

15. Cradle Valley STP

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
EPN	8516/2	Date of issue	25/07/2013
Treatment level	Tertiary (E3) – (Nitrogen + Phosphorus)		
Authorised dry weather flows	500 kL/day		
Key influent source	Residential/Commercial		
Contact person	Kate Westgate (Manager Environmental Performance)		
Report author	Jake Crisp (Environmental Scientist)		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2024		

Figure 15-1: Cradle Valley Sewage Treatment Plant



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).	3/11/2023	3/11/2023	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 2023	342	386.6	8.54	--
August 2023	318	228.0	11.69	--
September 2023	307	200.6	5.72	--
October 2023	229	208.0	5.56	--
November 2023	269	106.6	4.31	--
December 2023	261	122.6	5.30	--
January 2024	308	170.6	5.98	--
February 2024	240	40.6	1.28	--
March 2024	260	98.4	2.55	--
April 2024	290	117.3	6.68	--
May 2024	206	104.8	5.59	--
June 2024	289	204.0	8.18	--
Annual 2023-24	277	1988.1	71.38	--
% of total discharge	--	--	100.0%	--

2023-24 monthly flow data was submitted directly to the EPA.

15.3 Bypass events

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

15.4 Discharge compliance with permit limits

Table 15–C: Discharge compliance with permit limits

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	1.0	10	--	10.0	5.0	8.5	0.3	10	10.0
90th percentile	0.8	5	--	5.0	--	--	0.2	--	5.0
50th percentile	0.7	2	--	3.0	--	--	0.1	--	3.0
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	52	52	--	52	52	52	52	52	52
Number analysed	52	52	--	52	52	52	52	52	52
Statistical summary									
Maximum	0.3	5	--	6.4	1.0	7.2	0.1	1	10.3
90th percentile	0.0	5	--	4.7	1.0	7.2	0.0	1	4.0
50th percentile	0.0	5	--	3.0	1.0	7.0	0.0	1	4.0
Minimum	0.0	5	--	1.1	1.0	6.7	0.0	1	4.0
EPN limit compliance									
% compliance with maximum	100%	100%	--	100%	100%	--	100%	100%	98%
% compliance with 90th percentile	100%	100%	--	94%	--	--	100%	--	98%
% compliance with 50th percentile	100%	0%	--	50%	--	--	98%	--	0%
% compliance with pH range	--	--	--	--	--	100%	--	--	--

* Minimum detection limit is 4.0 mg/L for TSS and 5 mg O₂/L for BOD.

Table 15-D: Mass loads to the environment

Parameter	EPN limit	Frequency	2023-24 result
Nitrogen	--	Annual	227.5
Phosphorous (kg)	--	Annual	1.0
Method	Flow weighted/Composite method		

Table 15-E: Performance analysis (discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
TSS	15/04/2024	There were no process issues to explain a 0.3mg L ⁻¹ exceedance. The small exceedance is likely due to a variation in catchment loading throughout the year.	No specific actions.

No other parameters had exceedances in the reporting period.

15.5 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, with the next compliance audit scheduled for August 2024.

15.6 Ambient monitoring program

Table 15-F: Program details

Program	Water quality monitoring as per EPN requirements and biological monitoring program.
Status	Ongoing
Update	Water quality monitoring completed on a quarterly frequency as per EPN requirements. Biological monitoring conducted in autumn and spring.
Comments	<p>Water quality monitoring was completed per the EPN in the 2023 -2024 reporting period. Notable trends from these samples are:</p> <ul style="list-style-type: none"> • Ammonia levels did not appear to increase at downstream locations • On occasions, nitrate levels showed marginal elevations in the downstream sites compared to the upstream site. • There were no consistent trends with total nitrogen results. Two of the four occasions the total nitrogen level marginally increased at the site immediately downstream, but the signal did not persist at the far downstream sites. • There were no trends in total phosphorus concentrations. • Chlorophyll-a levels were consistent between upstream and downstream locations • Pathogen indicator (Escherichia coli) levels were detected in the Pencil Pine Creek on two of the four monitoring events. It appears that the source of pathogen indicators was from upstream given all the Pencil Pine Creek sites showed some level of impact in January and April 2024. Effluent levels were all lower the limit of reporting. <p>Overall, the discharge from the Cradle Mountain STP appears to have minimal influence on the receiving environment.</p> <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>

15.7 Groundwater monitoring

Site Status: Green

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 July 2024.

The 2023–24 groundwater monitoring event report continued to find analytical results do 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 is scheduled to continue at all four bores during the 2024–25 groundwater monitoring program.

15.8 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 2024 to prioritise I&I investigation and work state-wide. This catchment ranked 36 out of 108 in priority. Actions in the period included:

- Manhole inspections and remediation
- CCTV of 1,300m sewer mains
- Desktop study of flows to determine where I&I is coming from

15.9 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 annual desludging program.

This STP is fully compliant with the 2023–24 SSMP.

Biosolids are removed regularly from site, no stockpiling occurred.

Table 15–G: Biosolids sludge classification

Parameter	Number of samples *	Maximum (mg/kg)	Mean (mg/kg)	Minimum (mg/kg)	BACC (mg/kg)	Contaminant classification
Arsenic	11	5.4	4.5	3.9	5.6	A
Cadmium	11	1.0	0.3	0.1	0.8	A
Chromium	11	20.1	13.9	10.8	19.3	A
Copper	11	453.0	277.4	223.0	411.1	B
Lead	11	6.6	4.5	3.2	6.9	A
Mercury	11	0.8	0.5	0.2	0.9	A
Nickel	11	32.1	15.1	11.6	26.9	A
Zinc	11	418.0	298.6	235.0	414.0	B

*No testing during November 2023 due to centrifuge offline

Table 15-H: Volume and disposal destination

Quantity (DST)	Average solids content	Stabilisation method	Stabilisation grade	Contamination grade	Biosolids classification	End use destination
15.7	10.88	Compost	Unstabilised	B	Unclassified	Dulverton Composting facility

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

15.10 Non-compliance with other permit requirements

There are no non-compliances for the FY2023-24 reporting period.

15.11 Complaints and incident reporting

No complaints received during the FY2022-23 reporting period.

Table 15-J: Incident reporting

Date	Category	Details	Mitigation actions
17/11/2023	STP	Biosolids sampling could not proceed due to a broken flywheel associated with the poly drive system. Sufficient storage while replacement parts were sought.	Replacement parts installed and sampling resumed on 13 December 2023.

15.12 Any other relevant information

For further information on Cradle Valley STP please contact TasWater on 13 6992

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