

ASSET INVESTIGATION DETAILS			
SAP Asset Name:	Penisarwaun SWK		Asset Template reference
Investigation Type	SOAF (River)		
Year of breach:	2020	Spill Trigger cause:	Hydraulic
Year of Investigation:	2022	Investigation year performance:	123
Population of Asset	398	Modelled Performance: (DESIGN) / (CALIBRATED)	88 / 106
Permit Details			
Storm Permit ID:	CG0134102	Storm Permit Name:	STORM OVERFLOW AT PENISARWAUN WASTEWATER TREATMENT WORKS
Asset NGR:	SH5502663552	Waterbody ID	GB41002G204600
Discharge NGR:	SH5497663514	Water body Discharge location	Afon Seiont
Brief description of asset (Screen, PFF flow control, Storage, outfall)			
Inlet Spill point Incoming line: 150mm gravity; CSO Type: High-level, single-sided weir; Screening: 6mm 2D consented and Haigh ACE installed; Flow Control: Rotork Valve; FFT Pipe: 150mm Circ; PFF Consent: 8l/s; 6DWF: 4l/s. No storage is consented or present at this SWK.			

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 hydraulic, with OC Continuation restriction (flow control) as the secondary cause of spills. Observed pass forward flows fell to 4l/s during the second half of the assessment year, which was responsible for 16 spills. 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. 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 88 which is above that of the threshold for investigation level.						
Cause of spill count :	Other Cause	Yes	Catchment Hydraulic	Yes	Infiltration & IRP required	No
Future Operational Management Proposal:	The primary cause of the high spills is hydraulic and as such the asset progresses for Stage 2 and 3 assessments under the worst-case impact scenario of the current performance. However, operational interventions detailed below are required to mitigate excessive spills beyond the design criteria and should be implemented prior to the final Stage 4 decision confirmation.					
Operational intervention required:	A summary of recommendations has been provided below to restore the CSO's operation to design: - Jetting of the overflow line, to clear restrictions and debris build. - Investigation into the Rotork Flow control and its continuation to restore PFF. It is unclear what caused the PFF performance change, potentially sedimentation build up/blockage (as per the overflow line) or some manual intervention of the actuated valve by the site operators.					
SOAF Operational Intervention						
Start Date:	Nov-24	Completion Date:	TBC	Indicative future annual spill performance (less than 40 do not continue to stage 2)	88	

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:	Nov-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	2022	Aesthetic Total score (inclusive of amenity classification, previous complaints & pollutions)	30	Moderate
	Autumn	2022		25	Low
Stage 2b				Yes / No unable due to culverted watercourse	
Invertebrate survey:	Spring	2022	Invertebrate survey score:	16	Very Severe
	Autumn	UTC		UTC	UTC
Stage 2c Required:				Yes / No	
Stage 2c screening:	Required	Progressed through screening?	Yes	Stage 2c water quality assessment Score:	0 - No Impact

SOAF STAGE 3 - STEP 1>3						
Options assessed	Rainscape		Traditional Storage	Y	PFF Increase	N
Equivalent storage volume required	7.8708m3	Rainscape Cost		£548,760.00	CBR	2.3
Bespoke future trigger agreement	40	Traditional Storage		£82,094.13	CBR	15.1
		Other		-	CBR	-
Key Constraints	None Identified.					
Future Active Management Proposal	The primary cause of spills was hydraulic and Stage 2 impact assessments have shown that the asset was having a significant effect on the receiving waterbody, with the waterbody itself requiring improvement to achieve Good or higher status. Assessments of the potential high-level solutions have indicated that the asset passed the SOAF cost benefit threshold for further investigation and as such it is proposed to progress to detailed benefits assessment. Further details are shown below detailing DCWW's plans for storm overflow spill reduction					

Conclusion and Future Spill Reduction Proposals					
Summary	Based 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. STORM OVERFLOW AT PENISARWAUN WASTEWATER TREATMENT WORKS was Shown to have a Severe + Impact therefor as set out above based upon our Long Term Delivery Strategy a spill reduction scheme to eliminate this level of impact is Profiled to be delivered before 2035				
Asset Prioritisation Level	Priority 1			Delivery Predicted Period	AMP8/9
Asset NEP ID	DCWW101998a	Asset NEP Driver Code	W_U_O_IMP1	Detailed Design Predicted Period	AMP7/8
Progression to Stage 5 In AMP	No	Proposed Solution yet to be taken through detailed design developed			

SOAF AGREEMENT					
	Date	SOAF STAGE	Name	Contact Details	Location of Output
DCWW Approval	29/11/2024	Stage 4 - CBA	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?	Y	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		