Bioresources Asset Health Assessment

Background

Ofwat require Water and Sewerage companies to carry out an asset health assessment of their bioresources asset base.

This information is required to better understand underlying asset health, including asset condition. The need for an assessment was prompted by concerns that the high-cost estimates for achieving compliance with the Industrial Emissions Directive (IED) could overlap with work that is funded through base expenditure allowances. Some of the estimated high costs might be indicative of insufficient maintenance of assets. The assessment will help to determine the extent of overlaps with base and/or whether current condition is impacting on the cost of achieving compliance.

The required assessment will provide a better understanding of the underlying health of the bioresources asset base. The assessment uses an approach similar to the methodology adopted for PR04 and PR09 and so may provide an indication as to whether maintenance is keeping pace with deterioration.

As asset condition is only one aspect of asset health, we have extended the assessment to include an asset performance and asset management assessment. The aim of this approach is to achieve a broader understanding of the asset base including how it is performing and being operated.

Guidance on grading of each element is outlined in Tables B.1, B.2 and B.3.

The grading must be based on reliable data, for the condition assessment this may be from an in-person site visit. However, if other sources of reliable data are available, this can be used to inform the assessment. We will require all companies to clearly state any assumptions utilised throughout the assessment. It is anticipated that the majority of the assessments will align with Ofwat reliability Band A (refer to Table B.4), "sound textual records, procedures, investigations or analysis properly documented and recognized as the best method of assessment." Commentary should be provided where less reliable data is provided.

Where possible, the assessments returned to Ofwat should be accompanied by supporting evidence for the condition and performance grade at each location, such as photographs taken of each key area, highlighting any areas of particularly good or poor condition which has later been used in justifying a particular score, with particular focus on the critical assets.

Each WaSC should look to survey all IED sites and report findings in full by the deadline of 20 December 2023.

Each WaSC should look to survey all remaining non-IED sites and report assured findings in full by the deadline of 1 March 2024.

Table B.1 Bioresources Asset Condition Grading

Condition grade	General meaning
1	Asset in overall good condition. Assets are of sound structure with fit-for-purpose mechanical and electrical plant, with all components well maintained.
2	As 1, but showing minor signs of deterioration.
3	Appearance significantly affected by deterioration. Structures may be marginal in the capacity to prevent leakages.
4	Asset in poor condition. Leakages/Structural issues cause asset performance to suffer. Likely to require major overhaul/replacement within 2 AMP periods.
5	Asset in very poor condition. Serious structural issues with M&E components beyond effective life. Likely to require major overhaul/replacement within the next AMP.

Table B.2 Bioresources Asset Performance Grading

Performance grade	General meaning
1	Functionally sound with all critical and non-critical components operable as part of fully optimised systems.
2	Routine refurbishment required to maintain sound operation, with some optimisation. All critical assets in good operational performance, small number of non-critical assets have poor performance in terms of KPIs or component downtime.
3	Components function adequately but with reduced efficiency and minor failures. All critical assets in good operational performance, moderate number of non-critical assets have poor performance in terms of KPIs or component downtime.
4	Deterioration has significant effect on asset performance. Significant M&E maintenance needed to maintain operation. Small number of Critical assets in poor performance, moderate number of non-critical assets have poor performance in terms of KPIs or component downtime.
5	Performance significantly affected by asset condition, excessive maintenance and associated costs required. Moderate number of Critical assets in poor performance, moderate number of non-critical assets have poor performance in terms of KPIs or component downtime.

Table B.3 Bioresources Asset Management Grading

Management grade	General meaning
1	The company consistently and systematically monitors the asset's health and performance against defined measures and projects asset health and performance to inform operational, maintenance and investment plans which consider the whole asset life cycle. Investment plans are fully implemented and monitored, regularly reviewed and subject to continuous improvement. There is clear line of sight between the companies' strategic plans and the cascaded activities and plans delivered at the site level.
2	The company consistently and systematically monitors the asset's health and performance against defined measures and has a clear and documented process for using this information to inform operational, maintenance and investment plans which consider the whole asset life cycle. Investment plans are fully implemented and periodically reviewed. Some line of sight between strategic plans and the cascaded activities delivered.
3	The company monitors the asset's health and performance and uses this to inform operational, maintenance and investment plans. Implementation of plans may be limited. No line of sight between strategic plans and the cascaded activities delivered.
4	Some monitoring and planned maintenance is carried out but no consistent and documented approach for identifying asset needs and informing investment planning.
5	Only reactive unplanned maintenance is carried out. No short or long-term maintenance, operational or investment plans are in place.

Table B.4 Ofwat Data Reliability Bands

Label	General meaning
A	Sound textual records, procedures, investigations or analysis properly documented and recognized as the best method of assessment
B	As A, but with minor shortcomings. Examples include old assessment, some missing documentation, some reliance on unconfirmed reports, some use of extrapolation
C	Extrapolation from limited sample for which Grade A or B data is available
D	Unconfirmed verbal reports, cursory inspections, or analysis

Additional Guidance

Tables B.1, B.2 and B.3 set out the grading definitions to be used in the assessment.

The main output is scoring at site level, which will subsequently be aggregated into a Company level assessment to enable comparison with previous condition assessments undertaken in PR04 and PR09. The Asset component Scoring spreadsheet requires, as a minimum, a Condition Score and a Performance Score applied to each key area (green area) for each site, in accordance with the Draft Guidance. The spreadsheet is set up to calculate a key area condition and performance score based upon the asset component

scores and the % Modern Equivalent Asset Value (MEAV[1]) applied to each key area. However, this can be overridden, and a key area score manually input if no individual component scores are available. The option is available to score each component individually to provide clarity on what is a critical component and what is a non-critical component, using the Y/N indication within the table. While component scoring is not mandatory, scoring on a component basis and indicating which components are critical and non-critical, allows justification by each company to indicate whether it maintains critical/non-critical assets to different standards. This should be mentioned within the justification and Ofwat will consider amendment of scores if deemed necessary. An example asset component list has been provided for guidance, however the list is not exhaustive and may not reflect the site's specific details, so the Asset Component Scoring tab should be reflective of the site's asset list, to a similar level of detail provided in the examples.

Similarly, other assets can be identified as critical assets by changing the 'critical' column to "Y", within the *Asset Component Scoring* sheet. Critical assets are defined as "an asset having potential to significantly impact on the achievement of the organisation's objectives.
Note 1: Assets can be safety-critical, environment-critical or performance-critical and can relate to legal, regulatory or statutory requirements.
Note 2: Critical assets can refer to those assets necessary to provide services to critical customers.
Note 3: Asset systems can be distinguished as being critical in a similar manner to individual assets.

To effectively score the *Asset Performance* of each Sludge Treatment Centre (STC), the key performance data of each site should be considered and a conclusion drawn on the effectiveness of the asset in meeting the performance requirements, including but not limited to: Design effective operational digester volume vs actual, Cake quality (Dryness-(%DS) and pathogen kill), Gas Output, Throughput/Capacity (TDS/yr), Downtime, etc. There should be particular focus on the Critical Assets, highlighted as an example in yellow.

A *Condition Score* and a *Performance Score* is then applied, as a minimum, to each Key Area, which are highlighted in green on the *Asset Component Scoring* sheet.

The spreadsheet generates an overall condition score weighted by (MEAV). If the MEAV has not previously been calculated/is not known, it should be estimated as a minimum based on engineering judgement. Default values of 10% per key area are input into the sheet but can be overridden with values determined by calculation or engineering judgement.

The spreadsheet also generates a 'critical asset' condition score and a 'non critical asset' condition score.

---

[1] MEAV figures should reflect the Gross MEAV figures, i.e., the gross modern equivalent asset value for a company's bioresources assets and the cut-off date should be the latest APR data (31 March 2023).

If the overall site scores are not considered representative at the site level, a summary score can be provided along with justification. This should refer where possible to evidence, for example photographs of the assets, concrete or tank structure testing, for civil structures, or maintenance logs/schedules.

For *Asset Performance* justification, this should refer where possible to ongoing historical data such as a summary of historical data as rationale is required, such as year-to-date process data on key performance figures for that particular asset area.

The *Asset Management* score is required to provide insight into how the site is managed. This is to provide some context to the condition of the asset, as for example, a site that is performing well and has a fully implemented and monitored asset management plan, may include components in poor condition where the consequence of failure is effectively managed. The asset management score should be justified with evidence of the Asset Management strategies or plans in place and referral to the strategy maturity, as outlined within the "Asset management maturity assessment: Annex 2 – Strategy and Planning" document produced by Ofwat.

A supporting .xls file should be provided that includes an *Asset Component Scoring Sheet* for each site, and the *Asset Condition Summary Table*, along with a .zip file containing other supporting data, such as photographs. Supporting data should be referenced so that it can be linked back to site, and/or area level.

Table line definitions

Line	Title	Definition
1.1	Scheme number	Numeric number reference to be assigned by the company.
1.2	Site Name	Sludge Treatment Centre name. Where applicable this should align with the naming used in the recent IED cost data return.
1.3	Facility Type	Type of sludge treatment facility according to treatment type.
1.4	Waterbody	Nearest waterbody and/or waterbody the WwTW discharges into.
1.5	Location	Approximate location with nearest town/city.
1.6	SSSI Proximity	Note of proximity to nearest SSSI area.
1.7	TDS/yr Treated (Avg)	As defined within the Asset Condition Summary sheet, the TDS/yr capacity should be a 3yr average consistent with data provided at APR returns.
1.8	Asset Condition Score	Site level scoring in accordance with Table B.1.[2]
1.9	Asset Condition Justification	Justification for the site level condition score.[2]
1.10	Asset Performance Score	Site level scoring in accordance with Table B.2.[2]

---

[2] Companies are not required to collate site-level Asset Condition and Asset Performance scores within the "Asset Condition Summary" tab of the Bioresources-Asset-Condition-Assessment-scoring.xlsx (live.com), as we will collate the data from the "Asset Component Scoring" tab. Score justification should also be made within the "Asset Component Scoring" tab following the guidance in lines 1.8 - 1.11 of the Table line definitions and references to Table B.1 and B.2 of this Bioresources Asset Condition Assessment Guidance.

Line	Title	Definition
1.11	Asset Performance Justification	Justification for the site level performance score.[2]
1.12	Asset Management Score	Site level scoring in accordance with Table B.3.
1.13	Asset Management Justification	Justification for the site level asset management score.

Further definitions can be found within the Asset management maturity assessment lexicon, produced by Ofwat.

Commentary requirement

Companies should include the following commentary to this table:

- Evidence should be provided to demonstrate that the assessment is robust. This could include supporting photos of each key area, highlighting any areas of particularly good or poor condition.
- An explanation of any material variations between current and previous percentages of assets in each condition grade (e.g., PR09 data where available).
- An explanation of any changes in reporting methods / assumptions that have led to a material change in reported figures.
- A summary of the methodology adopted for completing the assessment.
- An indication of the quality of data provided, and any areas where the data deviates from reliability band A.
- Supporting evidence for the condition and performance grade at each location.
- Confirmation that the condition grading system (set out in the guidance above) used for this submission has been prepared in line with the guidance and an explanation of differences where they are not on the same basis as that used historically.
- Companies should obtain third party assurance that the assessment has been completed to the required standard.

Assurance Guidance

- Companies should provide external third–party assurance that:
  - the Asset Condition, Performance and Management survey has been carried out in accordance with this Bioresources Asset Health Guidance.
  - the scoring and site inspection details (where applicable) have been filled in the "Bioresources Asset Condition Assessment" to the best of companies' knowledge.
- The company should provide the required assurance details to Ofwat by not later than the specified date (1 March 2024).