ULAN COAL

GLENCORE

# 2023 Annual Review

## Attachment C: 2023 Surface Water Monitoring

# Table of Contents



# Figures



# Tables

# 1. Surface Water Monitoring Sites Sampling Method and Frequency

*Table 1-1- Surface Water & EPL Monitoring Locations*

| Surface Water (SW) Monitoring Points & Location | Parameters | Sample Method & Frequency |
|---|---|---|
| (SW01) Goulburn River Upstream[1] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) & flow | Monthly grab sample during flow & grab sample after >30mm rainfall event |
| (SW02) Goulburn River Downstream[1] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) & flow | |
| (SW03) Ulan Ck. upstream of LDP6[2] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |
| (SW04) Ulan Creek at Old Ulan[2, 4] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |
| (SW05) Ulan Creek at Pleuger Road[3] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |
| (SW06) Spring Gully[2] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |
| (SW07) Bobadeen Creek[2] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |
| (SW08) Curra Creek[2] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |
| (SW09) Talbragar River[2] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |
| (SW10) Mona Creek[2] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |
| (SW11) Cockabutta Creek[2] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |
| (SW12) Clean Water Diversion System – Central[3] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | Grab sample after >30mm rainfall event |
| (SW13) Clean Water Diversion Drain - Waratah[3] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |
| (SW14) Clean Water Diversion Drain – Ulan West Box Cut[3] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |
| (SW15) Clean Water Diversion System – Peanut Dam Discharge[3] | pH, EC (µS/cm), TSS (mg/L), TDS (mg/L), Turbidity (NTU) | |

Notes: [1] Continuous monitoring by data logger for pH, EC and flow (continuous data logged every 15minutes for the 24hr period, reporting maximum, minimum and mean). [2] Continuous monitoring by data logger for flow. [3] Flow by observation. [4] Flow monitoring damaged by fallen tree

*Table 1-2- EPL Licensed Discharge & Monitoring Locations*

| LDP | LDP Location | Parameters | Sample Method & Frequency |
|---|---|---|---|
| **1** | Effluent Storage Dam | pH, EC (µS/cm), TSS (mg/L) , Oil & Grease (mg/L), BOD (mg/L), Nitrogen (mg/L), Phosphorous (mg/L) | Monthly grab sample during discharge |
| **2** | Millers Dam | pH, EC (µS/cm), TSS (mg/L), Oil & Grease (mg/L), Iron (mg/L), Zinc (mg/L) | Daily grab sample during discharge |
| **3** | Rowans Dam to Ulan Creek | pH, EC (µS/cm), TSS (mg/L) , Oil & Grease (mg/L), Iron (mg/L), Sulphate (mg/L) , Zinc (mg/L) | Daily grab sample during discharge |
| **4** | Truckfill Dam | pH, EC (µS/cm), TSS (mg/L) , Oil & Grease (mg/L), Iron (mg/L), Sulphate (mg/L) , Zinc (mg/L) | Daily grab sample during discharge |
| **6** | Ulan Creek from Bobadeen WTF | pH, EC(µS/cm), TSS (mg/L), Turbidity | pH, EC and turbidity continuous during discharge , TSS weekly^ |
| **18*** | Downstream<br>Goulburn River Gauging Station | pH, EC(µS/cm) | pH, EC continuous |
| **19** | Ulan Creek from NWSD | pH, EC(µS/cm), TSS (mg/L), Turbidity | pH, EC and turbidity continuous during discharge, TSS weekly^ |
| **23** | Ulan West Box Cut<br>clean water diversion | pH, EC(µS/cm), TSS (mg/L) | Daily grab sample during discharge |
| **33*** | Upstream Goulburn River Gauging Station | EC(µS/cm) | EC continuous |

**Note: *** LDP 18 and 33 are water quality monitoring points only and are not discharge points. ^ EPL varied in 2015 to special frequency, collection of a sample weekly when a discharge occurs on the scheduled sampling day.

# 2. LDP 6 Daily Average Results

| | | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|---|
| LDP 6 | Minimum | 0.0 | 6.81 | 701.0 | 1.0 | 1.0 |
| | Maximum | 14.3 | 8.03 | 851.0 | 24.0 | 11.0 |
| | Average | 9.0 | 7.36 | 792.7 | 8.9 | 3.7 |

*Table 2-1 LDP6 Daily Average Results*

| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 1/01/2023 | 10.462 | 7.11 | 779 | 20 | |
| 2/01/2023 | 11.231 | 7.04 | 778 | 17 | |
| 3/01/2023 | 10.779 | 6.97 | 803 | 24 | 11 |
| 4/01/2023 | 9.588 | 7.04 | 781 | 14 | |
| 5/01/2023 | 9.739 | 7.16 | 789 | 13 | |
| 6/01/2023 | 11.374 | 7.21 | 803 | 15 | |
| 7/01/2023 | 10.076 | 7.26 | 803 | 21 | |
| 8/01/2023 | 10.216 | 7.12 | 796 | 17 | |
| 9/01/2023 | 11.076 | 7.17 | 778 | 12 | |
| 10/01/2023 | 11.638 | 7.13 | 804 | 13 | 2 |
| 11/01/2023 | 11.108 | 7.36 | 788 | 12 | |
| 12/01/2023 | 11.056 | 7.30 | 808 | 15 | |
| 13/01/2023 | 11.581 | 7.28 | 796 | 13 | |
| 14/01/2023 | 11.159 | 7.35 | 777 | 13 | |
| 15/01/2023 | 10.178 | 7.33 | 787 | 11 | |
| 16/01/2023 | 10.102 | 7.53 | 817 | 13 | 7 |
| 17/01/2023 | 11.088 | 7.18 | 785 | 15 | |
| 18/01/2023 | 8.411 | 7.32 | 810 | 8 | |
| 19/01/2023 | 13.136 | 7.27 | 800 | 12 | |
| 20/01/2023 | 10.493 | 7.60 | 763 | 9 | |
| 21/01/2023 | 7.744 | 7.50 | 753 | 11 | |
| 22/01/2023 | 10.420 | 7.58 | 759 | 8 | |
| 23/01/2023 | 7.620 | 7.48 | 783 | 7 | 4 |
| 24/01/2023 | 11.203 | 7.30 | 794 | 11 | |
| 25/01/2023 | 9.693 | 7.25 | 782 | 13 | |
| 26/01/2023 | 11.099 | 7.18 | 791 | 14 | |
| 27/01/2023 | 13.105 | 7.27 | 792 | 15 | |
| 28/01/2023 | 10.072 | 7.27 | 776 | 13 | |
| 29/01/2023 | 10.071 | 7.24 | 777 | 11 | |
| 30/01/2023 | 13.308 | 7.27 | 797 | 11 | |
| 31/01/2023 | 11.183 | 7.31 | 807 | 13 | 6 |
| 1/02/2023 | 13.171 | 7.22 | 801 | 16 | |
| 2/02/2023 | 13.504 | 7.28 | 798 | 12 | |
| 3/02/2023 | 13.143 | 7.29 | 820 | 12 | |
| 4/02/2023 | 11.756 | 7.46 | 786 | 13 | |
| 5/02/2023 | 11.207 | 7.39 | 797 | 13 | |
| 6/02/2023 | 12.181 | 7.26 | 804 | 12 | 6 |
| 7/02/2023 | 12.160 | 7.28 | 792 | 8 | |
| 8/02/2023 | 13.451 | 7.33 | 805 | 10 | |
| 9/02/2023 | 13.181 | 7.36 | 776 | 9 | |

| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 10/02/2023 | 8.835 | 7.30 | 794 | 9 | |
| 11/02/2023 | 8.664 | 7.05 | 836 | 11 | |
| 12/02/2023 | 6.521 | 7.07 | 835 | 11 | |
| 13/02/2023 | 0.011 | 7.13 | 827 | 6 | |
| 14/02/2023 | 2.310 | 7.58 | 827 | 4 | |
| 15/02/2023 | 8.131 | 7.34 | 831 | 11 | 4 |
| 16/02/2023 | 8.109 | 7.19 | 798 | 8 | |
| 17/02/2023 | 7.705 | 7.21 | 795 | 6 | |
| 18/02/2023 | 5.991 | 7.15 | 762 | 8 | |
| 19/02/2023 | 9.289 | 7.39 | 774 | 5 | |
| 20/02/2023 | 11.639 | 7.20 | 794 | 10 | 3 |
| 21/02/2023 | 10.997 | 7.12 | 788 | 10 | |
| 22/02/2023 | 8.050 | 7.33 | 753 | 8 | |
| 23/02/2023 | 11.731 | 7.52 | 780 | 6 | |
| 24/02/2023 | 9.491 | 7.35 | 772 | 8 | |
| 25/02/2023 | 8.163 | 7.28 | 773 | 15 | |
| 26/02/2023 | 10.165 | 7.15 | 802 | 19 | |
| 27/02/2023 | 8.149 | 7.14 | 763 | 15 | 6 |
| 28/02/2023 | 11.150 | 7.32 | 784 | 10 | |
| 1/03/2023 | 11.094 | 7.13 | 790 | 10 | |
| 2/03/2023 | 11.163 | 7.25 | 785 | 8 | |
| 3/03/2023 | 10.253 | 7.21 | 793 | 8 | |
| 4/03/2023 | 10.161 | 7.29 | 791 | 5 | |
| 5/03/2023 | 11.224 | 7.12 | 773 | 9 | |
| 6/03/2023 | 9.615 | 7.06 | 820 | 7 | 2 |
| 7/03/2023 | 11.322 | 7.23 | 791 | 9 | |
| 8/03/2023 | 11.190 | 7.39 | 779 | 9 | |
| 9/03/2023 | 11.428 | 7.54 | 786 | 11 | |
| 10/03/2023 | 11.682 | 7.45 | 792 | 12 | |
| 11/03/2023 | 11.573 | 7.20 | 794 | 14 | |
| 12/03/2023 | 7.695 | 6.85 | 797 | 13 | |
| 13/03/2023 | 6.097 | 7.29 | 778 | 9 | |
| 14/03/2023 | 8.034 | 7.39 | 740 | 6 | 3 |
| 15/03/2023 | 14.119 | 7.24 | 804 | 12 | |
| 16/03/2023 | 11.823 | 7.11 | 789 | 11 | |
| 17/03/2023 | 11.463 | 7.14 | 805 | 8 | |
| 18/03/2023 | 11.234 | 7.20 | 801 | 9 | |
| 19/03/2023 | 12.195 | 7.14 | 803 | 13 | |
| 20/03/2023 | 10.796 | 7.23 | 829 | 10 | 3 |
| 21/03/2023 | 10.228 | 7.26 | 785 | 9 | |
| 22/03/2023 | 12.107 | 7.23 | 811 | 11 | |
| 23/03/2023 | 11.195 | 7.07 | 777 | 12 | |
| 24/03/2023 | 11.894 | 7.15 | 801 | 10 | |
| 25/03/2023 | 11.610 | 7.25 | 798 | 8 | |
| 26/03/2023 | 6.213 | 7.22 | 801 | 7 | |
| 27/03/2023 | 10.046 | 7.28 | 777 | 8 | 3 |
| 28/03/2023 | 11.158 | 7.10 | 790 | 9 | |
| 29/03/2023 | 9.596 | 7.17 | 761 | 7 | |
| 30/03/2023 | 11.530 | 7.28 | 796 | 8 | |
| 31/03/2023 | 11.640 | 7.30 | 795 | 7 | |
| 1/04/2023 | 11.220 | 7.25 | 793 | 10 | |

| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 2/04/2023 | 11.385 | 7.23 | 770 | 11 | |
| 3/04/2023 | 13.081 | 7.34 | 785 | 8 | |
| 4/04/2023 | 11.500 | 7.52 | 781 | 6 | 3 |
| 5/04/2023 | 9.311 | 7.40 | 796 | 5 | |
| 6/04/2023 | 11.335 | 7.41 | 792 | 6 | |
| 7/04/2023 | 10.611 | 7.37 | 774 | 4 | |
| 8/04/2023 | 10.229 | 7.52 | 796 | 4 | |
| 9/04/2023 | 9.136 | 7.58 | 804 | 6 | |
| 10/04/2023 | 10.996 | 7.58 | 806 | 6 | |
| 11/04/2023 | 11.212 | 7.50 | 822 | 8 | |
| 12/04/2023 | 12.287 | 7.40 | 826 | 5 | 4 |
| 13/04/2023 | 12.132 | 7.43 | 804 | 6 | |
| 14/04/2023 | 10.821 | 7.39 | 797 | 7 | |
| 15/04/2023 | 11.356 | 7.38 | 797 | 6 | |
| 16/04/2023 | 11.113 | 7.40 | 815 | 9 | |
| 17/04/2023 | 11.612 | 7.47 | 795 | 8 | 5 |
| 18/04/2023 | 11.018 | 7.42 | 775 | 7 | |
| 19/04/2023 | 11.283 | 7.31 | 783 | 8 | |
| 20/04/2023 | 11.276 | 7.30 | 773 | 6 | |
| 21/04/2023 | 11.440 | 7.44 | 778 | 4 | |
| 22/04/2023 | 11.090 | 7.40 | 769 | 5 | |
| 23/04/2023 | 11.516 | 7.38 | 779 | 9 | |
| 24/04/2023 | 11.504 | 7.43 | 790 | 9 | 4 |
| 25/04/2023 | 11.135 | 7.53 | 800 | 12 | |
| 26/04/2023 | 11.446 | 7.42 | 791 | 7 | |
| 27/04/2023 | 11.387 | 7.31 | 769 | 11 | |
| 28/04/2023 | 10.976 | 7.29 | 793 | 9 | |
| 29/04/2023 | 11.185 | 7.31 | 785 | 10 | |
| 30/04/2023 | 11.201 | 7.40 | 782 | 7 | |
| 1/05/2023 | 12.151 | 7.40 | 795 | 8 | |
| 2/05/2023 | 13.312 | 7.47 | 801 | 8 | |
| 3/05/2023 | 9.209 | 7.46 | 788 | 6 | 2 |
| 4/05/2023 | 11.212 | 7.37 | 793 | 9 | |
| 5/05/2023 | 11.044 | 7.38 | 796 | 5 | |
| 6/05/2023 | 10.952 | 7.32 | 795 | 9 | |
| 7/05/2023 | 10.502 | 7.26 | 795 | 11 | |
| 8/05/2023 | 8.581 | 7.46 | 795 | 8 | 1 |
| 9/05/2023 | 10.505 | 7.39 | 795 | 13 | |
| 10/05/2023 | 10.645 | 7.37 | 780 | 14 | |
| 11/05/2023 | 11.211 | 7.34 | 793 | 10 | |
| 12/05/2023 | 12.074 | 7.22 | 795 | 10 | |
| 13/05/2023 | 11.094 | 7.25 | 798 | 13 | |
| 14/05/2023 | 11.634 | 7.24 | 803 | 10 | |
| 15/05/2023 | 11.094 | 7.21 | 796 | 9 | |
| 16/05/2023 | 11.163 | 7.26 | 794 | 11 | 2 |
| 17/05/2023 | 10.091 | 7.40 | 815 | 9 | |
| 18/05/2023 | 9.150 | 7.37 | 764 | 11 | |
| 19/05/2023 | 7.730 | 7.36 | 731 | 11 | |
| 20/05/2023 | 6.176 | 7.28 | 722 | 14 | |
| 21/05/2023 | 7.657 | 7.48 | 750 | 12 | |
| 22/05/2023 | 7.620 | 7.58 | 796 | 13 | |

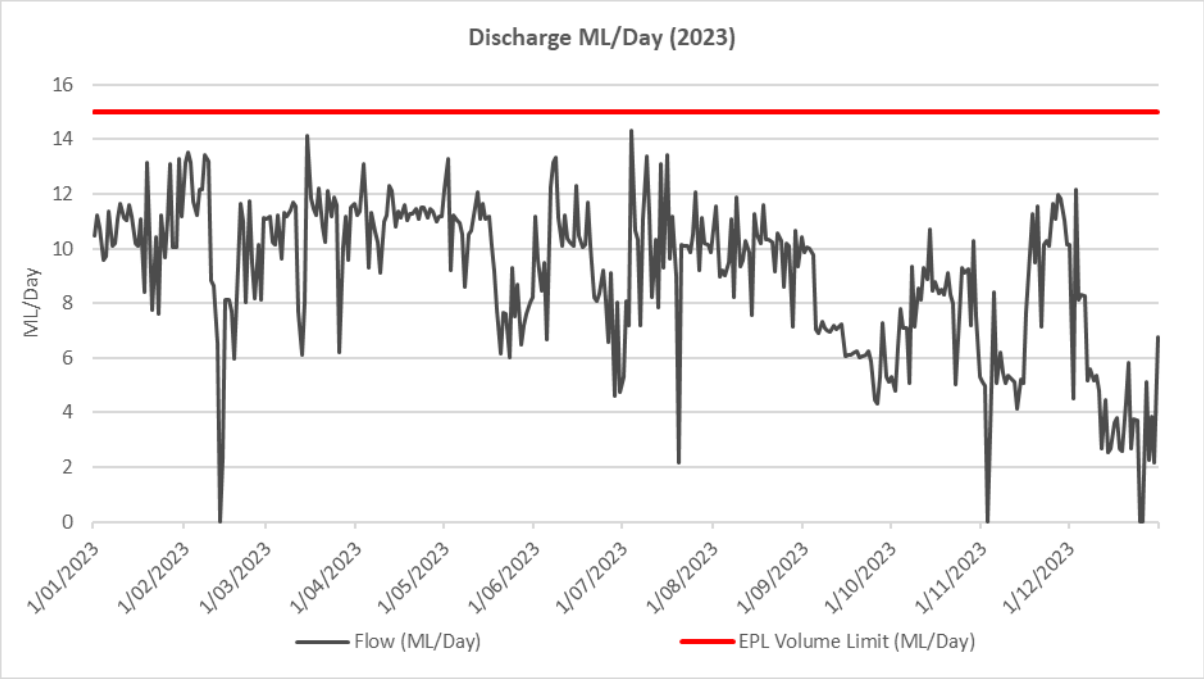
| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 23/05/2023 | 6.025 | 7.50 | 784 | 10 | 2 |
| 24/05/2023 | 9.302 | 7.43 | 805 | 13 | |
| 25/05/2023 | 7.506 | 7.57 | 812 | 8 | |
| 26/05/2023 | 8.690 | 7.50 | 811 | 10 | |
| 27/05/2023 | 6.471 | 7.46 | 799 | 10 | |
| 28/05/2023 | 7.171 | 7.51 | 809 | 10 | |
| 29/05/2023 | 7.615 | 7.60 | 812 | 9 | 2 |
| 30/05/2023 | 8.038 | 7.50 | 802 | 10 | |
| 31/05/2023 | 8.205 | 7.37 | 786 | 12 | |
| 1/06/2023 | 11.185 | 7.44 | 784 | 10 | |
| 2/06/2023 | 9.569 | 7.48 | 783 | 7 | |
| 3/06/2023 | 8.444 | 7.46 | 755 | 6 | |
| 4/06/2023 | 9.511 | 7.47 | 750 | 6 | |
| 5/06/2023 | 6.691 | 7.70 | 723 | 4 | |
| 6/06/2023 | 12.242 | 7.64 | 797 | 5 | 2 |
| 7/06/2023 | 13.172 | 7.44 | 794 | 8 | |
| 8/06/2023 | 13.343 | 7.41 | 808 | 9 | |
| 9/06/2023 | 11.124 | 7.48 | 797 | 7 | |
| 10/06/2023 | 10.091 | 7.46 | 791 | 7 | |
| 11/06/2023 | 11.214 | 7.42 | 790 | 9 | |
| 12/06/2023 | 10.375 | 7.36 | 790 | 10 | |
| 13/06/2023 | 10.260 | 7.39 | 805 | 8 | <1 |
| 14/06/2023 | 10.116 | 7.37 | 812 | 12 | |
| 15/06/2023 | 12.287 | 7.39 | 794 | 10 | |
| 16/06/2023 | 10.460 | 7.43 | 788 | 9 | |
| 17/06/2023 | 10.043 | 7.34 | 806 | 11 | |
| 18/06/2023 | 10.168 | 7.32 | 808 | 12 | |
| 19/06/2023 | 11.677 | 7.36 | 801 | 11 | |
| 20/06/2023 | 10.118 | 7.39 | 806 | 8 | 2 |
| 21/06/2023 | 8.217 | 7.12 | 801 | 9 | |
| 22/06/2023 | 8.075 | 7.01 | 802 | 11 | |
| 23/06/2023 | 8.356 | 7.04 | 797 | 8 | |
| 24/06/2023 | 9.206 | 7.13 | 801 | 9 | |
| 25/06/2023 | 8.084 | 7.08 | 793 | 9 | |
| 26/06/2023 | 6.567 | 7.02 | 809 | 8 | |
| 27/06/2023 | 9.103 | 6.96 | 784 | 16 | |
| 28/06/2023 | 4.632 | 6.81 | 778 | 14 | |
| 29/06/2023 | 8.054 | 7.31 | 749 | 8 | |
| 30/06/2023 | 4.744 | 7.82 | 721 | 4 | 8 |
| 1/07/2023 | 5.320 | 7.89 | 701 | 2 | |
| 2/07/2023 | 8.094 | 8.01 | 743 | 1 | |
| 3/07/2023 | 7.170 | 8.03 | 770 | 2 | |
| 4/07/2023 | 14.330 | 7.63 | 801 | 7 | 4 |
| 5/07/2023 | 10.641 | 7.55 | 798 | 6 | |
| 6/07/2023 | 10.336 | 7.69 | 781 | 4 | |
| 7/07/2023 | 7.199 | 7.93 | 751 | 2 | |
| 8/07/2023 | 11.105 | 7.78 | 800 | 4 | |
| 9/07/2023 | 13.376 | 7.75 | 824 | 5 | |
| 10/07/2023 | 11.266 | 7.60 | 790 | 6 | |
| 11/07/2023 | 8.218 | 7.57 | 789 | 6 | <1 |
| 12/07/2023 | 10.345 | 7.57 | 807 | 5 | |

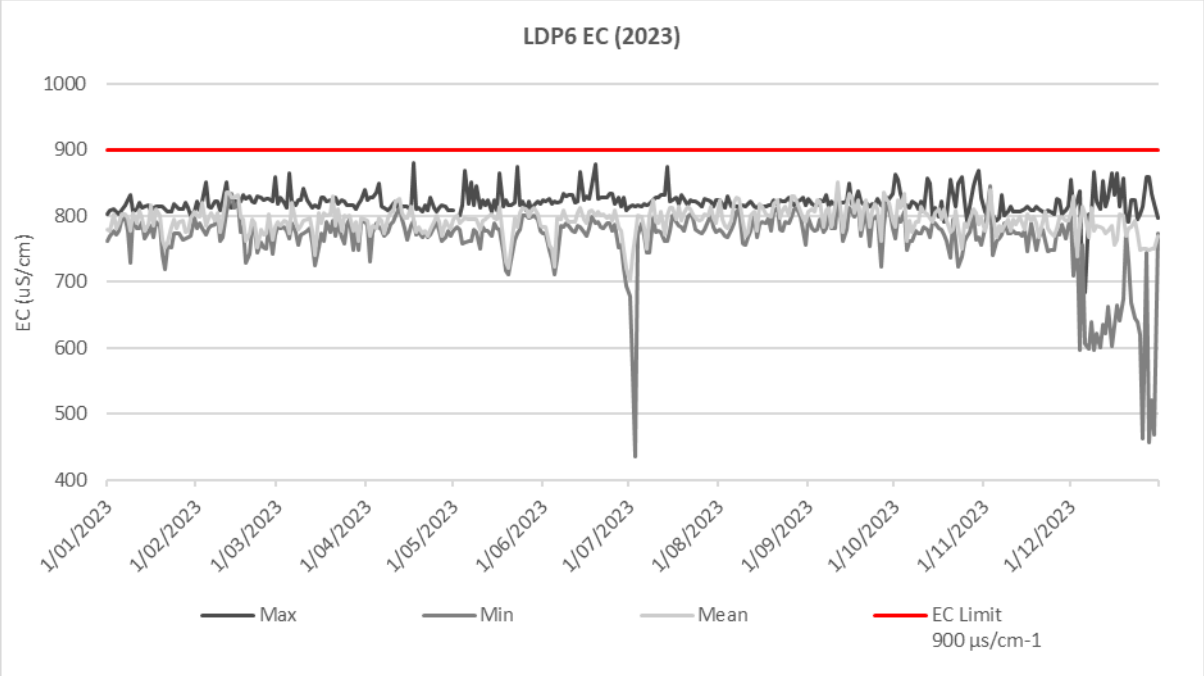
| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 13/07/2023 | 7.861 | 7.69 | 771 | 4 | |
| 14/07/2023 | 13.079 | 7.62 | 801 | 6 | |
| 15/07/2023 | 9.324 | 7.48 | 813 | 6 | |
| 16/07/2023 | 13.432 | 7.39 | 812 | 8 | |
| 17/07/2023 | 9.649 | 7.25 | 795 | 9 | |
| 18/07/2023 | 11.168 | 7.35 | 814 | 7 | 2 |
| 19/07/2023 | 8.972 | 7.27 | 792 | 9 | |
| 20/07/2023 | 2.181 | 7.05 | 805 | 7 | |
| 21/07/2023 | 10.155 | 7.36 | 814 | 6 | |
| 22/07/2023 | 10.121 | 7.40 | 810 | 6 | |
| 23/07/2023 | 10.113 | 7.27 | 803 | 11 | |
| 24/07/2023 | 9.869 | 7.37 | 797 | 7 | |
| 25/07/2023 | 10.518 | 7.33 | 793 | 7 | 1 |
| 26/07/2023 | 12.081 | 7.28 | 795 | 8 | |
| 27/07/2023 | 9.213 | 7.24 | 802 | 7 | |
| 28/07/2023 | 11.118 | 7.20 | 800 | 13 | |
| 29/07/2023 | 10.172 | 7.21 | 815 | 11 | |
| 30/07/2023 | 10.158 | 7.24 | 796 | 7 | |
| 31/07/2023 | 9.876 | 7.20 | 788 | 9 | |
| 1/08/2023 | 10.715 | 7.24 | 823 | 9 | |
| 2/08/2023 | 11.571 | 7.37 | 794 | 7 | 2 |
| 3/08/2023 | 8.964 | 7.15 | 786 | 9 | |
| 4/08/2023 | 9.214 | 7.15 | 781 | 9 | |
| 5/08/2023 | 9.036 | 7.19 | 793 | 9 | |
| 6/08/2023 | 9.477 | 7.23 | 820 | 10 | |
| 7/08/2023 | 11.088 | 7.31 | 827 | 12 | |
| 8/08/2023 | 8.211 | 7.44 | 825 | 8 | 3 |
| 9/08/2023 | 11.876 | 7.44 | 790 | 10 | |
| 10/08/2023 | 9.369 | 7.48 | 770 | 9 | |
| 11/08/2023 | 9.570 | 7.54 | 776 | 8 | |
| 12/08/2023 | 10.305 | 7.43 | 800 | 8 | |
| 13/08/2023 | 9.860 | 7.51 | 806 | 7 | |
| 14/08/2023 | 7.552 | 7.45 | 777 | 6 | |
| 15/08/2023 | 11.287 | 7.38 | 819 | 9 | 2 |
| 16/08/2023 | 10.524 | 7.44 | 815 | 10 | |
| 17/08/2023 | 10.182 | 7.47 | 802 | 8 | |
| 18/08/2023 | 11.609 | 7.54 | 800 | 9 | |
| 19/08/2023 | 10.316 | 7.69 | 799 | 9 | |
| 20/08/2023 | 10.311 | 7.64 | 819 | 9 | |
| 21/08/2023 | 10.263 | 7.43 | 823 | 12 | |
| 22/08/2023 | 9.146 | 7.37 | 796 | 10 | 4 |
| 23/08/2023 | 10.587 | 7.43 | 809 | 10 | |
| 24/08/2023 | 10.298 | 7.32 | 814 | 12 | |
| 25/08/2023 | 8.611 | 7.40 | 800 | 8 | |
| 26/08/2023 | 10.199 | 7.32 | 830 | 9 | |
| 27/08/2023 | 10.111 | 7.31 | 829 | 11 | |
| 28/08/2023 | 7.143 | 7.28 | 821 | 10 | |
| 29/08/2023 | 10.646 | 7.25 | 806 | 9 | 2 |
| 30/08/2023 | 9.368 | 7.17 | 797 | 11 | |
| 31/08/2023 | 10.433 | 7.17 | 790 | 8 | |
| 1/09/2023 | 9.880 | 7.07 | 806 | 13 | |

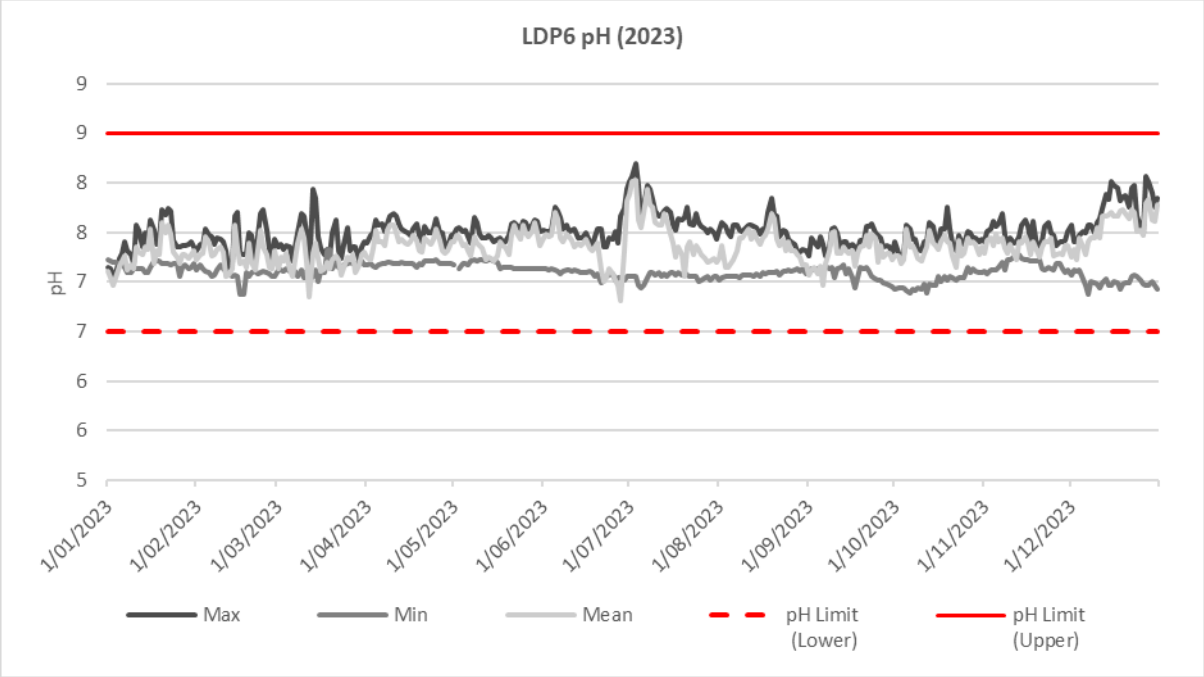
| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 2/09/2023 | 10.071 | 7.12 | 810 | 10 | |
| 3/09/2023 | 10.027 | 7.15 | 807 | 13 | |
| 4/09/2023 | 9.788 | 7.08 | 824 | 13 | |
| 5/09/2023 | 7.043 | 7.16 | 822 | 8 | 3 |
| 6/09/2023 | 6.926 | 6.96 | 784 | 13 | |
| 7/09/2023 | 7.319 | 7.18 | 809 | 15 | |
| 8/09/2023 | 7.092 | 7.31 | 813 | 12 | |
| 9/09/2023 | 6.992 | 7.49 | 783 | 9 | |
| 10/09/2023 | 6.963 | 7.51 | 815 | 10 | |
| 11/09/2023 | 7.190 | 7.29 | 851 | 11 | |
| 12/09/2023 | 7.035 | 7.29 | 813 | 8 | 3 |
| 13/09/2023 | 7.150 | 7.36 | 776 | 6 | |
| 14/09/2023 | 7.231 | 7.31 | 817 | 6 | |
| 15/09/2023 | 6.059 | 7.29 | 833 | 5 | |
| 16/09/2023 | 6.095 | 7.31 | 828 | 5 | |
| 17/09/2023 | 6.097 | 7.16 | 804 | 8 | |
| 18/09/2023 | 6.189 | 7.29 | 824 | 7 | |
| 19/09/2023 | 6.260 | 7.36 | 780 | 6 | 4 |
| 20/09/2023 | 6.031 | 7.37 | 809 | 8 | |
| 21/09/2023 | 6.040 | 7.47 | 824 | 7 | |
| 22/09/2023 | 6.113 | 7.36 | 784 | 11 | |
| 23/09/2023 | 6.272 | 7.48 | 809 | 7 | |
| 24/09/2023 | 5.874 | 7.45 | 819 | 5 | |
| 25/09/2023 | 4.476 | 7.20 | 810 | 10 | |
| 26/09/2023 | 4.350 | 7.37 | 761 | 6 | |
| 27/09/2023 | 5.306 | 7.25 | 835 | 10 | 3 |
| 28/09/2023 | 7.298 | 7.29 | 825 | 12 | |
| 29/09/2023 | 5.319 | 7.29 | 820 | 10 | |
| 30/09/2023 | 5.118 | 7.23 | 792 | 9 | |
| 1/10/2023 | 5.294 | 7.26 | 784 | 8 | |
| 2/10/2023 | 4.792 | 7.26 | 824 | 6 | |
| 3/10/2023 | 6.407 | 7.19 | 813 | 7 | 2 |
| 4/10/2023 | 7.788 | 7.22 | 834 | 7 | |
| 5/10/2023 | 7.089 | 7.54 | 761 | 9 | |
| 6/10/2023 | 7.099 | 7.36 | 792 | 7 | |
| 7/10/2023 | 5.097 | 7.37 | 775 | 9 | |
| 8/10/2023 | 9.350 | 7.31 | 791 | 11 | |
| 9/10/2023 | 7.139 | 7.24 | 791 | 9 | |
| 10/10/2023 | 8.550 | 7.21 | 814 | 9 | 3 |
| 11/10/2023 | 8.127 | 7.29 | 806 | 6 | |
| 12/10/2023 | 9.302 | 7.36 | 803 | 7 | |
| 13/10/2023 | 8.878 | 7.52 | 797 | 8 | |
| 14/10/2023 | 10.691 | 7.39 | 790 | 10 | |
| 15/10/2023 | 8.476 | 7.37 | 804 | 11 | |
| 16/10/2023 | 8.764 | 7.33 | 810 | 9 | |
| 17/10/2023 | 8.369 | 7.41 | 794 | 6 | 2 |
| 18/10/2023 | 8.521 | 7.47 | 811 | 6 | |
| 19/10/2023 | 8.338 | 7.41 | 793 | 7 | |
| 20/10/2023 | 9.100 | 7.39 | 776 | 5 | |
| 21/10/2023 | 8.325 | 7.26 | 779 | 8 | |
| 22/10/2023 | 7.982 | 7.15 | 808 | 11 | |

| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 23/10/2023 | 5.045 | 7.42 | 783 | 7 | |
| 24/10/2023 | 7.544 | 7.26 | 750 | 9 | 2 |
| 25/10/2023 | 9.299 | 7.29 | 788 | 9 | |
| 26/10/2023 | 9.119 | 7.44 | 783 | 8 | |
| 27/10/2023 | 9.238 | 7.39 | 795 | 9 | |
| 28/10/2023 | 7.187 | 7.41 | 810 | 9 | |
| 29/10/2023 | 10.300 | 7.38 | 805 | 9 | |
| 30/10/2023 | 7.541 | 7.27 | 787 | 10 | |
| 31/10/2023 | 5.291 | 7.36 | 796 | 7 | |
| 1/11/2023 | 5.139 | 7.29 | 777 | 9 | 2 |
| 2/11/2023 | 4.977 | 7.42 | 792 | 7 | |
| 3/11/2023 | 0.000 | 7.45 | 839 | 5 | |
| 4/11/2023 | 4.887 | 7.37 | 803 | 8 | |
| 5/11/2023 | 8.400 | 7.48 | 767 | 7 | |
| 6/11/2023 | 5.086 | 7.40 | 785 | 10 | |
| 7/11/2023 | 6.201 | 7.45 | 777 | 8 | 4 |
| 8/11/2023 | 5.440 | 7.34 | 786 | 7 | |
| 9/11/2023 | 5.054 | 7.29 | 795 | 9 | |
| 10/11/2023 | 5.346 | 7.38 | 778 | 7 | |
| 11/11/2023 | 5.198 | 7.29 | 795 | 9 | |
| 12/11/2023 | 5.119 | 7.23 | 787 | 9 | |
| 13/11/2023 | 4.149 | 7.41 | 799 | 8 | |
| 14/11/2023 | 5.208 | 7.39 | 789 | 7 | 4 |
| 15/11/2023 | 5.063 | 7.46 | 780 | 6 | |
| 16/11/2023 | 7.661 | 7.39 | 803 | 6 | |
| 17/11/2023 | 9.098 | 7.27 | 792 | 9 | |
| 18/11/2023 | 11.252 | 7.40 | 799 | 9 | |
| 19/11/2023 | 9.479 | 7.31 | 789 | 7 | |
| 20/11/2023 | 11.543 | 7.25 | 768 | 10 | |
| 21/11/2023 | 7.152 | 7.35 | 790 | 8 | 5 |
| 22/11/2023 | 10.157 | 7.41 | 806 | 8 | |
| 23/11/2023 | 10.286 | 7.41 | 781 | 8 | |
| 24/11/2023 | 10.081 | 7.45 | 776 | 8 | |
| 25/11/2023 | 11.655 | 7.26 | 769 | 10 | |
| 26/11/2023 | 11.101 | 7.27 | 781 | 12 | |
| 27/11/2023 | 11.975 | 7.29 | 797 | 11 | |
| 28/11/2023 | 11.827 | 7.27 | 799 | 9 | 5 |
| 29/11/2023 | 11.036 | 7.37 | 792 | 8 | |
| 30/11/2023 | 10.161 | 7.37 | 792 | 10 | |
| 1/12/2023 | 10.157 | 7.25 | 804 | 10 | |
| 2/12/2023 | 4.532 | 7.33 | 830 | 7 | |
| 3/12/2023 | 12.160 | 7.23 | 739 | 15 | |
| 4/12/2023 | 8.146 | 7.44 | 787 | 12 | 8 |
| 5/12/2023 | 8.319 | 7.36 | 815 | 10 | |
| 6/12/2023 | 8.269 | 7.28 | 802 | 9 | |
| 7/12/2023 | 5.181 | 7.41 | 767 | 8 | |
| 8/12/2023 | 5.598 | 7.45 | 812 | 7 | |
| 9/12/2023 | 5.178 | 7.45 | 778 | 7 | |
| 10/12/2023 | 5.373 | 7.55 | 786 | 7 | |
| 11/12/2023 | 4.817 | 7.44 | 783 | 8 | 3 |
| 12/12/2023 | 2.681 | 7.67 | 782 | 6 | |

| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 13/12/2023 | 4.466 | 7.67 | 773 | 5 | |
| 14/12/2023 | 2.549 | 7.68 | 778 | 5 | |
| 15/12/2023 | 2.699 | 7.70 | 785 | 4 | |
| 16/12/2023 | 3.606 | 7.66 | 756 | 5 | |
| 17/12/2023 | 3.816 | 7.67 | 764 | 6 | |
| 18/12/2023 | 2.689 | 7.71 | 802 | 5 | 4 |
| 19/12/2023 | 2.595 | 7.73 | 800 | 6 | |
| 20/12/2023 | 4.397 | 7.69 | 770 | 6 | |
| 21/12/2023 | 5.828 | 7.64 | 782 | 6 | |
| 22/12/2023 | 2.689 | 7.73 | 783 | 5 | |
| 23/12/2023 | 3.746 | 7.70 | 792 | 5 | |
| 24/12/2023 | 3.716 | 7.51 | 774 | 6 | |
| 25/12/2023 | 0.000 | 7.52 | 749 | 4 | |
| 26/12/2023 | 0.000 | 7.47 | 751 | 2 | |
| 27/12/2023 | 5.133 | 7.79 | 750 | 5 | 10 |
| 28/12/2023 | 2.242 | 7.83 | 749 | 4 | |
| 29/12/2023 | 3.860 | 7.63 | 751 | 5 | |
| 30/12/2023 | 2.191 | 7.61 | 751 | 5 | |
| 31/12/2023 | 6.766 | 7.78 | 770 | 5 | |




LDP6 EC (2023)
EC (uS/cm)
1000
900
800
700
600
500
400
1/01/2023
1/02/2023
1/03/2023
1/04/2023
1/05/2023
1/06/2023
1/07/2023
1/08/2023
1/09/2023
1/10/2023
1/11/2023
1/12/2023
Max
Min
Mean
EC Limit
900 µs/cm-1


LDP6 pH (2023)
pH
9
9
8
8
7
7
6
6
5
1/01/2023
1/02/2023
1/03/2023
1/04/2023
1/05/2023
1/06/2023
1/07/2023
1/08/2023
1/09/2023
1/10/2023
1/11/2023
1/12/2023
Max
Min
Mean
pH Limit
(Lower)
pH Limit
(Upper)

# 3. LDP 19 Daily Average Results

| | | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|---|
| LDP 19 | Minimum | 0.0 | 7.03 | 680.0 | 0.0 | 0.0 |
| | Maximum | 19.5 | 7.42 | 810.0 | 5.0 | 4.0 |
| | Average | 12.2 | 7.16 | 789.2 | 1.5 | 1.4 |

*Table 3-1 LDP19 Daily Average Results*

| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 1/01/2023 | 17.959 | 7.24 | 787 | 1 | |
| 2/01/2023 | 17.409 | 7.23 | 784 | 1 | |
| 3/01/2023 | 18.154 | 7.22 | 784 | 1 | <1 |
| 4/01/2023 | 19.363 | 7.22 | 786 | 1 | |
| 5/01/2023 | 18.690 | 7.20 | 786 | 1 | |
| 6/01/2023 | 17.490 | 7.19 | 785 | 1 | |
| 7/01/2023 | 18.815 | 7.19 | 786 | 1 | |
| 8/01/2023 | 18.699 | 7.19 | 786 | 1 | |
| 9/01/2023 | 14.523 | 7.18 | 781 | 2 | |
| 10/01/2023 | 15.306 | 7.18 | 784 | 2 | <1 |
| 11/01/2023 | 17.546 | 7.21 | 788 | 2 | |
| 12/01/2023 | 17.656 | 7.24 | 792 | 2 | |
| 13/01/2023 | 17.423 | 7.24 | 792 | 3 | |
| 14/01/2023 | 16.034 | 7.23 | 792 | 3 | |
| 15/01/2023 | 12.957 | 7.22 | 775 | 3 | |
| 16/01/2023 | 14.457 | 7.23 | 788 | 3 | <1 |
| 17/01/2023 | 17.707 | 7.25 | 789 | 3 | |
| 18/01/2023 | 19.002 | 7.24 | 789 | 2 | |
| 19/01/2023 | 13.897 | 7.25 | 774 | 2 | |
| 20/01/2023 | 18.103 | 7.24 | 786 | 2 | |
| 21/01/2023 | 19.524 | 7.23 | 789 | 2 | |
| 22/01/2023 | 17.158 | 7.24 | 776 | 3 | |
| 23/01/2023 | 17.693 | 7.22 | 784 | 3 | 2 |
| 24/01/2023 | 17.460 | 7.21 | 786 | 3 | |
| 25/01/2023 | 18.575 | 7.21 | 785 | 3 | |
| 26/01/2023 | 14.929 | 7.19 | 787 | 3 | |
| 27/01/2023 | 15.895 | 7.21 | 785 | 3 | |
| 28/01/2023 | 18.523 | 7.21 | 788 | 3 | |
| 29/01/2023 | 17.623 | 7.21 | 779 | 3 | |
| 30/01/2023 | 15.408 | 7.20 | 783 | 2 | |
| 31/01/2023 | 17.707 | 7.20 | 782 | 2 | <1 |
| 1/02/2023 | 11.812 | 7.21 | 777 | 2 | |
| 2/02/2023 | 15.494 | 7.20 | 782 | 2 | |
| 3/02/2023 | 15.803 | 7.20 | 783 | 2 | |
| 4/02/2023 | 17.745 | 7.20 | 783 | 2 | |
| 5/02/2023 | 17.743 | 7.20 | 783 | 3 | |
| 6/02/2023 | 16.828 | 7.17 | 785 | 4 | <1 |
| 7/02/2023 | 16.818 | 7.15 | 792 | 4 | |
| 8/02/2023 | 11.812 | 7.21 | 779 | 2 | |

| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 9/02/2023 | 15.494 | 7.20 | 782 | 2 | |
| 10/02/2023 | 15.803 | 7.20 | 783 | 2 | |
| 11/02/2023 | 17.745 | 7.20 | 782 | 2 | |
| 12/02/2023 | 17.743 | 7.20 | 784 | 3 | |
| 13/02/2023 | 16.828 | 7.17 | 786 | 4 | |
| 14/02/2023 | 16.818 | 7.15 | 792 | 4 | |
| 15/02/2023 | 15.839 | 7.13 | 800 | 3 | 0 |
| 16/02/2023 | 16.100 | 7.13 | 796 | 3 | |
| 17/02/2023 | 15.492 | 7.13 | 795 | 2 | |
| 18/02/2023 | 16.810 | 7.12 | 801 | 3 | |
| 19/02/2023 | 12.305 | 7.11 | 801 | 2 | |
| 20/02/2023 | 15.390 | 7.13 | 796 | 2 | <1 |
| 21/02/2023 | 18.006 | 7.13 | 799 | 2 | |
| 22/02/2023 | 16.643 | 7.13 | 798 | 3 | |
| 23/02/2023 | 17.928 | 7.14 | 798 | 3 | |
| 24/02/2023 | 17.389 | 7.15 | 796 | 2 | |
| 25/02/2023 | 17.544 | 7.14 | 797 | 3 | |
| 26/02/2023 | 17.255 | 7.14 | 795 | 3 | |
| 27/02/2023 | 15.997 | 7.13 | 797 | 2 | 1 |
| 28/02/2023 | 15.699 | 7.13 | 794 | 2 | |
| 1/03/2023 | 17.296 | 7.15 | 797 | 3 | |
| 2/03/2023 | 17.293 | 7.14 | 798 | 2 | |
| 3/03/2023 | 18.756 | 7.15 | 796 | 2 | |
| 4/03/2023 | 17.958 | 7.15 | 798 | 2 | |
| 5/03/2023 | 16.654 | 7.15 | 798 | 2 | |
| 6/03/2023 | 14.029 | 7.15 | 794 | 2 | <1 |
| 7/03/2023 | 14.787 | 7.15 | 792 | 2 | |
| 8/03/2023 | 16.921 | 7.15 | 795 | 2 | |
| 9/03/2023 | 16.559 | 7.15 | 797 | 2 | |
| 10/03/2023 | 17.155 | 7.14 | 796 | 2 | |
| 11/03/2023 | 17.585 | 7.14 | 798 | 2 | |
| 12/03/2023 | 7.031 | 7.09 | 798 | 1 | |
| 13/03/2023 | 11.083 | 7.12 | 795 | 1 | |
| 14/03/2023 | 17.767 | 7.15 | 796 | 1 | <1 |
| 15/03/2023 | 7.753 | 7.14 | 789 | 1 | |
| 16/03/2023 | 16.832 | 7.14 | 797 | 2 | |
| 17/03/2023 | 17.340 | 7.21 | 797 | 2 | |
| 18/03/2023 | 17.433 | 7.38 | 798 | 2 | |
| 19/03/2023 | 16.748 | 7.39 | 798 | 2 | |
| 20/03/2023 | 17.578 | 7.42 | 797 | 1 | <1 |
| 21/03/2023 | 14.210 | 7.33 | 796 | 1 | |
| 22/03/2023 | 16.758 | 7.20 | 797 | 1 | |
| 23/03/2023 | 16.845 | 7.18 | 797 | 2 | |
| 24/03/2023 | 16.969 | 7.20 | 796 | 1 | |
| 25/03/2023 | 16.673 | 7.22 | 795 | 2 | |
| 26/03/2023 | 18.414 | 7.23 | 796 | 1 | |
| 27/03/2023 | 17.031 | 7.21 | 795 | 1 | <1 |
| 28/03/2023 | 16.571 | 7.21 | 794 | 1 | |
| 29/03/2023 | 16.817 | 7.22 | 796 | 1 | |
| 30/03/2023 | 16.138 | 7.24 | 797 | 1 | |
| 31/03/2023 | 17.089 | 7.23 | 798 | 1 | |

| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 1/04/2023 | 17.745 | 7.18 | 798 | 1 | |
| 2/04/2023 | 17.665 | 7.19 | 798 | 1 | |
| 3/04/2023 | 14.575 | 7.20 | 802 | 1 | |
| 4/04/2023 | 13.307 | 7.21 | 805 | 1 | <1 |
| 5/04/2023 | 12.955 | 7.23 | 792 | 1 | |
| 6/04/2023 | 17.529 | 7.22 | 793 | 1 | |
| 7/04/2023 | 17.483 | 7.22 | 793 | 1 | |
| 8/04/2023 | 17.642 | 7.21 | 793 | 1 | |
| 9/04/2023 | 17.785 | 7.21 | 793 | 1 | |
| 10/04/2023 | 17.784 | 7.21 | 793 | 1 | |
| 11/04/2023 | 14.388 | 7.22 | 791 | 1 | |
| 12/04/2023 | 14.991 | 7.22 | 789 | 1 | <1 |
| 13/04/2023 | 16.568 | 7.22 | 791 | 1 | |
| 14/04/2023 | 16.718 | 7.21 | 791 | 1 | |
| 15/04/2023 | 17.236 | 7.21 | 791 | 1 | |
| 16/04/2023 | 17.881 | 7.21 | 792 | 1 | |
| 17/04/2023 | 10.222 | 7.24 | 789 | 1 | <1 |
| 18/04/2023 | 15.461 | 7.20 | 790 | 1 | |
| 19/04/2023 | 14.858 | 7.22 | 789 | 1 | |
| 20/04/2023 | 15.250 | 7.21 | 789 | 1 | |
| 21/04/2023 | 17.195 | 7.23 | 790 | 1 | |
| 22/04/2023 | 17.812 | 7.23 | 790 | 1 | |
| 23/04/2023 | 17.544 | 7.23 | 789 | 1 | |
| 24/04/2023 | 15.891 | 7.23 | 790 | 1 | <1 |
| 25/04/2023 | 17.031 | 7.24 | 790 | 1 | |
| 26/04/2023 | 16.108 | 7.23 | 790 | 1 | |
| 27/04/2023 | 16.538 | 7.22 | 790 | 1 | |
| 28/04/2023 | 17.456 | 7.20 | 790 | 1 | |
| 29/04/2023 | 17.015 | 7.21 | 790 | 1 | |
| 30/04/2023 | 17.566 | 7.21 | 791 | 1 | |
| 1/05/2023 | 4.909 | 7.21 | 790 | 0 | |
| 2/05/2023 | 0.000 | | | | |
| 3/05/2023 | 4.954 | 7.18 | 783 | 0 | <1 |
| 4/05/2023 | 16.199 | 7.22 | 788 | 1 | |
| 5/05/2023 | 16.526 | 7.23 | 790 | 1 | |
| 6/05/2023 | 15.280 | 7.22 | 790 | 1 | |
| 7/05/2023 | 18.042 | 7.24 | 792 | 1 | |
| 8/05/2023 | 17.230 | 7.24 | 792 | 1 | 2 |
| 9/05/2023 | 15.167 | 7.23 | 789 | 1 | |
| 10/05/2023 | 14.747 | 7.24 | 790 | 1 | |
| 11/05/2023 | 15.097 | 7.25 | 791 | 1 | |
| 12/05/2023 | 16.846 | 7.25 | 791 | 1 | |
| 13/05/2023 | 17.521 | 7.24 | 791 | 1 | |
| 14/05/2023 | 17.356 | 7.25 | 790 | 1 | |
| 15/05/2023 | 17.376 | 7.24 | 789 | 1 | |
| 16/05/2023 | 13.830 | 7.23 | 788 | 1 | <1 |
| 17/05/2023 | 14.996 | 7.20 | 791 | 2 | |
| 18/05/2023 | 16.328 | 7.19 | 794 | 1 | |
| 19/05/2023 | 17.146 | 7.18 | 795 | 2 | |
| 20/05/2023 | 16.757 | 7.17 | 795 | 2 | |
| 21/05/2023 | 17.560 | 7.17 | 796 | 2 | |

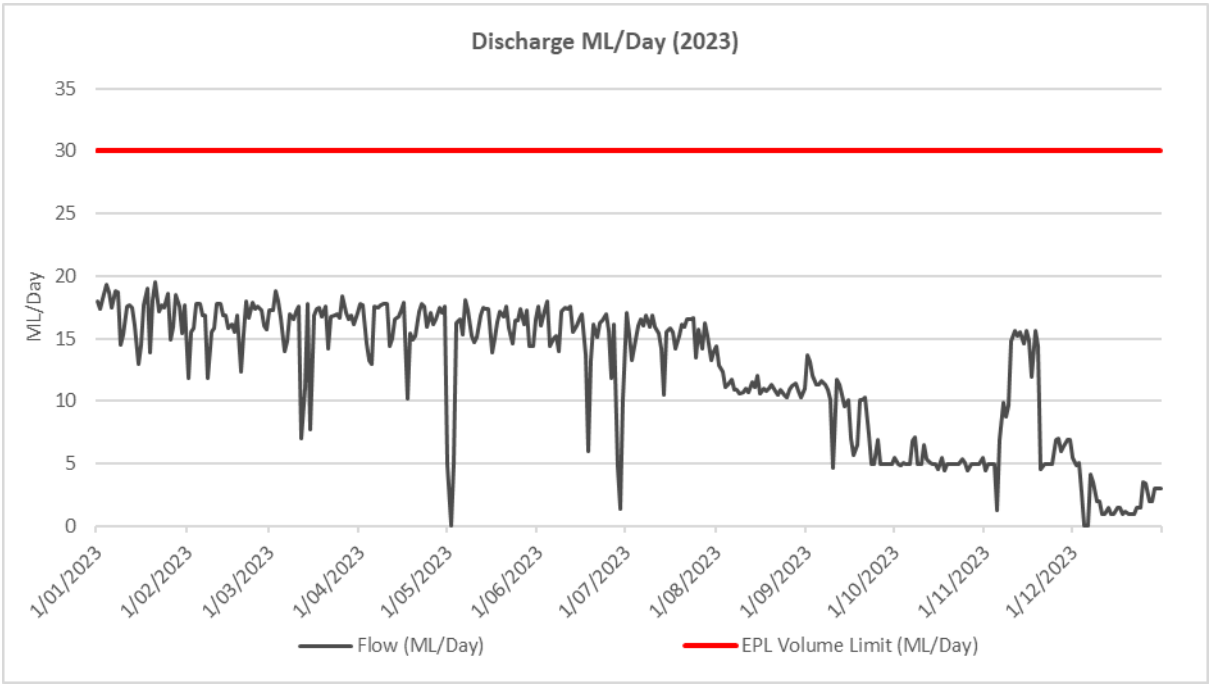
| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 22/05/2023 | 15.871 | 7.17 | 796 | 2 | |
| 23/05/2023 | 14.641 | 7.16 | 797 | 2 | <1 |
| 24/05/2023 | 16.415 | 7.15 | 797 | 2 | |
| 25/05/2023 | 16.402 | 7.15 | 796 | 3 | |
| 26/05/2023 | 17.395 | 7.15 | 797 | 3 | |
| 27/05/2023 | 16.118 | 7.15 | 797 | 3 | |
| 28/05/2023 | 17.272 | 7.15 | 797 | 3 | |
| 29/05/2023 | 14.395 | 7.15 | 798 | 3 | <1 |
| 30/05/2023 | 14.430 | 7.15 | 798 | 3 | |
| 31/05/2023 | 16.582 | 7.14 | 798 | 3 | |
| 1/06/2023 | 17.525 | 7.14 | 801 | 3 | |
| 2/06/2023 | 16.057 | 7.14 | 799 | 3 | |
| 3/06/2023 | 17.314 | 7.14 | 800 | 3 | |
| 4/06/2023 | 17.974 | 7.14 | 801 | 3 | |
| 5/06/2023 | 14.392 | 7.15 | 800 | 3 | |
| 6/06/2023 | 15.054 | 7.14 | 800 | 3 | 2 |
| 7/06/2023 | 15.170 | 7.13 | 800 | 3 | |
| 8/06/2023 | 14.008 | 7.13 | 808 | 3 | |
| 9/06/2023 | 17.211 | 7.14 | 807 | 3 | |
| 10/06/2023 | 17.456 | 7.14 | 807 | 3 | |
| 11/06/2023 | 17.344 | 7.13 | 807 | 3 | |
| 12/06/2023 | 17.524 | 7.13 | 806 | 3 | |
| 13/06/2023 | 15.546 | 7.13 | 804 | 3 | <1 |
| 14/06/2023 | 16.014 | 7.14 | 805 | 3 | |
| 15/06/2023 | 16.553 | 7.12 | 804 | 4 | |
| 16/06/2023 | 16.939 | 7.12 | 804 | 3 | |
| 17/06/2023 | 13.651 | 7.13 | 802 | 3 | |
| 18/06/2023 | 5.933 | 7.16 | 799 | 2 | |
| 19/06/2023 | 13.284 | 7.11 | 797 | 4 | |
| 20/06/2023 | 16.112 | 7.10 | 801 | 5 | 1 |
| 21/06/2023 | 15.108 | 7.10 | 801 | 4 | |
| 22/06/2023 | 16.262 | 7.07 | 810 | 4 | |
| 23/06/2023 | 16.427 | 7.09 | 809 | 4 | |
| 24/06/2023 | 16.982 | 7.09 | 808 | 5 | |
| 25/06/2023 | 15.574 | 7.10 | 805 | 4 | |
| 26/06/2023 | 11.813 | 7.08 | 798 | 3 | |
| 27/06/2023 | 16.153 | 7.06 | 800 | 3 | |
| 28/06/2023 | 4.743 | 7.05 | 800 | 1 | |
| 29/06/2023 | 1.347 | 7.07 | 784 | 0 | |
| 30/06/2023 | 10.034 | 7.10 | 789 | 2 | Dry |
| 1/07/2023 | 17.016 | 7.07 | 797 | 3 | |
| 2/07/2023 | 15.292 | 7.08 | 798 | 3 | |
| 3/07/2023 | 13.246 | 7.08 | 798 | 3 | |
| 4/07/2023 | 14.431 | 7.07 | 795 | 3 | 1 |
| 5/07/2023 | 16.053 | 7.05 | 796 | 3 | |
| 6/07/2023 | 16.543 | 7.04 | 796 | 3 | |
| 7/07/2023 | 16.083 | 7.07 | 797 | 3 | |
| 8/07/2023 | 16.887 | 7.11 | 799 | 3 | |
| 9/07/2023 | 15.911 | 7.12 | 801 | 3 | |
| 10/07/2023 | 16.840 | 7.11 | 801 | 3 | |
| 11/07/2023 | 15.938 | 7.11 | 802 | 3 | <1 |

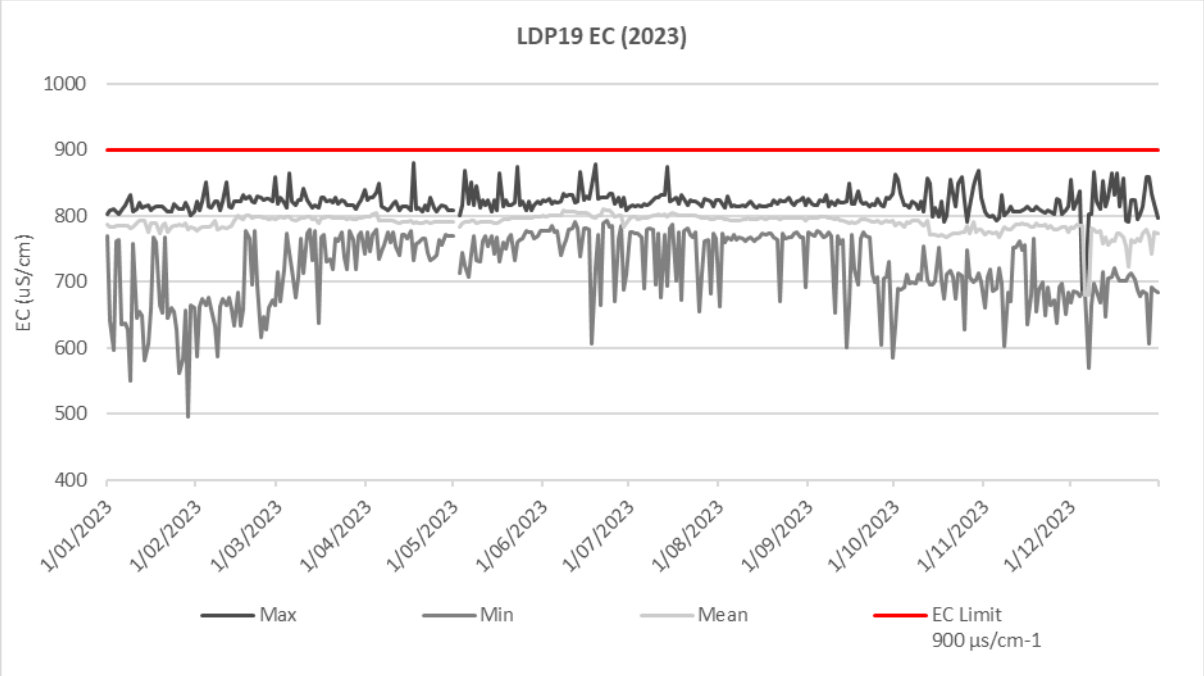
| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 12/07/2023 | 15.467 | 7.11 | 801 | 3 | |
| 13/07/2023 | 14.195 | 7.12 | 803 | 3 | |
| 14/07/2023 | 10.466 | 7.13 | 799 | 2 | |
| 15/07/2023 | 15.558 | 7.12 | 803 | 3 | |
| 16/07/2023 | 15.875 | 7.12 | 804 | 3 | |
| 17/07/2023 | 15.483 | 7.12 | 802 | 2 | |
| 18/07/2023 | 14.177 | 7.13 | 801 | 2 | <1 |
| 19/07/2023 | 15.220 | 7.12 | 801 | 2 | |
| 20/07/2023 | 16.130 | 7.12 | 801 | 2 | |
| 21/07/2023 | 15.953 | 7.10 | 800 | 2 | |
| 22/07/2023 | 16.526 | 7.08 | 800 | 2 | |
| 23/07/2023 | 16.565 | 7.08 | 800 | 2 | |
| 24/07/2023 | 16.626 | 7.07 | 801 | 2 | |
| 25/07/2023 | 13.510 | 7.07 | 799 | 2 | <1 |
| 26/07/2023 | 15.761 | 7.07 | 797 | 2 | |
| 27/07/2023 | 14.213 | 7.07 | 797 | 2 | |
| 28/07/2023 | 16.235 | 7.07 | 796 | 2 | |
| 29/07/2023 | 15.207 | 7.07 | 795 | 2 | |
| 30/07/2023 | 13.259 | 7.08 | 794 | 2 | |
| 31/07/2023 | 13.950 | 7.08 | 797 | 2 | |
| 1/08/2023 | 14.348 | 7.07 | 796 | 2 | |
| 2/08/2023 | 12.863 | 7.08 | 796 | 1 | <1 |
| 3/08/2023 | 12.317 | 7.08 | 795 | 2 | |
| 4/08/2023 | 11.157 | 7.08 | 794 | 2 | |
| 5/08/2023 | 11.361 | 7.08 | 793 | 1 | |
| 6/08/2023 | 11.770 | 7.08 | 793 | 1 | |
| 7/08/2023 | 10.860 | 7.08 | 793 | 1 | |
| 8/08/2023 | 10.903 | 7.08 | 792 | 1 | <1 |
| 9/08/2023 | 10.580 | 7.09 | 795 | 2 | |
| 10/08/2023 | 10.682 | 7.09 | 795 | 2 | |
| 11/08/2023 | 10.966 | 7.09 | 796 | 2 | |
| 12/08/2023 | 10.703 | 7.09 | 795 | 2 | |
| 13/08/2023 | 11.483 | 7.09 | 795 | 2 | |
| 14/08/2023 | 11.109 | 7.10 | 795 | 2 | |
| 15/08/2023 | 12.017 | 7.10 | 796 | 2 | 1 |
| 16/08/2023 | 10.581 | 7.11 | 796 | 2 | |
| 17/08/2023 | 10.963 | 7.11 | 795 | 2 | |
| 18/08/2023 | 10.827 | 7.13 | 796 | 2 | |
| 19/08/2023 | 10.957 | 7.13 | 796 | 2 | |
| 20/08/2023 | 11.344 | 7.13 | 797 | 2 | |
| 21/08/2023 | 10.844 | 7.13 | 797 | 2 | |
| 22/08/2023 | 10.518 | 7.14 | 795 | 2 | <1 |
| 23/08/2023 | 10.928 | 7.14 | 797 | 2 | |
| 24/08/2023 | 10.536 | 7.14 | 797 | 2 | |
| 25/08/2023 | 10.256 | 7.14 | 797 | 2 | |
| 26/08/2023 | 10.873 | 7.14 | 796 | 2 | |
| 27/08/2023 | 11.171 | 7.14 | 796 | 1 | |
| 28/08/2023 | 11.390 | 7.15 | 796 | 1 | |
| 29/08/2023 | 10.804 | 7.15 | 796 | 1 | 1 |
| 30/08/2023 | 10.275 | 7.15 | 796 | 1 | |
| 31/08/2023 | 11.017 | 7.15 | 793 | 1 | |

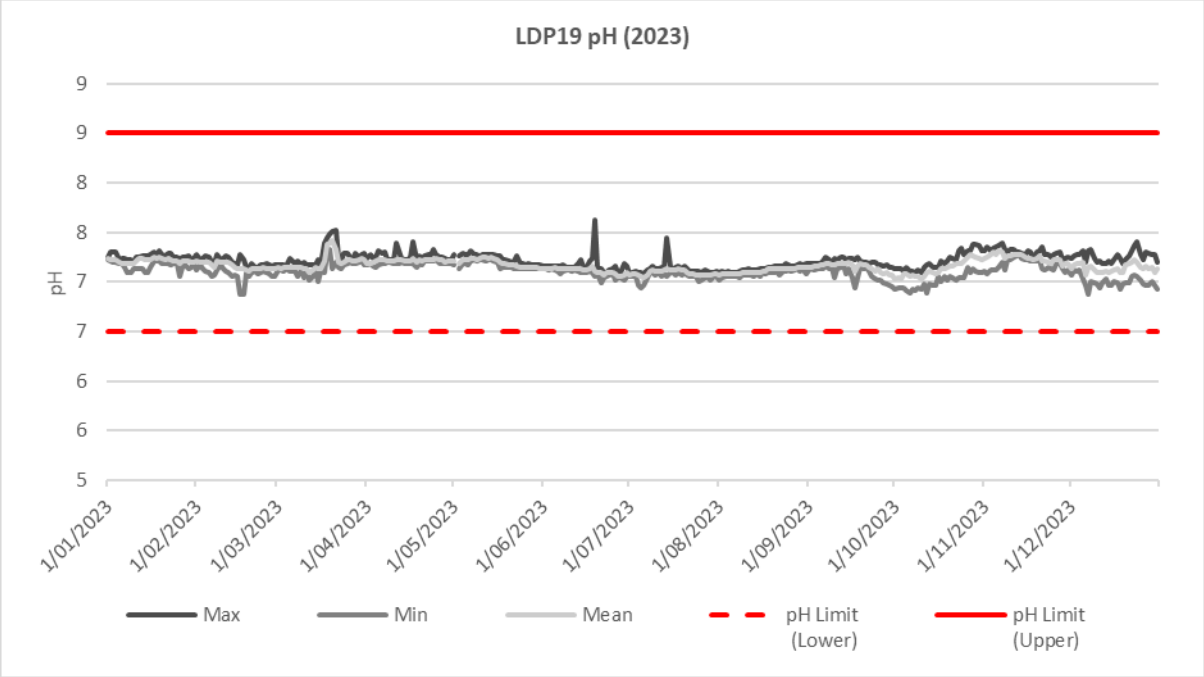
| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 1/09/2023 | 13.659 | 7.15 | 797 | 1 | |
| 2/09/2023 | 13.156 | 7.15 | 797 | 1 | |
| 3/09/2023 | 12.011 | 7.16 | 796 | 1 | |
| 4/09/2023 | 11.348 | 7.16 | 797 | 1 | |
| 5/09/2023 | 11.328 | 7.17 | 798 | 1 | <1 |
| 6/09/2023 | 11.573 | 7.17 | 798 | 2 | |
| 7/09/2023 | 11.347 | 7.19 | 799 | 2 | |
| 8/09/2023 | 10.930 | 7.19 | 796 | 1 | |
| 9/09/2023 | 10.119 | 7.17 | 796 | 2 | |
| 10/09/2023 | 4.644 | 7.17 | 795 | 1 | |
| 11/09/2023 | 11.711 | 7.18 | 797 | 2 | |
| 12/09/2023 | 11.276 | 7.19 | 792 | 1 | 4 |
| 13/09/2023 | 10.462 | 7.19 | 792 | 1 | |
| 14/09/2023 | 9.553 | 7.19 | 790 | 1 | |
| 15/09/2023 | 10.075 | 7.20 | 788 | 1 | |
| 16/09/2023 | 6.966 | 7.17 | 791 | 1 | |
| 17/09/2023 | 5.653 | 7.11 | 789 | 1 | |
| 18/09/2023 | 6.497 | 7.16 | 790 | 1 | |
| 19/09/2023 | 10.128 | 7.19 | 794 | 1 | <1 |
| 20/09/2023 | 10.122 | 7.17 | 795 | 1 | |
| 21/09/2023 | 10.238 | 7.17 | 794 | 1 | |
| 22/09/2023 | 7.271 | 7.15 | 793 | 1 | |
| 23/09/2023 | 4.953 | 7.13 | 790 | 0 | |
| 24/09/2023 | 4.961 | 7.11 | 791 | 1 | |
| 25/09/2023 | 6.941 | 7.13 | 792 | 1 | |
| 26/09/2023 | 4.961 | 7.10 | 788 | 1 | |
| 27/09/2023 | 4.955 | 7.08 | 791 | 1 | 0 |
| 28/09/2023 | 4.950 | 7.09 | 792 | 1 | |
| 29/09/2023 | 4.960 | 7.07 | 790 | 0 | |
| 30/09/2023 | 4.946 | 7.07 | 792 | 1 | |
| 1/10/2023 | 5.430 | 7.03 | 786 | 1 | |
| 2/10/2023 | 4.975 | 7.04 | 789 | 1 | |
| 3/10/2023 | 4.823 | 7.03 | 788 | 0 | <1 |
| 4/10/2023 | 5.053 | 7.08 | 783 | 1 | |
| 5/10/2023 | 4.962 | 7.08 | 790 | 0 | |
| 6/10/2023 | 4.964 | 7.05 | 789 | 1 | |
| 7/10/2023 | 6.821 | 7.07 | 792 | 1 | |
| 8/10/2023 | 7.066 | 7.06 | 793 | 1 | |
| 9/10/2023 | 4.972 | 7.05 | 793 | 0 | |
| 10/10/2023 | 4.955 | 7.03 | 788 | 0 | <1 |
| 11/10/2023 | 6.440 | 7.06 | 785 | 1 | |
| 12/10/2023 | 5.320 | 7.09 | 792 | 1 | |
| 13/10/2023 | 5.067 | 7.11 | 772 | 0 | |
| 14/10/2023 | 4.944 | 7.09 | 771 | 0 | |
| 15/10/2023 | 4.913 | 7.08 | 771 | 0 | |
| 16/10/2023 | 4.537 | 7.10 | 770 | 0 | |
| 17/10/2023 | 5.453 | 7.14 | 772 | 1 | 2 |
| 18/10/2023 | 4.456 | 7.14 | 770 | 0 | |
| 19/10/2023 | 4.959 | 7.15 | 768 | 0 | |
| 20/10/2023 | 4.948 | 7.16 | 772 | 0 | |
| 21/10/2023 | 4.942 | 7.16 | 773 | 0 | |

| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 22/10/2023 | 4.943 | 7.18 | 774 | 0 | |
| 23/10/2023 | 4.951 | 7.19 | 773 | 0 | |
| 24/10/2023 | 5.329 | 7.18 | 775 | 0 | <1 |
| 25/10/2023 | 5.046 | 7.21 | 775 | 0 | |
| 26/10/2023 | 4.460 | 7.25 | 785 | 0 | |
| 27/10/2023 | 4.956 | 7.27 | 773 | 0 | |
| 28/10/2023 | 4.964 | 7.26 | 790 | 0 | |
| 29/10/2023 | 4.962 | 7.25 | 775 | 0 | |
| 30/10/2023 | 4.954 | 7.24 | 779 | 0 | |
| 31/10/2023 | 5.464 | 7.23 | 779 | 0 | |
| 1/11/2023 | 4.451 | 7.24 | 772 | 0 | <1 |
| 2/11/2023 | 4.948 | 7.25 | 775 | 0 | |
| 3/11/2023 | 4.949 | 7.27 | 775 | 0 | |
| 4/11/2023 | 4.956 | 7.30 | 774 | 0 | |
| 5/11/2023 | 1.292 | 7.28 | 776 | 0 | |
| 6/11/2023 | 6.947 | 7.32 | 768 | 1 | |
| 7/11/2023 | 9.898 | 7.30 | 776 | 1 | <1 |
| 8/11/2023 | 8.718 | 7.24 | 784 | 1 | |
| 9/11/2023 | 9.674 | 7.26 | 780 | 1 | |
| 10/11/2023 | 14.766 | 7.26 | 780 | 1 | |
| 11/11/2023 | 15.654 | 7.28 | 784 | 1 | |
| 12/11/2023 | 15.193 | 7.28 | 787 | 1 | |
| 13/11/2023 | 15.521 | 7.28 | 787 | 1 | |
| 14/11/2023 | 14.576 | 7.27 | 788 | 1 | 1 |
| 15/11/2023 | 15.650 | 7.25 | 787 | 1 | |
| 16/11/2023 | 14.824 | 7.24 | 787 | 1 | |
| 17/11/2023 | 11.932 | 7.24 | 784 | 1 | |
| 18/11/2023 | 15.676 | 7.23 | 784 | 1 | |
| 19/11/2023 | 14.411 | 7.24 | 788 | 1 | |
| 20/11/2023 | 4.542 | 7.26 | 786 | 0 | |
| 21/11/2023 | 4.962 | 7.21 | 786 | 0 | <1 |
| 22/11/2023 | 4.934 | 7.21 | 787 | 0 | |
| 23/11/2023 | 4.956 | 7.20 | 781 | 1 | |
| 24/11/2023 | 4.956 | 7.19 | 786 | 0 | |
| 25/11/2023 | 6.948 | 7.22 | 780 | 0 | |
| 26/11/2023 | 6.951 | 7.23 | 779 | 1 | |
| 27/11/2023 | 5.955 | 7.22 | 782 | 0 | |
| 28/11/2023 | 6.437 | 7.16 | 784 | 0 | 1 |
| 29/11/2023 | 6.946 | 7.18 | 784 | 0 | |
| 30/11/2023 | 6.932 | 7.18 | 775 | 1 | |
| 1/12/2023 | 5.446 | 7.14 | 784 | 0 | |
| 2/12/2023 | 4.827 | 7.17 | 782 | 0 | |
| 3/12/2023 | 5.028 | 7.19 | 787 | 0 | |
| 4/12/2023 | 2.707 | 7.19 | 785 | 0 | <1 |
| 5/12/2023 | 0.000 | 7.20 | 786 | 0 | |
| 6/12/2023 | 0.000 | 7.07 | 680 | 0 | |
| 7/12/2023 | 4.145 | 7.15 | 680 | 1 | |
| 8/12/2023 | 3.504 | 7.16 | 781 | 1 | |
| 9/12/2023 | 1.966 | 7.12 | 780 | 1 | |
| 10/12/2023 | 1.976 | 7.10 | 776 | 0 | |
| 11/12/2023 | 0.980 | 7.09 | 777 | 0 | 1 |

| Date | Flow (ML/Day) | pH | EC (µs/cm-1) | Turbidity (NTU) | TSS (mg/L) |
|---|---|---|---|---|---|
| 12/12/2023 | 0.996 | 7.10 | 758 | 0 | |
| 13/12/2023 | 1.488 | 7.11 | 767 | 0 | |
| 14/12/2023 | 0.988 | 7.10 | 756 | 0 | |
| 15/12/2023 | 0.979 | 7.11 | 764 | 0 | |
| 16/12/2023 | 1.479 | 7.12 | 762 | 0 | |
| 17/12/2023 | 1.485 | 7.13 | 773 | 0 | |
| 18/12/2023 | 0.989 | 7.10 | 773 | 0 | <1 |
| 19/12/2023 | 1.196 | 7.10 | 767 | 0 | |
| 20/12/2023 | 0.984 | 7.17 | 754 | 0 | |
| 21/12/2023 | 0.992 | 7.19 | 723 | 0 | |
| 22/12/2023 | 0.993 | 7.20 | 763 | 0 | |
| 23/12/2023 | 1.487 | 7.23 | 760 | 0 | |
| 24/12/2023 | 1.483 | 7.20 | 766 | 0 | |
| 25/12/2023 | 3.463 | 7.15 | 762 | 1 | |
| 26/12/2023 | 3.460 | 7.13 | 773 | 0 | |
| 27/12/2023 | 1.976 | 7.16 | 780 | 0 | 2 |
| 28/12/2023 | 1.981 | 7.13 | 770 | 0 | |
| 29/12/2023 | 2.970 | 7.15 | 743 | 0 | |
| 30/12/2023 | 2.972 | 7.10 | 776 | 0 | |
| 31/12/2023 | 2.972 | 7.13 | 773 | 0 | |




LDP19 EC (2023)
EC (uS/cm)
1000
900
800
700
600
500
400
1/01/2023
1/02/2023
1/03/2023
1/04/2023
1/05/2023
1/06/2023
1/07/2023
1/08/2023
1/09/2023
1/10/2023
1/11/2023
1/12/2023
Max
Min
Mean
EC Limit
900 µs/cm-1


LDP19 pH (2023)
pH
9
9
8
8
7
7
6
6
5
1/01/2023
1/02/2023
1/03/2023
1/04/2023
1/05/2023
1/06/2023
1/07/2023
1/08/2023
1/09/2023
1/10/2023
1/11/2023
1/12/2023
Max
Min
Mean
pH Limit
(Lower)
pH Limit
(Upper)

# 4. Surface Water Monitoring Result Comparison to Trigger Values

*Table 4-1- Adopted Trigger Values for Key Water Quality Parameters*

| Water Quality Variable | Goulburn River Upstream (SW01) | Goulburn River Downstream (SW02) | Ulan Creek Upstream of LDP6 (SW03)[9] | Ulan Creek at Old Ulan (SW04)[10] | Ulan Creek at Pleuger Road (SW05)[11] | Talbragar River (SW09) | Watercourses flowing to Goulburn River[4] (SW06 SW07, SW08) | Watercourses flowing to Talbragar River[6] (SW09, SW10, SW11) | Clean Water Diversion/ System (SW12. SW13 (EPL 23), SW14, SW15) |
|---|---|---|---|---|---|---|---|---|---|
| | 6.5 – 8.0[1] | 6.4 – 8.1[3] | 6.5 – 7.9[8] | 6.5 – 8.5[8] | 6.5 – 8.5[8] | 6.5 – 8.5[5] | 6.5 – 8.05 | 6.5 – 8.0[5] | 6.5 – 8.0[6] |
| EC (µS/cm) | 680[2] | 854[2] | 1126[8] | 900[8] | 900[8] | 125 – 2200[5] | 30 – 350[6] | 30 – 350[5] | 30 – 350[6] |
| TSS (mg/L) | 111[2] | 53[2] | 64[9] | 83[10] | 50[7] | 50[7] | 50[7] | 50[7] | 50[7] |

**Notes:** [1] ANZECC (2000) default trigger value range for lowland east flowing coastal rivers in NSW [2] 80th percentile based on historical data for the Goulburn River (refer to Table 3.4) [3] Range within Historical data for Goulburn River Downstream (refer to Table 3.4) [4] SW02 is downstream of the Ulan Mine Complex and as such water quality at this location can be influenced by other developments in the catchment outside of UCMPL influence. [5] Interim trigger values based on ANZECC (2000) default trigger values for lowland rivers in NSW. Site-specific trigger values were developed in 2021 and are with the Department for approval. [6] Interim trigger values based on ANZECC (2000) default trigger values for upland rivers in NSW. Site-specific trigger values will be developed as monitoring data becomes available. [7] Interim trigger values based on Volume 1 of Managing Urban Stormwater: Soils and Construction (Landcom, 2004). [8] Trigger level reflects upstream discharge limit approved under EPL394. [9] 80th percentile of SW03 baseline (31 samples taken between February 2012 and September 2016). [10] 80th percentile of SW04 baseline (24 samples taken between February 2012 and November 2016)

*Table 4-2- 2023 Monthly Sampling Result Summary*

| SW Sites | pH | | | EC (µS/cm) | | | TSS (mg/L) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | Ave | Min | Max | Ave | Min | Max | Ave |
| SW01 | 7.1 | 7.8 | 7.4 | 268.0 | 1480.0 | 659.5 | 10.0 | 46.0 | 19.1 |
| SW02 | 7.6 | 8.2 | 8.0 | 505.0 | 1060.0 | 726.1 | 1.0 | 20.0 | 4.9 |
| SW03 | 7.5 | 8.5 | 7.9 | 556.0 | 1200.0 | 855.5 | 2.0 | 63.0 | 19.4 |
| SW04 | 7.9 | 8.6 | 8.4 | 730.0 | 810.0 | 781.5 | 2.0 | 5.0 | 3.0 |
| SW05 | 7.2 | 8.2 | 7.6 | 763.0 | 872.0 | 798.0 | 1.0 | 6.0 | 3.4 |
| SW06 | * | * | * | * | * | * | * | * | * |
| SW07 | * | * | * | * | * | * | * | * | * |
| SW08 | * | * | * | * | * | * | * | * | * |
| SW09 | 8.4 | 8.6 | 8.5 | 854.0 | 1330.0 | 1048.5 | 12.0 | 76.0 | 37.6 |
| SW10 | 6.6 | 6.6 | 6.6 | 88.0 | 88.0 | 88.0 | 32.0 | 32.0 | 32.0 |
| SW11 | 6.8 | 6.8 | 6.8 | 159.0 | 159.0 | 159.0 | 21.0 | 21.0 | 21.0 |
| SW12 | 7.6 | 7.7 | 7.7 | 821.0 | 848.0 | 834.5 | 18.0 | 225.0 | 121.5 |
| SW13 | * | * | * | * | * | * | * | * | * |
| SW14 | * | * | * | * | * | * | * | * | * |
| SW15 | * | * | * | * | * | * | * | * | * |

**Notes:** Shaded results were periodically outside the adopted trigger values in January 2023. Shaded results indicate a trigger has occurred i.e. more than three consecutive monthly results are outside of respective water quality criteria (refer to Table 7-6 in the 2023 Annual Review). * No flows in creeks or drainage systems at the time of monthly surface water sampling in 2023. # Only one monthly sample available for analysis in January 2023.

# 5. Goulburn River Monitoring

## 5.1 SW01 Upstream Goulburn River

**SW01** is located in the Goulburn River upstream of operations, near the confluence of Moolarben Creek and Sportsman Hollow Creek. SW01 is sampled monthly, after specific rainfall events and is equipped with sensors recording daily average EC, pH and flow volumes. SW01 is located at an existing level concrete causeway crossing across the Goulburn River, at the end of Short Street in the Ulan Village. SW01 is considered outside the influence of UCMPL mining activities. The 2023 water quality monitoring and flow results from SW01 indicate that:

- Continuous daily water monitoring indicates that pH remained within the adopted pH criteria of 6.5 – 8.0 for 2023 for approximately 100% of the time. The monthly average pH results remained within the adopted pH criteria of 6.5 – 8.0 for 2023.
- Continuous water monitoring indicates that EC concentrations were below the adopted trigger value of 680 µS/cm for 2023 approximately 92% of the time. The monthly average EC results remained within the adopted trigger value of 680 µS/cm for 2023.
- The maximum daily EC result of 1560 µS/cm occurred on 01 January 2023, where elevated EC results were likely influenced by MCO's emergency discharging in late December 2022 and early January 2023.
- The daily average EC remained above 680 µS/cm from 01/01/2023 to 26/01/2023 where elevated EC results were likely influence by MCO's emergency discharging in late December 2022.
- On the 19 September, 14$^{th}$ October, 17$^{th}$ October, 18$^{th}$ October and 22 October 2023 the daily average EC was periodically just above the adopted trigger value of 680 µS/cm.
- Monthly grab sample monitoring for TSS indicates that results were below the adopted trigger value of 50mg/L in 2023. The maximum recorded TSS was 46mg/L.
- There were no three (3) consecutive elevated monthly averages of the adopted criteria for pH, EC and TSS in 2023.

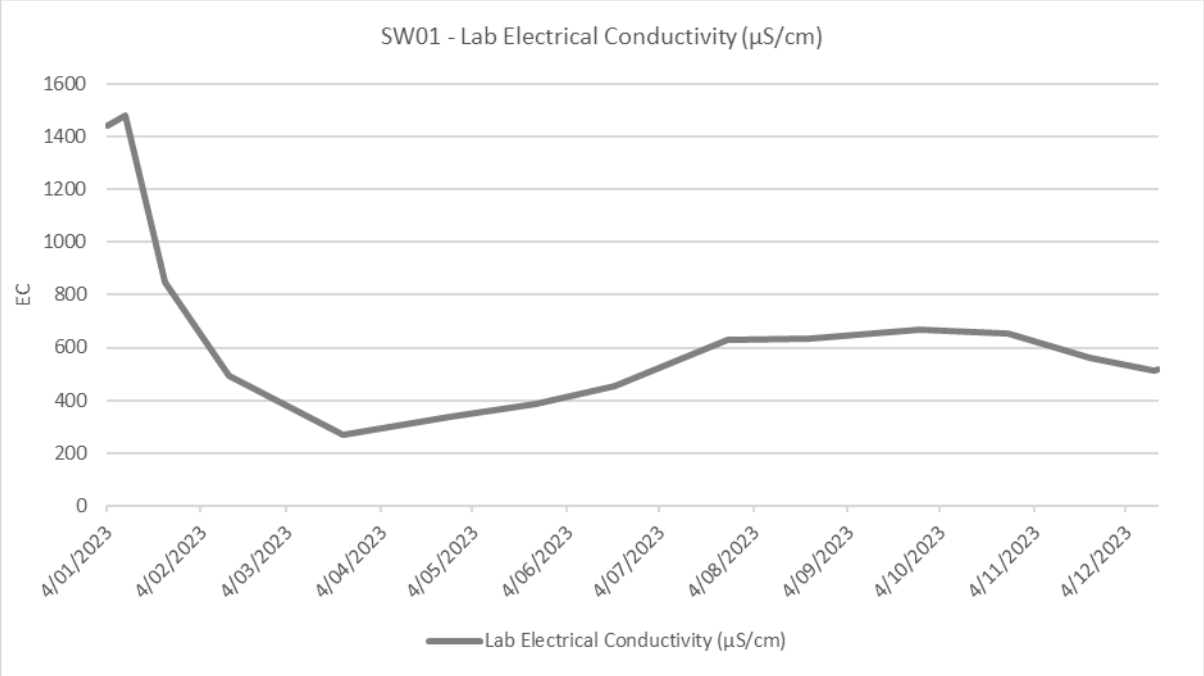



*Figure 5-1 SW01 Upstream Goulburn River Monthly EC Results 2023*

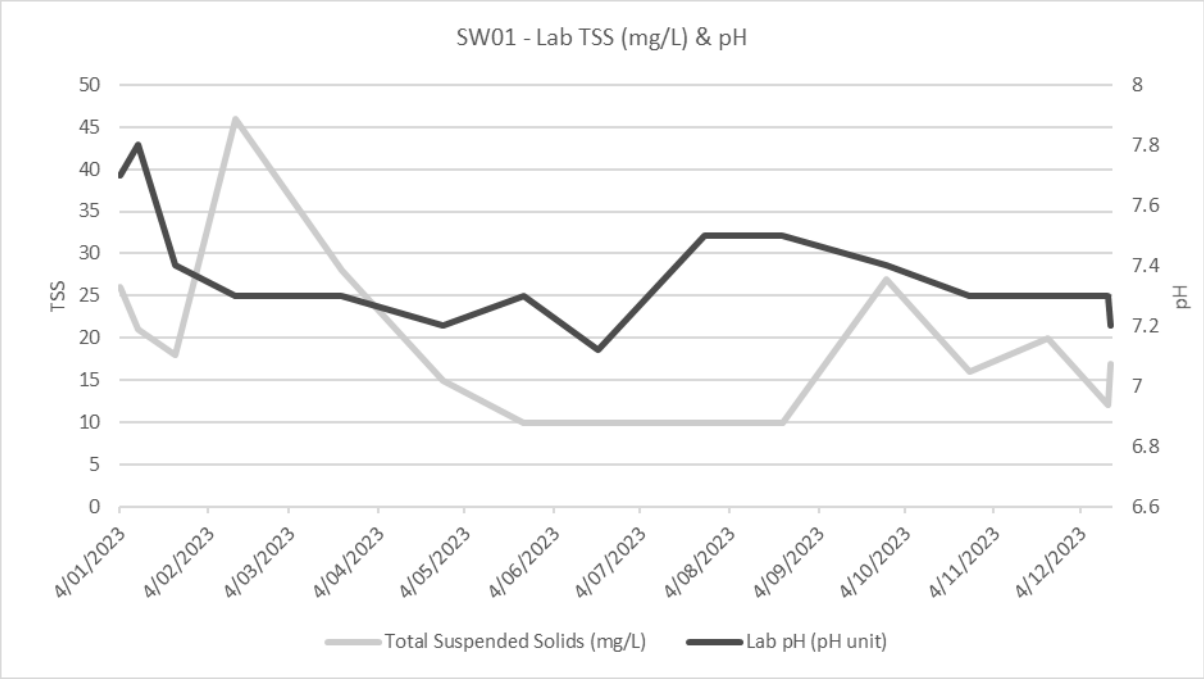



*Figure 5-2 SW01 Upstream Goulburn River Monthly pH & TSS Results 2023*

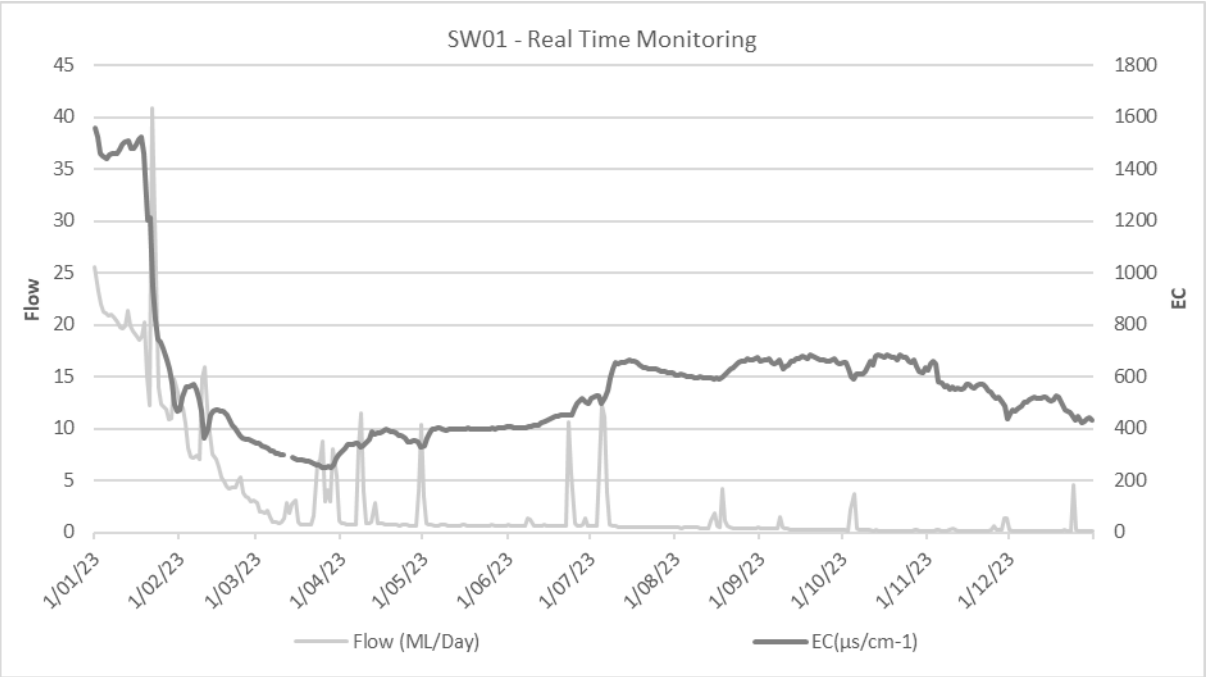



*Figure 5-3 SW01 Upstream Goulburn River Real Time Flow & EC Results 2023*

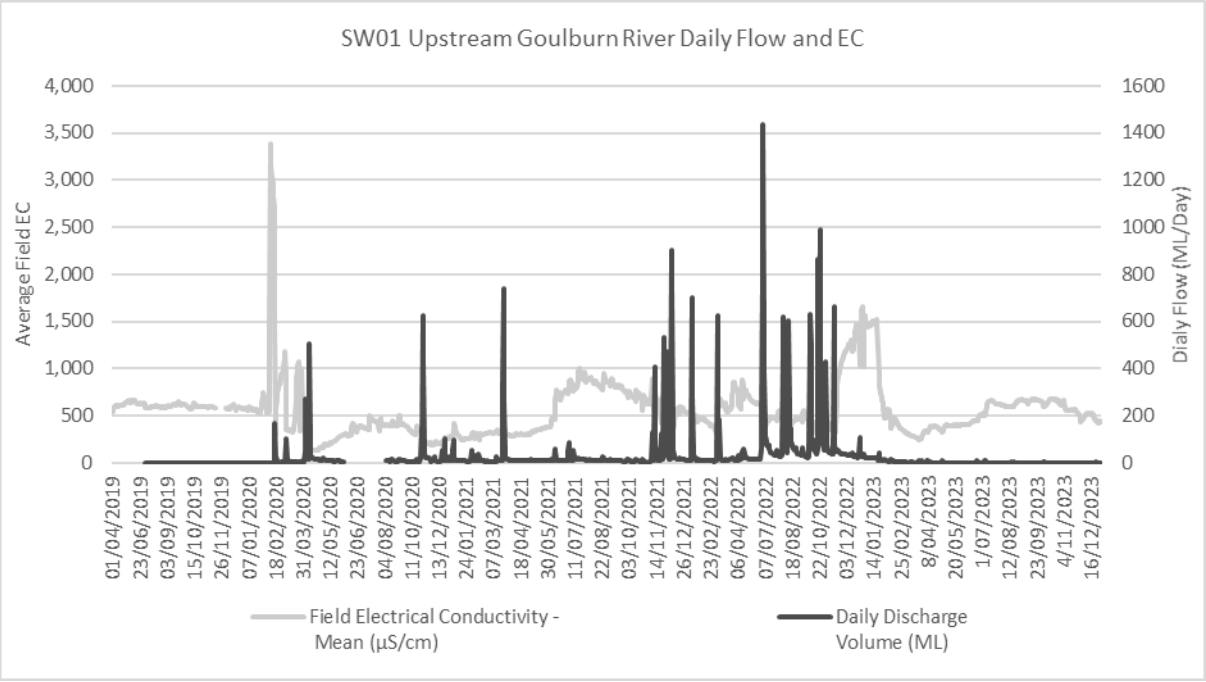



*Figure 5-4 SW01 Upstream Goulburn River Historical Real Time Flow & EC (2019 - 2023)*

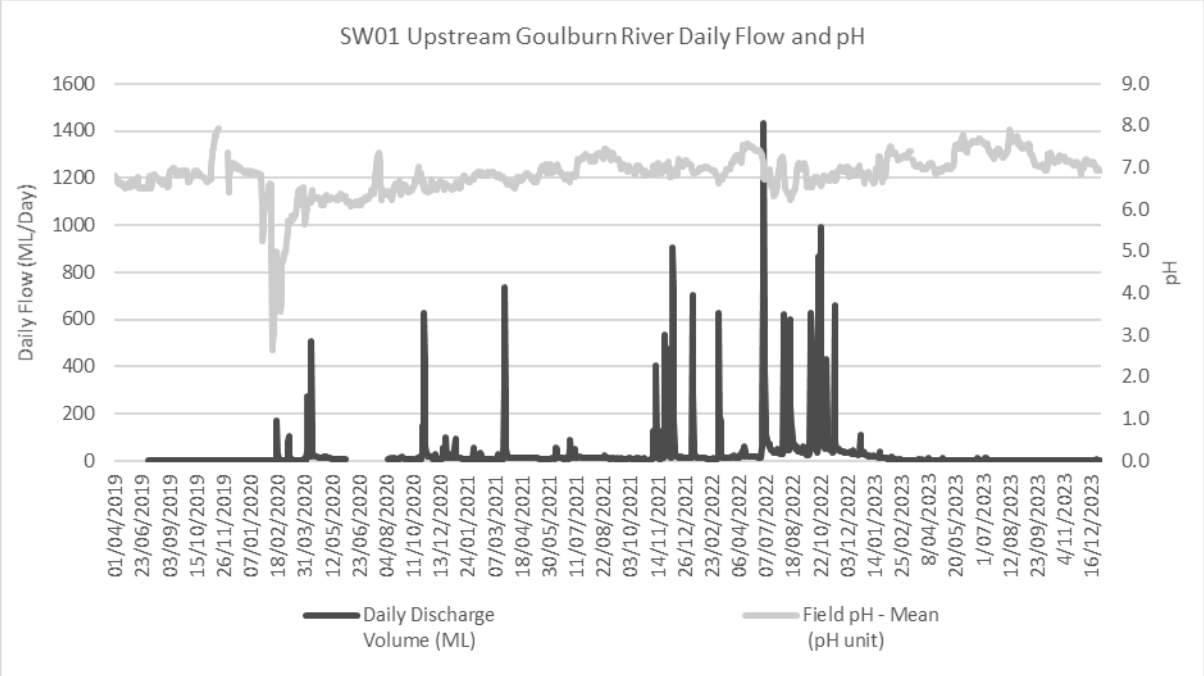



*Figure 5-5 SW01 Upstream Goulburn River Real Time Historical Flow & pH (2019 - 2023)*

### 5.1.1 SW01 Daily Average Results

| | pH | EC(µs/cm$^{-1}$) | Flow (ML/Day) |
|---|---|---|---|
| **Min** | 6.62 | 249 | 0.11 |
| **Max** | 7.90 | 1560 | 40.84 |
| **Average** | 7.22 | 562.96 | 2.99 |

*Table 5-1 SW01 Daily Average Results*

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 1/01/23 | 1560 | 6.83 | 25.582 |
| 2/01/23 | 1523 | 6.81 | 23.152 |
| 3/01/23 | 1458 | 6.79 | 21.924 |
| 4/01/23 | 1451 | 6.78 | 21.261 |
| 5/01/23 | 1442 | 6.81 | 21.113 |
| 6/01/23 | 1455 | 6.90 | 20.880 |
| 7/01/23 | 1461 | 6.83 | 21.013 |
| 8/01/23 | 1459 | 6.75 | 20.710 |
| 9/01/23 | 1458 | 6.70 | 20.266 |
| 10/01/23 | 1473 | 6.74 | 19.749 |
| 11/01/23 | 1492 | 6.76 | 19.678 |
| 12/01/23 | 1505 | 6.68 | 19.863 |
| 13/01/23 | 1509 | 6.62 | 21.345 |
| 14/01/23 | 1477 | 6.64 | 19.901 |
| 15/01/23 | 1481 | 6.77 | 19.347 |
| 16/01/23 | 1495 | 6.87 | 18.945 |
| 17/01/23 | 1512 | 7.00 | 18.580 |
| 18/01/23 | 1525 | 6.96 | 18.873 |
| 19/01/23 | 1461 | 6.91 | 20.269 |
| 20/01/23 | 1202 | 7.07 | 15.066 |
| 21/01/23 | 1211 | 7.25 | 12.252 |
| 22/01/23 | 948 | 7.27 | 40.844 |
| 23/01/23 | 816 | 6.93 | 24.884 |
| 24/01/23 | 741 | 6.92 | 13.945 |
| 25/01/23 | 731 | 6.74 | 12.296 |
| 26/01/23 | 707 | 6.64 | 12.120 |
| 27/01/23 | 665 | 6.70 | 11.842 |
| 28/01/23 | 632 | 6.80 | 10.914 |
| 29/01/23 | 573 | 6.99 | 10.966 |
| 30/01/23 | 491 | 7.00 | 14.783 |
| 31/01/23 | 469 | 6.78 | 13.474 |
| 1/02/23 | 474 | 7.00 | 12.371 |
| 2/02/23 | 522 | 7.13 | 11.979 |
| 3/02/23 | 560 | 7.26 | 10.470 |
| 4/02/23 | 563 | 7.35 | 8.099 |
| 5/02/23 | 565 | 7.31 | 7.283 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 6/02/23 | 570 | 7.42 | 7.140 |
| 7/02/23 | 550 | 7.52 | 7.431 |
| 8/02/23 | 517 | 7.50 | 6.998 |
| 9/02/23 | 465 | 7.47 | 14.828 |
| 10/02/23 | 363 | 7.42 | 15.894 |
| 11/02/23 | 400 | 7.36 | 12.031 |
| 12/02/23 | 451 | 7.32 | 9.489 |
| 13/02/23 | 465 | 7.33 | 7.569 |
| 14/02/23 | 473 | 7.37 | 7.067 |
| 15/02/23 | 473 | 7.37 | 6.291 |
| 16/02/23 | 469 | 7.32 | 5.292 |
| 17/02/23 | 465 | 7.30 | 4.972 |
| 18/02/23 | 450 | 7.26 | 4.474 |
| 19/02/23 | 431 | 7.22 | 4.140 |
| 20/02/23 | 412 | 7.18 | 4.313 |
| 21/02/23 | 401 | 7.19 | 4.294 |
| 22/02/23 | 390 | 7.21 | 4.953 |
| 23/02/23 | 372 | 7.23 | 5.280 |
| 24/02/23 | 364 | 7.21 | 3.791 |
| 25/02/23 | 359 | 7.22 | 3.423 |
| 26/02/23 | 359 | 7.25 | 3.291 |
| 27/02/23 | 354 | 7.24 | 2.912 |
| 28/02/23 | 346 | 7.25 | 3.028 |
| 1/03/23 | 342 | 7.28 | 2.790 |
| 2/03/23 | 342 | 7.28 | 1.959 |
| 3/03/23 | 332 | 7.24 | 1.998 |
| 4/03/23 | 326 | 7.22 | 1.904 |
| 5/03/23 | 322 | 7.22 | 2.105 |
| 6/03/23 | 316 | 7.22 | 1.517 |
| 7/03/23 | 314 | 7.31 | 1.028 |
| 8/03/23 | 305 | 7.36 | 0.942 |
| 9/03/23 | 304 | 7.38 | 0.866 |
| 10/03/23 | 301 | 7.39 | 0.941 |
| 11/03/23 | 299 | 7.40 | 1.360 |
| 12/03/23 | 295 | 7.35 | 2.787 |
| 13/03/23 | 292 | 7.26 | 1.862 |
| 14/03/23 | 289 | 7.21 | 2.764 |
| 15/03/23 | 282 | 7.17 | 3.077 |
| 16/03/23 | 280 | 7.10 | 1.036 |
| 17/03/23 | 277 | 7.07 | 0.764 |
| 18/03/23 | 278 | 7.06 | 0.754 |
| 19/03/23 | 275 | 7.05 | 0.743 |
| 20/03/23 | 272 | 7.03 | 0.743 |
| 21/03/23 | 270 | 7.03 | 0.734 |
| 22/03/23 | 266 | 7.06 | 1.565 |
| 23/03/23 | 258 | 7.04 | 6.618 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 24/03/23 | 260 | 7.04 | 6.944 |
| 25/03/23 | 249 | 7.03 | 8.813 |
| 26/03/23 | 249 | 7.08 | 2.962 |
| 27/03/23 | 253 | 7.05 | 4.051 |
| 28/03/23 | 251 | 7.01 | 3.019 |
| 29/03/23 | 261 | 6.97 | 8.058 |
| 30/03/23 | 284 | 6.98 | 5.412 |
| 31/03/23 | 297 | 7.00 | 1.154 |
| 1/04/23 | 308 | 7.00 | 0.826 |
| 2/04/23 | 325 | 7.00 | 0.806 |
| 3/04/23 | 336 | 6.97 | 0.793 |
| 4/04/23 | 338 | 6.95 | 0.794 |
| 5/04/23 | 338 | 6.97 | 0.795 |
| 6/04/23 | 342 | 7.03 | 0.780 |
| 7/04/23 | 341 | 7.02 | 7.882 |
| 8/04/23 | 329 | 7.04 | 11.460 |
| 9/04/23 | 332 | 7.09 | 4.005 |
| 10/04/23 | 350 | 7.11 | 0.928 |
| 11/04/23 | 359 | 7.10 | 0.805 |
| 12/04/23 | 386 | 7.09 | 1.041 |
| 13/04/23 | 378 | 7.11 | 2.802 |
| 14/04/23 | 381 | 7.07 | 0.871 |
| 15/04/23 | 385 | 7.04 | 0.819 |
| 16/04/23 | 388 | 7.00 | 0.809 |
| 17/04/23 | 397 | 6.99 | 0.696 |
| 18/04/23 | 393 | 6.93 | 0.710 |
| 19/04/23 | 390 | 6.86 | 0.713 |
| 20/04/23 | 388 | 6.84 | 0.707 |
| 21/04/23 | 381 | 6.86 | 0.684 |
| 22/04/23 | 373 | 6.95 | 0.672 |
| 23/04/23 | 372 | 6.94 | 0.693 |
| 24/04/23 | 362 | 6.91 | 0.692 |
| 25/04/23 | 350 | 6.96 | 0.685 |
| 26/04/23 | 348 | 6.95 | 0.668 |
| 27/04/23 | 353 | 6.91 | 0.665 |
| 28/04/23 | 355 | 6.89 | 0.673 |
| 29/04/23 | 347 | 6.90 | 3.990 |
| 30/04/23 | 330 | 6.93 | 10.406 |
| 1/05/23 | 333 | 6.98 | 3.518 |
| 2/05/23 | 362 | 6.99 | 0.861 |
| 3/05/23 | 381 | 6.95 | 0.751 |
| 4/05/23 | 397 | 6.95 | 0.696 |
| 5/05/23 | 399 | 6.98 | 0.680 |
| 6/05/23 | 401 | 7.00 | 0.674 |
| 7/05/23 | 402 | 7.04 | 0.725 |
| 8/05/23 | 397 | 7.05 | 0.722 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 9/05/23 | 395 | 7.04 | 0.690 |
| 10/05/23 | 396 | 7.00 | 0.676 |
| 11/05/23 | 397 | 6.98 | 0.671 |
| 12/05/23 | 399 | 6.97 | 0.671 |
| 13/05/23 | 399 | 6.97 | 0.674 |
| 14/05/23 | 397 | 6.98 | 0.674 |
| 15/05/23 | 397 | 7.00 | 0.696 |
| 16/05/23 | 397 | 7.02 | 0.698 |
| 17/05/23 | 404 | 7.16 | 0.648 |
| 18/05/23 | 398 | 7.38 | 0.652 |
| 19/05/23 | 397 | 7.52 | 0.642 |
| 20/05/23 | 398 | 7.55 | 0.640 |
| 21/05/23 | 399 | 7.55 | 0.651 |
| 22/05/23 | 400 | 7.48 | 0.614 |
| 23/05/23 | 400 | 7.54 | 0.610 |
| 24/05/23 | 400 | 7.57 | 0.604 |
| 25/05/23 | 398 | 7.53 | 0.616 |
| 26/05/23 | 401 | 7.44 | 0.681 |
| 27/05/23 | 399 | 7.47 | 0.647 |
| 28/05/23 | 403 | 7.61 | 0.645 |
| 29/05/23 | 404 | 7.69 | 0.647 |
| 30/05/23 | 403 | 7.73 | 0.621 |
| 31/05/23 | 407 | 7.79 | 0.641 |
| 1/06/23 | 406 | 7.76 | 0.686 |
| 2/06/23 | 408 | 7.62 | 0.652 |
| 3/06/23 | 404 | 7.43 | 0.658 |
| 4/06/23 | 402 | 7.51 | 0.653 |
| 5/06/23 | 401 | 7.42 | 0.649 |
| 6/06/23 | 402 | 7.35 | 0.674 |
| 7/06/23 | 403 | 7.48 | 0.677 |
| 8/06/23 | 407 | 7.50 | 1.391 |
| 9/06/23 | 408 | 7.54 | 1.205 |
| 10/06/23 | 410 | 7.53 | 0.680 |
| 11/06/23 | 410 | 7.56 | 0.614 |
| 12/06/23 | 414 | 7.57 | 0.619 |
| 13/06/23 | 424 | 7.59 | 0.676 |
| 14/06/23 | 429 | 7.64 | 0.721 |
| 15/06/23 | 433 | 7.63 | 0.645 |
| 16/06/23 | 437 | 7.62 | 0.604 |
| 17/06/23 | 440 | 7.60 | 0.592 |
| 18/06/23 | 446 | 7.62 | 0.594 |
| 19/06/23 | 447 | 7.61 | 0.575 |
| 20/06/23 | 451 | 7.62 | 0.577 |
| 21/06/23 | 451 | 7.63 | 0.560 |
| 22/06/23 | 451 | 7.61 | 0.609 |
| 23/06/23 | 450 | 7.62 | 10.580 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 24/06/23 | 453 | 7.68 | 5.708 |
| 25/06/23 | 476 | 7.70 | 0.860 |
| 26/06/23 | 496 | 7.68 | 0.648 |
| 27/06/23 | 505 | 7.67 | 0.589 |
| 28/06/23 | 515 | 7.63 | 0.769 |
| 29/06/23 | 502 | 7.63 | 1.350 |
| 30/06/23 | 498 | 7.63 | 0.664 |
| 1/07/23 | 514 | 7.60 | 0.622 |
| 2/07/23 | 522 | 7.61 | 0.583 |
| 3/07/23 | 525 | 7.57 | 0.579 |
| 4/07/23 | 526 | 7.58 | 6.253 |
| 5/07/23 | 498 | 7.54 | 12.252 |
| 6/07/23 | 519 | 7.57 | 11.087 |
| 7/07/23 | 544 | 7.58 | 3.879 |
| 8/07/23 | 594 | 7.58 | 0.781 |
| 9/07/23 | 628 | 7.48 | 0.651 |
| 10/07/23 | 654 | 7.44 | 0.595 |
| 11/07/23 | 651 | 7.40 | 0.556 |
| 12/07/23 | 652 | 7.39 | 0.532 |
| 13/07/23 | 653 | 7.35 | 0.527 |
| 14/07/23 | 660 | 7.32 | 0.523 |
| 15/07/23 | 663 | 7.29 | 0.529 |
| 16/07/23 | 659 | 7.33 | 0.529 |
| 17/07/23 | 660 | 7.29 | 0.548 |
| 18/07/23 | 652 | 7.21 | 0.547 |
| 19/07/23 | 644 | 7.21 | 0.530 |
| 20/07/23 | 633 | 7.29 | 0.509 |
| 21/07/23 | 634 | 7.34 | 0.543 |
| 22/07/23 | 628 | 7.38 | 0.537 |
| 23/07/23 | 629 | 7.41 | 0.513 |
| 24/07/23 | 630 | 7.44 | 0.497 |
| 25/07/23 | 629 | 7.45 | 0.485 |
| 26/07/23 | 625 | 7.46 | 0.487 |
| 27/07/23 | 621 | 7.44 | 0.495 |
| 28/07/23 | 619 | 7.38 | 0.501 |
| 29/07/23 | 617 | 7.32 | 0.495 |
| 30/07/23 | 614 | 7.27 | 0.494 |
| 31/07/23 | 613 | 7.28 | 0.489 |
| 1/08/23 | 607 | 7.24 | 0.457 |
| 2/08/23 | 607 | 7.24 | 0.441 |
| 3/08/23 | 611 | 7.26 | 0.433 |
| 4/08/23 | 605 | 7.27 | 0.435 |
| 5/08/23 | 600 | 7.30 | 0.446 |
| 6/08/23 | 601 | 7.34 | 0.463 |
| 7/08/23 | 599 | 7.34 | 0.456 |
| 8/08/23 | 597 | 7.37 | 0.445 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 9/08/23 | 596 | 7.41 | 0.434 |
| 10/08/23 | 598 | 7.55 | 0.428 |
| 11/08/23 | 596 | 7.77 | 0.417 |
| 12/08/23 | 594 | 7.90 | 0.418 |
| 13/08/23 | 595 | 7.86 | 0.425 |
| 14/08/23 | 597 | 7.63 | 1.057 |
| 15/08/23 | 590 | 7.60 | 1.858 |
| 16/08/23 | 595 | 7.67 | 0.570 |
| 17/08/23 | 592 | 7.64 | 0.479 |
| 18/08/23 | 599 | 7.62 | 4.248 |
| 19/08/23 | 610 | 7.70 | 1.114 |
| 20/08/23 | 622 | 7.73 | 0.560 |
| 21/08/23 | 628 | 7.69 | 0.464 |
| 22/08/23 | 633 | 7.64 | 0.432 |
| 23/08/23 | 646 | 7.67 | 0.420 |
| 24/08/23 | 652 | 7.76 | 0.404 |
| 25/08/23 | 660 | 7.59 | 0.396 |
| 26/08/23 | 659 | 7.55 | 0.390 |
| 27/08/23 | 668 | 7.56 | 0.385 |
| 28/08/23 | 666 | 7.60 | 0.382 |
| 29/08/23 | 663 | 7.52 | 0.371 |
| 30/08/23 | 667 | 7.48 | 0.393 |
| 31/08/23 | 672 | 7.50 | 0.461 |
| 1/09/23 | 658 | 7.44 | 0.397 |
| 2/09/23 | 665 | 7.53 | 0.373 |
| 3/09/23 | 663 | 7.54 | 0.359 |
| 4/09/23 | 667 | 7.49 | 0.398 |
| 5/09/23 | 656 | 7.52 | 0.395 |
| 6/09/23 | 651 | 7.47 | 0.327 |
| 7/09/23 | 654 | 7.47 | 0.318 |
| 8/09/23 | 662 | 7.46 | 1.540 |
| 9/09/23 | 630 | 7.51 | 0.542 |
| 10/09/23 | 640 | 7.55 | 0.382 |
| 11/09/23 | 645 | 7.57 | 0.324 |
| 12/09/23 | 657 | 7.55 | 0.303 |
| 13/09/23 | 660 | 7.35 | 0.288 |
| 14/09/23 | 668 | 7.33 | 0.283 |
| 15/09/23 | 670 | 7.30 | 0.273 |
| 16/09/23 | 680 | 7.29 | 0.273 |
| 17/09/23 | 675 | 7.25 | 0.262 |
| 18/09/23 | 669 | 7.17 | 0.247 |
| 19/09/23 | 682 | 7.14 | 0.245 |
| 20/09/23 | 678 | 7.11 | 0.241 |
| 21/09/23 | 674 | 7.06 | 0.235 |
| 22/09/23 | 670 | 7.04 | 0.237 |
| 23/09/23 | 663 | 7.05 | 0.237 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 24/09/23 | 664 | 7.04 | 0.234 |
| 25/09/23 | 661 | 7.02 | 0.232 |
| 26/09/23 | 660 | 7.03 | 0.237 |
| 27/09/23 | 664 | 7.06 | 0.243 |
| 28/09/23 | 667 | 7.02 | 0.228 |
| 29/09/23 | 652 | 7.02 | 0.212 |
| 30/09/23 | 650 | 7.05 | 0.196 |
| 1/10/23 | 656 | 7.07 | 0.212 |
| 2/10/23 | 653 | 7.05 | 0.191 |
| 3/10/23 | 629 | 7.06 | 0.174 |
| 4/10/23 | 601 | 6.95 | 2.195 |
| 5/10/23 | 590 | 6.97 | 3.715 |
| 6/10/23 | 608 | 6.94 | 0.368 |
| 7/10/23 | 609 | 6.93 | 0.261 |
| 8/10/23 | 610 | 6.94 | 0.232 |
| 9/10/23 | 622 | 7.06 | 0.214 |
| 10/10/23 | 639 | 7.31 | 0.210 |
| 11/10/23 | 657 | 7.32 | 0.207 |
| 12/10/23 | 645 | 7.31 | 0.187 |
| 13/10/23 | 678 | 7.36 | 0.197 |
| 14/10/23 | 683 | 7.35 | 0.176 |
| 15/10/23 | 677 | 7.29 | 0.178 |
| 16/10/23 | 676 | 7.26 | 0.182 |
| 17/10/23 | 683 | 7.19 | 0.179 |
| 18/10/23 | 681 | 7.17 | 0.177 |
| 19/10/23 | 672 | 7.12 | 0.176 |
| 20/10/23 | 676 | 7.13 | 0.168 |
| 21/10/23 | 663 | 7.17 | 0.154 |
| 22/10/23 | 684 | 7.19 | 0.177 |
| 23/10/23 | 676 | 7.19 | 0.165 |
| 24/10/23 | 672 | 7.16 | 0.156 |
| 25/10/23 | 661 | 7.21 | 0.150 |
| 26/10/23 | 656 | 7.13 | 0.163 |
| 27/10/23 | 664 | 7.17 | 0.267 |
| 28/10/23 | 642 | 7.28 | 0.187 |
| 29/10/23 | 618 | 7.26 | 0.172 |
| 30/10/23 | 614 | 7.23 | 0.171 |
| 31/10/23 | 633 | 7.24 | 0.167 |
| 1/11/23 | 626 | 7.24 | 0.161 |
| 2/11/23 | 647 | 7.26 | 0.156 |
| 3/11/23 | 659 | 7.24 | 0.153 |
| 4/11/23 | 649 | 7.26 | 0.213 |
| 5/11/23 | 579 | 7.19 | 0.280 |
| 6/11/23 | 573 | 7.17 | 0.177 |
| 7/11/23 | 560 | 7.15 | 0.168 |
| 8/11/23 | 566 | 7.18 | 0.169 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 9/11/23 | 551 | 7.15 | 0.285 |
| 10/11/23 | 559 | 7.15 | 0.335 |
| 11/11/23 | 551 | 7.14 | 0.188 |
| 12/11/23 | 555 | 7.16 | 0.176 |
| 13/11/23 | 551 | 7.14 | 0.163 |
| 14/11/23 | 556 | 7.13 | 0.153 |
| 15/11/23 | 569 | 7.12 | 0.152 |
| 16/11/23 | 571 | 7.11 | 0.150 |
| 17/11/23 | 562 | 7.10 | 0.144 |
| 18/11/23 | 555 | 7.09 | 0.142 |
| 19/11/23 | 564 | 7.04 | 0.142 |
| 20/11/23 | 571 | 7.07 | 0.150 |
| 21/11/23 | 570 | 7.12 | 0.164 |
| 22/11/23 | 562 | 7.13 | 0.153 |
| 23/11/23 | 547 | 7.14 | 0.160 |
| 24/11/23 | 542 | 7.10 | 0.215 |
| 25/11/23 | 526 | 7.04 | 0.578 |
| 26/11/23 | 516 | 7.01 | 0.250 |
| 27/11/23 | 519 | 7.05 | 0.301 |
| 28/11/23 | 501 | 7.08 | 0.200 |
| 29/11/23 | 486 | 7.01 | 1.380 |
| 30/11/23 | 438 | 6.84 | 1.350 |
| 1/12/23 | 455 | 7.01 | 0.216 |
| 2/12/23 | 470 | 6.97 | 0.182 |
| 3/12/23 | 465 | 6.95 | 0.162 |
| 4/12/23 | 475 | 6.99 | 0.148 |
| 5/12/23 | 486 | 6.99 | 0.140 |
| 6/12/23 | 499 | 7.08 | 0.134 |
| 7/12/23 | 501 | 7.18 | 0.130 |
| 8/12/23 | 512 | 7.20 | 0.130 |
| 9/12/23 | 517 | 7.19 | 0.127 |
| 10/12/23 | 523 | 7.16 | 0.124 |
| 11/12/23 | 518 | 7.14 | 0.122 |
| 12/12/23 | 516 | 7.12 | 0.120 |
| 13/12/23 | 520 | 7.14 | 0.119 |
| 14/12/23 | 522 | 7.11 | 0.117 |
| 15/12/23 | 511 | 7.07 | 0.118 |
| 16/12/23 | 508 | 7.07 | 0.117 |
| 17/12/23 | 510 | 7.09 | 0.116 |
| 18/12/23 | 527 | 7.11 | 0.112 |
| 19/12/23 | 520 | 7.13 | 0.115 |
| 20/12/23 | 492 | 7.11 | 0.156 |
| 21/12/23 | 471 | 7.06 | 0.196 |
| 22/12/23 | 467 | 7.05 | 0.138 |
| 23/12/23 | 464 | 7.04 | 0.122 |
| 24/12/23 | 448 | 6.94 | 4.589 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 25/12/23 | 433 | 6.95 | 0.278 |
| 26/12/23 | 448 | 7.00 | 0.157 |
| 27/12/23 | 420 | 6.92 | 0.119 |
| 28/12/23 | 429 | 6.94 | 0.114 |
| 29/12/23 | 439 | 6.92 | 0.113 |
| 30/12/23 | 440 | 6.94 | 0.117 |
| 31/12/23 | 434 | 6.94 | 0.115 |

## 5.2 SW02 Goulburn River Downstream

**SW02** is located in the Goulburn River downstream of UCMPL's and MCO activities and other non-UCMPL mining activities.

SW02 is sampled monthly, after specific rainfall events and is equipped with sensors recording daily average EC, pH and flow volumes. The 2023 water quality monitoring and flow results from SW02 indicate that:

- Continuous daily water monitoring indicates that pH remained within the adopted pH criteria of 6.4 – 8.1 for 2023 for approximately 82% of the time. The monthly average pH results remained within the adopted pH criteria of 6.4 – 8.1 for 2023.
- Continuous water monitoring indicates that EC concentrations were below the adopted trigger value of 854 µS/cm for 2023 approximately 93% of the time. The monthly average EC results remained within the adopted trigger value of 854 µS/cm for 2023, with exception to the monthly average in January which was 923 µS/cm. The EC results for January are likely influenced by MCO's emergency discharging in late December 2022 and early January 2023.
- The maximum daily EC result of 1084 µS/cm occurred on 02 January 2023, where elevated EC results were likely influenced by MCO's emergency discharging in late December 2022 and early January 2023.
- The daily average EC remained above854 µS/cm from 01/01/2023 to 21/01/2023 where elevated EC results were likely influence by MCO's emergency discharging in late December 2022 and early January 2023.
- Between the 26 to 31 December 2023 the daily average EC was periodically just above the adopted trigger value of 854µS/cm.
- Monthly grab sample monitoring for TSS indicates that results were below the adopted trigger value of 50mg/L in 2023. The maximum recorded TSS was 46mg/L.
- There were no three (3) consecutive elevated monthly averages of the adopted criteria for pH, EC and TSS in 2023.

## 5.2.1 SW02 Daily Average Results

| | pH | EC(µs/cm$^{-1}$) | Flow (ML/Day) |
|---|---|---|---|
| **Min** | 7.43 | 439 | 6.45 |
| **Max** | 8.35 | 1084 | 230.81 |
| **Average** | 7.93 | 680.02 | 42.36 |

*Table 5-2 SW02 Daily Average Results*

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 1/01/2023 | 1047 | 7.71 | 106.477 |
| 2/01/2023 | 1084 | 7.81 | 84.515 |
| 3/01/2023 | 1054 | 7.77 | 87.775 |
| 4/01/2023 | 1024 | 7.74 | 83.788 |
| 5/01/2023 | 1022 | 7.80 | 84.404 |
| 6/01/2023 | 1007 | 7.86 | 82.765 |
| 7/01/2023 | 1015 | 7.91 | 83.616 |
| 8/01/2023 | 1020 | 7.92 | 83.336 |
| 9/01/2023 | 1034 | 7.90 | 75.894 |
| 10/01/2023 | 1032 | 7.98 | 73.942 |
| 11/01/2023 | 1024 | 8.16 | 80.768 |
| 12/01/2023 | 1031 | 8.10 | 76.040 |
| 13/01/2023 | 1031 | 8.09 | 90.871 |
| 14/01/2023 | 1032 | 8.07 | 83.144 |
| 15/01/2023 | 1026 | 8.07 | 77.682 |
| 16/01/2023 | 1012 | 8.02 | 77.023 |
| 17/01/2023 | 1000 | 8.00 | 79.123 |
| 18/01/2023 | 1013 | 7.97 | 81.009 |
| 19/01/2023 | 1049 | 7.85 | 77.174 |
| 20/01/2023 | 1055 | 8.00 | 75.585 |
| 21/01/2023 | 911 | 7.99 | 58.654 |
| 22/01/2023 | 795 | 7.91 | 115.685 |
| 23/01/2023 | 811 | 7.76 | 230.809 |
| 24/01/2023 | 771 | 7.82 | 124.750 |
| 25/01/2023 | 723 | 7.83 | 101.179 |
| 26/01/2023 | 702 | 7.82 | 83.972 |
| 27/01/2023 | 681 | 7.86 | 85.219 |
| 28/01/2023 | 681 | 7.83 | 93.760 |
| 29/01/2023 | 657 | 7.85 | 84.332 |
| 30/01/2023 | 636 | 7.82 | 101.387 |
| 31/01/2023 | 632 | 7.85 | 110.403 |
| 1/02/2023 | 587 | 7.84 | 89.901 |
| 2/02/2023 | 632 | 7.93 | 84.249 |
| 3/02/2023 | 631 | 7.97 | 85.512 |
| 4/02/2023 | 611 | 8.04 | 86.017 |
| 5/02/2023 | 609 | 8.05 | 81.657 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 6/02/2023 | 609 | 8.00 | 75.761 |
| 7/02/2023 | 614 | 7.90 | 77.103 |
| 8/02/2023 | 617 | 7.88 | 79.446 |
| 9/02/2023 | 595 | 7.79 | 84.783 |
| 10/02/2023 | 578 | 7.83 | 115.808 |
| 11/02/2023 | 558 | 7.80 | 104.111 |
| 12/02/2023 | 573 | 7.83 | 78.856 |
| 13/02/2023 | 528 | 7.81 | 61.170 |
| 14/02/2023 | 554 | 7.78 | 66.569 |
| 15/02/2023 | 583 | 7.73 | 56.961 |
| 16/02/2023 | 611 | 7.82 | 67.902 |
| 17/02/2023 | 587 | 7.85 | 72.232 |
| 18/02/2023 | 577 | 7.80 | 69.002 |
| 19/02/2023 | 585 | 7.81 | 64.642 |
| 20/02/2023 | 585 | 7.82 | 67.286 |
| 21/02/2023 | 575 | 7.85 | 71.255 |
| 22/02/2023 | 572 | 7.89 | 73.764 |
| 23/02/2023 | 555 | 7.94 | 70.202 |
| 24/02/2023 | 571 | 7.96 | 72.164 |
| 25/02/2023 | 561 | 7.95 | 71.497 |
| 26/02/2023 | 564 | 7.95 | 69.409 |
| 27/02/2023 | 580 | 7.92 | 65.860 |
| 28/02/2023 | 555 | 7.83 | 65.430 |
| 1/03/2023 | 580 | 7.87 | 69.265 |
| 2/03/2023 | 578 | 7.86 | 68.615 |
| 3/03/2023 | 576 | 7.90 | 69.470 |
| 4/03/2023 | 571 | 7.91 | 69.118 |
| 5/03/2023 | 573 | 7.90 | 65.721 |
| 6/03/2023 | 577 | 7.85 | 65.158 |
| 7/03/2023 | 541 | 7.81 | 60.765 |
| 8/03/2023 | 573 | 7.82 | 67.488 |
| 9/03/2023 | 562 | 7.85 | 64.785 |
| 10/03/2023 | 575 | 7.86 | 69.156 |
| 11/03/2023 | 563 | 7.80 | 70.359 |
| 12/03/2023 | 528 | 7.72 | 61.968 |
| 13/03/2023 | 456 | 7.74 | 47.236 |
| 14/03/2023 | 552 | 7.66 | 68.659 |
| 15/03/2023 | 500 | 7.70 | 54.506 |
| 16/03/2023 | 563 | 7.76 | 70.191 |
| 17/03/2023 | 571 | 7.78 | 66.894 |
| 18/03/2023 | 571 | 7.76 | 65.122 |
| 19/03/2023 | 572 | 7.76 | 64.148 |
| 20/03/2023 | 566 | 7.79 | 61.662 |
| 21/03/2023 | 555 | 7.79 | 58.006 |
| 22/03/2023 | 553 | 7.76 | 58.304 |
| 23/03/2023 | 566 | 7.74 | 65.988 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 24/03/2023 | 543 | 7.68 | 71.386 |
| 25/03/2023 | 517 | 7.66 | 65.543 |
| 26/03/2023 | 540 | 7.68 | 74.054 |
| 27/03/2023 | 537 | 7.65 | 55.051 |
| 28/03/2023 | 531 | 7.61 | 57.338 |
| 29/03/2023 | 542 | 7.63 | 61.224 |
| 30/03/2023 | 573 | 7.72 | 41.731 |
| 31/03/2023 | 637 | 7.75 | 37.234 |
| 1/04/2023 | 665 | 7.79 | 31.879 |
| 2/04/2023 | 679 | 7.77 | 29.458 |
| 3/04/2023 | 595 | 7.73 | 32.994 |
| 4/04/2023 | 587 | 7.79 | 33.882 |
| 5/04/2023 | 564 | 7.78 | 32.030 |
| 6/04/2023 | 585 | 7.76 | 33.719 |
| 7/04/2023 | 582 | 7.73 | 44.416 |
| 8/04/2023 | 530 | 7.67 | 59.304 |
| 9/04/2023 | 548 | 7.74 | 44.787 |
| 10/04/2023 | 567 | 7.77 | 37.461 |
| 11/04/2023 | 570 | 7.80 | 34.861 |
| 12/04/2023 | 564 | 7.81 | 35.095 |
| 13/04/2023 | 594 | 7.80 | 35.973 |
| 14/04/2023 | 664 | 7.84 | 29.466 |
| 15/04/2023 | 614 | 7.81 | 36.121 |
| 16/04/2023 | 600 | 7.77 | 37.248 |
| 17/04/2023 | 562 | 7.83 | 29.913 |
| 18/04/2023 | 607 | 7.83 | 31.250 |
| 19/04/2023 | 592 | 7.79 | 32.539 |
| 20/04/2023 | 596 | 7.79 | 31.934 |
| 21/04/2023 | 600 | 7.77 | 36.095 |
| 22/04/2023 | 599 | 7.81 | 36.818 |
| 23/04/2023 | 597 | 7.78 | 35.740 |
| 24/04/2023 | 586 | 7.75 | 35.431 |
| 25/04/2023 | 597 | 7.75 | 36.164 |
| 26/04/2023 | 601 | 7.81 | 32.261 |
| 27/04/2023 | 620 | 7.81 | 33.721 |
| 28/04/2023 | 599 | 7.81 | 35.422 |
| 29/04/2023 | 594 | 7.72 | 38.544 |
| 30/04/2023 | 562 | 7.76 | 49.415 |
| 1/05/2023 | 508 | 7.79 | 35.333 |
| 2/05/2023 | 466 | 7.90 | 22.460 |
| 3/05/2023 | 479 | 7.91 | 22.965 |
| 4/05/2023 | 574 | 7.83 | 33.491 |
| 5/05/2023 | 603 | 7.86 | 35.440 |
| 6/05/2023 | 612 | 7.89 | 28.434 |
| 7/05/2023 | 623 | 7.73 | 32.788 |
| 8/05/2023 | 634 | 7.79 | 30.171 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 9/05/2023 | 605 | 7.74 | 31.427 |
| 10/05/2023 | 588 | 7.72 | 31.105 |
| 11/05/2023 | 587 | 7.76 | 31.598 |
| 12/05/2023 | 609 | 7.72 | 34.972 |
| 13/05/2023 | 610 | 7.71 | 37.362 |
| 14/05/2023 | 606 | 7.71 | 35.332 |
| 15/05/2023 | 608 | 7.89 | 35.608 |
| 16/05/2023 | 600 | 7.93 | 34.087 |
| 17/05/2023 | 584 | 8.06 | 31.863 |
| 18/05/2023 | 592 | 8.06 | 33.956 |
| 19/05/2023 | 587 | 8.01 | 35.192 |
| 20/05/2023 | 570 | 8.06 | 31.064 |
| 21/05/2023 | 573 | 8.01 | 32.092 |
| 22/05/2023 | 572 | 7.94 | *36.616* |
| 23/05/2023 | 651 | 8.01 | 31.518 |
| 24/05/2023 | 684 | 7.95 | 32.740 |
| 25/05/2023 | 617 | 7.93 | 42.436 |
| 26/05/2023 | 606 | 7.87 | 45.864 |
| 27/05/2023 | 599 | 7.84 | 44.052 |
| 28/05/2023 | 585 | 7.89 | 45.016 |
| 29/05/2023 | 580 | 7.85 | 43.492 |
| 30/05/2023 | 569 | 7.84 | 41.886 |
| 31/05/2023 | 596 | 7.90 | 43.287 |
| 1/06/2023 | 689 | 7.82 | 35.378 |
| 2/06/2023 | 707 | 7.84 | 37.921 |
| 3/06/2023 | 710 | 7.84 | 36.175 |
| 4/06/2023 | 714 | 7.82 | 35.242 |
| 5/06/2023 | 712 | 7.85 | 33.319 |
| 6/06/2023 | 700 | 7.84 | 30.018 |
| 7/06/2023 | 717 | 8.00 | 36.635 |
| 8/06/2023 | 714 | 7.98 | 38.207 |
| 9/06/2023 | 716 | 8.00 | 43.206 |
| 10/06/2023 | 705 | 8.00 | 40.124 |
| 11/06/2023 | 710 | 8.02 | 38.102 |
| 12/06/2023 | 715 | 8.06 | 38.046 |
| 13/06/2023 | 715 | 8.02 | 39.457 |
| 14/06/2023 | 624 | 7.97 | 45.852 |
| 15/06/2023 | 611 | 8.02 | 48.914 |
| 16/06/2023 | 621 | 8.00 | 50.043 |
| 17/06/2023 | 629 | 7.97 | 43.362 |
| 18/06/2023 | 549 | 8.03 | 33.698 |
| 19/06/2023 | 602 | 8.00 | 38.882 |
| 20/06/2023 | 618 | 8.05 | 49.036 |
| 21/06/2023 | 595 | 7.98 | 42.250 |
| 22/06/2023 | 597 | 7.97 | 46.975 |
| 23/06/2023 | 570 | 7.93 | 53.809 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 24/06/2023 | 563 | 7.90 | 63.978 |
| 25/06/2023 | 581 | 7.82 | 50.853 |
| 26/06/2023 | 572 | 7.88 | 43.684 |
| 27/06/2023 | 585 | 7.78 | 45.736 |
| 28/06/2023 | 576 | 7.84 | 38.221 |
| 29/06/2023 | 439 | 7.65 | 24.241 |
| 30/06/2023 | 516 | 7.70 | 40.277 |
| 1/07/2023 | 592 | 7.82 | 43.241 |
| 2/07/2023 | 595 | 7.81 | 42.158 |
| 3/07/2023 | 585 | 7.83 | 39.605 |
| 4/07/2023 | 594 | 7.80 | 43.847 |
| 5/07/2023 | 623 | 8.03 | 62.946 |
| 6/07/2023 | 620 | 8.04 | 60.562 |
| 7/07/2023 | 626 | 8.10 | 53.096 |
| 8/07/2023 | 635 | 8.09 | 44.951 |
| 9/07/2023 | 655 | 8.13 | 45.978 |
| 10/07/2023 | 672 | 8.16 | 46.308 |
| 11/07/2023 | 664 | 8.11 | 42.382 |
| 12/07/2023 | 677 | 8.08 | 36.313 |
| 13/07/2023 | 673 | 8.12 | 37.909 |
| 14/07/2023 | 653 | 8.10 | 30.530 |
| 15/07/2023 | 661 | 8.16 | 45.422 |
| 16/07/2023 | 648 | 8.15 | 44.661 |
| 17/07/2023 | 657 | 8.18 | 45.503 |
| 18/07/2023 | 648 | 8.18 | 40.090 |
| 19/07/2023 | 660 | 8.18 | 44.862 |
| 20/07/2023 | 637 | 8.22 | 36.940 |
| 21/07/2023 | 641 | 8.12 | 38.631 |
| 22/07/2023 | 637 | 8.19 | 44.419 |
| 23/07/2023 | 651 | 8.2 | 43.006 |
| 24/07/2023 | 649 | 8.17 | 44.780 |
| 25/07/2023 | 634 | 8.15 | 42.567 |
| 26/07/2023 | 639 | 8.15 | 44.491 |
| 27/07/2023 | 636 | 8.17 | 43.906 |
| 28/07/2023 | 630 | 8.17 | 42.906 |
| 29/07/2023 | 641 | 8.14 | 43.866 |
| 30/07/2023 | 627 | 8.16 | 42.609 |
| 31/07/2023 | 628 | 8.14 | 42.625 |
| 1/08/2023 | 586 | 8.16 | 47.865 |
| 2/08/2023 | 572 | 8.19 | 47.027 |
| 3/08/2023 | 568 | 8.23 | 47.071 |
| 4/08/2023 | 553 | 8.20 | 42.152 |
| 5/08/2023 | 549 | 8.19 | 43.056 |
| 6/08/2023 | 551 | 8.21 | 44.035 |
| 7/08/2023 | 569 | 8.20 | 42.227 |
| 8/08/2023 | 587 | 8.19 | 39.943 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 9/08/2023 | 566 | 8.16 | 39.592 |
| 10/08/2023 | 581 | 8.19 | 43.177 |
| 11/08/2023 | 563 | 8.13 | 40.760 |
| 12/08/2023 | 557 | 8.12 | 41.977 |
| 13/08/2023 | 563 | 8.05 | 44.550 |
| 14/08/2023 | 557 | 7.96 | 44.549 |
| 15/08/2023 | 549 | 7.96 | 46.366 |
| 16/08/2023 | 569 | 7.94 | 49.628 |
| 17/08/2023 | 565 | 7.95 | 44.795 |
| 18/08/2023 | 672 | 7.98 | 32.616 |
| 19/08/2023 | 632 | 7.97 | 45.482 |
| 20/08/2023 | 616 | 7.76 | 43.207 |
| 21/08/2023 | 609 | 7.67 | 39.301 |
| 22/08/2023 | 614 | 7.56 | 38.897 |
| 23/08/2023 | 610 | 7.43 | 34.653 |
| 24/08/2023 | 700 | 7.44 | 28.490 |
| 25/08/2023 | 672 | 7.47 | 34.150 |
| 26/08/2023 | 655 | 7.47 | 31.251 |
| 27/08/2023 | 690 | 7.53 | 29.267 |
| 28/08/2023 | 742 | 7.66 | 26.662 |
| 29/08/2023 | 748 | 7.81 | 23.472 |
| 30/08/2023 | 689 | 7.66 | 35.160 |
| 31/08/2023 | 707 | 7.76 | 26.623 |
| 1/09/2023 | 680 | 7.53 | 39.192 |
| 2/09/2023 | 663 | 7.56 | 37.001 |
| 3/09/2023 | 665 | 7.69 | 37.920 |
| 4/09/2023 | 695 | 7.51 | 43.704 |
| 5/09/2023 | 725 | 7.65 | 35.529 |
| 6/09/2023 | 724 | 7.66 | 37.368 |
| 7/09/2023 | 660 | 7.84 | 38.692 |
| 8/09/2023 | 675 | 8.09 | 44.701 |
| 9/09/2023 | 640 | 8.19 | 44.713 |
| 10/09/2023 | 642 | 8.17 | 32.904 |
| 11/09/2023 | 664 | 8.15 | 41.199 |
| 12/09/2023 | 606 | 8.12 | 47.985 |
| 13/09/2023 | 618 | 8.08 | 42.363 |
| 14/09/2023 | 556 | 8.02 | 49.534 |
| 15/09/2023 | 547 | 8.02 | 48.877 |
| 16/09/2023 | 582 | 7.99 | 42.341 |
| 17/09/2023 | 565 | 7.96 | 36.610 |
| 18/09/2023 | 523 | 7.91 | 29.664 |
| 19/09/2023 | 622 | 7.95 | 41.678 |
| 20/09/2023 | 632 | 7.92 | 39.838 |
| 21/09/2023 | 611 | 7.92 | 39.174 |
| 22/09/2023 | 657 | 7.94 | 32.997 |
| 23/09/2023 | 642 | 7.97 | 26.508 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 24/09/2023 | 616 | 7.94 | 25.852 |
| 25/09/2023 | 618 | 8.01 | 29.817 |
| 26/09/2023 | 635 | 8.03 | 25.035 |
| 27/09/2023 | 617 | 8.00 | 23.876 |
| 28/09/2023 | 640 | 8.03 | 24.406 |
| 29/09/2023 | 667 | 8.10 | 26.725 |
| 30/09/2023 | 660 | 8.09 | 18.811 |
| 1/10/2023 | 736 | 8.10 | 19.933 |
| 2/10/2023 | 762 | 8.02 | 17.635 |
| 3/10/2023 | 763 | 8.03 | 16.885 |
| 4/10/2023 | 749 | 8.04 | 22.636 |
| 5/10/2023 | 718 | 8.20 | 33.077 |
| 6/10/2023 | 715 | 8.18 | 30.371 |
| 7/10/2023 | 738 | 8.16 | 22.146 |
| 8/10/2023 | 753 | 8.06 | 14.779 |
| 9/10/2023 | 769 | 8.08 | 13.891 |
| 10/10/2023 | 769 | 8.10 | 12.735 |
| 11/10/2023 | 777 | 8.08 | 15.333 |
| 12/10/2023 | 775 | 8.10 | 12.625 |
| 13/10/2023 | 777 | 8.11 | 13.167 |
| 14/10/2023 | 774 | 8.10 | 13.582 |
| 15/10/2023 | 780 | 8.08 | 14.873 |
| 16/10/2023 | 780 | 8.09 | 12.053 |
| 17/10/2023 | 782 | 8.12 | 11.669 |
| 18/10/2023 | 784 | 8.07 | 12.167 |
| 19/10/2023 | 786 | 8.03 | 11.637 |
| 20/10/2023 | 785 | 7.99 | 11.399 |
| 21/10/2023 | 785 | 8.03 | 12.095 |
| 22/10/2023 | 791 | 8.02 | 12.575 |
| 23/10/2023 | 788 | 8.04 | 12.910 |
| 24/10/2023 | 787 | 7.94 | 9.583 |
| 25/10/2023 | 795 | 7.94 | 11.705 |
| 26/10/2023 | 777 | 7.92 | 13.842 |
| 27/10/2023 | 765 | 7.93 | 15.348 |
| 28/10/2023 | 771 | 7.90 | 15.293 |
| 29/10/2023 | 768 | 7.86 | 13.489 |
| 30/10/2023 | 779 | 7.89 | 15.531 |
| 31/10/2023 | 786 | 7.88 | 11.795 |
| 1/11/2023 | 785 | 7.87 | 9.285 |
| 2/11/2023 | 788 | 7.91 | 8.855 |
| 3/11/2023 | 788 | 7.87 | 8.751 |
| 4/11/2023 | 779 | 7.75 | 6.453 |
| 5/11/2023 | 761 | 7.71 | 7.351 |
| 6/11/2023 | 763 | 8.07 | 17.097 |
| 7/11/2023 | 770 | 8.12 | 16.963 |
| 8/11/2023 | 776 | 8.11 | 14.148 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 9/11/2023 | 761 | 8.05 | 17.530 |
| 10/11/2023 | 765 | 8.07 | 28.340 |
| 11/11/2023 | 780 | 8.03 | 27.120 |
| 12/11/2023 | 791 | 8.02 | 23.915 |
| 13/11/2023 | 792 | 8.03 | 22.841 |
| 14/11/2023 | 792 | 8.04 | 20.662 |
| 15/11/2023 | 794 | 8.04 | 23.046 |
| 16/11/2023 | 792 | 8.04 | 23.350 |
| 17/11/2023 | 790 | 8.10 | 22.237 |
| 18/11/2023 | 788 | 8.14 | 26.888 |
| 19/11/2023 | 787 | 8.17 | 29.808 |
| 20/11/2023 | 776 | 8.16 | 17.003 |
| 21/11/2023 | 775 | 8.28 | 17.866 |
| 22/11/2023 | 785 | 8.17 | 12.712 |
| 23/11/2023 | 771 | 8.27 | 16.661 |
| 24/11/2023 | 753 | 8.31 | 19.291 |
| 25/11/2023 | 735 | 8.28 | 29.694 |
| 26/11/2023 | 763 | 8.27 | 31.013 |
| 27/11/2023 | 771 | 8.23 | 23.956 |
| 28/11/2023 | 768 | 8.28 | 24.120 |
| 29/11/2023 | 757 | 8.23 | 28.444 |
| 30/11/2023 | 754 | 8.34 | 27.469 |
| 1/12/2023 | 756 | 8.35 | 26.104 |
| 2/12/2023 | 768 | 8.32 | 19.788 |
| 3/12/2023 | 772 | 8.21 | 13.477 |
| 4/12/2023 | 773 | 8.18 | 19.864 |
| 5/12/2023 | 785 | 8.18 | 9.042 |
| 6/12/2023 | 805 | 8.11 | 9.228 |
| 7/12/2023 | 804 | 8.17 | 11.147 |
| 8/12/2023 | 799 | 8.18 | 14.946 |
| 9/12/2023 | 808 | 8.01 | 10.438 |
| 10/12/2023 | 812 | 8.02 | 13.357 |
| 11/12/2023 | 815 | 7.99 | 18.147 |
| 12/12/2023 | 824 | 8.01 | 16.929 |
| 13/12/2023 | 828 | 7.99 | 11.519 |
| 14/12/2023 | 832 | 7.99 | 10.969 |
| 15/12/2023 | 836 | 7.90 | 8.219 |
| 16/12/2023 | 842 | 7.95 | 8.636 |
| 17/12/2023 | 848 | 7.92 | 10.030 |
| 18/12/2023 | 854 | 7.84 | 9.746 |
| 19/12/2023 | 849 | 7.81 | 8.463 |
| 20/12/2023 | 817 | 7.79 | 15.006 |
| 21/12/2023 | 805 | 7.86 | 18.276 |
| 22/12/2023 | 816 | 8.00 | 10.870 |
| 23/12/2023 | 814 | 7.94 | 6.671 |
| 24/12/2023 | 768 | 7.95 | 12.718 |

| Date | EC(µs/cm$^{-1}$) | pH | Flow (ML/Day) |
|---|---|---|---|
| 25/12/2023 | 850 | 7.90 | 21.638 |
| 26/12/2023 | 1058 | 7.59 | 20.423 |
| 27/12/2023 | 957 | 7.71 | 9.537 |
| 28/12/2023 | 958 | 7.65 | 6.874 |
| 29/12/2023 | 932 | 7.61 | 10.226 |
| 30/12/2023 | 874 | 7.72 | 8.383 |
| 31/12/2023 | 860 | 7.75 | 7.261 |

# 6. Flow Sampling Creek Lines

**SW03** is located in Ulan Creek, upstream from all of the Licensed Discharge Points and sampled at a semi-permanent pool within the creek. Ulan Creek is a fourth order stream flowing in a southerly then easterly direction, through the Project Approval boundary before joining the Goulburn River. Ulan Creek is an ephemeral creek system with flows occurring during storm events or after prolonged rainfall. Downstream from SW03, creek flows are augmented by discharge from LDP6. The results from surface water monitoring at SW03 (**Table 4-2**) indicate:

- There were 10 sampling events during 2023.
- There were no three consecutive monthly results outside of the adopted criteria for pH and EC during 2023.
- The pH was above the adopted criteria of pH 6.5-7.9 on 3 occasions in June, September and October.
- EC was above the adopted criteria of 1126 µS/cm on 1 occasion in October.
- TSS remained below the adopted criteria of 64 mg/L.

**SW04** is located in Ulan Creek approximately 3.7 km downstream from LDP6 at Old Ulan. Excluding significant rain events, water flows at SW04 are augmented entirely by discharges from LDP6. The results from surface water monitoring at SW04 (**Table 4-2**) indicate:

- There were 13 sampling events during 2023.
- There were no three consecutive results outside of the adopted criteria for pH, EC and TSS during 2023.
- The pH was above the adopted criteria of pH 6.5-8.5 on 2 occasions in September and November.
- EC was within the adopted criteria of 900 µS/cm.
- TSS was above the adopted criteria of 83 mg/L on seven occasions.

**SW05** is located in Ulan Creek approximately 4 km downstream from SW04 at an internal causeway crossing. SW05 is approximately 900 m upstream of LDP19 and approximately 2 km from Goulburn River confluence. Excluding significant rain events, water flows at SW05 are augmented entirely by discharges from LDP6. The results from surface water monitoring at SW05 (**Table 4-2**) indicate:

- There were 13 sampling events during 2023.
- There were no three consecutive results outside of the adopted criteria for pH, EC and TSS during 2023.
- The pH was within the adopted criteria of pH 6.5-8.5.
- EC was within the adopted criteria of 900 µS/cm.
- TSS was within the adopted criteria of 50 mg/L.

**SW06** is located in Spring Gully (off Pleuger Road) and is a second order, ephemeral stream passing through remote bushland in the eastern section of the Project Approval boundary. Spring Gully joins Bobadeen Creek outside the Project Approval boundary, approximately 350 m upstream of its confluence with the Goulburn River:

- There were no sampling events during 2023. Dry at the time of sampling. Rainfall in 2023 was well below the annual average (Section 6.1 of the 2023 Annual Review).

**SW07** is located in Bobadeen Creek, a fourth order stream flowing through cleared grazing land in the north-eastern section of the Project Approval boundary. The creek flows in a south-easterly direction towards the Goulburn River. The creek is ephemeral and generally experiences low flows, with pools of permanent or semi-permanent water present in the downstream reaches:

- There were no sampling events during 2023. Dry at the time of sampling. Rainfall in 2023 was well below the annual average (Section 6.1 of the 2023 Annual Review).

**SW08** is located at the upper reach of Curra Creek, a third order, ephemeral stream, which flows only during storm events or after prolonged rainfall, typically in a southerly direction in the very north-eastern section of the Project Approval boundary, upstream of the influence of mining activities, before joining with Bobadeen Creek:

- There were no sampling events during 2023. Dry at the time of sampling. Rainfall in 2023 was well below the annual average (Section 6.1 of the 2023 Annual Review).

**SW09** is located in the Talbragar River, a Category 3 stream and a tributary of the Macquarie River on the western side of the Great Dividing Range, within the Murray-Darling Basin catchment. The Talbragar River flows in a south-westerly direction across the north-western corner of the Project Approval boundary area and outside mining activities. The results of analysis of 2023 surface water samples from SW09 (**Table 4-2**) indicates:

- There were 13 sampling events during 2023.
- There were three consecutive results outside of the adopted criteria for pH and TSS during 2023 (refer to **Table 6-1**).
- EC was within the adopted criteria of 2200 µS/cm.

*Table 6-1 Surface Water Monitoring Result TARP Activation*

| Site | Date of sample | Trigger | Action | Result |
|---|---|---|---|---|
| SW09 | 3 consecutive monthly results (January to March)<br>3 consecutive monthly results (October to December) | Elevated pH<br>Elevated TSS | Inspection of Site, review of field sheet comments and review of data. | SW09 is located to the north west of the Project Area on the Talbragar River within private property and water quality is influenced by flooding events in the river, agricultural activities including cattle grazing and cultivated paddocks immediately upstream and surrounding the sampling point. Lower rainfall in 2023 has also seen reduced flow volumes in the river.<br>The periodic elevated pH and TSS at SW09 are likely the result of other influences as discussed above surrounding this location and is considered too remote from UCMPL's activities. |

**SW10** is located within Mona Creek, a fourth order, ephemeral stream which flows through cleared grazing land in the north-western section of the Project Approval boundary, in a north-westerly direction, towards the Talbragar River. Flows in Mona Creek are triggered during storm events or after prolonged rainfall and pools of permanent or semi-permanent water are present in the downstream reaches.

- There was one sampling event during 2023. Dry at other times of sampling. Rainfall in 2023 was well below the annual average (Section 6.1 of the 2023 Annual Review).
- There were no three consecutive results outside of the adopted criteria for pH, EC and TSS during 2023.
- The pH was within the adopted criteria of pH 6.5-8.0.
- EC was within the adopted criteria of 350 µS/cm.

- TSS was within the adopted criteria of 50 mg/L.

**SW11** is located in Cockabutta Creek, a second order, ephemeral stream, which is not subject to the influence of mining activities, flowing in a westerly direction towards the Talbragar River, passing through bushland and rural allotments in the western section of the Project Approval boundary.

- There was one sampling event during 2023. Dry at other times of sampling. Rainfall in 2023 was well below the annual average (Section 6.1 of the 2023 Annual Review).
- There were no three consecutive results outside of the adopted criteria for pH, EC and TSS during 2023.
- The pH was within the adopted criteria of pH 6.5-8.0.
- EC was within the adopted criteria of 350 µS/cm.
- TSS was within the adopted criteria of 50 mg/L.

# 7. Flow Sampling Clean Water Diversion Drain and System

**SW12** is located in the Clean Water Diversion System, a drain that captures the runoff from rehabilitated land around the mine operations. The water is not subject to the influence of mining activities and flows into and remains in Peanut Dam.

- There were 2 sampling events during 2023. Dry at the time of sampling. Rainfall in 2023 was well below the annual average (Section 6.1 of the 2023 Annual Review).
- The pH was within the adopted criteria of pH 6.5-8.0.
- EC was above the adopted criteria of 350 µS/cm on two occasions.
- TSS was within the adopted criteria of 50 mg/L.

**SW13** is located in the Clean Water Diversion Drain, a drain that captures the runoff from rehabilitated land around the mine operations. The water is not subject to the influence of mining activities and flows into a tributary of Ulan, then flows into Ulan Creek and then flows into the Goulburn River.

- There were no sampling events during 2023. Dry at the time of sampling. Rainfall in 2023 was well below the annual average (Section 6.1 of the 2023 Annual Review).

**SW14** is located in the Clean Water Diversion Drain, a drain that captures the runoff from rehabilitated land around the mine operations. The water is not subject to the influence of mining activities and flows into a tributary of Ulan, then flows into Ulan Creek and then flows into the Goulburn River.

- There were no sampling events during 2023. Dry at the time of sampling. Rainfall in 2023 was well below the annual average (Section 6.1 of the 2023 Annual Review).

**SW15** is located in the Clean Water Diversion System, a drain that captures the runoff from rehabilitated land around the mine operations. The water is not subject to the influence of mining activities and flows into and remains in Peanut Dam.

- There were no sampling events during 2023. Dry at the time of sampling. Rainfall in 2023 was well below the annual average (Section 6.1 of the 2023 Annual Review).

**SW16** is located in the Clean Water Diversion System, a drain that captures the runoff from rehabilitated land around the mine operations. The water is not subject to the influence of mining activities and flows into and remains in Peanut Dam.

- There were no sampling events during 2023. Dry at the time of sampling. Rainfall in 2023 was well below the annual average (Section 6.1 of the 2023 Annual Review).

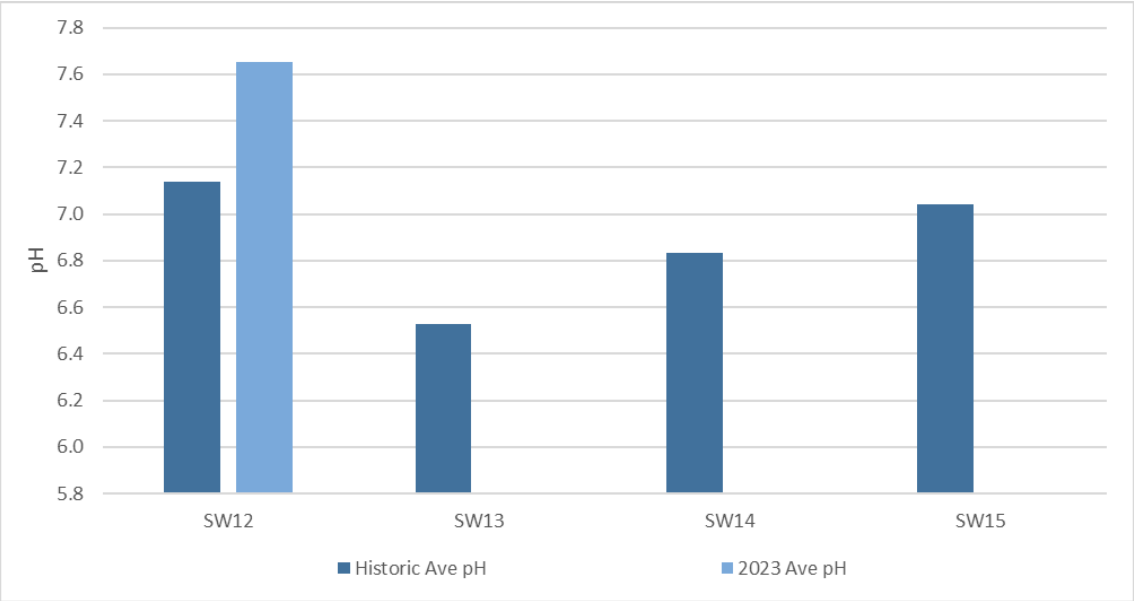



*Figure 7-1 Comparison 2023 to Historical Average pH Monitoring Results*

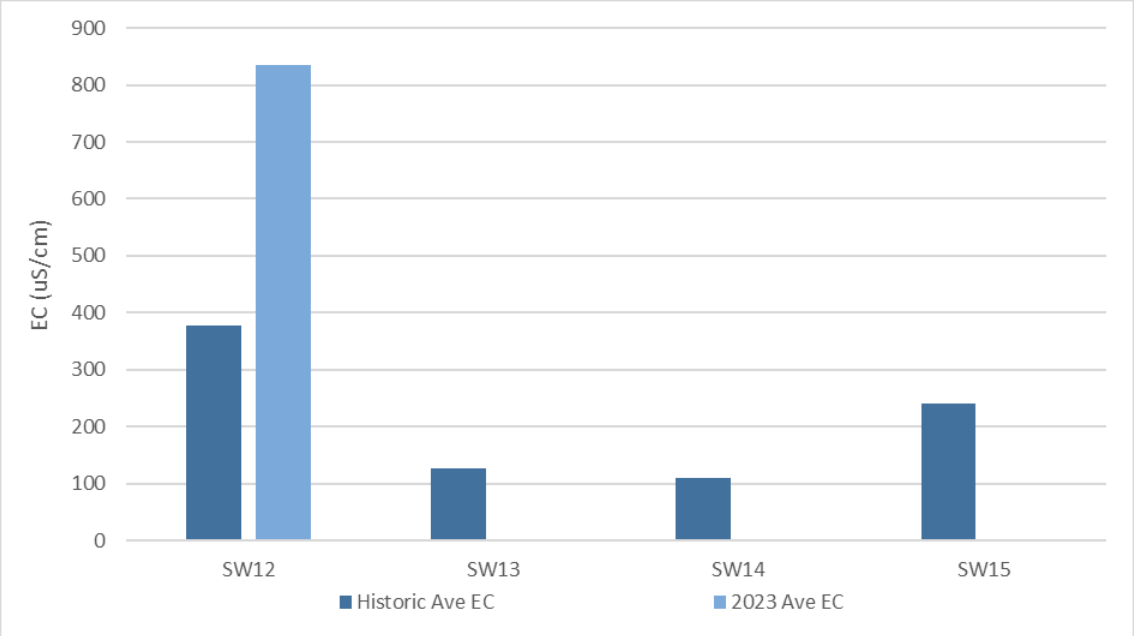



*Figure 7-2 Comparison 2022 to Historical Average EC Monitoring Results*

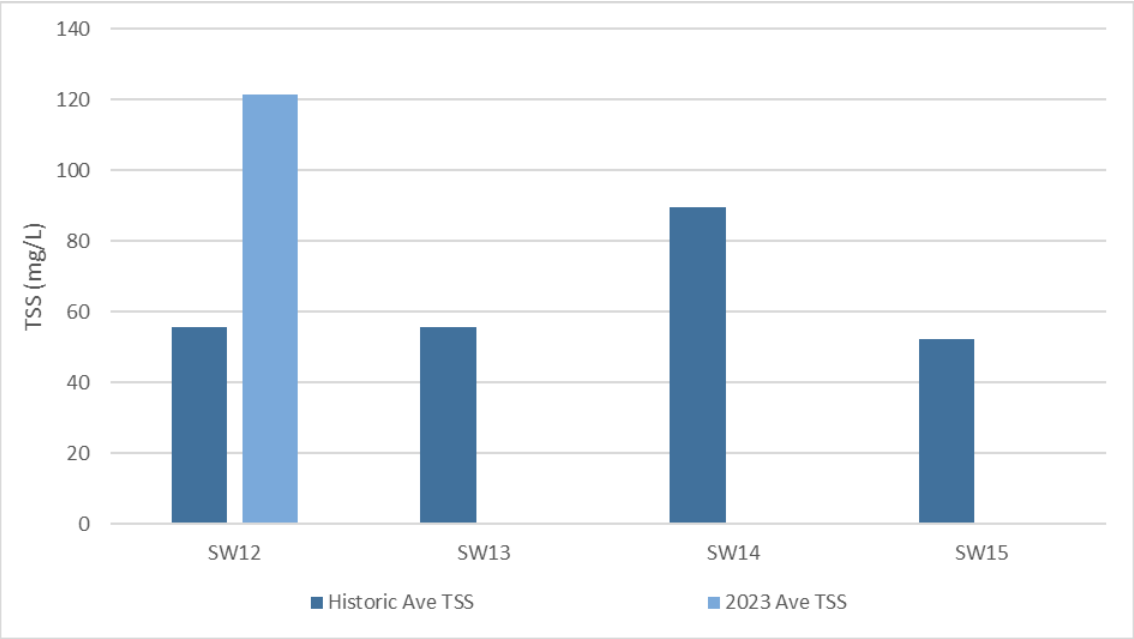



*Figure 7-3 Comparison 2022 to Historical Average TSS Monitoring Results*

GLENCORE