

RISK ASSESSMENT PROCESS AND EVALUATION OF RISKS, STRENGTHS AND WEAKNESSES

Our assessment of data quality risks

Risk is defined as an uncertain future outcome that, if it occurs, will have negative effects on the quality and reliability of published information. A Risk is specified by the combination of the probability of it occurring and a measure of the impact should it occur. Risk relates to the level of expectation that inaccurate or incomplete data will be submitted to our stakeholders in the future and the possible consequences.

The overall Risk profile for regulatory data contained within the Annual Performance Report (APR) is determined by assessing both the probability of it containing an error and the impact this error would have on the business. The resultant Risk Matrix therefore comprises two component metrics – the Impact Metric and the Probability Metric. The Total Risk Rating assigned is a combination of both metrics.

In the table below we demonstrate how we prioritise areas that may require increased levels of assurance.

Table – Impact and Probability Risk Matrix

Impact Metric Score	4				
	3				
	2				
	1				
		1	2	3	4
		Probability Metric Score			

Any area with higher probability and higher impact residing in the red “high” or amber “high-medium” risk zones demands a higher level of assurance over those which reside in the yellow “low-medium” or green “low” risk zones.

Low Risk
Low-medium Risk
High-medium Risk
High Risk

The probability element of Risk is proxied by the Probability Metric and the impact element of Risk is proxied by the Impact Metric. The Impact and Probability Metrics are defined as follows:

- **Impact Metric:** a measure to represent the impact of an identified Risk materialising. It relates to the expected impact that inaccurate or incomplete data could have on stakeholders, our finances, our reputation and our coverage in the media. It is scored by assessing each performance data measure against the specified impact categories; and
- **Probability Metric:** a measure to represent the probability of data being incomplete or inaccurate. It is scored through the evaluation of the processes for data collection, reporting and the related control systems and processes.

Results of assessing the impact of data quality risks

The Impact Metric has four ratings, 1 to 4, with 4 denoting the highest level of adverse impact and 1 denoting the lowest level of adverse impact that would arise (in a realistic worst-case scenario) due to the use of inaccurate or incomplete data.

To calculate the Impact Metric we use the following three categories and score on a scale of 1 to 4:

- Financial;
- Reputational (including Media coverage); and
- Stakeholders.

To calculate an overall impact score for a Performance Commitment, we take the highest score of all impact categories. We interpret the impact assessment as being the associated impact of inaccurate or incomplete data and not the impact associated with poor performance that the data might reveal. In doing so, we assume a “realistic” worst-case scenario.

Method of assessing the probability of data quality risks

The Probability Metric has four ratings, from 1 to 4, with 4 denoting the highest probability and 1 denoting the lowest probability of inaccurate or incomplete data. There are seven categories that are scored for each Performance Commitment in order to calculate its probability score. These are:

- | | | | |
|----|---|---|-----------------------------|
| 1. | I1. Complexity of data sources | } | Inherent Probability |
| 2. | I2. Completeness of data set | | |
| 3. | I3. Extent of manual intervention | | |
| 4. | I4. Complexity and maturity of reporting rules | | |
| 5. | C1. Control activities | } | Control Frameworks |
| 6. | C2. Experience of personnel | | |
| 7. | C3. Evidence of historical errors with this data | | |

I1 to I4 reflect the inherent (I) probability of error where no additional controls (on top of general system or process controls) are used to reduce Risk.

C1 to C3 reflect the control (C) framework in place to reduce the probability of error. Combining these gives the overall probability of error, taking into account any controls that are in place.

The overall probability score ranges from 1 to 4 and, all other factors being constant, high inherent Risk or a weak control environment should result in a higher Risk score. Low inherent Risk or strong control environment should result in a lower Risk score.

We might expect to see greater variation between Performance Commitments in the Probability Metric Scoring than we would expect for Impact Metric Scores. This is because each Performance Commitment will have different reporting systems, processes, and control environments for reporting data.

Example to help explain the scoring process.

Taking one of our Performance Commitments, Treatment Works Compliance (En1), the table below helps explain the risk scoring further.

Treatment Works Compliance (En1)														
Impact Metric				Inherent Probability					Control Framework					
Financial	Reputational	Stakeholders	Impact Score	I1 Complexity of data sources	I2 Completeness of data set	I3 Extent of manual intervention	I4 Complexity/maturity of reporting rules	Highest Score	C1 Control activities	C2 Experience of personnel	C3 Evidence of historical errors	Average Score	Probability Score	
3	4	4	4	3	2	2	2	3	1	2	2	1.7	1.3	
			A				B				C			
A large penalty of £2.8m if we failed targets.				Data is entered into our system which then shared with our Regulator.				Long standing controls in place.		Established experienced team.		Data has been reported with no historical errors.		Calc B-C = 1.3
Our reputation with customers would be severely impacted.				Large volume of data but complete set and been reported on for many years.				Data set has been reported on for many years with regulator guidance for reporting.		Limited manual intervention, but some manual quality checks done in addition to the automated checks.		Data has been reported with no historical errors.		
Requirement for data to be totally accurate.				Data set has been reported on for many years.				Data set has been reported on for many years with regulator guidance for reporting.		Long standing controls in place.		Data has been reported with no historical errors.		

Impact Metric Score	4	En1				
	3					
	2					
	1					
			1	2	3	4
			Probability Metric Score			

Low Risk
Low-medium Risk
High-medium Risk
High Risk

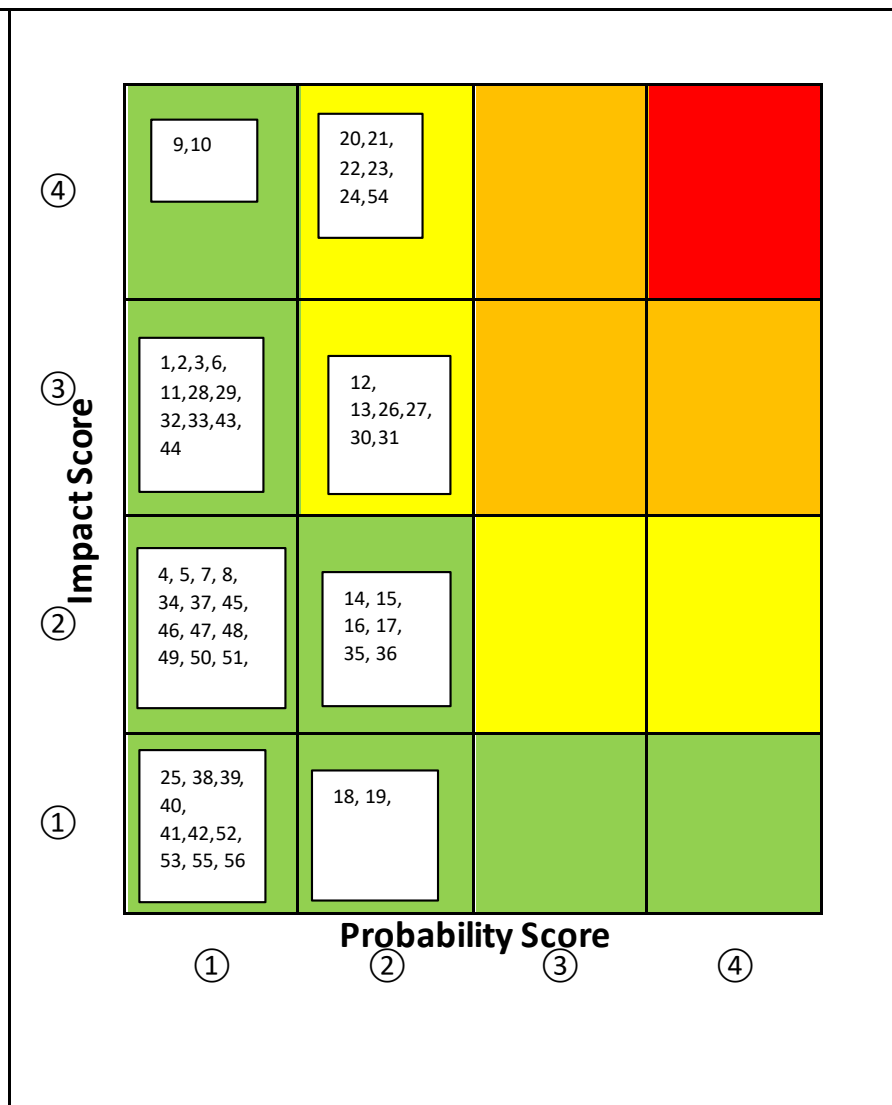
From the risk scoring example above the Performance Commitment – Treatment Works Compliance (En1) scores a 4 (Impact Score) and 1.3 (Probability Score). The Impact score is taken from column marked A. The Probability metric score is calculated by taking the highest of the inherent probability score (column marked B) minus the average score across the control framework (column marked C). This therefore resides in the top left hand box as shown and is low risk (high impact but low probability).

This is a rigorous process and is one which we have applied to each of the Performance Commitments contained within FD19. The outcome is summarised in the Impact and Probability Risk Matrix in Appendix 1.

With regard to other key documents and discreet parts of the business which involve data reporting, e.g. Bioresources Market Information, we have undertaken a high level risk assessment of each area. This involves following an exercise which determines the overall profile of the particular data quality risk by reference to the probability of the risk occurring and the likely impact on the business. The results of this exercise are summarised in the Impact and Probability Risk Matrix in Appendix 2.

APPENDIX 1 Impact and Probability Risk Matrix – PR19 Performance Commitments

Performance Commitments					
1	Water quality compliance (CRI)-Wt1	20	C-MeX-Sv1	38	Delivery of our water network improvement programme-BI8
2	Water supply interruptions-Wt2	21	D-MeX-Sv2	39	Delivery of our South Wales grid water supply resilience scheme-BI10
3	Acceptability of drinking water-Wt3	22	Customer Trust-Sv3	40	Delivery of our new visitors' centre-VIS01
4	Mains Repair-Wt4	23	Business customer satisfaction-Sv4	41	Cwm Taf Water supply strategy scheme (Underperformance)-DPC01
5	Unplanned outage-Wt5	24	Priority services for customers in vulnerable circumstances-Sv5	42	Cwm Taf Water supply strategy scheme (Outperformance)-DPC02
6	Tap water quality event risk index (ERI)-Wt6	25	Customer on Welsh language register-Sv6	43	Risk of severe restrictions in a drought-Ft1
7	Water catchments improved-Wt7	26	Internal sewer flooding-Rt1	44	Risk of sewer flooding in a storm-Ft2
8	Lead pipes replaced-Wt8	27	External Sewer flooding-Rt2	45	Energy self-sufficiency-Ft3
9	Treatment works compliance-En1	28	Sewer collapses-Rt3	46	Surface water removed from sewers-Ft4
10	Treatment works 'look-up table' compliance-En2	29	Total Complaints-Rt4	47	Asset resilience (reservoirs)-Ft5
11	Pollution incidents-En3	30	Worst served customers-water-Rt5	48	Asset resilience (water network+ above ground)-Ft6
12	Leakage-En4	31	Worst served customers-wastewater-Rt6	49	Asset resilience (water network+ below ground)-FT7
13	Per capita consumption-En5	32	Change in average household bill-BI1	50	Asset resilience (wastewater network+ above ground)-Ft8
14	Km of river improved-En6	33	Vulnerable customers on social tariffs-BI2	51	Asset resilience (wastewater network+ below ground)-Ft9
15	Bioresources product quality-En7	34	Company level of bad dept-BI3	52	Community Education-Ft10
16	Bioresources disposal compliance-En8	35	Unbilled properties-BI4	53	Visitors to recreational facilities-Ft11
17	Combined sewer overflow storage systems-En9	36	Financial resilience-BI5	54	Reportable injuries-Co1
18	Delivery of Environment programme requirements-NEP01	37	Delivery of our reservoir's enhancement programme. -BI6	55	Employee training and expertise-Co2
19	Drainage and wastewater management plans-DWMPs			56	Employee engagement-Co3



APPENDIX 2 Impact and Probability Risk Matrix – Other Activities

Other Activities		Movement of Risk	
Activities included in this Draft Assurance Plan		19/20	20/21
Dap 1	Annual Performance Report		
Dap 2	Performance Commitments		
Dap3	Water Resources Management Plan and Marketing information		
Dap 4	Segmental Reporting		
Dap 5	Bioresources Market Information		
Dap 6	Board Leadership Transparency and Governance		
Dap 7	Methodology Statements		
Dap 8	Financial Resilience		
We are not specifically targeting the areas listed below this year as we feel each has their own embedded assurance. These activities are recorded in a stand-alone document which will be reviewed as part of our annual process going forward. Click here for further information.			
1	Charges Schemes		
2	Website Publications		
3	Statutory Financial Reporting		
4	Natural Resources Wales Compliance Tables		
5	Payment Policies, Practices and Performance		
see PR19 PC	Our Priority Services for Vulnerable Customers		
6	Customer Engagement		
7	CCWater Reporting		
8	Corporate Resilience		
9	GDPR		
10	Gender Pay Gap		
11	Annual Report and Accounts		
12	Operator Self-Monitoring (OSM)		
13	Customer Satisfaction		

