

AffinityWater

AFW07 - Update on our resilience action plan



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Introduction

Affinity Water is the largest water only supply company in the United Kingdom, owning and managing the water assets and network in an area of approximately 4,515km² split over three supply regions in the Southeast of England. We face an array of risks to the resilience of our services, with increasingly complex interdependencies in how these interact and pose threats to our service.

The current investment period has highlighted the need for increasingly sophisticated and robust approaches to resilience with many significant low probability risks being realised, from global pandemics and increasingly frequent extreme weather events through to ever increasing cyber-attacks and global conflict impacting supply chains. The response to each of these challenges has required careful consideration using a systems-based approach, with each issue and response impacting our vulnerability to other risks to resilience we face. For example, our response to the covid-19 pandemic included significant increases in home working of our employees to keep many of our core systems functioning, this in turn changed the profile of risk faced from cyber-attacks requiring additional mitigations within our IT systems.

Alongside our PR19 business plan we created an action plan to implement an integrated resilience framework, in line with Ofwat's request.

“To develop and implement a systems-based approach to resilience in the round and ensure that the company can demonstrate in the future an integrated resilience framework that underpins the company's operations and future plans showing a line of sight between risks to resilience, planned mitigations, package of outcomes and corporate governance framework.”

In our action plan we laid out the key steps we plan to undertake over the following years and our understanding of how best to adopt best practice at this stage. In the intervening years we have significantly improved our understanding of best practice, working with leading companies and consultancies within the industry and horizon scanning for approaches from other utilities, government, and heavy asset industries.

This document outlines the key activities we have undertaken to improve our understanding and management of resilience since the creation of our PR19 action plan and details the resultant integrated resilience framework that underpins our operations and investment plans today.

Our Integrated Resilience Framework

During PR19, Affinity Water submitted an action plan to develop an 'Integrated Resilience Framework' which outlined a concept of 4-stages used to manage resilience; Identify, Plan, Intervene & Monitor.

Through the implementation of this plan, we have built upon the significant lessons of the last 5-years as part of our ongoing journey to identify and adopt best practice. Our integrated resilience framework uses a systems-based approach to managing risks to the resilience of our services and is consistently adopted across our risk management systems.



Figure 1 outlines the structure of our integrated resilience framework, showing how this provides line of sight between risks to resilience, mitigations, and outcomes.

How we monitor and manage risks to resilience

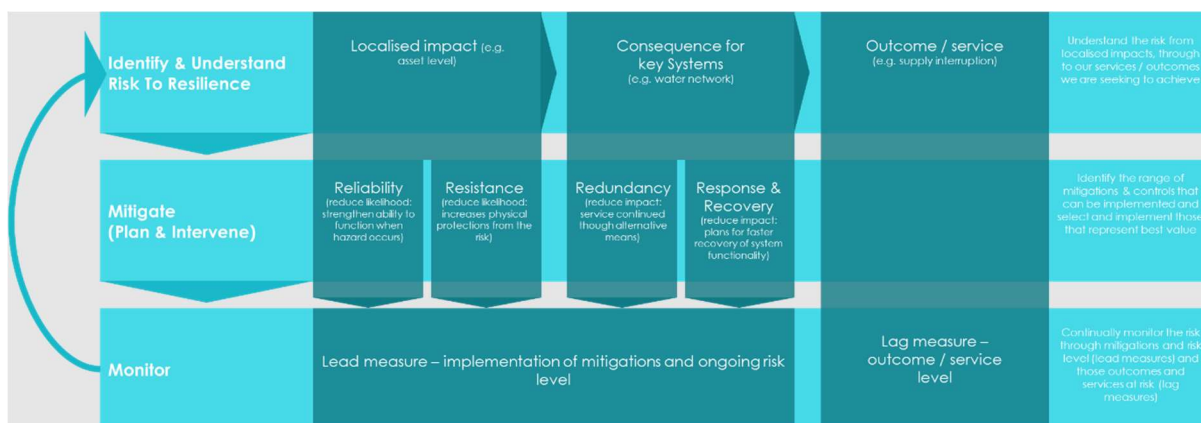


Figure 1 - Visualisation of our Integrated Resilience Framework

The framework underpins both our operations and investment decision making. This means the framework is applied across all the key building blocks of resilience, from underlying asset health and emergency response through to balancing supply and demand over the long term and mitigating climate change effects such as flooding.

The framework is applied chiefly to our investment decision making and corporate risk management processes. Corporate governance ensures effective application of the framework through three groups; our Investment Committee for all material investment decisions, our PR24 Programme Board which governs post-2025 investment decision making, and our Audit and Risk Committee which is a formal Board subcommittee attended by all Board members, which governs risk management. Each of these three has a minimum of two executive directors or Board members and appropriate supporting layers of governance beneath. In addition, our Board received at least quarterly updates across each of these.

To apply the framework effectively, we have made a number of improvements to our processes that help us better identify, understand, and mitigate risks and monitor the resultant resilience of our services. Our increasingly sophisticated approach has enabled us to make better decisions for our PR24 business plan, ensuring we are investing in the right areas and selecting the best options to make our services as resilient as possible whilst remaining affordable.

The adoption of the framework for investment decision making relies on our improved measurement of risks and mitigations. This has been achieved through a common set of valuations of service and risk through our 'service measure framework' and improved monitoring of resilience through our Affinity Resilience Tool (ART). As shown in



Figure 1, optioneering is undertaken across the '4Rs' (redundancy, response/recovery, resistance, and reliability), to identify the optimal mitigations, supported by assessment using ART, which will continually monitor resilience level post-investment.

The framework is applied to corporate risk management through our Risk Management Framework and policy, both of which are provided in Annex 1. These have been improved to reflect our integrated resilience framework, with material risks to resilience being captured with gross and net risk to service quantified and mitigations considered and selected across the '4Rs'. To support consistent adoption of our integrated resilience framework across all corporate level risks to resilience, we have also upgraded our Risk Assurance Platform.

Further details of the improvement we have made to both our ART and Risk Management Framework are provided in the following two sections.

Affinity Resilience Tool (ART)

Through the implementation of our PR19 action plan, we identified a need to improve our understanding of operational resilience and in turn improve operational and investment decision making. To achieve this, we undertook industry horizon scanning and engaged with companies within and beyond the industry in order to identify best practice in understanding and managing resilience. This resulted in initial work with ARCADIS to develop our resilience assessment tool that built on leading industry experience, whilst meeting our needs and integrating with our systems and processes. Over the following 2-year period we designed and rolled out the tool, adopting additional insights from other companies and Ofwat's Operational Resilience Working Group to ensure our tool remains at the leading edge of best practice. The process involved over 40 workshops with operational and asset management teams to gather data, validate results and train teams in the use of the tool. Progress was reported monthly at our Asset Management Maturity Assessment (AMMA) improvement programme board and quarterly to our Audit and Risk Committee.

Now fully adopted, the Affinity Resilience Tool (ART) evaluates the operational resilience of our assets and systems at both the Asset/Site level and the System/Network level and determines the nature and extent to which these may impact service outcomes. It assesses resilience against various hazards that may arise in different scenarios. By providing a standardized framework, the tool enables us to measure and compare resilience across all assets and regions consistently, leading to better informed decision-making.

We now have a standardised understanding of the level of resilience at each key asset and site, which customers rely on the sites, and where we have system redundancy to protect services. The tool can also model the effects of specific interventions or mitigations and quantify the effect on resilience. This provides us with a clear line of sight between risks to resilience, planned mitigations and package of outcomes we aim to deliver for our customers.

The tool specifically assesses the resilience of our assets and systems in two main scenarios and evaluates six hazards (shown in the top left of Figure 2) that are critical for our six most important asset types. Through this assessment, we can pinpoint areas and assets that are at higher risk and compare them against predefined risk tolerances. Additionally, it sheds light on the factors contributing to inadequate resilience in certain assets, helping us identify the Best Value mitigation options. This process supports the optioneering process across the '4Rs', and it also assists in managing risk during planned outages.

The Affinity Resilience Tool has been instrumental in comprehending the need for resilience-focused investment for the PR24 business plan beyond the fundamental building blocks of asset health and WRMP, such as Single Points of Failure (SPoF) and Flooding Protection schemes.

Its implementation marks a significant advancement in our understanding of resilience-related matters. Nevertheless, we are unwavering in our dedication to continually enhance our understanding of resilience and we plan to further refine and develop the tool while engaging with external parties to stay at the forefront of resilience knowledge and practices. For example, our current focus to progress the tool to use increasingly real-time data through integrating IT systems, to improve accuracy and the depth of insight.

How the tool is used

To evaluate resilience at an asset level, we assess the risks posed by potential shocks and hazards that the asset may face. This assessment takes into account the current unmitigated risk level at each asset/site and then compares it to the existing controls and measures implemented across the '4Rs'.

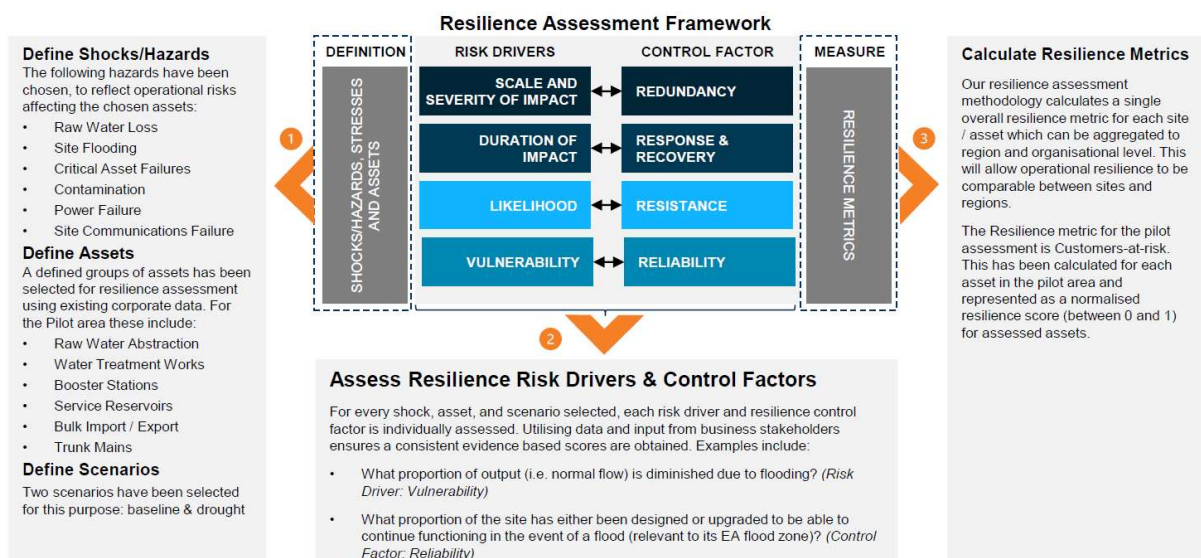


Figure 2- Resilience Framework tool process

The assessment then overlays this asset-specific risk analysis with nodal hydraulic route tracing modelling to understand the redundancies, interdependencies, and vulnerabilities at a system level. This approach allows us to gain a comprehensive understanding of how individual assets contribute to the overall resilience of our systems, and how this in turn impacts service to our customers.

By using the resilience impact scores obtained for each asset, we can then calculate the resilience score for each District Metered Area (DMA), Hydraulic Demand Zones (HDZ) and associated customer communities. This process provides us with a clear understanding of the resilience risks across our network and enables us to have a direct line of sight from these risks to the services we deliver to each of our customers. This integrated approach helps us make informed decisions to enhance our overall resilience and ensure the uninterrupted provision of services to our customers. For example, we can identify which specific hazards and assets represent the greatest risk to customer supplies. Using valuations of service, we can also compare the impact of various interventions and determine which increases resilience the furthest per pound spent.

Below are some of the outputs of the ART dashboard showing how these insights can be extracted.

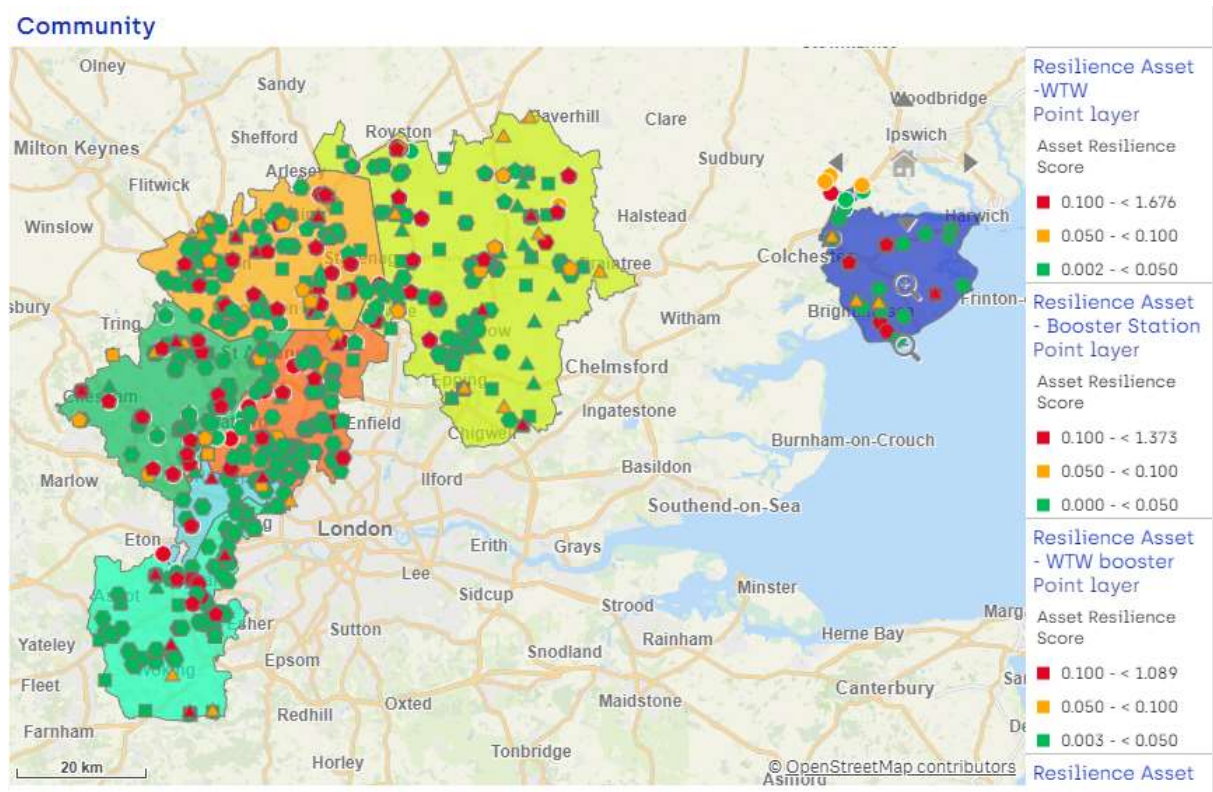


Figure 3 – Resilience Impact score by Asset type

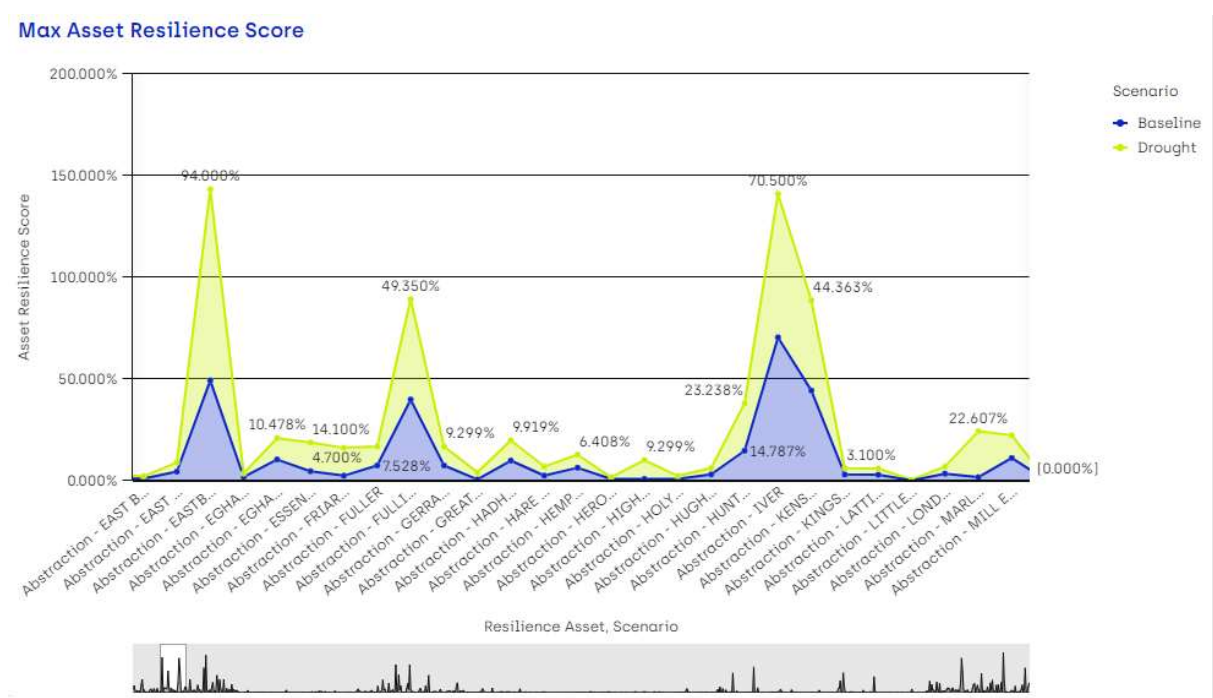


Figure 4 – Comparison of Resilience Impact score by asset and scenario

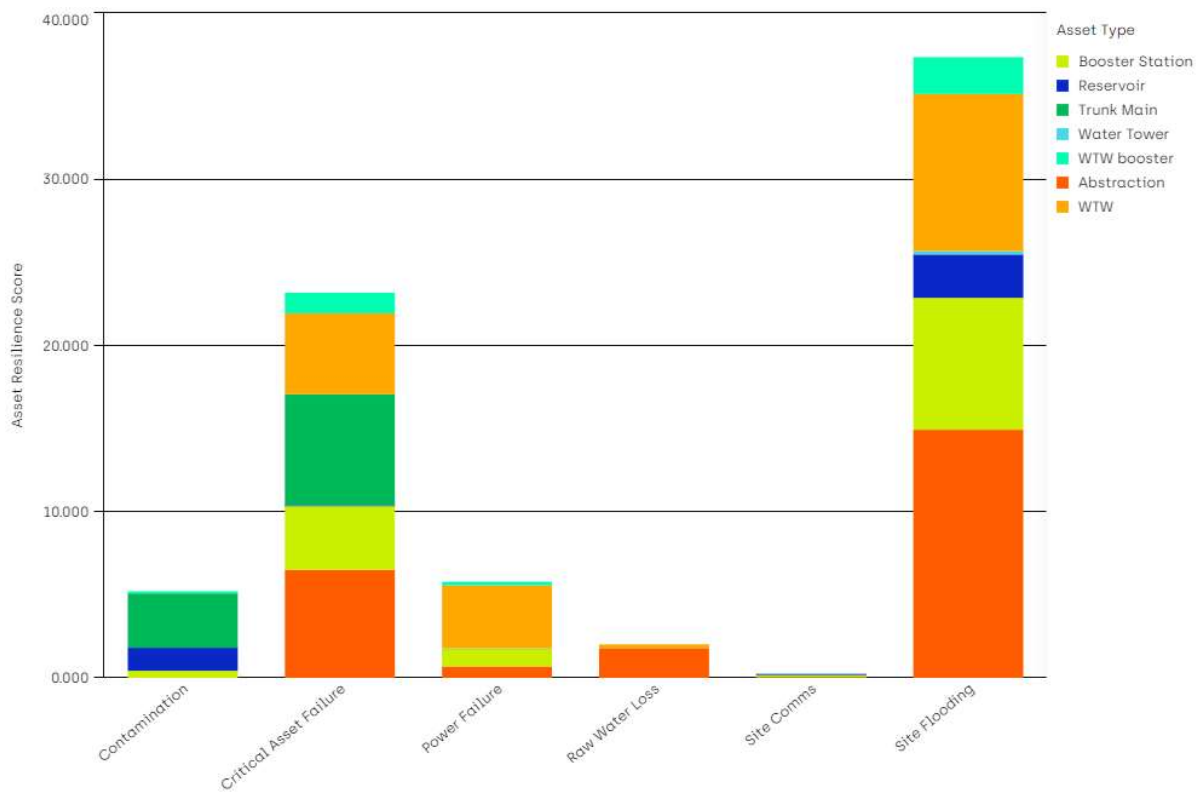


Figure 5 – Resilience Impact score by hazard and asset type

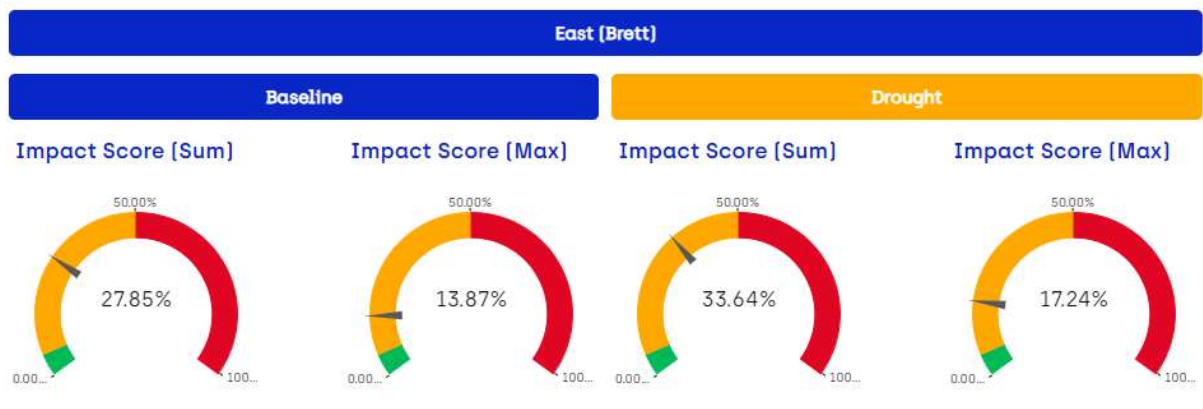


Figure 6 – Zonal Resilience Impact score in Brett community

Data gathering and analysis

The tool relies on accurate data sources to provide a robust assessment. Where accurate data is not available, we use our many local Subjects Matter of Experts to gather missing information and validate results. Below is a list of some of the data sources used as part of the assessment.

For below ground assets:

- GIS information such as size, material, age, burst history, number of crossings and connections to other Trunk mains
- Burst rate from our PIONEER asset deterioration modelling tool
- Trunk mains mitigation and contingency reports
- Spare parts availability
- Trunk main monitoring systems
- Maintenance routines and job data

For above ground assets:

- Maximo list of assets and associated criticality
- Risk Based Approach classification for storage assets
- Base Asset Health score for site and associated assets
- Number of single Points of Failure within the site
- Drinking water safety plans
- Catchment management Risk Assessment
- Flood maps
- Contingency reports, Isolation reports
- Site monitoring systems
- List of generators
- Loss of power records
- Hydraulic modelling to calculate properties affected
- Spare parts availability
- Asset Maintenance strategies and Maintenance completion rate

As part of our continuous journey to improve the tool, we are exploring new scenarios, hazards and asset types while also making the tool more dynamic, with the long-term ambition of being near real time.

How the tool has supported resilience investment decision making for the PR24 business plan

All PR24 schemes that directly focus on resilience have been assessed using the tool to help ensure they represent the best areas for investment and the best solutions to mitigate risk. The tool has been used to support both base and enhancement investment decision making. Where investments are explicitly related to the resilience enhancement driver, we have included the outcome of this assessment within the business case, included within Appendix AWF14 - Enhancement Business Cases.

The tool supports investment decisions by comparing three scenarios relating to each scheme:

- The current scenario: The current state of our system and assets without additional investment
- Future AMP 8 scenario without the proposed investment: We project the resilience of our assets and system under the future AMP 8 conditions without

implementing the proposed investment (e.g., factoring projected population growth, abstraction reductions or other known investments)

- Future AMP 8 scenario with the proposed investment: We project the resilience of our assets and system under the future AMP 8 conditions with the proposed investment implemented.

By comparing these scenarios, we can quantify the impact on resilience and understand the benefits of the proposed investment. The assessment considers various hazards using the resilience tool, with a particular focus on the Critical Asset Failure Hazard, Contamination or Flooding, given its significant impact on the analysis.

After calculating the individual Asset resilience impact scores, we identify the affected routes of water and proceed to evaluate the impact on System resilience across the different scenarios. The outcome provides a quantified resilience impact score as a percentage for each scenario and allows us to determine the percentage change in resilience under different conditions.

This comprehensive analysis helps us make informed decisions about investments to enhance our resilience and better prepare for potential hazards and disruptions. It also provides valuable insights into the potential benefits of the proposed scheme in terms of increasing our overall resilience.

Embedding and culture

The tool has been tailor made to fit specific 'use cases' of teams within our business, and our processes and procedures now include the tool's adoption with corporate governance helping to ensure these will be followed.

However as with all improvement, culture is key to ensuring sustained changed. Culture and communications have therefore been a central part of our recent resilience journey. Hundreds of our people have been involved in the development and roll out of the tool, with each individual trained in what we are trying to achieve and what this will ultimately mean for our customers. This is followed by company wider communications and resilience champions within key functions across the business.

In addition, we intend to create a resilience training module within our Skills Station e-learning platform, that will be mandated for all company management. This will include best practice for identification, measurement, and management of risk in line with our integrated resilience framework. Further modules will focus on the use of the tool and more in-depth training in our procedures for users making investment decisions or managing operational risks.

Our Improved Risk Management Framework and supporting Assurance Platform

During AMP7 we have made significant progress in enhancing the maturity of our risk management strategy and processes, to ensure we are systematically assessing risks

and have line of sight from risks and mitigations through to outcomes and corporate governance.

In particular, we undertook a major exercise to define our risk appetite. Shareholders, members of our Board and ELT were all actively engaged in this process and contributed their different perspectives on risk to ensure that our resulting risk appetite statements were all-encompassing. Several workshops were run to capture input from all these stakeholders and to share draft outputs for review and feedback. The main outputs were individual appetite statements and levels across a broad range of hazards. These are informed by an understanding of how risks can impact our package of outcomes. Risk appetite levels have been applied on our risk register in the form of target scores for individual risks. For risks assessed as outside those target scores, risk owners plan and implement mitigating actions to bring them “within appetite” and continually monitor the risk level thereafter. Corporate risks and mitigations are then reported and scrutinised by our Audit and Risk Committee

We have recently implemented a risk management system (RAP), allowing us to move away from the use of multiple spreadsheets with all the inherent end user computing risks which they bring. This has helped us to enforce more consistency in how we articulate risk descriptions, their causes, consequences and improve the quality of data which we maintain in respect of our risks to improve our line of sight and corporate governance. Over the remainder of AMP7, we will continue to work with our software vendor to further develop system functionality, particularly with regards to management information and reporting to ensure we remain in line with the latest best practice.

In addition to the above, we continuously communicate and embed our risk management policy and framework to ensure risk management and resilience is increasingly seen as an inherent and intrinsic element of day-to-day business processes, supporting a resilience focused culture.

Annex 1 – supporting policies & procedures

Risk Management Policy

Introduction

This document sets out our commitment to operating an effective Risk Management process which help us make risk informed decisions on matters which could prevent us from achieving our strategic objectives. It sets out what we do as a Company to support Risk Management processes and the role that each of us must play to protect the business from avoidable harm. This policy is supported by our Risk Management Framework and the Risk Management Practitioners guide, which detail who is responsible for managing risk and the processes for how we do so.

Our leadership commitment

We, as an Executive Leadership Team, are committed to ensuring that we identify, evaluate, and manage the key risks which we face. We have a Head of Risk who leads risk management activities within the organisation and is a point of reference for all risk champions.

We will foster a culture in which teams throughout the business manage risks as part of their management of day-to-day operations and we will provide employees with the training and support needed to facilitate this.

We will never ask you to take risks that you do not understand and without due consideration of the damage to you and the business which could result from doing so.

Risk Management is a journey of continuous improvement and together we will work to embed and enhance our understanding and application of Risk Management throughout Affinity Water.

Our company approach

The Executive Leadership Team set the “tone from the top” by continually emphasising the importance of Risk Management in the business and by promoting and supporting its consistent application throughout the company to ensure that Risk Management contributes to informed decision making at all levels.

Our Risk Management Framework meets the requirements of the Corporate Governance Code and sets out how Risk Management operates in Affinity Water, including who is responsible and accountable for its various aspects. The Framework and all its constituent parts are regularly reviewed to ensure their continued effectiveness.

We have set out in clear terms our Risk Appetite - the levels and types of risk which we are prepared to tolerate in pursuit of our strategic objectives and we regularly review our risk profile in the context of the stated Risk appetite, at Directorate; ELT; Audit, Risk and Assurance Committee; and Board levels.

Individual responsibilities

We expect that everyone who works for us will:

- Build the management of risk into their day-to-day work activities
- Familiarise themselves with our Risk Management Policy and Framework
- Maintain an understanding of the fundamental aspects of Risk Management
- If you are a director, leader, or manager, maintain a more detailed level of knowledge of Risk Management and related topics
- Report any incident, "near miss" or concern that a risk is not being effectively managed
- Take responsibility for their own personal risks by complying with other relevant policies such as Health and Safety

Risk Management Framework

Introduction

We manage risk to achieve several outcomes and benefits. These are summarised in Table 1.

To avoid...	Surprises, unwelcome volatility
To safeguard...	Life, property, environment, revenues, reputation
To improve ...	Decision making, profile, governance
To comply ...	With regulation, legislation, good practice
To reassure	Customers, partners, insurers, lenders
To reduce ...	Cost, downtime, accidents
To retain ...	Talent, intellectual capital, competitiveness
To create ...	Wealth, shareholder value, opportunity

Table 1 Outcomes and benefits of risk management in Affinity Water

To achieve this, we have designed and implemented a risk management framework that embeds risk management process and capability across the whole of Affinity Water, in a consistent manner.

Purpose

Our risk management framework helps us integrate risk management into our activities, organisational functions, and management reporting.

The framework comprises the *risk management process* and eight supporting elements. Our risk management framework enables us to demonstrate to our stakeholders how risk contributes to planning, decision making and day-to-day

operations, with the support of top management, our partners, those in our supply chain, and our people.

Figure 1 shows the elements that comprise our risk management framework. Each element is summarised in this document but described in detail within other related documents, held in the Athena document library, that are either:

- procedures (that set out 'how things shall be done')
- instructions (mandatory information)
- guidance notes (information that is advisory or helpful).

We define and describe the individual elements of our risk management framework in separate documents to allow for ease of change and update.

The *risk management process* is the activity of 'managing risk.' The eight supporting elements, shown in green around the outside of the process, are the arrangements we have in place that, along with the process, collectively provide our governance of risk management.

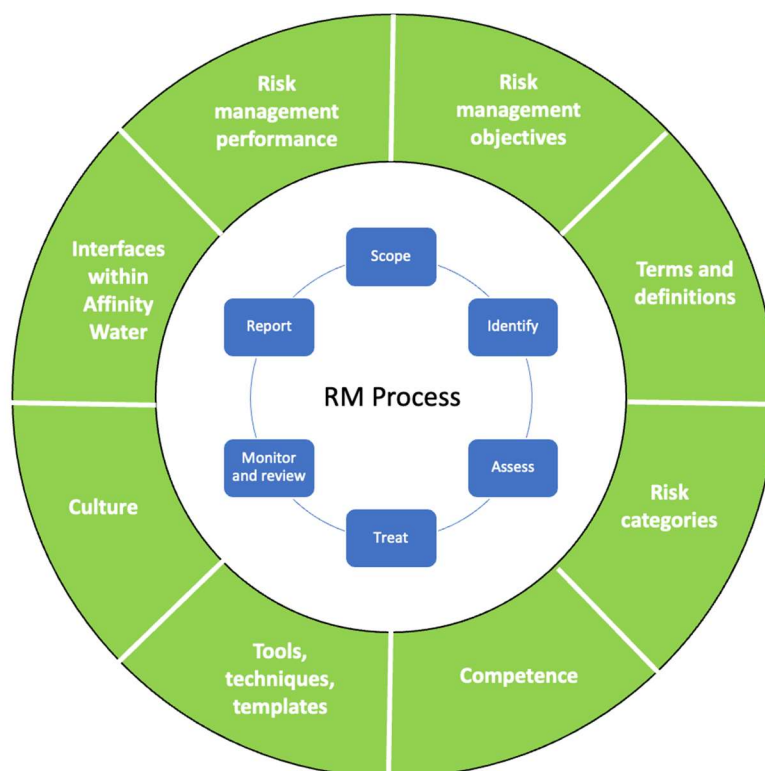


Figure 1 shows the elements that comprise our risk management framework

Roles and responsibilities

The risk management framework

The Executive Leadership Team is overall responsible for the structure, maintenance and operation of Affinity Water's risk management framework and process.

Affinity Water's Head of Risk and Insurance chairs the Risk Review Committee, which comprises every Risk Champion from within Affinity Water.

Risk owners and control owners

Those named in risk registers as Risk Owners are the person or entity with the accountability and authority to manage the risk.

Those named in risk registers as Control Owners are the person or entity with the accountability and authority to implement the process, policy, device, practice, or other action, that modifies the risk.

Those named as the owner of a Risk Register are the person or entity responsible for the content and maintenance of the risk register, and the management reporting (internally and externally) of those risks.

All Affinity Water employees (including contractors) have a responsibility for the management of risk. Affinity Water promotes a culture of risk awareness and as such, all employees can identify risks and make them aware to their supervisors and management.

The Risk Management Process in Affinity Water

Our risk management process describes the *actual activity of managing* risk. It is summarised in this document. Other, enabling, elements are an important part of our risk management framework, and these are also summarised in this document.

Our risk management process provides the systematic application of practices that enable any user of the process to consistently:

- define the scope of risk management
- identify risk events
- conduct risk assessment
- treat risk
- monitor and review risk
- report risk

Our risk management process is the basis for risk management activity conducted within the individual parts of Affinity Water. Directorates and functions follow the principles of our risk management process, even though the nature of the risks they manage varies.

We use risk management software to capture, record and oversee the management of all our enterprise-wide risks in one place. Through personalised logins, our software provides:

- a user-specific dashboard

- the storage and extract of the user's specific themed or functional risk register
- analysis of risk within Directorates, functions, or across the organisation
- aggregation of risk information
- tailored management reporting.

In our risk management software, all our risks:

- have an owner
- are categorised
- have been assessed and assigned a risk level

Our risk management process is described in detail in the guidance note *Affinity Water Risk Management Process* available from the Athena document library and all Risk Champions. It is shown in Figure 2 and summarised below:

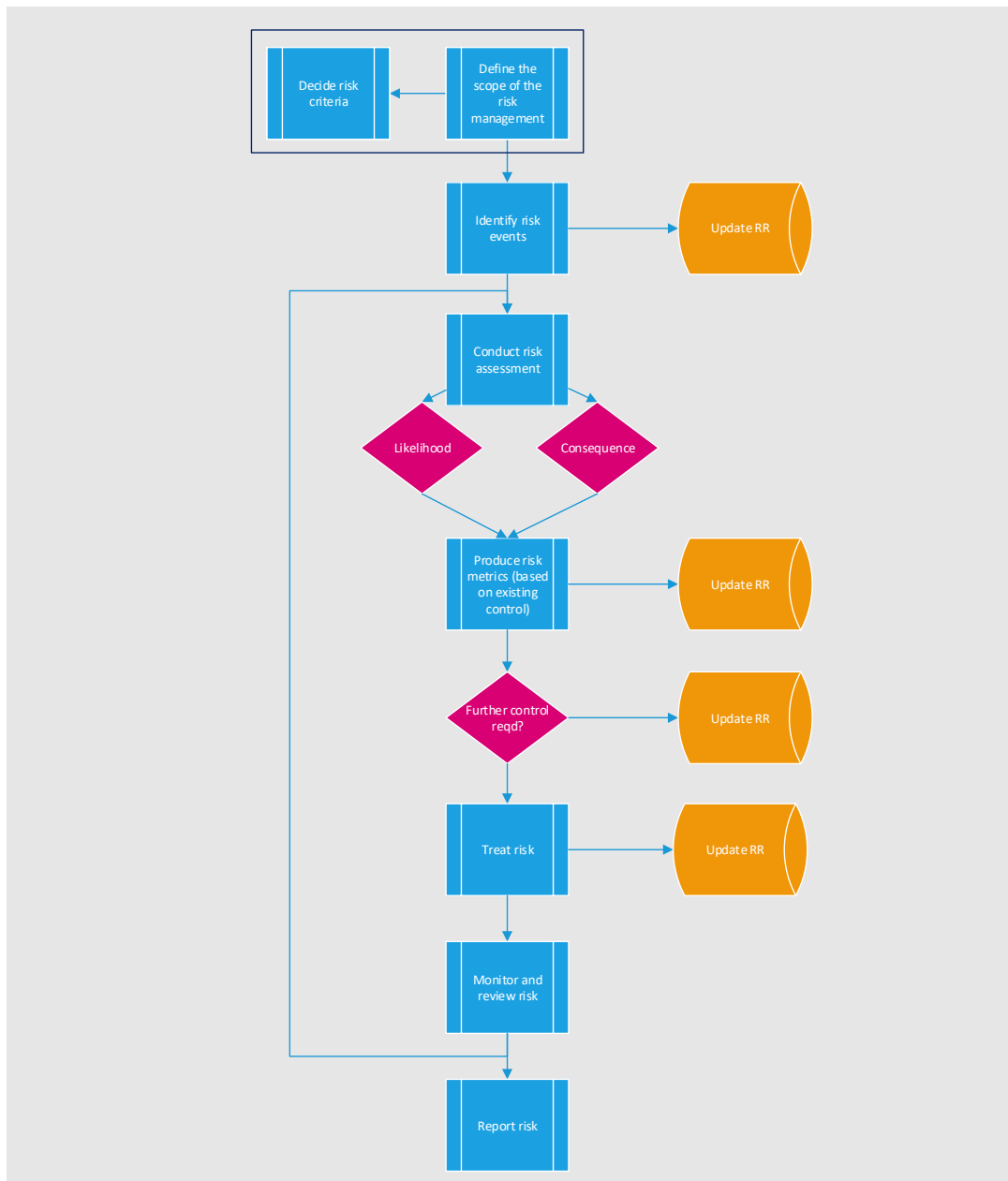


Figure 2 Affinity Water's risk management process

The scope of risk management

Many parts of Affinity Water manage and report risk on a formal basis. Their risk management activity, their risk assessments, and their specific risks, are specific to their part of the business. Being clear about the scope of risk management involves the user being clear about:

- what it is they are managing the risks to
- the external and internal operating environment it is happening within
- the groups of people or things that might be affected

Most often, this is based on a PESTLEO analysis¹.

This is an important step. This context helps the owner of each risk register to set the criteria for their risk assessments. It is at this early stage that they decide the scales for magnitude of impact on the people or things that are affected by their activities.

In other words, it is at this early stage that the owner of each risk register decides their appetite for risk, and what will be deemed high/medium/low risk.

Affinity Water sets scoring criteria for its corporate-level risks. This is shown in Appendix A. We acknowledge that, depending on their nature, some risks need to be rated according to their own, discrete, scoring criteria. The Head of Risk & Insurance will agree with the owner of an individual risk register if bespoke scoring criteria, other than the corporate criteria, is appropriate.

Later, in the risk assessments, these criteria are used to determine if the risks, with their current control, are acceptable, tolerable, or neither.

A variety of individual risk registers are formed, from numerous parts of Affinity Water, such as:



Figure 3. Sources of risk, and risk registers, within Affinity Water

Detailed guidance on how to define the scope for risk management is available in guidance note *Risk Management Process*, available from the Athena document library and all Risk Champions.

Identifying risk events

This is when we find and describe the events that might prevent us achieving our objectives. The owner of each risk register leads the risk identification, supported by our Risk Champions. Our risk identification might involve many different stakeholders,

¹ Political, Economic, Sociological, Technological, Legal, Environmental, Organisational

internal and external, to seek a variety of views and make maximum use of subject matter experts. Involving others also helps them to understand the need for controls.

Detailed guidance on risk identification is available in guidance note *Risk Management Process* available from the Athena document library and all Risk Champions.

Risk assessment

We consider the causes of the risk events we have identified, their consequences, and the likelihood of those consequences occurring. From this we determine if existing controls adequately mitigate the risk. Our risk assessments enable us to assign a risk level to each risk. By comparing the risk level with our risk appetite, we can see if the level of risk is acceptable.

Our risk levels are shown in Appendix B.

Detailed guidance on conducting risk assessment is available in guidance note *Risk Management Process* available from the Athena document library and all Risk Champions.

Treat risk

In deciding how to control risk further, we look for ways to:

- remove the source of risk
- change the possibility of the risk event occurring
- change the consequence of the risk event
- share risk with other parties

For risks rated against our corporate risk appetite, decisions regarding further control depend on our risk evaluation rules:

Level of risk	Acceptability	Urgency for implementation of further treatment	Authority for continued tolerance of the risk at this level
Acceptable	Risk can be accepted as it is, without any further risk treatment. Further risk treatment can be performed if it is cost effective.	No further treatment but continue existing control as part of general or routine management activity.	Head of directorate, or function
	Tolerable for a limited period to	As soon as possible, but complete within 3 months.	Executive Management Team

Tolerable	allow treatment to be in keeping with the corporate / directorate / function priorities.		
Not acceptable	Not permitted unless approved by the Board. Reduce the level of risk to amber or green.	Consider stopping the activity until the risk is treated. For complex treatment implement short-term controls with permanent ones completed within 1 month.	Board

Table 2 Risk evaluation rules

Detailed guidance on decision making around controls is available in guidance note *Risk Management Process*, available from the Athena document library and all Risk Champions.

Monitor and review risk

Few risks and risk response plans remain static. Risks change, priorities change, actions get completed, risk responses that were once effective can become less effective, and so on. Therefore, we continually monitor and review our risks.

Outside of the prescribed risk management cycle, risks will emerge. To ensure the risk management process is dynamic and identifies these emerging risks, risk management is an agenda item at Directorate management meetings.

During these meetings, we review the latest risk report and consider the following three questions:

- Are any risks missing from the risk report that should now be included?
- Have any of the risks in the risk register changed significantly in terms of impact and/or likelihood so that they now require additional response actions?
- What is planned in the next 12 months that may give rise to new risks?

Detailed guidance on monitoring and reviewing risk is available in guidance note *Risk Management Process*, available from the Athena document library and all Risk Champions.

Risk reporting

Dependent upon the risk topic, our risk reporting is to both internal and external stakeholders.

Risks that are scored according to Affinity Water's corporate risk appetite are reported to the EMT on a quarterly basis. This report is compiled by the Head of Risk & Insurance, supported by our Risk Champions.

Some reporting that requires information from our risk register tool is also required to external parties such as OFWAT, Water UK, Defra, the Climate Change Committee, and the Task Force for Climate Related Disclosures, among others. These reports are created and submitted following the approval of the Head of Risk and Insurance.

The owner of each risk register ascertains their own reporting requirements in terms of audience, content, format, and frequency. They can extract their own risk information directly from our risk management software.

However, risk management is not restricted only to scheduled dates. In the event of noteworthy change in any risk it is immediately escalated through management hierarchy using the risk evaluation rules shown above.

Elements of the risk management framework

Our risk management process is supported by other elements that collectively comprise our risk management framework.

Risk management objectives

Our risk management policy, issued by our CEO, sets out our intentions and direction regarding risk and risk management. The policy is document is available via the Athena document library. It is adopted by all directorates and functions. It is reviewed every two years or when organisational or strategic changes require it.

For our business to remain effective and efficient we aim for an optimal balance between risk retention, mitigation, and transfer. Risk is an inherent part of our business and we take risk on a controlled and informed basis in pursuit of our objectives.

We define our risk appetite and use it to inform business decisions. It provides assurance to stakeholders that risk is being taken within specified limits. Our corporate risk appetite is shown in Appendix C. How we calculate the corporate risk appetite is set out in the instruction *Risk Appetite*, available from the Athena document library and all Risk Champions.

If a risk register has set its own criteria for scoring risk, with impacts less than the corporate criteria, the red-amber-green *risk levels* still apply because they help us prioritise the risks. However, these risks are not compared with the corporate risk appetite.

Terms and definitions

We adopt standard terms and definitions for our risk management. This gives us consistency of language for risk management, across the organisation.

Our terms and definitions are detailed in the Instruction *Risk management terms and definitions*, reference available from the Athena document library and all Risk Champions.

Risk categories

We group our risks into ten categories. This helps us organise our risk information, look for trends and common themes, and when reporting risk. We use these categories when defining our risk appetite as below.

	In regard to:
1. Operations	Matters relating to water quality
2. Asset health	Physical assets in connection with water supply
3. Financial	Revenue, costs, profit, gearing, liquidity
4. Environmental and sustainability	The external environment
5. Health, safety, and wellbeing	Safe working practices
6. Legal, compliance	Compliance, reputation
7. Security	Vulnerability to internal and external threats, specifically around operational sites
8. Technology	Operational technology, and resilience
9. Information	Quality of, and governance of data
10. People	Our code of conduct
11. Emerging	Newly identified sources of risk
12. Regulatory	Changes in laws and regulations

Table 3 Affinity Water risk categories

Competence

Affinity Water's top management ensures the provision of competent people for risk management activity. To achieve this, we define the levels of risk-related competence, for job roles or bodies of people.

We provide education, training, mentoring, and coaching to enable those holding job roles to achieve the required level of competence.

Risk-related competencies are built into job and role descriptions. They are monitored through our performance management system and personal development plans.

The risk-related responsibilities and accountabilities are detailed in the instruction *Risk management roles and responsibilities*, available from the Athena document library and all Risk Champions.

Risk management tools

Our risk management framework applies enterprise wide. This results in several tools and techniques, templates and practices being used. An illustrative list is provided in Table 4. Their purpose and use are described in detail in specific documentation, available from the Athena document library and all Risk Champions.

Asset Risk Management (ARM)	Procedure and software tool
Risk and Value	Methodology (guidance note)
Root cause analysis	Methodology (guidance note)
Business Impact Analysis	Methodology and template (guidance note)

Table 4 Illustrative list of risk management tools and templates

Risk culture

Human behaviour and attitudes influence all aspects of our risk management arrangements, and at each stage in the risk management process. We design and integrate our risk management arrangements being mindful of Affinity Water's needs and culture. We review the organisation's risk culture on a periodic basis, using the output to inform training and communication, and to adjust our risk management framework.

We promote a culture of learning and experience, to inform improvements in the management of specific risks as well as our risk management framework.

We embed risk management as a part of, not separate from, our purpose, governance, leadership and commitment, strategy, objectives, and day-to-day operations.

Interfaces within Affinity Water

Risk is managed in every part of our organisation. Our risk management framework provides a systematic and consistent approach for managing risk, across the organisation. To achieve this, at the management system level we:

- Embed risk management into the policies, procedures, and practices of directorates and functions
- Develop an awareness of risk and risk management in our people

At the local level this means:

- Our risk champions coordinate and share risk management information across the organisation
- Directorates and functions use common and agreed tools, templates, and techniques such that risk information is identified, recorded, measured, and managed consistently
- Smart risk information provides enterprise-wide insight, identifies possible efficiencies, enables aggregation, informs decision making, and increases transparency

Risk management performance

We monitor and review risk management performance in two ways:

- individual risks
- the risk management framework

The activities we perform in measuring and managing risk management performance, and the performance indicators we use, are detailed in the procedure *Risk Management Performance* available from the Athena document library and all Risk Champions.

We use the output of monitoring and review to continually improve the adequacy and effectiveness of our risk management framework, the way the risk management process is integrated within our organisation, and the management of specific risks.

Appendix A: Affinity Water corporate risk scoring criteria

Note: where bespoke risk criteria is used these categories for impact will be used but the values will be different. Bespoke risk criteria is agreed by the Head of Risk & Insurance.

		Things that are impacted												
	Description	Financial	H&S	Interruption	Water quality	Environmental	Legal or regulatory	Customer communications						
Impact	Critical	> £15m.	Multiple deaths of staff or public / corporate manslaughter.	No water supply for more than 24 hours or more than 1200 property hours.	Deterioration in water quality leading to national focus.	Significant permanent environmental damage to a substantial area / widespread evacuation.	Significant legal / regulatory breaches / prosecution leading to loss of licence.	Unable to communicate with customers for more than a day.	5	5,1 (5)	5,2 (10)	5,3 (15)	5,4 (20)	5,5 (25)
	Major	£10-£15m.	Death or serious injury to staff / member of public.	Interruption to supply of water of 12-24 hours or 600-1200 property hours.	Long term deterioration of water supply / poor quality.	Some permanent damage to a localised area / localised evacuation / significant fish kill.	Significant breaches and prosecution / OFWAT penalties.	Unable to communicate with customers for 8-24 hours.	4	4,1 (4)	4,2 (8)	4,3 (12)	4,4 (16)	4,5 (20)
	Moderate	£5-£10m.	Injury resulting to three days absence. Injury to member of public.	Interruption to water supply of 6-12 hours or 100-600 property hours.	Short term deterioration of water quality resulting in health concerns or widespread aesthetic	Impact on local areas / fish kill/ public complaint or enforcement notice.	Minor legal / regulatory breaches.	Unable to communicate with customers for 2-8 hours.	3	3,1 (3)	3,2 (6)	3,3 (9)	3,4 (12)	3,5 (15)
	Minor	£1-£5m.	Slight injury to staff / member of public.	Interruption of water supply of 3-6 hours or 30-100 property hours.	Wider local impact on water aesthetics.	Low adverse environmental impact.	Legal / regulatory requirement to notify external parties.	Unable to communicate with customers for 1-2 hours.	2	2,1 (2)	2,2 (4)	2,3 (6)	2,4 (8)	2,5 (10)
	Insignificant	< £1m.	Little health or safety impact on staff / member of public.	Interruption to water supply of under 3 hours or under 30 property hours.	Minor local impact on water aesthetics.	Insignificant adverse environmental impact.	Legal / regulatory requirement to note internally.	Few customer complaints.	1	1,1 (1)	1,2 (2)	1,3 (3)	1,4 (4)	1,5 (5)
										1	2	3	4	5
										Remote	Unlikely	Possible	Probable	Almost certain
										No more than once in 10 years	At least once in a five-year period	At least once in a three-year period	At least once in a one-year period	At least once in a 180-day period

Appendix B: Affinity Water risk levels

Regardless of the scoring criteria used, risks are given a risk level according to their Red-amber-green status.

Colour code	Risk level
Dark green	Very low
Light green	Low
Yellow	Moderate
Amber	High
Red	Very high