

Huntly Bauxite Mine – WQMS Data Review

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1. Executive Summary

This report, prepared by RARE Environmental Pty Ltd and SciDev Pty Ltd for Alcoa, provides an analysis of turbidity data collected from Water Quality Monitoring Systems (WQMS) deployed at the Huntly bauxite mining operations during December 2025. The primary objective of this analysis was to evaluate the quality of the data, identify potential "true" turbidity exceedance events, and support Alcoa's compliance reporting obligations under Schedule 1, Division 2, Clause 6 of the **Environmental Protection (Darling Range Bauxite Mining Proposal) Exemption Order 2023**.

The analysis focused on identifying and classifying turbidity events where levels exceeded 25 nephelometric turbidity units (NTU) for at least one hour. Events were categorized as "true" or "false" based on Alcoa's **Turbidity Event Classification Guidelines**, which distinguish actual turbidity increases (true events) from false readings caused by environmental factors such as debris, air bubbles, or fluctuating water levels.

Key findings include:

- **Excluded Units:** Twenty-six WQMS units were excluded from the analysis due to invalid data caused by equipment faults or environmental interference.
- **False Events:** Seventy-four 'False' events were identified, primarily attributed to factors such as debris accumulation, sensor obstructions, and water turbulence.
- **Further Investigation:** Two events were flagged for further investigation.
- **True Events:** Zero "True" turbidity exceedance events were identified.

The report also highlights periods of missing data, which occurred due to system logoffs, equipment faults, or unplanned shutdowns. These gaps are detailed in the report to ensure transparency in data handling.

2. Scope

RARE Environmental Pty Ltd and SciDev Pty Ltd were engaged by Alcoa to analyse turbidity data collected from the Huntly Water Quality Monitoring Systems (WQMSs). The primary objective of this engagement is to assess the quality of the collected data and identify potential “true” turbidity events. This analysis supports Alcoa’s reporting obligations under *Schedule 1, Division 2, Clause 6 of the Environmental Protection (Darling Range Bauxite Mining Proposal) Exemption Order 2023*.

3. Introduction

3.1. Background

Alcoa of Australia Ltd (Alcoa) operates two bauxite mines, Huntly and Willowdale, approximately 100 km southeast of Perth, Western Australia. These mining operations are subject to environmental controls mandated by the *Environmental Protection (Darling Range Bauxite Mining Proposal) Exemption Order 2023*.

Under this Exemption Order, Alcoa is required to implement drainage control measures and monitor effectiveness in water bodies within and downstream of mining operations. Turbidity, a critical water quality parameter, is monitored using Water Quality Monitoring Systems (WQMSs), to detect deviations and identify high-turbidity events.

Alcoa is obligated to report monthly on-stream turbidity, including the identification and classification of any “true” high-turbidity exceedance events. (Refer to Appendix B for the site map showing WQMS locations.)

3.2. Monitoring requirements

Environmental Protection (Darling Range Bauxite Mining Proposal) Exemption Order 2023 specifies that a drainage incident occurs when:

- a) runoff from a disturbance area enters the surrounding environment, resulting in surface water turbidity of at least 25 NTU for a duration of at least one hour; or*
- b) a discharge from containment infrastructure includes, or December include, environmentally hazardous material.*

Trigger levels for drainage incidents are outlined in *Schedule 1* of the Exemption Order. To meet these requirements, Alcoa has developed "Turbidity Event Classification Guidelines" which define a true turbidity exceedance event as a WQMS recording turbidity levels of at least 25 NTU for a period exceeding one hour.

3.3. Water Quality Management Systems (WQMSs)

During the December 2025 monitoring period, forty-three WQMS units were deployed to monitor turbidity levels in streams subject to surface water runoff within and downstream of Huntly mining operations.

Each WQMS unit consists of the following components:

Aquas SMR10 Turbidity Probe

Positioned at a 90-degree angle to water flow, each probe is equipped with an automatic lens wiper and a guard to protect against larger debris.

Data Taker DT82 Logger

Records data locally every six seconds, with six-minute averages transmitted via IoT-enabled modems to a cloud-based platform.

Float Switch

Detects whether the sensor is submerged, or the stream is dry.

3.4. Purpose

This report aims to analyse turbidity data collected during December 2025, focusing on the identification and classification of "true" turbidity exceedance events based on Alcoa’s Turbidity Event Classification Guidelines.

3.5. Exclusions

This report is not intended as:

- An assessment of the WQMS network or Alcoa’s compliance with relevant legislation and requirements.
- An evaluation of the suitability of the trigger levels or event classification procedures adopted by Alcoa.

3.6. Abbreviations

	Term
IoT	Internet of Things
NTU	Nephelometric Turbidity Units
WQMS	Water Quality Management System

4. Methodology

4.1. WQMS Locations

A site map showing the WQMSs locations is provided in Appendix B.

4.2. Data Review

Data recorded by the WQMS Units was reviewed and potential events where turbidity levels exceeded 25 NTU for at least one hour. Each potential event was categorised as either 'true' or 'false'.

4.2.1. True Turbidity Exceedance Events

These events are caused by an actual increase in stream turbidity. Per Alcoa's "Turbidity Event Classification Guidelines" true exceedance events typically exhibit:

- A sharp, sudden incline in turbidity levels.
- A return to baseline turbidity levels in a pattern resembling a normal (Gaussian) distribution.



Figure 1 Typical 'true' exceedance event showing the sharp incline and gradual return to background levels.

4.2.2. False Turbidity Exceedance Events

These events are caused by factors unrelated to actual turbidity increase, such as:

- Organic debris (e.g., leaves, sticks, algae) obstructing the sensor
- Air bubbles or water turbulence near the sensor
- Fluctuating water levels intermittently covering and uncover the sensor lens.

False events typically exhibit sharp inclines and declines without the characteristic bell curve shape of true events.

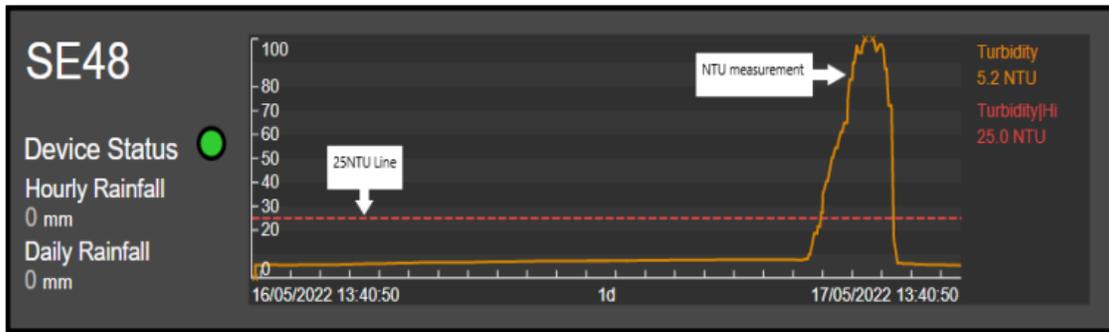


Figure 2 Typical 'false' exceedance event showing both a sharp incline and decline

4.2.3. Missing Data

Missing data occurs when a WQMS unit fails to record information, this can occur from unexpected system logoffs, equipment faults, or unplanned shutdowns.

5. Results and Discussion

5.1. Events

Table 1 provides a summary of identified events. Table 2 offers detailed information about each event.

Table 1 Events Summary

Category	# of events
Flagged for further investigation	2
False	74

Table 2 Events Details

Event ID	WQMS ID	Event Category	Start	End	Duration	Average Turbidity (NTU)	Peak Turbidity (NTU)
HUN-2512-001	DB02T	'False'	15/12/2025 18:34	15/12/2025 20:11	1hr, 43min	25.82	27.48
HUN-2512-002	DB02T	'False'	15/12/2025 20:23	16/12/2025 7:00	10hr, 42min	39.48	83.85
HUN-2512-003	DB02T	'False'	16/12/2025 10:14	16/12/2025 13:03	2hr, 55min	28.31	32.25
HUN-2512-004	DB02T	'False'	19/12/2025 22:11	19/12/2025 23:05	1hr	25.56	25.64
HUN-2512-005	DB02T	'False'	19/12/2025 23:23	21/12/2025 2:40	1d, 3hr, 22min	29.89	38.20
HUN-2512-006	ND06T	'False'	11/12/2025 17:06	12/12/2025 1:42	8hr, 42min	260.92	543.43
HUN-2512-007	ND06T	'False'	12/12/2025 13:42	12/12/2025 16:12	2hr, 36min	260.58	551.05
HUN-2512-008	ND06T	'False'	13/12/2025 3:18	13/12/2025 6:36	3hr, 24min	243.47	440.75
HUN-2512-009	ND06T	'False'	13/12/2025 10:54	13/12/2025 13:06	2hr, 18min	350.59	840.57
HUN-2512-010	ND06T	'False'	14/12/2025 6:48	14/12/2025 9:30	2hr, 48min	134.82	237.30
HUN-2512-011	ND12T	'False'	1/12/2025 0:01	2/12/2025 11:47	1d, 11hr, 51min	52.02	78.34
HUN-2512-012	ND13T	'False'	21/12/2025 13:42	21/12/2025 18:06	4hr, 30min	42.87	47.73
HUN-2512-013	ND13T	'False'	22/12/2025 15:30	22/12/2025 17:54	2hr, 30min	38.84	50.72
HUN-2512-014	ND13T	Additional Investigation Required	23/12/2025 12:42	23/12/2025 13:54	1hr, 18min	54.63	70.67
HUN-2512-015	ND13T	Additional Investigation Required	23/12/2025 18:36	23/12/2025 20:24	1hr, 54min	47.81	60.89

Event ID	WQMS ID	Event Category	Start	End	Duration	Average Turbidity (NTU)	Peak Turbidity (NTU)
HUN-2512-016	SE03INV1	'False'	1/12/2025 0:00	1/12/2025 12:24	12hr, 30min	142.66	147.52
HUN-2512-017	SE03INV1	'False'	11/12/2025 12:18	12/12/2025 0:12	12hr	36.60	47.81
HUN-2512-018	SE03INV1	'False'	12/12/2025 9:54	14/12/2025 17:42	2d, 7hr, 54min	43.40	101.94
HUN-2512-019	SE03INV1	'False'	15/12/2025 14:36	16/12/2025 5:12	14hr, 42min	309.30	1109.65
HUN-2512-020	SE03INV1	'False'	16/12/2025 13:42	16/12/2025 22:18	8hr, 42min	41.68	52.16
HUN-2512-021	SE03INV1	'False'	17/12/2025 14:30	17/12/2025 21:48	7hr, 24min	35.42	42.26
HUN-2512-022	SE03INV1	'False'	18/12/2025 12:48	18/12/2025 23:06	10hr, 24min	41.57	58.45
HUN-2512-023	SE03INV1	'False'	19/12/2025 11:54	21/12/2025 10:36	1d, 22hr, 48min	47.86	441.73
HUN-2512-024	SE03INV1	'False'	29/12/2025 17:24	31/12/2025 23:54	2d, 6hr, 36min	68.29	138.74
HUN-2512-025	SE03T	'False'	24/12/2025 18:24	24/12/2025 22:48	4hr, 30min	38.03	45.44
HUN-2512-026	SE03T	'False'	25/12/2025 15:12	26/12/2025 0:48	9hr, 42min	46.99	194.46
HUN-2512-027	SE03T	'False'	29/12/2025 19:24	29/12/2025 23:24	4hr, 6min	37.67	43.67
HUN-2512-028	SE03T	'False'	30/12/2025 17:30	31/12/2025 0:18	6hr, 54min	42.49	50.22
HUN-2512-029	SE03T	'False'	31/12/2025 16:30	31/12/2025 23:54	7hr, 30min	36.49	51.92
HUN-2512-030	SE05T	'False'	4/12/2025 12:00	5/12/2025 18:00	1d, 6hr, 6min	40.69	73.10
HUN-2512-031	SE05T	'False'	5/12/2025 18:12	6/12/2025 0:54	6hr, 48min	63.57	83.25
HUN-2512-032	SE05T	'False'	6/12/2025 2:12	6/12/2025 4:00	1hr, 54min	45.66	48.04
HUN-2512-033	SE05T	'False'	6/12/2025 4:12	6/12/2025 8:54	4hr, 48min	47.03	50.64
HUN-2512-034	SE05T	'False'	29/12/2025 11:48	29/12/2025 12:54	1hr, 12min	65.04	91.34
HUN-2512-035	SE05T	'False'	31/12/2025 8:18	31/12/2025 14:30	6hr, 18min	28.10	40.48
HUN-2512-036	SE05T	'False'	31/12/2025 15:06	31/12/2025 16:18	1hr, 18min	26.14	26.78
HUN-2512-037	SE06T	'False'	11/12/2025 23:48	12/12/2025 4:54	5hr, 12min	34.07	39.03
HUN-2512-038	SE06T	'False'	12/12/2025 5:48	12/12/2025 7:00	1hr, 18min	27.52	30.63

Event ID	WQMS ID	Event Category	Start	End	Duration	Average Turbidity (NTU)	Peak Turbidity (NTU)
HUN-2512-039	SE06T	'False'	12/12/2025 9:12	13/12/2025 19:24	1d, 10hr, 18min	54.07	113.46
HUN-2512-040	SE06T	'False'	13/12/2025 20:00	15/12/2025 12:00	1d, 16hr, 6min	143.71	238.26
HUN-2512-041	SE06T	'False'	15/12/2025 22:06	16/12/2025 2:36	4hr, 36min	114.67	143.94
HUN-2512-042	SE06T	'False'	17/12/2025 7:54	17/12/2025 13:24	5hr, 36min	36.66	51.82
HUN-2512-043	SE06T	'False'	17/12/2025 20:06	17/12/2025 23:06	3hr, 6min	102.16	115.68
HUN-2512-044	SE06T	'False'	24/12/2025 15:06	26/12/2025 2:00	1d, 11hr	66.31	175.19
HUN-2512-045	SE06T	'False'	28/12/2025 21:12	29/12/2025 13:37	16hr, 31min	50.19	67.09
HUN-2512-046	SE08T	'False'	17/12/2025 23:54	18/12/2025 1:18	1hr, 30min	34.46	36.27
HUN-2512-047	SE08T	'False'	19/12/2025 17:30	20/12/2025 1:24	8hr	25.58	26.54
HUN-2512-048	SE10T	'False'	22/12/2025 2:48	22/12/2025 13:36	10hr, 54min	48.69	83.95
HUN-2512-049	SE10T	'False'	22/12/2025 20:30	24/12/2025 1:00	1d, 4hr, 36min	104.18	1532.02
HUN-2512-050	SE10T	'False'	24/12/2025 10:30	24/12/2025 13:24	3hr	144.30	386.97
HUN-2512-051	SE10T	'False'	25/12/2025 11:54	25/12/2025 13:24	1hr, 36min	47.11	68.01
HUN-2512-052	SE10T	'False'	25/12/2025 22:36	26/12/2025 1:36	3hr, 6min	122.21	1034.42
HUN-2512-053	SE10T	'False'	26/12/2025 9:24	26/12/2025 12:30	3hr, 12min	121.21	881.59
HUN-2512-054	SE10T	'False'	26/12/2025 22:06	27/12/2025 4:36	6hr, 36min	86.47	312.65
HUN-2512-055	SE10T	'False'	27/12/2025 8:54	27/12/2025 11:54	3hr, 6min	89.31	195.11
HUN-2512-056	SE10T	'False'	29/12/2025 13:42	29/12/2025 14:54	1hr, 18min	44.48	62.67
HUN-2512-057	SE10T	'False'	29/12/2025 22:06	29/12/2025 23:24	1hr, 24min	50.19	74.89
HUN-2512-058	SE10T	'False'	30/12/2025 10:06	30/12/2025 11:19	1hr, 19min	70.16	171.50
HUN-2512-059	SE12T	'False'	1/12/2025 10:00	3/12/2025 11:30	2d, 1hr, 36min	55.60	158.36
HUN-2512-060	SE36T	'False'	14/12/2025 10:54	14/12/2025 15:36	4hr, 48min	162.76	511.50
HUN-2512-061	SE36T	'False'	15/12/2025 7:36	15/12/2025 9:18	1hr, 48min	177.65	312.35

Event ID	WQMS ID	Event Category	Start	End	Duration	Average Turbidity (NTU)	Peak Turbidity (NTU)
HUN-2512-062	SE36T	'False'	16/12/2025 8:06	16/12/2025 11:18	3hr, 18min	112.21	419.63
HUN-2512-063	SE36T	'False'	16/12/2025 16:12	16/12/2025 17:18	1hr, 12min	318.79	792.05
HUN-2512-064	SE36T	'False'	17/12/2025 0:24	17/12/2025 4:36	4hr, 18min	68.07	218.31
HUN-2512-065	SE48T	'False'	13/12/2025 13:42	13/12/2025 16:32	2hr, 55min	65.00	103.01
HUN-2512-066	SE48T	'False'	14/12/2025 8:48	14/12/2025 12:14	3hr, 32min	191.02	400.09
HUN-2512-067	SE48T	'False'	14/12/2025 23:08	15/12/2025 1:22	2hr, 19min	181.47	402.29
HUN-2512-068	SE48T	'False'	15/12/2025 5:36	15/12/2025 9:57	4hr, 26min	257.65	559.76
HUN-2512-069	SE48T	'False'	16/12/2025 7:10	16/12/2025 10:30	3hr, 26min	221.34	495.56
HUN-2512-070	SE52T	'False'	6/12/2025 13:21	7/12/2025 2:04	12hr, 49min	52.14	91.49
HUN-2512-071	SE52T	'False'	10/12/2025 5:56	10/12/2025 7:27	1hr, 36min	36.30	49.16
HUN-2512-072	SE52T	'False'	26/12/2025 13:46	26/12/2025 14:46	1hr, 6min	28.60	32.56
HUN-2512-073	SE52T	'False'	27/12/2025 3:06	27/12/2025 6:02	3hr, 1min	40.96	53.77
HUN-2512-074	SE52T	'False'	29/12/2025 10:25	29/12/2025 11:19	1hr	34.00	41.76
HUN-2512-075	SE59T	'False'	25/12/2025 22:59	26/12/2025 0:12	1hr, 18min	76.75	133.82
HUN-2512-076	SE59T	'False'	26/12/2025 2:13	26/12/2025 3:32	1hr, 24min	52.16	119.66

5.2. Additional Investigation

Two events were flagged for additional investigation.

5.2.1. HUN-2512-014 and HUN-2512-015 Additional Investigation

The events, occurring between 12:42 and 13:54, and 18:36 and 20:24 on the 23rd of December at ND13T do not exhibit the typical sharp, incline in turbidity levels however the initial spike and gradual return to baseline levels in a pattern resembling a normal (Gaussian) distribution as shown in Figure 3 and 4 below which indicates a potential drainage event.

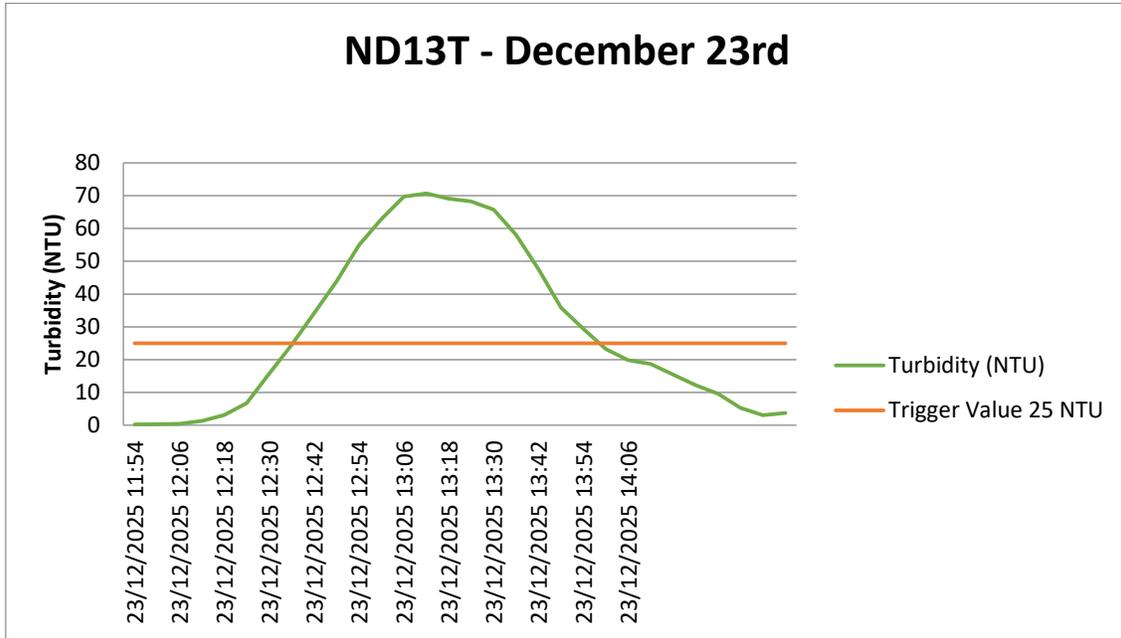


Figure 3 - HUN-2512-014

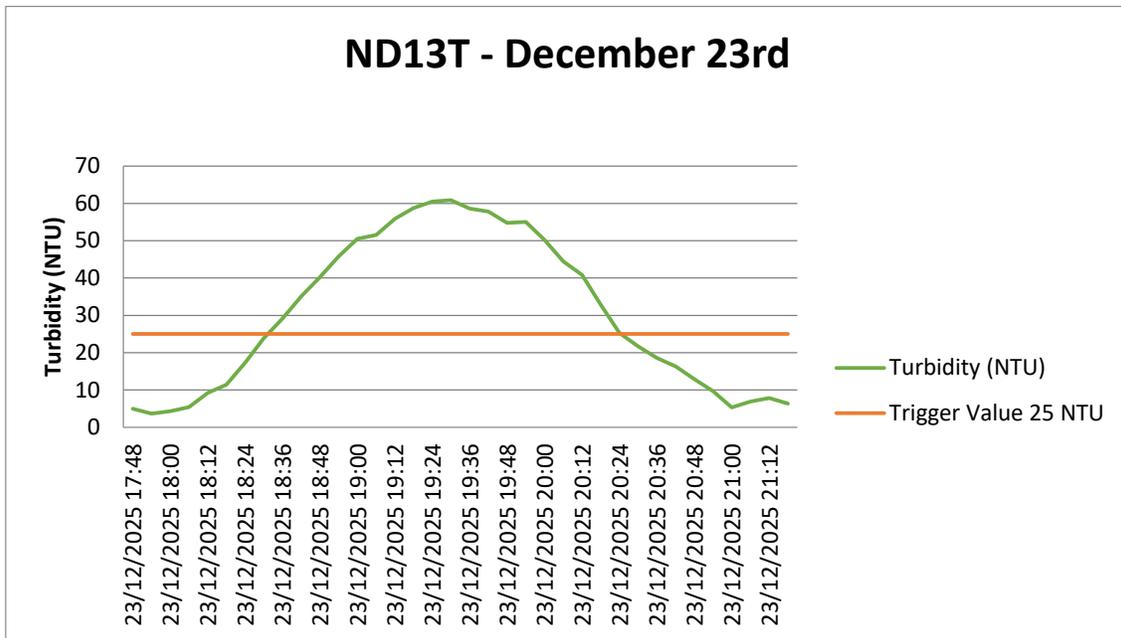


Figure 4 - HUN-2512-015

Further investigation into the event and location has determined the following

- Two separate exceedance events were recorded on 23/12/2025.
- At the time of inspection, the stream was slowly flowing with low water levels, and the probe was observed positioned above the water line.

Alcoa field notes are provided below

“The site was inspected 24/12/2025 due to exceedance notification. The stream was slowly flowing with a low level & on arrival the probe was positioned above the water line. The probe was clean and re-positioned under the water line.”

The two ND13T turbidity exceedances on 23/12/2025 occurred as short-duration elevations above the trigger and were followed by a site inspection that identified the probe sitting above the water line under low-flow, low-water conditions. This operating condition can produce non-representative turbidity readings due to partial exposure and unstable measurement. On this basis, the ND13T exceedances are interpreted as false events driven by low water level/probe exposure, rather than a true turbidity increase in the stream.

5.3. True Event(s)

Zero ‘True’ turbidity events were identified during the period.

5.4. False Event(s)

Seventy-four ‘False’ events were identified during the reporting period. Rationale on potential causes is summarised below.

Table 3 False Events Rationale

Event ID	Monitor ID	Rationale	Field Notes
HUN-2512-001	DB02T	This event is characterised by a sustained, near-constant elevation with limited pulse structure. This pattern is consistent with a false event and may reflect probe/baseline effects.	Site inspected on 21/12/2025, sensor impacted by algae. Turbidity reading on arrival 37.69 NTU which dropped to 1.55 after cleaning.
HUN-2512-002	DB02T	This event is characterised by a sustained, near-constant elevation with limited pulse structure. This pattern is consistent with a false event and may reflect probe/baseline effects.	Site inspected on 21/12/2025, sensor impacted by algae. Turbidity reading on arrival 37.69 NTU which dropped to 1.55 after cleaning.
HUN-2512-003	DB02T	This event is characterised by a sustained, near-constant elevation with limited pulse structure. This pattern is consistent with a false event and may reflect probe/baseline effects.	Site inspected on 21/12/2025, sensor impacted by algae. Turbidity reading on arrival 37.69 NTU which dropped to 1.55 after cleaning.
HUN-2512-004	DB02T	This event is characterised by a sustained, near-constant elevation with limited pulse structure. This pattern is consistent with a false event and may reflect probe/baseline effects.	Site inspected on 21/12/2025, sensor impacted by algae. Turbidity reading on arrival 37.69 NTU which dropped to 1.55 after cleaning.
HUN-2512-005	DB02T	This event is characterised by a sustained, near-constant elevation with limited pulse structure. This pattern is consistent with a false event and may reflect probe/baseline effects.	Site inspected on 21/12/2025, sensor impacted by algae. Turbidity reading on arrival 37.69 NTU which dropped to 1.55 after cleaning.

Event ID	Monitor ID	Rationale	Field Notes
HUN-2512-006	ND06T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected on the 24/12/2025. The stream was clear and flowing, however, the water level was very low and the probe was positioned outside of the water resulting in false readings. Turbidity reading pre-clean read 13.2 NTU, then post-clean 5.24 NTU.
HUN-2512-007	ND06T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected on the 24/12/2025. The stream was clear and flowing, however, the water level was very low and the probe was positioned outside of the water resulting in false readings. Turbidity reading pre-clean read 13.2 NTU, then post-clean 5.24 NTU.
HUN-2512-008	ND06T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected on the 24/12/2025. The stream was clear and flowing, however, the water level was very low and the probe was positioned outside of the water resulting in false readings. Turbidity reading pre-clean read 13.2 NTU, then post-clean 5.24 NTU.
HUN-2512-009	ND06T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected on the 24/12/2025. The stream was clear and flowing, however, the water level was very low and the probe was positioned outside of the water resulting in false readings. Turbidity reading pre-clean read 13.2 NTU, then post-clean 5.24 NTU.
HUN-2512-010	ND06T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On	Site inspected on the 24/12/2025. The stream was clear and flowing, however, the water level was very low and the probe was positioned outside of the water resulting in false

Event ID	Monitor ID	Rationale	Field Notes
		this basis it is treated as false and likely influenced by localised interference.	readings. Turbidity reading pre-clean read 13.2 NTU, then post-clean 5.24 NTU.
HUN-2512-011	ND12T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	ND12T site inspected on 02/12/2025, stream is flowing and clear. Turbidity NTU on arrival was 75.858 and post clean 1.7492 NTU and data trend is a steady incline, both indicating sensor was impacted by algae or organic debris.
HUN-2512-012	ND13T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	The site was inspected 24/12/2025 due to exceedance notification. The stream was slowly flowing with a low level & on arrival the probe was positioned above the water line. The probe was clean and re-positioned under the water line.
HUN-2512-013	ND13T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	The site was inspected 24/12/2025 due to exceedance notification. The stream was slowly flowing with a low level & on arrival the probe was positioned above the water line. The probe was clean and re-positioned under the water line.
HUN-2512-016	SE03INV1	This event shows a sustained plateau with gradual drift over many hours, followed by an abrupt drop to near zero reading. The extended plateau and “reset” behaviour is likely due to sensor exposure in shallow/ponded conditions and/or fouling. On this basis the event	SE03INV1 site visited on 01/12/2025 and stream is very shallow and clear. Sensor is only partially submerged due to stream depth and was heavily impacted by red algae. Turbidity reading on arrival 146.6 NTU, post clean significantly dropped to 0.57 NTU.

Event ID	Monitor ID	Rationale	Field Notes
		is treated as false.	
HUN-2512-017	SE03INV1	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected on 21/12/2025, the stream level has dropped and the sensor was partially out of water. Cleaned and repositioned the sensor in a deeper part of the stream, but the water level is very low and the sensor is very close to the stream bed and likely to be impacted by stream bed sediment.
HUN-2512-018	SE03INV1	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected on 21/12/2025, the stream level has dropped and the sensor was partially out of water. Cleaned and repositioned the sensor in a deeper part of the stream, but the water level is very low and the sensor is very close to the stream bed and likely to be impacted by stream bed sediment.
HUN-2512-019	SE03INV1	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected on 21/12/2025, the stream level has dropped and the sensor was partially out of water. Cleaned and repositioned the sensor in a deeper part of the stream, but the water level is very low and the sensor is very close to the stream bed and likely to be impacted by stream bed sediment.
HUN-2512-020	SE03INV1	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected on 21/12/2025, the stream level has dropped and the sensor was partially out of water. Cleaned and repositioned the sensor in a deeper part of the stream, but the water level is very low and the sensor is very close to the stream bed and likely to be impacted by stream bed sediment.
HUN-2512-021	SE03INV1	This event is characterised by a sustained, near-constant elevation with	Site inspected on 21/12/2025, the stream level has dropped and the sensor was partially out of water. Cleaned and

Event ID	Monitor ID	Rationale	Field Notes
		limited pulse structure. This pattern is consistent with a false event and may reflect probe/baseline effects.	repositioned the sensor in a deeper part of the stream, but the water level is very low and the sensor is very close to the stream bed and likely to be impacted by stream bed sediment.
HUN-2512-022	SE03INV1	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected on 21/12/2025, the stream level has dropped and the sensor was partially out of water. Cleaned and repositioned the sensor in a deeper part of the stream, but the water level is very low and the sensor is very close to the stream bed and likely to be impacted by stream bed sediment.
HUN-2512-023	SE03INV1	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected on 21/12/2025, the stream level has dropped and the sensor was partially out of water. Cleaned and repositioned the sensor in a deeper part of the stream, but the water level is very low and the sensor is very close to the stream bed and likely to be impacted by stream bed sediment.
HUN-2512-024	SE03INV1	This event is characterised by a sustained, near-constant elevation with limited pulse structure. This pattern is consistent with a false event and may reflect probe/baseline effects.	Site inspected 4/01/2025, sensor heavily impacted by algae/decaying organic matter. Turbidity value on arrival 263.11 which dropped to 0.61 NTU post clean.
HUN-2512-025	SE03T	This event is characterised by a gradual increase followed by a gradual decrease with multiple irregular pulses above the trigger value. This pattern is consistent with a false event and may reflect probe/baseline effects.	Stream level dropped, causing the sensor to be exposed. The lens was cleaned and the sensor repositioned to mid-depth. Turbidity readings stabilized at a baseline of 1.25 NTU.

Event ID	Monitor ID	Rationale	Field Notes
HUN-2512-026	SE03T	This event presents as clean pulse with a rapid increase and decrease in turbidity. On this basis it is treated as false and likely influenced by localised interference.	Stream level dropped, causing the sensor to be exposed. The lens was cleaned and the sensor repositioned to mid-depth. Turbidity readings stabilized at a baseline of 1.25 NTU.
HUN-2512-027	SE03T	This event presents as a single clean pulse with a rapid increase and decrease in turbidity. On this basis it is treated as false and likely influenced by localised interference.	Stream level dropped, causing the sensor to be exposed. The lens was cleaned and the sensor repositioned to mid-depth. Turbidity readings stabilized at a baseline of 1.25 NTU.
HUN-2512-028	SE03T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Stream level dropped, causing the sensor to be exposed. The lens was cleaned and the sensor repositioned to mid-depth. Turbidity readings stabilized at a baseline of 1.25 NTU.
HUN-2512-029	SE03T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Stream level dropped, causing the sensor to be exposed. The lens was cleaned and the sensor repositioned to mid-depth. Turbidity readings stabilized at a baseline of 1.25 NTU.
HUN-2512-030	SE05T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected 06/12/2025. Stream level has dropped and the sensor is becoming impacted by organic debris/algae. Turbidity value on arrival was 49.78 which dropped to 8.17NTU after cleaning.

Event ID	Monitor ID	Rationale	Field Notes
HUN-2512-031	SE05T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected 06/12/2025. Stream level has dropped and the sensor is becoming impacted by organic debris/algae. Turbidity value on arrival was 49.78 which dropped to 8.17NTU after cleaning.
HUN-2512-032	SE05T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected 06/12/2025. Stream level has dropped and the sensor is becoming impacted by organic debris/algae. Turbidity value on arrival was 49.78 which dropped to 8.17NTU after cleaning.
HUN-2512-033	SE05T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected 06/12/2025. Stream level has dropped and the sensor is becoming impacted by organic debris/algae. Turbidity value on arrival was 49.78 which dropped to 8.17NTU after cleaning.
HUN-2512-034	SE05T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Site inspected 04/01/2026. Stream is low and the sensor is being impacted by algae and organic debris. Data trend also supports impacted by algae and organic debris.
HUN-2512-035	SE05T	This event is characterised by a sustained, near-constant elevation with limited pulse structure. This pattern is	Site inspected 04/01/2026. Stream is low and the sensor is being impacted by algae and organic debris. Data trend also supports impacted by algae and organic debris.

Event ID	Monitor ID	Rationale	Field Notes
		consistent with a false event and may reflect probe/baseline effects.	
HUN-2512-036	SE05T	This event is characterised by a sustained, near-constant elevation with limited pulse structure. This pattern is consistent with a false event and may reflect probe/baseline effects.	Site inspected 04/01/2026. Stream is low and the sensor is being impacted by algae and organic debris. Data trend also supports impacted by algae and organic debris.
HUN-2512-037	SE06T	This event is characterised by a sustained, near-constant elevation with limited pulse structure. This pattern is consistent with a false event and may reflect probe/baseline effects.	The stream is very low and heavily impacted by organic debris. The sensor is positioned close to the stream bed where it is being impacted by stream bed sediment/algae.
HUN-2512-038	SE06T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	The stream is very low and heavily impacted by organic debris. The sensor is positioned close to the stream bed where it is being impacted by stream bed sediment/algae.
HUN-2512-039	SE06T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	The stream is very low and heavily impacted by organic debris. The sensor is positioned close to the stream bed where it is being impacted by stream bed sediment/algae.
HUN-2512-040	SE06T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On	The stream is very low and heavily impacted by organic debris. The sensor is positioned close to the stream bed where it is being impacted by stream bed sediment/algae.

Event ID	Monitor ID	Rationale	Field Notes
		this basis it is treated as false and likely influenced by localised interference.	
HUN-2512-041	SE06T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	The stream is very low and heavily impacted by organic debris. The sensor is positioned close to the stream bed where it is being impacted by stream bed sediment/algae.
HUN-2512-042	SE06T	This event shows a sustained plateau with gradual drift over many hours, followed by an abrupt drop to near zero reading. The extended plateau and “reset” behaviour is likely due to sensor exposure in shallow/ponded conditions and/or fouling. On this basis the event is treated as false.	The stream is very low and heavily impacted by organic debris. The sensor is positioned close to the stream bed where it is being impacted by stream bed sediment/algae.
HUN-2512-043	SE06T	This event shows a sustained plateau with gradual drift over many hours, followed by an abrupt drop to near zero reading. The extended plateau and “reset” behaviour is likely due to sensor exposure in shallow/ponded conditions and/or fouling. On this basis the event is treated as false.	The stream is very low and heavily impacted by organic debris. The sensor is positioned close to the stream bed where it is being impacted by stream bed sediment/algae.
HUN-2512-044	SE06T	This event shows a sustained plateau with gradual drift over many hours, followed by an abrupt drop to near zero reading. The extended plateau and	Site inspected on 29/12/2025. The stream is very low and heavily impacted by organic debris. The sensor is positioned close to the stream bed where it is being impacted by stream

Event ID	Monitor ID	Rationale	Field Notes
		“reset” behaviour is likely due to sensor exposure in shallow/ponded conditions and/or fouling. On this basis the event is treated as false.	bed sediment/algae. Turbidity value on arrival 66.84 NTU which dropped to 0.53 NTU after the lens was cleaned.
HUN-2512-045	SE06T	This event shows a sustained plateau with gradual drift over many hours, followed by an abrupt drop to near zero reading. The extended plateau and “reset” behaviour is likely due to sensor exposure in shallow/ponded conditions and/or fouling. On this basis the event is treated as false.	Site inspected on 29/12/2025. The stream is very low and heavily impacted by organic debris. The sensor is positioned close to the stream bed where it is being impacted by stream bed sediment/algae. Turbidity value on arrival 66.84 NTU which dropped to 0.53 NTU after the lens was cleaned.
HUN-2512-046	SE08T	This event shows a sustained plateau with gradual drift over many hours, followed by an abrupt drop to near zero reading. The extended plateau and “reset” behaviour is likely due to sensor exposure in shallow/ponded conditions and/or fouling. On this basis the event is treated as false.	Stream level drop, sensor partially out of water and impacted by algae. Cleaned and returned to the stream lower in the water profile.
HUN-2512-047	SE08T	This event shows a sustained plateau with gradual drift over many hours, followed by an abrupt drop to near zero reading. The extended plateau and “reset” behaviour is likely due to sensor exposure in shallow/ponded conditions and/or fouling. On this basis the event is treated as false.	Stream level drop, sensor partially out of water and impacted by algae. Cleaned and returned to the stream lower in the water profile.

Event ID	Monitor ID	Rationale	Field Notes
HUN-2512-048	SE10T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Due to a temporarily unsafe forest track restricting access, the monitoring site was inspected on 30/12/2025. The stream level had dropped significantly and was very low. Upon arrival, the sensor was found out of the water, recording a turbidity reading of 74.3 NTU. After cleaning and repositioning the sensor, turbidity decreased to 1.6 NTU. Float switched to dry on 01/01/2026 at 12:42 and site inspection on 04/01/2026 observed the stream is dry.
HUN-2512-049	SE10T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Due to a temporarily unsafe forest track restricting access, the monitoring site was inspected on 30/12/2025. The stream level had dropped significantly and was very low. Upon arrival, the sensor was found out of the water, recording a turbidity reading of 74.3 NTU. After cleaning and repositioning the sensor, turbidity decreased to 1.6 NTU. Float switched to dry on 01/01/2026 at 12:42 and site inspection on 04/01/2026 observed the stream is dry.
HUN-2512-050	SE10T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Due to a temporarily unsafe forest track restricting access, the monitoring site was inspected on 30/12/2025. The stream level had dropped significantly and was very low. Upon arrival, the sensor was found out of the water, recording a turbidity reading of 74.3 NTU. After cleaning and repositioning the sensor, turbidity decreased to 1.6 NTU. Float switched to dry on 01/01/2026 at 12:42 and site inspection on 04/01/2026 observed the stream is dry.
HUN-2512-051	SE10T	“This event shows a smooth, progressive increase above the trigger value consistent with sensor drift/fouling or changing submergence	Due to a temporarily unsafe forest track restricting access, the monitoring site was inspected on 30/12/2025. The stream level had dropped significantly and was very low. Upon arrival, the sensor was found out of the water, recording a turbidity

Event ID	Monitor ID	Rationale	Field Notes
		conditions. The event ends with an abrupt drop, suggesting a sensor condition change (e.g., exposure, disturbance, or cleaning). On this basis it is treated as false.”	reading of 74.3 NTU. After cleaning and repositioning the sensor, turbidity decreased to 1.6 NTU. Float switched to dry on 01/01/2026 at 12:42 and site inspection on 04/01/2026 observed the stream is dry.
HUN-2512-052	SE10T	This event presents as a clean pulse with a rapid increase and decrease in turbidity. On this basis it is treated as false and likely influenced by localised interference.	Due to a temporarily unsafe forest track restricting access, the monitoring site was inspected on 30/12/2025. The stream level had dropped significantly and was very low. Upon arrival, the sensor was found out of the water, recording a turbidity reading of 74.3 NTU. After cleaning and repositioning the sensor, turbidity decreased to 1.6 NTU. Float switched to dry on 01/01/2026 at 12:42 and site inspection on 04/01/2026 observed the stream is dry.
HUN-2512-053	SE10T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Due to a temporarily unsafe forest track restricting access, the monitoring site was inspected on 30/12/2025. The stream level had dropped significantly and was very low. Upon arrival, the sensor was found out of the water, recording a turbidity reading of 74.3 NTU. After cleaning and repositioning the sensor, turbidity decreased to 1.6 NTU. Float switched to dry on 01/01/2026 at 12:42 and site inspection on 04/01/2026 observed the stream is dry.
HUN-2512-054	SE10T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Due to a temporarily unsafe forest track restricting access, the monitoring site was inspected on 30/12/2025. The stream level had dropped significantly and was very low. Upon arrival, the sensor was found out of the water, recording a turbidity reading of 74.3 NTU. After cleaning and repositioning the sensor, turbidity decreased to 1.6 NTU. Float switched to dry

Event ID	Monitor ID	Rationale	Field Notes
			on 01/01/2026 at 12:42 and site inspection on 04/01/2026 observed the stream is dry.
HUN-2512-055	SE10T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Due to a temporarily unsafe forest track restricting access, the monitoring site was inspected on 30/12/2025. The stream level had dropped significantly and was very low. Upon arrival, the sensor was found out of the water, recording a turbidity reading of 74.3 NTU. After cleaning and repositioning the sensor, turbidity decreased to 1.6 NTU. Float switched to dry on 01/01/2026 at 12:42 and site inspection on 04/01/2026 observed the stream is dry.
HUN-2512-056	SE10T	“This event shows a smooth, progressive increase above the trigger value consistent with sensor drift/fouling or changing submergence conditions. The event ends with an abrupt drop, suggesting a sensor condition change (e.g., exposure, disturbance, or cleaning). On this basis it is treated as false.”	Due to a temporarily unsafe forest track restricting access, the monitoring site was inspected on 30/12/2025. The stream level had dropped significantly and was very low. Upon arrival, the sensor was found out of the water, recording a turbidity reading of 74.3 NTU. After cleaning and repositioning the sensor, turbidity decreased to 1.6 NTU. Float switched to dry on 01/01/2026 at 12:42 and site inspection on 04/01/2026 observed the stream is dry.
HUN-2512-057	SE10T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Due to a temporarily unsafe forest track restricting access, the monitoring site was inspected on 30/12/2025. The stream level had dropped significantly and was very low. Upon arrival, the sensor was found out of the water, recording a turbidity reading of 74.3 NTU. After cleaning and repositioning the sensor, turbidity decreased to 1.6 NTU. Float switched to dry on 01/01/2026 at 12:42 and site inspection on 04/01/2026 observed the stream is dry.

Event ID	Monitor ID	Rationale	Field Notes
HUN-2512-058	SE10T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Due to a temporarily unsafe forest track restricting access, the monitoring site was inspected on 30/12/2025. The stream level had dropped significantly and was very low. Upon arrival, the sensor was found out of the water, recording a turbidity reading of 74.3 NTU. After cleaning and repositioning the sensor, turbidity decreased to 1.6 NTU. Float switched to dry on 01/01/2026 at 12:42 and site inspection on 04/01/2026 observed the stream is dry.
HUN-2512-059	SE12T	“This event shows a smooth, progressive increase above the trigger value consistent with sensor drift/fouling or changing submergence conditions. The event ends with an abrupt drop, suggesting a sensor condition change (e.g., exposure, disturbance, or cleaning). On this basis it is treated as false.”	Site inspected on 03/12/2025, stream is flowing and very shallow. Due to the shallow stream depth the sensor is only partially submerged and therefore recording false data. Data trend shows spikes of inclines and declines which also indicates false data due to stream dropping
HUN-2512-060	SE36T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Stream dry on 19/12/2025. Turbidity events were recorded as the stream was drying up and the sensor was partially out of water.
HUN-2512-061	SE36T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On	Stream dry on 19/12/2025. Turbidity events were recorded as the stream was drying up and the sensor was partially out of water.

Event ID	Monitor ID	Rationale	Field Notes
		this basis it is treated as false and likely influenced by localised interference.	
HUN-2512-062	SE36T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	Stream dry on 19/12/2025. Turbidity events were recorded as the stream was drying up and the sensor was partially out of water.
HUN-2512-063	SE36T	This event presents as a clean pulse with a rapid increase and decrease in turbidity. On this basis it is treated as false and likely influenced by localised interference.	Stream dry on 19/12/2025. Turbidity events were recorded as the stream was drying up and the sensor was partially out of water.
HUN-2512-064	SE36T	This event presents as a clean pulse with a rapid increase and decrease in turbidity. On this basis it is treated as false and likely influenced by localised interference.	Stream dry on 19/12/2025. Turbidity events were recorded as the stream was drying up and the sensor was partially out of water.
HUN-2512-065	SE48T	This event shows a smooth, progressive increase in turbidity above the trigger value consistent with changing submergence conditions as stream level drops. The event ends with an abrupt drop, suggesting a sensor condition change (e.g., partial exposure or disturbance). On this basis it is treated as false	The site was inspected on 6/12/2025, at which time the stream was very low but still had sufficient depth to submerge the sensor. After the inspection, the level float began fluctuating between 0 (dry) and 1 (flow), and turbidity events were triggered as the sensor was partially out of water. The level float sensor recorded that the stream was dry on 21/12/2025 and this was verified in field on 4/01/2026.

Event ID	Monitor ID	Rationale	Field Notes
HUN-2512-066	SE48T	This event includes multiple irregular pulses above the trigger rather than a smooth rise and recession. This pattern is consistent with a false event and likely reflects localised interference under low-flow/shallow conditions	The site was inspected on 6/12/2025, at which time the stream was very low but still had sufficient depth to submerge the sensor. After the inspection, the level float began fluctuating between 0 (dry) and 1 (flow), and turbidity events were triggered as the sensor was partially out of water. The level float sensor recorded that the stream was dry on 21/12/2025 and this was verified in field on 4/01/2026.
HUN-2512-067	SE48T	This event shows a smooth, progressive increase in turbidity above the trigger value consistent with changing submergence conditions as stream level drops. The event ends with an abrupt drop, suggesting a sensor condition change (e.g., partial exposure or disturbance). On this basis it is treated as false	The site was inspected on 6/12/2025, at which time the stream was very low but still had sufficient depth to submerge the sensor. After the inspection, the level float began fluctuating between 0 (dry) and 1 (flow), and turbidity events were triggered as the sensor was partially out of water. The level float sensor recorded that the stream was dry on 21/12/2025 and this was verified in field on 4/01/2026.
HUN-2512-068	SE48T	This event shows an abrupt step-change above the trigger with a plateau-like period, followed by a rapid return toward baseline. This pattern is consistent with a false event and likely driven by sensor effects under shallow/declining stream level conditions.	The site was inspected on 6/12/2025, at which time the stream was very low but still had sufficient depth to submerge the sensor. After the inspection, the level float began fluctuating between 0 (dry) and 1 (flow), and turbidity events were triggered as the sensor was partially out of water. The level float sensor recorded that the stream was dry on 21/12/2025 and this was verified in field on 4/01/2026.
HUN-2512-069	SE48T	This event shows a smooth, progressive increase in turbidity above the trigger value consistent with changing submergence conditions as stream	The site was inspected on 6/12/2025, at which time the stream was very low but still had sufficient depth to submerge the sensor. After the inspection, the level float began fluctuating between 0 (dry) and 1 (flow), and turbidity events

Event ID	Monitor ID	Rationale	Field Notes
		level drops. The event ends with an abrupt drop, suggesting a sensor condition change (e.g., partial exposure or disturbance). On this basis it is treated as false	were triggered as the sensor was partially out of water. The level float sensor recorded that the stream was dry on 21/12/2025 and this was verified in field on 4/01/2026.
HUN-2512-070	SE52T	This event shows irregular spikes superimposed on an elevated baseline, consistent with localised interference under a fouled sensor condition, It is treated as false	Site inspected on the 10/12/2025, sensor and stream bed were heavily impacted by algae growth, sensor was cleaned and repositioned out of the algae. Data spikes indicate false event, NTU measured 2.1 post clean.
HUN-2512-071	SE52T	The event includes an extended elevated period followed by an abrupt return toward baseline, which is consistent with a sensor condition change such as fouling or cleaning/disturbance. On this basis it is treated as false.	Site inspected on the 10/12/2025, sensor and stream bed were heavily impacted by algae growth, sensor was cleaned and repositioned out of the algae. Data spikes indicate false event, NTU measured 2.1 post clean.
HUN-2512-072	SE52T	The event includes an extended elevated period followed by an abrupt return toward baseline, which is consistent with a sensor condition change such as fouling or cleaning/disturbance. On this basis it is treated as false.	The data trend indicates a false event, likely caused by a buildup of organic debris/algae on the lens. Turbidity values gradually increase in an erratic upward pattern before sharply declining as the debris is dislodged.
HUN-2512-073	SE52T	The event includes an extended elevated period followed by an abrupt return toward baseline, which is consistent with a sensor condition	The data trend indicates a false event, likely caused by a buildup of organic debris or algae on the lens. Readings remain stable at baseline before a sudden increase, followed by an erratic but overall upward trend. After reaching several

Event ID	Monitor ID	Rationale	Field Notes
		change such as fouling or cleaning/disturbance. On this basis it is treated as false.	short peaks, values sharply decline and return to baseline, consistent with debris being cleared from the lens.
HUN-2512-074	SE52T	This event shows irregular spikes superimposed on an elevated baseline, consistent with localised interference under a fouled sensor condition, It is treated as false	The data trend indicates a false event, likely caused by a buildup of organic debris/algae on the lens. Turbidity values gradually increase in an erratic upward pattern before sharply declining as the debris is dislodged.
HUN-2512-075	SE59T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	SE59T recorded two turbidity events on 25/12/2025 and 26/12/2025. Analysis of the overall data trend indicates these events were false, likely caused by organic debris interfering with the lens. Prior to the first event, turbidity levels were slightly elevated at approximately 6.9 NTU, then spiked to 133.82 NTU within six minutes. Following this spike, readings became erratic with fluctuating increases and decreases and then stabilised at ~3.3 NTU after the debris cleared.
HUN-2512-076	SE59T	This event does not present as a single clean pulse and includes multiple irregular pulses above the trigger rather than a smooth rise and recession. On this basis it is treated as false and likely influenced by localised interference.	SE59T recorded two turbidity events on 25/12/2025 and 26/12/2025. Analysis of the overall data trend indicates these events were false, likely caused by organic debris interfering with the lens. Prior to the first event, turbidity levels were slightly elevated at approximately 6.9 NTU, then spiked to 133.82 NTU within six minutes. Following this spike, readings became erratic with fluctuating increases and decreases and then stabilised at ~3.3 NTU after the debris cleared.

5.5. Excluded WQMS Units

Twenty-six WQMS Units were excluded from analysis due to erroneous data. Alcoa confirmed the invalidity of data recorded from these units and provided commentary on the condition of each.

Table 4 Excluded WQMS Units

Unit	Dates/	Comments
DB01T	03/12/2025-31/12/2025	Stream dry on 3/12/2025
FPWR1	12/11/2025-31/12/2025	Stream dry as of 12/11/2025 at 1:34 PM
ND14T	02/12/2025-31/12/2025	Stream dry as of 2/12/2025
ND12T	15/12/2025-31/12/2025	Stream dry as of 15/12/2025
PD02T	01/12/2025-31/12/2025	Awaiting Water Corp approval to access Pipe head catchment area
PD03T	01/12/2025-31/12/2025	Awaiting Water Corp approval to access Pipe head catchment area
SE01T	01/12/2025-31/12/2025	Unit removed from the field on 18/09/2025 due to DBCA prescribed burns. Awaiting DBCA approval to access for reinstatement once prescribed burns are completed.
SE03INV3	01/12/2025-31/12/2025	Stream dry as of 1/12/2025
SE04T	01/12/2025-31/12/2025	New monitoring site installed 20/11/2025, stream dry at time of installation.
SE07T	01/11/2025-30/11/2025	Unit removed from the field on 18/09/2025 due to DBCA prescribed burns. Awaiting DBCA approval to access for reinstatement once prescribed burns are completed.
SE09T	04/12/2025-31/12/2025	Site inspected on 04/01/2026 and stream is dry.
SE11T	01/12/2025-31/12/2025	Stream dry as of 3/11/2025 at 2:48 AM
SE12INV	01/12/2025-31/12/2025	Stream dry as of 12/11/2025
SE12T	03/12/2025-31/12/2025	Stream dry as of 3/12/2025
SE12INV	12/11/2025-30/11/2025	Stream dry as of 12/11/2025
SE15T	01/12/2025-31/12/2025	Unit removed from the field on 18/09/2025 due to DBCA prescribed burns. Awaiting DBCA approval to access for reinstatement once prescribed burns are completed.
SE22T	01/12/2025-31/12/2025	Stream dry as of 1/12/2025
SE23T	01/12/2025-31/12/2025	Stream dry as of 3/10/2025 at 1:42 PM
SE24T	01/12/2025-31/12/2025	Stream dry as of 12/11/2025
SE25T	01/12/2025-31/12/2025	Stream dry as of 12/11/2025
SE26T	01/12/2025-31/12/2025	Stream dry as of 28/09/2025 (dry stream false events omitted)
SE34T	15/12/2025-31/12/2025	Stream dry as of 15/12/2025
SE53T	01/12/2025-31/12/2025	Unit removed from the field on 18/09/2025 due to DBCA prescribed burns. Awaiting DBCA approval to

		access for reinstatement once prescribed burns are completed.
SE60T	01/12/2025-31/12/2025	Unit removed from the field on 18/09/2025 due to DBCA prescribed burns. Awaiting DBCA approval to access for reinstatement once prescribed burns are completed.
SE61T	01/12/2025-31/12/2025	Unit removed from the field on 18/09/2025 due to DBCA prescribed burns. Awaiting DBCA approval to access for reinstatement once prescribed burns are completed.
SE62T	17/12/2025-31/12/2025	Stream dry as of 17/12/2025

5.6. Missing Data

Periods of missing data are detailed in Table 5.

Table 5 Missing Data Summary

Missing Data ID	Unit	Start	End	Comments
MD-2512-001	ND14T	1/12/2025 10:30	3/12/2025 14:06	Data gap from 3/12/2025 10:30 to 3/12/2025 14:06 due to system maintenance.
MD-2512-002	SE59T	04/12/2025 18:16	04/12/2025 23:06	Data gap from 4/12/2025 18:16 to 4/12/2025 23:06 due to signal loss.

6. Appendices

Appendix A. Huntly Raw WQMS Data

Huntly WQMS Data – December 2025 - Events with turbidity > 25 NTU for an hour or more																	
Date	DB01T	DB02T	FPWR1	ND04T	ND06T	ND07T	ND12T	ND13T	ND14T	PD01T	SE01T	SE02T	SE03T	SE05T	SE06T	SE07T	SE08T
01/12/2025							1										
02/12/2025																	
03/12/2025																	
04/12/2025														1			
05/12/2025														1			
06/12/2025														2			
07/12/2025																	
08/12/2025																	
09/12/2025																	
10/12/2025																	
11/12/2025					1										1		
12/12/2025					1										2		
13/12/2025					2										1		
14/12/2025					1												
15/12/2025		2														1	
16/12/2025		1															
17/12/2025															2		1
18/12/2025																	
19/12/2025		2															1
20/12/2025																	
21/12/2025								1									
22/12/2025								1									
23/12/2025								2									
24/12/2025																1	
25/12/2025																	
26/12/2025																	
27/12/2025																	
28/12/2025																1	
29/12/2025													1	1			
30/12/2025													1				
31/12/2025													1	2			

Note: False events have been annotated by **black** bold text. True events are annotated by **red** bold text

Huntly WQMS Data -December 2025 - Events with turbidity > 25 NTU for an hour or more																	
Date	SE09T	SE10T	SE11T	SE12T	SE12INV	SE15T	SE34T	SE36T	SE48T	SE51T	SE52T	SE53T	SE59T	SE60T	SE61T	SE62T	SN07T
01/12/2025				1													
02/12/2025																	
03/12/2025																	
04/12/2025																	
05/12/2025																	
06/12/2025											1						
07/12/2025																	
08/12/2025																	
09/12/2025																	
10/12/2025											1						
11/12/2025																	
12/12/2025																	
13/12/2025									1								
14/12/2025								1	2								
15/12/2025								1	1								
16/12/2025								2	1								
17/12/2025								1									
18/12/2025																	
19/12/2025																	
20/12/2025																	
21/12/2025																	
22/12/2025		2															
23/12/2025																	
24/12/2025		1															
25/12/2025		2											1				
26/12/2025		2									1		1				
27/12/2025		1									1						
28/12/2025																	
29/12/2025		2									1						
30/12/2025		1															
31/12/2025																	

Note: False events have been annotated by **black** bold text. True events are annotated by **red** bold text

Huntly WQMS Data – December 2025 - Events with turbidity > 25 NTU for an hour or more																
Date	SE22T	SE23T	SE24T	SE25T	SE26T	SE03INV1	SE03INV3									
01/12/2025						1										
02/12/2025																
03/12/2025																
04/12/2025																
05/12/2025																
06/12/2025																
07/12/2025																
08/12/2025																
09/12/2025																
10/12/2025																
11/12/2025						1										
12/12/2025						1										
13/12/2025																
14/12/2025																
15/12/2025						1										
16/12/2025						1										
17/12/2025						1										
18/12/2025						1										
19/12/2025						1										
20/12/2025																
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24/12/2025																
25/12/2025																
26/12/2025																
27/12/2025																
28/12/2025																
29/12/2025						1										
30/12/2025																
31/12/2025																

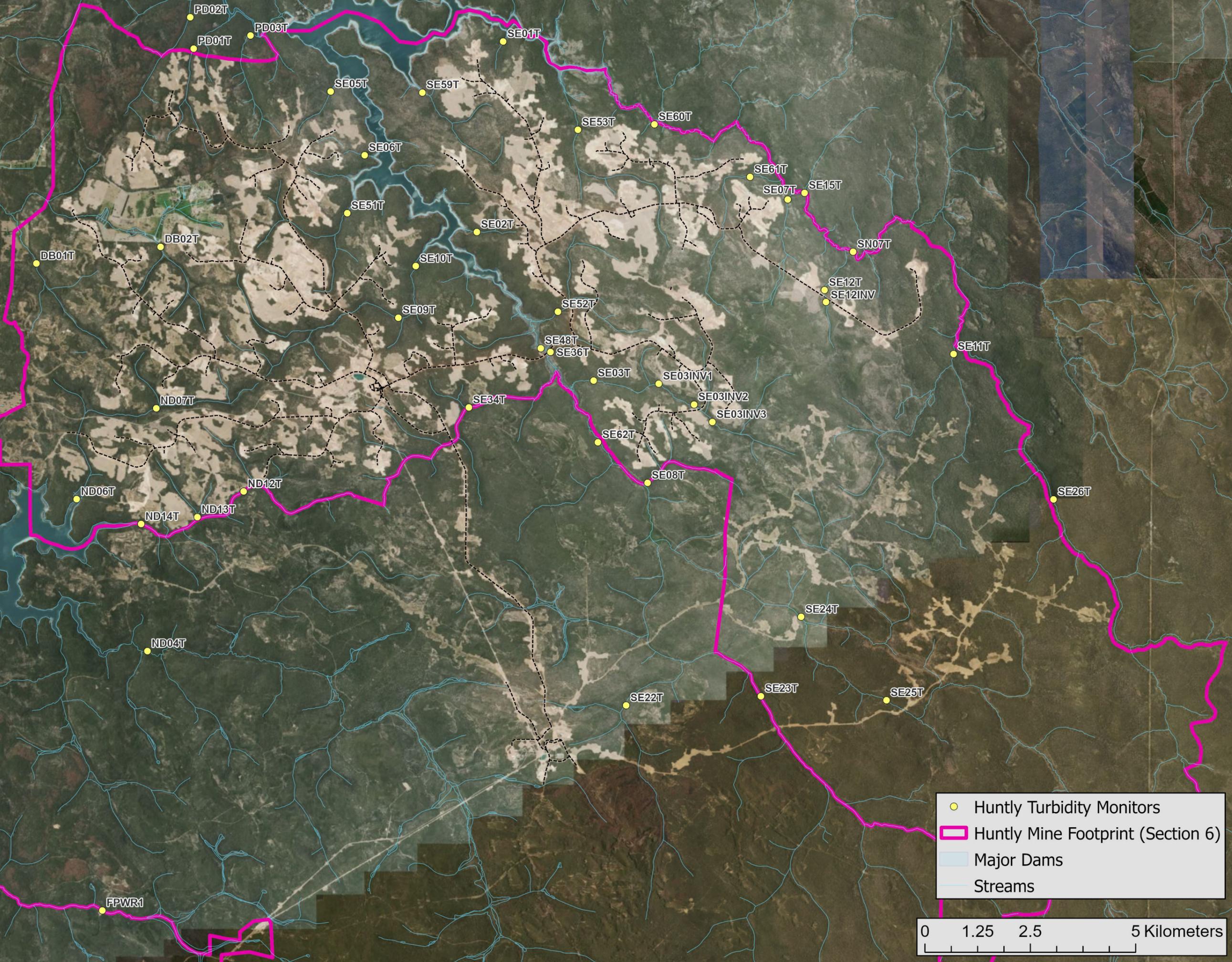
Note: False events have been annotated by **black** bold text. True events are annotated by **red** bold text

Date	Huntly WQMS Data – December 2025 - Turbidity (Daily Average, NTU)																
	DB01T	DB02T	FPWR1	ND04T	ND06T	ND07T	ND12T	ND13T	ND14T	PD01T	SE01T	SE02T	SE03T	SE05T	SE06T	SE07T	SE08T
01/12/2025	0.95	1.99		5.95	2.69	0.39	47.03	0.28		1.62		6.19	1.72	9.28	3.05		5.72
02/12/2025	0.96	1.36		6.36	1.86	0.4	31.57	0.28		1.86		6.8	1.38	11.56	3.3		3.57
03/12/2025	0.96	1.4			2.03	0.42	1.85	0.27		3.34		3.93	1.36	17.76	2.1		1
04/12/2025		1.56			1.96	0.35	1.97	0.28		1.99		0.23	1.53	30.08	1.09		1.04
05/12/2025		1.41			2.06	0.34	2.04	0.28		3		0.2	1.49	48.88	1.65		1.04
06/12/2025		1.38			2.16	0.3	2.06	0.28		2.47		0.2	1.4	20.89	2.23		1.04
07/12/2025		1.37			3.26	0.33	2.27	0.28		2.44		0.43	1.41	4.83	1.35		1.05
08/12/2025		1.51			2.21	0.31	2.42	0.27		2.55		0.24	1.39	5.23	1.75		1.06
09/12/2025		2.19			2.42	0.29	2.48	0.27		2.58		0.31	1.39	5.34	1.66		1.01
10/12/2025		5.4			2.78	0.31	2.52	0.27		3.82		0.44	1.48	5.13	1.72		1.01
11/12/2025		6.09			91.42	0.28	2.68	0.29		2.69		0.44	1.48	6.32	7.93		1.02
12/12/2025		7.68			38.93	0.3	2.78	0.27		2.3		0.6	1.6	6.81	31.38		1.14
13/12/2025		9.16			72.7	0.34	3.16	0.27		2.21		0.84	1.68	4.2	73.26		2.17
14/12/2025		12.61			19.66	0.34	5.9	0.29		1.55		1.46	1.54	4.39	131.97		8.54
15/12/2025		25.59			7.45	0.35	9.85	0.26		1.72		1.33	1.38	5.13	108.83		12.98
16/12/2025		23.72			10.8	0.4		0.27		2.2		1.64	1.66	6.42	19.7		15.09
17/12/2025		9.55			13	0.51		0.28		1.91		2.16	1.79	5.34	32.31		18.31
18/12/2025		7			14.81	0.67		0.33		1.87		2.33	2.12	6.18	1.42		18.19
19/12/2025		23.25			15.14	0.75		0.77		1.68		3.35	2.24	7.12	1.32		22.65
20/12/2025		29.17			15.31	0.88		2.04		2.17		3.49	2.5	6.01	1.88		2.67
21/12/2025		6.25			15.77	0.8		9.09		3.2		3.93	2.85	6.45	2.21		0.95
22/12/2025		1.75			15.35	0.73		5.67		5.29		4.03	3.32	8.08	1.4		0.95
23/12/2025		2.14			15.06	0.71		8.82		6.32		5.14	2.87	8.1	4.58		0.93
24/12/2025		10.13			13.54	0.74		2.67		7.26		6.93	10.09	6.81	23.84		0.92
25/12/2025		4			11.4	2.04		0.23		2.66		8.82	20.37	7.61	70.31		0.9
26/12/2025		3.24			10.76	1.01		0.25		2.64		12.44	5	8.36	15.17		0.91
27/12/2025		5.73			10.46	0.8		0.33		2.72		14.17	3.75	11.21	3.18		1.68
28/12/2025		6.45			12.41	0.75		0.27		3.82		16.05	3.82	18.03	14.39		6.99
29/12/2025		7.6			13.01	0.82		0.43		5.3		18.02	11.07	18.48	31.53		0.94
30/12/2025		1.39			13.38	3.4		3.76		2.64		20.79	14.63	17.1	0.82		0.94
31/12/2025		1.39			13.26	4.35		1.75		2.36		24.26	14.93	21.97	0.89		0.94

Huntly WQMS Data – December 2025 - Turbidity (Daily Average, NTU)																	
Date	SE09T	SE10T	SE11T	SE12T	SE12INV	SE15T	SE34T	SE36T	SE48T	SE51T	SE52T	SE53T	SE59T	SE60T	SE61T	SE62T	SN07T
01/12/2025	1.03	1.05		27.37			2.64	0.37	4.12	2.09	4.18		5.25			5.02	7.64
02/12/2025	1.02	24.11		41.32			3.03	0.4	5.28	2.06	5.14		4.14			5.48	7.63
03/12/2025	1.02	1.07		83.19			3.52	0.47	4.4	2.06	7.09		4.95			3.85	7.63
04/12/2025	1.04	1.17					4.44	0.6	3.9	2.08	4.9		3.83			5.13	7.62
05/12/2025		26.36					4.17	0.55	3.97	1.86	8.92		4.8			4.85	7.62
06/12/2025		0.98					4.46	0.74	3.88	2.05	31.79		5.43			4.97	7.61
07/12/2025		0.9					4.54	1.25	3.54	1.89	14.79		5.8			5.16	7.61
08/12/2025		0.9					4.62	1.82	3.63	1.97	12.53		5.51			6.11	7.6
09/12/2025		1.03					5.36	4.94	3.84	1.97	11.26		7.96			4.06	7.62
10/12/2025		1.03					5.09	9.85	4.41	1.98	9.44		7.78			4.08	7.59
11/12/2025		1.01					3.72	3.08	4.7	1.74	2.85		7.27			4.66	7.6
12/12/2025		4.29					10.91	2.61	4.05	1.64	4.31		5.1			3.32	7.6
13/12/2025		3.84					11.31	2.69	12.43	1.62	4.58		3.59			5.79	7.37
14/12/2025		3.85					10.16	34.43	42.12	1.61	4.84		5.03			5.54	7.43
15/12/2025		12.03					10.09	15.47	63.49	1.55	3.9		6.09			3.79	7.59
16/12/2025		1.15						35.04	36.19	1.63	4.2		3.95			14.24	7.6
17/12/2025		1.29						15.91	4.56	1.55	3.98		4.43			17.1	7.57
18/12/2025		1.38						4.78	7.82	1.54	3.78		4.49				7.55
19/12/2025		2.71						5.34	12.24	1.71	3.87		4.79				7.58
20/12/2025		9.53							12.13	1.73	3.77		5.47				7.57
21/12/2025		13.01							13.55	1.64	4.11		5.39				7.58
22/12/2025		35.32							12.41	1.61	4.42		6.21				7.59
23/12/2025		99.93							13.13	1.51	3.36		7.08				7.36
24/12/2025		41.04							13.42	1.56	3.8		6.69				7.6
25/12/2025		11.1							15.32	1.45	4.02		10.07				7.6
26/12/2025		40.91							15.01	1.63	12.16		13.2				7.58
27/12/2025		50.03							15.34	1.57	9.93		5.9				7.58
28/12/2025		1.08							15.12	1.58	6.87		4.98				7.59
29/12/2025		7.87							16.26	1.59	11.5		6.36				7.59
30/12/2025		7.36							16.58	1.52	6.91		6.81				7.59
31/12/2025		8.17								1.6	6.41		6.59				7.6

Date	Huntly WQMS Data – December 2025 - Turbidity (Daily Average, NTU)															
	SE22T	SE23T	SE24T	SE25T	SE26T	SE03INV1	SE03INV3									
01/12/2025						74.56										
02/12/2025						0.66										
03/12/2025						0.73										
04/12/2025						1.4										
05/12/2025						2.07										
06/12/2025						1.79										
07/12/2025						3.29										
08/12/2025						4.92										
09/12/2025						6.45										
10/12/2025						14.27										
11/12/2025						26.15										
12/12/2025						37.03										
13/12/2025						41.16										
14/12/2025						34.06										
15/12/2025						28.32										
16/12/2025						187.44										
17/12/2025						19.63										
18/12/2025						26.47										
19/12/2025						36.69										
20/12/2025						43.27										
21/12/2025						22.99										
22/12/2025						1.74										
23/12/2025						1.91										
24/12/2025						2.15										
25/12/2025						1.56										
26/12/2025						2.59										
27/12/2025						7.06										
28/12/2025						13.11										
29/12/2025						21.06										
30/12/2025						46.59										
31/12/2025						101.12										

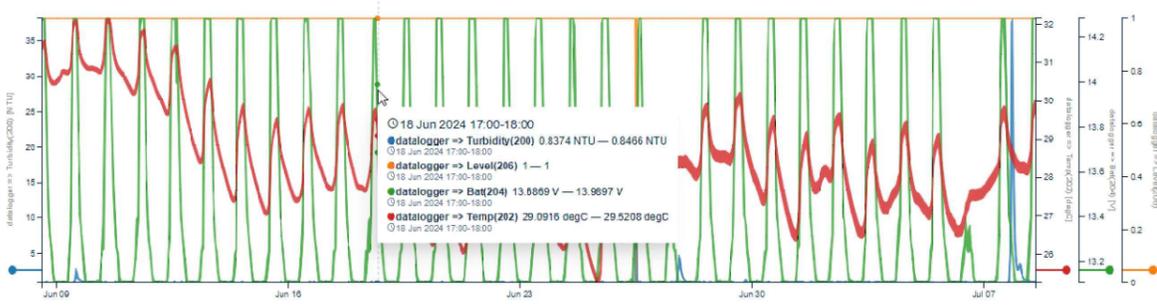
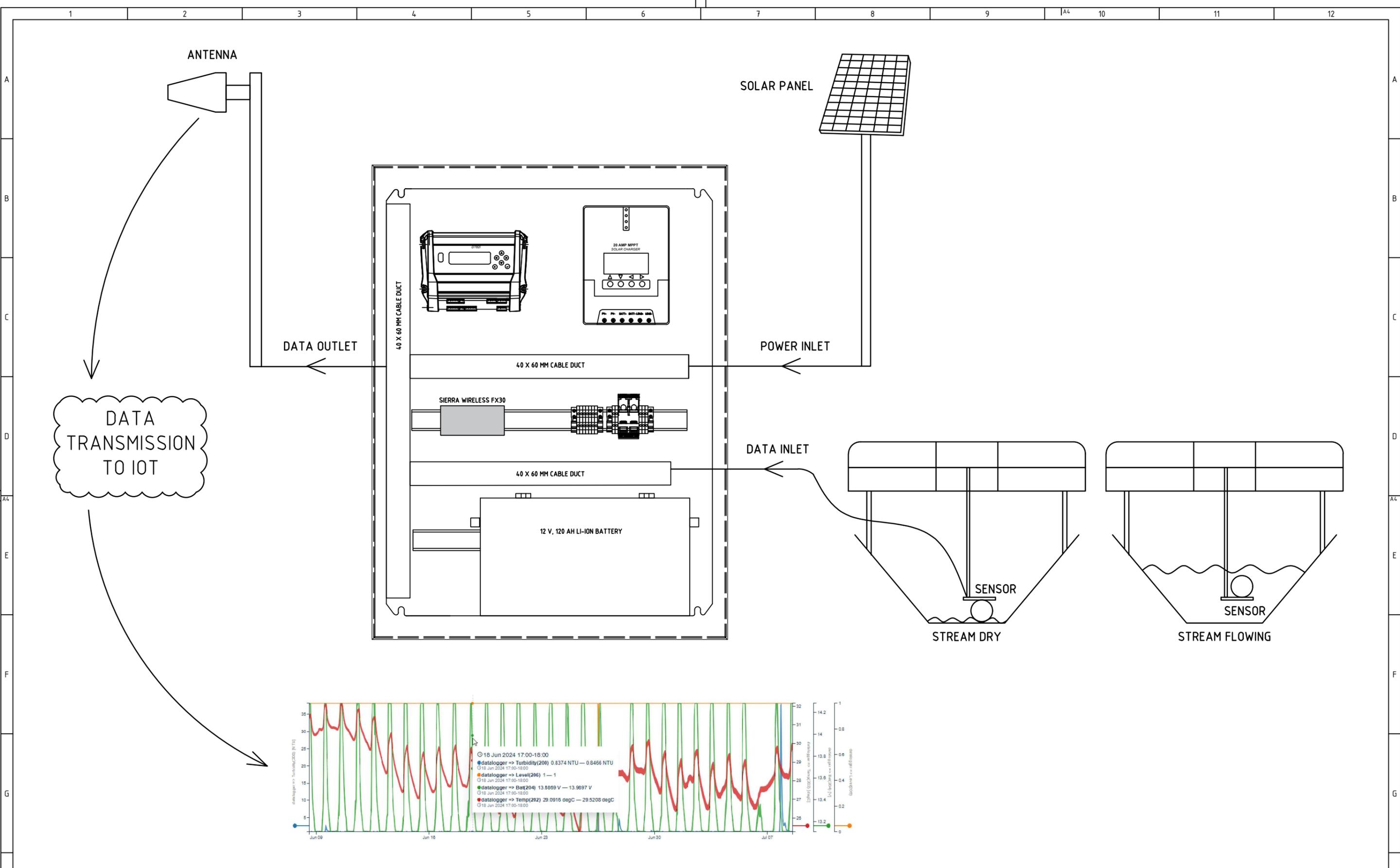
Appendix B. Huntly WQMS Locations



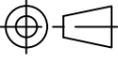
-  Huntly Turbidity Monitors
-  Huntly Mine Footprint (Section 6)
-  Major Dams
-  Streams



Appendix C. WQMS General Arrangement



REV.	REMARKS	DATE	DESIGNED	DRAWN	CHECKED	APPROVED	REFERENCE DRAWINGS
0	ISSUE FOR APPROVAL	05.07.2024	A.K.	S.A.	A.K.	A.K.	


 ALL DIMENSIONS IN MILLIMETRES UNO.
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TITLE
 IOT TURBIDITY MONITORING STATION
 SITE LAYOUT
 GENERAL ARRANGEMENT

SHEET 1 OF 2
 SCALE NTS OR AS SHOWN

DRAWING NO.
 HI0090 - ALCOA WQMS

SHEET SIZE
 A3
 REV.
 1

Willowdale – Water Quality Monitoring System Data Review

December 2025

Revision: Rev 01

Date: 05 February 2026

Issued to: SciDev & Alcoa of Australia



Document Control

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Revision	Date	Description	Prepared	Reviewed	Approved	Issued to
01	05/02/2026	Issued to client	MM	GD	GD	Alcoa

Report Sign Off					
Report Version	01				
Prepared by	Technical Review		Approved for Issue		
<i>Michael Minter</i>	<i>Georgia Duffy</i>		<i>Georgia Duffy</i>		
Name	Michael Minter	Name	Georgia Duffy	Name	Georgia Duffy
Position	Env. Engineer	Position	Chemical Engineer	Position	Chemical Engineer
Date	05/02/2026	Date	05/02/2026	Date	05/02/2026

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1. Executive Summary

This report, prepared by RARE Environmental Pty Ltd and SciDev Pty Ltd for Alcoa, provides an analysis of turbidity data collected from Water Quality Monitoring Systems (WQMS) deployed at the Willowdale bauxite mining operations during December 2025. The primary objective of this analysis was to evaluate the quality of the data, identify potential "true" turbidity exceedance events, and support Alcoa's compliance reporting obligations under Schedule 1, Division 2, Clause 6 of the **Environmental Protection (Darling Range Bauxite Mining Proposal) Exemption Order 2023**.

The analysis focused on identifying and classifying turbidity events where levels exceeded 25 nephelometric turbidity units (NTU) for at least one hour. Events were categorized as "true" or "false" based on Alcoa's **Turbidity Event Classification Guidelines**, which distinguish actual turbidity increases (true events) from false readings caused by environmental factors such as debris, air bubbles, or fluctuating water levels.

Key findings include:

- **False Events:** Zero 'False' events were identified, primarily attributed to transient local interference
- **Further Investigation:** Zero events were flagged for further investigation.
- **True Events:** Zero "True" turbidity exceedance event were identified.
- **Excluded Units:** One WQMS unit was temporarily excluded from the analysis due to limited water in the stream.

The report also highlights periods of missing data, which occurred due to system logoffs, equipment faults, or unplanned shutdowns. These gaps are detailed in the report to ensure transparency in data handling.

2. Scope

RARE Environmental Pty Ltd and SciDev Pty Ltd were engaged by Alcoa to analyse turbidity data collected from the Willowdale Water Quality Monitoring Systems (WQMSs). The primary objective of this engagement is to assess the quality of the collected data and identify potential “true” turbidity events. This analysis supports Alcoa’s reporting obligations under *Schedule 1, Division 2, Clause 6 of the Environmental Protection (Darling Range Bauxite Mining Proposal) Exemption Order 2023*.

3. Introduction

3.1. Background

Alcoa of Australia Ltd (Alcoa) operates two bauxite mines, Huntly and Willowdale, approximately 100 km southeast of Perth, Western Australia. These mining operations are subject to environmental controls mandated by the *Environmental Protection (Darling Range Bauxite Mining Proposal) Exemption Order 2023*.

Under this Exemption Order, Alcoa is required to implement drainage control measures and monitor effectiveness in water bodies within and downstream of mining operations. Turbidity, a critical water quality parameter, is monitored using Water Quality Monitoring Systems (WQMSs), to detect deviations and identify high-turbidity events.

Alcoa is obligated to report monthly on-stream turbidity, including the identification and classification of any “true” high-turbidity exceedance events. (Refer to Appendix B for the site map showing WQMS locations.)

3.2. Monitoring requirements

Environmental Protection (Darling Range Bauxite Mining Proposal) Exemption Order 2023 specifies that a drainage incident occurs when:

- a) runoff from a disturbance area enters the surrounding environment, resulting in surface water turbidity of at least 25 NTU for a duration of at least one hour; or*
- b) a discharge from containment infrastructure includes, or December include, environmentally hazardous material.*

Trigger levels for drainage incidents are outlined in *Schedule 1* of the Exemption Order. To meet these requirements, Alcoa has developed "Turbidity Event Classification Guidelines" which define a true turbidity exceedance event as a WQMS recording turbidity levels of at least 25 NTU for a period exceeding one hour.

3.3. Water Quality Management Systems (WQMSs)

During the December 2025 monitoring period, four Turbidity units were deployed in section six areas to monitor turbidity levels in streams subject to surface water runoff within and downstream of Willowdale mining operations.

Each WQMS unit consists of the following components:

Aquas SMR10 Turbidity Probe

Positioned at a 90-degree angle to water flow, each probe is equipped with an automatic lens wiper and a guard to protect against larger debris.

Data Taker DT82 Logger

Records data locally every six seconds, with 6-minute averages transmitted via IoT-enabled modems to a cloud-based platform.

Float Switch

Detects whether the sensor is submerged, or the stream is dry.

3.4. Purpose

This report aims to analyse turbidity data collected during December 2025, focusing on the identification and classification of "true" turbidity exceedance events based on Alcoa's Turbidity Event Classification Guidelines.

3.5. Exclusions

This report is not intended as:

- An assessment of the WQMS network or Alcoa's compliance with relevant legislation and requirements.
- An evaluation of the suitability of the trigger levels or event classification procedures adopted by Alcoa.

3.6. Abbreviations

	Term
IoT	Internet of Things
NTU	Nephelometric Turbidity Units
WQMS	Water Quality Management System

4. Methodology

4.1. WQMS Locations

A site map showing the WQMSs locations is provided in Appendix B.

4.2. Data Review

Data recorded by the WQMS Units was reviewed and potential events where turbidity levels exceeded 25 NTU for at least one hour. Each potential event was categorised as either 'true' or 'false'.

4.2.1. True Turbidity Exceedance Events

These events are caused by an actual increase in stream turbidity. Per Alcoa's "Turbidity Event Classification Guidelines" true exceedance events typically exhibit:

- A sharp, sudden incline in turbidity levels.
- A return to baseline turbidity levels in a pattern resembling a normal (Gaussian) distribution.

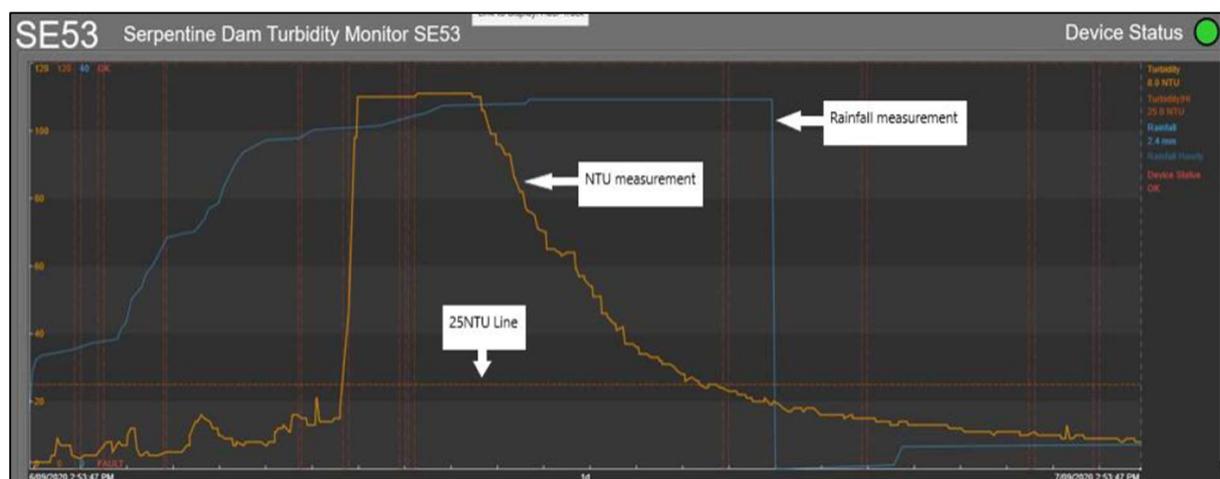


Figure 1 Typical 'true' exceedance event showing the sharp incline and gradual return to background levels.

4.2.2. False Turbidity Exceedance Events

These events are caused by factors unrelated to actual turbidity increase, such as:

- Organic debris (e.g., leaves, sticks, algae) obstructing the sensor
- Air bubbles or water turbulence near the sensor
- Fluctuating water levels intermittently covering and uncover the sensor lens.

False events typically exhibit sharp inclines and declines without the characteristic bell curve shape of true events.

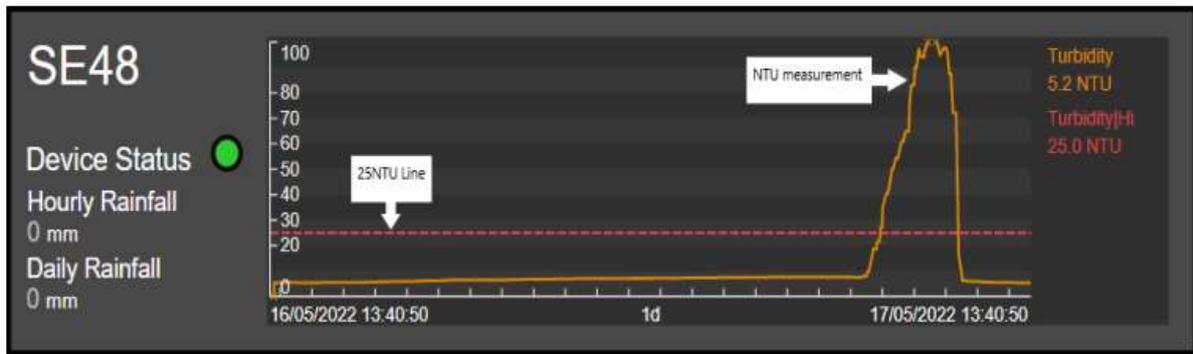


Figure 2 Typical 'false' exceedance event showing both a sharp incline and decline

4.2.3. Missing Data

Missing data occurs when a WQMS unit fails to record information, this can occur from unexpected system logoffs, equipment faults, or unplanned shutdowns.

5. Results and Discussion

5.1. Events

Zero events were identified during the reporting period

5.2. Additional Investigation

Zero events were flagged for additional investigation

5.3. True Event(s)

Zero true events were identified during the reporting period.

5.4. False Event(s)

Zero false events were identified during the reporting period.

5.5. Excluded WQMS Units

One WQMS Unit was excluded from analysis due to erroneous data. Alcoa confirmed the invalidity of data recorded from these units and provided commentary on the condition of each.

Table 1 Excluded WQMS Units

Unit	Dates/	Comments
HV07T	10/11/2025- 31/12/2025	Stream no longer flowing from 10/11/2025. Probe installed in bucket of deionised water 15/11/2025.

5.6. Missing Data

Periods of missing data are detailed in Table 5.

Table 2 Missing Data Summary

Missing Data ID	Unit	Start	End	Comments
MD-2512-001	RHB2	16/12/2025 6:28	16/12/2025 6:52	Missing Data
MD-2512-002	RHB3	16/12/2025 6:26	16/12/2025 6:52	Missing Data

6. Appendices

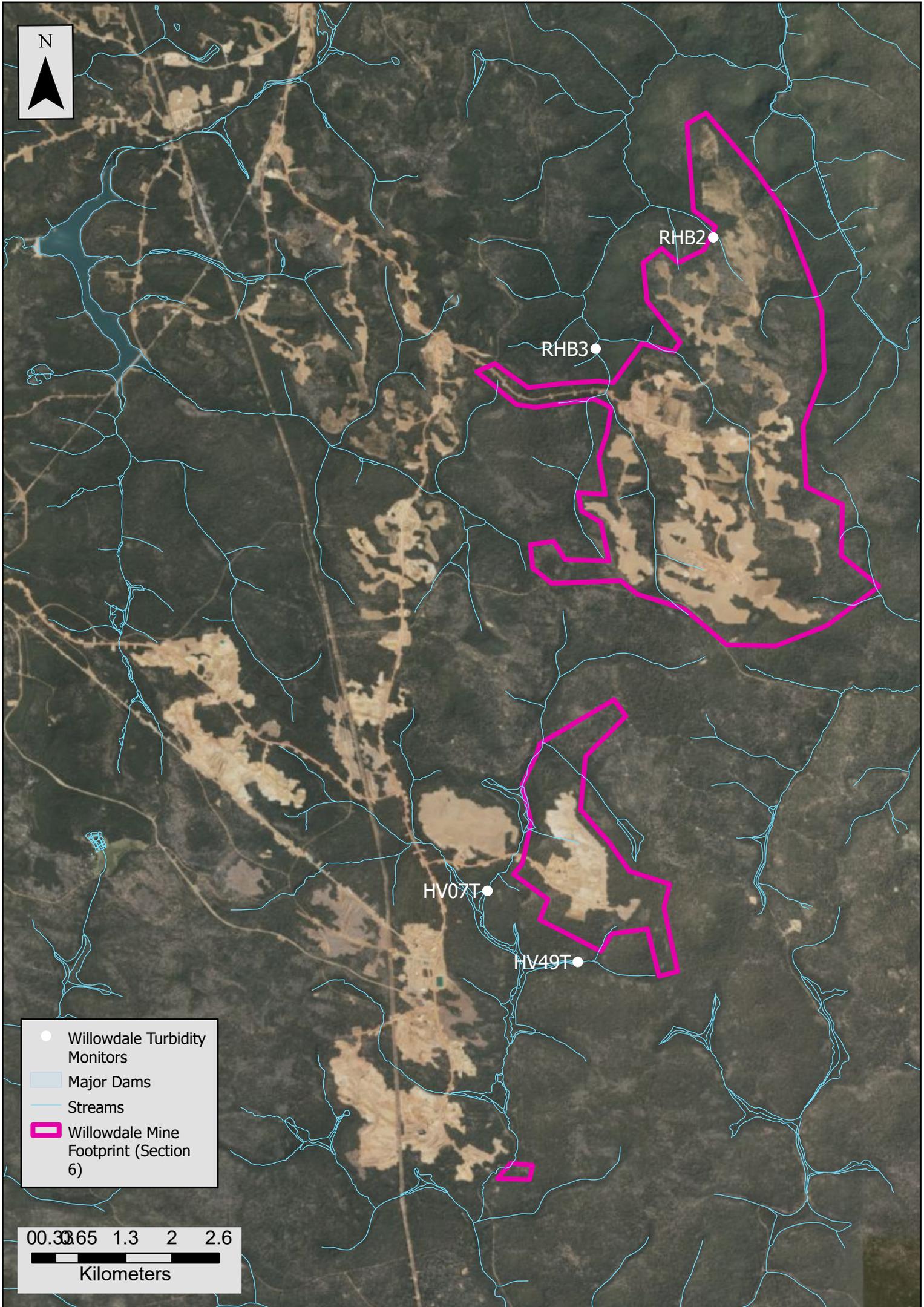
Appendix A. Willowdale Raw WQMS Data

Willowdale WQMS Data - December 2025 - Events with turbidity > 25 NTU for an hour or more				
Date	HV07T	HV49T	RHB2	RHB3
1/12/2025				
2/12/2025				
3/12/2025				
4/12/2025				
5/12/2025				
6/12/2025				
7/12/2025				
8/12/2025				
9/12/2025				
10/12/2025				
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31/12/2025				

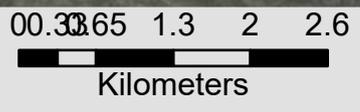
Date	Willowdale WQMS Data - December 2025 – Daily Average Turbidity (NTU)			
	HV07T	HV49T	RHB2	RHB3
1/12/2025		2.52	0.43	1.82
2/12/2025		3.13	0.45	1.53
3/12/2025		4.09	0.57	1.47
4/12/2025		3.72	0.39	1.49
5/12/2025		2.28	0.31	1.55
6/12/2025		2.63	0.48	2.34
7/12/2025		3.56	0.40	1.44
8/12/2025		4.74	0.37	1.36
9/12/2025		3.54	0.37	1.33
10/12/2025		3.86	0.32	1.34
11/12/2025		3.73	0.76	1.34
12/12/2025		4.69	0.53	1.24
13/12/2025		4.02	0.37	1.27
14/12/2025		3.93	0.25	1.22
15/12/2025		3.68	0.20	1.18
16/12/2025		3.79	0.21	1.56
17/12/2025		4.05	0.24	7.08
18/12/2025		4.67	0.44	1.70
19/12/2025		4.12	0.25	1.19
20/12/2025		4.31	0.26	1.22
21/12/2025		4.34	0.90	1.28
22/12/2025		4.32	0.41	1.81
23/12/2025		4.12	0.31	1.21
24/12/2025		4.04	0.29	1.14
25/12/2025		4.93	0.42	1.09
26/12/2025		4.12	0.27	1.10
27/12/2025		6.73	0.32	1.25
28/12/2025		4.22	0.25	1.28
29/12/2025		4.25	0.28	1.32
30/12/2025		4.19	0.24	1.63
31/12/2025		4.05	0.26	1.33

* - Adjusted average with sensor fault data removed

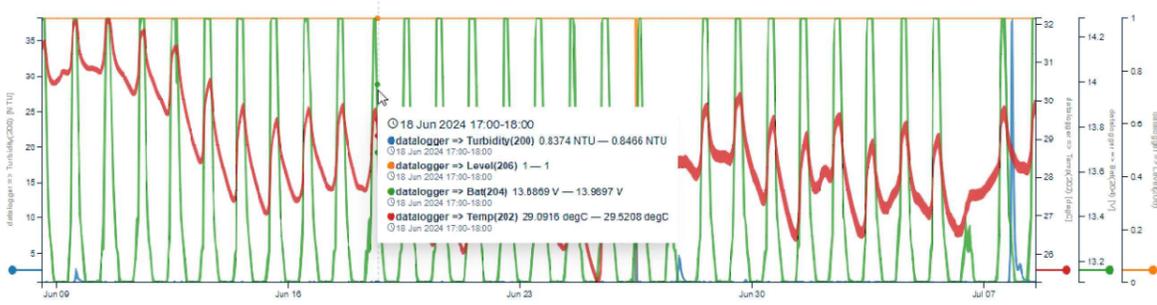
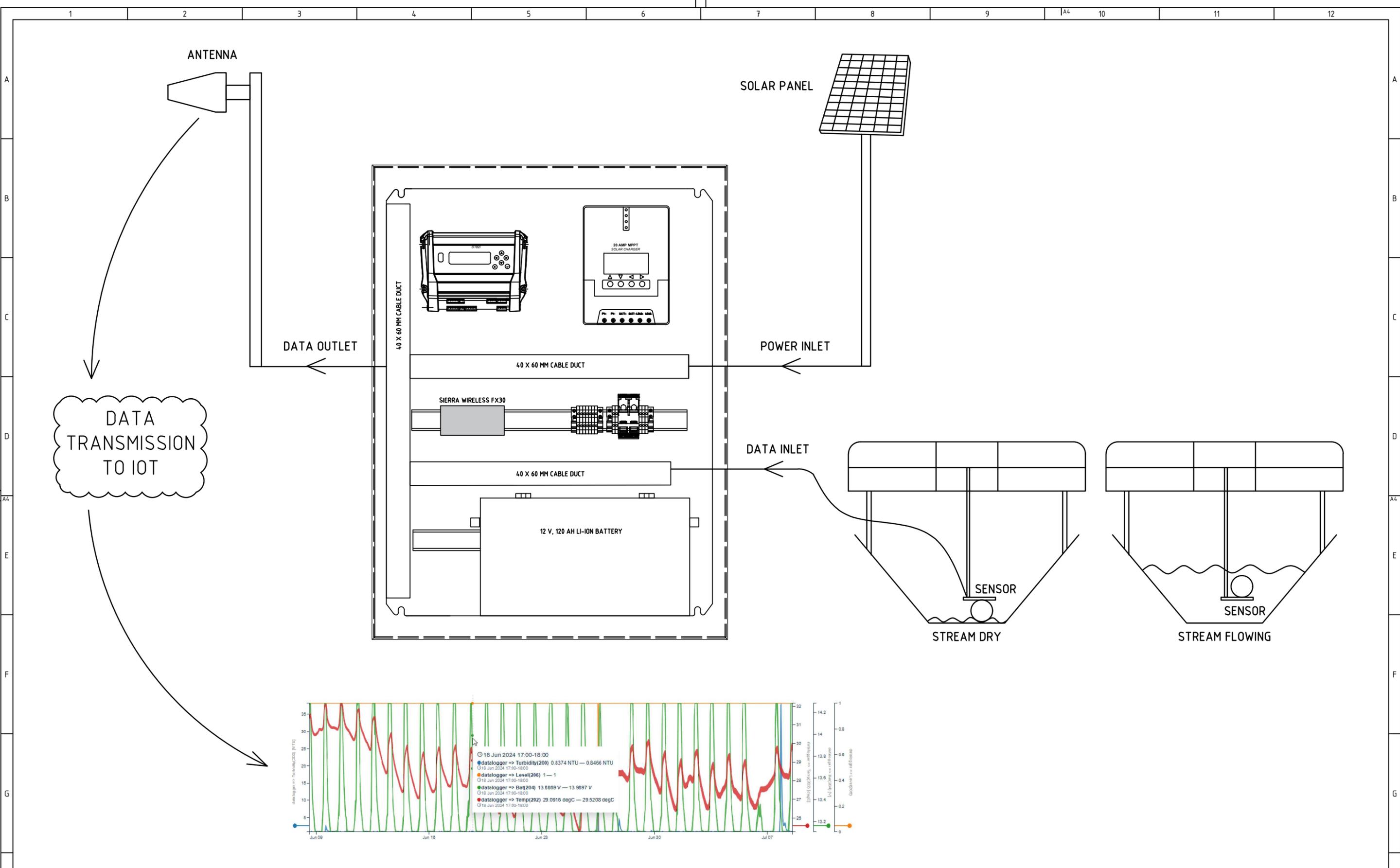
Appendix B. Willowdale WQMS Locations



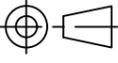
- Willowdale Turbidity Monitors
- Major Dams
- Streams
- ▭ Willowdale Mine Footprint (Section 6)



Appendix C. WQMS General Arrangement



REV.	REMARKS	DATE	DESIGNED	DRAWN	CHECKED	APPROVED	REFERENCE DRAWINGS
0	ISSUE FOR APPROVAL	05.07.2024	A.K.	S.A.	A.K.	A.K.	


 ALL DIMENSIONS IN MILLIMETRES UNO.
 LEVELS ARE IN METRES ON AHD UNO.
 DO NOT SCALE DRAWING
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 TOLERANCES ISO2768-m UNO.
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TITLE
 IOT TURBIDITY MONITORING STATION
 SITE LAYOUT
 GENERAL ARRANGEMENT

SHEET 1 OF 2
 SCALE NTS OR AS SHOWN

DRAWING NO.
 HI0090 - ALCOA WQMS

SHEET SIZE
 A3
 REV.
 1