

## 15 Cradle Mountain WWTP

### 15.1 Activity and report details

Activity name	Cradle Mountain WWTP		
Activity address	Cradle Mountain Road, Cradle Valley		
Permit number	Permit Conditions Environmental - 7451	Date of issue	11/07/2007
	8516/2	Date of issue	25/07/2013
EPN	8516/2		
Treatment level	Tertiary (E3) - (Nitrogen + Phosphorus)		
Authorised Dry Weather Flows	500 kL/day		
Key Influent Source	Residential/Commercial		
Contact person	Kate Westgate		
Report author	Jayden Taylor		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2023		

Figure 15-1: Cradle Valley STP



## 15.2 Monitoring and compliance summary

### 15.2.1 Flow data

Table 15-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location Name	Inlet	Pencil Pine Creek	No reuse scheme*
Coordinates	E412189 N5397300	E410626 N5394379	NA
Method of Measurement	In line meter	In line meter	NA
Date of last Calibration/Validation (if applicable).	17/11/2022	17/11/2022	NA

\*EPA have approved recycled water use for Parks Tasmania for fire-fighting purposes only

Table 15-B: Annual flow and rainfall data

Month	Average Daily Influent Volume (kL/day)	Rainfall (mm/month) BOM Station ID 96077	Discharge to Waters Total Effluent Volume (ML)	Discharge to Reuse Total Effluent Volume (ML)
July 2022	264	161.2	4.64	--
August 2022	303	369.8	10.67	--
September 2022	231	250.4	7.60	--
October 2022	289	335.8	11.14	--
November 2022	231	220.8	6.58	--
December 2022	224	74.2	6.43	--
January 2023	238	35.7	0.11	--
February 2023	219	48.9	0.05	--
March 2023	249	212.8	6.16	--
April 2023	266	158.6	4.80	--
May 2023	289	255.5	8.27	--
June 2023	329	390.6	9.85	--
Annual 2022-23	261	2514.3	76.28	--
% of Total Discharge	--	--	100.0%	--

2022-23 monthly flow data was submitted directly to the EPA.

### 15.2.2 Bypass events

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

### 15.3 Discharge compliance with permit limits

Table 15-C: Compliance Summary

Parameter	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	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	1	10	--	10	5	8.5	0.3	10	10
90th percentile	0.8	5	--	5	--	--	0.2	--	5
50th Percentile	0.7	2	--	3	--	--	0.1	--	3
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	52	52	--	52	52	52	52	52	52
Number analysed	52	52	-	52	52	52	52	51	52
Statistical summary									
Max	0.110	5	--	5.2	1.6	7.6	0.037	1	4.0
90th percentile	0.045	5	--	4.4	1.0	7.2	0.024	1	4.0
50th percentile	0.011	5	--	3.1	1.0	7.0	0.011	1	4.0
Min	0.005	5	--	1.5	1.0	6.4	0.005	1	4.0
EPN Limit Compliance									
% compliance with Maximum	100%	100%	--	100%	100%	--	100%	100%	100%
% compliance with 90th percentile	100%	100%	--	98%	--	--	100%	--	100%
% compliance with 50th percentile	100%	0%	--	38%	--	--	100%	--	0%
% compliance with pH range	--	--	--	--	--	96%	--	--	--

\* Minimum detection limit is 4.0 mg/L for TSS and 5 mg O<sub>2</sub>/L for BOD.

Table 15-D: Mass loads to the environment

Parameter	EPN Limit	Frequency	2022-23 result
Nitrogen (kg)	--	Annual	226.5
Phosphorous (kg)	--	Annual	0.9
Method	Flow weighted/Composite method		

Table 15-E: Data gaps

Parameter	Location	Date of sample	Frequency	Reason for gap
E. coli	Reuse Header Tank (58503)	22/03/2023	W	Laboratory error. Incorrect sample tested.

Table 15-F: Performance Analysis (Discharge to environment)

Parameter	Date(s) of Non-compliance	Reasons for Non-compliance	Actions to improve performance
Nitrogen	12-month 50 <sup>th</sup> percentile limit exceeded	Marginal exceedance of the 50 <sup>th</sup> percentile limit. Potentially due to variation in catchment loading throughout the year.	No specific actions
pH	31/10/2022 13/06/2023	A sampling error is the likely cause of this non-compliance. Daily operations testing shows effluent pH within allowable limits.	No specific actions

No other parameters had exceedances in the reporting period.

## 15.4 Reuse Annual Reporting

The Cradle Mountain STP supplies Class A recycled water to a storage tank and a small number of hydrants for fire-fighting purposes for the National Parks and Wildlife Service (NPWS) at Cradle Mountain. In April 2022, the first audit of the system operations against the requirements of the 2019 Recycled Water Management Plan was conducted. The audit identified several matters requiring action, including protocols to manage risk from recycled water during a fire notification and training of staff, and a number of fire hydrants (unsigned) not included in the 2019 management plan. No audit was completed in 2023. TasWater will work with NPWS to address the audit findings.

## 15.5 Ambient monitoring program

Table 15-G: Program details

<b>Program</b>	Cradle Biological Monitoring Program and routine water quality monitoring collected by STP operators during discharge to water.
<b>Status</b>	Ongoing
<b>Update</b>	Complete
<b>Comments</b>	<p>Water quality monitoring was completed quarterly as per the EPN in the 2022-2023 report period. Notable trends from these samples are:</p> <ul style="list-style-type: none"> <li>• Ammonia levels did not appear to increase at downstream locations</li> <li>• On occasions, nitrate levels showed marginal elevations in the downstream sites compared to the upstream site.</li> <li>• Total nitrogen results were varied and did not consistently show an increasing trend with concentration downstream. There were occasions when the far downstream site was elevated beyond the upstream and edge of mixing zone sites</li> <li>• There were no significant trends in total phosphorus concentrations. One outlier was detected at the far downstream site in April.</li> <li>• Pathogen indicator levels were less than the limit of reporting (&lt;10 MPN/100mL) at all sites on each sampling event.</li> </ul> <p>Biological monitoring was completed as per the EPN, in addition to monitoring at investigative reference sites. The investigation into the changes observed in the biological communities in the area has determined that the STP discharge is not the driving influence, therefore, the consultants have recommended to revert to the EPN requirement for biological monitoring, biannually within Pencil Pine Creek. A report has been provided separately to this AER.</p>

## 15.6 Groundwater monitoring

Site Status: Green – No STP impact

The groundwater monitoring network around the Cradle Valley STP provides good coverage around the ponds and consists of four monitoring bores (CDGW1-2 and CDGW4 -5). Annual sampling was completed at the four monitoring bores in May 2023.

Analytical results did not indicate the STP pond seepage is currently impacting groundwater quality, or to an extent that requires additional investigation.

Annual sampling at the standard analytical suite will continue at all for bores during the 2023-24 groundwater monitoring program.

## 15.7 Inflow and infiltration (I&I)

The latest revision to the TasWater Inflow and Infiltration Management Plan includes details of the actions undertaken statewide to address I&I issues. Update to the actions completed will be provided in the next revision due September 2024.

A Multi Criteria Assessment was undertaken by TasWater in 2022 to prioritise I&I investigation and work state-wide. This catchment ranked 49 out of 79 in priority.

## 15.8 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 annual desludging program.

This STP is fully compliant with the 2022-23 SSMP.

Biosolids are removed regularly from site, no stockpiling occurred.

Table 15-H: Biosolids Sludge classification

Month	Number of Samples	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant Classification
Arsenic	12	5.6	4.8	3.7	6.1	A
Cadmium	12	0.4	0.2	0.1	0.4	A
Chromium	12	24.2	17.0	11.5	25.7	A
Copper	12	267.0	234.8	217	265.7	B
Lead	12	6.6	4.1	2.2	6.3	A
Mercury	12	0.7	0.4	0.03	0.7	A
Nickel	12	41.0	17.5	11.5	33.6	A
Zinc	12	320.0	273.0	217	340.6	B

Table 15-I: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation Grade	Contamination Grade	Biosolids Classification	End use destination
17.40	10.4%	None	U/C	B	U/C	Dulverton

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

## 15.9 Non-compliance with other permit requirements

Table 15-J: EPN Non-compliances

EPN Condition	Description of non-conformance	Current and Future Actions to prevent Non-Compliance
OP2 Operational Procedures and Maintenance Manual	No contemporary Operational Procedures Manual	New SharePoint based solution for OPMMs currently being developed. First version to be implemented by FY24.

### 15.10 Complaints and incident reporting

No complaints reported during the FY2022-23 reporting period.

Table 11-K: Incident Reporting

Date	Category	Details	Mitigation actions
14/06/2023	Disinfection	UV system replaced due to leak in the system. Leak was contained and ran back into the system.	No mitigation actions required, as there was no discharge of effluent at this time.

### 15.11 Any other relevant information

None.

For further information on the Cradle Mountain WWTP contact TasWater on 13 6992  
[www.taswater.com.au](http://www.taswater.com.au)