SOAF Investigation Output Summary

Reference: SOAF.R 00001

Please see Audit Statement Technical Guidance for further information

ASSET INVESTIGATION DETAILS					
SAP Asset Name:	Llanddona Gorsllwyd SPS		**Asset Template reference**	CG0187201-GORSLLWYD SEWAGE PUMPING STATION-2537-Stage 1 - OC-Mon ac Arfon	
Investigation Type	SOAF (River)				
Year of breach:	*2022*	**Spill Trigger cause:**		*OC Infiltration*	
Year of Investigation:	*2022*	**Investigation year performance:**		*60*	
Population of Asset	*266*	**Modelled Performance: (DESIGN) / (CALIBRATED)**		*38 / 50*	
Permit Details					
Storm Permit ID:	CG0187201	**Storm Permit Name:**		Gorsllwyd Sewage Pumping Station	
Asset NGR:	SH5752978828	**Waterbody ID**		GB110102058760	
Discharge NGR:	SH5752978828	**Water body Discharge location**		Cadnant	

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

Incoming Pipe: 300 mm; CSO Type: single side high level weir ; Screening: 6mm in 2D consented and drum screen installed (6mm apertures); Flow Control: Pump ; PFF Pipe: 2 no. 100mm diameter rising mains ; Storage: 89m3 and ~89m3 provided; PFF Consent: 8.5l/s.

SOAF STAGE 1	
Details of assessment:	Asset condition surveys supported by hydraulic model assessment of the asset performance. 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	Not Compliant
Storage	Compliant
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 infiltration, with OC continuation restriction (maintenance) as the secondary cause of spills. The predicted pass-forward flow is 7.5l/s, which iswithin 12% of consent prior to the first spill. The pump rate sensor observed to be lower than the consent of 8.5l/s in the EDM on average. It should be noted that this remains higher than the SocA of 5.7l/s. 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 1 which is below that of the threshold for investigation level.

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:	*This will require an infiltration reduction plan to identify sources of infiltration in the upstream area, plus remedial work to the CSO outfall and review of pump operation. Once these interventions are in place, the hydraulic modelling indicates the asset will be compliant with its discharge permit.*					

SOAF Operational Intervention					
Start Date:	**Nov-24**	**Completion Date:**	*TBC*	**Indicative future annual spill performance** *(less than 40 do not continue to stage 2)*	42

Intervention Description:	**Pump Performance has been identified as a factor in excess spills at this asset, the assessment has determined that the pump performance requires a review and implementation of recommendations in order to achieve PFF.** **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.**				
Target Completion by Date:	**Nov-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	2023	**Aesthetic Total score** (inclusive of amenity classification, previous complaints & pollutions)	5	Very Low
	Autumn	2023		0	No Impact
Stage 2b				*Yes / No unable due to culverted watercourse*	
Invertebrate survey:	Spring	2023	**Invertebrate survey score:**	12	Severe
	Autumn	2023		8	High
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	*Gorsllwyd Sewage Pumping StationBased 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.* *Gorsllwyd Sewage Pumping Station 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	*Priority 1*			**Delivery Predicted Period**	*AMP8/9*
Asset NEP ID	*N/A*	**Asset NEP Driver Code**	*N/A*	**Detailed Design Predicted Period**	*AMP7/8*
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	23/11/2024	*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**		