

| ASSET INVESTIGATION DETAILS | | | | | | |
|--|--|---|--|--|---|-----|
| SAP Asset Name: | Pwllglas (Ruthin) WwTW | | | Asset Template reference | CM0063902-Settled Storm Sewage at Pwllglas WwTW-2894-Stage 4 - Non CBA-Denbighshire | |
| Investigation Type | SOAF (Coastal & Transitional) | | | | | |
| Year of breach: | 2022 | Spill Trigger cause: | Hydraulic | | | |
| Year of Investigation: | 2023 | Investigation year performance: | 106 | | | |
| Population of Asset | 276 | Modelled Performance: (DESIGN) / (CALIBRATED) | 96 / 96 | | | |
| Permit Details | | | | | | |
| Storm Permit ID: | CM0063902 | Storm Permit Name: | PWLLGLAS SEWAGE TREATMENT WORKS, NR. RUTHIN, CLWYD | | | |
| Asset NGR: | SJ1191154643 | Waterbody ID | GB110066054670 | | | |
| Discharge NGR: | SJ1193054630 | Water body Discharge location | Clwyd - upstream Hesbin | | | |
| Brief description of asset (Screen, PFF flow control, Storage, outfall) | | | | | | |
| <p>Inlet works CSO Incoming line: 150 mm gravity; CSO Type: Single sided; Screening: Bar Screen 6mm; Flow Control: penstock ; FFT Pipe: 150 mm; Consent: 2.53 l/s. (Soc-A 5.95 lps)</p> <p>Storm Tank Volume: 10.342 m3; Spill level: 86.380 mAOD; Tank emptying philosophy: Strom return pump; Tank emptying Rate: Unknown</p> <p>Flow entering the works passes through the inlet screen. Flows in excess of FFT spill over the storm weir in the inlet works to the storm tank. Once full, spill flows weir from the storm tank, discharging to the outfall pipe.</p> | | | | | | |
| 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 | | | | | | |
| <p>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. The model is fit for use, based on the reported spill numbers and telemetry trends.</p> <p>The observed spill count for assessment year is 106, whereas calibrated spill are 96. The effect of rainfall induced flows during the winter months which has a significant effect on the predicted spill count.</p> | | | | | | |
| Cause of spill count : | Other Cause | No | Catchment Hydraulic | Yes | Infiltration & IRP required | Yes |
| 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: | Check the working of storm return pump and automatic penstock at storm overflow chamber. | | | | | |
| SOAF Operational Intervention | | | | | | |
| Start Date: | Nov-24 | Completion Date: | TBC | Indicative future annual spill performance (less than 40 do not continue to stage 2) | 96 | |

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|----------------------------|--------|---|---|--|--|
| Intervention Description: | | <p>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.</p> <p>The storm return 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 reduce Spills.</p> | | | |
| 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) | 20 | Low |
| | Autumn | 2023 | | 25 | Low |
| Stage 2b | | | | Yes / No, unable due to culverted watercourse | |
| Invertebrate survey: | Spring | 2023 | Invertebrate survey score: | 4 | Low |
| | Autumn | 2023 | | 0 | No impact |
| Stage 2c Required: | | | | Yes / No | |
| Stage 2c screening: | Not Required | Progressed through screening? | Yes | Stage 2c water quality assessment Score: | 0 - No Impact |

| SOAF STAGE 3 - STEP 1>3 | | | | | | |
|------------------------------------|---|---------------------|---------------------|-------------|--------------|-----|
| Options assessed | Rainscape | | Traditional Storage | 0 | PFF Increase | N |
| Equivalent storage volume required | 2.03418m3 | Rainscape Cost | | £384,200.00 | CBR | - |
| Bespoke future trigger agreement | 40 | Traditional Storage | | £75,721.12 | CBR | 0.0 |
| | | Other | | £ Cost | CBR | 0 |
| Key Constraints | None Identified | | | | | |
| Future Active Management Proposal | <p>The primary cause of spills was hydraulic and Stage 2 impact assessments have shown that the asset was having a minimal effect on the receiving waterbody, with the waterbody itself currently achieving a 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. Further details are shown below detailing DCWW's plans for storm overflow spill reduction</p> | | | | | |

| Conclusion and Future Spill Reduction Proposals | | | | |
|---|---|---|---------------------------|----------------------------------|
| Summary | <p>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.</p> <p>With a large programme of assets requiring improvement priority will be given to CSOs having the greatest impact in the most sensitive receiving waters.</p> <p>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.</p> <p>This approach has formed the basis of DCWW's portfolio investment plan for Storm Overflows.</p> <p>PWLLGLAS SEWAGE TREATMENT WORKS, NR. RUTHIN, CLWYD was Shown to have a Low Impact therefore 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 2040</p> | | | |
| Asset Prioritisation Level | Priority 4 | | Delivery Predicted Period | AMP10 |
| Asset NEP ID | N/A | Asset NEP Driver Code | N/A | Detailed Design Predicted Period |
| 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 | 29/11/2024 | 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 | 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 | N | |

| | | | |
|--|------------|--|----------|
| 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? | 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? | 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 | | |