

Appendix D : Supply Demand

Table	1	Water: Supply Demand Balance and the security of supply
Block	A	Raw water
Line	1	Raw water abstracted from own sources

Line Definition: The volume of raw water abstracted from Scottish Water's boreholes, rivers and impounding reservoirs in the report year.

Processing Rule: Input

AR 07 Ref:

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	A	Raw water
Line	2	Raw water imported

Line Definition: The volume of raw water imported by Scottish Water in the report year.

Processing Rule: Input

AR 07 Ref:

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	A	Raw water
Line	3	Raw water exported

Line Definition: The volume of raw water exported (including partially treated non-potable water supplied) by Scottish Water in the report year.

Processing Rule: Input

AR 07 Ref:

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	A	Raw water
Line	4	Raw water losses

Line Definition: The volume of abstracted and imported raw water lost through leakage, overflow or evaporation, in the report year. Scottish water should state in its commentary whether this figure is calculated or estimated, and discuss the adopted process.

Processing Rule: Input

AR 07 Ref:

MI/d

3dp

Appendix D : Supply Demand

Table	1	Water: Supply Demand Balance and the security of supply
Block	A	Raw water
Line	5	Raw water into treatment

Line Definition: The volume of raw water entering Scottish Water's treatment works in the report year.

Processing Rule: Calculated field: line 1 plus line 2 minus line 3 minus line 4.

AR 07 Ref:

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	B	Water treatment
Line	6	Potable water exports

Line Definition: The volume of potable water exported by Scottish Water in the report year.

Processing Rule: Input

AR 07 Ref:

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	B	Water treatment
Line	7	Losses of water at water treatment works

Line Definition: The volume of water lost in the treatment process through: leakage, sampling and sludge removal etc in the report year.

Processing Rule: Input

AR 07 Ref:

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	B	Water treatment
Line	8	Potable water imports

Line Definition: The volume of potable water imported by Scottish Water in the report year.

Processing Rule: Input

AR 07 Ref:

MI/d

3dp

Appendix D : Supply Demand

Table	1	Water: Supply Demand Balance and the security of supply
Block	B	Water treatment
Line	9	Potable water leaving own works for own customers and supply points

Line Definition: The volume of potable water leaving Scottish Water's own water treatment works for its own customers. Excludes potable water imports and exports.

Processing Rule: Calculated field: line 5 minus line 6 minus line 7 plus line 8

AR 07 Ref: A2.10

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	B	Water treatment
Line	10	Potable water distribution input

Line Definition: The volume of potable water entering the distribution system and supplied to customers within Scottish Water's area of supply. It is expected to be equal to metered distribution input. SW should explain in the accompanying commentary the calculation used to derive this figure.

Processing Rule: Calculated field: line 8 plus line 9

AR 07 Ref: A2.11

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	C	Water delivered: billed
Line	11	Water delivered to billed measured households

Line Definition: The volume of potable water delivered to measured household properties in the report year. This is to include supply pipe leakage and any meter under-registration. Scottish Water should give details in its commentary of any amendments to actual metered consumption records to obtain the reported water delivered information. Amendments may be necessary to take account of billing periods being different from the report year, and an adjustment for meter under-registration may be deemed appropriate.

All adjustments to recorded data should be clearly explained in the commentaries together with evidence to support the need for the changes. If an adjustment is made for meter under-registration, then Scottish Water should specify the class of meters involved, state the percentage error assumed, and provide supporting evidence.

Processing Rule: Input

AR 07 Ref: A2.13

MI/d

3dp

Appendix D : Supply Demand

Table	1	Water: Supply Demand Balance and the security of supply
Block	C	Water delivered: billed
Line	12	Water delivered to billed unmeasured households

Line Definition: Estimated volume of potable water delivered to unmeasured household properties in the report year and charged at standard rates. If Scottish Water's estimate of the per capita consumption of unmeasured household properties excludes supply pipe leakage, then an estimate of this leakage must be made and included in this line.

This line should include supply pipe leakage from void and exempt properties. The method of estimation must be set out and supported in the commentaries.

Processing Rule: Input

AR 07 Ref: A2.12

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	C	Water delivered: billed
Line	13	Total water delivered to billed households

Line Definition: The estimated volume of potable water delivered to households, including meter under-registration and supply pipe leakage.

Processing Rule: Calculated field: line 11 plus line 12

AR 07 Ref:

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	C	Water delivered: billed
Line	14	Water delivered to billed measured supply points

Line Definition: The volume of potable water delivered to measured non-household properties in the report year. This is to include supply pipe leakage and meter under-registration. Scottish Water should give details in its commentary of any amendments to actual metered consumption records to obtain the reported water delivered information. Amendments may be necessary to take account of billing periods being different from the report year and an adjustment for meter under-registration may be deemed appropriate.

All adjustments to recorded data should be clearly explained in the commentaries together with evidence to support the need for the changes. If an adjustment is made for meter under-registration, then Scottish Water should specify the class of meters involved, state the percentage error assumed, and provide supporting evidence.

Processing Rule: Input

AR 07 Ref: A2.15

MI/d

3dp

Appendix D : Supply Demand

Table	1	Water: Supply Demand Balance and the security of supply
Block	C	Water delivered: billed
Line	15	Water delivered to billed assessed supply points

Line Definition: Estimated volume of potable water delivered to unmeasured non-household properties in the report year. This is to include an estimate of supply pipe leakage. If SW'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.

This line should include supply pipe leakage from void properties and the method of estimation must be set out and supported in the commentaries.

Processing Rule: Input

AR 07 Ref: A2.14

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	C	Water delivered: billed
Line	16	Total water delivered to billed supply points

Line Definition: The estimated volume of potable water delivered to non-households, including meter under-registration and supply pipe leakage.

Processing Rule: Calculated field: line 14 plus line 15

AR 07 Ref:

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	C	Water delivered: billed
Line	17	Total water delivered and billed

Line Definition: The estimated volume of potable water delivered to billed customers, including meter under-registration and supply pipe leakage.

Processing Rule: Calculated field: line 13 plus line 16

AR 07 Ref: A2.16

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	D	Water Delivered: unbilled
Line	18	Water taken legally - unbilled

Line Definition: legally taken unbilled water should include all water supplied to customers for legitimate purposes that is unbilled. None of this should have been included in the breakdown of water delivered to billed customers. This line should include for example: public supplies for which no charge is made, uncharged church supplies, fire training and fire-fighting use where this is not charged irrespective of whether or not it is metered, and any officially sanctioned standpipe use not included in non-household use.

SW should comment on the assessment process for the more material volumes.

Processing Rule: input

AR 07 Ref: A2.27

MI/d

3dp

Appendix D : Supply Demand

Table	1	Water: Supply Demand Balance and the security of supply
Block	D	Water Delivered: unbilled
Line	19	Water taken illegally - unbilled

Line Definition: Illegally taken unbilled water is difficult to quantify accurately. Scottish Water should include in this line a rationally based estimate of water taken illegally by customers for such uses as: unauthorised hydrant use, illegal connections and occupied void properties etc. Scottish Water should explain in the accompanying commentary the estimation process used to derive this figure.

Processing Rule: input

AR 07 Ref: A2.28

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	D	Water Delivered: unbilled
Line	20	Water taken unbilled - Distribution system operational use

Line Definition: Distribution system operational use is water knowingly used by Scottish Water to meet its statutory operational obligations. This includes, amongst other things, service reservoir cleaning, mains flushing/air scouring, swabbing, draining networks, washouts, discharges to control pH or other chemical parameters, bowser filling, mains testing and disinfection and sampling. SW should explain in the accompanying commentary the calculation used to derive this figure.

Processing Rule: input

AR 07 Ref: A2.29

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	D	Water Delivered: unbilled
Line	21	Total water taken unbilled

Line Definition: The calculated sum of lines 18, 19 and 20 is the total water used by Scottish Water to maintain the distribution system together with all unbilled water taken by customers. All leakage should be excluded from this line.

Processing Rule: Calculated field: Sum of lines 18 to 20

AR 07 Ref: A2.17

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	E	Leakage
Line	22	Service reservoir leakage

Line Definition: The estimated volume of potable water lost from storage in service reservoirs and water towers. Losses should include both leaking structures and any overflows. Estimates of losses from a sample selection of structures based on 'drop tests' or long term mass balance (input and output) meter data, should be extrapolated to obtain a regional figure.

Processing Rule: Input

AR 07 Ref:

MI/d

3dp

Appendix D : Supply Demand

Table	1	Water: Supply Demand Balance and the security of supply
Block	E	Leakage
Line	23	Trunk main leakage

Line Definition: The estimated volume of potable water leaking from trunk mains connecting water treatment works to service reservoirs & towers. An assessment of leakage may be derived either from metering or from typical published data for different mains: material, condition, pressure, diameter or age etc.

Even if reliable flow meters exist, it is inherently difficult to determine leakage by comparing meter readings. This is because there will only be a relatively small difference between readings that already contain a degree of uncertainty.

Processing Rule: Input

AR 07 Ref:

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	E	Leakage
Line	24	Supply mains leakage

Line Definition: The estimated volume of potable water leaking from distribution mains, excluding trunk mains and customer supply pipes. An assessment of this network leakage is expected to be derived from the measurement of minimum night flows in a representative selection of established District Meter Areas (and applying justifiable allowances for legitimate night use and day/night pressure variation) extrapolated for the whole region.

Processing Rule: Input

AR 07 Ref:

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	E	Leakage
Line	25	Distribution losses (incl trunk mains and service reservoirs)

Line Definition: Distribution losses represent the losses on Scottish Water's potable water distribution system assets, i.e. excluding supply pipe leakage, which is the customer's responsibility.

Processing Rule: Calculated field: The sum of lines 22 to 24

AR 07 Ref: A2.18

MI/d

3dp

Appendix D : Supply Demand

Table	1	Water: Supply Demand Balance and the security of supply
Block	E	Leakage
Line	26	Underground supply pipe leakage (measured households)

Line Definition: Estimated average supply pipe leakage per measured household. This estimate should reflect the reduced supply pipe leakage on externally metered properties due to the identification of such leaks from meter readings. The effect of any initial reductions in supply pipe leakage following meter installation should not be included here.

Scottish Water should include in its commentary, a description of the process and assumptions used to determine average supply pipe losses at internally and externally measured households.

This line should correspond with the supply pipe losses included in line 11.

Processing Rule: Input

AR 07 Ref: A2.33

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	E	Leakage
Line	27	Underground supply pipe leakage (unmeasured households, including exempt)

Line Definition: Estimated underground supply pipe leakage per unmeasured billed household. Underground supply pipe leakage is any loss of water from the underground supply pipe.

Scottish Water should include in its commentary, a description of the process and assumptions used to determine average supply pipe losses at unmeasured households.

This line should correspond with the supply pipe losses included in line 12.

Processing Rule: Input

AR 07 Ref: A2.32

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	E	Leakage
Line	28	Underground supply pipe leakage (metered non-households)

Line Definition: Estimated per capita consumption of measured households. This figure applies to billed measured households and excludes underground supply pipe leakage.

Processing Rule: Input

AR 07 Ref: A2.35

l/h/d

3dp

Appendix D : Supply Demand

Table	1	Water: Supply Demand Balance and the security of supply
Block	E	Leakage
Line	29	Underground supply pipe leakage (unmeasured non-households, including exempt)

Line Definition: Estimated per capita consumption of households that are supplied with unmeasured water. This figure applies to billed unmeasured households and excludes underground supply pipe leakage. Underground supply pipe leakage is any loss of water from the underground supply pipe.

Processing Rule: Input

AR 07 Ref: A2.34

l/h/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	E	Leakage
Line	30	Underground supply pipe leakage (void properties)

Line Definition: Estimated supply pipe leakage from void properties. This refers to properties which are connected to the distribution system but do not receive a charge as there are no occupants.

Processing Rule: Input

AR 07 Ref: A2.36

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	E	Leakage
Line	31	Total supply pipe leakage

Line Definition: This calculated line is total supply pipe leakage - the sum of lines 26 to 30.

Processing Rule: Calculated field: The sum of lines 26 to 30

AR 07 Ref: A2.31

MI/d

3dp

Table	1	Water: Supply Demand Balance and the security of supply
Block	E	Leakage
Line	32	Total leakage

Line Definition: This calculated line is the sum of lines 25 and 31, distribution losses plus underground supply pipe losses.

Processing Rule: Calculated field: line 25 plus line 31

AR 07 Ref:

MI/d

3dp

Appendix D : Supply Demand

Table	1	Water: Supply Demand Balance and the security of supply
Block	F	Water Balance
Line	33	Overall water balance

Line Definition: This is the percentage of distribution input that should subsequently be reallocated by a maximum likelihood estimating (MLE) process to obtain final best estimates of each component of the balance.

The percentage difference between total distribution input and the sum of water components: delivered, taken or lost.

The percentage will usually be positive, indicating measured distribution input is greater than the sum of the measured and estimated components.

Processing Rule: Calculated field: line 10 minus the sum of lines 17 plus line 21 plus line 25 divided by line 10 and then multiplied by 100%

AR 07 Ref:

A2.19

%

%

Table	1	Water: Supply Demand Balance and the security of supply
Block	F	Water Balance
Line	34	Water balance confidence grade

Line Definition: This is derived from line 32. Confidence grade A means the percentage balance is 2% or lower. Grade B means the balance is greater than 2% but lower than 5%. Grade C means the balance is greater than 5% but lower than 10%. Grade D means the balance is greater than 10%.

Processing Rule: Input

AR 07 Ref:

3,C or D

Table	1	Water: Supply Demand Balance and the security of supply
Block	G	Water service output measures
Line	35	Security of supply index - dry year annual average planned level of service

Line Definition: The forecast Security of Supply Index to Scottish Water's planned level of service in a dry year calculated as set out in Section B of the Annual Return guidance.

For 2007-08 the index should be based on actual data. For subsequent years the forecast should be based on the anticipated water resource and demand situation.

The supporting data and assumptions will be reported in Table 2

Processing Rule: Brought forward from Table 2

AR 07 Ref:

B9a Column 14

Nr

Odp

Appendix D : Supply Demand

Table	1	Water: Supply Demand Balance and the security of supply
Block	G	Water service output measures
Line	36	Security of supply index - critical period

Line Definition: The forecast Security of Supply Index to the planned level of service during peak conditions of a dry year calculated as set out in Section B of the Annual Return guidance. This line is only required where investment to maintain supply demand is driven by the critical period.

For 2007-08 the index should be based on actual data. For subsequent years the forecast should be based on the anticipated water resource and demand situation.

The supporting data and assumptions will be reported in Table 3

Processing Rule: Brought forward from Table 3

AR 07 Ref: B9c Column 14 Nr Odp

Table	1	Water: Supply Demand Balance and the security of supply
Block	G	Water service output measures
Line	37	Total water efficiency savings

Line Definition: The total water savings estimated to result from Scottish Water's water efficiency strategies. Reported figures should be consistent with the water resource plan.

Processing Rule: Input

AR 07 Ref: MI/d Odp

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	1	Water resource zone

Line Definition: The name of the water resource zone

Processing Rule: Input

AR 07 Ref: B9a column 1 text n/a

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	2	WAFU (SEPA definition)

Line Definition: Water available for use is defined as deployable output less sustainability reductions and reductions made for outage allowance in a resource zone.

Processing Rule: Input

AR 07 Ref: B9a column 2 MI/d 2dp

Appendix D : Supply Demand

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	3	Bulk Imports

Line Definition: Volume of water imported from other companies in bulk supplies. Include treated imports and untreated imports which are treated by SW, but exclude non-potable supplies. Bulk imports should be based on a dry year and be consistent with those assumed in water resource plans. These should be the maximum amounts able to be requested under contract.

Processing Rule: Input

AR 07 Ref: B9a column 3

MI/d

2dp

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	4	Bulk Exports

Line Definition: Volume of water exported to other companies in bulk supplies. Include treated exports and untreated exports, but exclude non-potable supplies. Bulk exports should be based on a dry year and be consistent with those assumed in water resource plans. These should be the maximum amounts that the SW may be obliged to supply.

Processing Rule: Input

AR 07 Ref: B9a column 4

MI/d

2dp

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	5	Dry Year Distribution Input

Line Definition: Distribution input recorded during the year adjusted by a dry year factor. The dry year factor should be based on a combination of: 1) the relationship between normal and dry year distribution input forecasts assumed in water resource plans; and 2) any difference between the report year conditions and those that pertain to the normal year distribution input forecast.

Processing Rule: Input

AR 07 Ref: B9a column 5

MI/d

2dp

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	6	Report Year distribution input

Line Definition: The average amount of potable water entering the distribution system at the point of production.

Processing Rule: Input

AR 07 Ref: B9a column 6

MI/d

2dp

Appendix D : Supply Demand

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	7	Dry year available headroom

Line Definition: The difference between water available for use (including bulk imports and exports) and dry year annual average demand (expressed as distribution input) at any given point in time.

Processing Rule: Calculated field: column 2 plus column 3 minus column 4 minus column 5

AR 07 Ref: B9a column 7

MI/d

2dp

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	8	Target headroom

Line Definition: The threshold or minimum acceptable headroom which, under the conditions assumed for the forecast of dry year annual average demand, would trigger the need for the introduction of those water management activities (from source to end use) that would result in an increase in water available for use or a decrease in demand. Target headroom should be consistent with that used in the SW's water resource plan to maintain the balance between supply and demand.

Processing Rule: Input

AR 07 Ref: B9a column 8

MI/d

2dp

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	9	Surplus/deficit

Line Definition: The amount of water available after meeting demand and target headroom (i.e. the difference between available headroom and target headroom).

Processing Rule: Calculated field: column 7 minus column 8

AR 07 Ref: B9a column 9

MI/d

2dp

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	10	Percentage deficit

Line Definition: The percentage of water available in a 'dry year' after meeting demand and target headroom. A positive figure means the zone is in surplus, and a negative figure indicates a deficit.

Processing Rule: Calculated field: 100% multiplied by column 9 then divided by column 5 plus column 8

AR 07 Ref: B9a column 10

%

1dp

Appendix D : Supply Demand

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	11	Zonal population

Line Definition: The total average resident population in the water resource zone.

Processing Rule: Input

AR 07 Ref: B9a column 11

Nr

0dp

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	12	Percentage of total population with headroom deficit

Line Definition: The proportion of Scottish Water's customers that are exposed to a headroom deficit in a given zone expressed as a percentage. Zones in surplus should be shown as zero.

Processing Rule: Calculated field: If column 9 is less than 0, then 100% multiplied by column 11 divided by the total of column 11 (the total population).

AR 07 Ref: B9a column 12

%

1dp

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	13	Zonal index

Line Definition: The Security of Supply index score for each individual water resource zone. The index is a function of the square of the deficit, so that large deficits affecting small zones weigh appropriately in the overall index.

Processing Rule: Calculated field: take the square of column 10 multiply by column 12, then multiply by 100.

AR 07 Ref: B9a column 13

Nr

3dp

Table	2	Supply Demand - Security of Supply Index - Dry year annual average
Block	A	Dry year security of supply index
Line	14	Security of supply index

Line Definition: The overall dry year Security of Supply index score under average conditions for Scottish Water. The resulting entry is a single figure for the Scottish Water region as a whole, and should be rounded down to the nearest whole number.

An index of 100 means there are no zones in deficit compared with target headroom.

A score of 90 to 99 suggests marginal deficit, and a score below 90 indicates a significant deficit.

Processing Rule: Calculated field: 1 minus the total of column 13, then multiply the difference by 100

AR 07 Ref: B9a column 14

Nr

3dp

Appendix D : Supply Demand

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	1	Water resource zone

Line Definition: The name of the water resource zone

Processing Rule: Input

AR 07 Ref: B9c Column 1 text n/a

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	2	Water available for use: WAFU (SEPA definition)

Line Definition: Water available for use is defined as deployable output less sustainability reductions and reductions made for outage allowance in a resource zone during the critical period.

Processing Rule: Input

AR 07 Ref: B9c Column 2 Ml/d 2dp

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	3	Bulk Imports

Line Definition: Volume of water imported from other companies during the critical period in bulk supplies, including treated imports and untreated imports which are treated by SW, but excluding non-potable supplies. Bulk imports should be based on a dry year and be consistent with those assumed in water resource plans. These should be the maximum amounts requested under contract.

Processing Rule: Input

AR 07 Ref: B9c Column 3 Ml/d 2dp

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	4	Bulk Exports

Line Definition: Volume of water exported to other companies during the critical period in bulk supplies, including treated exports and untreated exports, but excluding non-potable supplies. Bulk exports should be based on a dry year and be consistent with those assumed in water resource plans. These should be the maximum amounts that SW may be obliged to supply.

Processing Rule: Input

AR 07 Ref: B9c Column 4 Ml/d 2dp

Appendix D : Supply Demand

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	5	Dry Year Distribution Input

Line Definition: Distribution input recorded during the year adjusted by a dry year factor. The dry year factor should be based on a combination of: 1) the relationship between normal and dry year distribution input forecasts assumed in water resource plans; and 2) any difference between the report year conditions and those that pertain to the normal year distribution input forecast.

Processing Rule: Input

AR 07 Ref: B9c Column 5

MI/d

2dp

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	6	Reporting Year distribution input

Line Definition: The average amount of portable water entering the distribution system at the point of production during the critical period.

Processing Rule: Input

AR 07 Ref: B9c Column 6

MI/d

2dp

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	7	Dry year available headroom

Line Definition: The difference between critical period water available for use (including bulk imports and exports) and dry year annual average demand (expressed as distribution input) at any given point in time.

Processing Rule: Calculated field: Column 2 plus Column 3 minus Column 4 minus Column 5

AR 07 Ref: B9c Column 7

MI/d

2dp

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	8	Target headroom

Line Definition: The threshold or minimum acceptable critical period headroom which, under the conditions assumed for the forecast of dry year annual average demand, would trigger the need for the introduction of those water management activities (from source to end use) that would result in an increase in water available for use or a decrease in demand. Target headroom should be consistent with that used in SW's water resource plan to maintain the balance between supply and demand.

Processing Rule: Input

AR 07 Ref: B9c Column 8

MI/d

2dp

Appendix D : Supply Demand

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	9	Surplus/deficit

Line Definition: The amount of water surplus or deficit after meeting demand and target headroom (i.e. the difference between available headroom and target headroom).

Processing Rule: Calculated field: column 7 minus column 8

AR 07 Ref: B9c Column 9 M/d 2dp

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	10	Percentage surplus/deficit

Line Definition: The percentage of water surplus or deficit after meeting demand and target headroom.

Processing Rule: Calculated field: 100% multiplied by column 9 then divided by column 5 plus column 8

AR 07 Ref: B9c Column 10 % 1dp

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	11	Zonal population

Line Definition: The total average resident population in the water resource zone for the critical period.

Processing Rule: Input

AR 07 Ref: B9c Column 11 Nr 0dp

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	12	Percentage of total population with headroom deficit

Line Definition: The proportion of SW's customers that are exposed to a headroom deficit during the critical period. Zones in surplus should be shown as zero.

Processing Rule: Calculated field: If column 9 is less than 0, then 100% multiplied by column 11 divided by the total of column 11 (the total population).

AR 07 Ref: B9c Column 12 % 1dp

Appendix D : Supply Demand

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	13	Zonal index

Line Definition: The critical period Security of Supply index score for each individual water resource zone. The index is a function of the square of the deficit, so that large deficits affecting small zones weigh in the overall index.

Processing Rule: Calculated field: take the square of column 10 multiply by column 12, then multiply by 100.

AR 07 Ref: B9c Column 13

Nr

3dp

Table	3	Supply Demand - Security of Supply Index - Critical period
Block	A	Critical period security of supply index
Line	14	Security of supply index

Line Definition: The overall dry year Security of Supply index under critical period conditions for Scottish Water. The resulting entry is a single figure for the Scottish Water region as a whole, and should be rounded down to the nearest whole number.

An index of 100 means there are no zones in deficit compared with target headroom.

A score of 90 to 99 suggests marginal deficit, and a score below 90 indicates a significant deficit.

Processing Rule: Calculated field: 1 minus the total of column 13, then multiply the difference by 100

AR 07 Ref: B9c Column 14

Nr

3dp

Table	4	Supply Demand - Wastewater service forecasts
Block	A	Properties
Line	1	Households billed unmeasured sewage

Line Definition: Average number of households billed for unmeasured sewage within the Scottish Water wide supply area. This line should correspond with the sum of all water resource zones in the WR plan.

Exclude void properties

Processing Rule: Input

AR 07 Ref: A1.12

nr

0dp

Table	4	Supply Demand - Wastewater service forecasts
Block	A	Properties
Line	2	Households billed measured sewage

Line Definition: Average number of households billed for measured sewage within the Scottish Water wide supply area. This line should correspond with the sum of all water resource zones in the WR plan.

Exclude void properties

Processing Rule: Input

AR 07 Ref: A1.13

nr

0dp

Appendix D : Supply Demand

Table	4	Supply Demand - Wastewater service forecasts
Block	A	Properties
Line	3	Non households billed unmeasured sewage

Line Definition: Average number of unmeasured non-households receiving a sewerage service within the Scottish Water supply area.

This figure should correspond with the sum of each sewage catchment in the region.

Exclude void properties

Processing Rule: Input

AR 07 Ref: A1.14

nr

Odp

Table	4	Supply Demand - Wastewater service forecasts
Block	A	Properties
Line	4	Non-households billed measured sewage

Line Definition: Average number of non-households billed for measured water within the Scottish Water wide supply area. This line should correspond with the sum of all water resource zones in the WR plan.

This figure should correspond with the sum of each sewage catchment in the region.

Processing Rule: Input

AR 07 Ref: A1.15

nr

Odp

Table	4	Supply Demand - Wastewater service forecasts
Block	A	Properties
Line	5	Void Properties

Line Definition: Average number of properties within the supply area which are connected to the sewerage system but do not receive a charge as there are believed to be no occupants.

Processing Rule: Input

AR 07 Ref:

nr

Odp

Table	4	Supply Demand - Wastewater service forecasts
Block	B	Population
Line	6	Population - households billed unmeasured sewage

Line Definition: Average resident population in unmeasured households billed for sewage collected.

This figure should correspond with the sum of each sewage catchment in the region.

Processing Rule: Input

AR 07 Ref:

nr

Odp

Appendix D : Supply Demand

Table	4	Supply Demand - Wastewater service forecasts
Block	B	Population
Line	7	Population - households billed measured sewage

Line Definition: Average resident population in measured households billed for sewage collected.

This figure should correspond with the sum of each sewage catchment in the region.

Processing Rule: Input

AR 07 Ref:

nr

Odp

Table	4	Supply Demand - Wastewater service forecasts
Block	B	Population
Line	8	Population - non households billed unmeasured sewage

Line Definition: Average resident population in unmeasured non-households billed for sewage collected.

This figure should correspond with the sum of each sewage catchment in the region.

Processing Rule: Input

AR 07 Ref:

nr

Odp

Table	4	Supply Demand - Wastewater service forecasts
Block	B	Population
Line	9	Population - non-households billed measured sewage

Line Definition: Average resident population in measured non-households billed for sewage collected.

This figure should correspond with the sum of each sewage catchment in the region.

Processing Rule: Input

AR 07 Ref:

nr

Odp

Table	4	Supply Demand - Wastewater service forecasts
Block	B	Population
Line	10	Population Total

Line Definition: This is the total average billed population, calculated as the sum of lines 6 to 9.

Processing Rule: Calculated field: The sum of lines 6 to 9.

AR 07 Ref:

nr

Odp

Appendix D : Supply Demand

Table	4	Supply Demand - Wastewater service forecasts
Block	B	Population
Line	11	Summer population Total

Line Definition: Population (winter) supplied during the reporting year in SW'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, SW 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. Exclude any allowance for daily commuters.

Processing Rule: Input

AR 07 Ref: A2.2

nr

0dp

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	12	Billed unmeasured household sewage volume collected

Line Definition: The average flow rate of water delivered to unmeasured households that is returned to sewer. This is expected to be 95% of water delivered in line 12 of table D1.

Processing Rule: Input

AR 07 Ref: A2.39

MI/d

3dp

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	13	Billed measured household sewage volume collected

Line Definition: The average flow rate of water delivered to measured households that is returned to the sewer. This should be the volume for which customers are billed in the year and is therefore the volume registered by the customer meters adjusted by the Scottish Water allowance for non return to sewer. The reported volume must exclude meter under-registration and any supply pipe leakage that the customers are not charged for. It should include external supply pipe leakage as long as the charges for this are not refunded to customers.

Processing Rule: Input

AR 07 Ref: A2.40

MI/d

3dp

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	14	Billed unmeasured non-household sewage volume collected

Line Definition: The average flow rate of water delivered to un-measured non-households that is returned as domestic sewage to sewer. This is expected to be 95% of water delivered in line 15 of table 1.

Processing Rule: Input

AR 07 Ref: A2.41

MI/d

3dp

Appendix D : Supply Demand

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	15	Billed measured non-household sewage volume collected

Line Definition: The average flow rate of water delivered to measured non-households that is returned to the sewer. This should be the volume for which customers are billed in the year and is therefore the volume registered by the customers meters adjusted by the Scottish Water allowance for non return to sewer.

Processing Rule: Input

AR 07 Ref: A2.42

MI/d

3dp

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	16	Volume of trade effluent collected

Line Definition: The average flow rate of trade effluent discharged to the sewerage system. Trade effluent is any discharge which is not "domestic".

Processing Rule: Input

AR 07 Ref: A2.43

MI/d

3dp

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	17	Volume of septic tank and other waste received

Line Definition: The total volume of private and public septic tank waste and other waste received at sewage treatment works.

Processing Rule: Input

AR 07 Ref: A2.45

MI/d

3dp

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	18	Total volume of sewage collected

Line Definition: The average flow rate of sewage (both domestic and trade effluent) discharged to the sewerage system by measured and unmeasured household and non-household properties.

Processing Rule: Calculated field: The sum of lines 12 to 16.

AR 07 Ref: A2.44

MI/d

3dp

Appendix D : Supply Demand

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	19	Percentage returned to sewer - measured non-households

Line Definition: Assumed percentage of delivered water that is returned to the sewerage system.

Processing Rule: Input

AR 07 Ref:

%

Nr

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	20	Household sewage load

Line Definition: Total BOD load per year (tonnes) from household effluent. Exclude septic tank waste. This is based on a figure of 60g/day BOD.

Processing Rule: Input

AR 07 Ref: A2.46+A2.47

BOD/yr

Odp

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	21	Non-household sewage load

Line Definition: Total BOD load per year (tonnes) from non-household effluent. Exclude septic tank waste. Where this differs from a figure of 60g/day BOD, this should be explained in the commentary.

Processing Rule: Input

AR 07 Ref: A2.48+A2.49

BOD/yr

Odp

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	22	Trade effluent load

Line Definition: This is the total trade effluent BOD load in tonnes BOD/year. This must be from active supply points.

Processing Rule: Input

AR 07 Ref: A2.50

BOD/yr

Odp

Appendix D : Supply Demand

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	23	Total load discharged to sewerage system

Line Definition: Total BOD load per year (tonnes) from all primary services. Excludes septic tank waste.

Processing Rule: Input

AR 07 Ref: A2.51

BOD/yr

0dp

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	24	Total public and private septic tank and other load received at sewage treatment works

Line Definition: Total septic tank and other pollutant load received at sewage treatment works (BOD) (tonnes/year).

Processing Rule: Input

AR 07 Ref: A2.52+A2.53+A2.

BOD/yr

0dp

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	25	Total load received at sewage treatment works

Line Definition: Total pollution load in tonnes BOD/year which is received at sewage treatment works.

Processing Rule: Input

AR 07 Ref: A2.55

BOD/yr

0dp

Table	4	Supply Demand - Wastewater service forecasts
Block	C	Sewage volume collected
Line	26	Total load receiving treatment at PPP treatment works

Line Definition: The total load in tonnes BOD/year receiving treatment through PPP works.

Processing Rule: Input

AR 07 Ref: A2.60

BOD/yr

0dp

Appendix D : Supply Demand

Table	4	Supply Demand - Wastewater service forecasts
Block	D	Sewage sludge
Line	27	Total sewage sludge disposal

Line Definition: Total tonnes of dry solids for all sewage sludge disposed. This should include disposal to farmland, landfill, incineration, composted, land reclamation, and other.

Processing Rule: Input

AR 07 Ref: A2.61

tds/yr

0dp

Table	5	Summary of Supply Demand expenditure
Block	A	Water: supply demand expenditure
Line	1	Total supply demand new operating expenditure

Line Definition: The additional operating expenditure (pre-efficiency) associated with the supply/demand programme (Q&S2, 3a and 3b) before adjustments for synergies/efficiencies.

This should be the same as line 9 plus line 14 plus line 19 of Table 1, Section 4.

Processing Rule: Input

AR 07 Ref:

£m

3dp

Table	5	Summary of Supply Demand expenditure
Block	A	Water: supply demand expenditure
Line	2	Total supply demand infrastructure capital enhancement expenditure

Line Definition: Capital expenditure associated with the Quality & Standards 3a and 3b Supply/Demand enhancement programme for water service infrastructure assets.

This should be the same as the line 4 plus line 10 of Table 1, Section 6.

Processing Rule: Input

AR 07 Ref:

£m

3dp

Table	5	Summary of Supply Demand expenditure
Block	A	Water: supply demand expenditure
Line	3	Total supply demand non-infrastructure capital enhancement expenditure

Line Definition: Capital expenditure associated with the Quality & Standards 3a and 3b Supply/Demand enhancement programme for water service non-infrastructure assets.

This should be the same as line 4 plus line 10 of Table 2, Section 6.

Processing Rule: Input

AR 07 Ref:

£m

3dp

Appendix D : Supply Demand

Table	5	Summary of Supply Demand expenditure
Block	B	Wastewater: supply demand expenditure
Line	4	Total supply demand new operating expenditure

Line Definition: The additional operating expenditure (pre-efficiency) associated with the supply/demand programme (Q&S2, 3a and 3b) before adjustments for synergies/efficiencies.

This should be the same as line 8 plus line 12 plus line 16 of Table 2, Section 4.

Processing Rule: Input

AR 07 Ref:

£m

3dp

Table	5	Summary of Supply Demand expenditure
Block	B	Wastewater: supply demand expenditure
Line	5	Total supply demand infrastructure capital enhancement expenditure

Line Definition: Capital expenditure associated with the Quality & Standards 3a and 3b Supply/Demand enhancement programme for wastewater service infrastructure assets.

This should be the same as the line 4 plus line 10 of Table 3, Section 6.

Processing Rule: Input

AR 07 Ref:

£m

3dp

Table	5	Summary of Supply Demand expenditure
Block	B	Wastewater: supply demand expenditure
Line	6	Total supply demand non-infrastructure capital enhancement expenditure

Line Definition: Capital expenditure associated with the Quality & Standards 3a and 3b Supply/Demand enhancement programme for wastewater service non-infrastructure assets.

This should be the same as line 4 plus line 10 of Table 4, Section 6.

Processing Rule: Input

AR 07 Ref:

£m

3dp