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| At a glance | **1** | This document provides additional context around the information requested in the RfI Response Template A. |

CONFIDENCE GRADES

1. This RfI includes a confidence grading system which requires each Local Authority to apply a level of confidence to each request.
2. The confidence grade system has been developed to provide a reasoned basis for Local Authorities to qualify information in respect to reliability and accuracy. It is essential that proper care and a high level of application is given to the assignment of confidence grades to data requiring such annexation.
3. There are two elements to the confidence grades:
* Reliability bands (A to D); and
* Accuracy bands (1 to 6).
1. The reliability bands are assigned according to the source of the information.

| **Reliability Band** | **Description** |
| --- | --- |
| 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. |

1. Accuracy bands provide the margin of error around the central estimate.

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| --- | --- | --- |
| **Accuracy Band** | **Accuracy to or within +/-** | **but outside +/-** |
| 1 | 1% | - |
| 2 | 5% | 1% |
| 3 | 10% | 5% |
| 4 | 25% | 10% |
| 5 | 50% | 25% |
| 6 | 100% | 50% |
| X | Accuracy outside +/- 100 %, zero or small numbers or otherwise incompatible, see example below. |

1. The X grade is generally only likely to be appropriate where a zero has been entered.
2. The overall confidence grade is a combination of the reliability and accuracy band. For example:
* A2: Data based on sound records etc. (A, highly reliable) and estimated to be within +/- 5% (accuracy band 2);
* C4: Data based on extrapolation from a limited sample (C, unreliable) and estimated to be within +/- 25% (accuracy band 4);
* AX: Data based on sound records etc. (A, highly reliable) but value too small to calculate any meaningful accuracy percentage.
1. The table below provides a list of compatible confidence grades.

|  |
| --- |
| **Compatible Confidence Grades** |
| **Accuracy Band** | **Reliability Band** |
|  | 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 |

1. As shown in the table above, certain reliability and accuracy band combinations are considered to be incompatible – for example, D1 or D2.
2. When selecting a confidence grade from the drop-down boxes provided in the template, it would be appreciated if each Local Authority could add explanatory comments for responses with lower confidence levels in the Comments field.

GLOSSARY

|  |  |
| --- | --- |
| Term | Description |
| Nr | Number |
| 000 | Thousands |
| 000 m3/d | Thousand cubic metres per day |
| l/pr/d | Litres per property per day |
| l/h/d | Litres per head per day |
| m2 | Metres squared |
| mm | Millimetres |
| mg/l | Milligrams per litre |
| ttds | Thousand tonnes of dry solids |
| Tradewaste | Industrial and commercial waste |
| BOD | Biochemical Oxygen Demand |
| COD | Chemical Oxygen Demand |
| Distribution | Network |

TABLE A1: PROPERTIES & POPULATION – WATER

Properties

1. Includes a breakdown of all metered and unmetered household and non-household properties to whom the Local Authority supplies water.
2. As clarified at the DIA clinic held on 3 November, Local Authorities should include household and non-household properties that receive a stock water supply when reporting billed and/or connected properties and populations in the relevant lines of the table. In addition, please provide an estimate of the number of properties or population in receipt of a stock water supply in the commentary cells of the relevant line.

Population

1. This records the population within each of the measured and unmeasured household categories.

Specific Terms

1. To ensure consistency of information, regularly used terms are defined below:
2. ***Household Properties:*** These are properties used as single household dwellings (normally occupied), receiving water for domestic purposes. Multi-unit dwellings such as a block of apartments should be counted based on the number of separate dwellings (i.e. a block of 10 apartments which have a single connection should be counted as 10 properties).
3. ***Non-household Properties****:* These include commercial, industrial and non-profit entities such as charities.
4. These definitions apply to both unmeasured and measured supplies.
5. ***Properties:*** Building premises or structure or other permanently connected supply separately identified for billing purposes. All properties served should be accounted for. If there is not an obvious line reference for the property served, please explain where these have been included in the reporting templates and why in the accompanying commentary.
6. ***A vacant/void property*** is a property where there are no occupants.
7. ***Population*** should include the population served by bulk supplies received and exclude bulk supplies exported. The population should be obtained from Local Authority systems or estimates based on the most recent national statistics adjusted by the connection rate in the Local Authority area. Where other methods have been adopted, these should be explained in the commentary. For example, if this has been derived from multiplying the properties served by an average occupancy rate, please provide the underlying assumptions.
8. ***Meter Sizes – Actual*** is those water meters actually in place, which may or may not generate revenue though a fixed charge for networks and/or customer services.
9. ***Meter Sizes – “Tariff****”* are those water meters that generate revenue though a fixed charge for networks and/or customer services. For any property, the actual meter size and the “Tariff” meter size may or may not be the same.

Guidance to the Local Authority

1. The Local Authority should comment on the basis used to evaluate its customer numbers, meter numbers, population and the methodology used by the Local Authority to derive their estimates. It should also ensure that no input cell is left blank.
2. For the avoidance of doubt, Table A1 refers to the whole Local Authority area. In the event that a Local Authority has several discrete schemes, the total across the Local Authority area should be reported.

BLOCK 1: UNMEASURED HOUSEHOLD – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A1.1** | **Total number of billed properties** | **Nr.** |
| *Definition:* | Number of billed unmeasured household properties, as at 30 June of the reporting year. For example, includes customers:* paying charges through their general rates;
* paying charges based on their rateable value;
* that are charged based on an assessment of their water use (e.g. based on the number of toilets).

Any unmeasured household customer that is connected and pays a charge should be included in this line. |
| *Processing Rules:* | Input field |
| **A1.2** | **Number of unmeasured connected household properties that are not charged** | **Nr.** |
| *Definition:* | Number of unmeasured household properties as at 30 June of the reporting year which are connected to the distribution system but are not charged for the service. This could be because they are exempt from charges or are vacant/void properties. Any vacant/void unmeasured household properties that pay a charge should be included in A1.1. |
| *Processing Rules:* | Input field |

BLOCK 2: MEASURED HOUSEHOLD – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A1.4** | **Total number of billed properties** | **Nr.** |
| *Definition:* | Number of billed metered household properties as at 30 June of the reporting year. Include only customers that are charged based on their measured usage.Any measured household customer that is connected and pays a charge should be included in this line. |
| *Processing Rules:* | Input field |
| **A1.12** | **Number of measured connected household properties that are not charged** | **Nr.** |
| *Definition:* | Number of metered household properties as at 30 June of the reporting year which are connected to the distribution system but are not charged for the service. This could be because they are exempt from charges or are vacant/void properties. Any vacant/void measured household properties that pay a charge should be included in A1.4. |
| *Processing Rules:* | Input field |

BLOCK 3: MEASURED NON-HOUSEHOLD – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A1.14** | **Number of measured connected non-household properties that are not charged** | **Nr.** |
| *Definition:* | Number of billed metered non-household properties as at 30 June of the reporting year, where no charge has been made. This could be because they are exempt from charges or are vacant/void properties. Any vacant/void measured non-household properties that pay a charge should be included in A1.15. |
| *Processing Rules:* | Input field |
| **A1.15** | **Total number of billed properties** | **Nr.** |
| *Definition:* | Number of metered non-household properties as at 30 June of the reporting year. Include only customers that are charged based on their measured usage. Any measured non-household customer that is connected and pays a charge should be included in this line. |
| *Processing Rules:* | Input field |

BLOCK 4: MEASURED NON-HOUSEHOLD – METER SIZES

|  |  |  |
| --- | --- | --- |
| **A1.17** | **Standard meter** | **Nr.** |
| *Definition:* | Number of billed metered non-household properties with a standard meter (less than 20mm), as at 30 June of the reporting year. |
| *Processing Rules:* | Input field |
| **A1.18** | **20-50mm** | **Nr.** |
| *Definition:* | Number of billed metered non-household properties with a meter between 20-50mm installed, as at 30 June of the reporting year. |
| *Processing Rules:* | Input field |
| **A1.19** | **>50mm** | **Nr.** |
| *Definition:* | Number of billed metered non-household properties with a 50mm or larger meter installed, as at 30 June of the reporting year. |
| *Processing Rules:* | Input field |
| **A1.32** | **Total** | **Nr.** |
| *Definition:* | Total number of billed metered non-household properties as at 30 June of the reporting year. |
| *Processing Rules:* | Calculated field: A1.17 + A1.18 + A1.19  |

BLOCK 5: UNMEASURED NON-HOUSEHOLD – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A1.36** | **Total number of billed properties** | **Nr.** |
| *Definition:* | Number of billed unmeasured non-household properties as at 30 June of the reporting year.For example, includes customers:* paying charges through their general rates;
* paying charges based on their rateable value;
* that are charged based on an assessment of their water use (e.g. based on the number of toilets).

Any unmeasured non-household customer that is connected and pays a charge should be included in this line. |
| *Processing Rules:* | Input field |

|  |  |  |
| --- | --- | --- |
| **A1.37** | **Number of unmeasured connected non-household properties that are not charged** | **Nr.** |
| *Definition:* | Number of unmeasured non-household properties as at 30 June of the reporting year connected to the distribution system but are not charged for the service. This could be because they are exempt from charges or are vacant/void properties. Any vacant/void unmeasured non-household properties that pay a charge should be included in A1.36. |
| *Processing Rules:* | Input field |

BLOCK 6: SUMMARY – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A1.38** | **Total connected billed properties** | **Nr.** |
| *Definition:* | Number of household and non-household properties billed for water within the supply area as at 30 June of the reporting year. |
| *Processing Rules:* | Calculated field: A1.1+A1.4+A1.15+A1.36 |
| **A1.39** | **Total connected properties** | **Nr.** |
| *Definition:* | Number of household and non-household properties within the supply area as at 30 June of the reporting year. This includes properties connected that do not pay a charge. |
| *Processing Rules:* | Calculated field: A1.1+A1.2+A1.4+A1.12+A1.14+A1.15+A1.36+A1.37 |
| **A1.40** | **Properties charged but not connected** | **Nr.** |
| *Definition:* | Number of household and non-household properties billed for water but not connected to the water network within the supply area as at 30 June of the reporting year. This row includes those properties that are paying a charge for availability (i.e. properties that are not connected to the water network but have the option of connecting). |
| *Processing Rules:* | Input field |
| **A1.41** | **Total properties charged** | **Nr.** |
| *Definition:* | Total number of household and non-household properties billed for water within the supply area as at 30 June of the reporting year. |
| *Processing Rules:* | Calculated field: A1.38+A1.40 |

|  |  |  |
| --- | --- | --- |
| **A1.42** | **Number of properties connected during the report year** | **Nr.** |
| *Definition:* | The number of new household and non-household properties added during the report year. |
| *Processing Rules:* | Input field |

BLOCK 7: SUMMARY – POPULATION

|  |  |  |
| --- | --- | --- |
| **A1.43** | **Winter** | **000** |
| *Definition:* | Total winter population supplied at the financial year end (30 June) in the Local Authority’s area of supply. This should include customers supplied with unmeasured and measured water.Include population served by bulk supplies received.Please provide commentary on how the winter population has been estimated.  |
| *Processing Rules:* | Input field |

|  |  |  |
| --- | --- | --- |
| **A1.44** | **Summer** | **000** |
| *Definition:* | Population (winter) supplied during the reporting year in the Local Authority’s area of supply plus the holiday and tourist population defined below.The holiday and tourist population can be obtained from the tourist board estimates of the number of bed spaces available for non-residents.Except where there is firm evidence to the contrary, the Local Authority should use a population based on a 2/3 occupancy rate for the peak summer month.Note that the resultant figure will be additional to the resident population.As an example of how the additional summer population could be calculated, Watercare used the number of guest nights reported by Stats NZ and compared the average guest nights from international visitors over the summer months (January to March), to the equivalent guest nights for the winter months (June to August). Please provide commentary on how the summer population has been estimated.Exclude any allowance for daily commuters. |
| *Processing Rules:* | Input field |

BLOCK 8: HOUSEHOLD – POPULATION

|  |  |  |
| --- | --- | --- |
| **A1.45** | **Population of unmeasured household properties** | **000** |
| *Definition:* | Population (winter) supplied at the financial year end (30 June) occupying unmeasured household properties. |
| *Processing Rules:* | Input field |
| **A1.46** | **Population of measured household properties** | **000** |
| *Definition:* | Population (winter) supplied at the financial year end (30 June) occupying measured household properties. |
| *Processing Rules:* | Input field |
| **A1.47** | **Household population connected to the water service** | **000** |
| *Definition:* | Population (winter) supplied at the financial year end (30 June) occupying household properties. |
| *Processing Rules:* | Calculated field: The sum of A1.45 and A1.46. |

TABLE A2: WATER VOLUMES

Water delivered – volumes (measured, unmeasured, household and non-household).

1. This records the total volume of water, in **megalitres** per day (in units of 1,000m3), which is delivered to measured and unmeasured households and non-household properties in the Local Authority area.
2. A number of the components included in this section, such as per capita consumption, meter under-registration or unmeasured non-households use, are used to estimate water delivered volumes.
3. As clarified at the DIA clinic held on 3 November, Local Authorities should include water provided to household and non-household properties that receive a stock water supply when reporting volumes in the relevant lines of the table. If the stock water supply is completely discrete, then this should only be included for estimating the water balance.

Water balance

1. This records the assumptions which the Local Authority has made in determining its water balance. This block also includes those parameters, which together with water delivered volumes, make up the Local Authority's water balance.
2. Water delivered data is used for charging and tariff balance issues.
3. The water balance contains the following components:
	1. ***Water delivered quantities*** are those measured or estimated at their "point of delivery". Point of delivery is the point at which water is transferred from mains or pipes which are vested in the Local Authority (distribution system), into the supply pipes, which are the responsibility of the customers. For the permanently connected customers this is the point on the service pipe, at or close to the external stop-tap (usually the highway curtilage (an area of land attached to a house and forming one enclosure with it)), where the supply pipe commences. For this reason, all supply pipe leakage must be included in the water delivered figures. For temporarily connected customers the point of delivery is the hydrant of the building water connection.
	2. ***Water delivered*** forms the majority of the water balance. The Local Authority's approach to Table A2 can validate any assumptions used to estimate water delivered components. The Local Authority is encouraged to estimate each component of distribution input and compare the sum of these components with measured distribution input.
	3. The Local Authority should give an explanation of any discrepancy in the analysis. Where the estimating process has been reviewed, it should provide a full briefing, outlining the degree of the discrepancy, which components were reviewed, what assumptions were altered, and if so why, and which water balance components needed improvement.
	4. The Local Authority should explain how it has derived its estimate of leakage. In the UK, this is based on the Integrated Flow Method and monitoring night flows (the Minimum Night Flow Method) in conjunction, as a means to substantiate their estimation of leakage.
4. A2.3, A2.6 and A2.23 ask for an estimate of supply pipe leakage on vacant/void & exempt properties. The Local Authority should explain in the commentary the basis for this estimate.
5. The Local Authority is also expected to see the impact of metering on some water delivered components:
	1. ***Supply pipe leakage:*** Where properties are externally metered, it would be expected that supply pipe leakage is lower than that found on unmeasured or internally metered properties.
	2. ***Per capita consumption****:* Measured household per capita consumption would normally be expected to be lower than unmeasured household consumption, assuming similar occupant profiles.
	3. ***Bulk Supplies****:* The volume of water imported or exported in bulk to another water operator, should be recorded in this part of the table. It also records the percentage of the distribution input arising from treatment plants funded through contractual arrangements (e.g. contracts with a private operator who has built, financed and operates the work).
6. The Local Authority is also expected to explain any significant changes between report years.

Confidence grades

1. There are four key confidence grades for the water delivered components on Table A2, relating to unmeasured household per capita consumption, distribution losses, unmeasured non-household water delivered and distribution input. There is also an additional confidence grade dealing with the water balance as a whole. This represents varying degrees of confidence in the robustness of the water balance. For example, a reliability grading of A would represent the Local Authority in control of their water balance, understanding the characteristics of each separately estimated component through comprehensive data monitoring systems.
2. The confidence grades follow the existing format with reliability and accuracy bands.

Reliability bands

1. Unmeasured household per capita consumption (l/head/d)
* **Reliability Grade A:** Unmeasured household per capita consumption is estimated from the Local Authority’s own consumption monitor, covering a minimum of 1000 properties individually monitored.
	1. **Reliability Grade B:** Unmeasured household per capita consumption has been estimated from the Local Authority’s own consumption monitor data which is over two years old, but the monitor covers 1000 properties individually monitored; or 2000 properties monitored within 40 zones; or the Local Authority’s own monitor covers 500 properties individually monitored. Alternatively, unmeasured household per capita consumption is estimated from a zonal monitor covering over 10,000 properties in 50 zones.
	2. **Reliability Grade C:** Unmeasured household per capita consumption is estimated not from a consumption monitor, nor is it assumed to be the residual component of the water balance, but is estimated using an alternative method, e.g. from a sample of measured household properties; or estimated from monitoring 1000 properties over 20 zones.
	3. **Reliability Grade D:** Unmeasured household per capita consumption is estimated from the residual of the water balance once all other components have been estimated.
1. Unmeasured non-household water delivered (l/prop/d)
	1. **Reliability Grade A:** Unmeasured non-household water delivered is estimated from the Local Authority’s own consumption monitor of industry classifications or groups.
	2. **Reliability Grade B:** Unmeasured non-household water delivered has been derived from the Local Authority’s own monitor where the consumption data is over two years old; or is based on the consumption of comparable measured non-household properties.
	3. **Reliability Grade C:** Unmeasured non-household water delivered has been estimated using none of the above methods and is not assumed to be the residual component of the water balance; it is estimated using an alternative method, e.g. based on property rateable values or another such measure of charging unmeasured non-household customers such as assessed usage.
	4. **Reliability Grade D:** Unmeasured non-household water delivered is either estimated from the residual of the water balance once all other components have been separately estimated.
2. Total Leakage (Ml/d)
	1. **Reliability Grade A:** Total Leakage is estimated using the Minimum Night Flow Method, the resulting leakage level should then reconcile to within 5% of the residual using the Integrated Flow Method. The data should represent the average for the year. The night line data should be estimated with Continual Night Flow Monitoring covering over 80% of properties, recorded more than 20 times a year, in addition to sample surveys on service reservoirs and trunk mains.
	2. **Reliability Grade B:** Total Leakage is estimated using either the Integrated Flow Method or the Minimum Night Flow Method where the data represents the average for the year. The night line data should be estimated from a coverage of either Continual Night Flow Monitoring or waste/district zone metering covering over 60% of properties, recorded less than 20 times a year.
	3. **Reliability Grade C:** Total Leakage is derived solely from a software package, which uses the Local Authority’s own data, national estimates or default input values. The resulting leakage figure should be supported by leakage levels estimated using the Integrated Flow Method or the Night Flow Method. The night line data should be estimated from a coverage of either Continual Night Flow Monitoring or waste/district zone metering covering under 60% properties, recorded less than 20 times a year.
	4. **Reliability Grade D:** Total leakage is assumed to be either the residual of the water balance once all other components have been estimated; or is derived solely from a software package, which uses national estimates or default input values, and the resulting leakage figure is not supported by leakage levels estimated using the Integrated Flow Method or the Night Flow Method; or is estimated on the basis of drop tests alone.
3. Distribution input (Ml/d)
	1. **Reliability Grade A:** The sum of the separately estimated water balance components reconciles with the measured volume of distribution input to within 1-2%. There has been no adjustment made to measured distribution input other than as a result of the aforementioned reconciliation; that is, the sum of the water balance components with measured distribution input. Measured distribution input has been estimated from water-into-supply meters which record 95% of the volume of distribution input, and the meters have been used and regularly recalibrated in accordance with the manufacturer’s recommendations.
	2. **Reliability Grade B:** The sum of the separately estimated water balance components reconciles with the measured volume of distribution input to within 5% but not to within 2%. There has been no adjustment made to measured distribution input, other than as a result of the aforementioned reconciliation; that is, the sum of the water balance components with measured distribution input. Measured distribution input has been estimated from water-into-supply meters which record 90% of the volume of distribution input, and the meters have been used and regularly recalibrated in accordance with the manufacturer’s recommendations.
	3. **Reliability Grade C**: Distribution input is taken from water-into-supply meter readings only and does not reconcile to within 5% of the sum of the separately estimated water balance components. There has been no adjustment made to measured distribution input, other than as a result of the aforementioned reconciliation; that is, the sum of the water balance components with measured distribution input. Measured distribution input has been estimated from water-into-supply meters which record 85% of the volume of distribution input, and the meters have been used and regularly recalibrated in accordance with the manufacturer’s recommendations.
	4. **Reliability Grade D:** Distribution input is taken as either the sum of the components of the water balance, or is taken from water-into-supply meters only, where there has been adjustments made to measured distribution input, which are not as a result of any reconciliation between the sum of components and measured distribution input.
4. Overall water balance
	1. **Reliability Grade A:** The water balance components reconcile with measured distribution input, to within 2%. Water-into-supply meters have been used and recalibrated in accordance with the manufacturer’s recommendation. The water balance components have been separately estimated and reconcile with the equivalent residual of the water balance. 90% of the volume of distribution input (not including distribution input) has been awarded a reliability band of A or B within the separately estimated water balance components.
	2. **Reliability Grade B:** The water balance components reconcile with measured distribution input to within 5%. Water-into-supply meters have been used and recalibrated in accordance with the manufacturer’s recommendation. The water balance components have been separately estimated and reconcile with the equivalent residual of the water balance. 90% of the volume of distribution input should have been awarded a reliability band of A or B within the separately estimated water balance components.
	3. **Reliability Grade C**: The water balance components have not been reconciled with measured distribution input. The water balance components have been separately estimated and reconcile with the equivalent residual of the water balance. 90% of the volume of distribution input should have been awarded a reliability band of C or better within the separately estimated water balance components.
	4. **Reliability Grade D:** There has been no reconciliation across individual components or between the sum of components and measured distribution input. 90% of the volume of distribution input should have been awarded a reliability band of C or D within the separately estimated water balance components.

Guidance to the Local Authority

1. For the avoidance of doubt, Table A2 refers to the whole Local Authority area. In the event that a Local Authority has several discrete schemes, the total across the Local Authority area should be reported.
2. In the event of a joint venture of assets serving two or more Local Authority areas, Local Authorities should report their own share of the volumes supplied. If allocated, the Local Authority is expected to explain the allocation method used in the commentary cells.

BLOCK 1: UNMEASURED HOUSEHOLD

|  |  |  |
| --- | --- | --- |
| **A2.1** | **Water delivered** | **000 m3/d** |
| *Definition:* | Estimated average volume of potable water delivered to unmeasured household properties. This should include potable water delivered to properties that are connected to the distribution system but not charged.This is to **include** supply pipe leakage. If the Local Authority’s estimate of the per capita consumption of unmeasured household properties excludes supply pipe leakage, an estimate of this leakage must be made and included in this line for comparative purposes. This estimate should include supply pipe leakage from vacant/void and exempt properties. The method of estimation must be set out and supported in the commentaries.Exclude miscellaneous use. This is reported in lines A2.26, A2.27 and A2.28 below. |
| *Processing Rules:* | Input field |
| **A2.2** | **Underground supply pipe leakage – billed** | **l/pr/d** |
| *Definition:* | Estimated underground supply pipe leakage per unmeasured household property.This estimate is made for household properties that are billed (A1.1) and is included in the potable water delivered total (A2.25). |
| *Processing Rules:* | Input field |
| **A2.3** | **Underground supply pipe leakage – connected but not charged** | **l/pr/d** |
| *Definition:* | Estimated supply pipe leakage from unmeasured household properties that are connected to the distribution system but not charged (as reported in lines A1.2). |
| *Processing Rules:* | Input field |
| **A2.4** | **Per capita consumption (unmeasured household excluding supply pipe leakage)** | **l/h/d** |
| *Definition:* | Estimated per capita consumption of household properties supplied with unmeasured water. This figure applies to billed unmeasured household properties and excludes underground supply pipe leakage. |
| *Processing Rules:* | Calculated field: $\frac{A2.1\*1000000 -((A2.2\*A1.1)+(A2.3\*A1.2))}{A1.45\*1,000}$ |

BLOCK 2: MEASURED HOUSEHOLD

|  |  |  |
| --- | --- | --- |
| **A2.5** | **Water delivered** | **000 m3/d** |
| *Definition:* | Average volume of potable water delivered to measured household properties. This should include:* potable water delivered to properties that are connected to the distribution system but not charged; and
* supply pipe leakage and meter under-registration.

The Local Authority should clearly report any amendments to actual metered consumption records to provide the requested water delivered information. Amendments may be necessary to take account of billing periods different from the report year. If appropriate, the Local Authority may need to take account of meter registration and adjust records. If records are adjusted this should be clearly reported in the commentaries along with evidence to support the need for any changes. Where meter under-registration is a problem the Local Authority should specify the class of meters involved and the percentage error assumed. Any meter under-registration included in the total should also be reported in line A2.7. |
| *Processing Rules:* | Input field |
| **A2.6** | **Underground supply pipe leakage – connected but not charged**  |  **l/pr/d** |
| *Definition:* | Estimated supply pipe leakage from measured household properties that are connected to the distribution system but not charged (as reported in line A1.12). |
| *Processing Rules:* | Input field |
| **A2.7** | **Meter under-registration** | **000 m3/d** |
| *Definition:* | Average volume of meter under-registration included in line A2.5. Any report volume against this item should be supported by evidence in the commentaries. The Local Authority should also specify the class of meter involved and the percentage error assumed.NB: Meter under-registration is the tendency of meters to under-record flows, particularly low flows. |
| *Processing Rules:* | Input field |

|  |  |  |
| --- | --- | --- |
| **A2.8** | **Per capita consumption (measured household excluding supply pipe leakage)** | **l/h/d** |
| *Definition:* | Estimated per capita consumption of measured household properties. This figure applies to billed measured household properties and excludes underground supply pipe leakage. |
| *Processing Rules:* | Calculated field: $\frac{A2.5\*1000000 -(A2.6\*A1.12+A2.7\*A1.4)}{A1.46\*1,000}$ |

BLOCK 3: MEASURED NON-HOUSEHOLD

|  |  |  |
| --- | --- | --- |
| **A2.8a** | **Water delivered (potable)** | **000 m3/d** |
| *Definition:* | Average volume of potable water delivered to measured non-household properties. This is to include supply pipe leakage and meter under-registration.The Local Authority should clearly report any amendments to actual metered consumption records to provide the requested water delivered information. Amendments may be necessary to take account of billing periods different from the report year. If appropriate, the Local Authority may need to take account of meter registration and adjust records. If records are adjusted this should be clearly reported in the commentaries along with evidence to support the need for any changes. Where meter under-registration is a problem the Local Authority should specify the class of meters involved and the percentage error assumed. |
| *Processing Rules:* | Input field |

|  |  |  |
| --- | --- | --- |
| **A2.10** | **Water delivered (potable) to users with no charges** | **000 m3/d** |
| *Definition:* | Average volume of potable water delivered to measured non-household properties where a service has been provided, but no bill has been raised. This would include registered community water supplies. This is to include supply pipe leakage and meter under-registration. The Local Authority should clearly report any amendments to actual metered consumption records to provide the requested water delivered information. Amendments may be necessary to take account of billing periods different from the report year. If appropriate, the Local Authority may need to take account of meter registration and adjust records. If records are adjusted this should be clearly reported in the commentaries along with evidence to support the need for any changes. Where meter under-registration is a problem the Local Authority should specify the class of meters involved and the percentage error assumed.  |
| *Processing Rules:* | Input field |

|  |  |  |
| --- | --- | --- |
| **A2.11** | **Water delivered (non-potable)** | **000 m3/d** |
| *Definition:* | Average volume of non-potable water delivered to measured non-household properties. This would include stock-water supplies and raw water take offs before treatment.This is to include supply pipe leakage and meter under-registration.The Local Authority should clearly report any amendments to actual metered consumption records to provide the requested water delivered information. Amendments may be necessary to take account of billing periods different from the report year. If appropriate, the Local Authority may need to take account of meter registration and adjust records. If records are adjusted this should be clearly reported in the commentaries along with evidence to support the need for any changes. Where meter under-registration is a problem the Local Authority should specify the class of meters involved and the percentage error assumed.  |
| *Processing Rules:* | Input field |

BLOCK 4: UNMEASURED NON-HOUSEHOLD

|  |  |  |
| --- | --- | --- |
| **A2.15a** | **Water delivered (potable)** | **000 m3/d** |
| *Definition:* | Estimated volume of potable water delivered to unmeasured non-household properties. This should include potable water delivered to properties that are connected to the distribution system but not charged.This is to include supply pipe leakage. If the Local Authority’s estimate of the per capita consumption of unmeasured non-household properties excludes supply pipe leakage, an estimate of this leakage must be made and included in this line for comparative purposes. The method of estimation must be set out and supported in the commentaries. |
| *Processing Rules:* | Input field |
| **A2.19** | **Water delivered (non-potable)**  | **000 m3/d** |
| *Definition:* | Estimated volume of non-potable water delivered to unmeasured non-household properties. This should include non-potable water delivered to properties that are connected to the distribution system but not charged.This is to include supply pipe leakage. If the Local Authority’s estimate of the per capita consumption of unmeasured non-household properties excludes supply pipe leakage, an estimate of this leakage must be made and included in this line for comparative purposes. The method of estimation must be set out and supported in the commentaries. |
| *Processing Rules:* | Input field |
| **A2.22** | **Underground supply pipe leakage - billed** | **l/pr/d** |
| *Definition:* | Estimated supply pipe leakage from billed unmeasured non-household properties (as reported in line A1.36). This line relates to potable water. |
| *Processing Rules:* | Input field |

|  |  |  |
| --- | --- | --- |
| **A2.23** | **Underground supply pipe leakage – connected but not charged** | **l/pr/d** |
| *Definition:* | Estimated supply pipe leakage from unmeasured non-household properties that are connected to the distribution system but not charged (as reported in line A1.37). This line relates to potable water. |
| *Processing Rules:* | Input field |
| **A2.24** | **Estimated water delivered per unmeasured non-household property** | **l/pr/d** |
| *Definition:* | Estimated water delivered per unmeasured non-household property. This figure applies to premises that are billed (Table A1, line A1.36) and includes underground supply pipe leakage. This line relates to potable water. |
| *Processing Rules:* | Calculated field: 1,000,000 \* $\frac{A2.15a}{A1.36}$ |

BLOCK 5: WATER BALANCE

|  |  |  |
| --- | --- | --- |
| **A2.25** | **Total potable water delivered to household & non-household properties** | **000 m3/d** |
| *Definition:* | All potable water supplied to household and non-household properties. This is to **include** supply pipe leakage. If the Local Authority’s estimate of the per capita consumption of unmeasured household properties excludes supply pipe leakage, an estimate of this leakage must be made and included in this line for comparative purposes. The Local Authority should explain in the accompanying commentary the calculation used to derive this figure. |
| *Processing Rules:* | Input field |
| **A2.26** | **Distribution system operational use** | **000 m3/d** |
| *Definition:* | Distribution system operational use; water knowingly used by the Local Authority to meet its statutory obligations, particularly those relating to water quality. This includes, amongst other things, service reservoir cleaning, mains flushing/air scouring, swabbing, draining networks, discharges to control pH or other chemical parameters.The Local Authority should explain in the accompanying commentary the calculation used to derive this figure. |
| *Processing Rules:* | Input field |
| **A2.27** | **Water taken legally unbilled** | **000 m3/d** |
| *Definition*: | Water taken legally unbilled; this should include all water supplied to customers for legitimate purposes which is unbilled. None of this should have been included in the breakdown of water delivered to billed customers. It can include public supplies for which no charge is made (some sewer flushing etc.), uncharged church supplies, fire training and fire-fighting supplies where these are not charged irrespective of whether or not they are metered.The Local Authority should comment on any significant volumes.The Local Authority should explain in the accompanying commentary the calculation used to derive this figure. |
| *Processing Rules*: | Input field |
| **A2.28** | **Water taken illegally unbilled** | **000 m3/d** |
| *Definition*: | Water taken illegally unbilled; illegally taken water should only be reported here and included in the water delivered total if it is based on actual occurrences using sound and auditable identification and reporting procedures. These procedures must be set out in the commentaries. If it is not based on these it should be classified as distribution losses (line A2.29).The Local Authority should explain in the accompanying commentary the calculation used to derive this figure. |
| *Processing Rules*: | Input field |
| **A2.29** | **Distribution losses** | **000 m3/d** |
| *Definition*: | Distribution losses represent the losses on the Local Authority’s potable water distribution system (i.e. the network). This line excludes supply pipe leakage which is the customer’s responsibility.The Local Authority should explain in the accompanying commentary the calculation used to derive this figure. |
| *Processing Rules*: | Input field |

|  |  |  |
| --- | --- | --- |
| **A2.30** | **Total leakage** | **000 m3/d** |
| *Definition*: | The Local Authority estimate of total leakage including leakage related to reservoirs. This line includes the distribution losses on the network as reported in line A2.29. In the UK, this is derived from night flow measurements and reservoir and trunk main tests after deducting allowances for plumbing losses and customer night use for the measured night flowsThe Local Authority should explain in the accompanying commentary the calculation used to derive this figure. |
| *Processing Rules*: | Input field |
| **A2.31** | **Distribution input** | **000 m3/d** |
| *Definition*: | Distribution input is the average amount of potable water entering the distribution system and supplied to customers within the Local Authority’s area of supply. It is expected to be equal to metered distribution input.The Local Authority should explain in the accompanying commentary the calculation used to derive this figure. |
| *Processing Rules*: | Input field |
| **A2.32** | **Difference in water balance** | **000 m3/d** |
| *Definition*: | The difference between the sum of the water balance components and the actual measured distribution input.The Local Authority should explain in the accompanying commentary the calculation used to derive this figure. |
| *Processing Rules*: | Input field |
| **A2.33** | **Assessment of overall water balance** | **CG** |
| *Definition*: | Confidence grade for the overall water balance. |
| *Processing Rules*: | Input field |

BLOCK 6: BULK SUPPLIES

|  |  |  |
| --- | --- | --- |
| **A2.34a** | **Bulk supply imports - treated** | **000 m3/d** |
| *Definition:* | Volume of treated water imported from outside the Local Authority’s service area in bulk supplies.  |
| *Processing Rules:* | Input field |
| **A2.34b** | **Bulk supply imports - untreated** | **000 m3/d** |
| *Definition:* | Volume of untreated water imported from outside the Local Authority’s service area in bulk supplies.  |
| *Processing Rules:* | Input field |
| **A2.35a** | **Bulk supply exports - treated** | **000 m3/d** |
| *Definition:* | Volume of treated water exported outside the Local Authority’s service area in bulk supplies. |
| *Processing Rules:* | Input field |
| **A2.35b** | **Bulk supply exports - untreated** | **000 m3/d** |
| *Definition:* | Volume of untreated water exported outside the Local Authority’s service area in bulk supplies.  |
| *Processing Rules:* | Input field |

BLOCK 7: LEAKAGE

|  |  |  |
| --- | --- | --- |
| **A2.37** | **Leakage target** | **%** |
| *Definition:* | This represents the annual leakage target for the reporting organisation and is used for an assessment of leakage performance where actual performance is compared with leakage targets. |
| *Processing Rules* | Input field |

TABLE A3: WASTEWATER PROPERTIES & POPULATION

Properties

1. This table includes a breakdown of all measured and unmeasured household and non-household properties and an analysis of the total number of properties connected to the wastewater system and those receiving treatment.
2. Definitions for *household property* and *non-household property* are given in Table A1.
3. A ***property*** is defined as being the subject of a separate wastewater service, and being occupied as a household property, or used for public, commercial or industrial purposes. Multi-unit dwellings such as a block of apartments should be counted based on the number of separate dwellings (i.e. a block of 10 apartments which have a single connection should be counted as 10 properties).
4. The Local Authority should comment on the systems and methodology for estimating the table components, with particular reference to the linkage with the equivalent components in Table A1 and consistency with billing records.
5. All properties served should be accounted for. If there is not an obvious line reference for the property served, please explain where these have been included in the reporting templates and why in the accompanying commentary.
6. As clarified at the DIA clinic held on 3 November, Local Authorities should include household and non-household properties and populations that receive a stock water supply and are connected to the wastewater system when reporting billed and/or connected properties and populations in the relevant lines of the table. In addition, please provide an estimate of the number of properties or the population where this applies in the commentary cells.

Population

1. This records the total connected resident and non-resident populations.
2. The population should be obtained from Local Authority systems or estimates based on the most recent national statistics adjusted by the connection rate in the Local Authority area. Where other methods have been adopted, these should be explained in the commentary. For example, if this has been derived from multiplying the properties served by an average occupancy rate, please provide the underlying assumptions.

Meter sizes

1. ***Meter Sizes – Actual*** is those wastewater meters, assumed to be in place from those water supply meters actually in place, which may or may not generate revenue through a fixed charge for networks and/or customer services or another component element based on meter size.
2. ***Meter Sizes – “Tariff”*** meters are those wastewater meters, assumed to be in place from theoretical water supply meters, which generate revenue through a fixed charge for networks and/or customer services or another component element based on meter size. For any property, the actual and “tariff” meters may or may not be the same size.

Guidance to the Local Authority

1. For the avoidance of doubt, table A3 refers to the total Local Authority area. In the event that a Local Authority has several discrete schemes, the total across the Local Authority area should be reported.

BLOCK 1: UNMEASURED HOUSEHOLD – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A3.1** | **Total number of billed properties** | **Nr.** |
| *Definition:* | Number of billed unmeasured household properties for wastewater, as at 30 June of the reporting year.  |
| *Processing Rules:* | Input field |

BLOCK 2: MEASURED HOUSEHOLD – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A3.7** | **Total number of billed properties** | **Nr.** |
| *Definition:* | Number of billed metered household properties for wastewater as at 30 June of the reporting year. For the avoidance of doubt, a customer should be considered measured if their:* wastewater provided is directly measured and charged; or
* wastewater provided is measured and charged based on the measured water usage (i.e. a return to wastewater assumption).

Otherwise, they should be included in the relevant unmeasured line. |
| *Processing Rules:* | Input field |

BLOCK 3: MEASURED NON-HOUSEHOLD – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A3.17** | **Number of billed properties with relief of charges** | **Nr.** |
| *Definition:* | Number of billed non-household properties for wastewater as at 30 June of the reporting year, with discretionary relief of charges. If this line is populated, please provide a commentary on the relief in place. For the avoidance of doubt, a customer should be considered measured if their:* wastewater provided is directly measured and charged; or
* wastewater provided is measured and charged based on the measured water usage (i.e. a return to sewer assumption).

Otherwise, they should be included in the relevant unmeasured line. |
| *Processing Rules:* | Input field |
| **A3.18** | **Number of billed properties with no charges** | **Nr.** |
| *Definition:* | Number of billed metered non-household properties for wastewater as at 30 June of the reporting year, where no charge has been made. If this line is populated, please provide a commentary on the relief in place. For the avoidance of doubt, a customer should be considered measured if their:* wastewater provided is directly measured and charged; or
* wastewater provided is measured and charged based on the measured water usage (i.e. a return to sewer assumption).

Otherwise, they should be included in the relevant unmeasured line |
| *Processing Rules:* | Input field |

|  |  |  |
| --- | --- | --- |
| **A3.19** | **Total number of billed properties** | **Nr.** |
| *Definition:* | Number of metered non-household properties for wastewater as at 30 June of the reporting year. For the avoidance of doubt, a customer should be considered measured if their:* wastewater provided is directly measured and charged; or
* wastewater provided is measured and charged based on the measured water usage (i.e. a return to sewer assumption).

Otherwise, they should be included in the relevant unmeasured line. |
| *Processing Rules:* | Input field |
| **A3.20** | **Number of billed properties with tradewaste agreements** | **Nr.** |
| *Definition:* | Number of billed metered non-household properties for wastewater as at 30 June of the reporting year, with tradewaste agreements. |
| *Processing Rules:* | Input field |

BLOCK 4: UNMEASURED NON-HOUSEHOLD - PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A3.42** | **Number of billed properties with other relief of charges** | **Nr.** |
| *Definition:* | Number of billed unmeasured non-household properties for wastewater with other relief of charges as at 30 June of the reporting year.If this line is populated, please provide a commentary on the relief in place. |
| *Processing Rules:* | Input field |
| **A3.43** | **Number of billed properties with no charges** | **Nr.** |
| *Definition:* | Number of billed unmeasured non-household properties for wastewater where a service has been provided as at 30 June of the reporting year, but no charge has been made.If this line is populated, please provide a commentary on the relief in place.  |
| *Processing Rules:* | Input field |
| **A3.44** | **Total number of billed properties** | **Nr.** |
| *Definition:* | Number of billed unmeasured non-household properties for wastewater as at 30 June of the reporting year. |
| *Processing Rules:* | Input field |

BLOCK 5: SUMMARY – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A3.53** | **Total connected billed properties** | **Nr.** |
| *Definition:* | Number of household and non-household properties billed for wastewater within the supply area as at 30 June of the reporting year. |
| *Processing Rules:* | Calculated field: A3.1+A3.7+A3.19+A3.44 |
| **A3.54** | **Total connected properties** | **Nr.** |
| *Definition:* | Number of household and non-household properties within the supply area as at 30 June of the reporting year. This includes properties connected that do not receive a charge. |
| *Processing Rules:* | Input field |
| **A3.55** | **Properties charged but not connected** | **Nr.** |
| *Definition:* | Number of household and non-household properties billed for wastewater but not connected to the wastewater network within the supply area as at 30 June of the reporting year. This row includes those properties that are paying a charge for availability (i.e. properties that are not connected to the wastewater network but have the option to connect). |
| *Processing Rules:* | Input field |
| **A3.56** | **Total properties charged** | **Nr.** |
| *Definition:* | Total number of household and non-household properties billed for wastewater within the supply area as at 30 June of the reporting year. |
| *Processing Rules:* | Calculated field: A3.53+A3.55 |
| **A3.57** | **Number of properties connected during the report year** | **Nr.** |
| *Definition:* | The number of new household and non-household properties added during the report year. |
| *Processing Rules:* | Input field |

BLOCK 6: SUMMARY – POPULATION

|  |  |  |
| --- | --- | --- |
| **A3.58** | **Winter** | **000 (2dp)** |
| *Definition:* | Total winter population supplied at the financial year end (30 June) in the Local Authority’s area of supply. This should include billed customers supplied with unmeasured and measured wastewater.Please provide commentary on how the winter population has been estimated. |
| *Processing Rules:* | Input field |

|  |  |  |
| --- | --- | --- |
| **A3.59** | **Summer** | **000 (2dp)** |
| *Definition:* | Population (summer) supplied at the financial year end (30 June) in the Local Authority’s area of supply plus the holiday and tourist population defined below.The holiday and tourist population can be obtained from the tourist board estimates of the number of bed spaces available for non-residents.Except where there is firm evidence to the contrary, the Local Authority should use a population based on a 2/3rds occupancy rate for the peak summer month.Note that the resultant figure will be additional to the resident population.As an example, to estimate summer population, Watercare used the number of guest nights reported by Stats NZ and compared the average guest nights from international visitors over the summer months (January to March), to the equivalent guest nights for the winter months (June to August).Please provide commentary on how the summer population has been estimated.Exclude any allowance for daily commuters. |
| *Processing Rules:* | Input field |
| **A3.60** | **Assumed percentage returned to wastewater system** | **%** |
| *Definition:* | Assumed percentage of delivered water that is returned to the wastewater system. |
| Processing Rules: | Input field |

TABLE A3b: STORMWATER PROPERTIES & POPULATION

Properties

1. This table includes a breakdown of all measured and unmeasured household and non-household properties and an analysis of the total number of properties connected to the stormwater system.
2. Definitions for *household property* and *non-household property* are given in Table A1.
3. A ***property*** is defined as being the subject of a separate stormwater service, and being occupied as a household property, or used for public, commercial or industrial purposes. Multi-unit dwellings such as a block of apartments should be counted based on the number of separate dwellings (i.e. a block of 10 apartments which have a single connection should be counted as 10 properties).
4. All properties served should be accounted for. If there is not an obvious line reference for the property served, please explain where these have been included in the reporting templates and why in the accompanying commentary.

Population

1. This records the total connected resident and non-resident populations for stormwater.
2. The information in this table is used for the stormwater collected unit cost analysis and associated additional information (for tariff and charging issues).

Guidance to the Local Authority

1. For the avoidance of doubt, Table A3b refers to the whole Local Authority area. In the event that a Local Authority has several discrete schemes, the total across the Local Authority area should be reported.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BLOCK 1: UNMEASURED HOUSEHOLD – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A3b.1** | **Total number of billed properties for stormwater** | **Nr.** |
| *Definition:* | Number of billed unmeasured household properties for stormwater, as at 30 June of the reporting year. For the avoidance of doubt, this includes billed properties that pay for stormwater through property rateable values. As such, Local Authorities should report the number of households where this applies. |
| *Processing Rules:* | Input field |

BLOCK 2: MEASURED HOUSEHOLD – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A3b.7** | **Total number of billed properties for stormwater** | **Nr.** |
| *Definition:* | Number of billed metered household properties for stormwater as at 30 June of the reporting year. For the avoidance of doubt, a customer should be considered measured if their:* stormwater drained is directly measured and charged; or
* stormwater drained is measured and charged based on the measured water usage (i.e. a return to sewer assumption).

Otherwise, they should be included in the relevant unmeasured line. |
| *Processing Rules:* | Input field |

BLOCK 3: MEASURED NON-HOUSEHOLD – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A3b.18** | **Number of billed properties with no charges** | **Nr.** |
| *Definition:* | Number of billed metered non-household properties for stormwater as at 30 June of the reporting year, where no charge has been made.  |
| *Processing Rules:* | Input field |
| **A3b.19** | **Total number of billed properties for stormwater** | **Nr.** |
| *Definition:* | Number of metered non-household properties for stormwater as at 30 June of the reporting year. For the avoidance of doubt, a customer should be considered measured if their:* stormwater drained is directly measured and charged; or
* stormwater drained is measured and charged based on the measured water usage (i.e. a return to sewer assumption).

Otherwise, they should be included in the relevant unmeasured line. |
| *Processing Rules:* | Input field |

BLOCK 4: UNMEASURED NON-HOUSEHOLD – PROPERTIES

|  |  |  |
| --- | --- | --- |
| **A3b.43** | **Number of billed properties with no charges** | **Nr.** |
| Definition: | Number of billed unmeasured non-household properties for stormwater where a service has been provided as at 30 June of the reporting year, but no charge has been paid. |
| Processing Rules: | Input field |
| **A3b.44** | **Total number of billed properties** | **Nr.** |
| Definition: | Number of billed unmeasured non-household properties for stormwater as at 30 June of the reporting year. |
| Processing Rules: | Input field |

BLOCK 5: SUMMARY – POPULATION

|  |  |  |
| --- | --- | --- |
| **A3b.55** | **Population connected to stormwater services** | **000 (2dp)** |
| *Definition:* | Total winter population connected to the stormwater service at the financial year end (30 June). This should include billed customers which receive a stormwater service.Please provide commentary on how the population has been estimated. |
| *Processing Rules:* | Input field |

 |

TABLE A4 – WASTEWATER VOLUMES AND LOADING

Wastewater volumes

1. This records the wastewater volumes collected from measured and unmeasured household properties and non-household properties, together with the volumes of tradewaste, and septic tank waste.
2. Wastewater collected is considered to be the most appropriate output measure of quantity for the wastewater service.
3. As clarified at the DIA clinic held on 3 November, Local Authorities should include wastewater received from household and non-household properties that receive a stock water supply when reporting volumes/loads in the relevant lines in the table. If the stock water supply is completely discrete, then this should not be included.

Wastewater – loads

1. This part of the table includes a breakdown of the pollution loads arising from the domestic population, tradewaste and tankered (i.e. septic tank and industrial liquid waste) loads being treated by the Local Authority. Treatment types are defined in Table E8.

Wastewater – facilities

1. Records the total number of wastewater treatment plants and outfalls, unsatisfactory outfalls and the treatment capacity available.

Wastewater sludge disposal

1. Records the volume of sludge disposed of via the various possible disposal routes. A4.50 should specify Total Sludge Disposal in thousand tonnes dry solids (ttds) over the reporting year.

Guidance to the Local Authority

1. The Local Authority must reveal any assumptions made in completing this table. The Local Authority must also state in the commentaries any COD to BOD conversion factor that they have used in completing the table.
2. For the avoidance of doubt, Table A4 refers to the whole Local Authority area. In the event that a Local Authority has several discrete schemes, the total across the Local Authority area should be reported.
3. In the event of a joint venture of assets serving two or more Local Authority areas, Local Authorities should report their own share of the loads or volumes received. If allocated, the Local Authority is expected to explain the allocation method used in the commentary cells.

BLOCK 1: WASTEWATER VOLUMES

|  |  |  |
| --- | --- | --- |
| **A4.1** | **Volume unmeasured household wastewater** | **000 m3/d** |
| *Definition:* | Volume of water delivered to household properties for unmeasured water that is returned to the wastewater system.  |
| *Processing Rules:* | Input field |

|  |  |  |
| --- | --- | --- |
| **A4.2** | **Volume unmeasured non-household wastewater at standard tariffs** | **000 m3/d** |
| *Definition:* | Volume of unmeasured water that is returned to the wastewater system. Non-household is defined as properties whose wastewater is collected but are not occupied as household properties, i.e. domestic supplies to factories, offices and commercial premises, cattle troughs.  |
| *Processing Rules:* | Input field |
| **A4.4** | **Volume unmeasured non-household wastewater with charitable relief** | **000 m3/d** |
| *Definition:* | Volume of unmeasured water that is returned to the wastewater system that is subject to charitable relief. Non-household is defined as properties whose wastewater is collected but are not occupied as household properties, i.e. domestic supplies to factories, offices and commercial premises, cattle troughs.  |
| *Processing Rules:* | Input field |
| **A4.5** | **Volume unmeasured non-household wastewater with other relief of charges** | **000 m3/d** |
| *Definition:* | Volume of unmeasured water that is returned to the wastewater system subject to other relief of charges. Non-household is defined as properties whose wastewater is collected but are not occupied as household properties, i.e. domestic supplies to factories, offices and commercial premises, cattle troughs.  |
| *Processing Rules:* | Input field |

|  |  |  |
| --- | --- | --- |
| **A4.6** | **Volume unmeasured non-household wastewater with no charge** | **000 m3/d** |
| *Definition:* | Volume of unmeasured water that is returned to the wastewater system with no charge Non-household is defined as properties whose wastewater is collected but are not occupied as household properties, i.e. domestic supplies to factories, offices and commercial premises, cattle troughs.  |
| Processing Rules: | Input field |
| **A4.7** | **Volume unmeasured wastewater** | **000 m3/d** |
| *Definition:* | Volume of water delivered to unmeasured water supplies that is returned to the wastewater system. |
| *Processing Rules:* | Calculated field: the sum of A4.1 to A4.6. |
| **A4.8** | **Volume measured household wastewater** | **000 m3/d** |
| *Definition:* | Volume of measured household wastewater effluent discharged to the wastewater system. If applicable, please provide the return to sewer assumption in the commentary (e.g. in the UK, a return to sewer assumption of 95% is used).  |
| *Processing Rules:* | Input field |
| **A4.8a** | **Volume measured non-household wastewater** | **000 m3/d** |
| *Definition:* | Volume of measured non-household wastewater effluent discharged to the wastewater system. If applicable, please provide the return to sewer assumption in the commentary (e.g. in the UK, a return to sewer assumption of 95% is used). |
| *Processing Rules:* | Input field |
| **A4.9** | **Volume measured non-household wastewater – relief of charges** | **000 m3/d** |
| *Definition:* | Volume of measured non-household wastewater discharged to wastewater system by customers with relief of charges. If applicable, please provide the return to sewer assumption in the commentary (e.g. in the UK, a return to sewer assumption of 95% is used).  |
| *Processing Rules:* | Input field |

|  |  |  |
| --- | --- | --- |
| **A4.10** | **Volume measured non-household wastewater – no charge** | **000 m3/d** |
| *Definition:* | Volume of measured non-household wastewater discharged to the wastewater system by customers who have received the service but have not been charged. If applicable, please provide the return to sewer assumption in the commentary (e.g. in the UK, a return to sewer assumption of 95% is used). |
| *Processing Rules:* | Input field |
| **A4.11** | **Volume tradewaste** | **000 m3/d** |
| *Definition:* | Volume of tradewaste discharged to wastewater system. |
| *Processing Rules:* | Input field |
| **A4.12** | **Volume of measured wastewater** | **000 m3/d** |
| *Definition:* | Volume of measured wastewater discharged to the sewer. |
| *Processing Rules:* | Calculated field: the sum of A4.8 to A4.11. |
| **A4.13** | **Volume wastewater returned** | **000 m3/d** |
| *Definition:* | Volume of water delivered to measured and unmeasured water supplies that is returned to the wastewater system. |
| *Processing Rules:* | Calculated field: the sum of A4.7+A4.12 |
| **A4.14** | **Volume septic tank waste** | **000 m3** |
| *Definition:* | The total volume of private and public septic tank waste received at wastewater treatment plants. |
| *Processing Rules:* | Input field |

BLOCK 2: WASTEWATER – LOADS

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| --- | --- | --- |
| **A4.15** | **Total connected population** | **000** |
| *Definition:* | Total winter population connected to the wastewater system. |
| *Processing Rules:* | Brought forward field: Line A3.58 |
| **A4.16** | **Population with effluent receiving primary treatment** | **000** |
| *Definition:* | The population connected to the wastewater system whose effluent receives at least primary treatment. “Primary Treatment” is defined as a combination of screening, grit removal, and primary sedimentation processes. It may include chemical assisted sedimentation (CAS) – i.e. advanced primary treatment (APT). Some WWTPs in New Zealand do not have primary sedimentation between preliminary treatment processes (screening and grit) and secondary treatment but should be included in this treatment category.Connected population, including an allowance for domestic effluent from non-resident population whose effluent received at least primary treatment. Please advise in the Commentary the split between resident and non-resident population. |
| *Processing Rules:* | Input field |
| **A4.17** | **Population with effluent receiving secondary or tertiary treatment** | **000** |
| *Definition:* | Connected population, including an allowance for domestic effluent from non-resident population whose effluent received at least secondary treatment - Exclude those receiving only primary or preliminary treatment (or no treatment at all) but include those receiving secondary treatment or better. “Secondary Treatment” is defined as including a biological treatment process (biological trickling filters, activated sludge, pond systems, SBRs, MBRs, etc) followed by secondary clarification/settling. Some WWTPs in New Zealand do not have a secondary clarification stage but should still be included in this treatment category. WWTPs may include tertiary treatment processes such as membrane or mixed media or cloth filtration and disinfection (UV or chlorination). Please advise in the Commentary the split between resident and non-resident population. |
| *Processing Rules:* | Input field |
| **A4.18** | **Domestic load receiving secondary or tertiary treatment (BOD/yr)** | **Tonnes/year** |
| *Definition:* | Total BOD load per year (tonnes) from domestic effluent, calculated from a modified population figure (line A4.17) which includes an allowance for non-resident population. Exclude septic tank waste.This is calculated from A4.17 based on a figure of 60g/head/day BOD. |
| *Processing Rules:* | Calculated field: $ \frac{A4.17\*60\*365}{1,000}$ |
| **A4.19** | **Non-domestic load receiving secondary or tertiary treatment (BOD/yr)**  | **Tonnes/year** |
| *Definition:* | This is the total Non-domestic BOD pollution load receiving secondary treatment (or better) in tonnes BOD/year.  |
| *Processing Rules:* | Input field |
| **A4.20** | **Tradewaste load receiving secondary or tertiary treatment (BOD/yr)**  | **Tonnes/year** |
| *Definition:* | This is the total tradewaste BOD pollution load receiving secondary treatment (or better) in tonnes BOD/year. |
| *Processing Rules:* | Input field |
| **A4.21** | **Tradewaste load receiving secondary or tertiary treatment (COD/yr)** | **Tonnes/year** |
| *Definition:* | This is the total trade effluent COD pollution load receiving secondary treatment (or better) in tonnes COD/year.  |
| *Processing Rules:* | Input field |
| **A4.22** | **Private septic tank load receiving secondary or tertiary treatment (BOD/yr)** | **Tonnes/year** |
| *Definition:* | Private septic tank pollutant load received at Wastewater treatment plants (tonnes BOD/year). |
| *Processing Rules:* | Input field |

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| **A4.23** | **Public septic tank load receiving secondary or tertiary treatment (BOD/yr)** | **Tonnes/year** |
| *Definition:* | Public septic tank pollutant load received at Wastewater treatment plants (BOD) (tonnes/year). |
| *Processing Rules:* | Input field |
| **A4.24** | **Other tanker load receiving secondary or tertiary treatment (COD/yr)** | **Tonnes/year** |
| *Definition:* | Total tanker load (COD) from other sources receiving secondary (or better) treatment. This includes tankered liquid waste from industry and any other non-core activities which is treated at Wastewater treatment plants providing secondary treatment or better. Exclude septic tank waste. |
| *Processing Rules:* | Input field |
| **A4.25** | **Other tanker load receiving secondary or tertiary treatment (BOD/yr)** | **Tonnes/year** |
| *Definition:* | Total tanker load (BOD) from other sources receiving secondary treatment (or better).This includes tankered liquid waste from industry and any other non-core activities which is treated at wastewater treatment plants providing secondary treatment or better. Exclude septic tank waste from household sources which must be reported in lines A4.22 and A4.23 above. |
| *Processing Rules:* | Input field |
| **A4.26** | **Total load receiving secondary or tertiary treatment (BOD/yr)** | **Tonnes/year** |
| *Definition:* | This is the total load in tonnes BOD/year which receives treatment at secondary (or better) treatment plants. |
| *Processing Rules:* | Calculated field: A4.18+A4.19+A4.20+A4.22+A4.23+A4.25 |
| **A4.27** | **Total load receiving primary treatment only (BOD/yr)** | **Tonnes/year** |
| *Definition:* | This is the total pollution load in tonnes BOD/year which receives primary treatment. Exclude any effluent receiving only preliminary treatment and any load which receives secondary treatment or better. |
| *Processing Rules:* | Input field |
| **A4.28** | **Total load receiving preliminary treatment only (BOD/yr)** | **Tonnes/year** |
| *Definition:* | This is the total pollution load in tonnes BOD/year which received only preliminary treatment. Exclude any effluent which receives no treatment, or which receives primary treatment or better. |
| *Processing Rules:* | Input field |
| **A4.29** | **Total load entering wastewater system (BOD/yr)** | **Tonnes/year** |
| *Definition:* | This is the total pollution load in tonnes BOD/year which is discharged to the wastewater system. |
| *Processing Rules:* | Input field |
| **A4.30** | **Average COD concentration** | **mg/l** |
| *Definition:* | Average COD concentration in wastewater area. This should be for the region as a whole and not just for tradewaste. |
| *Processing Rules:* | Input field |
| **A4.31** | **Average suspended solids concentration** | **mg/l** |
| *Definition:* | Average concentration of suspended solids in wastewater area. This should be for the region's effluent as a whole and not just for tradewaste. |
| *Processing Rules:* | Input field |
| **A4.32** | **Equivalent population served (resident)** | **000** |
| *Definition:* | Equivalent population should be calculated on the basis of 60g BOD5 per capita per day. Imported effluents should be included in calculation. No account should be taken of holiday population. |
| *Processing Rules:* | Input field |
| **A4.33** | **Equivalent population served (resident) (numerical consents)** | **000** |
| *Definition:* | Equivalent population subject to numerical consents should be calculated on the basis of 60g BOD5 per capita per day. Imported effluents should be included in calculation. No account should be taken of holiday population. |
| *Processing Rules:* | Input field |

BLOCK 3: WASTEWATER – FACILITIES

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| **A4.35** | **Number of wastewater treatment plants** | **Nr.** |
| *Definition:* | Total number of Wastewater treatment plants. |
| *Processing Rules:* | Input field |
| **A4.36** | **Number of sea outfalls** | **Nr.** |
| *Definition:* | Number of sea outfalls.Do not include intermittent discharges, such as storm overflows. Include outfalls discharging wastewater which receives only a maximum of preliminary treatment (e.g. screening or grit removal). |
| *Processing Rules:* | Input field |
| **A4.37** | **Number of other outfalls** | **Nr.** |
| *Definition:* | Number of other outfalls.This should refer to river outfalls, freshwater lake outfalls, and any other forms of treated effluent discharge such as wetlands, ground injection or irrigation to land. |
| *Processing Rules:* | Input field |
| **A4.38** | **Treatment capacity available (BOD5/day)** | **Tonnes** |
| *Definition:* | The average annual total treatment capacity available in BOD5/day within the Local Authority’s area of supply. |
| *Processing Rules:* | Input field |
| **A4.39** | **Equivalent population served by sea outfalls**  | **000** |
| *Definition:* | The equivalent population (resident) connected to the sea outfalls recorded in line A4.36. Equivalent population should be calculated on the basis of 60g BOD5 per capita per day. No account should be taken of holiday population. |
| *Processing Rules:* | Input field |
| **A4.40** | **Equivalent population served by other outfalls**  | **000** |
| *Definition:* | The equivalent population (resident) connected to the other outfalls recorded in line A4.37. Equivalent population should be calculated on the basis of 60g BOD5 per capita per day. No account should be taken of holiday population. |  |
| *Processing Rules:* | Input field |  |
| **A4.41** | **Number of unsatisfactory sea outfalls**  | **Nr.** |
| *Definition:* | A sea outfall will be considered unsatisfactory if the consent conditions for the treatment plants are breached. |
| *Processing Rules:* | Input field |
| **A4.42** | **Number of unsatisfactory other outfalls**  | **Nr.** |
| *Definition:* | Other categories of outfall (e.g. river outfalls and freshwater lake outfalls) will be considered unsatisfactory if the consent conditions for the treatment plants are breached. |
| *Processing Rules:* | Input field |
| **A4.43** | **Equivalent population served by unsatisfactory sea outfalls**  | **000** |
| *Definition:* | The equivalent population (resident) connected to the unsatisfactory sea outfalls recorded in line A4.41. Equivalent population should be calculated on the basis of 60g BOD5 per capita per day. No account should be taken of holiday population. |
| *Processing Rules:* | Input field |
| **A4.44** | **Equivalent population served by unsatisfactory other outfalls**  | **000** |
| *Definition:* | The equivalent population (resident) connected to the unsatisfactory other outfalls recorded in line A4.42. Equivalent population should be calculated on the basis of 60g BOD5 per capita per day. No account should be taken of holiday population. |
| *Processing Rules:* | Input field |

BLOCK 4: WASTEWATER SLUDGE DISPOSAL

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| **A4.45** | **Percentage wastewater sludge to farmland - untreated** | **%** |
| *Definition:* | Percentage of the total wastewater sludge disposal to farmland which is raw. This excludes incinerated sludge reported in A4.48. The quantity of sludge disposed to which the percentages in lines A4.45 to A4.52 inclusive apply should be that reported in line A4.53. |
| *Processing Rules:* | Input field |
| **A4.46** | **Percentage wastewater sludge to farmland - conventional** | **%** |
| *Definition:* | Percentage of the total wastewater sludge disposal to farmland which is subject to conventional treatment as per New Zealand guidelines or regional rules. This excludes incinerated sludge reported in A4.48. The quantity of sludge disposed to which the percentages in lines A4.45 to A4.52 inclusive apply should be that reported in line A4.53. |
| *Processing Rules:* | Input field |
| **A4.47** | **Percentage wastewater sludge to farmland - advanced** | **%** |
| *Definition:* | Percentage of the total wastewater disposal to farmland which is subject to advanced treatment as per New Zealand guidelines or regional rules. This excludes incinerated sludge reported in A4.48. The quantity of sludge disposed to which the percentages in lines A4.45 to A4.52 inclusive apply should be that reported in line A4.53. |
| *Processing Rules*: | Input field |
| **A4.48** | **Percentage wastewater sludge to incineration** | **%** |
| *Definition*: | Percentage of the total wastewater sludge disposal subject to incineration.The quantity of sludge disposed to which the percentages in lines A4.45 to A4.52 inclusive apply should be that reported in line A4.53. |
| *Processing Rules*: | Input field |

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| **A4.49** | **Percentage wastewater sludge to landfill** | **%** |
| *Definition*: | Percentage of the total wastewater sludge disposal to landfill in various forms (e.g. raw and partly treated). This excludes incinerated sludge reported in A4.48. The quantity of sludge disposed to which the percentages in lines A4.45 to A4.52 inclusive apply should be that reported in line A4.53. |
| *Processing Rules*: | Input field |
| **A4.50** | **Percentage wastewater sludge composted** | **%** |
| *Definition*: | Percentage of the total wastewater sludge disposed of by means of composting. This excludes incinerated sludge reported in A4.48. The quantity of sludge disposed to which the percentages in lines A4.45 to A4.52 inclusive apply should be that reported in line A4.53. |
| *Processing Rules:* | Input field |
| **A4.51** | **Percentage wastewater sludge to land reclamation** | **%** |
| *Definition*: | Percentage of the total wastewater sludge disposed to land reclamation. This excludes incinerated sludge reported in A4.48. The quantity of sludge disposed to which the percentages in lines A4.45 to A4.52 (inclusive) apply should be that reported in line A4.53. |
| *Processing Rules*: | Input field |
| **A4.52** | **Percentage other wastewater sludge disposal** | **%** |
| *Definition*: | Percentage of total wastewater sludge disposal not included in other categories (farmland, landfill, incinerator and sea). Give methods of disposal in the commentary, and the percentage disposed of by each method. |
| *Processing Rules*: | Input field |
| **A4.53** | **Total wastewater sludge disposal** | **Thou sand tonnes dry solid**  |
| *Definition*: | Total for all wastewater sludge disposal for the reporting year. This should include disposal to farmland, landfill, incineration, composted, land reclamation, and other as reported in lines A4.45 to A4.52 respectively. |
| *Processing Rules*: | Input field |

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| **A4.54** | **Percentage unsatisfactory sludge disposal** | **%** |
| *Definition*: | Percentage of total sludge disposal that is unsatisfactory given the sludge regulations in New Zealand. Give reasons for unsatisfactory disposal in the commentary and the percentages affected. |
| *Processing Rules:* | Input field |