



Event Duration Monitoring

Trigger Exceedance Notification

Document ID

Report type: Stage 2: Full Investigation Proposal

Permit Number: BP0237405

Receiving / Impacted waters: BW5

Location: CSO 11, Adjacent to Junction of Mumbles Rd Outside No. 48 Norton Road

DCWW Asset ID: 52520

CAR References:



Document Control

Version	Status	Date	Author(s)	Description of Change
1	Stage 2: Full Investigation Proposal - Draft	10/07/25	J.Turner	Initial report - Draft
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1. Summary of Each Stage

This TEN document follows the six Spill Frequency Trigger stages as detailed in the “*Water and Sewerage Company actions following a spill frequency trigger permit condition exceedance*” guidance document (GN005) to comply with the associated permit conditions.

The consent for asset Combined Sewer Overflow at CSO 11, Adjacent to Junction of Mumbles Rd Outside No. 48 Norton Road is BP0237405. The EDM classification for this asset is Bathing Water and has a limit of 5 spills. The asset breached its EDM requirements on the 21st of June 2024 when it spilt for the 6th time as per the Spill Block Counting Method.

Initial desktop studies and operational investigations have identified the root cause to be Hydraulic Overload. We have previously surveyed the network and not found any maintenance issues, therefore it is likely that there has been creep in the catchment with roof and yard areas connected.

Detailed root cause analysis, optioneering and solution development is currently being carried out.

CSO 11, Adjacent to Junction of Mumbles Rd Outside No. 48 Norton Road has experienced a further breach in 2025. The EDM classification for this asset is Bathing Water and has a limit of 5 spills. The asset breached its EDM requirements on the 12th of June 2025 when it spilt for the 6th time as per the Spill Block Counting Method.

1.1. Stage 1: Spill Frequency Trigger Summary

- Consent Number BP0237405 = BW 5 spills in a year (as per the spill block counting method)

TEN History:

Year	2022	2023	2024	2025	2026	2027	2028	2029
TEN ?	Yes	Yes	Yes	-	-	-	-	-

- Stage 1 Acceptance of the TEN by DCWW 05-07-2024

1.2. Stage 2: Initial Investigation Summary

Through desk top analysis & onsite investigation, detailed Root cause could not be determined, although we are confident that it is hydraulic overload. A hydraulic modelling exercise has already been released to check the asset.

2.1. Site Location

A map snippet showing the coastal area around Newton. Bishopston is to the west, The Mumbles is to the east, and Mumbles Head is further east. A road labeled B4436 runs north-south through Newton. A pink box highlights a road labeled A4067. Various icons like a castle, a church, and a lighthouse are visible.



2.2. Permit & EDM Requirements

Figure 3: CSO 11, Adjacent to Junction of Mumbles Rd Outside No. 48 Norton Road Discharge Permit Details

Schedule 3 – Emissions and monitoring

Table S3.1 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Effluent and discharge point	Parameter	Limit (including unit)	Reference Period	Limit of effective range	Monitoring frequency	Compliance Statistic
Storm sewage via POINT OF DISCHARGE	Discharge start and end times	N/A	N/A	N/A	Whenever a discharge occurs	N/A
	Block-counted significant spills	5 spills	15 th May to 30 th September inclusive	N/A	15 minutes	Condition 3.1.2 applies - the spills threshold is a trigger for investigation only and not a statistic for use in compliance of asset
	Block-counted spills	N/A	15 th May to 30 th September inclusive	N/A	15 minutes	N/A
	Block-counted spills	N/A	1 st January to 31 st December inclusive	N/A	15 minutes	N/A
	Event recorder status operational	N/A	N/A	N/A	15 minutes	N/A

Table S3.2 Discharge points			
Effluent Name	Discharge Point	Discharge point NGR	Receiving water/Environment
Storm sewage	POINT OF DISCHARGE	SS 61483 88809	Swansea Bay

Table S3.3 Storm sewage discharge settings				
Effluent and discharge point	Description of discharge	Overflow setting l/s	Maximum size of solid matter	Screen aperture size
Storm sewage via POINT OF DISCHARGE	Storm sewage	210	No greater than 10 mm in more than 2 dimension	10mm bar screen

Table S3.4 Monitoring points			
Effluent and discharge point	Monitoring type	Monitoring point NGR	Monitoring point reference
Storm sewage via POINT OF DISCHARGE	Effluent sampling	SS 61208 88725	POINT OF OVERFLOW
	Event duration monitoring	SS 61208 88725	



2.3. Asset and Telemetry Description

The catchment upstream of Norton Avenue CSO consists of mainly residential properties covering an area of approximately 0.45sq. km

Discharges are monitored with a 'CELLO' ultrasonic sensor, used for EDM purposes. PFF is controlled by the diameter of the outgoing pipe and capacity of the downstream network, and a spill occurs when flow exceeds 210l/s. Excess flows are screened via a 10mm bar screen and an overflow pipe runs from the CSO into a surface water sewer approximately 20m away on Norton Avenue where flows are then conveyed to the permitted discharge point.

The telemetry sensor was replaced in February 2025 to ensure that it was recording correctly.



Figure 4: Street View Location of CSO chamber



Figure 5: Internal View of CSO chamber and CELLO



2.4. Telemetry Data Analysis

Bathing Water spills occurred from 21/05/2024 – 21/06/2024 as shown in the screen shot below (Figure 6) taken in from Scopex / Prism telemetry data.

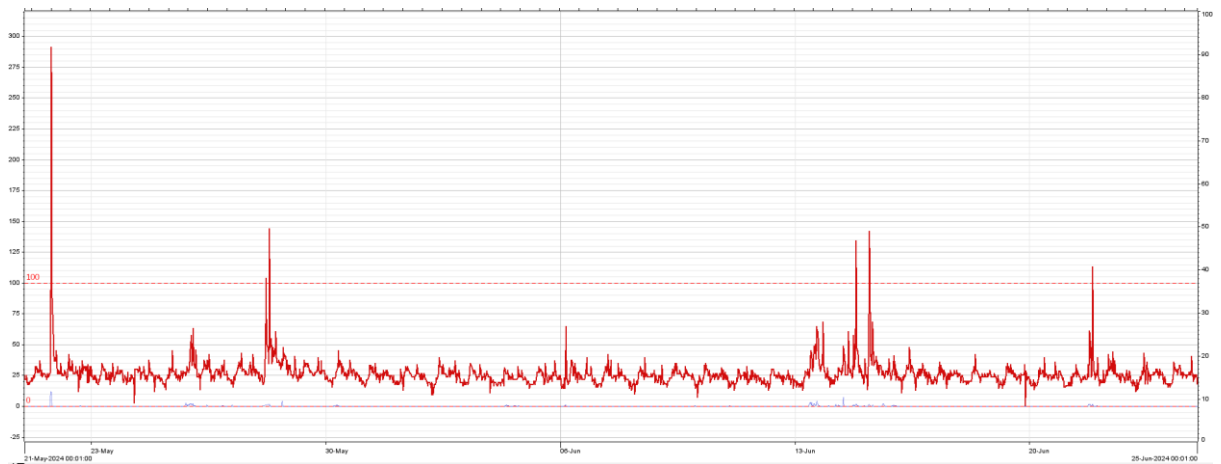


Figure 6: Scopex / Prism telemetry data.

Figure 6: graph showing –

■ = CSO Levels

■ = Rainfall Intensity

2.5. Root Cause Statement

A detailed Root cause cannot be determined at this stage although hydraulic overload is likely as we have already undertaken maintenance on the network following previous breaches. These included root cutting down stream of the asset, network CCTV surveys and telemetry monitor replacement.

2.6. Stage 2: Next Steps

Detailed root cause analysis, optioneering and solution development is currently being carried out.

2.7. Stage 2 Full Investigation Plan

Table X: Full Investigation Plan

Action Ref.	Action Required	Action Due Date	Comments	Complete (Y/N)	Completion Date
1.	Modelling assessment of asset and surrounding networks	May 30 th 2026	Asset modelled to confirmed root cause as Hydraulic Overload	N	



3. Stage 3: Trigger Exceedance Reason Report (TERR)



4. Stage 4: Spill Reduction Plan

4.1. Spill Reduction Proposal

Identifies how the number of spills will be reduced. The plan must contain reasonable deadlines and be sent to NRW for approval.

Complete Stage 5 which details our communication plan with NRW during the implementation of the SRP.

Table X: Spill Reduction Plan

Action Ref.	Action Required	Action Due Date	Comments	Complete (Y/N)	Completion Date



5. Stage 5: Implement Solutions

5.1. Stakeholder Communication

NRW will be updated via local quarterly meetings and CAR process.



6. Stage 6: Close Out Report

6.1. Spill Reduction Performance

6.2. Trigger Exceedance Close Out Statement

7. Appendices

7.1. Appendix A: Acronyms/Abbreviations



Acronym/Abbreviation	Meaning
AMP	Asset Management Plan
CSO	Combined Sewer Overflow
DWF	Dry Weather Flow
DCWW	Dwr Cymru Welsh Water
EDM	Event and Duration Monitoring
FFT	Flow to Full Treatment
NGR	National Grid Reference
PFF	Pass Forward Flow
SAS	Surplus Activated Sludge
SOAF	Sewer Overflow Assessment Framework
SPS	Sewage Pumping Station
SRP	Spill Reduction Plan
STMF	Storm Tank Flow
STMRF	Storm Tank Return Flow
TEN	Trigger Event Notification
WWTW	Wastewater Treatment Works



7.2. Appendix B: Attachment X1



7.3. Appendix C: Attachment X2