Huia Village Water Treatment Plant
Annual Report 2024–2025

Final - August 2025

Watercare

QUALITY INFORMATION

Document	Annual Report
Date	13 August 2025
Name and position of originator	Krysia Buckley, Environmental Scientist
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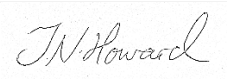
REVISION HISTORY

Rev	Revision Date	Name	Position	Signature
1	13/08/2025	Michiel Jonker	Environmental Care Manager	
2	13/08/2025	Jordan McCrystall-Grinling	Operations Controller	
3	13/08/2025	Isaac Howard	Water Production Manager North	

APPROVED

Date	Name	Position	Signature
13/08/2025	Michiel Jonker	Environmental Care Manager	

CONSENT CHANGE AND MONITORING HISTORY

Change type	Description	Effective date	Reference / condition	Reporting / monitoring implications
Consent reissue	To vary consent to accurately reflect plant operations at Huia Village WTP	April 2009	Consent 36376/ DIS80299761	Monitor and report maximum daily discharge rates of process waters to reservoir and stream
Reporting deadline	To vary submission of discharge records from bi-annually to annually	April 2009	Condition 16 of consent 36376	Records of discharge events to be submitted in the Annual Report within 2 weeks following 30 July each year.

EXECUTIVE SUMMARY

The 2024-2025 Annual Report for the Huia Village Water Treatment Plant (WTP) provides an overview of the plant's operations, performance, and compliance with the consent conditions. Covering the period from 1 July 2024 to 30 June 2025, the report fulfils the requirements of consent DIS80299761, which governs discharges from the WTP into the Lower Huia Reservoir and Huia Stream.

Summary of the key findings during the reporting period include:

- Discharge Flow Monitoring: Discharge volumes to the open channel remained compliant with consent conditions. However, a few minor exceedances were recorded against discharge volumes to the reservoir, and further pump calibration was necessary to correct this.
- Water Quality Monitoring: No exceedances were recorded during the reporting period.
- Incidents: neither planned repair works nor unplanned spills resulted in exceedances.

Overall, the Huia Village WTP performed well, and was compliant for the majority of the reporting period.

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1 INTRODUCTION

1.1 Background

The Huia Village Water Treatment Plant (WTP) and associated structures are located on Huia Dam Road, Huia. The WTP is located immediately below the face of the lower Huia Reservoir, and a short distance west of the Huia Stream. Consent 36376 (DIS80299761) allows for process discharges to the Huia Stream and Lower Huia Reservoir (Figure 1-1).

Figure 1-1 Aerial image of Huia Village Water Treatment Plant

1.2 Consent requirements & report purpose

Consent DIS80299761 allows for:

1) Discharge of process waters into the Lower Huia Reservoir at a maximum discharge rate of 50 cubic meters per day (m^3/day)
2) Discharge of process waters into the Huia Stream at a maximum discharge rate of 520 m^3/day

This report:

- Contains annual monitoring results for discharges from the Huia Village WTP for the period 1 July 2024 to 30th June 2025
- Satisfies condition 16 and 17 which requires an annual report to be prepared on discharge events and discharge water quality monitoring

2 DISCHARGE FLOW MONITORING RECORDS

Process water from WTP is discharged to two locations: back to the Lower Huia reservoir and to an open channel that flows to Huia stream. The wastewater pump transports process waters up to the reservoir when the high level switch inside Balance Tank 2 is activated, and stops when the low level switch is activated. Furthermore, there is an interlocking condition whereby, if the totalised flow to the reservoir reaches the Volume High Set Point, set to 45 m^3/day, the pump will stop. When there is too much water in Balance Tank 2, this overflows into Balance Tank 1, which discharges to the open channel that flows to Huia Stream.

Daily flow rate data for these discharges for the 2024 - 2025 reporting period are provided in Appendix A and discussed further in the following sub sections.

2.1 Process water discharges into Lower Huia Reservoir

There were six occasions when the discharge to the reservoir exceeded the 50 m^3/day consent limit, with the highest flow rate of 52.55m^3/day occurring in September 2024. These minor exceedances occurred as a result of the lag between the volume calculation and this triggering the pump to shut off. As such, further calibrations and adjustments have been made, and no further exceedances have been recorded since March 2025.

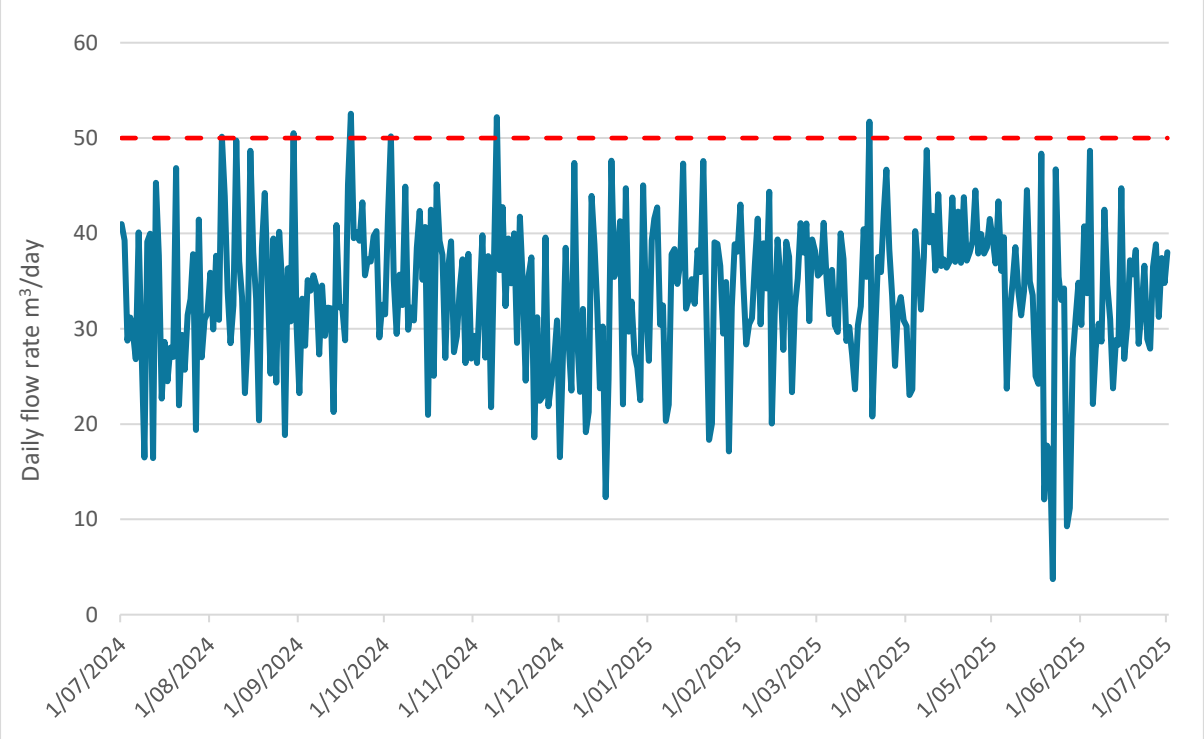

Figure 2-1 Daily discharge flow into Lower Huia Reservoir during the reporting period July 2024 to June 2025. Consent limit shown as dashed line.

2.2 Process water discharges into Huia Stream

There were no exceedances of the 520 m^3/day limit of process water into Huia Stream during the 2024-2025 reporting period, with recorded rates not going over 50 m^3/day. However, the flow meter stopped working in May and required the transmitter to be replaced. As such, there was no flow data collected between 18 May and 26 June 2025. Operators manually inspected the open channel

during the weekly inspections as well as during the flowmeter and treated water tank repair works. Further details about calculated discharge volumes during the treated water tank inspection works are found in Section 2.3.

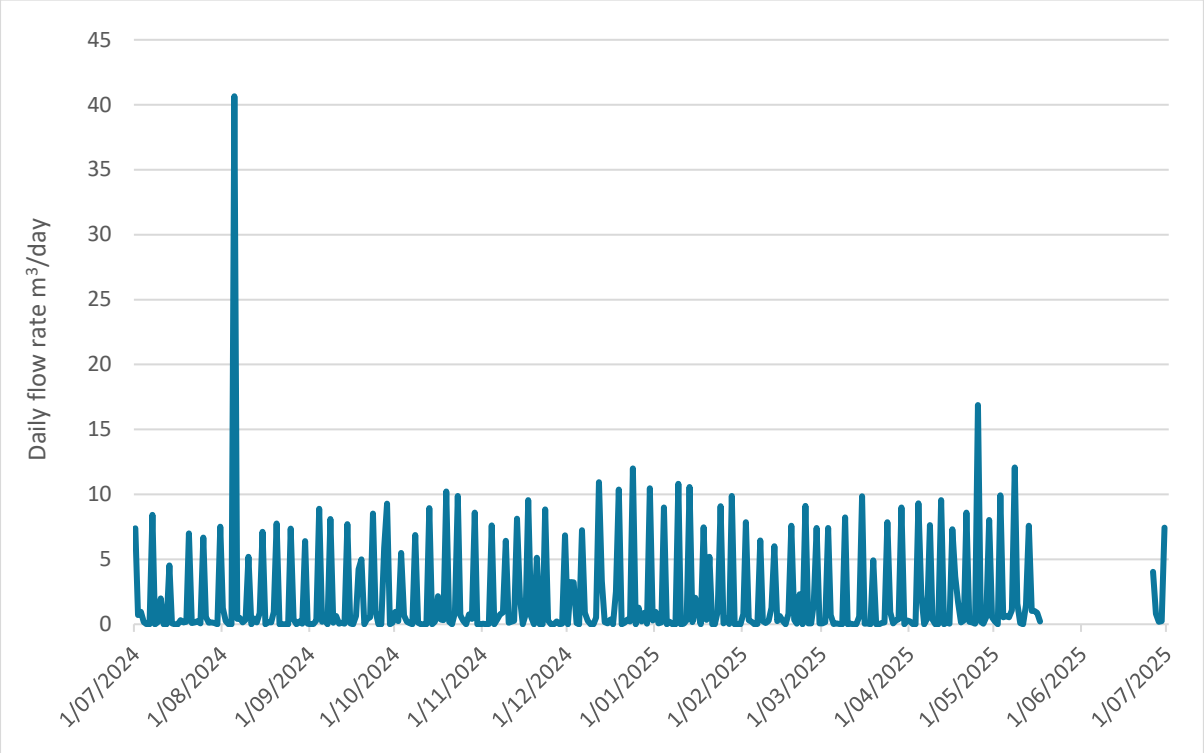

Figure 2-2 Daily discharge flow into Huia Stream during the reporting period July 2024 to June 2025.

2.3 Unplanned discharges and issues

There were no unplanned discharges during the reporting period. However, in February 2025, the operators discovered that the treated water tank at the WTP was leaking and as such the tank required emptying for inspection. This work was carried out in May 2025, but during this time flow readings from the tank to the stream were not available due to the broken transmitter. As such, assumptions were made based on previous flow data, to calculate discharges to the stream during these works. As detailed below, there was no indication of discharge rates exceeding the consent limit.

26 May 2025:

- Treated water tank was drained from 82.82% to 3.03% into the wastewater tanks, which equates to approximately 36 m^3
- Flow to stream was activated for approximately one hour, and calculated to have discharged approximately 0.4 m^3 to the stream
- Remaining 33.588 m^3 was pumped back to the reservoir

27 May 2025:

- Flow to stream was activated for 23 mins, and calculated to have discharged 0.172 m^3
- Total discharge to the reservoir was 9.24 m^3

3 WATER QUALITY SAMPLING

3.1 Water quality parameters

As per conditions 17 and 19, water quality samples must be collected at the outfall from the open channel into the Lower Huia Stream on a biannual basis during the first week of December and June each year, to measure pH and free available chlorine (FAC) levels. Since June 2018, samples have been collected monthly. The consent limits for these water quality parameters are as follows:

- pH in the range of 6 and 9
- FAC less than 0.1 g/m^3 (or mg/L)

During the 2024-2025 reporting period, there were no exceedances recorded for either pH or FAC. All monthly results are presented below in Table 3-A.

Table 3-A Huia stream discharge water quality results for the reporting period July 2024 to June 2025

Date	FAC (mg/L)	pH
4/07/2024	<0.02*	7.20
1/08/2024	<0.02	7.20
6/09/2024	<0.02	7.40
4/10/2024	<0.02	7.20
5/11/2024	<0.02	7.40
3/12/2024	0.04	7.70
6/01/2025	<0.02	7.40
13/02/2025	0.02	7.50
13/03/2025	<0.02	7.50
10/04/2025	<0.02	7.30
8/05/2025	<0.02	7.40
5/06/2025	0.02	7.00

*FAC values below detection limit are denoted “<0.02”

3.2 Spill incidents

An incident occurred on 28 May 2025 during the treated water tank repair works, resulting in sodium hypochlorite being incorrectly disposed of into the stormwater drain, which feeds to the wastewater tank. The response to this incident involved:

- isolating the wastewater tank and neutralising with dechlorination tablets
- discharging to the stream only after neutralisation
- conducting three *in situ* readings of FAC at the discharge point into the stream

The results confirmed no further mitigation works were required, as results were below the 0.1 mg/L consent limit, ranging between 0.01 and 0.08 mg/L. To prevent similar incidents in the future, improvements will be made around labelling of sodium hypochlorite containers and how to neutralise and dispose of this on site.

4 CONCLUSION

During the 2024-2025 reporting period, the Huia Village WTP was compliant with discharge water quality results and discharge rates to the Huia Stream. Minor exceedances were observed in flow rates to the reservoir, but further calibration to the pump shut off trigger appears to have resolved this issue. The faulty transmitter on the flow meter to the open channel has also been repaired so continuous flow readings continue to be recorded.

Additionally, tank repair works were managed to prevent flow rates exceeding consent conditions. Following the spill incident, the standard operating protocols were followed to prevent contamination from reaching the receiving environment.

Appendix A. Daily discharge flow data

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
1/07/2024	40.958	7.391
2/07/2024	39.255	0.707
3/07/2024	28.740	0.953
4/07/2024	31.182	0.158
5/07/2024	29.330	0.000
6/07/2024	26.811	0.000
7/07/2024	40.113	8.424
8/07/2024	27.859	0.000
9/07/2024	16.496	0.167
10/07/2024	39.138	1.992
11/07/2024	39.977	0.000
12/07/2024	16.418	0.000
13/07/2024	45.299	4.540
14/07/2024	37.699	0.064
15/07/2024	22.680	0.000
16/07/2024	28.608	0.000
17/07/2024	24.470	0.323
18/07/2024	28.018	0.152
19/07/2024	27.038	0.183
20/07/2024	46.839	6.986
21/07/2024	21.962	0.098
22/07/2024	29.369	0.152
23/07/2024	25.694	0.233
24/07/2024	31.432	0.075
25/07/2024	33.129	6.672
26/07/2024	37.814	0.572
27/07/2024	19.382	0.108
28/07/2024	41.450	0.149
29/07/2024	27.009	0.090

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
30/07/2024	30.982	0.000
31/07/2024	31.637	7.515
1/08/2024	35.861	1.250
2/08/2024	29.927	0.232
3/08/2024	37.648	0.000
4/08/2024	30.948	0.000
5/08/2024	50.127	40.653
6/08/2024	43.891	0.418
7/08/2024	33.907	0.479
8/08/2024	28.493	0.133
9/08/2024	32.427	0.339
10/08/2024	49.749	5.190
11/08/2024	37.089	0.000
12/08/2024	33.302	0.427
13/08/2024	23.252	0.133
14/08/2024	29.437	0.860
15/08/2024	48.661	7.118
16/08/2024	38.019	0.000
17/08/2024	33.138	0.173
18/08/2024	20.389	0.146
19/08/2024	38.517	0.939
20/08/2024	44.233	7.769
21/08/2024	35.005	0.000
22/08/2024	25.303	0.000
23/08/2024	39.450	0.000
24/08/2024	24.360	0.000
25/08/2024	40.173	7.364
26/08/2024	34.778	0.360
27/08/2024	18.830	0.000

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
28/08/2024	36.331	0.227
29/08/2024	30.759	0.053
30/08/2024	50.498	6.398
31/08/2024	30.675	0.040
1/09/2024	23.227	0.000
2/09/2024	33.149	0.032
3/09/2024	28.199	0.280
4/09/2024	35.093	8.886
5/09/2024	34.003	0.199
6/09/2024	35.601	0.341
7/09/2024	34.499	0.000
8/09/2024	27.313	8.111
9/09/2024	34.542	0.109
10/09/2024	29.260	0.642
11/09/2024	32.216	0.052
12/09/2024	32.135	0.128
13/09/2024	21.255	0.034
14/09/2024	40.869	7.701
15/09/2024	32.249	0.056
16/09/2024	32.254	0.000
17/09/2024	28.783	0.624
18/09/2024	45.147	4.234
19/09/2024	52.548	5.009
20/09/2024	39.503	0.000
21/09/2024	40.144	0.412
22/09/2024	39.244	0.534
23/09/2024	43.245	8.516
24/09/2024	35.595	1.042
25/09/2024	37.264	0.000

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
26/09/2024	37.041	0.000
27/09/2024	39.693	5.881
28/09/2024	40.243	9.297
29/09/2024	29.074	0.000
30/09/2024	32.497	0.110
1/10/2024	31.500	0.960
2/10/2024	41.843	0.250
3/10/2024	50.160	5.499
4/10/2024	35.076	0.687
5/10/2024	29.445	0.191
6/10/2024	35.662	0.090
7/10/2024	32.482	0.000
8/10/2024	44.912	6.868
9/10/2024	29.883	0.106
10/10/2024	32.222	0.000
11/10/2024	30.865	0.000
12/10/2024	38.494	0.000
13/10/2024	42.341	8.941
14/10/2024	35.114	0.000
15/10/2024	40.680	0.211
16/10/2024	20.956	2.164
17/10/2024	42.487	0.360
18/10/2024	25.053	0.306
19/10/2024	45.131	10.216
20/10/2024	39.234	0.195
21/10/2024	37.747	0.000
22/10/2024	26.933	0.879
23/10/2024	36.371	9.878
24/10/2024	39.155	0.695

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
25/10/2024	27.534	0.276
26/10/2024	29.214	0.000
27/10/2024	34.167	0.757
28/10/2024	37.277	0.405
29/10/2024	26.413	8.601
30/10/2024	37.854	0.000
31/10/2024	26.857	0.000
1/11/2024	29.261	0.054
2/11/2024	26.407	0.000
3/11/2024	33.875	0.010
4/11/2024	39.800	7.617
5/11/2024	26.977	0.000
6/11/2024	37.625	0.353
7/11/2024	21.760	0.748
8/11/2024	36.968	0.907
9/11/2024	52.194	6.416
10/11/2024	36.143	0.111
11/11/2024	42.759	0.186
12/11/2024	32.368	0.261
13/11/2024	39.468	8.139
14/11/2024	34.758	2.058
15/11/2024	39.991	0.000
16/11/2024	28.520	0.748
17/11/2024	41.762	9.551
18/11/2024	34.814	0.581
19/11/2024	24.538	0.000
20/11/2024	35.507	5.129
21/11/2024	37.480	0.000
22/11/2024	18.614	0.000

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
23/11/2024	31.214	8.850
24/11/2024	22.446	0.297
25/11/2024	22.874	0.000
26/11/2024	39.550	0.000
27/11/2024	21.870	0.211
28/11/2024	24.388	0.000
29/11/2024	26.622	0.056
30/11/2024	30.857	6.849
1/12/2024	16.517	0.000
2/12/2024	26.646	3.245
3/12/2024	38.483	3.216
4/12/2024	28.724	0.087
5/12/2024	23.527	0.005
6/12/2024	47.379	7.248
7/12/2024	29.110	0.892
8/12/2024	23.372	0.271
9/12/2024	32.065	0.000
10/12/2024	19.139	0.000
11/12/2024	21.276	0.523
12/12/2024	43.931	10.948
13/12/2024	38.794	3.332
14/12/2024	32.771	0.173
15/12/2024	23.743	0.076
16/12/2024	30.239	0.362
17/12/2024	12.332	0.000
18/12/2024	24.685	2.501
19/12/2024	47.636	10.371
20/12/2024	35.441	0.000
21/12/2024	37.380	0.129

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
22/12/2024	41.273	0.356
23/12/2024	22.058	0.219
24/12/2024	44.730	12.006
25/12/2024	29.693	0.000
26/12/2024	32.843	1.275
27/12/2024	27.327	0.224
28/12/2024	25.906	0.883
29/12/2024	22.487	0.047
30/12/2024	45.053	10.462
31/12/2024	31.838	0.300
1/01/2025	26.630	0.955
2/01/2025	39.246	0.074
3/01/2025	41.556	0.132
4/01/2025	42.714	8.990
5/01/2025	30.422	0.000
6/01/2025	32.439	0.187
7/01/2025	20.311	0.000
8/01/2025	22.043	0.000
9/01/2025	37.808	10.806
10/01/2025	38.370	0.003
11/01/2025	34.700	0.042
12/01/2025	36.932	0.308
13/01/2025	47.319	10.577
14/01/2025	32.109	0.179
15/01/2025	33.146	2.038
16/01/2025	35.214	0.874
17/01/2025	32.599	0.000
18/01/2025	38.230	7.461
19/01/2025	35.942	0.348

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
20/01/2025	47.602	5.204
21/01/2025	32.812	0.000
22/01/2025	18.330	0.000
23/01/2025	20.036	0.986
24/01/2025	39.044	9.090
25/01/2025	38.903	0.076
26/01/2025	36.590	0.429
27/01/2025	29.477	0.031
28/01/2025	34.907	9.875
29/01/2025	17.131	0.001
30/01/2025	32.272	0.000
31/01/2025	38.856	0.000
1/02/2025	38.093	0.787
2/02/2025	43.020	7.862
3/02/2025	34.747	0.320
4/02/2025	28.340	0.194
5/02/2025	30.479	0.000
6/02/2025	31.099	0.009
7/02/2025	36.723	6.454
8/02/2025	41.533	0.250
9/02/2025	30.447	0.105
10/02/2025	38.958	0.267
11/02/2025	34.209	1.280
12/02/2025	44.358	6.016
13/02/2025	20.038	0.244
14/02/2025	31.521	0.625
15/02/2025	39.376	0.278
16/02/2025	35.249	0.000
17/02/2025	27.770	0.799

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
18/02/2025	39.136	7.576
19/02/2025	37.559	0.338
20/02/2025	23.335	0.040
21/02/2025	32.232	2.308
22/02/2025	35.254	0.000
23/02/2025	41.058	9.114
24/02/2025	37.982	0.064
25/02/2025	41.050	0.070
26/02/2025	30.804	1.577
27/02/2025	39.377	7.405
28/02/2025	38.167	0.081
1/03/2025	35.578	0.064
2/03/2025	35.904	0.163
3/03/2025	41.098	7.411
4/03/2025	35.328	0.705
5/03/2025	31.547	0.024
6/03/2025	36.157	0.073
7/03/2025	30.328	0.017
8/03/2025	29.649	0.000
9/03/2025	40.001	8.218
10/03/2025	37.318	0.000
11/03/2025	28.716	0.035
12/03/2025	30.209	0.000
13/03/2025	27.249	0.000
14/03/2025	23.650	0.585
15/03/2025	30.369	9.847
16/03/2025	32.349	0.047
17/03/2025	40.452	0.077
18/03/2025	35.424	0.001

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
19/03/2025	51.706	4.932
20/03/2025	20.785	0.000
21/03/2025	29.584	0.000
22/03/2025	37.512	0.095
23/03/2025	35.944	0.153
24/03/2025	42.288	7.857
25/03/2025	46.678	0.932
26/03/2025	38.319	0.067
27/03/2025	33.413	0.291
28/03/2025	26.084	0.390
29/03/2025	32.058	8.986
30/03/2025	33.317	0.000
31/03/2025	30.865	0.278
1/04/2025	30.269	0.206
2/04/2025	23.056	0.000
3/04/2025	23.632	0.000
4/04/2025	40.220	9.320
5/04/2025	36.594	2.272
6/04/2025	32.024	0.000
7/04/2025	37.530	0.410
8/04/2025	48.721	7.635
9/04/2025	39.047	0.372
10/04/2025	41.855	0.000
11/04/2025	36.089	0.000
12/04/2025	44.107	9.552
13/04/2025	36.572	0.000
14/04/2025	37.263	0.162
15/04/2025	36.416	0.044
16/04/2025	37.020	7.320

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
17/04/2025	43.746	3.703
18/04/2025	37.018	1.675
19/04/2025	42.277	0.132
20/04/2025	36.901	0.295
21/04/2025	43.791	8.594
22/04/2025	37.157	0.196
23/04/2025	37.995	0.140
24/04/2025	39.160	0.048
25/04/2025	44.510	16.875
26/04/2025	37.891	0.196
27/04/2025	39.917	0.055
28/04/2025	37.886	0.554
29/04/2025	38.515	8.025
30/04/2025	41.497	0.539
1/05/2025	39.392	0.225
2/05/2025	36.854	0.000
3/05/2025	43.373	9.926
4/05/2025	36.086	0.541
5/05/2025	39.587	0.628
6/05/2025	23.718	0.536
7/05/2025	31.683	1.087
8/05/2025	34.737	12.080
9/05/2025	38.551	1.592
10/05/2025	34.012	0.091
11/05/2025	31.415	0.000
12/05/2025	33.948	1.472
13/05/2025	44.536	7.583
14/05/2025	34.961	1.032
15/05/2025	33.514	1.035

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
16/05/2025	25.038	0.894
17/05/2025	24.225	0.226
18/05/2025	48.360	
19/05/2025	12.106	
20/05/2025	17.721	
21/05/2025	16.974	
22/05/2025	3.731	
23/05/2025	46.715	
24/05/2025	35.417	
25/05/2025	33.001	
26/05/2025	34.232	
27/05/2025	9.263	
28/05/2025	11.177	
29/05/2025	26.912	
30/05/2025	30.990	
31/05/2025	34.841	
1/06/2025	30.405	
2/06/2025	40.751	
3/06/2025	33.733	
4/06/2025	48.651	
5/06/2025	22.111	
6/06/2025	27.936	
7/06/2025	30.544	
8/06/2025	28.643	
9/06/2025	42.486	
10/06/2025	34.620	
11/06/2025	31.009	
12/06/2025	23.735	
13/06/2025	28.813	

Date	Discharge to reservoir m^3/day	Discharge to stream m^3/day
14/06/2025	28.297	
15/06/2025	44.746	
16/06/2025	26.845	
17/06/2025	30.343	
18/06/2025	37.163	
19/06/2025	35.689	
20/06/2025	38.237	
21/06/2025	28.427	
22/06/2025	31.856	
23/06/2025	36.623	
24/06/2025	28.904	
25/06/2025	27.925	
26/06/2025	36.505	4.049
27/06/2025	38.856	0.820
28/06/2025	31.250	0.184
29/06/2025	37.416	0.249
30/06/2025	34.797	7.445

Note. No flowmeter records were collected for the stream discharge due to faulty transmitter in May-June 2025.

Appendix B. Data Sources

Table A-1 Download location of monitoring data used in this report

Category	Parameters	Source platform	Sample/ data location
Discharge flow	Daily flow rate	Pi DataLink/ Seeq	Reservoir: STHUV_85_FIT_611.PV Stream: STHUV_85_FIT_411.PV
Discharge quality	pH, Free available chlorine	ID/ Labware	WSL_C_HUIA_VILLAGE