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## Reporting guidance – Sewer flooding<sup>1</sup>

### Objective

This guidance seeks to enable all companies to report on sewer flooding for the defined year with confidence and at a reasonable level of accuracy and with a common approach. Companies shall apply consistent and robust methods and common assumptions. This will facilitate the comparison of performance across companies by customers, regulators and other companies with reasonable confidence.

### Key Principles

There are several key assumptions made in the compilation of the guidance:

- Reporting of flooding incidents shall be subject to each company's assurance process which is applied to all measures reported annually;
- Companies have a methodology or procedure in place for reporting on flooding incidents. This procedure is reviewed as part of their assurance process.
- There is an assumption that there will be continued improvement by all companies in the short and medium term through innovation, new technology, data quality improvements and staff training;
- The measure assumes a clear and simple approach that can be understood by customers and regulators;
- The essential reporting requirements for reporting on sewer flooding are set out;
- The focus of the guidance is on annual reporting of sewer flooding incidents. It is not intended as a definitive guide to managing the risk of flooding from sewers;
- Exclusions are to be kept to a minimum and shall be consistent with the reasonable expectations of an affected customer.

This is likely to mean that comparisons of historical performance between companies, and of individual companies, may not necessarily be valid. However, it is anticipated that analysis of future individual company year on year trends in performance will be possible.

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<sup>1</sup> This is the same guidance as included in the March 2018 report for Ofwat and Water UK: "Targeted review of common performance commitments".

## Measure Definition

This guidance covers two measures of flooding incidents, both of which shall include flooding due to overloaded sewers (hydraulic flooding) and due to other causes (FOC). The two measures are:

- 1) The number of internal flooding incidents per year;
- 2) The number of external flooding incidents per year.

For both measures, this guidance covers how companies can report the number of incidents a) including and b) excluding the impact of severe weather. Companies should also report how many incidents have been included as a result of activities that were carried out to determine neighbouring properties affected.

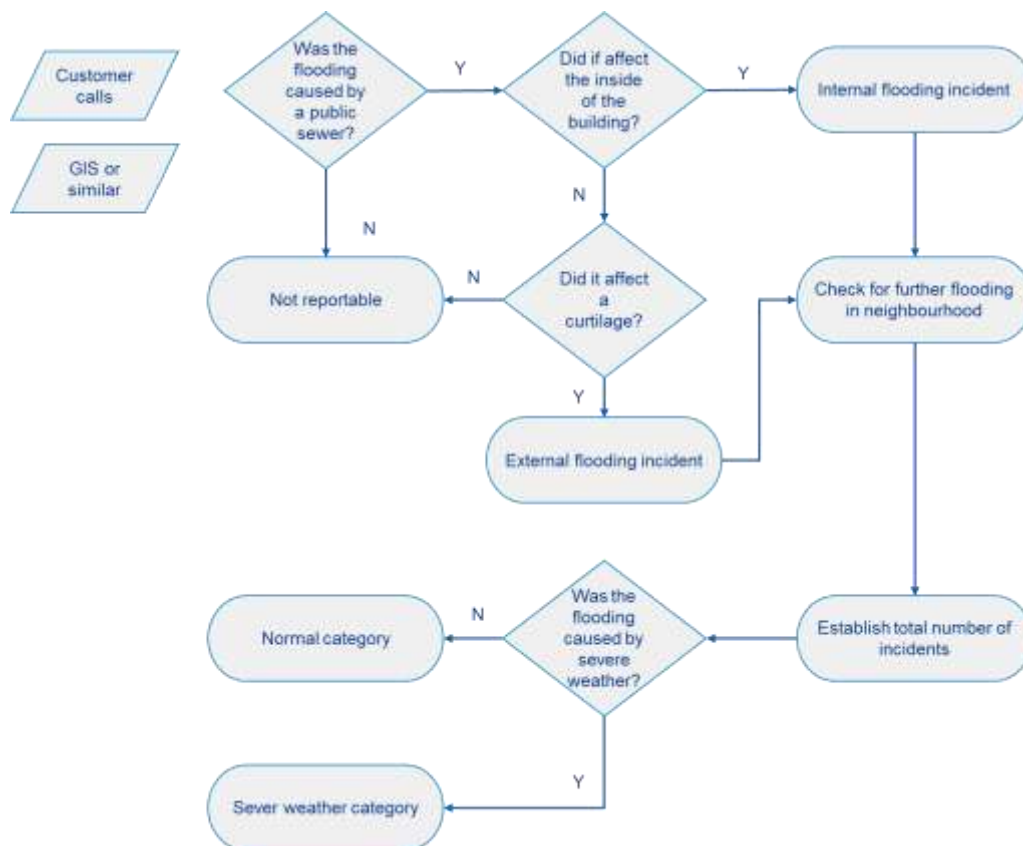
For PR19 Ofwat is requiring companies to use the number of internal flooding incidents per year (including the impact of severe weather) as one of its common performance commitments. Ofwat has also included the number of external flooding incidents per year (including the impact of severe weather) as one of its long list of asset health metrics with standard definitions for PR19.

For the purpose of the return, a flooding incident is defined as the number of properties (or curtilages) flooded during each flooding event from a public sewer. For example, five properties which suffered two flooding events during a year, would count as ten incidents. Where a property floods both internally and externally during the same event it shall only be recorded as an internal flooding incident.

A flooding event is the escape of water from a sewerage system, irrespective of size as evidenced by standing water, running water or visible deposits of silt or sewage solids.

## Process diagram

The diagram below shows a simplified version of the process:



## Assets causing flooding

Incidents caused by an escape from public sewers (whether foul, combined or surface water); including pumping stations, sewage treatment works and other assets under the control of the sewerage undertaker shall be reported. Incidents caused by sewers and laterals transferred under the Transfer of Private Sewers Regulations 2011 and pumping stations transferred in 2016 shall be included.

For the purposes of consistent reporting, flooding caused by the blockage or failure of a gully, shared by two or more properties and connected to a public sewer, or blockage of the gully grating, or the failure of any pipework above ground, shall be excluded. It should be noted that this is not to be taken as an opinion on the legal status of these aspects of drainage apparatus.

Flooding caused by assets which are beyond the undertaker's control is excluded, for example:

Flooding due to surface water run off which has not originated from public sewers:

- Fluvial flooding,

- Coastal flooding,
- Ground water which has not originated from a public sewer,
- Flooding from water mains etc.; or
- Incidents caused by highway drains
- Incidents caused by private assets (including drains). The Water UK “Guide to Transfer of Private Sewers Regulations 2011”, published on 30<sup>th</sup> September 2011 shall be applied to assess if the flooding incident should be attributed to the undertaker or a private asset such as a drain.

## Severe weather

Individual rainfall events with a storm return period greater than 1 in 20 years shall be classed as severe weather. The Flood Estimation Handbook, FEH13 model shall be used to estimate the return periods of individual events, using radar or rain gauge data.

Hydraulic overloading of sewers caused by severe weather shall be identified and recorded separately to other reported incidents.

Flooding caused as a result of outfalls being locked out by receiving watercourses being at or above their 1 in 100 year flood levels, shall also be included in this category.

On an exceptional basis, consideration may be given to include incidents as having been caused by severe weather where flooding is caused by the impact of multiple rainfall events with individual return periods of less than 1 in 20 years but with a cumulative rarity of greater than 1 in 20 years. Any proposal for such categorisation must be supported by robust evidence, tested by the company’s assurance process, and be fully transparent to customers and regulators.

It is the responsibility of the company to evidence why any individual incidents are to be included in this category.

## Determining whether flooding is internal or external

### Internal flooding

Internal Flooding is defined as flooding which enters a building or passes below a suspended floor. In this context, buildings are defined as those normally used for residential, public, community, commercial, business or industrial purposes. The list below gives examples of what parts of buildings shall be included in the internal flooding category. It is not designed to be an exhaustive list.

- The main parts of the building;
- Conservatories;
- Basements and cellars (even if unoccupied);
- Areas below suspended floors;

- Lift shafts;
- Stairwell/lobby area of flats (to be counted as 1 flooded property);
- Any shared car parking areas beneath the main building where access to the parking area is from within the building (to be counted as 1 flooded property);
- Studios and workshops, which are an integral part of the main building.
- Porches;
- Garages which are an integral part of the house with an adjoining door to the occupied building.

## External Flooding

External flooding is defined as flooding within the curtilage of a building normally used for residential, public, community and business purposes. It includes buildings in those curtilages which do not comply with the definition for internal flooding. For example:

- buildings where the prime purpose is for storage or installation of domestic appliances and is not accessed from the house by means of an adjoining door to the habitable building;
- detached garages (whether situated inside the boundary of the property and separated from the main building or outside the boundary but with common access as in a garage block);
- linked detached garages (i.e. garages which are attached to a property but separated from it by an external passageway);
- sheds and outbuildings (e.g. stables, kennels, coal houses, outside toilets);
- summer houses.

In the case of golf clubs or facilities similar in type; flooding of the area immediately adjacent to the club house (paths, patios verandas etc.) and therefore the areas used by people accessing only the facilities in the clubhouse shall be included as external flooding. Each situation needs to be considered on its own merits but it is unlikely that any greens, fairways or rough would be included.

With respect to farms, if there isn't a defined farmhouse and garden boundary akin to a typical domestic property, an appropriate allowance should be made for land that would equate to a garden.

In the case of a flooding event affecting a multiple use area in the same ownership, such as an industrial park, retail park, hospital site, university site etc., it shall be counted as one incident. This includes sections of car parking (possibly termed overflow carparks) that are separated from the main carpark or a facility by a road.

The following areas shall be excluded from the reported numbers:

- 'highways' – including footpaths; and
- 'public' open space; agricultural land; car parks including overflow carparks.

## Repeat incidents

Where a flooding has occurred, and flooding subsides any subsequent flooding shall be counted as a separate incident. This shall be regardless of the time between events and if any investigation or follow on work has started or been completed.

## Further clarification

Flooding due to third party action shall be included in all cases.

Any flooding due to jetting shall be included, unless the water is fully contained within a toilet bowl.

Damp patches caused by seepage through walls or floors shall be excluded, but any area which has visible standing or running water or which has visible deposits of silt or sewage solids shall be included.

If there is a strong suspicion of potentially fraudulent reports of flooding made with the intention to gain GSS payments or receive increased service, and there is no evidence of flooding, companies should exclude the incidents unless the customer provides substantiation that the flooding occurred. Any proposal for such categorisation must be supported by robust evidence, tested by the company's assurance process, and be fully transparent to customers and regulators.

## Neighbouring properties

Companies shall make all reasonable efforts to determine the number of properties affected by flooding. This should include site visits to the affected property and all neighbouring properties that may have been affected taking into account factors such as topography and the proximity of adjacent properties. The company shall actively seek evidence of flooding. It should include the use of modelling where this is appropriate. Calling cards shall be left, if the customer is unavailable.

It is recognised that a prescriptive methodology that is appropriate for all circumstances cannot be defined. Companies are therefore expected to be able to demonstrate that the processes that they have in place could and would be consistently applied if different personnel attended a similar incident in a similar location.

As noted in Measure Definition, additional neighbouring properties identified by a company should be flagged as such and the percentage found in this way reported.

If there is clear site evidence that a property has flooded then the incident shall be included despite the absence of a customer report, or a denial by a customer that flooding occurred. Where the customer is not present, companies should leave a calling card stating that they

have enquired about a recent incident and encouraging the customer to make contact with the company.

## **Records**

Companies shall maintain verifiable records for all reported flooding incidents irrespective of whether they are included. The aim of the records is to provide an auditable method for identifying the specific incidents that are included and excluded from the return.

## **Risk**

Companies shall develop their own approach to managing the risk of flooding from sewers.

## **Methodology statement**

Companies shall maintain a methodology statement. It shall be used as a decision support tool to expand on this document as necessary. It should record any changes in approach compared to previous years.

## **Compliance Check List**

The compliance checklist in Annex A shall be completed and presented with the reported figure.

## Annex A: Compliance Checklist

In the guidance, a company is requested to complete this checklist for submission with the number of sewer flooding incidents

The elements of each component to be assessed separately based on the following rules:

Compliance for elements is reported against:

<b>R</b>	Not compliant with the guidance and having a material impact on reporting
<b>A</b>	Not compliant with the guidance and having no material impact on reporting
<b>G</b>	Fully-compliant with the guidance

An overall RAG to be assigned for each component based on the following rules:

Compliance for overall components is reported against:

<b>R</b>	There are one or more red elements in the component or the combined effect of amber elements is considered to produce a material impact.
<b>A</b>	Half or more of the elements in the component are amber and the combined effect of the amber elements is considered not to produce a material impact.
<b>G</b>	More than half of the elements in the component are green

	<b>Component</b>	<b>Compliant (R/A/G)</b>	<b>Reason for any non-compliant components</b>	<b>Confidence grade</b>
1	Assets causing flooding			
2	Severe weather			



a	Individual rainfall events > 1 in 20 years			
b	Multiple rainfall events			
c	Surface water run-off not originated from public sewer			
d	River levels > 1 in 100 year return period			
e	FEH13			
3	Internal or external flooding			
a	Internal			
b	External			
4	Repeat incidents			
5	Neighbouring properties			
6	Records			

For each component on the checklist, and for the overall performance measure, companies will report a confidence grade.

Confidence grades provide a reasoned basis for companies to qualify the reliability and accuracy of the data. Companies should employ a quality-assured approach in the

methodology used to assign confidence grades, particularly if sampling techniques are in place.

The confidence grade combines elements of reliability and accuracy, for example:

A2Data based on sound records etc. (A, highly reliable) and estimated to be within +/- 5% (accuracy band 2)

Reliability and accuracy bands are shown in the tables below.

<b>Reliability Band</b>	<b>Description</b>
A	Sound textual records, procedures, investigations or analysis properly documented and recognised 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.

<b>Accuracy band</b>	<b>Accuracy to or within +/-</b>	<b>But outside +/-</b>
1	1%	-
2	5%	1%
3	10%	5%
4	25%	10%
5	50%	25%
6	100%	50%
X	Accuracy outside +/- 100 %, small numbers or otherwise incompatible (see table below)	

Certain reliability and accuracy band combinations are considered to be incompatible and these are blocked out in the table below.

<b>Compatible confidence grades</b>				
<b>Accuracy band</b>				
	A	B	C	D
1	A1			
2	A2	B2	C2	
3	A3	B3	C3	D3
4	A4	B4	C4	D4
5			C5	D5
6				D6
X	AX	BX	CX	DX