SOAF Investigation Output Summary

Reference: SOAF.R 00001

Please see Audit Statement Technical Guidance for further information

ASSET INVESTIGATION DETAILS					
SAP Asset Name:	Northop WwTW		**Asset Template reference**	CG0429901-NORTHOP WASTEWATER TREATMENT WORKS-2917-Stage 4 - CBA-Flintshire & Wrexham	
Investigation Type	SOAF (River)				
Year of breach:	*2019*	**Spill Trigger cause:**		*Hydraulic*	
Year of Investigation:	*2022*	**Investigation year performance:**		*38*	
Population of Asset	*1121*	**Modelled Performance: (DESIGN) / (CALIBRATED)**		*43 / 43*	

Permit Details			
Storm Permit ID:	CG0429901	**Storm Permit Name:**	NORTHOP WASTEWATER TREATMENT WORKS
Asset NGR:	SJ2495068610	**Waterbody ID**	GB111067056900
Discharge NGR:	SJ2505268867	**Water body Discharge location**	Northop Brook

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

Inlet Spill Point
Incoming line: 385mm gravity; CSO Type: Settled Storm Overflow; Screening: Haigh Ace Screener; Flow Control: Unknown Device; FFT Pipe: 150mm; Consent: 9.2 l/s (Permit); 3xDWF: 8.1 l/s.

Storm Tank Spill Point
Volume: 66.2 m3 (Modelled); Spill level: 92.232 mAOD; Tank emptying philosophy: Unknown; Tank emptying Rate: Unknown.

Supporting Text
If the incoming flow exceeds FFT, excess flow spills over the storm weir into storm tanks 1&2. Once these are full, excess flow spill over into the storm water return pump sump. If the level in this sump rises, flow goes through the connection to storm tanks 3&4. Once these are full storm flows pass over the weir into 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	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 Hydraulic.

The predicted pass-forward flow is within 10% of consent prior to the first spill.

Storm tanks 3 and 4 were not surveyed. Model assumed compliance with storage permit value. Storm tanks 1 and 2 have been surveyed as providing 27.1m3.

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

Cause of spill count :	**Other Cause**	**No**	**Catchment Hydraulic**	**Yes**	**Infiltration & IRP required**	**No**

Future Operational Management Proposal:	*The primary cause of spills was found to be hydraulic, and as such the asset progressed through to Stage 2 of the SOAF process.*
Operational intervention required:	*Survey of storage provided within storm tanks 3 and 4 to confirm compliance with permitted storage value.* *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:	-	**Completion Date:**	-	**Indicative future annual spill performance** *(less than 40 do not continue to stage 2)*	43

Intervention Description:		-			
Target Completion by Date:	-	**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)	40	Moderate Impact
	Autumn	2022		40	Moderate Impact
Stage 2b				*Yes / No unable due to culverted watercourse*	
Invertebrate survey:	Spring	UTS	**Invertebrate survey score:**	UTS	UTS
	Autumn	UTS		UTS	UTS
Stage 2c Required:				*Yes / No*	
Stage 2c screening:	Required	**Progressed through screening?**	Yes	**Stage 2c water quality assessment Score:**	07 - Very Low

SOAF STAGE 3 - STEP 1>3						
Options assessed	Rainscape		Traditional Storage	Y	PFF Increase	N
Equivalent storage volume required	4m3	**Rainscape Cost**		£271,405.00	**CBR**	1.1
Bespoke future trigger agreement	40	**Traditional Storage**		£77,838.48	**CBR**	4.0
		Other		N/A	**CBR**	N/A
Key Constraints	*None*					
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.* *NORTHOP WASTEWATER TREATMENT WORKS was Shown to have a No / Very low Impact therefor as set out above based upon our Long Term Delivery Strategy a spill reduction scheem to elimeite this level of impact is Profiled to be delivered between 2040-2050*				
Asset Prioritisation Level	*Priority 5*			**Delivery Predicted Period**	*AMP11/12*
Asset NEP ID	*N/A*	**Asset NEP Driver Code**	*N/A*	**Detailed Design Predicted Period**	*AMP10/11*
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	16/12/2024	*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?	**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?	**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?	**N**		
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**		