SOAF Investigation Output Summary

Reference: SOAF.R 00001

Please see Ayrlit Statement Technical Guidance for further information

ASSET INVESTIGATION DETAILS					
SAP Asset Name:	Inco Works Clydach		**Asset Template reference**	BW2302601-INCO CSO CLYDACH SWANSEA-72001-Stage 4 - Non CBA-Swansea	
Investigation Type	SOAF (River)				
Year of breach:	*2017*	**Spill Trigger cause:**		*Hydraulic*	
Year of Investigation:	*2019*	**Investigation year performance:**		*121 Spills*	
Population of Asset	*3542*	**Modelled Performance: (DESIGN) / (CALIBRATED)**		*117 Spills*	
Permit Details					
Storm Permit ID:	BW2302601	**Storm Permit Name:**		INCO CSO, CLYDACH	
Asset NGR:	SN6899601209	**Waterbody ID**		GB110059032180	
Discharge NGR:	SN6899601167	**Water body Discharge location**		Tawe -confluence with Twrch to tidal l	

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

Incoming Pipe: 600 mm; CSO Type: High-level, single-sided weir; Screening: Mechanical - 6mm 2d; Flow Control: X-Pipe ; PFF Pipe: 375 mm; Storage None consented; PFF Consent: 120l/s

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	N/A
Screening	Compliant
Bespoke/Other	N/A

SOAF Stage 1 findings

Primary Cause: Hydraulic
Secondary Cause: OC Infiltration

Following the hydraulic model assessment, the cause of the high spills at the asset is concluded to be Hydraulic, with OC Infiltration as the secondary cause of spills. The predicted pass-forward flow exceeds 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 lower spill frequency of 66 suggesting this is a secondary cause of the high spills.

Cause of spill count :	**Other Cause**	**IRP**	**Catchment Hydraulic**	**Yes**	**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:	*Jetting scheme is recommended as sediment was noted in the asset surveys, which, while not significantly impacting spill performance does reduce the screen performance.*					

SOAF Operational Intervention					
Start Date:	**Apr-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:	**Apr-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	UTC	**Aesthetic Total score** (inclusive of amenity classification, previous complaints & pollutions)	-	-
	Autumn	UTC		-	-
Stage 2b				*Yes / No unable due to culverted watercourse*	
Invertebrate survey:	Spring	2021	**Invertebrate survey score:**	18	Very severe
	Autumn	2021		2	Very low
Stage 2c Required:				*Yes / No*	
Stage 2c screening:	-	**Progressed through screening?**	-	**Stage 2c water quality assessment Score:**	0

SOAF STAGE 3 - STEP 1>3						
Options assessed	Rainscape		Traditional Storage	Y	PFF Increase	N
Equivalent storage volume required	1075.42539	**Rainscape Cost**		Not Achievable	**CBR**	N/A
Bespoke future trigger agreement	40	**Traditional Storage**		£3,676,404.68	**CBR**	0.3
		Other		-	**CBR**	-
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. Assessment of the potential high-level solutions have indicated that any solution entailed excessive costs for the benefit it provided and thus the asset does not pass the SOAF Cost Benefit threshold and will not progress to detailed benefits assessment as part of the SOAF process. 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. INCO CSO, CLYDACH 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	*DCWW101983a*	**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 devloped*			

SOAF AGREEMENT					
	Date	**SOAF STAGE**	**Name**	**Contact Details**	**Location of Output**
DCWW Approval	15/04/2024	*Stage 4 - Non 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?	**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**