 mL	1000	1000	4000


Clifton WWTP
Faecal Coliforms
Faecal Coliforms (org/100mL)
1,000,000
100,000
4,000
10,000
1,000
100
10
1
Ducks arrive in large numbers.
Lagoon off line. No discharge from 29 Nov to 14 Feb.
4/01/18
18/01/18
1/02/18
15/02/18
1/03/18
15/03/18
29/03/18
12/04/18
26/04/18
10/05/18
24/05/18
7/06/18
21/06/18
5/07/18
19/07/18
2/08/18
16/08/18
30/08/18
13/09/18
27/09/18
11/10/18
25/10/18
8/11/18
22/11/18
6/12/18
20/12/18
3/01/19
17/01/19
31/01/19
14/02/19
28/02/19
14/03/19
28/03/19
11/04/19
King's Creek Upstream
King's Creek Release Point
King's Creek Downstream
TEP Licence Limit
Max Limit

Attachment #3
Photographs

Photograph 1: Lagoon 3 taken off line to de-sludge, 1 Aug 2018, drying conditions good



Photograph 2: Lagoon 3 Refilling (no discharge to Kings Creek)



Photograph 3: Outfall to Kings Creek 14-02-2019



Photograph 4: Upstream of Outfall Kings Creek 14-02-2019



Photograph 5: Looking Downstream from Outfall Kings Creek 14-02-2019

