

ASSET INVESTIGATION DETAILS			
SAP Asset Name:	Reynoldston WwTW		Asset Template reference BP0232001-REYNOLDSTON WWTW REYNOLDSTON GOWER-50761-Stage 4 - Non CBA-Swansea
Investigation Type	SOAF (River)		
Year of breach:	2020	Spill Trigger cause:	Hydraulic
Year of Investigation:	2023	Investigation year performance:	207
Population of Asset	722	Modelled Performance: (DESIGN) / (CALIBRATED)	87 / 204
Permit Details			
Storm Permit ID:	BP0232001	Storm Permit Name:	REYNOLDSTON WASTEWATER TREATMENT WORKS
Asset NGR:	SS4662990944	Waterbody ID	GB41001G204000
Discharge NGR:	SS4658890926	Water body Discharge location	Burry Pill
Brief description of asset (Screen, PFF flow control, Storage, outfall)			
<p>Inlet Spill point Incoming line: 150 mm gravity & 100mm Rising main; CSO Type: Single sided high level weir; Screening: 6mm 2D consented and Huber rotary brush screen installed; Flow Control: Penstock with unknown dimension; FFT Pipe: 150mm; PFF Consent: 8.5 l/s; 3DWF: 7.01 l/s.</p> <p>Storm tank spill point Volume: Consented 72 m3, Surveyed 73 m3; Spill level: 28.479mAOD; Tank emptying philosophy: Unknown; Tank emptying Rate: Unknown</p> <p>If the incoming flow exceeds the capacity of the treatment process, excess flow spills over the storm weir into the storm tanks. If the storm tanks are full and flow is still coming in from the inlet works, spill flows will pass into the high level spill pipes and discharge into the outfall pipe</p>			

SOAF STAGE 1						
Details of assessment:	<p>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.</p>					
Permit Compliance						
PFF	Not Compliant					
Storage	Compliant					
Screening	Compliant					
Bespoke/Other	N/A					
SOAF Stage 1 findings						
<p>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 is below consented PFF prior to the first spill. The model is fit for use, based on the reported spill numbers and telemetry trends.</p> <p>Model prediction based on asset surveys indicates asset</p> <p>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 2023 which is below that of the threshold for investigation level.</p>						
Cause of spill count :	Other Cause	No	Catchment Hydraulic	Yes	Infiltration & IRP required	Yes
Future Operational Management Proposal:	<p>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</p>					
Operational intervention required:	<p>1. Infiltration reduction plan to be implemented at the upstream of the asset</p> <p>2. Check if the current flow control setting is allowing flows to pass PFF through flow meter and if not then change the flow control setting at inlet in line with consent</p> <p>Once these interventions are in place, the hydraulic modelling indicates the asset will be compliant with its discharge permit.</p>					
SOAF Operational Intervention						
Start Date:	-	Completion Date:	-	Indicative future annual spill performance (less than 40 do not continue to stage 2)		87

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:	Mar-30	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	2023	Aesthetic Total score (inclusive of amenity classification, previous complaints & pollutions)	40	Moderate
	Autumn	2023		45	Moderate
Stage 2b				Yes / No unable due to culverted watercourse	
Invertebrate survey:	Spring	2023	Invertebrate survey score:	1	No impact
	Autumn	2023		0	No impact
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	Y	PFF Increase	N
Equivalent storage volume required	24.45687m3	Rainscape Cost		£1,102,025.00	CBR	0.3
Bespoke future trigger agreement	40	Traditional Storage		£100,204.46	CBR	3.1
		Other		-	CBR	-
Key Constraints	-					
Future Active Management Proposal	<i>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</i>					

Conclusion and Future Spill Reduction Proposals						
Summary	<p><i>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.</i></p> <p><i>With a large programme of assets requiring improvement priority will be given to CSOs having the greatest impact in the most sensitive receiving waters.</i></p> <p><i>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.</i></p> <p><i>This approach has formed the basis of DCWW's portfolio investment plan for Storm Overflows.</i></p> <p><i>REYNOLDSTON 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 scheme to eliminate this level of impact is Profiled to be delivered between 2040-2050</i></p>					
	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 developed			

SOAF AGREEMENT						
	Date	SOAF STAGE		Name	Contact Details	Location of Output
DCWW Approval	25/03/2025	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?	Y	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?	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		