SOAF Investigation Output Summary

Dŵr Cymru Welsh Water

Cyfoeth Naturiol Cymru Natural Resources Wales

Reference: SOAF.R 00001

Please see Aurill Statement Technical Guidance for further information

ASSET INVESTIGATION DETAILS					
SAP Asset Name:	Cefn Monsanto CSO			**Asset Template reference**	CM0175201-CEFN MONSANTO - SSO-2486-Stage 1 - OC-Flintshire & Wrexham
Investigation Type	SOAF (River)				
Year of breach:	*2019*	**Spill Trigger cause:**		*OC Infiltration*	
Year of Investigation:	*2023*	**Investigation year performance:**		*63*	
Population of Asset	*1383*	**Modelled Performance: (DESIGN) / (CALIBRATED)**		*30 / 72*	

Permit Details			
Storm Permit ID:	CM0175201	**Storm Permit Name:**	CEFN MONSANTO - SSO
Asset NGR:	SJ2753442856	**Waterbody ID**	GB111067052010
Discharge NGR:	SJ2750542619	**Water body Discharge location**	Trefnant Brook

Brief description of asset
(Screen, PFF flow control, Storage, outfall)

Incoming Pipes: 225mm and 100mm; CSO Type: single sided, low level weir; Screening: N/A; Flow Control: 225mm PFF pipe restriction ; Continuation X Pipe: 225mm; Storage Provision: N/A; Consent: None-Deemed consent. SocA is 24.7l/s.

If the incoming flow exceeds the capacity of the downstream network, spill flows surcharge to the upstream CSO chamber. The level in the CSO chamber rises and spill flows pass unscreened, over the weir to the outfall pipe

SOAF STAGE 1	
Details of assessment:	Asset condition surveys supported by hydraulic model assessment of the asset performance against available telemetry information (EDM and radar rainfall datasets). Additional flow and rainfall monitoring was undertaken to improve the baseline model accuracy and assist in defining the root cause of spills.

Permit Compliance	
PFF	Deemed Permit – Meets SocA
Storage	N/A
Screening	N/A
Bespoke/Other	N/A

SOAF Stage 1 findings

Following the hydraulic model assessment, the primary cause of the high spills at the asset is concluded to be OC (Infiltration) with an OC (maintenance) as the secondary cause of spills. The asset has a deemed Permit and hydraulic assessment shows PFF exceeds SocA . The model is fit for use, based on the reported spill numbers and telemetry trends.

Telemetry trends clearly show the effects of rainfall induced groundwater infiltration during the winter months which has a significant effect on the predicted spill count. Representations using an industry standard, average level of infiltration (40% PG) predict a spill count for the assessment year of 2023 which is below that of the threshold for investigation level. Calibrated model predicted the 72 Spills and after taking GI acceptability test the spills reduced to 30 in the assessment year.

Cause of spill count :	**Other Cause**	**Yes**	**Catchment Hydraulic**	**No**	**Infiltration & IRP required**	**Yes**
Future Operational Management Proposal:	*The primary cause of the spills are operational factors that have been assessed as requiring longer term (1+ year) intervention programmes. Given the scale of the issue, the asset will progress under a bespoke intervention programme with details to be supplied to with the regulator and other stakeholders outside of the normal SOAF processes.*					
Operational intervention required:	*Infiltration Reduction Plan Required.* *Root mass needs to be cleared in the incoming pipe of asset, betweem MH SJ27425801 and MH SJ27425802.* *Desilt the pipe length of 60m from the asset chamber SJ27425802 to SJ27425804*					

SOAF Operational Intervention					
Start Date:	**Aug-24**	**Completion Date:**	*TBC*	**Indicative future annual spill performance** *(less than 40 do not continue to stage 2)*	30

Intervention Description:	**Infiltration has been identified as a factor in excess spills at this asset. An infiltration reduction plan (IRP) is in the process of development to address the problem. It is recognised in the Storm Overflow Assessment Framework that investigation and resolution of infiltration issues can be difficult and that solutions may be iterative with IRPs potentially only succeeding over the medium to long-term. A continuation restriction due to maintenance has been identified as a factor in excess spills at this asset. A cleanse of the sewerage network is required to restore compliant flows. This asset will be highlighted for future Cyclic Maintenance based upon the review of the post intervention return.**				
Target Completion by Date:	**Aug-29**	**Data years to be excluded from future SOAF triggers calculations**	-	**Request to hold stage 2 surveys for environment recovery**	

SOAF STAGE 2					
Receiving Waterbody WFD Status			Good		
Stage 2a					
Aesthetic survey:	Spring	2024	**Aesthetic Total score** (inclusive of amenity classification, previous complaints & pollutions)	N/A	N/A
	Autumn	2024		N/A	N/A
Stage 2b				*Yes / No unable due to culverted watercourse*	
Invertebrate survey:	Spring	N/A	**Invertebrate survey score:**	N/A	N/A
	Autumn	N/A		N/A	N/A
Stage 2c Required:				*Yes / No*	
Stage 2c screening:	Not Required	**Progressed through screening?**	No	**Stage 2c water quality assessment Score:**	Not required

SOAF STAGE 3 - STEP 1>3							
Options assessed	Rainscape		Traditional Storage	-	PFF Increase	-	
Equivalent storage volume required	-	**Rainscape Cost**		-	**CBR**	-	
Bespoke future trigger agreement	40	**Traditional Storage**		-	**CBR**	-	
		Other		-	**CBR**	-	
Key Constraints	-						
Future Active Management Proposal	-						

Conclusion and Future Spill Reduction Proposals					
Summary	*CEFN MONSANTO - SSOBased on the direction from the Welsh Government led Better River Quality Task Force, DCWW Storm overflow spill reduction programme will target the elimination of ecological harm and prevention of adverse ecological impact of any SO. With a large programme of assets requiring improvement priority will be given to CSOs having the greatest impact in the most sensitive receiving waters. To ensure that the improvement delivered is long term, the improvements for each site will be based on the expectation that water quality upstream of the discharge meets good or high ecological status (GES) irrespective of the actual status of the water. This approach has formed the basis of DCWW's portfolio investment plan for Storm Overflows. CEFN MONSANTO - SSO was Shown to have an other cause issue resulting in higher spills which are expected to reduce once a resolution has been implemented. The asset will under take classification as part of DCWW's GN066 in AMP8, to establish any impact that there might be.*				
Asset Prioritisation Level	-			**Delivery Predicted Period**	-
Asset NEP ID	*N/A*	**Asset NEP Driver Code**	*N/A*	**Detailed Design Predicted Period**	-
Progression to Stage 5 In AMP	*No*	-			

SOAF AGREEMENT					
	Date	**SOAF STAGE**	**Name**	**Contact Details**	**Location of Output**
DCWW Approval	01/08/2024	*Stage 1 - OC*	**Christian Phillips Adams**	christian.phillipsadams@dwrcymru.com	*Email*
Regulator Liaison Date	Click here to enter a date				
CSO Classification					
Satisfactory	**Y**	Unsatisfactory	**N**	Sub Standard	**N**
		Any operation in dry weather conditions?	**N**	Does not meet modern standards of engineering and aesthetic control for storm overflow structures set out in the British standard BS EN 752:2017 drain and sewer systems outside buildings	**N**

Any operation in breach of permit conditions?	**N**	Does not have sufficient hydraulic capacity compared to accepted minimum design standards	**N**
Any significant visual or aesthetic impact due to solids or sewage fungus?	**N/A**	Risks becoming unsatisfactory because discharges have increased beyond the original design due to infiltration, growth and urban creep	**N**
Cause or significantly contributes to a deterioration in the biological or chemical status of the receiving water?	**N/A**		
Causes or significantly contributes to failures in bathing water quality standards for identified bathing waters?	**N/A**		
Causes or significantly contributes to failures in shellfish quality standards for identified shellfish waters	**N/A**		
Causes or significantly contribute to failures in water quality standards in coastal and transitional waters?	**N/A**		
Causes pollution of groundwater?	**N/A**		