Investigation report - Porirua UVT Event - 19 February 2025

Control Sheet

Document Title:	Investigation report - Porirua UVT Event 19 February 2025
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Document Control

Version	Status	Date	Details of Revision
0.1	Draft	10 March 2025	Draft Investigation report - Porirua UV Event 19 Feb 2025
0.2	Review	12 March 2025	Internal Review
1.0	Final	13 March 2025	Approved for release

Veolia Internal Distribution	Position	Email
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External Distribution	Position	For	Email
[redacted]	Senior Advisor Wastewater Assets and Operations	WWL	[redacted]
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Incident Outline

Date	19 February 2025
Location	Porirua Waste Water Treatment Plant (PWWTP)
Consent Ref	Resource Consent WGN200229 [36816] applies, specifically conditions 12B, 12C and 12D.
Background	Average hourly UV transmissivity fell below 45% on 19 February 2025. As per conditions referred above, if / when the hourly average UV transmissivity reduces below 45% the Regional Council is to be notified and an investigation shall be undertaken. A chronology of actions is set out below.
Description	Average hourly UV transmissivity fell below 45% on 26 December 2024. **Consent Requirements:** If the hourly average UV transmissivity recorded in accordance with 12C reduces below 45% it is a consent requirement to: a. Notify the Manager as soon as practicable; and b. Initiate an investigation that meets the following requirements. Action (a) was completed on 20 Feb at 15:55. This report addresses action (b). The investigation must be communicated within 10 days of the event, which, in this instance, is Wednesday 5 March 2025. It must address the following four details: 1. Consider the results of the suspended solids monitoring, UV transmissivity from the daily grab samples, and other relevant plant performance measurements routinely taken by the consent holder. 2. Assess the likely cause of the UV transmissivity reducing below 45%. 3. If considered necessary, recommend further investigations, improvements, operational actions (including changes to the OMCP) or upgrades to reduce the risk of similar UV transmissivity records occurring in the future. 4. Include an implementation programme for any recommendations.

Chronology		
Date	**Time**	**Activity**
20 Feb 25	09:01	Northern Region Treatment Supervisor reports to Wellington Water (WW) that ' Last night we had a UVT anomaly'. Screen shot of Scada shows fluctuations in UVT on 19 February and UVT below 45%. The Supervisor reports "*We are calculating the rolling average now - due to the spikes at 100% we shouldn't be under our 45% limit. If we are, WWL will be the first to know*."
20 Feb 25	09:12	Supervisor email to Veolia colleagues; the UVT drop failed to activate an alarm to alert duty staff.
20 Feb 25	13:06 - 14:33	Supervisor reports to WW that having issues with Pi. "Please see the attached photo. As you can see from 8pm 19th Feb till 8am 20th Feb we did not drop below 45% rolling average".
20 Feb 25	15:18	WW Senior Wastewater Operations and Assets Advisor acknowledges Supervisor's message and states GWRC will be notified.
20 Feb 25	15:55	WW notifies Greater Wellington Regional Council (GWRC) Compliance Monitoring & Enforcement Officer. This message includes readings that show hourly average UV transmissivity was below 45% from midnight - 15:00 of 19 Feb.
24 Feb 25	14:29	GWRC acknowledges the notification. GWRC asks "Is it suspected that these readings are due to the same issue from 26 December notification? – a defect with the monitoring probe?"
24 Feb 25	17:33	WW confirms the readings are due to a defect with the probe.
25 Feb 25	08:31	GW advises that as this is a recurring issue, it is considering 'some kind of enforcement action'.
25 Feb 25	10:31	Veolia provides a report (dated 23 Jan) to WW on options to improve reliability of UVT readings.
25 Feb 25	11:14	WW propose to GW that Veolia proceed with changes as per its report.
27 Feb 25	08:37	GW endorses the recommended change.
3 Mar 25	15:31	Veolia Compliance Officer refers WW to Plant Supervisor message of 20 Feb. As UVT did not fall below 45%, no further action is required and GW should be notified 'the UT (sic) was compliant and no report is required.'

3 Mar 25	20:07	WW responds; the Supervisor's calculations are incorrect. "It should be hourly average rather than rolling hourly average."

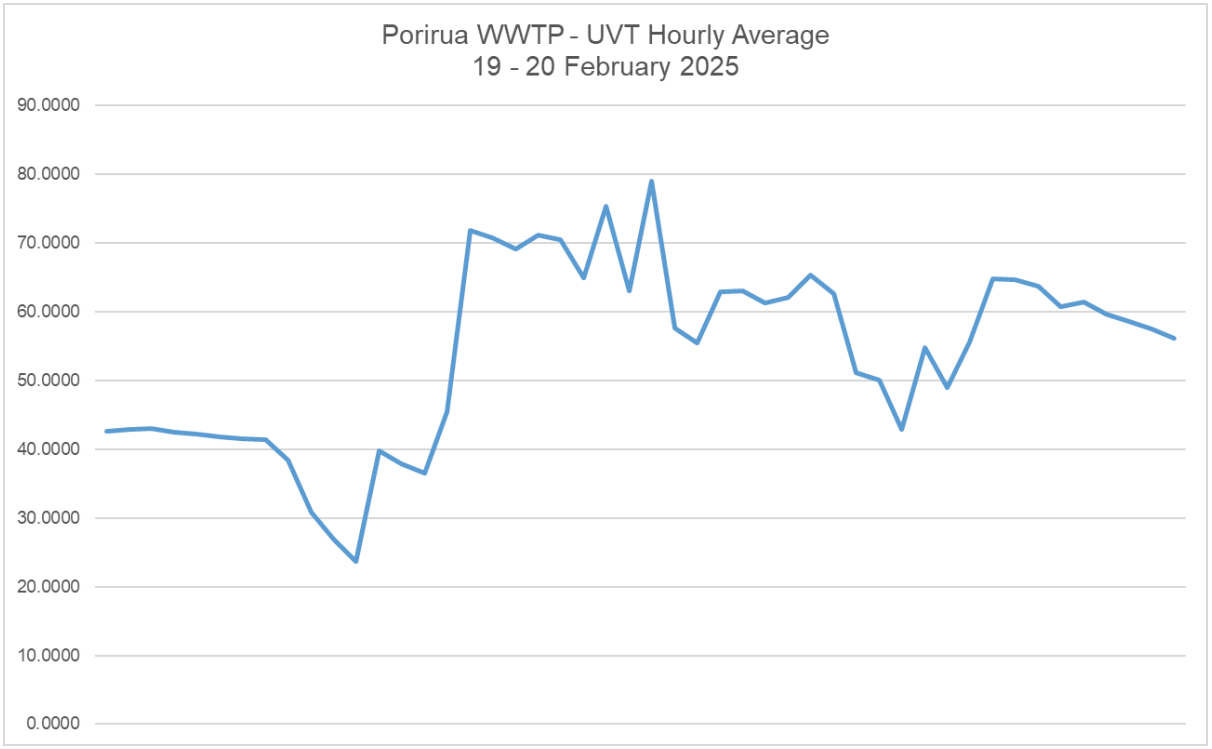
Ref	Consent WGN200229 [36816] - Condition 12D Investigation Scope	
a	Notify the Manager as soon as practicable	Email of 20 Feb at 15:55
b ii	Results of the suspended solids monitoring, UV transmissivity from the daily grab samples, and other relevant plant performance measurements routinely taken.	Refer Process / Quality Control section below.
b iii	Assessment of the likely cause of the UV transmissivity reducing below 45%.	Routine Plant performance measurements indicate there was no sludge carry-over. Consequently, the likely cause is a defect with the probe.
b iv	If considered necessary, recommend further investigations, improvements, operational actions (including changes to the OMCP) or upgrades to reduce the risk of similar UV transmissivity records occurring in the future.	A UVT sensor has been installed in the TAK Unit to have continuous UVT reading especially when the Duron Unit is offline. Veolia has investigated options for a backup UVT monitor when the instrument has faulted. The options presented were: 1. Relocate the UVT sensor in the TAK UV unit into the pre -UV common channel 2. Add a third UVT sensor in the pre-UV common channel (preferred option).
b v	Include an implementation programme for any recommendations.	Option 2 is being progressed, with an expected time-line being three months from procurement to installation.

Parameter Monitoring

Date and Time	UVT Reading Hourly Average
19/02/2025 0:59	42.6151
19/02/2025 1:59	42.9236
19/02/2025 2:59	42.9861
19/02/2025 3:59	42.4359
19/02/2025 4:59	42.1434
19/02/2025 5:59	41.8505
19/02/2025 6:59	41.5728
19/02/2025 7:59	41.3390
19/02/2025 8:59	38.3877
19/02/2025 9:59	30.8455
19/02/2025 10:59	26.9347
19/02/2025 11:59	23.7281
19/02/2025 12:59	39.7196
19/02/2025 13:59	37.8988
19/02/2025 14:59	36.4602
19/02/2025 15:59	45.4973
19/02/2025 16:59	71.7946
19/02/2025 17:59	70.7029
19/02/2025 18:59	69.1157
19/02/2025 19:59	71.1204
19/02/2025 20:59	70.5164
19/02/2025 21:59	64.9571

19/02/2025 22:59	75.3647
19/02/2025 23:59	62.9752
20/02/2025 0:59	78.9413
20/02/2025 1:59	57.6013
20/02/2025 2:59	55.4040
20/02/2025 3:59	62.8415
20/02/2025 4:59	63.1078
20/02/2025 5:59	61.2660
20/02/2025 6:59	62.1564
20/02/2025 7:59	65.3742
20/02/2025 8:59	62.6019
20/02/2025 9:59	51.0696
20/02/2025 10:59	50.1030
20/02/2025 11:59	42.8557
20/02/2025 12:59	54.7774
20/02/2025 13:59	49.0086
20/02/2025 14:59	55.6618
20/02/2025 15:59	64.7392
20/02/2025 16:59	64.7200
20/02/2025 17:59	63.7659
20/02/2025 18:59	60.7748
20/02/2025 19:59	61.3685
20/02/2025 20:59	59.7181
20/02/2025 21:59	58.5376
20/02/2025 22:59	57.4372
20/02/2025 23:59	56.1556

Figure 1: UVT probe grab samples



BOD_5 (NZ.WEL.POR.WE01.TOT_BOD5.DRESULT)					
	Daily Results	90 Day Geometric Mean	90 Day Percentile	Limit	
Date	g/m3	g/m3	g/m3	Geometric Mean	Percentile
18/02/2025	7	9.6	19.1	30	90
19/02/2025	9	9.6	19.1	30	90
20/02/2025	13	9.6	19.1	30	90
21/02/2025	14	9.6	19.1	30	90

Table 1 - BOD5 results 18 - 21 February 2025

Suspended Solids (NZ.WEL.POR.WE01.TSS.DRESULT)					
	Daily Results	90 Day Geometric Mean	90 Day Percentile	Limit	
Date	g/m3	g/m3	g/m3	Geometric Mean	Percentile
18/02/2025	5	8.4	18.1	30	90
19/02/2025	5	8.4	18.1	30	90
20/02/2025	5	8.3	18.1	30	90
21/02/2025	5	8.3	18.1	30	90

Table 2 - Suspended Solids results 18 - 21 February 2025

Clarifier blanket height levels (meters)						
	Morning			Afternoon		
Date	#1	#2	#3	#1	#2	#3
18/02/2025	1.50	1.80	0.30	1.50	1.80	0.30
19/02/2025	1.40	1.50	0.30	1.40	1.80	0.30
20/02/2025	1.20	1.50	0.30	1.40	1.60	0.30
21/02/2025	1.50	1.80	0.30	1.60	1.80	0.40

Table 3 - Clarifier blanket height levels 18 - 21 February 2025

Photos taken on morning of 20 February 2025

Notification

A notification was issued in accordance with condition 12D (a) of the Consent.

No action taken other than notification as it was deemed a sensor fault/algae interference.

Conclusion

Data for clarifier levels, suspended solids, BOD_5 and UVT grab samples all support a conclusion that the plant was operating within specification and the probe was defective.