SOAF Investigation Output Summary

Reference: SOAF.R 00001

Please see Audit Statement Technical Guidance for further information

ASSET INVESTIGATION DETAILS					
SAP Asset Name:	Clawddnewydd WwTW		**Asset Template reference**	CM0072902-CLAWDDNEWYDD STW-3153-Stage 1 - OC-Denbighshire	
Investigation Type	SOAF (River)				
Year of breach:	*2020*	**Spill Trigger cause:**	*OC Infiltration*		
Year of Investigation:	*2022*	**Investigation year performance:**	*33*		
Population of Asset	*206*	**Modelled Performance: (DESIGN) / (CALIBRATED)**	*11 / 66*		

Permit Details			
Storm Permit ID:	CM0072902	**Storm Permit Name:**	SSO at CLAWDDNEWYDD SEWAGE TREATMENT WORKS, CLAWDDNEWYDD, CLWYD
Asset NGR:	SJ0827752633	**Waterbody ID**	GB41002G200100
Discharge NGR:	SJ0826552649	**Water body Discharge location**	Tributary of Nat y Cefn

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

Storm tank spill point
Volume: 43.4m3; Spill level: 251.53mAOD; Tank emptying philosophy: pump; Tank emptying Rate: 2.4l/s
3DWF =2.85 l/s

Flow enters the works and passes through the powered Huber screen. All flow passes through the inlet chamber into and begins to fill the storm tank. Flow is continuously pumped from storm tank to FFT. If storm conditions continue, the level in the storm tank rises and spills flow over the weir from the storm tank, discharging to the outfall pipe

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	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.

The predicted pass-forward flow is matching consent prior to the first spill. 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 11 which is below that of the threshold for investigation level.

The discrepancies noted between spill counts when comparing the Investigation year performance and the CALIBRATED performance are due to the fact that the telemetry data was only available from January 2022 to March 2022. The spill count for the CALIBRATED scenario is for the full year 2022 (66 spills); however, only 30 of these spills are predicted during the months of January and March. This provides a reasonable correlation between observed and predicted datasets. Telemetry data for other years was not available at the time of the assessment. Therefore, the match to the only available data is acceptable.

Cause of spill count :	**Other Cause**	**No**	**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 deliverable in the short term. The asset has been added to the SOAF Intervention programme with the details outlined below*					
Operational intervention required:	*Infiltration reduction plan.* *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)*	66

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.**				
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			Moderate		
Stage 2a					
Aesthetic survey:	Spring		**Aesthetic Total score** (inclusive of amenity classification, previous complaints & pollutions)		
	Autumn				
Stage 2b				*Yes / No unable due to culverted watercourse*	
Invertebrate survey:	Spring		**Invertebrate survey score:**		
	Autumn				
Stage 2c Required:				*Yes / No*	
Stage 2c screening:		**Progressed through screening?**	**Stage 2c water quality assessment Score:**		

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

Conclusion and Future Spill Reduction Proposals					
Summary	*SSO at CLAWDDNEWYDD SEWAGE TREATMENT WORKS, CLAWDDNEWYDD, CLWYDBased 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.* *SSO at CLAWDDNEWYDD SEWAGE TREATMENT WORKS, CLAWDDNEWYDD, CLWYD 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	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	**N**	Sub Standard	**Y**
		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	**Y**

Any operation in breach of permit conditions?	**N**	Does not have sufficient hydraulic capacity compared to accepted minimum design standards	**Y**
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**		