

### 3. Bicheno STP

#### 3.1 Activity and report details

Activity name	Bicheno STP		
Activity address	Tasman Highway, Bicheno		
Permit number	PCE 11275/1	Date of issue	3 June 2024
EPN	NA	Date of issue	NA
Treatment level	Secondary Treatment		
Authorised dry weather flows	600 kL/day		
Key influent source	Residential/Tankered Waste		
Contact person	Kate Westgate		
Report author	George Fitzgibbon		
Contact details	<a href="mailto:Environment@taswater.com.au">Environment@taswater.com.au</a>		
Date of submission	30 September 2025		

Figure 3-1: Bicheno Sewage Treatment Plant



## 3.2 Monitoring and compliance summary

### 3.2.1 Flow data

**Table 3-A: Flow monitoring summary**

	Influent	Effluent	Reuse
Location name	Tas Hwy SPS Sewer Inlet	Old Mines Lagoon	Bicheno Golf Club
Coordinates	E 604716 N 5367128	E 604918 N 5367268	E 604904 N 5367321
Method of measurement	In line meter	Level sensor	In line meter
Date of last calibration/validation (if applicable).	01/02/25	01/02/25	01/02/25

**Table 3-B: Annual flow and rainfall data**

Month	Average daily influent volume (kL/day)	Rainfall (mm/month) BOM station ID 92003	Discharge to waters total effluent volume (ML)	Discharge to reuse total effluent volume (ML)
July 2024	352	80.4	11.40	0.00
August 2024	224	29.4	7.18	0.00
September 2024	267	39.6	9.88	0.00
October 2024	298	25.4	0.00	5.57
November 2024	314	45.2	0.00	6.20
December 2024	402	32	3.72	4.72
January 2025	446	64.6	0.48	8.05
February 2025	354	16.6	0.00	2.64
March 2025	329	32.8	0.30	5.02
April 2025	327	35.2	0.00	5.68
May 2025	239	42	0.00	1.03
June 2025	280	61.4	0.00	6.10
Annual 2024-25	319	443.2	32.95	45.00
% of total discharge	--	--	42.3%	57.7%

2024-25 monthly flow data was submitted directly to the EPA.

### 3.3 Bypass events

There were no bypass events associated with the STP during the reporting period.

### 3.4 Discharge compliance with permit limits

**Table 3-C: Compliance summary**

	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorus	E coli	Total suspended solids
Permit/EPN limit	mg/L	mg/L	mg/L	mg/L	mg/L	Units	mg/L	MPN/100mL	mg/L
Maximum	10	35	--	25	--	9.0	7	1000	30
90th percentile	--	--	--	--	--	--	--	--	--
50th percentile	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	5.5	--	--	--
<b>Samples analysed</b>									
Number required	12	12	--	12	12	12	12	12	12
Number analysed	12	12	0	12	12	12	12	12	12
<b>Statistical summary</b>									
Maximum	16.5	91.0	0.0	31.1	2.0	8.3	11.1	2755.0	90.0
90th percentile	15.2	86.8	0.0	29.7	1.6	8.2	11.0	2341.8	47.7
50th percentile	4.6	52.5	0.0	17.2	1.0	7.5	8.5	734.5	24.5
Minimum	0.5	6.0	0.0	8.7	1.0	6.7	6.0	122.0	7.1
<b>EPN limit compliance</b>									
% compliance with maximum	83%	50%	--	75%	--	100%	33%	67%	75%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	100%	--	--	--

\*PCE 11275/1 issued in June 2024. Compliance data assessed against these limits.

**Table 3-D: Mass loads to the environment**

Mass Loads	EPN limit	Frequency	2024-25 result
Nitrogen (kg)	--	Annual	739.8
Phosphorous (kg)	--	Annual	233.9
Method	Time weighted/Grab sample method		

**Table 3-E: Performance analysis (discharge to environment)**

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
BOD	19/08/2024 12/09/2024 11/06/2025	Algae is believed to be the primary reason for elevated BOD and suspended solids. Algae is a source of oxygen and is fundamental to lagoon treatment. Most of the non-compliant results were in warmer months when algal blooms occur.	As part of Bicheno Effluent Management Project – commitments for early process improvements works include:  1. Installation of two new aerators in the primary treatment lagoon, near the lagoon inlet.
TSS	29/01/2025 24/02/2025 12/03/2025		
E. coli	13/01/2025 11/02/2025 11/06/2025	Process modelling suggests that the Bicheno STP lagoons have sufficient hydraulic retention time for meeting the effluent E. coli target. The reason for occasional non-compliances could be high inflow following rain events or short circuiting.	2. Efficiency improvements by reconfiguration of the existing aerators in secondary treatment lagoons no. 1 and no. 2 to be near the inlet of each lagoon to improve aeration.  3. Replacement of the existing rock riffle spillways that interconnect the secondary treatment lagoons with transfer pipes that have submerged inlets, outlets and scum barriers to reduce algae transfer between the lagoons.
Nitrogen	19/08/2024 21/05/2025 11/06/2025		
Phosphorus	13/11/2024 12/12/2024 13/01/2025 29/01/2025 11/02/2025 12/03/2025 26/03/2025 9/04/2025 9/04/2025 23/04/2025 7/05/2025 7/05/2025 11/06/2025		

Note: Non compliances only identified for the times STP has discharged to water. Non-compliances assessed against PCE 11275 issued in June 2024.

No other parameters had exceedances in the reporting period

### 3.5 Reuse annual reporting

The Bicheno STP supplies Class B recycled water for irrigation purposes to the Bicheno recycled water scheme which currently consists of one customer, the Bicheno Golf Club. In December 2023 the Wastewater Reuse Coordinating Group approved an updated Environmental Management Plan for the current and a proposed Bicheno Recycled Water Scheme subject to additional requirements and clarifications relating to proposed scheme.

**Table 3-F: Reuse Compliance Summary**

	BOD5	pH	E coli
Permit/EPN limit	mg/L	Units	MPN/100ml
Maximum	50	9.0	10,000
90th percentile	--	--	--
50th percentile	--	--	1,000
Minimum	--	5.5	--
<b>Samples analysed</b>			
Number required	12	12	12
Number analysed	12	12	12
<b>Statistical summary</b>			
Maximum	91.0	8.3	2,755
90th percentile	86.8	8.2	2,342
50th percentile	52.5	7.5	735
Minimum	6.0	6.7	122
<b>EPN limit compliance</b>			
% compliance with maximum	42%	--	100%
% compliance with 90th percentile	--	--	--
% compliance with 50th percentile	--	--	58%
% compliance with pH range	--	100%	--

**Table 3-G: Performance analysis (discharge to reuse)**

Reuse compliance parameter	Date(s) of elevated parameter	Reasons for non-compliance	Actions to improve performance
BOD	11/06/2025 9/04/2025 26/03/2025 12/03/2025 24/02/2025 11/02/2025 29/01/2025 7/10/2024 12/09/2024 19/08/2024	Algae is believed to be the primary reason for elevated BOD.  Algae is a source of oxygen and is fundamental to lagoon treatment. Most of the non-compliant results were in warmer months when algal blooms occur. Elevated results in colder months can be due to presence of residual algae from previous months due to long HRT.	See Table 3-E.

Note: Non-compliances only identified for the times STP has discharged to reuse

Annual soil sampling for the RWS was completed at two sites (Site 1 and Site 2) in November 2024. The field component of the annual compliance audit was completed in conjunction with the soil sampling, with follow up phone audits completed in January 2025. A summary of the findings of the programs is provided in the table below.

**Table 3-H: Annual recycled water scheme compliance audit and soil monitoring**

Program	Compliance audit	Soil monitoring
<b>Outcomes</b>	Minor non-compliance - Inadequate signage	The RWS site has inherent salinity (topsoil and subsoil) and sodicity issues (subsoil) due to the duplex nature of the soil, geology of area and proximity to the coast. Sodicinity levels remain excessive but within historic levels across the site; whilst salinity levels are excessive at one site but within historical range.
<b>Comments</b>	Backflow prevention requirement identified for recycled water pump priming line.	Median salinity and SAR levels in recycled water suggest a slight to moderate risk of soil permeability loss from recycled water irrigation, however, irrigation with recycled water may exacerbate soil salinity and sodicity if drainage is not in good working order and irrigation scheduling is not implemented.  Leaching from rainfall appears to have effectively managed salinity levels in the past.

SAR = Sodium Adsorption Ratio

RWS Groundwater Status: Green

RWS groundwater monitoring network consists of five monitoring bores: ID numbers BIGW1 – BIGW5. Bore ID BIGW1 is located downgradient of the recycled water storage dam.

6-monthly sampling at the extended sampling suite was completed at bore ID BIGW5 in October 2024 and February 2025 as scheduled. Annual sampling at the standard analytical suite was completed at all bores (ID's BIGW1-5) in February 2025 as scheduled.

The 2024–25 groundwater monitoring event recorded no evidence of impacts to groundwater (ID’s BIGW1–2). Three bores (ID’s BIGW3–5) recorded elevated concentrations of one analyte (total phosphorous) but is unlikely to be influenced by recycled water due to low application rates.

6-monthly sampling at the extended suite is scheduled to continue at bore ID BIGW5 in the 2025–26 sampling program. Annual sampling at the standard sampling suite is scheduled to continue for bore ID’s BIGW1–4.

### 3.6 Ambient monitoring program

**Table 3–1: Program details**

<b>Program</b>	<b>Bicheno STP Old Mines Lagoon Ambient Monitoring Program (AMP)</b>
<b>Status</b>	Ambient water quality, sediment and biological monitoring undertaken within the Old Mines Lagoon receiving environment.
<b>Update</b>	No ambient monitoring undertaken during the reporting period.
<b>Comments</b>	No ambient monitoring undertaken during the reporting period. Continuing implementation of the Bicheno STP AMP is scheduled to be undertaken in FY 2025/26.

### 3.7 Groundwater monitoring

Site Status: Red

Bicheno STP groundwater monitoring network consists of four bores (ID numbers BIGW6–9) located downgradient of the STP along the eastern and northern perimeter of the lagoons.

6-monthly sampling at the extended analytical suite was completed at all four monitoring bores in October 2024 and February 2025 as scheduled.

Monitoring data suggests groundwater highly likely impacted by STP through elevated nutrient concentrations. Additional assessment of required actions to be provided following review of all data in December 2025.

6-monthly sampling is scheduled to continue at all bores in the 2025–26 sampling program with analytical suite changing to the standard suite for all bores.

### 3.8 Inflow and infiltration (I&I)

The latest revision to the TasWater Inflow and Infiltration (I&I) Management Plan includes details of the actions undertaken statewide to address I&I issues.

A Multi Criteria Assessment was undertaken by TasWater in 2024 to prioritise I&I investigation and works state-wide. This catchment was ranked 47 out of 108 in priority. Works this period included:

- Desktop analysis to understand performance within the sewer network

### 3.9 Sludge and biosolids

The latest revision to the Sewage Sludge Management Plan (SSMP) includes full details of the actions undertaken during the reporting period, the most recent sludge profiling results and upcoming desludging program for the year. Bicheno STP was assessed as compliant with the 2024–25 SSMP.

Sludge at this STP is captured within the four treatment lagoons, which will be periodically desludged as required. No stockpiling occurs at this site.

**Table 3–J: Biosolids sludge classification summaries**

#### Lagoon 1

Parameter	Number of samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant classification
Arsenic	3	2.7	1.7	0.7	2.7	A
Cadmium	3	0.4	0.3	0.2	0.2	A
Chromium	3	18.1	10.6	4.1	17.6	A
Copper	3	161	122.7	61.2	176.5	B
Lead	3	10.2	6.9	3.5	10.3	A
Mercury	3	0.17	0.1	0.05	0.1	A
Nickel	3	9.3	6.7	4	9.4	A
Zinc	3	335	250.3	134	354.5	B

#### Lagoon 2

Parameter	Number of samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant classification
Arsenic	3	0.5	0.5	0.4	0.5	A
Cadmium	3	<0.1	<0.1	<0.1	<0.1	A
Chromium	3	6.3	4.2	2.4	6.2	A
Copper	3	9.1	6.5	4.3	8.9	A
Lead	3	1.3	1	0.8	1.3	A
Mercury	3	<0.03	<0.03	<0.03	<0.03	A
Nickel	3	1.6	1.2	1	1.5	A
Zinc	3	23.5	16.5	11.7	22.7	A

#### Lagoon 3

Parameter	Number of samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant classification
Arsenic	3	0.8	0.8	0.8	0.8	A
Cadmium	3	<0.1	<0.1	<0.1	<0.1	A
Chromium	3	4.9	3.7	1.8	5.3	A
Copper	3	3.9	2.6	1.8	3.7	A
Lead	3	1.6	1.2	0.9	1.6	A
Mercury	3	<0.03	<0.03	<0.03	<0.03	A
Nickel	3	1.4	1	0.6	1.4	A
Zinc	3	13	8.2	5	12.4	A

**Table 3-K: Volume and disposal destination**

Quantity (DST)	Average solids content (%)	Stabilisation method	Stabilisation grade	Contamination grade	Biosolids classification	End use destination
1,010.0	6.4	Anaerobic digestion	B	B	2	Chain of Lagoons Farm

Notes: DST = Dry solid tonne. U/C = Unclassified

**Table 3-L: Desludging status and comments**

Desludging status	Comments
Low priority	Desludging of Lagoons 1, 2 and 3 was completed in 2025. These lagoons are unlikely to require desludging again for another 10 to 20 years.

### 3.10 Non-compliance with other permit requirements

**Table 3-K: EPN non-compliances**

EPN condition	Description of non-conformance	Future actions to be taken
Effluent quality limits for discharge to water and reuse	Discharge compliance with permit limits.	See section 3.4 and 3.5.

### 3.11 Complaints and incident reporting

No complaints or incidents received during 2024-25 reporting period.

### 3.12 Any other relevant information

**Table 3-L: Projects or significant operational events that occurred in FY 2024-2025:**

Project or significant operational event	Progress
East Coast Sewerage Master Plan	<p>The East Coast Sewerage Regional Master Plan has been completed and outlines both short- and long-term considerations for the Bicheno STP.</p> <p>TasWater is currently implementing process improvements at the STP including an aeration upgrade as part of the Bicheno STP Effluent Management Project. This project also includes implementation of a 100% full recycled water scheme which is still within the Project Development phase.</p>

For further information on Bicheno STP please contact TasWater on 13 6992

[www.taswater.com.au](http://www.taswater.com.au)