Chapter 2
Key outputs
Water service - 2

Covering:
DG2 Pressure of mains water
DG3 Supply interruptions
DG4 Restrictions on use of water

Chapter 2
Key outputs
Water service – 2

- **DG2 Properties receiving pressure/flow below the reference level**
  The aim of this indicator is to identify the number of properties that have received and are likely to continue to receive pressure below the reference level when demand is not abnormal. It also aims to capture the average cost of solving DG2 problems.
- **DG3 Properties affected by supply interruptions**
  The aim of this indicator is to identify the number of properties affected by planned and unplanned supply interruptions lasting longer than 3 hours, 6 hours, 12 hours and 24 hours.
- **Population**

- **DG4 Restrictions on use of water**.
  The aim of this indicator is to identify the population affected by restrictions on water use and their duration.

The information in this table is used to monitor and compare company performance against the DG indicators. It is published, in summary, in the annual 'Levels of service' report.

Lines 1 to 4: DG2 Properties receiving pressure/flow below the reference level

Aim

To identify the number of properties which have received and are likely to continue to receive pressure below the reference level when demand is not abnormal. To capture the average cost of solving DG2 problems.

Common definitions

To ensure consistency of information returns the following regularly used terms are defined below:

Reference level: The reference level of service is a flow of 9 l/min at a pressure of 10m head on the customer's side of the main stop tap (mst). The reference level applies to a single property.

The reference level of service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap.

Where a common service pipe serves more than one property, the flow assumed in the reference level must be appropriately increased to take account of the total number of properties served.

For two properties, a flow of 18 l/min at a pressure of 10m head on the customers' side of the mst is appropriate. For three or more properties the appropriate flow should be calculated from the standard loadings provided in BS6700 or Institute of Plumbing handbook. See below for a tabulation of minimum mains pressures for the reporting of low pressures on common services.

Surrogate for the reference level: Because of the difficulty in measuring pressure and flow at the mst, the company may measure against a surrogate reference level. The company should use a surrogate of 15m head in the adjacent distribution main unless a different level can be shown to be suitable. In some circumstances NI Water may need to use a surrogate pressure greater than 15m to ensure that the reference level is supplied at the customer's side of the mst (for example in areas with small diameter or shared communication pipes).

Common supplies: Common supplies are where a communication pipe supplies more than one property. The required pressure in the adjacent water main used to estimate properties affected should exceed those given in the table in the guidance section. This table is intended to be a guide to the absolute minimum service acceptable over an hour (i.e. it is not based on an instantaneous peak flow). The calculations

assume delivery of 9 l/minute upstairs to a combination tank (not in the loft) in the end property on a common service of half-inch bore.

The calculations use the BS 6700 loading units (LU) basis, but at 3LUs per property (9 l/minute). The LU calculations on larger groups of properties (i.e. more than 100) give instantaneous flows of between 4 and 8 times the peak hour flow rates actually observed on local distribution systems, subject to leakage and hose pipe assumptions. Accordingly, the use of 3LUs per property is taken as an acceptable minimum.

Allowable exclusions: There are a number of circumstances under which properties identified as receiving low pressure should be excluded from the reported DG2 figure. The aim of these exclusions is to exclude properties which receive a low pressure as a result of a one-off event and which, under normal circumstances (including normal peaks in demand), will not receive pressure or flow below the reference level. For exclusions see the guidance section.

Guidance

Surrogate for the reference level: Where the company chooses to report against a surrogate pressure of less than 15m, evidence must be provided that this is sufficient to provide the reference level of service for all properties taking into account the length and condition of communication pipes and head loss through any meters or other company fittings. Any assumption made must be clearly stated in the methodology. A surrogate pressure which will only provide the reference level for average properties (i.e. for average length communication pipes in good condition with no meter fitted) is not appropriate because some properties will have communication pipes longer than average; others will be in a poor condition or have meters fitted. Allowance must be made in such instances.

If a higher surrogate is used, the assumptions should be clearly stated in the methodology.

Headline DG2 figure: This is an estimate of the total number of properties in the company's area that are below the reference level. Therefore, if the reported figure is likely to represent an underestimate (or an overestimate) this must be reflected in the assessment of the reliability and accuracy of the reported information.

In practice the company will report the number of properties served by a main in which the measured pressure falls below the surrogate for the reference level (usually 15m head in the adjacent distribution main) subject to the allowable exclusions. The reported DG2 figure is not necessarily the same as the number of properties on the DG2 register, which should contain additional information and provide a wider database than a list of known DG2 problems.

The figure for the start of the report year will be the figure from the end of the previous report year and will be downloaded from the previous Annual information return.

The company is also asked to provide an estimate of the number of properties included in the end of year DG2 figure which have a pressure below a surrogate level of 7.5m.

Estimated figures: The company may include in its reported DG2 figures estimates for the number of properties which are below the reference level but which have not yet been specifically identified. It must be clearly stated in the commentary whether or not such an estimate for DG2 is included and, if so, the number of properties involved. The basis for the estimate must be explained in the methodology.

Article 105 of the Water and Sewerage Services (NI) Order 2006: In some circumstances the company does not have a duty to provide customers with a constant supply of water under pressure (usually because the properties cannot be supplied by gravity from an existing service reservoir). **If such properties receive a level of service below the reference level they must be included in lines 2, 3 and 4a**, unless allowable exclusions apply (i.e. properties within 7.5m or 15m of the service reservoirs do not represent allowable exclusions), when they should be included in line 4 of the reported DG2 figures. The company should confirm if it has done this in its commentary stating the number of properties affected and identify the number of properties included in each line.

Allowable exclusions: The company must maintain verifiable, auditable records of all the exclusions that it applies in order to confirm the accuracy and validity of its information.

All properties identified as having received pressure or flow below the reference level must be reported under DG2, unless it can be confirmed that they are covered by one of these exclusions.

- **Abnormal demand**: This exclusion is intended to cover abnormal peaks in demand and not the daily, weekly or monthly peaks in demand which are normally expected.

  The company may be more affected by low pressures caused by occasional prolonged peaks in demand than by a few abnormal peak days each year. If this is the case, instead of excluding up to five days each year, the company may choose to apply the abnormal demand exclusion over a five-year period. This will allow the company to exclude from its DG2 figures properties affected by low pressures that occur on any 25 days in a rolling five-year period.

  For the purpose of DG2, the 'excluded day' may be applied to the company as a whole or at the level of individual zones. However, in either case, once a property has suffered low pressures on either more than five days in one year or 25 days in five years, it must be added to the reported figures for DG2.

  Option 1 - During the report year, the company may exclude for each property a maximum of 25 days of low pressure caused by abnormal demand in a rolling five-year period. The company should exclude from the reported DG2 figures properties that are affected by low pressure only on the days identified as "high demand" in the report year. In years where demand is normal (i.e. the exclusion is not being used), properties affected by relevant low pressure incidents should be reported as receiving low pressure (unless covered by one of the other exclusions).

  Option 2 - Where extensive pressure logging covering the majority of properties in the supply area is used, the company may exclude properties where logger records verify that up to five incidents of low pressure lasting more than one hour have occurred. Under this option, it is not necessary to match the low pressure incidents with high demands. If the company chooses this method it must include the number of properties that suffer more than five incidents of low pressure lasting more than one hour in the reported figure without necessarily identifying the specific occasions and reasons for abnormal demand. If this method is used, no other allowance may be made for abnormal demand but the other exclusions still apply.

  The company must clearly state in its methodology which approach it has adopted in applying this exclusion, list the distribution or supply zones it has chosen and the number of days excluded. If the exclusion is applied at the level of individual zones, rather than to the company as a whole, the company must maintain verifiable records which list the number of 'excluded days' used for each distribution zone each year.
- **Planned maintenance**: The company should not report low pressures caused by planned maintenance under DG2. It is not intended that the company should identify the number of properties affected in each instance. However, sufficiently accurate records must be maintained to verify that low pressure incidents that are excluded from DG2 because of planned maintenance are actually caused by maintenance.

- **One-off incidents**: This exclusion covers a number of causes of low pressure:
  - mains bursts;
  - failures of company equipment (such as PRVs or booster pumps);
  - fire-fighting; and
  - action by a third party.

  If problems of this type affect a property frequently, they cannot be classed as one-off events and further investigation will be required before they can be excluded.

- **Low pressure incidents of short duration**: Properties affected by low pressures which only occur for a short period, and for which there is evidence that incidents of a longer duration would not occur during the course of the year, may be excluded from the reported DG2 figures.
  - In locations where NI Water carries out continuous pressure logging year round, low pressure incidents of less than one hour may be excluded from DG2.

- Where short term or intermittent logging is used, if all low pressure incidents lasting less than one hour are excluded there is a danger that properties which are actually below the reference level will be missed from the DG2 figures. In this case a suitable minimum duration depends on the exact methodology used but may be 30 or even 15 minutes. If logging is carried out at times when low pressures are unlikely to be detected because demand is low, the results cannot be used to confirm zero returns for DG2.

The company should state in its commentary what has been excluded from the DG2 figures and is included in line 4. The company should include details of any significant changes in the number of exclusions and the reason for these.

Common services: The company should establish the numbers of properties supplied via common services from sample investigation of the distribution system. Many instances of low pressure in these situations are presently unreported. Not all of these properties have either loft tank storage or any water supply upstairs.

The company is required to report the numbers of properties on common services that have received and continue to receive pressures below the reference level, and include these in the reported numbers under DG2. The commentary must state the number of properties on common services that have been included in the reported figures including the number of properties included in each line (2, 3 & 4a).

The company may use its own calculations but the required pressure in the adjacent water main used to estimate properties affected should exceed those given in the table below. This table is intended to be a guide to the absolute minimum service acceptable over an hour (i.e. it is not based on an instantaneous peak flow). The calculations assume delivery of 9 l/minute upstairs to a combination tank (not in the loft) in the end property on a common service of half-inch bore. The calculations use the BS 6700 loading units (LU) basis, but at 3LUs per property (9 l/minute). The LU calculations on larger groups of properties (i.e. more than 100) give instantaneous flows of between 4 and 8 times the peak hour flow rates actually observed on local distribution systems, subject to leakage and hose pipe assumptions. Accordingly, the use of 3LUs per property is taken as an acceptable minimum.

Number of properties fed from one direction on common service	Pressure (in head) required in adjacent main			
	Half-inch communication pipe		Three quarter-inch communication pipe	
	Short side	Long side	Short side	Long side
2*	10	11	10	11
3	12	14	11	13
4	15	18	13	16
5	19	23	16	20
6	25	29	21	24
7	30	35	25	28
8	37	42	31	33
9	45	51	38	40
10	54	61	46	48

Note: if delivery to a loft tank is taken to be the minimum acceptable service, not less than 3 m pressure should be added to the above tabulated values.

* The values calculated for two properties are theoretical: for delivery to a loft, the usual surrogate of 15 m head to a single property should be taken as a minimum reference level.

The section on the reference level refers to the need for the company to use a higher flow rate in the reference level for common services and sets out the criteria for determining appropriate flows in these circumstances.

These criteria are not intended to extend the company's responsibility to solving problems caused by deficiencies in customers' pipes. Its aim is to ensure that there is a proper recognition of pressure and flow problems which affect properties sharing common services, where there is a deficiency in the part of the apparatus which is the company's responsibility (e.g. an undersized communication pipe which is unable to provide sufficient flow).

For the purpose of DG2, properties with the common service pipes can be split into four categories:

- Company and customers' apparatus are adequate:
  - no problems with pressure or flow, nothing to report for DG2;
- Company apparatus adequate, but customers' pipework is deficient:
  - pressure and/or flow problems which are not reportable under DG2 because company pipes are able to provide sufficient pressure and flow to the limit of company responsibility;
- Company apparatus is inadequate but customers' pipework is adequate:
  - pressure and/or flow problems which are reportable under DG2 because there is a deficiency in the company's apparatus;
- Both the company's and the customers' apparatus is inadequate:
  - pressure and/or flow problems are reportable under DG2.

Of these four categories, only the last two fall within DG2.

NIAUR recognises that in cases covered by the final category it may not always be sensible for the company to take unilateral action to solve the DG2 problem unless the customer takes some action to improve their own pipework. Nevertheless, these problems must be included in the reported DG2 figures. If significant, the company should report in its commentary the number of properties which are below the DG2 reference level but the company cannot solve because there are also defects in the customer's part of the system.

The commentary should also state the number of properties reported due to the effect of common service pipes. Company methodologies should discuss how common service problems are identified and assessed and include reference to standard loadings.

In addition, the company is required to estimate the number of properties on common services that may receive pressures below the reference level. This information will provide a broad indication of the scale of the potential problems yet to be investigated; it is anticipated that, upon investigation, some but not all of these estimated properties may be included on the DG2 register in future years. These estimates must not be included in the reported figures, but highlighted in the commentary.

The company should clearly account for the movement between the ‘start of year’ and ‘end of year’ DG2 figures reported in lines 2 and 3 in its commentary.

Cost calculations

The problem solving costs in line 4c should be calculated using the costs and outputs of schemes completed during the report year. The company should identify and use the cost of resolving low pressure within the overall scheme. The allocation should exclude specific asset maintenance costs to such as the rehabilitation of a water main or the maintenance of a pumping station.

The denominator should reflect the number of confirmed DG2 properties removed by the expenditure. Future benefits (i.e. properties that will not be added to the register over the planning horizon as a consequence of the scheme) should not be included.

Records

The company must maintain verifiable records for DG2. The aim of the records is to provide an auditable method for identifying the specific properties affected by low pressures and the cause of the low pressure.

The DG2 Register: The company must maintain a register that should form a database of all properties that experience problems with pressure or flow.

It will enable the identification by address of individual properties which are below the reference level. It should also contain information on, for example, complaints and the results of their investigation, problems which are attributable to customers' apparatus and properties which experience low pressure but are covered by one of the allowable exclusions.

The register must clearly identify those properties reported under DG2 and distinguish them from those that receive low pressure but are excluded from DG2, and provide a verifiable reason for the exclusion (e.g. as abnormal demand or short duration of low pressure).

The records should include:

- the address of the property affected;
- the method of assessment;
- the cause of low pressure;
- details of incidents identified (date, time, duration, minimum pressure, and whether covered by an exclusion);
- action taken to resolve the problem (if any); and
- the name of person responsible for the information.

Properties should only be removed from the DG2 figures and the register when there is a specific and auditable reason for doing so.

Company commentary

The company should:

- comment on significant year on year changes in reported figures explaining any factors that may have influenced figures;
- state whether or not company includes an estimate for the number of properties which are below reference level but which have not yet been specifically identified.
- Confirm that company has reported Article 105 of the Water and Sewerage Services (NI) Order 2006 properties stating the number such properties included in lines 2, 3 and 4a.
- State what exclusions have been used and are included in line 4 and comment on any significant increases/decreases in figures and the reasons for these;
- state the number properties on common services that have been included in the figures reported in lines 2, 3 and 4a;
- report in its commentary the number of common service properties which are below the DG2 reference level but the company cannot solve because there are also defects in the customer's part of the system;
- state the number of properties reported that are served by common service pipes.
- Estimate the number of properties on common services that may receive pressures below the reference level.
- state any assumptions and estimates made in reporting the figures;
- state whether any allowance has been made for problems as yet undiscovered; and
- justify the assigned confidence grades including an explanation for any changes in confidence grades from previous years. Confidence grades should take account of areas where the company does not meet the reporting requirements.
- describe its methodology for assessing the number of DG2 properties at the end of the year which have a pressure below a surrogate level of 7.5m.
- Clearly account for the movement between the 'start of year' and 'end of year' DG2 figures reported in lines 2 and 3. In doing so the company should provide all necessary information to allow the movement in the low pressure figures to be reconciled, including:
  - The number of confirmed DG2 properties which have been removed from the headline figure due to 'company action' through operational improvements
  - The number of confirmed DG2 properties which have been removed from the headline figure due to improvements delivered through capital investment.
  - The number of properties that have been removed from the headline figure due to 'better information' (i.e. properties originally thought to be DG2 properties which have subsequently

been proven not to be as a result of detailed pressure logging). Additionally the company should identify:

- The number of properties included in the 'start of year' headline figure which were subject to planned validation through detailed pressure logging during the year.
- The number of properties included in the 'start of year' headline figure that the company had planned to validate through pressure logging during the year which were actually logged.
- The number of these properties that were confirmed as having low pressure and that became validated 'low pressure' properties on the register.
- The number of **new** 'low pressure' properties identified as a consequence of the validation work.
- The number of properties that still have to be validated.

– The number of properties added to the headline figure during the year due to 'better information'. That is properties which should have previously been included in the figures that have now been identified though improved knowledge (for example as a consequence of extended modelling, better estimates etc). This should include additional properties identified through the logging process undertaken to validate existing properties on the register.
– The number of properties added to the register during the year due to increased demand or pressure modification (i.e. properties which previously received adequate pressure).

- Confirm whether the 'phasing' assumption in relation to the removal of properties from the register is consistent to that reported in the company PC10 business plan submission (i.e. one year lag in confirming that properties can be removed from the register). The company should identify the number of properties alleviated by company action which are awaiting completion of a PPA to allow them to be removed from the register.
- Provide details of the number of properties and costs used to calculate the 'average capex cost of permanent solutions to DG2 problems'. In providing this information the company should highlight any ongoing limitations in estimating expenditure in accordance with the reporting requirements. It should also comment on any changes in methodology for estimating costs from previous years, quantifying the impact of these changes where possible.
- Provide details of actions taken to complete work to improve records of properties at risk of receiving low pressure and ensure continuity of company action to address low pressure.

Methodology statement

The methodology statement should clearly describe and explain the methods and procedures adopted in order to monitor and report on the levels of service the company provides to its customers. It should follow the layout given in the introduction to the reporting requirements.

In particular the company should:

- state any assumption made for surrogate for the reference level to take into account length and condition of communication pipes and head loss through any meters or other company fittings;
- If a higher surrogate is used, the assumptions should be clearly stated in the methodology;
- State the basis for the estimate of properties included which are below reference level but have not yet been specifically identified.
- Discuss how common service problems are identified and assessed and include reference to standard loadings.
- Describe its methodology for assessing the number of DG2 properties at the end of the year which have a pressure below a surrogate level of 7.5m.
- Confirm any 'phasing' assumptions applied by the company to the removal of properties from the register.

Guidance to Reporter

The reporter should:

- Comment on any significant year on year changes in reported figures explaining any factors that may have influenced figures.
- Confirm whether all methods used by the company are as the company has described.
- Confirm whether the company has disclosed all assumptions.
- Confirm whether the confidence grades assigned by the company reflect the methods it applies.
- Confirm the exclusions used by the company in line 4.
- Confirm that the company has included Article 105 properties, as described in the guidance section above, within the figures.
- Confirm that the DG2 register contains the requested information and note any instances where the register does not meet the reporting requirements.
- Comment on any area of concern/action arising from previous Annual information return.
- Comment on any area/policy that does not meet the reporting requirements.
- Comment on the methods used by the company. In particular:
  - look carefully at any sampling techniques used by the company, confirm whether in all circumstances where sampling is used, all weaknesses have been exposed by the company; and
- Describe in detail the checks that the reporter has carried out in order to be able to confirm and comment on each of the points set out above. Including for example how the reporter has selected any samples for audit from the full population; quantity sampled; robustness of sample; materiality of assumptions and any weaknesses; discussions held with company staff.
- Review and comment on the appropriateness of the company's methodology for assessing the number of DG2 properties at the end of the year which have a pressure below a surrogate level of 7.5m.
- Confirm that the company has clearly and accurately accounted for the movement between the 'start of year' and 'end of year' DG2 figures reported in lines 2 and 3. In doing so the company should have provided all necessary information to allow the movement in the low pressure figures to be reconciled, including:
  - The number of confirmed DG2 properties which have been removed from the headline figure due to 'company action' through operational improvements
  - The number of confirmed DG2 properties which have been removed from the headline figure due to improvements delivered through capital investment.
  - The number of properties that have been removed from the headline figure due to 'better information' (i.e. properties originally thought to be DG2 properties which have subsequently been proven not to be as a result of detailed pressure logging). Additionally the company should identify:
    - The number of properties included in the 'start of year' headline figure which were subject to planned validation through detailed pressure logging during the year.
    - The number of properties included in the 'start of year' headline figure that the company had planned to validate through pressure logging during the year which were actually logged.
    - The number of these properties that were confirmed as having low pressure and that became validated 'low pressure' properties on the register.
    - The number of **new** 'low pressure' properties identified as a consequence of the validation work.
    - The number of properties that still have to be validated.
  - The number of properties added to the headline figure during the year due to 'better information'. That is properties which should have previously been included in the figures that have now been identified though improved knowledge (for example as a consequence of extended modelling, better estimates etc). This should include additional properties identified through the logging process undertaken to validate existing properties on the register.
  - The number of properties added to the register during the year due to increased demand or pressure modification (i.e. properties which previously received adequate pressure).
- Confirm that the company has accounted for any 'phasing' in relation to the removal of properties from the register accurately in the figures and described this in its commentary/methodology.

- Comment on the company's calculation (including the proportional allocation of costs) for determining the 'average capex cost of permanent solutions to DG2 problems' and any changes in the company's approach to assessing these costs.
- Comment on action taken to complete work to improve records of properties at risk of receiving low pressure and ensure continuity of company action to address low pressure.

Lines 5 to 19: DG3 Properties affected by supply interruptions

Aim

To identify the number of properties affected by planned and unplanned supply interruptions lasting longer than 3 hours, 6 hours, 12 hours and 24 hours.

Common definitions

To ensure consistency of information returns the following regularly used terms are defined below:

Supply interruption is defined as when customers are without a continuous supply of water.

Duration is defined as the length of time for which customers are without a continuous supply of water. An interruption starts when water is unavailable from the first cold tap in a property and finishes when the supply is restored to the tap.

End time is when the company is satisfied that water has been fully restored to an acceptable pressure to the affected properties. Your methodology statement should set out what method you use to determine the end time of an interruption (this may be different for different types of interruptions), for example:

- Opening of valves;
- Telemetry / modelling data;
- Confirming that supply has been restored with customers either by visits or telephone calls;
- Where mains are charged to a minimum of **X** bar pressure and where this is measured; and
- Time on the customers warning card.

A third party is defined as anyone who does not act for, or on behalf of, the company. It therefore excludes agents, contractors and other parties acting with the authorisation of the company. This category is intended to cover damage to a company's mains or other equipment which either directly causes a loss of supply or which requires an unplanned interruption to supply to repair the damage inflicted.

Where an unplanned interruption is not caused by a third party, but repair may be delayed by a third party, for example, when a gas main runs close to a water main and needs to be isolated. The whole of the duration of the interruption **must** be reported as an unplanned interruption. The company can describe the event in its commentary.

Guidance

Properties affected by interruptions: The number of properties affected by interruptions of more than 3, 6, 12 and 24 hours split into the four categories of unplanned; planned and warned; unplanned but caused by third parties; and unplanned due to overruns of planned and warned interruptions.

Interruptions should be reported under each relevant time band so that the category for interruptions exceeding:

- 3 hours also includes all interruptions lasting more than 6 hours;
- 6 hours also includes all interruptions lasting more than 12 hours; and
- 12 hours also includes all interruptions lasting more than 24 hours.

Each interruption should be classed as a single interruption event, and should be recorded under only one of the four categories of: unplanned; planned and warned; interruptions caused by third parties; or unplanned

due to overruns of planned interruptions. Where planned and warned interruptions overrun, these should be reported as overruns of planned interruptions. If there are a significant number of overruns between 3 and 6 hours, the number should be reported in your commentary.

Properties affected by more than one interruption during the report year: Properties, which are affected by more than one interruption during the report year, should be reported separately for each interruption. This means, for example, that a property affected by three supply interruptions would be reported three times, once for each interruption. Where properties are affected by repeat interruptions on the same day, these should only be counted separately where there is a minimum of one hour between the interruptions for the supply to be available (e.g. to refill storage tanks). When shorter gaps occur the duration is counted from the start of the first interruption until the last restoration of supply.

Duration: An interruption to supply is defined as starting as soon as water is no longer available from the first cold tap in the property. It does not necessarily commence when the company first takes action, for example, by closing a valve (the interruptions may have started some time earlier). The company is expected to ascertain the approximate time when customers first lose their supply.

In practice, it may not always be possible to determine when supply was first lost and the company may have to use the time when customers first noticed the loss of supply. If this cannot be established, the company should use the time at which it was first notified of the interruption.

Third party: Unplanned and un-warned interruptions for 3, 6, 12 and 24 hours respectively due to third parties should be reported in lines 13 to 16.

Properties affected by interruptions due to electricity supply failure must not be reported under this category. Instead they must be reported as unplanned, un-warned interruptions. However, the company should report in the commentary the number of properties affected by interruptions caused by loss of electrical supply, if it is believed to be significant and to adversely affect company performance.

Bulk supply failure: This is not a third party incident. These should be reported as an unplanned interruption by the company receiving the bulk supply (i.e. the company whose customers are affected). The bulk supplier does not need to report this unless they have separate customers affected by the same event.

The undertaker for the area is liable even in circumstances where the supplier undertaker is the cause of the interruption to supply. The duty of supply rests with the undertaker for the area and it must resolve potential supply problems with the supplier undertaker contractually in the bulk supply agreement.

For the purposes of any related reporting of GSS events (table 6). The supplier undertaker is supplying water to consumers on behalf of the undertaker for the area and, as such *is an agent* for that undertaker.

PPP supply failure: For the sake of clarity, PPP supply failures should be treated the same as Bulk Supply Failures.

Major incidents: The company should report in its commentary any major incidents during the report year that it believes adversely affected DG3 performance, quantifying the impact and detailing the method used to quantify the impact where possible.

Planned interruptions: So far as customers are concerned there is no difference between unplanned interruptions and planned but unwarned interruptions. Each property affected should be given warning at least 48 hours in advance. How the company determines reported duration of a planned and warned interruption should be set out in the methodology statement, e.g., equal to the warned time or the actual time or other combination.

Records

The company must maintain a record of all incidents of supply interruptions lasting longer than three hours in the form of a DG3 register.

The aim of the register is to allow verification and audit of the reported information for DG3 and to enable the identification of the properties affected. It should contain information on the timing, duration and cause of

each interruption and sufficient information to enable all properties affected by interruptions lasting more than three hours to be identified. Therefore, the register should include:

- properties affected (by name and location or number and street);
- date and time of interruption;
- duration of interruption and time supply restored;
- cause of interruption;
- notice given; and
- the name of the person responsible for entering records in the system.

The information in the DG3 register should be available for verification of incidents and claims for payment under the GSS.

Company commentary

The company should:

- comment on significant year on year changes in reported figures, explaining any factors that may have influenced the figures;
- ensure comparability of information. The company must report in the return tables against the DG's definitions, not the company's own internal standards. However, if NI Water wishes to report additional information on performance against alternative standards this may be included in the commentary but the alternative basis must be clearly stated. Any figures relating to the alternative standard must be clearly identified as such to avoid confusion.
- identify in its commentary any properties which suffered an interruption to supply where the company considers that customers would not notice the loss of service, for example because it occurred at night;
- report in the commentary the number of overruns of planned and warned interruptions lasting between 3 and 6 hours;
- report the number of properties affected by interruptions caused by loss of electrical supply, if it is believed to be significant and to adversely affect company performance; and
- report any major incidents during the report year that it believes adversely affected its DG3 performance, quantifying the impact and detailing the method used to quantify the impact where possible;
- Justify the assigned confidence grades including an explanation for any changes in confidence grades from previous years. Confidence grades should take account of areas where the company does not meet the reporting requirements.

Guidance to Reporter

The Reporter should:

- confirm whether all methods used by the company are as the company has described;
- confirm whether the company has disclosed all assumptions;
- confirm whether the confidence grades assigned by the company reflect the methods it applies;
- confirm that the DG3 register contains the requested information and note any instances where the register does not meet the reporting requirements;
- comment on any areas of concern / actions arising from previous Annual information return;
- comment on any areas that do not meet the reporting requirements;
- comment on the methods used by the company. In particular:
  - the reporter should look carefully at any sampling techniques used by the company, confirm whether in all circumstances where sampling is used, all weaknesses have been exposed by the company; and
  - pay particular attention to company methodology for and the reporting of the duration of events, including intermittent events at the same location.
- comment on evidence seen to support the application of the company process for determining "end time" (e.g. how the company makes sure that supply has been restored to all customers); and
- describe in detail the checks that the reporter has carried out in order to be able to confirm and comment on each of the points set out above. Including for example how the reporter has selected any samples for audit from the full population; quantity sampled; robustness of sample; materiality of assumptions and any weaknesses; discussions held with company staff.

Line 20: Population

Company commentary

The company should comment on significant year on year changes in reported figure.

Guidance to Reporter

The reporter should comment on:

- the source of data, particularly if based on company's updates of these estimates.

Lines 21-23: DG4 water usage restrictions

Aim

To identify the population affected by restrictions on water use and their duration.

Common definitions

Population affected is defined as the population connected to the water distribution system that is affected at any time, regardless of duration, by the relevant restriction.

Duration is defined as the duration (in weeks) of the restriction.

Hosepipe restrictions are defined as applying to those area(s) where legal notification has been published restricting the use of hand held hosepipes. This will normally be via notifications in the Press that the use of hosepipes is banned.

Sprinkler/unattended hosepipe restrictions are defined as applying to those area(s) where legal notification has been published restricting the use of sprinklers/unattended hosepipes. This will normally be via notifications in the Press that the use of sprinklers/unattended hosepipes is banned.

Drought Orders: The population affected by Drought Orders shall include all areas where Drought Orders under Part V Chapter I and Schedule 5 of the Water and Sewerage Services (NI) Order 2006 have been approved by the Minister and implemented by the company.

Further restrictions: The population affected by the use of stand pipes shall not include areas where the use of stand pipes is for reasons other than a resource shortage. When stand pipes have been used for resource reasons this should be the subject of a separate report in the commentaries, providing full details of the background to the decision to use stand pipes. Where other restrictions are used these should be described in the commentary and the population affected and duration of the restrictions must be reported.

Guidance

Duration of restrictions: To recognise that the duration of any restriction is also an important aspect of the service provided to customers, the company imposing restrictions must complete a timetable of hosepipe and/or sprinkler/unattended hosepipe restrictions (format shown below). This timetable should form part of the company's commentary. This should indicate the area affected, population affected, date restriction imposed, date lifted and total duration in weeks. For sprinkler/unattended hosepipe restrictions, the company should also state the number of licensed users affected, where appropriate. Example:

Hose pipe restrictions

Area affected	Southland
Population affected (000s)	xxx.x
Date imposed	dd/mm/yy
Date lifted	dd/mm/yy
Total duration (weeks)	xx

Sprinkler/unattended hose pipe restrictions

Area affected	All areas
Population affected (000s)	xxx.x
Date imposed	dd/mm/yy
Date lifted	dd/mm/yy
Total duration (weeks)	xx
Licenced users	xx or n/a*

* n/a – company does not operate a sprinkler licence system.

Population affected: Total population affected by restrictions will be reported as a percentage of the average population. Where holiday populations are a significant increase in the average population and they have been included in the population affected, then separate calculations should be made in the commentaries using summer populations.

Records: The company should maintain adequate records to enable them to confirm restrictions imposed, the population affected, the duration of restrictions and zero returns.

Company commentary

The company should:

- comment on significant year on year changes in reported figures;
- complete a timetable of hosepipe and/or sprinkler/unattended hosepipe restrictions in the format shown; and
- include separate calculations using summer populations where holiday populations lead to a significant increase in the average population and it has been included in the population affected.

Guidance to Reporter

The Reporters should comment on:

- whether methods used are appropriate to meet NIAUR's reporting requirements;
- whether all assumptions have been disclosed and to comment on their materiality; and
- the appropriateness of the confidence grades assigned.

Table 2 line definitions

A DG2 PROPERTIES RECEIVING PRESSURE/FLOW BELOW REFERENCE LEVEL

1	Total connected properties at year end	000	1dp
Definition	DG2: The total number of properties (domestic and non-domestic) connected to the distribution system at the end of the report year. This must include properties which are connected but not billed (for example, temporarily unoccupied) but should exclude properties which have been permanently disconnected. A group of properties supplied by a single connection should be counted as several properties. They should only be treated as a single property if a single bill covers the whole property.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

2	Properties below reference level at start of year	nr	0dp
Definition	DG2: This is the 'headline' DG2 figure and represents the total number of properties in the company's area of water supply which, at the start of the year, have received and are likely to continue to receive a pressure of less than 10m head (or a flow of less than 9l/min at 10m head). It should be the same as that at the end of the preceding year.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Copied: line 3 (previous year).		
Responsibility	Comparative Efficiency & Performance Team		

3	Properties below reference level at end of year	nr	0dp
Definition	DG2: The total number of properties in the undertaker's area of water supply which, at the end of the year, have received and are likely to continue to receive a pressure or flow below the reference level.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

4	Properties receiving low pressure but excluded from DG2	nr	0dp
Definition	DG2: The total number of properties which, during the report year, have received pressure or flow below the reference level but are not reported in the DG2 figure because they are covered by one of the exclusions described in the Guidance section. It includes, for example, all properties that have received low pressure during the year caused by abnormal demand or equipment failures. Low pressures due to planned maintenance should not be included in this category.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Network Regulation Team		

4a	DG2 Properties with pressure below a surrogate level of 7.5m at end of year	nr	0dp
Definition	DG2: Company estimate of the number of properties included in the DG2 figure for the end of the reporting year (i.e. that reported in line 3) which have a pressure below a surrogate level of 7.5m.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Network Regulation Team		

4b	DG2 Properties at risk of low pressure removed from the risk register by company action	nr	0dp
Definition	The number of properties which have been confirmed as at risk of receiving low pressure, where company action in the period has restored the reference level of service and this has been confirmed through a complete post project appraisal.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Network Regulation Team		

4c	Average capex cost of permanent solutions to DG2 problems	£000 /prop	1dp
Definition	The average capex costs attributed to permanently removing properties from the DG2 register. The average cost should be calculated by dividing capex cost of resolving the low pressure problem for schemes completed during the report year by the number of confirmed DG2 properties resolved by these schemes. Future benefits (i.e. properties that will not be added to the register over the planning horizon as a consequence of the scheme) should not be included. The General guidance provides more information on the allocation of costs.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Network Regulation Team		

B DG3 PROPERTIES AFFECTED BY SUPPLY INTERRUPTIONS

(i) UNPLANNED INTERRUPTIONS

5	More than 3 hours	nr	0dp
Definition	DG3: The number of properties affected by interruptions of more than three hours' duration to supply which are unplanned unwarned (excluding overruns of planned and warned interruptions) except for those caused directly by third parties which should be reported in line 13 (third party interruptions). It includes interruptions for which customers are notified less than 48 hours in advance.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

6	More than 6 hours	nr	0dp
Definition	DG3: The number of properties affected by interruptions of more than six hours' duration to supply which are unplanned, unwarned (excluding overruns of planned and warned interruptions) except for those caused directly by third parties which should be reported in line 14 (third party interruptions). It includes interruptions for which customers are notified less than 48 hours in advance.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

7	More than 12 hours	nr	0dp
Definition	DG3: The number of properties affected by interruptions of more than twelve hours' duration to supply which are unplanned, unwarned (excluding overruns of planned and warned interruptions) except for those caused directly by third parties which should be reported in line 15 (third party interruptions). It includes interruptions for which customers are notified less than 48 hours in advance.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

8	More than 24 hours	nr	0dp
Definition	DG3: The number of properties affected by interruptions to water supplies of greater than 24 hours' duration which are unplanned, unwarned (excluding overruns of planned and warned interruptions) except for those caused directly by third parties which should be reported in line 16 (third party interruptions). It includes interruptions for which customers are notified less than 48 hours in advance.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

(ii) PLANNED AND WARNED INTERRUPTIONS

9	More than 3 hours	nr	0dp
Definition	DG3: The number of properties affected by planned interruptions to water supplies of more than three hours' duration for which each property affected is given warning at least 48 hours in advance. If insufficient notice is given or the interruption overruns the interruption must be reported in the appropriate unplanned, unwarned category (lines 5 to 8). If the duration of the interruption extends beyond the planned and warned duration, the interruption should be reported as unplanned (overrun of planned interruptions) in a category equivalent to the total duration of the original planned and warned duration plus the additional unplanned and unwarned extension (lines 17 to 19).		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

10	More than 6 hours	nr	0dp
Definition	DG3: The number of properties affected by planned interruptions to water supplies of more than six hours' duration for which each property affected is given warning at least 48 hours in advance. If insufficient notice is given or the interruption overruns the interruption must be reported in the appropriate unplanned, unwarned category (lines 5 to 8). If the duration of the interruption extends beyond the planned and warned duration, the interruption should be reported as unplanned (overrun of planned interruptions) in a category equivalent to the total duration of the original planned and warned duration plus the additional unplanned and unwarned extension (lines 17 to 19).		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

11	More than 12 hours	nr	0dp
Definition	DG3: The number of properties affected by planned interruptions of more than twelve hours' duration for which each property affected is given warning at least 48 hours in advance. If insufficient notice is given or the interruption overruns, the interruption must be reported in the appropriate unplanned, unwarned category (lines 5 to 8). If the duration of the interruption extends beyond the planned and warned duration, the interruption should be reported as unplanned (overrun of planned interruptions) in a category equivalent to the total duration of the original planned and warned duration plus the additional unplanned and unwarned extension (lines 17 to 19).		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

12	More than 24 hours	nr	0dp
Definition	DG3: The number of properties affected by planned interruptions of more than 24 hours' duration for which each property affected is given warning at least 48 hours in advance. If insufficient notice is given or the interruption overruns, the interruption must be counted in the appropriate unplanned, unwarned category (lines 5 to 8). If the duration of the interruption extends beyond the planned and warned duration, the interruption should be reported as unplanned (overrun of planned interruptions) in a category equivalent to the total duration of the original planned and warned duration plus the additional unplanned and unwarned extension (lines 17 to 19).		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

(iii) INTERRUPTIONS CAUSED BY THIRD PARTIES

13	More than 3 hours	nr	0dp
Definition	DG3: The number of properties affected by unplanned interruptions of more than three hours' duration caused by the action of a third party.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

14	More than 6 hours	nr	0dp
Definition	DG3: The number of properties affected by unplanned interruptions of more than six hours' duration caused by the action of a third party.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

15	More than 12 hours	nr	0dp
Definition	DG3: The number of properties affected by unplanned interruptions to water supplies of more than twelve hours' duration caused by the action of a third party.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

16	More than 24 hours	nr	0dp
Definition	DG3: The number of properties affected by unplanned interruptions of more than 24 hours' duration caused by the action of a third party.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

(iv) UNPLANNED INTERRUPTIONS (OVERRUNS OF PLANNED INTERRUPTIONS)

17	More than 6 hrs	nr	0dp
Definition	DG3: The number of properties affected by interruptions to water supplies of more than 6 hours' duration which are caused by a planned and warned interruption exceeding the warned time. Overruns caused by third parties should be excluded and reported in the appropriate third party line. The qualifying time for this line includes the warned time plus the overrun time.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

18	More than 12 hrs	nr	0dp
Definition	DG3: The number of properties affected by interruptions to water supplies of more than 12 hours' duration which are caused by a planned and warned interruption exceeding the warned time. Overruns caused by third parties should be excluded and reported in the appropriate third party line. The qualifying time for this line includes the warned time plus the overrun time.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

19	More than 24 hrs	nr	0dp
Definition	DG3: The number of properties affected by interruptions to water supplies of more than 24 hours' duration which are caused by a planned and warned interruption exceeding the warned time. Overruns caused by third parties should be excluded and reported in the appropriate third party line. The qualifying time for this line includes the warned time plus the overrun time.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

C POPULATION

20	Population (winter)	000	2dp
Definition	Population supplied during the reporting year in the company's area of supply. Include population served by bulk supplies received. The population should be obtained from the most recent NISRA estimates, or the company update of these estimates.		
Primary Purpose	Informing relative performance and efficiency assessments.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

D DG4 RESTRICTIONS ON USE OF WATER

21	% population – hosepipe restrictions	%	1dp
Definition	DG4: The percentage of population affected by hosepipe bans for any reason.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

22	% population – drought orders	%	1dp
Definition	DG4: The percentage of population affected by drought orders.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

23	% population – sprinkler/unattended hosepipe restrictions	%	1dp
Definition	DG4: The percentage of population affected by sprinkler/unattended hosepipe bans for any reason.		
Primary Purpose	Confirming delivery of key outputs and service.		
Processing rule	Input		
Responsibility	Comparative Efficiency & Performance Team		

CHANGE CONTROL SHEET
CHAPTER 2

2008/1.0	First issue of chapter for the SBP period
2009/1.0	Second issue of chapter for the SBP period - Additional reporting requirement added for DG2 properties with a surrogate of less than 7.5m - PPP reporting requirements amended (lines 20, 20a and 20b) - Minor typographical changes
2010/1.0	Third issue of chapter for the SBP period. – Guidance on DG2 and DG3 amended – Lines 20a and 20b deleted
2011/1.0	First issue of chapter for the PC10 period – Freeze thaw guidance amended – Line to capture average capex cost of permanent solutions to DG2 problems added. Associated general guidance also added. – Line to capture DG2 properties removed by company action added. – Additional requirements to confirm that interruptions to supply due to increased demand should be included in DG3.

2012/1.0	Second issue of chapter for the PC10 period
	- Cost of permanent solutions to DG2 problems:
	  - Line 4c definition and general guidance amended to provide additional clarification on the calculation denominator.
	  - Company commentary and reporter guidance amended to request additional information on company approach.
	- 2010-11 severe weather additions removed and major incident text amended.

2013/1.0	Third issue of chapter for the PC10 period - No changes.