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:	Penrhos Camp WwTW		**Asset Template reference**	CG0041302-PENRHOS CAMP STW - SCREENED ST-3058-Stage 1 - OC-Dwyfor a Meirionnydd	
Investigation Type	SOAF (River)				
Year of breach:	*2019*	**Spill Trigger cause:**		*OC Continuation Restriction (Flow Control)*	
Year of Investigation:	*2022*	**Investigation year performance:**		*52*	
Population of Asset	*40*	**Modelled Performance: (DESIGN) / (CALIBRATED)**		*12 / 52*	
Permit Details					
Storm Permit ID:	CG0041302	**Storm Permit Name:**		PENRHOS CAMP SEWAGE TREATMENT WORKS	
Asset NGR:	SH3396033860	**Waterbody ID**		GB110065054120	
Discharge NGR:	SH3400733821	**Water body Discharge location**		Penrhos	

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

Incoming line: 250mm gravity; CSO Type: Low-Level Weir (Inlet spill at WwTW); Screening: Parkwood Brush Screen; Flow Control: 150mm flume channel; FFT Pipe: 150mm; Consent: 9.56 l/s (Permit); SocA: 2.3 l/s.

Flow enters the works and passes through the inlet screens. Flow in excess of FFT weirs over the inlet channel, discharging 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	Design Compliant – Operational Intervention required to restore
Storage	N/A
Screening	Compliant
Bespoke/Other	N/A

SOAF Stage 1 findings

Following the hydraulic model assessment, the cause of the high spills at the asset is concluded to be OC Continuation Restriction (Flow Control).

The predicted pass-forward flow is below consent prior to the first spill and an operational Intervention required to restore.

The model is fit for use, based on the reported spill numbers and telemetry trends.

Cause of spill count :	**Other Cause**	**OC Continuation Restriction (Flow Control)**	**Catchment Hydraulic**	**No**	**Infiltration & IRP required**	**No**
Future Operational Management Proposal:	*The primary cause of the spills are operational factors that have been assessed as deliverable in the short term. The asset has been added to the SOAF Intervention programme with the details outlined below.*					
Operational intervention required:	*Review of flume flow control to allow permit PFF to be passed (this should take treatment capacity into account).* *Once these interventions are in place, the hydraulic modelling indicates the asset will be compliant with it's discharge permit.*					

SOAF Operational Intervention					
Start Date:	**Apr-24**	**Completion Date:**	*TBC*	**Indicative future annual spill performance** *(less than 40 do not continue to stage 2)*	0

Intervention Description:	**Flow control Performance has been identified as a factor in excess spills at this asset, the assessment has determined that the flow control setting requires adjustments to achieve PFF.**				
Target Completion by Date:	**Apr-25**	**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			Moderate		
Stage 2a					
Aesthetic survey:	Spring	2023	**Aesthetic Total score** (inclusive of amenity classification, previous complaints & pollutions)	0	No Impact
	Autumn	2023		0	No Impact
Stage 2b				*Yes / No unable due to culverted watercourse*	
Invertebrate survey:	Spring	2023	**Invertebrate survey score:**	10	Very high
	Autumn	2023		4	Low
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	N	PFF Increase	N
Equivalent storage volume required	-	**Rainscape Cost**		N/A	**CBR**	N/A
Bespoke future trigger agreement	40	**Traditional Storage**		N/A	**CBR**	N/A
		Other		N/A	**CBR**	N/A
Key Constraints	-					
Future Active Management Proposal	-					

Conclusion and Future Spill Reduction Proposals					
Summary	*PENRHOS CAMP SEWAGE TREATMENT WORKSBased 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.* *PENRHOS CAMP SEWAGE TREATMENT WORKS 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 classificaion as part of DCWW's GN066 in AMP8, to establish any impact that there might be.*				
Asset Prioritisation Level	*Priority 2*			**Delivery Predicted Period**	*AMP9*
Asset NEP ID	*N/A*	**Asset NEP Driver Code**	*N/A*	**Detailed Design Predicted Period**	*AMP8*
Progression to Stage 5 In AMP	*No*	*Proposed Solution yet to be taken through detailed design devloped*			

SOAF AGREEMENT					
	Date	**SOAF STAGE**	**Name**	**Contact Details**	**Location of Output**
DCWW Approval	01/05/2024	*Stage 1 - OC*	**Christian Phillips Adams**	christian.phillipsadams@dwrcymru.com	*Email*
Regulator Liaison Date	Click here to enter a date				

CSO Classification					
Satisfactory	**N**	Unsatisfactory	**Y**	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?	**Y**	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**	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?	**Y**		
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**		