Market Code Schedule 23

Code Subsidiary Document No. 0207

Charge Calculation, Allocation and Aggregation

Version 1718.0

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Version Control

Version Number	Date of Issue	Reason For Change	Change Control Reference	Sections Affected
1.0	2010-03-29	New Release for RF Calculation	MCCP046-CC	All
1.1	2010-10-27	Clarification reapplication of SGES Credit	MCCP064	Footnote to section 2.4.9
1.2	March 2011	Enduring Rollover Solution	MCCP053	Equation section 2.3.24
1.3	2012-03-29	Introduction of Deregistration	MCCP052, MCCP079	Sections 2.1 and 3.1
2.0	2013-04-12	Trade Effluent Changes	MCCP095	Sections throughout CSD
3.0	2013-05-01	Trade Effluent Changes	Commission Letter 29/04/2013	Sections 3.3, 3.4, Appendix
4.0	2013-10-14	Trade Effluent Changes	Commission Letter 11/10/2013	Sections 3.3, 3.4, Appendix
5.0	2014-09-21	Typos	MCCP149	
6.0	2015-03-31	SGES Changes	MCCP161-CC	Sections 2, 3 and Appendix
7.0	2015-09-24	Remove Trade Effluent (TE) Vols Remove Transitional Indicators (TI)	MCCP166 MCCP173	
8.0	2017-03-16	Vacancy Charging	MCCP204-CC MCCP207-CC	Sections 2 and 3
9.0	2017-09-17	Editorial changes	MCCP213	Sections 2 and 3
10.0	2018-02-01	Live RV Charging and Transition February 2018 CSD Drafting	MCCP214 – CC MCCP219	Sections 2 and 3
11.0	2018-04-01	TTRAN and PPDISC	MCCP227-CC	

Version Number	Date of Issue	Reason For Change	Change Control Reference	Sections Affected
12.0	2018-07-12	Drafting correction of volume conversion factor	MCCP233-CC	Section 2.6 and Section 3.6
13.0	2019-10-24	Error correction in formula for Sewerage Capacity Volume Charges	MCCP242	Section 3.3.27
14.0	2020-03-26	End of RV to Live RV transition and other WSoC changes. Typo re. factor of (1-TDISC) for equvnt. AYV/ASYV).	MCCP247 - CC	Sections 2.16 and 3.16
15.0	2020-09-24	Ref to Section 29e changed to Section 29e	MCCP250	15.0
16.0	2021-09-23	Removal of redundant components	MCCP263	15.1
17.0	2022-09-22	Incorporation of IP settlement calculations	MCCP266	All
18.0	2023-02-01	Discontinuation of RV Improvements to formula converting live RV to volume for unmeasured SPIDs	MCCP279 MCCP289	Sections 2.6, 2.8, 3.3, 3.4, 3.6, 3.8 and 3.9

Contents

1. Purpose and Scope

1.1. Introduction

1.1.1. The purpose of this document is to provide details of how the CMA will calculate the Primary Charges for Water and Sewerage in accordance with the Scottish Water Wholesale Charges Scheme and allocate them to the appropriate Licensed Provider and to Scottish Water in respect of any SPIDs subject to a Temporary Transfer for the Tariff Year Settlement Run (RF) and for all Invoice Period (IP) Settlement Runs. For the avoidance of doubt, no calculations are carried out in respect of the Non-Primary components of the Wholesale Charges.

1.1.2. The process (including the process in respect of Trade Effluent Charges) will be a complete re-calculation based upon the data submitted by the Market Participants and as it exists in the Central Systems at the time of the Settlement Run. The process assumes that data has been correctly submitted and does not necessarily fully describe situations where either incomplete or inconsistent data has been submitted by Market Participants.

1.2. Scheme of Charges

1.2.1. The process details the computation, allocation and aggregation of the various components of the Primary Charges described in the WCS. The various components of the Services are shown in the following table.

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Overview of Wholesale Charges Components			
SERVICE	**COMPONENT**	**SUB COMPONENT**	**SERVICE ELEMENT**
Primary Water Charges	Water Charges	Measured Supply Point	Meter Based Charges
			Volumetric Charges
		Unmeasured Supply Points – Live RV Based Charges	Meter Based Charges
			Volumetric Charges
		Unmeasured Supply Points – Re-assessed Charges	Meter Based Charges
			Volumetric Charges
	Miscellaneous Charges	Field Troughs and Drinking Bowls	Farms
			Crofts
		Outside Taps	Farms
			Crofts
Primary Sewerage Charges	Foul Sewerage	Measured Supply Point	Meter Based Charges
			Volumetric Charges
		Unmeasured Supply Points – Live RV Based Charges	Meter Based Charges
			Volumetric Charges
		Unmeasured Supply Points – Re-assessed Charges	Meter Based Charges
			Volumetric Charges
	Property Drainage		
	Roads Drainage		
	Trade Effluent Charges		

1.2.2. The CMA shall re-compute all the components of Primary Water Charges and Primary Sewerage Charges. This calculation will take into account all relevant changes to the chargeable parameters associated with the relevant Settlement Period and take account of all the data submitted to the Central Systems at the time the Settlement Run is carried out. A detailed specification of the computation of each of the components is given below.

1.2.3. The Tariff Year Settlement Run (RF) is the final Settlement Run for any Year. It has the following key differences from the monthly Invoice Period (IP) Settlement Runs:

- The single calculation of the full Tariff Year Settlement;

- In respect of Measured Supply Points (both water and sewerage) the calculation of an Actual Weighted Average Unit Rate (AWA) to compute the charges for all measured volumes for the Tariff Year, whereas, for an Invoice Period an Estimated Weighted Average Unit Rate (EWA) is calculated for the period from the start of the Invoice Period (or the SPID Connection Date, if that is later in the Invoice Period) to the end of the Tariff Year;

- The EWA (for an Invoice Period) is set to zero if all T17 Meter Chains on the Supply Point are not active on the first day of the Invoice Period (or the SPID Connection Date, if later in the Invoice Period);

- The Meter Advance Periods for the Tariff Year are calculated from a Meter Read to the next Meter Read and daily advances are calculated for each such Meter Advance Period (and this approach is used for the calculation of volumes for the purposes of the volumetric charges for both RF and IP runs). However, for an Invoice Period only for the purposes of calculating the EWA, daily advances are calculated from a sequence of Meter Advance Periods, from the most recent Meter Read prior to the run date back to the earliest read within 365 days of the most recent read or the most recent read prior to that day, whichever is the earlier and;

- The application of annual minimum charges for Trade Effluent.

Where such differences occur, the calculations identified in this document will be shown separately for the full Tariff Year and for an Invoice Period. Otherwise, calculations will apply to both.

2. Primary Water Charges

2.1. General

2.1.1. The following calculation is carried out for each Water SPID which is or has been Tradable when the Settlement Run is carried out. This includes SPIDs which are currently Tradable or Temporarily Disconnected, as well as Disconnected or Deregistered SPIDs which have been Tradable. The calculation excludes SPIDs which are Disconnected or Deregistered but were New, Partial or Rejected when they were so Disconnected or Deregistered.

2.1.2. A Settlement Day runs from midnight to midnight.

2.1.3. For a Tariff Year Settlement Run, define the RF Settlement Period by a pair of days D_l^{RF}, D_u^{RF} such that the RF Settlement Period comprises Settlement Days d such that $D_l^{RF} \leq d < D_u^{RF}$. Note that the lowest bound day D_l^{RF} is included, but the upper bound day D_u^{RF} is not. In this description, the full Settlement Year 2008-09 would be described by

$$\begin{aligned} D_l^{RF} &= 1st\ April\ 2008 \\ D_u^{RF} &= 1st\ April\ 2009 \end{aligned}$$

2.1.4. For an Invoice Period Settlement Run, define the IP Settlement Period by a pair of days D_l^{IP}, D_u^{IP} such that the IP Settlement Period comprises Settlement Days d such that $D_l^{IP} \leq d < D_u^{IP}$. Note that the lowest bound day D_l^{IP} is included, but the upper bound day D_u^{IP} is not. In this description, the first IP Settlement Period for 2008-09 would be described by

$$\begin{aligned} D_l^{IP} &= 1st\ April\ 2008 \\ D_u^{IP} &= 1st\ May\ 2008 \end{aligned}$$

2.1.5. If the SPID has a Permanent Disconnection Date, define the SPID Disconnection Date to be the date of Permanent Disconnection. If the SPID has a Deregistration Date, define the SPID Disconnection Date to be the date of Deregistration.

2.1.6. Define the SPID Chargeable Period as the period for which the SPID is potentially in charge (from the SPID Connection Date to the day before the SPID Disconnection Date if it exists, or the last day of the Tariff Year if the SPID Disconnection Date does not exist, inclusive). Here, "potentially" refers to the condition above that the SPID is or has been Tradable. This SPID Chargeable Period can equivalently be defined by a pair of days D_l^A, D_u^A where.

$$D_l^A = SPID\ Connection\ Date$$

$$D_u^A = \begin{cases} the\ SPID\ Disconnection\ Date, if\ it\ exists \\ otherwise, the\ day\ immediately\ after\ the\ end\ of\ the\ Tariff\ Year \end{cases}$$

and the SPID is chargeable for all days d where $d \geq D_l^A$ and $d < D_u^A$. The lower bound day is included, but the upper bound day is not.

2.1.7. If $D_l^A \geq D_u^A$ then there are no chargeable days.

2.1.8. For the avoidance of doubt the SPID Chargeable Period includes periods of vacancies, temporary disconnections, SGES etc. Appropriate adjustments for charges for these periods are made further on in the process.

2.1.9. For each SPID, establish the SPID RF Settlement Chargeable Period $D_l^{SRF} \leq d < D_u^{SRF}$ which is the (possibly empty) sub-period for which the SPID Chargeable Period intersects the RF Settlement Period for a Tariff Year Settlement Run, and is given by D_l^{SRF}, D_u^{SRF} where

$$D_l^{SRF} = \max(D_l^A, D_l^{RF})$$
$$D_u^{SRF} = \min(D_u^A, D_u^{RF})$$

2.1.10. For each SPID, establish the SPID IP Settlement Chargeable Period $D_l^{SIP} \leq d < D_u^{SIP}$ which is the (possibly empty) sub-period for which the SPID Chargeable Period intersects the IP Settlement Period for an IP Settlement Run and is given by D_l^{SIP}, D_u^{SIP} where

$$D_l^{SIP} = \max(D_l^A, D_l^{IP})$$
$$D_u^{SIP} = \min(D_u^A, D_u^{IP})$$

2.1.11. If $D_l^{SRF} \geq D_u^{SRF}$ for an RF Settlement Period, or $D_l^{SIP} \geq D_u^{SIP}$ for an IP Settlement Period, then the SPID does not have a SPID Settlement Chargeable Period for that Settlement Period. If there is no such SPID RF Settlement Chargeable Period, or SPID IP Settlement Chargeable Period, as the case may be, then no charges are computed for this SPID. The remaining sections in respect of Primary Water Charges are only applicable to SPIDs for which charges will be computed.

2.1.12. For each SPID, establish the Residual SPID RF Settlement Chargeable Period $D_l^{RS} \leq d < D_u^{RS}$ which is the (possibly empty) sub-period for which the SPID Chargeable Period intersects the period from the start of an Invoice Period to the end of the relevant Tariff Year, where

$$D_l^{RS} = \max(D_l^A, D_l^{IP})$$
$$D_u^{RS} = \min(D_u^A, D_u^{RF})$$

2.2. Measured Supply Points - Overview

2.2.1. First compute the AWA (for an RF run), or the EWA (for an IP run) for each Water SPID which is a Measured Supply Point or a Re-Assessed Supply Point, and then compute, allocate and

aggregate the Meter Based Charges and the Volumetric Charges. Re-assessed charges are implemented as if they were metered charges; see section 2.7 for details.

2.3. AWA and EWA Algorithm for Water SPID

2.3.1. For each T17 Meter Chain K, establish the T17 Meter Chain "Active Period" $D_{Kl}^A \leq d < D_{Ku}^A$. If the T17 Meter Chain has not been removed from the Water SPID then set $D_{Ku}^A = D_u^{RF}$

2.3.2. For a Tariff Year Settlement run, for each T17 Meter Chain *K*, establish the T17 Meter Chain RF Chargeable $D_{Kl}^{CRF} \leq d < D_{Ku}^{CRF}$ which is the (possibly empty) sub-period for which the Active Period intersects the SPID RF Settlement Chargeable Period, and is given by D_{Kl}^{CRF}, D_{Ku}^{CRF} where

$$D_{Kl}^{CRF} = \max(D_{Kl}^A, D_l^{SRF})$$
$$D_{Ku}^{CRF} = \min(D_{Ku}^A, D_u^{SRF})$$

2.3.3. For an Invoice Period Settlement Run, for each T17 Meter Chain *K*, establish the T17 Meter Chain IP Chargeable Period $D_{Kl}^{CIP} \leq d < D_{Ku}^{CIP}$ which is the sub-period for which the Active Period intersects the Residual RF SPID Settlement Chargeable Period, and may be deemed to be empty, if there is no overlap, and is given by D_{Kl}^{CIP}, D_{Ku}^{CIP} where

$$D_{Kl}^{CIP} = \max(D_{Kl}^A, D_l^{RS})$$
$$D_{Ku}^{CIP} = \min(D_{Ku}^A, D_u^{RS})$$

2.3.4. If $D_{Kl}^{CRF} \geq D_{Ku}^{CRF}$ for an RF Settlement Period, or $D_{Kl}^{CIP} \geq D_{Ku}^{CIP}$ for an IP Settlement Period, then the T17 Meter Chain does not have a Chargeable period for that Settlement Period.

<div style="background-color: #00ff00">Standard Volume Band Limits</div>

2.3.5. Let the Allocated Tranche be *VFA,* and *V1* and *V2* be the knots described in the Scheme of Charges which define the bands for the Standard Volume Charges above the Allocated Tranche. Let *B1, B2* and *B3* be the corresponding prices. Thus:

Standard Volume Charges	Price
Greater than zero and up to VFA	0
Greater than VFA and up to V_1	B_1
Greater than V_1 and up to V_2	B_2
Greater than V_2	B_3

2.3.6. For each T17 Meter Chain, define the term PVT_K as [1]

$$PVT_K = \begin{cases} 0 & if\ the\ T17\ Meter\ Chain\ Treatment\ is\ SWWater\ or\ LogicalWater - ie\ not\ a\ Private\ Meter \\ 1 & otherwise - ie\ Private \end{cases}$$

2.3.7. Define Meter Active (MA_{Kd}) for a specific T17 Meter Chain K as

$$MA_{Kd} = \begin{cases} 1 & if\ \ D_{Kl}^{CRF} \leq d < \ D_{Ku}^{CRF} \\ 0 & otherwise \end{cases} \quad \text{for an RF Settlement Run and}$$

$$MA_{Kd} = \begin{cases} 1 & if\ \ D_{Kl}^{CIP} \leq d < \ D_{Ku}^{CIP} \\ 0 & otherwise \end{cases} \quad \text{for an IP Settlement Run}$$

i.e. MA_{Kd} has the value of 1 when d is within a T17 Meter Chain RF Chargeable Period (for RF) or within a T17 Meter Chain IP Chargeable Period (for IP).

2.3.8. Then for each Settlement Day d in the SPID RF Settlement Chargeable Period (for RF), or SPID IP Settlement Chargeable Period (for IP), define SPID SWWater Meter Active ($SSWMA_d$) as

$$SSWMA_d = \max_K (\ MA_{Kd} \times (1 - \ PVT_K))$$

and the Vacancy Adjusted SPID SWWater Meter Active ($VASSWMA$) as

$$VASSWMA_d = \ SSWMA_d \times (1 - \ VAC_d)$$

where

$$VAC_d = \begin{cases} 0 & if\ the\ SPID\ is\ occupied, or\ if\ the CI_d\ is\ True\ for\ a\ single\ MAV\ within\ a \\ & continuous\ period\ of\ Settlement\ Days\ d\ when\ the\ SPID\ is\ vacant \\ 1 & otherwise \end{cases}$$

Where CI_d is the Consumption Indicator and is set to True only for a day, d, within a Meter Advance Period with MAV > 0, for days on or after 2017-04-01.

2.3.9. Compute the Total SWWater Meter Active Days ($TSWMAD$) as

$$TSWMAD = \sum_d VASSWMA_d$$

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[1] This is also applicable pre-MCCP095, as all existing meters were set to Meter Treatment SWWater

2.3.10. Then, for a Tariff Year Settlement Run, define the Yearly Proportion YP as

$$YP = \frac{TSWMAD}{DIY}$$

where DIY is the total number of days within the Settlement Period (ie 365 days or 366 days as appropriate for an RF Settlement).

2.3.11. Then, for a Tariff Year Settlement Run, the Proportional Volume Limits PV_1 and PV_2 are given by

$$\begin{aligned} PV_1 &= YP \times V_1 \\ PV_2 &= YP \times V_2 \end{aligned}$$

2.3.12. Then, for an Invoice Period Settlement Run, define the Active Ratio AR, where AR is defined for a SPID, as

$$AR = \sum_d \frac{(1 - VAC_d) \times (1 - TDISC_d)}{DIY}$$

For all days d in the Residual SPID RF Settlement Chargeable Period.

2.3.13. Then, for an Invoice Period Settlement Run, the Proportional Volume Limits PV_1 and PV_2 are given by

$$\begin{aligned} PV_1 &= AR \times V_1 \\ PV_2 &= AR \times V_2 \end{aligned}$$

Allocated Tranche

2.3.14. For each meter in a T17 Meter Chain K for each Settlement Day d in the T17 Meter Chain RF Chargeable Period (for RF), or in the T17 Meter Chain IP Chargeable Period (for IP) establish the Water Chargeable Meter Size $WCMS_{Kd}$. Note the Wholesale Charges Scheme refers to the "Tariff Meter Size" rather than the "Chargeable Meter Size".

For each day define the Meter Free Allocation (MFA) as

$$MFA_{Kd} = \begin{cases} VFA \times MA_{Kd} & if \ WCMS_{Kd} > 0 \\ 0 & otherwise \end{cases}$$

2.3.15. For a Tariff Year Settlement Run, the Proportional Free Allocation (PFA) is given by

$$PFA = \sum_{Kd} \frac{(1 - VAC_d) \times MFA_{Kd}}{DIY}$$

2.3.16. For an Invoice Period Settlement Run, the Proportional Free Allocation (PFA) is given by

$$PFA = \sum_{K} AR \times MFA_{Kd}$$

Capacity Volume Charges

2.3.17. The Wholesale Charges Scheme defines meter related charges in respect of a limited number of meter sizes, and for each non-zero Chargeable Meter Size provides a mapping from the Chargeable Meter Size to an entry in the corresponding table of meter sizes.

2.3.18. The Central Systems holds a related table comprising Lower Meter Size (LMS_i), Upper Meter Size (UMS_i) and the Capacity Volume Threshold (CVT_i) for $i = 1 \dots n_T$, where

$$
\begin{aligned}
LMS_1 &= 1 \\
LMS_i &= UMS_{i-1} + 1 \; for \; i = 2 \dots n_T \\
UMS_{n_T} &= \infty \; (in \; practice, the \; largest \; integer \; representable \; in \; the \; CS)
\end{aligned}
$$

and n_T is the number of entries in the table.

2.3.19. Thus each Water Chargeable Meter Size $WCMS_{Kd} > 0$ falls uniquely within a single band $LMS_i \leq WCMS_{Kd} \leq UMS_i$, and each such band ($LMS_i, UMS_i$) maps to a unique Capacity Volume Threshold $CVT_i = CVT_i(LMS_i, UMS_i)$

2.3.20. The Meter Capacity Volume Threshold ($MCVT_{Kd}$) is then given by the table of Capacity Volume Thresholds

$$
MCVT_{Kd} = \begin{cases}
0 & if \; WCMS_{Kd} = 0 \\
CVT_i(LMS_i, UMS_i) \times MA_{Kd} & if \; WCMS_{Kd} > 0 \\
0 & otherwise
\end{cases}
$$

where (LMS_i, UMS_i) is the band corresponding to $WCMS_{Kd}$

2.3.21. For a Tariff Year Settlement Run, the Proportional Capacity Volume Threshold ($PCVT$) applicable for the SPID for the year is given by

$$PCVT = \sum_{Kd} \frac{(1 - VAC_d) \times MCVT_{Kd}}{DIY}$$

2.3.22. For an Invoice Period Settlement Run, the Proportional Capacity Volume Threshold ($PCVT$) applicable for the SPID is given by

$$PCVT = \sum_K AR \times MCVT_{Kd}$$

Volumetric Charges

2.3.23. For each T17 Meter Chain which has a Chargeable Period in the Settlement Year (for a Tariff Year Settlement Run), or in the Residual Settlement Year (for an Invoice Period Settlement Run), for each Settlement Day d in the T17 Meter Chain RF Chargeable Period (for RF), or in the T17 Meter Chain IP Chargeable Period (for IP), establish whether the day is within a Meter Pre-Advance Period, a Meter Advance Period (MAP) or a Meter Post-Advance Period. (see definitions in section A.3). [2]

2.3.24. For a Tariff Year Settlement Run, for each Settlement Day d within a Meter Advance Period, the Meter Advance Volume (MAV) is given by $MAV = R_2 - R_1 + flag_2 \times 10^n$ where

$\quad D_1 \qquad is\ the\ first\ date\ of\ the\ Meter\ Advance\ Period;$
$\quad R_1 \qquad is\ the\ corresponding\ read;$
$\quad D_2 \qquad is\ the\ day\ after\ the\ last\ date\ of\ the\ Meter\ Advance\ Period.$
$\quad R_2 \qquad is\ the\ corresponding\ read.$
$\quad flag_2 \quad = \begin{cases} 1 & if\ the\ Rollover\ Flag\ has\ been\ set\ for\ the\ meter\ reading R_2 \\ 0 & if\ it\ has\ not\ been\ set, and \end{cases}$
$\quad n \qquad is\ number\ of\ digits\ on\ the\ meter\ dial$

2.3.25. For an Invoice Period Settlement Run, for each Settlement Day d within a sequence of Meter Advance Periods from the most recent read to the earliest read within 365 days of the most recent read or the most recent read prior to that day, whichever is the earlier, the Meter Advance Volume (MAV) is given by $MAV = R_2 - R_1 + flag_2 \times 10^n$ where

$\quad D_1 \qquad is\ the\ first\ date\ of\ the\ sequence\ of\ Meter\ Advance\ Periods;$
$\quad R_1 \qquad is\ the\ corresponding\ read;$
$\quad D_2 \qquad is\ the\ day\ after\ the\ last\ date\ of\ the\ most\ recent\ Meter\ Advance\ Period.$
$\quad R_2 \qquad is\ the\ corresponding\ read.$
$\quad flag_2 \quad = \begin{cases} 1 & if\ the\ Rollover\ Flag\ has\ been\ set\ for\ the\ meter\ reading R_2 \\ 0 & if\ it\ has\ not\ been\ set, and \end{cases}$
$\quad n \qquad is\ number\ of\ digits\ on\ the\ meter\ dial$

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[2] Note - the terms "Meter Pre-Advance Period", "Meter Advance Period" and "Meter Post-Advance Period" are all formally defined in the Market Code, Schedule 1. However, non-definitive diagrams describing each of these periods are provided in the Appendix A.3A.3

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2.3.26. Compute the Meter Advance Chargeable Days $MACD$ as

$$MACD = \sum_{d=D_1}^{D_2-1} (1 - VAC_d) \times (1 - TDISC_d) \times CONN_d$$

where

$$TDISC_d = \begin{cases} 1 & \text{if the SPID is Temporarily Disconnected during the Settlement Day } d; \text{ or} \\ 0 & \text{otherwise} \end{cases}$$

$$CONN_d = \begin{cases} 1 & \text{if } D_l^A \leq d < D_u^A, \text{and} \\ 0 & \text{otherwise} \end{cases}$$

2.3.27. For each day d within the Meter Advance Period compute the Unadjusted Actual Daily Volume $UADV_{Kd}$ as

$$UADV_{Kd} = \frac{MAV}{MACD}$$

And the Actual Daily Volume ADV_{Kd} as

$$ADV_{Kd} = \begin{cases} \dfrac{MAV}{MACD} & \text{if } MACD > 0 \\ 0 & \text{if } MACD = 0 \end{cases}$$

2.3.28. For days within a Meter Post-Advance Period compute the Unadjusted Estimated Daily Volume $UEDV_{Kd}$ as

$$UEDV_{Kd} = UADV_{Kd} \text{ for the last day } d \text{ for which there is a value of } UADV_{Kd}$$

2.3.29. The Estimated Daily Volume EDV_{Kd} is then calculated as

$$EDV_{Kd} = UEDV_{Kd} \times (1 - VAC_d) \times (1 - TDISC_d)$$

2.3.30. For days within a Meter Pre-Advance Period compute the Estimated Daily Volume EDV_{Kd} as

$$EDV_{Kd}$$
$$= \begin{cases} \dfrac{YVE}{DIY} \times (1 - VAC_d) \times (1 - TDISC_d) & \text{for the meter in the T17 Meter Chain if that meter has an LP YVE; else} \\ \dfrac{ILE}{DIY} \times (1 - VAC_d) \times (1 - TDISC_d) & \text{the Industry Level Estimate for that meter} \end{cases}$$

2.3.31. To establish the ILE for a meter K for the Settlement Day d first establish the Water Chargeable Meter Size $WCMS_{Kd}$

2.3.32. The Central Systems have a table Industry Level Estimates, comprising a series of monotonically increasing Meter Size MS_i and Industry Level Estimates ILE_i , for $i = 1 \ldots n_T$ where n_T is the number of entries in the table. (***Note*** This is potentially a different n_T from the one in 2.3.17) Then the Tabular Meter Size (TMS_{Kd}) in respect of the Industry Level Estimate for the T17 Meter Chain K for the Settlement Day d is

$$TMS_{Kd} = \begin{cases} MS_j & where\ j\ has\ the\ minimum\ value\ such\ as\ MS_j \geq WCMS_{Kd} \\ MS_{n_T} & if\ WCMS_{Kd} \geq MS_{n_T} \end{cases}$$

And the Industry Level Estimate ILE for the T17 Meter Chain K for the Settlement Day d is then given by the table of Industry Level Estimates as

$$ILE\ = ILE_i(TMS_{Kd})$$

2.3.33. For all K, d compute the Daily Volume DV_{Kd}

$$DV_{Kd} = \begin{cases} ADV_{Kd} & for\ periods\ within\ a\ Meter\ Advance\ Period \\ EDV_{Kd} & for\ period\ within\ a\ Meter\ Pre-Advance\ or\ Post-Advance\ Period \\ 0 & for\ any\ other\ Settlement\ Day\ d \end{cases}$$

2.3.34. For each T17 Meter Chain K, and Settlement Day d, the Derived Daily Volume DDV_{Kd} is calculated as

$$DDV_{Kd} = \begin{cases} DV_{Kd} - \sum_L DV_{Ld} & or \\ 0 & for\ any\ d\ not\ in\ the\ T17\ Meter\ Chain\ RF\ (or\ IP)\ Chargeable\ Period \end{cases}$$

where the sum is over all T17 Meter Chains L which are sub-meters of T17 Meter Chain K. The derivation of the appropriate terms DV_{Ld} for the T17 Meter Chain sub-meters is the same as for the T17 Meter Chain K.

Note The above equation describes the subtraction of sub-meter volumes from a main meter volume to establish the Derived Daily Volume. It has not yet been possible to verify that interaction of (i) the subtraction of the meter volumes, and (ii) the shifting of volumes described above in respect of vacancy works precisely in the order specified by the equation. The intention is to document the Central Systems behaviour rather than to propose any changes to the Central Systems behaviour.

2.3.35. The Actual Yearly Volume (AYV) for a Tariff Year Settlement Run for the Water SPID is then

$$AYV \ = \sum_{Kd} DDV_{Kd} \times (1 - PVT_K)$$

Where PVT_K is as defined in Section 2.3.6.

2.3.36. The Residual Actual Yearly Volume (RAYV) for an Invoice Period Settlement Run for the Water SPID is

$$RAYV \ = \sum_{Kd} DDV_{Kd} \times (1 - PVT_K)$$

For all days d in RDIY, and where PVT_K is as defined in Section 2.3.6.

2.3.37. The Daily Derived Volume DDV_{Kd} to be used for volumetric charging purposes (as opposed to that for use in calculating EWA or AWA) is also as described above, with the following qualifications for IP Settlement only;

MAV should be calculated as for a Tariff Year settlement run (where D_1 is the first date of the Meter Advance Period) and

$$if \ MA_{Ld} \ > 0 \ for \ one \ or \ more \ T17 \ Meter \ Chains \ L \ on \ d = \ D_l^{SIP}$$

$$DDV_{Kd}$$
$$= \begin{cases} \dfrac{ILE}{DIY} \times (1 - VACd) \times (1 - TDISCd) & if \ MACD < 365 \ for \ each \ T17 \ Meter \ Chain \ K \ and \ L \\ DDV_{Kd} \ as \ above & Otherwise \end{cases}$$

Charges – the Standard Volume Charges

2.3.38. The Wholesale Charges Scheme defines charges for a volume *V* which is allocated across different charge bands (based upon a whole year's usage) in accordance with paragraph 2.3.5

2.3.39. The Proportional Free Allocation is PFA and the Proportional Volume Limits are $PV_1 \ and \ PV_2$ have already been defined. The Actual Yearly Volume (for a Tariff Year Settlement Run) is AYV and the Residual Actual Yearly Volume (for and Invoice Period Settlement Run) $RAYV$ have also already been defined. Then allocate the AYV (for a Tariff Year Settlement Run) or the $RAYV$ (for an Invoice Period Settlement Run) into the different charge bands for the Allocated Tranche VFA, and Charge Bands 1, 2 and 3 ($VA_1, VA_2 and VA_3$) as

$$
\begin{aligned}
VFA &= \max(\min(AYV, PFA), 0) \\
VA_1 &= \max(\min(AYV, PV_1) - PFA, 0) \\
VA_2 &= \max(\min(AYV, PV_2) - PV_1, 0) \\
VA_3 &= \max(AYV - PV_2, 0)
\end{aligned}
$$

For an RF Run or

$$
\begin{aligned}
VFA &= \max(\min(RAYV, PFA), 0) \\
VA_1 &= \max(\min(RAYV, PV_1) - PFA, 0) \\
VA_2 &= \max(\min(RAYV, PV_2) - PV_1, 0) \\
VA_3 &= \max(RAYV - PV_2, 0)
\end{aligned}
$$

For an IP Run.

2.3.40. The Standard Volume Charge ($SVCHARGE$) is defined as

$$
SVCHARGE = B_1 \times VA_1 + B_2 \times VA_2 + B_3 \times VA_3
$$

2.3.41. If the Capacity Volume Price as defined in the Scheme of Charges is CVP, then the Capacity Volume Charge $CVCHARGE$ is:

$$
CVCHARGE = CVP \times \max(\min(AYV, PCVT) - PFA, 0)
$$

for an RF Run, or

$$
CVCHARGE = CVP \times \max(\min(RAYV, PCVT) - PFA, 0)
$$

For an IP Run.

2.3.42. For a Tariff Year Settlement Run, the Annual Weighted Average (AWA) for the SPID is then given by:

$$
AWA = \begin{cases} 0 & if\ AYV \leq 0 \\ \dfrac{SVCHARGE + CVCHARGE}{AYV} & if\ AYV > 0 \end{cases}
$$

2.3.43. For an Invoice Period Settlement Run, the Estimated Weighted Average (EWA) for the SPID is then given by:

$$EWA = \begin{cases} 0 & if\ RAYV\ \leq 0 \\ 0 & if\ MA_{Kd}\ is\ 0\ for\ all\ T17\ Meter\ Chains\ K\ on\ d = D_l^{RS} \\ \dfrac{SVCHARGE + CVCHARGE}{RAYV} & otherwise \end{cases}$$

2.4. Measured Supply Points – Charges

2.4.1. Define the Discounts for the SPID for each day d in the SPID Chargeable Period, i.e. Water Schedule 3 ($WS3_d$), Section 29e ($S29e_d$) and whether the SPID is eligible for Scottish Government Exemption Scheme ($SGES_d$ and $PCEd$).

Meter Based Charges

2.4.2. Carry out the following calculations for each SPID which has a SPID RF (or IP) Settlement Chargeable Period for the Settlement Period.

2.4.3. Carry out the following calculations for each T17 Meter Chain which has an RF (or IP) Chargeable Period for that Settlement Period:

2.4.4. In accordance with 2.3.17 the Wholesale Charges Scheme defines meter related charges in respect of a limited number of meter sizes, and for each non-zero Chargeable Meter Size provides a mapping from the Chargeable Meter Size to an entry in the corresponding table of meter sizes.

2.4.5. The Central Systems holds a related table comprising Lower Meter Size (LMS_i), Upper Meter Size (UMS_i) and the Water Meter Annual Non-Volumetric Charges ($WMANVC_i$) for $i = 1 \dots n_T$, where

$$\begin{aligned} LMS_1 &= 1 \\ LMS_i &= UMS_{i-1} + 1\ for\ i = 2 \dots n_T \\ UMS_{n_T} &= \infty\ (in\ practice, the\ largest\ integer\ representable\ in\ the\ CS) \end{aligned}$$

and n_T is the number of entries in the table.

2.4.6. Thus each Water Chargeable Meter Size $WCMS_{Kd} > 0$ falls uniquely within a single band $LMS_i \leq WCMS_{Kd} \leq UMS_i$, and each such band (LMS_i, UMS_i) maps to a unique Water Meter Annual Non-Volumetric Charges $WMANVC_i = WMANVC_i(LMS_i, UMS_i)$

2.4.7. The Unadjusted Water Meter Based Charge ($UWMBC_{Kd}$) is then given by the table of Water Meter Annual Non-Volumetric Charges as

$$UWMBC_{Kd} = \begin{cases} 0 & if\ WCMS_{Kd} = 0 \\ WMANVC_i(LMS_i, UMS_i) \times MA_{Kd} \times (1 - VAC_d)/DIY & if\ WCMS_{Kd} > 0 \\ 0 & otherwise \end{cases}$$

For days prior to 2017-04-01

$$UWMBC_{Kd} = \begin{cases} 0 & if\ WCMS_{Kd} = 0 \\ WMANVC_i(LMS_i, UMS_i) \times MA_{Kd} \times (1 - PPDISC)/DIY & if\ WCMS_{Kd} > 0 \\ 0 & otherwise \end{cases}$$

For days on or after 2017-04-01 and prior to 2020-04-01 and

$$UWMBC_{Kd} = \begin{cases} 0 & if\ WCMS_{Kd} = 0 \\ WMANVC_i(LMS_i, UMS_i) \times MA_{Kd} \times (1 - PPDISCd) \times (1 - TDISCd)/DIY & if\ WCMS_{Kd} > 0 \\ 0 & otherwise \end{cases}$$

for days on or after 2020-04-01

where (LMS_i, UMS_i) is the band corresponding to $WCMS_{Kd}$

and where

$$PPDISC_d = \begin{cases} 1 & if\ the\ SPID\ has\ a\ status\ of\ Pending\ PDISC\ on\ Settlement\ day\ d \\ 0 & Otherwise \end{cases}$$

$$TDISC_d = \begin{cases} 1 & if\ the\ SPID\ has\ a\ status\ of\ TDISC\ on\ Settlement\ day\ d \\ 0 & Otherwise \end{cases}$$

2.4.8. The Unadjusted Discounted Water Meter Based Charge ($UDWMBC_{Kd}$) is then given

$$UDWMBC_{Kd} = UWMBC_{Kd} \times (1 - WS3_d - S29e_d)$$

2.4.9. The Water Meter Based Charge [3] $WMBC_{Kd}$ is

$$WMBC_{Kd}$$
$$= \begin{cases} UDWMBC_{Kd} & if\ no\ SGES_d\ or\ SER_d = 0 \\ UDWMBC_{Kd} \times (1 - PCEd) - SGESWR_Y/(DIY \times SER_d) & if\ SGES_d\ and\ SER_d > 0 \end{cases}$$

---

[3] There are rare circumstances where the allocation of the SGES refund in the Central Systems is not uniformly distributed across the various Service Element Reports as in this equation. This is as a result of the practical implementation of the algorithms described in this CSD, which are based upon calculating charges for chunks of time where the charging parameters are otherwise constant. However, even in such cases, the total of the SGES distributed across the various Service Elements will still be correct

where $SGESWR_Y$ is the SGES Water refund applicable for the Financial Year *Y*, PCE_d is the percentage of the exemption applicable on that day, and where SER_d is the number of Service Element Reports for the SPID.

2.4.10. For each Settlement Day *d* for a Water SPID there are:

- two Service Element Reports for each T17 Meter Chain which is chargeable on that day;
- two Service Element Reports for each Unmeasurable Service Element which is chargeable on that day; and
- a Service Element Report for each Miscellaneous Charge which is chargeable on that day. The Miscellaneous charges are:
  - Field Troughs and Drinking Bowls; and
  - Outside Taps.

2.4.11. The CMA will allocate the Meter Based Charge to Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges and report them in accordance with CSD0201.

Volumetric Charges

2.4.12. For an RF run, the Unadjusted Daily Metered Cost ($UDMC_{Kd}$) is

$$UDMC_{Kd} = AWA \times DDV_{Kd} \times (1 - WS3_d - S29e_d) \times (1 - PVT_K)$$

For days prior to 2017-04-01 and

$$UDMC_{Kd} = AWA \times DDV_{Kd} \times (1 - WS3_d - S29e_d) \times (1 - PVT_K) \times (1 - PPDISC_d)$$

For days on or after 2017-04-01

2.4.13. For an IP run, the Unadjusted Daily Metered Cost ($UDMC_{Kd}$) is

$$UDMC_{Kd} = EWA \times DDV_{Kd} \times (1 - WS3_d - S29e_d) \times (1 - PVT_K)$$

For days prior to 2017-04-01 and

$$UDMC_{Kd} = EWA \times DDV_{Kd} \times (1 - WS3_d - S29e_d) \times (1 - PVT_K) \times (1 - PPDISC_d)$$

For days on or after 2017-04-01

2.4.14. The Daily Metered Cost [4] DMC_{Kd} is

$$DMC_{Kd} = \begin{cases} UDMC_{Kd} & if\ no\ SGES_d\ or\ SER_d = 0 \\ UDMC_{Kd} \times (1 - PCEd) - SGESWR_Y/(DIY \times SER_d) & if\ SGES_d\ and\ SER_d > 0 \end{cases}$$

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[4] Compare the footnote at section 2.4.9~~2.4.9~~

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where $SGESWR_Y$ is the SGES Water refund applicable for the Financial Year *Y,* PCEd is the percentage of the exemption applicable on that da*y*, and where SER_d is the number of Service Element Reports for the SPID.

2.4.15. The CMA will allocate the Meter Based Charge to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges and report them in accordance with CSD0201.

2.5. Unmeasured Supply Points – Overview

2.5.1. The following Water SPIDs are subject to Unmeasured Charging:

- RV Based Charging
    - Water SPIDs which have been declared unmeasurable
- Re-assessed Charging
    - Water SPIDs which have been agreed are subject to Re-Assessed Charging

2.6. RV Based Charges

RV Non-Volumetric Charges

2.6.1. Define the discounts for the SPID for each day *d* in the SPID Chargeable Period, i.e. Water Schedule 3 ($WS3_d$), Section 29e ($S29e_d$) and whether the SPID is eligible for the Scottish Government Exemption Scheme ($SGES_d$).

2.6.2. The SPID RF Settlement Chargeable Period (for RF) and the SPID IP Settlement Chargeable Period (for IP) have already been defined as the periods of time given by the days D_l^{SRF}, D_u^{SRF} for RF and D_l^{SIP}, D_u^{SIP} for IP.

2.6.3. The relevant SPID RV Unmeasurable Period is defined as the period of time for which

the Water SPID has been declared unmeasurable

and is likewise given by a pair of days D_l^{RV}, D_u^{RV} .

2.6.4. Then the SPID RV Unmeasurable RF (or IP) Chargeable Period $D_l^{CRF} \leq d < D_u^{CRF}$ or $D_l^{CIP} \leq d < D_u^{CIP}$ which is the (possibly empty) sub-period for which the RV Unmeasurable Period intersects the SPID RF (or IP) Settlement Chargeable Period, and is given by D_l^{CRF}, D_u^{CRF} for RF or D_l^{CIP}, D_u^{CIP} for IP where

$$D_l^{CRF} = \max(D_l^{RV}, D_l^{SRF})$$
$$D_u^{CRF} = \min(D_u^{RV}, D_u^{SRF}) \quad \text{for RF and}$$

$$D_l^{CIP} = \max(D_l^{RV}, D_l^{SIP})$$
$$D_u^{CIP} = \min(D_u^{RV}, D_u^{SIP}) \quad \text{for IP}$$

2.6.5. If $D_l^{CRF} \geq D_u^{CRF}$ (for RF) or $D_l^{CIP} \geq D_u^{CIP}$ (for IP), then the SPID does not have an RV Unmeasurable Period for that Settlement Period.

2.6.6. For each Settlement Day *d* in the SPID RV Unmeasurable RF (or IP) Chargeable Period define ~~the Rateable Value RV_d (for days prior to 2020-04-01),~~ the Live Rateable Value LRV_d ~~(for days after 2018-04-01) and the RV Transition Flag RVTF_d (for days on or after 2018-04-01 and prior to 2020-04-01)~~

~~Where~~

$$RVTF_d = \begin{cases} 1 \; \textit{if the Supply Point is in transition for the purposes of RV Volumetric} \\ \qquad\qquad \textit{and RV Non} - \textit{Volumetric Charges} \\ 0 \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad \textit{Otherwise} \end{cases}$$

2.6.7. ~~For days prior to 2017-04-01, i~~In accordance with the Wholesale Scheme of Charges define the Water Chargeable Meter Size ($WCMS_d$) which corresponds to LRV_d, and each $WCMS_i$ corresponds to a unique Water Meter Annual Non-Volumetric Charge ($WMANVC_i = WMANVC_i(WCMS_d)$). ~~For days on or after 2017-04-01 and prior to 2018-04-01, in accordance with the Wholesale Scheme of Charges, for days when the SPID is not vacant, define the Water Chargeable Meter Size ($WCMS_d^-$) which corresponds to RV_d, and each $WCMS_i^-$ corresponds to a unique Water Meter Annual Non-Volumetric Charge ($WMANVC_i^- = WMANVC_i^-(WCMS_d^-)$). For days on or after 2018-04-01 and prior to 2020-04-01, in accordance with the Wholesale Scheme of Charges, for days when the SPID is not vacant, define LRVWCMSd, corresponding to LRVd to create either an LRVWMANVCi or a WMANVCi and define RVWCMSd, corresponding to RVd to create an RVWMANVCi. For days when the SPID is vacant (on or after 2017-04-01 and prior to 2020-04-01), WCMSd, RVWCMSd, and LRVWCMSd shall be 20mm. For days on or after 2020-04-01, i~~In accordance with the Wholesale Scheme of Charges, the WCMS_d shall be 20mm, creating a WMANVC_i.

2.6.8. The Unadjusted Water Meter Based Charge ($UWMBC_d$) is given by the table of Water Meter Annual Non-Volumetric Charges as

$$UWMBC_d = \frac{WMANVC_i^-(WCMS_i^-) \times (1 - VAC_d)}{DIY}$$

for days prior to 2017-04-01 and

$$UWMBC_d = \frac{WMANVC_i^-(WCMS_i^-)}{DIY} \times (1 - PPDISC_d)$$

for days on or after 2017-04-01 and prior to 2018-04-01.

$UWMBC_d$
$$= \begin{cases} (RVF.RVUWMBCd + (1 - RVF).LRVUWMBCd) \times (1 - PPDISC_d) & if\ RVTFd = 1 \\ RLRVUWMBCd\ (1 - PPDISC_d) & if\ RVTFd = 0 \end{cases}$$

where

$$RVUWMBC_d = \frac{RVWMANVC_i^-(RVWCMS_i^-)}{DIY}$$

and

$$LRVUWMBC_d = \frac{LRVWMANVCi(LRVWCMSi)}{DIY}$$

and

$$RLRVUWMBC_d = \frac{WMANVCi(LRVWCMSi)}{DIY}$$

for days on or after 2018-04-01 and prior to 2020-04-01, where RVF is a transition factor established in accordance with the Wholesale Scheme of Charges and where (LMS_i^-, UMS_i^-) is the band corresponding to $WCMS_{Kd}^-$.

$$UWMBC_{Kd} = \begin{cases} 0 & if\ WCMS_{Kd} = 0 \\ WMANVCi \times (1 - PPDISCd) \times (1 - TDISCd)/DIY & if\ WCMS_{Kd} > 0 \\ 0 & otherwise \end{cases}$$

for days on or after 2020-04-01

where

$$PPDISC_d = \begin{cases} 1 & if\ the\ SPID\ has\ a\ status\ of\ Pending\ PDISC\ on\ Settlement\ day\ d \\ 0 & Otherwise \end{cases}$$

$$TDISC_d = \begin{cases} 1 & \text{if the SPID has a status of TDISC on Settlement day } d \\ 0 & \text{Otherwise} \end{cases}$$

2.6.9.   The Unadjusted Discounted Water Meter Based Charge ($UDWMBC_d$) is then given by

$$UDWMBC_d = UWMBC_d \times (1 - WS3_d - S29e_d)$$

2.6.10.   The Water Meter Based Charge [5] $WMBC_d$ is

$$WMBC_d = \begin{cases} UDWMBC_d & \text{if no } SGES_d \text{ or } SER_d = 0 \\ UDWMBC_d \times (1 - PCEd) - SGESWR_Y/(DIY \times SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

Where, as above, $SGESWR_Y$ is the SGES Water refund applicable for the Financial Year Y, PCEd is the percentage of the exemption applicable on that day, and SER_d is the number of Service Element Reports for the SPID.

2.6.11.   The CMA will allocate the Meter Based Charge to Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges and report them in accordance with CSD0201.

RV Volumetric Charges

2.6.12.   For each Settlement Day *d* in the SPID RV Unmeasurable RF (or IP) Chargeable Period define ~~the Rateable Value RV_d (for days prior to 2020-04-01),~~ the Live Rateable Value LRV_d ~~(for days on or after 2018-04-01) and the RV Transition Flag RVTFd for days on or after 2018-04-01 and prior to 2020-04-01).~~

2.6.13.   The equivalent Actual Yearly Volume AYV_d is given by

$$AYV_d = \begin{cases} (0.0373 \times RV_d - 24) \times (1 - VAC_d) \times (1 - TDISCd) & \text{if } RV_d \geq 650 \\ 0 & \text{otherwise} \end{cases}$$

~~for days prior to 2018-04-01.~~

~~The equivalent RV based Actual Yearly Volume RVAYVd is given by~~

$$RVAYV_d = \begin{cases} [(0.0373 \times RV_d - 24)] \times (1 - VAC_d) \times (1 - TDISCd) & \text{if } RVd \geq 650 \\ 0 & \text{otherwise} \end{cases}$$

~~And the equivalent LRV based Actual Yearly Volume LRVAYVd is given by~~

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[5] Compare the footnote at section 2.4.9~~2.4.9~~

$$LRVAYV_a = \begin{cases} [(0.0252 \times LRV_a - 24)] \times (1 - VAC_a) \times (1 - TDISCd) & if\ LRV_a \geq 960 \\ 0 & otherwise \end{cases}$$

~~for days on or after 2018-04-01 and prior to 2020-04-01.~~

~~and the equivalent Derived Daily Volume DDV_a is given by~~

$$DDV_a = \frac{AYV_a}{DIY}$$

~~for days prior to 2018-04-01.~~

~~The equivalent RV based Daily Derived Volume RVDDVd is given by~~

$$RVDDV_a = \frac{RVAYV_a}{DIY}$$

~~for days on or after 2018-04-01 and prior to 2020-04-01 and~~

~~the equivalent LRV based Daily Derived Volume LRVDDVd is given by~~

$$LRVDDV_a = \frac{LRVAYV_a}{DIY}$$

~~for days on or after 2018-04-01 and prior to 2020-04-01.~~

$$AYV_d = \begin{cases} (\text{0.0252}VCF \times \text{LRV}_d - \text{24}UV) \times (1 - VAC_d) \times (1 - TDISCd) & if\ LRV_d \geq \text{960}TRV \\ 0 & otherwise \end{cases}$$

where VCF is a volume conversion factor, UV is the uncharged volume and TRV is the threshold RV, all established in accordance with the Wholesale Scheme of Charges.

and the equivalent Derived Daily Volume DDV_d is given by

$$DDV_d = \frac{AYV_d}{DIY}$$

~~For days on or after 2020-04-01.~~

2.6.14. The same calculation used to derive AWA (for a Tariff Year Settlement Run) in section 2.3 can be used to derive an Equivalent AWA ($AWA_{d)}$) or EWA ($EWA_{d)}$) for each day of the RV Unmeasurable RF (or IP) Chargeable Period (i.e. for both Tariff Year Settlement Runs and for Invoice Period Settlement Runs), based upon an equivalent whole year calculation and using the equivalent Actual Yearly Volume AYV_d and the meter size $WCMS_d$ ~~for days prior to 2018-04-01 and on or after~~

~~2020-04-01. For days on or after 2018-04-01 and prior to 2020-04-01, an equivalent RVAWA, LRVAWA and RLRVAWA for an RF run (or RVEWA, LRVEWA and RLRVEWA for an IP) should be calculated, where the same calculation used to derive AWA in section 2.3 can be used to derive the RVAWAd, the LRVAWAd and the LRVAWAd for RF (or RVEWAd, the LRVEWAd and the LRVEWAd for IP), based upon an equivalent whole year calculation, using;~~

- ~~For the RVAWA and RVEWA. The equivalent RV Actual Yearly Volume RVAYVd and meter size RVWCMSd and specific volumetric prices; RVB_1, RVB_2, RVB_3 and RVCVP.~~

- ~~For the LRVAWA and LRVEWA. The equivalent LRV Actual Yearly Volume LRVAYVd and meter size LRVWCMSd for the LRVAWA and specific volumetric prices; $LRVB_1$, $LRVB_2$, $LRVB_3$ and LRVCVP.~~

- ~~For the RLRVAWA and RLRVEWA. The equivalent LRV Actual Yearly Volume LRVAYVd and meter size LRVWCMSd for the LRVAWA and volumetric prices as used for metered Supply Points; B_1, B_2, B_3 and CVP.~~

2.6.15. The Unadjusted Daily Metered Cost ($UDMC_d$) is given by

$$\sim UDMC_d = [AWA_d \, or \, EWA_d] \times DDV_d \times (1 - WS3_d - S29e_d) \sim$$

~~for days prior to 2017-04-01.~~

$$UDMC_d = [AWA_d \, or \, EWA_d] \times DDV_d \times (1 - WS3_d - S29e_d) \times (1 - PPDISC_d)$$

~~For days on or after 2017-04-01 and prior to 2018-04-01 and also for days on or after 2020-04-01.~~

$$\sim UDMC_d$$
$$= \begin{cases} (RVF \times RVUDMCd + (1 - RVF) \times LRVUDMCd) \times (1 - PPDISC_d) & if \ RVTF = 1 \\ RLRVUDMCd \times (1 - PPDISC_d) & if \ RVTF = 0 \end{cases} \sim$$

~~where~~

$$\sim RVUDMC_d = [RVAWA_d \, or \, RVEWA_d] \times RVDDV_d \times (1 - WS3_d - S29e_d) \sim$$

~~and~~

$$\sim LRVUDMC_d = [LRVAWA_d \, or \, LRVEWA_d] \times LRVDDV_d \times (1 - WS3_d - S29e_d) \sim$$

~~and~~

$$\sim RLRVUDMC_d = [RLRVAWA_d \, or \, RLRVEWA_d] \times LRVDDV_d \times (1 - WS3_d - S29e_d) \sim$$

2.6.16. The Daily Metered Cost [6] DMC_d is

$$DMC_d = \begin{cases} UDMC_d & \text{if no } SGES_d \text{ or } SER_d = 0 \\ UDMC_d \times (1 - PCEd) - SGESWR_Y/(DIY \times SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

Where, as above, $SGESWR_Y$ is the SGES Water refund applicable for the Financial Year Y, PCEd is the percentage of the exemption applicable on that day and SER_d is the number of Service Element Reports for the SPID.

2.6.17. The CMA will allocate the Meter Based Charge to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges and report them in accordance with CSD0201.

2.7. Re-Assessed Charges

2.7.1. Re-assessed Charges were introduced on 1st April 2009. However, it should be noted that the methods within the Central Systems for calculating Re-Assessed Charges do not carry out any verification that the data only applies for periods of time on or after the date of introduction of Re-Assessed Charges.

2.7.2. Re-Assessed Charges are implemented by the use of Pseudo Meters. CSD0104 describes the installation, removal and maintenance of Pseudo Meters.

2.7.3. Subject to the one minor exception noted in the following paragraph, the CMA computes charges for Pseudo Meters as for all other T17 Meter Chains in accordance with sections 2.3 and 2.4 For example, where a SPID has a Pseudo Meter installed for part of a year and a physical meter for part of the year, the CMA will compute a single AWA which is applicable to both the Pseudo Meter volume and the physical meter volume.

2.7.4. When a Pseudo Meter is installed, Scottish Water is obliged under CSD0104 to provide an opening meter read of 0, and a YVE. While the Pseudo Meter is installed, the CMA will reject any

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[6] Compare the footnote at section 2.4.9~~2.4.9~~

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other meter reads which are submitted. The CMA will therefore compute the Derived Daily Volume using the value of YVE submitted by Scottish Water. When a Pseudo Meter is removed, Scottish Water must provide a final closing meter read of 0. However, the CMA does not store the closing meter within the meter reads table. Thus, following the removal of the Pseudo Meter, and the CMA will continue to compute the Derived Daily Volumes during a T17 Meter Chain Chargeable Period using the value of YVE submitted, rather than using the opening and closing meter reads of 0 (which would otherwise provide a zero volume).

2.8. Miscellaneous Charges

2.8.1. This section applies to the following Miscellaneous Charges:

- Field Troughs and Drinking Bowls; and
- Outside Taps.

2.8.2. Define the Discounts for the SPID for each day d in the SPID Chargeable Period i.e. Water Schedule 3 ($WS3_d$), Section 29e ($S29e_d$) and whether the SPID is eligible for Scottish Government Exemption Scheme ($SGES_d$ and $PCEd$).

2.8.3. The SPID RF (or IP) Settlement Chargeable Periods have already been defined as the periods of time given by the days D_l^{SRF}, D_u^{SRF} for RF and D_l^{SIP}, D_u^{SIP} for IP. As above define the relevant Chargeable Period for each of the Miscellaneous Charges.

2.8.4. For each miscellaneous charge define and for each Settlement Day *d* in the relevant Chargeable Period, define

- the number of Troughs and Drinking Bowls (TDB_d); and
- the number of Outside Taps (OT_d).

2.8.5. Also for each Settlement Day *d* define

$$FARM_d = \begin{cases} 1 & if\ the\ SPID\ is\ classified\ as\ being\ farm \\ 0 & otherwise \end{cases}$$

and

$$CROFT_d = \begin{cases} 1 & if\ the\ SPID\ is\ classified\ as\ being\ croft \\ 0 & otherwise \end{cases}$$

2.8.6. Let the following prices be defined as per the Wholesale Charges Scheme:

Annual Price Farm Troughs and Drinking Bowls $FTDBP$

Annual Price Croft Troughs and Drinking Bowls $CTDBP$

Annual Price Farm Outside Tap	$FOTP$
Annual Price Croft Outside Tap	$COTP$

2.8.7. Calculate the Unadjusted Troughs and Drinking Bowls Charge $UTDBC_d$ and the Unadjusted Outside Taps Charge $UOTC_d$ as

$$\begin{aligned}
\overline{UTDBC_d} &= \overline{(FTDBP \times FARM_d + CTDBP \times CROFT_d) \times TDB_d \times (1 - VAC_d)/DIY} \\
\overline{UOTC_d} &= \overline{(FOTP \times FARM_d + COTP \times CROFT_d) \times OT_d \times (1 - VAC_d)/DIY}
\end{aligned}$$

~~for days prior to 2017-04-01 and~~

$$\begin{aligned}
UTDBC_d &= (FTDBP \times FARM_d + CTDBP \times CROFT_d) \times TDB_d/DIY \\
UOTC_d &= (FOTP \times FARM_d + COTP \times CROFT_d) \times OT_d/DIY
\end{aligned}$$

~~for days on or after 2017-04-01.~~

2.8.8. The Unadjusted Discounted Troughs and Drinking Bowls Charge $UDTDBC_d$ and the Unadjusted Discounted Outside Taps Charge $UDOTC_d$ are given by

$$\begin{aligned}
UDTDBC_d &= UTDBC_d \times (1 - WS3_d - S29e_d) \\
UDOTC_d &= UOTC_d \times (1 - WS3_d - S29e_d)
\end{aligned}$$

2.8.9. The Troughs and Drinking Bowls Charge $TDBC_d$ and the Outside Taps Charge OTC_d are given by [7]

$$OTC_d = \begin{cases} UDOTC_d & \text{if no } SGES_d \text{ or } SER_d = 0 \\ UDOTC_d \times (1 - PCEd) - SGESWR_Y/(DIY \times SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

$$TDBC_d = \begin{cases} UDTDBC_d & \text{if no } SGES_d \text{ or } SER_d = 0 \\ UDTDBC_d \times (1 - PCEd) - SGESWR_Y/(DIY \times SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

Where, as above, $SGESWR_Y$ is the SGES Water refund applicable for the Financial Year Y, PCEd is the percentage of the exemption applicable on that day, and SER_d is the number of Service Element Reports for the SPID.

2.8.10. The CMA will allocate the Miscellaneous Charges to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate the volumes and charges and report them in accordance with CSD0201.

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[7] Compare the footnote at section 2.4.9~~2.4.9~~

3. Primary Sewerage Charges

3.1. General

3.1.1. The following calculation is carried out for each Sewerage SPID which is or has been Tradable when the Settlement Run is carried out. This includes SPIDs which are currently Tradable or Temporarily Disconnected, as well as Disconnected or Deregistered SPIDs which have been Tradable. The calculation excludes SPIDs which are Disconnected or Deregistered but were New, Partial or Rejected when they were so Disconnected or Deregistered.

3.1.2. A Settlement Day runs from midnight to midnight.

3.1.3. The RF and IP Settlement Periods, the SPID Chargeable Period, the SPID RF and IP Settlement Chargeable Periods, and the SPID RF Residual Settlement Chargeable Period have already been defined by the pairs of days:

$$D_l^{RF}, \ D_u^{RF} \text{ and } \ D_l^{IP}, \ D_u^{IP}$$

$$D_l^A, D_u^A$$

$$D_l^{SRF}, \ D_u^{SRF} \text{ and } D_l^{SIP}, \ D_u^{SIP}$$

$$D_l^{RS}, D_u^{RS}$$

3.1.4. If the SPID has a Permanent Disconnection Date, define the SPID Disconnection Date to be the date of Permanent Disconnection. If the SPID has a Deregistration Date, define the SPID Disconnection Date to be the date of Deregistration.

3.2. Measured Supply Points - Overview

3.2.1. First compute the AWA (for an RF run), or EWA (for an IP run) for each Sewerage SPID which is either a Measured Supply Point or a Re-Assessed Supply Point, and then compute, allocate and aggregate the Meter Based Charges and the Volumetric Charges. Re-assessed charges are implemented as if they were metered charges, see section 3.7 for details.

3.3. AWA and EWA Algorithm for Sewerage SPID

3.3.1. Establish if there is a Related Water Supply Point ($RWSP$). If there is no such Related Water Supply Point, then set $AWA = 0$ for RF or $EWA = 0$ for IP and skip the rest of the AWA/EWA Calculation for this Sewerage SPID.

3.3.2. For each T17 Meter Chain K associated with the *RWSP* (a "Related T17 Meter Chain") establish the T17 Meter Chain Active Period $D_{Kl}^A \le d < D_{Ku}^A$. If the Related T17 Meter Chain has not been removed from the *RWSP* then set $D_{Ku}^A = D_u^{RF}$

3.3.3. For each Related T17 Meter Chain K, define the T17 Meter Chain RF (or IP) Chargeable Period $D_{Kl}^{CRF} \le d < D_{Ku}^{CRF}$ for RF or $D_{Kl}^{CIP} \le d < D_{Ku}^{CIP}$ for IP, which is the (possibly empty) sub-period for which the Active Period intersects the SPID RF Settlement Chargeable Period (for RF) and the SPID RF Residual Chargeable Period for IP, for the Sewerage SPID, and is given by $D_{Kl}^{CRF}, D_{Ku}^{CRF}$ for RF and $D_{Kl}^{CIP}, D_{Ku}^{CIP}$ for IP

where

$$
\begin{aligned}
D_{Kl}^{CRF} &= \max(D_{Kl}^A, D_l^{SRF}) \\
D_{Ku}^{CRF} &= \min(D_{Ku}^A, D_u^{SRF})
\end{aligned} \quad \text{for RF and}
$$

$$
\begin{aligned}
D_{Kl}^{CIP} &= \max(D_{Kl}^A, D_l^{RS}) \\
D_{Ku}^{CIP} &= \min(D_{Ku}^A, D_u^{RS})
\end{aligned} \quad \text{for IP.}
$$

3.3.4. If $D_{Kl}^{CRF} \ge D_{Ku}^{CRF}$ for an RF Settlement Period, or $D_{Kl}^{CIP} \ge D_{Ku}^{CIP}$ for an IP Settlement Period, then the Related T17 Meter Chain does not have a Chargeable period for that Settlement Period.

3.3.5. Establish if there are any Trade Effluent consents (DPIDs) associated with the Sewerage SPID. For each such DPID T [8] associated with the Sewerage SPID establish the DPID Active Period $D_{Tl}^A \le d < D_{Tu}^A$

3.3.6. For an RF Settlement Run, for each DPID T the DPID RF Chargeable Period $D_{Tl}^{CRF} \le d < D_{Tu}^{CRF}$ is the (possibly empty) sub-period for which the DPID Active Period intersects the SPID RF Settlement Chargeable Period for the Sewerage SPID, and is given by $D_{Tl}^{CRF}, D_{Tu}^{CRF}$

where

$$
\begin{aligned}
D_{Tl}^{CRF} &= \max(D_{Tl}^A, D_l^{SRF}) \\
D_{Tu}^{CRF} &= \min(D_{Tu}^A, D_u^{SRF})
\end{aligned}
$$

3.3.7. For an IP Settlement Run, for each DPID T the DPID IP Chargeable Period $D_{Tl}^{CIP} \le d < D_{Tu}^{CIP}$ is the (possibly empty) sub-period for which the DPID Active Period intersects the SPID IP Settlement Chargeable Period for the Sewerage SPID, and is given by $D_{Tl}^{CIP}, D_{Tu}^{CIP}$

where

---

[8] The subscript T indicates it's a DPID

$$D_{Tl}^{CIP} = \max(D_{Tl}^{A}, D_{l}^{SIP})$$
$$D_{Tu}^{CIP} = \min(D_{Tu}^{A}, D_{u}^{SIP})$$

3.3.8. If $D_{Tl}^{CRF} \geq D_{Tu}^{CRF}$ for an RF, or $D_{Tl}^{CIP} \geq D_{Tu}^{CIP}$ for an IP, then then the DPID does not have a Chargeable Period for that Settlement Period.

3.3.9. For each Settlement Day *d* for each DPID *T* with a Chargeable Period $D_{Tl}^{CRF} \leq d < D_{Tu}^{CRF}$ for an RF, or $D_{Tl}^{CIP} \leq d < D_{Tu}^{CIP}$ for an IP, establish the Non Domestic Allowance NDA_{Td}. For all other days d for each DPID T set $NDA_{Td} = 0$.

Note: ~~There is a difference in interpretation between the usage of NDA for Settlement Runs covering periods before [9] 1st April 2013 and those on or after 1st April 2013. For Settlement Runs covering periods before 1st April 2013 the cutover, *NDA* referred to a non-domestic allowance for the whole of the Sewerage SPID. For Settlement Runs covering periods after 1st April 2013, *NDA* refers to a non-domestic allowance only in respect of Water Meters (SWWater or PrivateWater meters) associated with the Trade Effluent DPID.~~

3.3.10. Let the SFA be the Sewerage Allocated Tranche, and BS1 be the price for Sewerage Standard Volumes above the Allocated Tranche as defined in the Wholesale Charges Scheme. Thus:

Sewerage Standard Volume Charges	Price
Greater than zero and up to SFA	0
Greater than SFA	BS_1

3.3.11. Define the Sewerage Meter Chargeable (SMC_{Kd}) for a Related T17 Meter Chain K as

$$SMC_{Kd} = \begin{cases} 1 & if \ D_{Kl}^{CRF} \leq d < D_{Ku}^{CRF} \ and \ RTS_{Kd} > 0 \\ 0 & otherwise \end{cases} \quad \text{for an RF}$$

$$SMC_{Kd} = \begin{cases} 1 & if \ D_{Kl}^{CIP} \leq d < D_{Ku}^{CIP} \ and \ RTS_{Kd} > 0 \\ 0 & otherwise \end{cases} \quad \text{for an IP}$$

---

[9] ~~See Appendix A re cutover between the methods~~

where RTS_{Kd} is the Return to Sewer allowance [10] for the Related T17 Meter Chain K for the Settlement Day d.

3.3.12. For each Settlement Day d in the SPID RF Settlement Chargeable Period, or SPID IP Settlement Chargeable period, define Total Sewerage Meter Chargeable ($TSMC_{Kd}$) as

$$TSMC_{Kd} = \sum_K SMC_{Kd}$$

3.3.13. For each meter K for each Settlement Day d in the T17 Meter Chain RF (or IP) Chargeable Period establish the Sewerage Chargeable Meter Size $SCMS_{Kd}$

3.3.14. For each day define the Meter Sewerage Free Allocation ($MSFA_{Kd}$) as

$$MSFA_{Kd} = \begin{cases} SFA \times SMC_{Kd} & if\ SCMS_{Kd} > 0 \\ 0 & otherwise \end{cases}$$

3.3.15. For an RF, the Sewerage Proportional Free Allocation $SPFA$ is given by

$$SPFA = \sum_{Kd} \frac{(1 - VAC_d) \times MSFA_{Kd}}{DIY}$$

3.3.16. For an IP, the Sewerage Proportional Free Allocation $SPFA$ is given by

$$SPFA = \sum_K AR \times MSFA_{Kd}$$

3.3.17. The Wholesale Charges Scheme defines meter related charges in respect of a limited number of meter sizes, and for each non-zero Sewerage Chargeable Meter Size provides a mapping from the Sewerage Chargeable Meter Size to an entry in the corresponding table of meter sizes. The table entries in respect of Sewerage do not necessarily correspond to the table entries in respect of water.

3.3.18. The Central Systems holds a related table comprising Lower Meter Size (LMS_i), Upper Meter Size (UMS_i) and the Sewerage Capacity Volume Threshold ($SCVT_i$) for $i = 1 \dots n_T$, where

---

[10] Expressed as a percentage in Central Systems, but used here and elsewhere as a fraction

$$LMS_1 = 1$$
$$LMS_i = UMS_{i-1} + 1 \ for \ i = 2 \dots n_T$$
$$UMS_{n_T} = \infty \ (in \ practice, the \ largest \ integer \ representable \ in \ the \ CS)$$

3.3.19. Thus each Sewerage Chargeable Meter Size $SCMS_{Kd} > 0$ falls uniquely within a single band $LMS_i \leq SCMS_{Kd} \leq UMS_i$, and each such band (LMS_i, UMS_i) maps to a unique Sewerage Capacity Volume Threshold $SCVT_i = SCVT_i(LMS_i, UMS_i)$

3.3.20. The Meter Sewerage Capacity Volume Threshold ($MSCVT_{Kd}$) is then given by the table of Sewerage Capacity Volume Thresholds as

$$MSCVT_{Kd} = \begin{cases} 0 & if \ SCMS_{Kd} = 0 \\ SCVT_i(LMS_i, UMS_i) \times SMC_{Kd} & if \ SCMS_{Kd} > 0 \\ 0 & otherwise \end{cases}$$

where (LMS_i, UMS_i) is the band corresponding to $SCMS_{Kd}$

3.3.21. For an RF, the Sewerage Proportional Capacity Volume Threshold ($SPCVT$) applicable for the Sewerage SPID for the year is given by

$$SPCVT = \sum_{Kd} \frac{(1 - VAC_d) \times MSCVT_{Kd}}{DIY}$$

3.3.22. Not used. ~~For an IP, the Sewerage Proportional Capacity Volume Threshold ($SPCVT$) applicable for the Sewerage SPID is given by~~

$$\sout{SPCVT = \sum_K AR \times MSCVT_{Kd}}$$

3.3.23. Then derive DDV_{Kd} as per the AWA ~~(or EWA, for IP)~~ algorithm for Water in the paragraphs following 2.3.23

3.3.24. Not used. ~~For Settlement Runs relating to periods before 1st April 2013, the Sewerage Derived Daily Volume $SDDV_{Kd}$ for each Related T17 Meter Chain K for each day d in a Related T17 Meter Chain Chargeable Period is~~

$$\sout{SDDV_{Kd} = \begin{cases} \sum_T \frac{(1 - VAC_d) \times (1 - TDISC_d) \times SMC_{Kd} \times NDA_{Td}}{DIY \times TSMC_d} & for \ all \ days \ d \ which \ \sum_T NDA_{Td} > 0, and \ TSMC_d > 0 \\ DDV_{Kd} \times RTS_{Kd} & otherwise \end{cases}}$$

3.3.25. ~~For Settlement Runs relating to periods after 1st April 2013 e~~Each DPID *T* may be associated with a meter *K*. This association can be described by a variable $MDASSOC_{KTd}$ which will take the

value 1 when there is an association and take the value 0 when there is no association. Each meter-DPID association _____ has a related meter-DPID Volume ($MDVOL_{KTd}$) which represents the fraction [11] of a specific meter's volume which is associated with a DPID. For the avoidance of doubt, if there is no association, i.e. $MDASSOC_{KTd} = 0$, then $MDVOL_{KTd}$ will also be taken to be 0.

3.3.26. Define the term NDA Split ($NDASPLIT_{Td}$) as

$$NDASPLIT_{Td} = \sum_K MDASSOC_{KTd} \times SMC_{Kd}$$

Then,

$$SDDV_{Kd} = \begin{cases} \dfrac{(1 - VAC_d) \times (1 - TDISC_d) \times SMC_{Kd}}{DIY} \times \displaystyle\sum_{\substack{T\ where \\ MDASSOC_{KTd}=1\ and \\ NDASPLIT_{Td}>0\ and \\ T\ is\ active}} \dfrac{NDA_{Td}}{NDASPLIT_{Td}} \\ \\ when\ \displaystyle\sum_{\substack{T\ where \\ MDASSOC_{KTd}=1\ and \\ NDASPLIT_{Td}>0\ and \\ T\ is\ active}} \dfrac{NDA_{Td}}{NDASPLIT_{Td}} > 0 \\ \\ DDV_{Kd} \times RTS_{Kd}\ otherwise \end{cases}$$

3.3.27. Then for RF Settlement Runs, Actual Sewerage Yearly Volume ($ASYV$) for the Sewerage SPID is

$$ASYV = \sum_{Kd} SDDV_{Kd}$$

3.3.28. Then for IP Settlement Runs, Residual Actual Sewerage Yearly Volume ($RASYV$) for the Sewerage SPID is then

$$RASYV = \sum_{Kd} SDDV_{Kd}$$

For all days d in RDIY.

Charges – Standard Sewerage Volume Charges

3.3.29. The Wholesale Charges Scheme defines charges for a volume *V* which is allocated across different charge bands (based upon a whole year's usage) in accordance with paragraph 3.3.10

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[11] Expressed as a percentage in Central Systems but used here as a fraction

3.3.30. The Sewerage Proportional Free Allocation is $SPFA$, the Actual Sewerage Yearly Volume is $ASYV$ and the Residual Actual Yearly Volume $RASYV$ and have previously been defined. Then calculate the Sewerage Standard Volume Charge ($SSVCHARGE$) as

$$SSVCHARGE = BS_1 \times max(ASYV - SPFA, 0) \text{ for an RF}$$

$$SSVCHARGE = BS_1 \times max(RASYV - SPFA, 0) \text{ for an IP}$$

Charges –Sewerage Capacity Volume Charges

3.3.31. If the Sewerage Capacity Volume Price as defined in the Scheme of Charges is $SCVP$, then the Sewerage Capacity Volume Charge $SCVCHARGE$ is

$$SCVCHARGE = SCVP \times max(\min(ASYV, SPCVT) - SPFA, 0) \text{ for an RF}$$

$$SCVCHARGE = SCVP \times max(\min(RASYV, SPCVT) - SPFA, 0) \text{ for an IP}$$

AWA and EWA

3.3.32. The Annual Weighted Average (AWA) for an RF run and the Estimated Weighted Average for an IP run (EWA) for the Sewerage SPID are then given by:

$$AWA = \begin{cases} 0 & if\ ASYV \leq 0 \\ \frac{SSVCHARGE + SCVCHARGE}{ASYV} & if\ ASYV > 0 \end{cases} \text{ for an RF}$$

$$EWA = \begin{cases} 0 & if\ RASYV \geq 0 \\ 0 & if\ MA_{Kd}\ is\ 0\ for\ all\ T17\ Meter\ Chains\ K\ on\ d = D_l^{RS} \\ \frac{SSVCHARGE + SCVCHARGE}{ASYV} & otherwise \end{cases} \text{ for an IP}$$

3.4. Measured Sewerage Supply - Charges

3.4.1. The discounts for the SPID for each day d in the SPID Chargeable Period are Sewerage Schedule 3 ($SS3_d$), Section 29e ($S29e_d$) and whether the SPID is eligible for Scottish Government Exemption Scheme ($SGES_d$ and $PCEd$).

3.4.2. Carry out the following calculations for each SPID which has a SPID Settlement Chargeable Period for the RF Settlement Period.

3.4.3. Carry out the following calculations for each Related T17 Meter Chain which has a Chargeable Period for that RF Settlement Period:

3.4.4. As per 3.3.17 the Wholesale Charges Scheme defines meter related charges in respect of a limited number of meter sizes, and for each non-zero Chargeable Meter Size provides a mapping from the Chargeable Meter Size to an entry in the corresponding table of meter sizes.

3.4.5. The Central Systems holds a table comprising Lower Meter Size (LMS_i), Upper Meter Size (UMS_i) and the Sewerage Meter Annual Non-Volumetric Charges ($SMANVC_i$) for $i = 1 \dots n_T$, where

$$
\begin{aligned}
LMS_1 &= 1 \\
LMS_i &= UMS_{i-1} + 1 \, for \, i = 2 \dots n_T \\
UMS_{n_T} &= \infty \, (in \, practice, the \, largest \, integer \, representable \, in \, the \, CS)
\end{aligned}
$$

and n_T is the number of entries in the table.

3.4.6. Thus each Sewerage Chargeable Meter Size $SCMS_{Kd} > 0$ falls uniquely within a single band $LMS_i \leq SCMS_{Kd} \leq UMS_i$, and each such band (LMS_i, UMS_i) maps to a unique Sewerage Meter Annual Non-Volumetric Charged $SMANVC_i = SMANVC_i(LMS_i, UMS_i)$

3.4.7. Then Unadjusted Sewerage Meter Based Charge ($USMBC_{Kd}$) is then given by the table of Sewerage Meter Annual Non-Volumetric Charges as

$$
USMBC_{Kd} = \begin{cases} 0 & if \; SCMS^-_{Kd} = 0 \\ SMANVC^-_i(LMS^-_i, UMS^-_i) \times SMC^-_{Kd} \times (1 - VAC^-_a)/DIY & if \; SCMS^-_{Kd} > 0 \\ 0 & otherwise \end{cases}
$$

for days prior to 2017-04-01 and

$$
USMBC_{Kd} = \begin{cases} 0 & if \; SCMS^-_{Kd} = 0 \\ SMANVC^-_i(LMS^-_i, UMS^-_i) \times SMC^-_{Kd} \times (1 - PPDISC^-_a)/DIY & if \; SCMS^-_{Kd} > 0 \\ 0 & otherwise \end{cases}
$$

for days on or after 2017-04-01 and prior to 2020-04-01 and

$$
USMBC_{Kd} = \begin{cases} 0 & if \; SCMS_{Kd} = 0 \\ SMANVC_i(LMS_i, UMS_i) \times SMC_{Kd} \times (1 - PPDISC) \times (1 - TDISC)/DIY & if \; SCMS_{Kd} > 0 \\ 0 & otherwise \end{cases}
$$

for days on or after 2020-04-01

where (LMS_i, UMS_i) is the band corresponding to $SCMS_{Kd}$

3.4.8. Then the Unadjusted Discounted Sewerage Meter Based Charge ($UDSMBC_{Kd}$) is then given

$$
UDSMBC_{Kd} = USMBC_{Kd} \times (1 - SS3_d - S29e_d)
$$

3.4.9. The Sewerage Meter Based Charge [12] $SMBC_{Kd}$ is

$$SMBC_{Kd} = \begin{cases} UDSMBC_{Kd} & \text{if no } SGES_d \text{ or } SER_d = 0 \\ UDSMBC_{Kd} \times (1 - PCEd) - SGESSR_Y/(DIY \times SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

Where $SGESSR_Y$ is the SGES Sewer refund applicable for the Financial Year Y, PCEd is the percentage of the exemption applicable on that day and where SER_d is the number of Service Element Reports for the SPID.

3.4.10. For each Settlement Day d there are:

- two Service Element Reports for each Related T17 Meter Chain [13] which is chargeable on that day
- two Service Element Reports for each Unmeasurable Service Element which is chargeable on that day
- a single Service Element for each DPID which is chargeable on that day
- a Service Element Report for Roads Drainage if it is chargeable on that day
- a Service Element Report for Property Drainage if it is chargeable on that day

3.4.11. The CMA will allocate the Meter Based Charge to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges, and report them in accordance with CSD0201.

Sewerage Volumetric Charges

3.4.12. ~~For an RF run, t~~The Unadjusted Daily Metered Cost ($UDMC_{Kd}$) is

$$UDMC^-_{Kd} = AWA \times SDDV^-_{Kd} \times (1 - SS3_d - S29e_d)$$

~~For days prior to 2017-04-01~~

$$UDMC_{Kd} = AWA \times SDDV_{Kd} \times (1 - SS3_d - S29e_d) \times (1 - PPDISC_d)$$

~~For days on or after 2017-04-01~~

3.4.13. Not used. ~~For an IP run, the Unadjusted Daily Metered Cost ($UDMC^-_{Kd}$) is~~

$$UDMC^-_{Kd} = EWA \times SDDV^-_{Kd} \times (1 - SS3_d - S29e_d)$$

~~For days prior to 2017-04-01~~

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[12] Compare the footnote at section ~~2.4.9~~2.4.9
[13] When the RTS is zero there may be less than two Service Elements per Related T17 Meter Chain. In particular, there will be no service element for Meter Based Charges

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$$\overline{UDMC_{Kd}^{-} = EWA \times SDDV_{Kd}^{-} \times (1 - SS3_d - S29e_d) \times (1 - PPDISC_d)}$$

~~For days on or after 2017-04-01~~

3.4.14. The Daily Metered Cost [14] DMC_{Kd} is

$$DMC_{Kd} = \begin{cases} UDMC_{Kd} & \text{if no } SGES_d \text{ or } SER_d = 0 \\ UDMC_{Kd} \times (1 - PCE_d) - SGESSR_Y/(DIY \times SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where $SGESSR_Y$ is the SGES Sewer refund applicable for the Financial Year *Y*, PCE_d is the percentage of the exemption applicable on that day and where SER_d is the number of Service Element Reports for the SPID.

3.4.15. The CMA will allocate the Daily Metered Cost and the Volume to Licensed Provider to whom it was Registered in respect of each Settlement Day. It will aggregate these volumes and charges and report them in accordance with CSD0201.

3.5. Unmeasured Sewerage Supply Points - Overview

- RV Based Charging
  - Water SPIDs which have been declared unmeasurable
- Re-assessed Charging
  - Water SPIDs which have been agreed are subject to Re-Assessed Charging

3.5.1. The following Sewerage SPIDs are subject to Unmeasured charging:

- RV Based Charging
  - Sewerage SPIDs which have been declared unmeasurable.
- Re-assessed Charging
  - Sewerage SPIDs which have been agreed are subject to Re-Assessed Charging

Information on transition charging is provided in the Appendices to CSD0205.

3.6. RV Based Charges

RV Non-Volumetric Charges

3.6.1. The discounts for the SPID for each day *d* in the SPID Chargeable Period are Sewerage Schedule 3 ($SS3_d$), Section 29e ($S29e_d$) and whether the SPID is eligible for the Scottish Government Exemption Scheme ($SGES_d \text{ and } PCEd$).

---

[14] Compare the footnote at section 2.4.9~~2.4.9~~

3.6.2. The SPID Settlement Chargeable Periods have already been defined as the periods given by the days D_l^{SRF}, D_u^{SRF} for an RF or D_l^{SIP}, D_u^{SIP} for an IP.

3.6.3. The relevant SPID RV Unmeasurable Period is defined as the period of time for which the Sewerage SPID has been declared unmeasurable and is likewise given by a pair of days D_l^{RVRF}, D_u^{RVRF} for an RF or D_l^{RVIP}, D_u^{RVIP} for an IP.

3.6.4. The SPID RV Unmeasurable RF (or IP) Chargeable Period Chargeable Period $D_l^{CRF} \leq d < D_u^{CRF}$ for RF or $D_l^{CIP} \leq d < D_u^{CIP}$ for IP, is the (possibly empty) sub-period for which the RV Unmeasurable Period intersects the SPID Settlement RF or IP Chargeable Period, and is given by D_l^{CRF}, D_u^{CRF} for an RF and D_l^{CIP}, D_u^{CIP} for an IP, where

$$D_l^{CRF} = \max(D_l^{RVRF}, D_l^{SRF})$$
$$D_u^{CRF} = \min(D_u^{RVRF}, D_u^{SRF})$$

$$D_l^{CIP} = \max(D_l^{RVIP}, D_l^{SIP})$$
$$D_u^{CIP} = \min(D_u^{RVIP}, D_u^{SIP})$$

3.6.5. If $D_l^{CRF} \geq D_u^{CRF}$ for an RF or $D_l^{CIP} \geq D_u^{CIP}$ for an IP, then the SPID does not have an RV Unmeasurable Period for that Settlement Period.

3.6.6. For each Settlement Day d in the SPID RV Unmeasurable RF (or IP) Chargeable Period define the Rateable RV_d, the Live Rateable Value LRV_d and the RV Transition Flag $RVTF_d$.

3.6.7. ~~For days d, prior to 2017-04-01, i~~In accordance with the Wholesale Scheme of Charges define the Sewerage Chargeable Meter Size ($SCMS_d$) which corresponds to LRV_d, and each $SCMS_i$ corresponds to a unique Sewerage Meter Annual Non-Volumetric Charge $SMANVC_i = SMANVC_i(SCMS_d)$. ~~For days on or after 2017-04-01 and prior to 2018-04-01, in accordance with the Wholesale Scheme of Charges, for days when the SPID is not vacant, define the Sewerage Chargeable Meter Size (SCMSd) which corresponds to RV_d, and each $SCMS_i^-$ corresponds to a unique Sewerage Meter Annual Non-Volumetric Charge ($SMANVC_i^- = SMANVC_i^-(SCMS_d^-)$). For days on or after 2018-04-01 and prior to 2020-04-01, in accordance with the Wholesale Scheme of Charges, when the SPID is not vacant, define LRVSCMSd, corresponding to LRVd to create an LRVSMANVCi or an SMANVCi and define RVSCMSd, corresponding to RVd to create an RVSMANVCi. For days when the SPID is vacant (on or after 2017-04-01 and prior to 2020-04-01), SCMSd, RVSCMSd and LRVSCMSd shall be 20mm. For days on or after 2020-04-01, i~~In accordance with the Wholesale Scheme of Charges, the SCMS_d shall be 20mm, creating an SMANVC_i.

3.6.8. The Unadjusted Sewerage Meter Based Charge ($USMBC_{Kd}$) is given by the table of Sewerage Meter Annual Non-Volumetric Charges as

$$USMBC_{Kd} = \frac{SMANVC_i^-(SCMS_i^-) \times (1 - VAC_d)}{DIY}$$

~~for days prior to 2017-04-01 and~~

$$USMBC_{Kd} = \frac{SMANVC_i^-(SCMS_i^-)}{DIY} \times (1 - PPDISC_d)$$

~~for days on or after 2017-04-01 and prior to 2018-04-01 and~~

~~$USMBC_d$~~
$$= \begin{cases} (RVF \times RVUSMBCd + (1 - RVF) \times LRVUSMBCd) \times (1 - PPDISC_d) & if\ RVTF = 1 \\ RLRVUSMBCd\ (1 - PPDISC_d) & if\ RVTF = 0 \end{cases}$$

~~where~~

$$RVUSMBC_d = \frac{RVSMANVC_i^-(RVSCMS_i^-)}{DIY}$$

~~and~~

$$LRVUSMBC_d = \frac{LRVSMANVCi(LRVSCMSi)}{DIY}$$

~~and~~

$$LRVUSMBC_d = \frac{SMANVCi(LRVSCMSi)}{DIY}$$

~~for days on or after 2018-04-01 and prior to 2020-04-01.~~

$$USMBC_{Kd} = \begin{cases} 0 & if\ SCMS_{Kd} = 0 \\ SMANVCi \times (1 - PPDISC) \times (1 - TDISC)/DIY & if\ SCMS_{Kd} > 0 \\ 0 & otherwise \end{cases}$$

~~for days on or after 2020-04-01.~~

3.6.9. The Unadjusted Discounted Sewerage Meter Based Charge ($UDSMBC_d$) is then given by

$$UDSMBC_{Kd} = USMBC_{Kd} \times (1 - SS3_d - S29e_d)$$

3.6.10. The Sewerage Meter Based Charge [15] $SMBC_{Kd}$

$$SMBC_{Kd} = \begin{cases} UDSMBC_{Kd} & \text{if no } SGES_d \text{ or } SER_d = 0 \\ UDSMBC_{Kd} \times (1 - PCEd) - SGESSR_Y/(DIY \times SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where $SGESSR_Y$ is the SGES Sewer refund applicable for the Financial Year *Y*, PCEd is the percentage of the exemption applicable on that day and where SER_d is the number of Service Element Reports for the SPID.

3.6.11. The CMA will allocate the Meter Based Charge to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges and report them in accordance with CSD0201.

RV Volumetric Charges

3.6.12. For each Settlement Day d in the SPID RV Unmeasurable ~~RF (or IP)~~ Chargeable Period define ~~the Rateable Value RV_d, (for days prior to 2020-04-01),~~ the Live Rateable Value LRV_d ~~(for days on or after 2018-04-01) and the RV Transition Flag RVTFd (for days on or after 2018-04-01 and prior to 2020-04-01)~~

3.6.13. The equivalent Actual Sewerage Yearly Volume $ASYV_d$ is given by

$$ASYV_d = \begin{cases} 0.95 \times (0.0373 \times RV_d - 24) \times (1 - VAC_d) \times (1 - TDISCd) & \text{if } RV_d \geq 650 \\ 0 & \text{otherwise} \end{cases}$$

~~for days prior to 2018-04-01.~~

~~The equivalent RV based Actual Sewerage Yearly Volume RVASYV_d is given by~~

$$RVASYV_d = \begin{cases} 0.95 \times [(0.0373 \times RV_d - 24)] \times (1 - VAC_d) \times (1 - TDISCd) & \text{if } RV_d \geq 650 \\ 0 & \text{otherwise} \end{cases}$$

~~And the equivalent Live RV based Actual Yearly Sewerage Volume LRVASYV_d is given by~~

$$LRVASYV_d = \begin{cases} 0.95 \times [(0.0252 \times LRV_d - 24)] \times (1 - VAC_d) \times (1 - TDISCd) & \text{if } LRV_d \geq 960 \\ 0 & \text{otherwise} \end{cases}$$

~~for days on or after 2018-04-01, where RVF is a transition factor established in accordance with the Wholesale Scheme of Charges.~~

~~and the equivalent Sewerage Derived Daily Volume $SDDV_d$ is given by~~

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[15] Compare the footnote at section 2.4.9~~2.4.9~~

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$$\sout{SDDV_d = \frac{ASYV_d}{DIY}}$$

~~for days prior to 2018-04-01.~~

~~The equivalent RV based Sewerage Daily Derived Volume RVSDDV_d is given by~~

$$\sout{RVSDDV_d = \frac{RVASYV_d}{DIY}}$$

~~for days on or after 2018-04-01 and prior to 2020-04-01 and~~

~~the equivalent Live RV based Sewerage Daily Derived Volume LRVSDDV_d is given by~~

$$\sout{LRVSDDV_d = \frac{LRVASYV_d}{DIY}}$$

~~for days on or after 2018-04-01. and prior to 2020-04-01 and~~

$$ASYV_d = \begin{cases} 0.95 \times (\sout{0.0252}VCF \times \text{LRV}_d - \sout{24}UV) \times (1 - VAC_d) \times (1 - TDISCd) & if\ LRV_d \geq \sout{960}TRV \\ 0 & otherwise \end{cases}$$

where VCF is a volume conversion factor, UV is the uncharged volume and TRV is the threshold RV, all established in accordance with the Wholesale Scheme of Charges, and the equivalent Derived Sewerage Daily Volume DDV_d is given by

$$SDDV_d = \frac{ASYV_d}{DIY}$$

~~for days on or after 2020-04-01.~~

3.6.14. The same calculation used to derive AWA in section 3.3.32 can be used to derive an Equivalent AWA_d for an RF run or EWA_d for an IP run for each day of the RV Unmeasurable Chargeable Period, based upon an equivalent whole year calculation and using the equivalent Actual Sewerage Yearly Volume $ASYV_d$ and the meter size $SCMS_d$ ~~for days prior to 2018-04-01 and also for days on or after 2020-04-01. For days on or after 2018-04-01 and prior to 2020-04-01, an equivalent RVAWAd and LRVAWAd for RF or RVEWAd and LRVEWAd for IP should be calculated, where the same calculation used to derive AWA in section 3.3 can be used to derive the RVAWAd (or RVEWAd) and the LRVAWAd (or LRVEWAd), based upon an equivalent whole year calculation, using;~~

- For the RVAWA and RVEWA. The equivalent RV Actual Yearly Volume RVASYVd and meter size RVSCMSd and specific volumetric prices; $RVSB_1$ and RVCSVP.

- For the LRVAWA and LRVEWA. The equivalent LRV Actual Yearly Volume LRVASYVd and meter size LRVSCMSd for the LRVAWA and specific volumetric prices; $LRVSB_1$ and LRVCSVP.

- For the RLRVAWA and RLRVEWA. The equivalent LRV Actual Yearly Volume LRVASYVd and meter size LRVSCMSd for the LRVAWA and volumetric prices as used for metered Supply Points; SB_1 and CSVP.

3.6.15. The Unadjusted Daily Metered Cost ($UDMC_d$) =

$$UDMC_d^- = [AWA_d^- \text{ or } EWA_d^-] \times SDDV_d \times (1 - SS3_d - S29e_d)$$

for days prior to 2017-04-01.

$$UDMC_d = [AWA_d \text{ or } EWA_d^-] \times SDDV_d \times (1 - SS3_d - S29e_d) \times (1 - PPDISC_d)$$

For days on or after 2017-04-01 and prior to 2018-04-01 and also for days on or after 2020-04-01.

$$UDMC_d^-$$
$$= \begin{cases} RVF \times RVUDMCd + (1 - RVF) \times LRVUDMCd \times (1 - PPDISC_d) & \text{if } RVTF = 1 \\ RLRVUDMCd \times (1 - PPDISC_d) & \text{if } RVTF = 0 \end{cases}$$

where

$$RVUDMC_d^- = [RVAWA_d^- \text{ or } RVEWA_d^-] \times RVSDDV_d \times (1 - WS3_d - S29e_d)$$

and

$$LRVUDMC_d^- = [LRVAWA_d^- \text{ or } LRVEWA_d^-] \times LRVSDDV_d \times (1 - WS3_d - S29e_d)$$

and

$$RLRVUDMC_d^- = [RLRVAWA_d^- \text{ or } RLRVEWA_d^-] \times LRVSDDV_d \times (1 - WS3_d - S29e_d)$$

for days on or after 2018-04-01 and prior to 2020-04-01.

3.6.16. Not Used.

3.6.17. The Daily Metered Cost DMC_d [16] is

$$DMC_d = \begin{cases} UDMC_d & \text{if no } SGES_d \text{ or } SER_d = 0 \\ UDMC_d \times (1 - PCEd) - SGESSR_Y/(DIY \times SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

where $SGESSR_Y$ is the SGES Sewerage refund applicable for the Financial Year Y, PCE_d is the percentage of the exemption applicable on that day and where SER_d is the number of Service Element Reports for the SPID.

3.6.18. The CMA will allocate the Meter Based Charge to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate Volumes and Charges and report them in accordance with CSD0201.

3.7. Re-assessed Charges

3.7.1. Re-assessed Charges were introduced on 1st April 2009. However, it should be noted that the methods within the Central Systems for calculating Re-Assessed Charges do not carry out any verification that the data only applies for periods of time on or after the date of introduction of Re-assessed Charges.

3.7.2. Re-assessed Charges are implemented by the use of Pseudo Meters. In respect of Sewerage SPIDs, the Pseudo Meter is installed at the Related Water Supply Point. In respect of Re-assessed charges, there is always such a Related Water Supply Point as in respect of Sewerage Services only Supply Points, there will be a related Pseudo Water Services Supply Point.

3.7.3. Subject to the one minor exception noted in the following paragraph, the CMA computes charges for Pseudo Meters as for all other T17 Meter Chains in accordance with sections 3.3 and 3.4. For example, where the related Water SPID has a Pseudo Meter installed for part of a year and a physical meter installed for part of a year, the CMA will compute a single sewerage AWA which is applicable to the sewerage volumes relating to both the Pseudo Meter and the physical meter.

3.7.4. When a Pseudo Meter is installed, Scottish Water is obliged under CSD0104 to provide an opening meter read of 0, and both a YVE and a RTS. While the Pseudo Meter is installed, the CMA will reject any other meter reads which are submitted. The CMA will therefore compute the Sewerage Derived Daily Volume using the value of YVE and RTS submitted by Scottish Water (or where applicable appropriate NDA values relating to Trade Effluent). When a Pseudo Meter is removed, Scottish Water must provide a final closing meter read of 0. However, the CMA does not store the closing meter within the meter reads table.

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[16] Compare the footnote at section 2.4.9~~2.4.9~~

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3.7.5. Thus, following the removal of the Pseudo Meter, and the CMA will continue to compute the Sewerage Derived Daily Volumes during a T17 Meter Chain Chargeable Period using the values of YVE and RTS submitted (or where applicable NDA values), rather than using the opening and closing meter reads of 0 (which would otherwise provide a zero volume).

3.8. Property Drainage

3.8.1. This section applies to the Property Drainage charges.

3.8.2. The Discounts for the SPID for each day d in the SPID Chargeable Period are Sewerage Schedule 3 ($SS3_d$), Section 29e ($S29e_d$) and whether the SPID is eligible for Scottish Government Exemption Scheme ($SGES_d \ and \ PCE_d$).

3.8.3. The SPID ~~RF and IP~~ Settlement Chargeable Period~~s~~ ~~have~~ has already been defined as the periods of time given by the days D_l^{SRF}, D_u^{SRF} and D_l^{SIP}, D_u^{SIP}. As above define the relevant Chargeable Period for Property Drainage.

3.8.4. For each Settlement Day d in the relevant Chargeable Period define the ~~Rateable Value RV_d (for days prior to 2020-04-01), the~~ Live Rateable Value LRV_d ~~(for days on or after 2018-04-01), the RV Transition Flag RVTF$_d$ (for days on or after 2018-04-01 and prior to 2020-04-01)~~ and whether Property Drainage (PD_d) is chargeable:

$$PD_d = \begin{cases} 1 & if \ Property \ Drainage \ is \ chargeable \\ 0 & if \ Property \ Drainage \ is \ not \ chargeable \end{cases}$$

3.8.5. As per the Wholesale Charges Scheme define the Annual Price for Property Drainage per pound Rateable value for the LRV_d ~~(for days on or after 2018-04-01), the RV Transition Flag RVTF$_d$ (for days on or after 2018-04-01 and prior to 2020-04-01)~~ for the purposes of property drainage charges (PDP).

3.8.6. Then define the Unadjusted Property Drainage Charge $UPDC_d$ as

$$\cancel{UPDC_d = PDP \times PD_d \times RV_d \times (1 - VAC_d)/DIY}$$

~~for days prior to 2017-04-01.~~

$$\cancel{UPDC_d = PDP \times PD_d \times RV_d \ /DIY}$$

~~for days on or after 2017-04-01 and prior to 2018-04-01 and~~

$$\cancel{UPDC_d = \begin{cases} RVF \times RVUPDCd + (1 - RVF) \times LRVUPDCd & if \ RVTF = 1 \\ RLRVUPDCd & if \ RVTF = 0 \end{cases}}$$

~~where~~

$$RVUPDC_d^- = [RVPDP \times PD_d \times RV_d]/DIY$$

and

$$LRVUPDC_d^- = [LRVPDP \times PD_d \times LRV_d]/DIY$$

and

$$RLRVUPDC_d^- = [PDP \times PD_d \times LRV_d]/DIY$$

for days on or after 2018-04-01 and prior to 2020-04-01, where RVF is a transition factor established in accordance with the Wholesale Scheme of Charges and

$$UPDC_d = PDP \times PD_d \times LRV_d/DIY$$

For days on or after 2020-04-01.

3.8.7. The Unadjusted Discounted Property Drainage Charge $UDPDC_d$ is given by

$$UDPDC_d = UPDC_d \times (1 - SS3_d - S29e_d)$$

3.8.8. The Property Drainage Charge PDC_d [17] is given by

$$PDC_d = \begin{cases} UDPDC_d & \text{if no } SGES_d \text{ or } SER_d = 0 \\ UDPDC_d \times (1 - PCEd) - SGESSR_Y/(DIY \times SER_d) & \text{if } SGES_d \text{ and } SER_d > 0 \end{cases}$$

Where, as above, $SGESSR_Y$ is the SGES Sewerage refund applicable for the Financial Year Y, PCE_d is the percentage of the exemption applicable on that day and SER_d is the number of Service Element Reports for the SPID.

3.8.9. The CMA will allocate the Property Drainage Charges to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate the volumes and charges and report them in accordance with CSD0201.

Note: There are a small number of SPIDs on Area Based Property Drainage Charges. The calculation for them is the same as above with the price per area replacing the price per pound Rateable Value, and the area replacing the Rateable Value.

3.9. Roads Drainage

3.9.1. This section applies to the Roads Drainage charges.

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[17] Compare the footnote at section 2.4.92.4.9

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3.9.2. The discounts for the SPID for each day d in the SPID Chargeable Period are Sewerage Schedule 3 ($SS3_d$), Section 29e ($S29e_d$) and whether the SPID is eligible for Scottish Government Exemption Scheme ($SGES_d$ and PCE_d).

3.9.3. The SPID RF and IP Settlement Chargeable Periods have already been defined as the periods of time given by the days D_l^{SRF}, D_u^{SRF} and D_l^{SIP}, D_u^{SIP}. As above define the relevant Chargeable Period for Roads Drainage.

3.9.4. For each Settlement Day *d* in the relevant Chargeable Period define ~~the Rateable Value RV_d (for days prior to 2020-04-01),~~ the Live Rateable Value LRV_d ~~(for days on or after 2018-04-01), the RV Transition Flag RVTF_d (for days on or after 2018-04-01 and prior to 2020-04-01)~~ and whether Roads Drainage (RD_d) is chargeable:

$$RD_d = \begin{cases} 1 & if\ Roads\ Drainage\ is\ chargeable \\ 0 & if\ Roads\ Drainage\ is\ not\ chargeable \end{cases}$$

3.9.5. As per the Wholesale Charges Scheme define the Annual price for Roads Drainage per pound Rateable value for ~~the RV_d (RVRDP), for the LRV_d (LRVRDP) for Supply Points in transition and, additionally, for~~ the LRV_d ~~for Supply Points not in transition and for all relevant Supply Points on or after 2020-04-01 for the purposes of Roads Drainage Charges (RDP).~~

3.9.6. The Unadjusted Roads Drainage Charge $URDC_d$ is

$$~~URDC_d = RDP \times RD_d \times RV_d \times (1 - VAC_d)/DIY~~$$

~~for days prior to 2017-04-01.~~

$$~~URDC_d = RDP \times RD_d \times RV_d /DIY~~$$

~~for days on or after 2017-04-01 and prior to 2018-04-01.~~

$$~~URDC_d = \begin{cases} RVF.RVURDCd + (1 - RVF).LRVURDCd & if\ RVTF = 1 \\ RLRVURDCd & if\ RVTF = 0 \end{cases}~~$$

~~where~~

$$~~RVURDC_d = [RVRDP \times RD_d \times RV_d]/DIY~~$$

~~and~~

$$~~LRVURDC_d = [LRVRDP \times RD_d \times LRV_d]/DIY~~$$

~~and~~

$$~~RLRVURDC_d = [RDP \times RD_d \times LRV_d]/DIY~~$$

~~for days on or after 2018-04-01 and prior to 2020-04-01, where RVF is a transition factor established in accordance with the Wholesale Scheme of Charges and~~

$$URDC_d = RDP \times RD_d \times LRV_d/DIY$$

~~For days on or after 2020-04-01.~~

3.9.7. The Unadjusted Discounted Roads Drainage Charge $UDRDC_d$ is given by

$$UDRDC_d = URDC_d \times (1 - SS3_d - S29e_d)$$

3.9.8. The Roads Drainage Charge [18] RDC_d is then given by

$$RDC_d = \begin{cases} UDRDC_d & if\ no\ SGES_d\ or\ SER_d = 0 \\ UDRDC_d \times (1 - PCEd) - SGESSR_Y/(DIY \times SER_d) & if\ SGES_d\ and\ SER_d > 0 \end{cases}$$

Where, as above, $SGESSR_Y$ is the SGES Sewerage refund applicable for the Financial Year Y, PCEd is the percentage of the exemption applicable on that day and SER_d is the number of Service Element Reports for the SPID.

3.9.9. The CMA will allocate the Roads Drainage Charges to the Licensed Provider for which the SPID was registered in respect of each Settlement Day. It will then aggregate the volumes and charges and report them in accordance with CSD0201.

3.10. Trade Effluent Charges

3.10.1. DPID Active Period, and DPID RF and IP Chargeable Periods have already been defined by the days:

$$D^A_{Tl}, D^A_{Tu}$$

$$D^{CRF}_{Tl},\ D^{CRF}_{Tu}\ and\ \ D^{CIP}_{Tl},\ D^{CIP}_{Tu}$$

3.10.2. The CMA shall use the following procedure for calculating the Daily Actual Volume Discharged ($DAVD_d$)

3.10.3. For each T17 Meter Chain K define the variable TEM_K as

$$TEM_K = \begin{cases} 1 & if\ the\ T17\ Meter\ Chain\ ie\ either\ PrivateEffluent\ or\ TankeredEffluent \\ 0 & if\ the\ T17\ Meter\ Chain\ K\ is\ either\ SWWater\ or\ PrivateWater \end{cases}$$

noting that a T17 Meter Chain K has a constant meter treatment over its entire history.

3.10.4. Then define the term NDA Included in Sewerage Calculations $NDAINC_{Td}$ as

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[18] Compare the footnote at section 2.4.9~~2.4.9~~

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$$NDAINC_{Td} = \begin{cases} 1 & if \ \sum_K MDVOL_{KTd} \times (1 - TEM_K) > 0 \\ 0 & if \ \sum_K MDVOL_{KTd} \times (1 - TEM_K) = 0 \end{cases}$$

3.10.5. Then the Daily Actual Volume Discharged $DAVD_{Td}$ is

$$DAVD_d = \sum_K (DDV_{Kd} \times (1 - PA_{Td}) \times MDVOL_{KTd})$$
$$- \frac{(NDA_{Td} \times NDAINC_{Td} + FA_{Td})}{DIY} \times (1 - VAC_d) \times (1 - TDISC_d)$$

where PA_{Td} is the Percentage Allowance [19], and FA_{Td} is the Fixed Allowance.

3.10.6. In accordance with the Wholesale Scheme of Charges define the variables Preliminary Treatment Indicator (PTI), Biological Treatment Indicator (BTI) and Sewage Sludge Indicator (SSI) as per the following table.

Treatment Types	PTI	SSI	BTI
Sub-primary	0	0	0
Primary	1	$\frac{2}{3}$	0
Secondary	1	1	1

3.10.7. Then the Unadjusted Daily Availability Charge UAC_{C_d} can be calculated as [20]

$$UAC_{C_d} = \left[\left(CDV_d \times (Ra + PTI \times Va)\right) + (BTI \times Ba \times sBODl_d) + (SSI \times Sa \times TSSl_d) \right] \times SF \times (1 - VAC_d)$$

for days prior to 2017-04-01 and

$$UAC_{C_d} = \left[\left(CDV_d \times (Ra + PTI \times Va)\right) + (BTI \times Ba \times sBODl_d) + (SSI \times Sa \times TSSl_d) \right] \times SF$$

for days on or after 2017-04-01

and the Unadjusted Daily Operating Charge (UOP_{C_d}) can be calculated as

$$UOP_{C_d} = DAVD_d \times \left(Ro + PTI \times Vo + \left(BTI \times Bo \times (Ot_d/O_s)\right) + \left(SSI \times So \times (St_d/S_s)\right) \right)$$

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[19] Expressed as a percentage in Central Systems, but used here as a fraction
[20] for the avoidance of doubt, this equation will apply unchanged before and after 1st April 2013

where the following parameters are derived from the Trade Effluent DPID

CDV_d = $Chargeable\ Daily\ Volume\ of\ the\ Trade\ Effluent\ in\ m^3$
$sBODl_d$ = $Settled\ Biochemical\ Oxygen\ Demand\ load\ of\ the\ Trade\ Effluent$
$TSSl_d$ = $Total\ Suspended\ Solids\ load\ of\ the\ Trade\ Effluent$
SF = $Seasonal\ Factor, which\ is\ set\ to\ a\ value\ of\ 1.2\ where\ a\ Discharge\ Point$
$is\ subject\ to\ seasonal\ discharge\ in\ accordance\ with\ the\ provisions\ set$
$out\ in\ the\ Wholesale\ Charges\ Scheme. In\ all\ other\ cases\ the\ CMA\ sets$
$the\ Seasonal\ Factor\ to\ a\ value\ of\ 1;$
Ot_d = $the\ fixed\ strength\ (settled\ Chemical\ Oxygen\ Demand)\ of\ the\ Trade\ Effluent$
St_d = $the\ fixed\ strength\ (settleable\ solids)\ of\ the\ Trade\ Effluent$

and the following terms are derived from the Wholesale Scheme of Charges:

Ra = $Reception\ charging\ component\ in\ pence/m3\ per\ Day$
Va = $Volumetric/Primary\ charging\ component\ in\ pence/m3\ per\ Day$
Ba = $Biological\ Capacity\ charging\ component\ in\ pence/kg\ per\ Day$
Sa = $Sludge\ Capacity\ charging\ component\ in\ pence/kg\ per\ Day$
Ro = $Reception\ charging\ component\ in\ pence/m3$
Vo = $Volumetric/Primary\ charging\ component\ in\ pence/m3$
Bo = $Secondary\ Treatment\ charging\ component\ in\ pence/m3$
So = $Sludge\ Treatment\ charging\ component\ in\ pence/m3$
$0s$ = The standard strength of settled chemical oxygen Demand of the Foul Sewerage
Ss = The standard strength of settleable solids in the foul sewage.

3.10.8. The Unadjusted Discounted Daily Availability Charge $UDAC_{C_d}$ and the Unadjusted Discounted Daily Operating Charge ($UDOP_{C_d}$) are given by

$$UDAC_{C_d} = UAC_{C_d} \times (1 - TES3_d)$$
$$UDOP_{C_d} = UOP_{C_d} \times (1 - TES3_d)$$

where $TES3_d$ is any applicable Trade Effluent Schedule 3 discount.

3.10.9. The Daily Availability Charge AC_{C_d} and the Daily Operating Charge (OP_{C_d}) are given by [21]

$$AC_{C_d} = \begin{cases} UDAC_{C_d} & if\ no\ SGES_d\ or\ SER_d = 0 \\ UDAC_{C_d} \times (1 - PCEd) - SGESSR_Y/(DIY \times SER_d) & if\ SGES_d\ and\ SER_d > 0 \end{cases}$$

$$OP_{C_d} = \begin{cases} UDOP_{C_d} & if\ no\ SGES_d\ or\ SER_d = 0 \\ UDOP_{C_d} \times (1 - PCEd) - SGESSR_Y/(DIY \times SER_d) & if\ SGES_d\ and\ SER_d > 0 \end{cases}$$

Where, as above $SGESSR_Y$ is the SGES Sewerage refund applicable for the Financial Year Y, PCEd is the percentage of the exemption applicable on that day and SER_d is the number of Service Element Reports for the SPID.

3.10.10. The CMA will then calculate the Wholesale Charge payable for the Settlement Day $DTEC_d$ in respect of a Discharge Point using the following formula:

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[21] Compare the footnote at section 2.4.92.4.9

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$$DTEC_d = AC_{C_d} + OP_{C_d}$$

3.10.11. In respect of RF annual charges, a minimum charge (as set out in the Wholesale Charges Scheme) is payable in respect of a Discharge Point. At the end of each Year, as part of the RF Settlement Run, the CMA will calculate whether the Wholesale Charges payable in respect of a Discharge Point are less than the minimum charge.

3.10.12. For an RF, where

- a Sewerage Service Supply Point (with a related Discharge Point) has been vacant for part of the Year (applicable for periods prior to 2017-04-01);
- a Sewerage Services Supply Point (with related Discharge Point(s)) has been registered for a period less than a Year;
- a Sewerage Services Supply Point (with related Discharge Point(s)) qualifies for exemption under the Scottish Government Exemption Scheme; or
- a Discharge Point was commenced in the Central Systems during the Year,

the CMA will calculate the proportionate minimum charge prior to its use in comparing it to the Wholesale Charges payable in respect of the Discharge Point for that Year, using the following formula:

$$MC_A = MC \times DIY_{DP}/DIY$$

where:

MC_A is the minimum charge payable for the Discharge Point over the Year;
MC is the minimum charge as set out in the Wholesale Charges Scheme for the relevant Year;
DIY_{DP} is the number of days in the relevant Year (for Years prior to $2017 - 04 - 01$) within the DPID ChargeablePeriod that the SPID was neither vacant nor exempt under the Scottish Government Exemption Scheme;
DIY_{DP} is the number of days in the relevant Year (for Years after $2017 - 04 - 01$) within the DPID Chargeable Period that the SPID was not exempt under the Scottish Government Exemption Scheme; and
DIY is the number of days in the relevant Year.

3.10.13. The CMA will then aggregate the Year Trade Effluent Charges $YTEC_{DP}$ for each Discharge point by summing the values $DTEC_d$ for Days which do NOT have a SGES refund charge.

3.10.14. The CMA will then compare the Year Trade Effluent Charge against the Discharge Point's minimum charge and where the Year Trade Effluent Charge is less than the Discharge Point's minimum charge ($YTEC_{DP} < MC_A$), then the CMA then will calculate any minimum charge payable by each Licensed Provider (in respect of Settlement Days for which there is not a SGES refund) as follows:

$$MC_{LP} = MC_A \times NRD_{LP}/DIY_{DP}$$

Where:

MC_{LP} is the minimum charge payable by the Licensed Provider in respect of
          the Discharge Point over the relevant Year (excluding SGES);

MC_A is the minimum charge payable in respect of the Discharge Point
          for the relevant Year;

NRD_{LP} is the number of days in the relevant Year (for Years prior to $2017 - 04 - 01$) that the
          relevantSupply Point was Registered to the Licensed Provider and the Discharge Point
          is neither not exempt under the Scottish Government Exemption Scheme nor vacant;

NRD_{LP} is the number of days in the relevant Year (for Years after $2017 - 04 - 01$)that the
          relevant Supply Pointwas Registered to the Licensed Provider and the Discharge Point is
          exempt under the Scottish Government Exemption Scheme ; and

DIY_{DP} is the number of days in the relevant Year from the date that the Discharge
          Point was commenced in the Central Systems.

3.10.15. For each Licensed Provider, the CMA will then report the minimum charge MC_{LP} (as adjusted by the SGES refund for Settlement Days for which a refund is available.)

A. Appendix

A.1. Matters arising from the Wholesale Charges Scheme

A.1.1. The following assumptions have been made in the implementing the various Whole- sale Scheme of Charges. This Appendix is provided to clarify and formalise the adoption of the various assumptions.

A.1.2. **0mm Meters** Standard volume charges are applied to volumes associated with meters which have been set a chargeable size of 0mm. However, there is no Free Allocation or Capacity Volume associated with such meters, nor are any meter based charges applied.

A.1.3. **SGES** For SPIDs which are flagged as exempt under the Scottish Government Exemption Scheme, a payment is made from Scottish Water to the Licensed Provider and a specified percentage of all other charges from the Licensed Provider to Scottish Water are waived.

A.1.4. **RTS** For meters with a return to sewer allowance of 0%, all associated Foul Sewerage Meter based annual charges are zero in accordance with the Wholesale Scheme of Charges.

A.1.5. **Re-assessed Charges** The Central Systems have the functionality in respect of the Re-assessed Charges which were introduced in 2009-10. There is no functionality which prevents data being submitted for a SPID which charge a SPID in 2008-09 with this method. It is a requirement on Market Participants not to submit data that would utilise this method in 2008-09.

A.1.6. **Metered Volumes** The CSDs have built in specific methods for establishing metered volumes for Measured Supply Points. In particular, it has built in rules in respect of Industry Level Estimates and YVE allowances. The CSDs also describe how meter volumes are interpolated, extrapolated, and adjusted for vacancy.

A.1.7. **Multiple Discounts** Where both a Section 29e discount and a Schedule 3 discount are submitted in respect of a SPID, these discounts are added. No check is carried out that the discounts add to less than 100%. At present, there is no facility in the Central Systems to apply a Section 29e discount to Trade Effluent Charges.

A.1.8. **Proportionality** The Wholesale Charges Scheme defines charges for a volume V which is allocated across different charge bands (based upon a whole year's usage). The relevant

charges bands are proportioned taking account of the length of time a Supply Point is as a Measured Supply Point.

A.1.9.   ***AWA and EWA*** The whole year AWA calculation and the Invoice Period EWA calculation are applied to Measured Supply Points and to Supply Points on Reassessed Charges. They are not applied for Unmeasured Supply Points where charges are based upon RV.

A.1.10.   ***Negative Volumes*** If a series of meter reads is not all monotonically increasing (taking account where applicable of the rollover algorithm) it is possible for the Central Systems to compute negative volumes for a SPID. If the total volume of water or sewerage supplied over the course of a year is negative, then the relevant AWA and the volumetric charges will be zero. However, where the total volume supplied to a SPID to be positive, but negative volumes occur either in respect of a single meter for the full year, or for the SPID for part of the year then the charges in respect of that single meter or that part of the year will be negative.

A.1.11.   ***TE Minimum Charges*** Minimum Charges for Trade Effluent are applied (for RF only) per DPID rather than per SPID. They are pro-rated for the length of time a DPID is active over the course of the year. In respect of a single SPID with multiple DPIDs, a greater than minimum charge on one DPID does not offset charges on another DPID which does not reach the minimum.

A.1.12.   ***TE Minimum Charges*** Where there are multiple LPs which share a DPID which needs to have minimum charges applied (for RF only) then the allocation of minimum charges is pro-rata on a daily basis, irrespective of volumetric charges occurred by each LP. See CSD0206 for details.

A.1.13.   ***Percentages and Fractions*** A number of variables in this CSD which represent fractions are expressed as percentages within the Wholesale Scheme of Charges. The equations in this CSD use them as fractions rather than as percentage. Thus the CSD has equations with the terms such as $(1 - f)$ rather than terms with explicit percentages such as $\left(1 - \frac{f}{100}\right)$.

A.2.   Variables

A.2.1.   This section provides details of all the variables used in this CSD0207.

Actual Daily Volume	ADV_{Kd}

Actual Sewerage Yearly Volume	$ASYV$
Actual Yearly Volume	AYV
Allocated Tranche	VFA
Annual Price Croft Outside Tap	$COTP$
Annual Price Croft Troughs and Drinking Bowls	$CTDBP$
Annual Price Farm Outside Tap	$FOTP$
Annual Price Farm Troughs and Drinking Bowls	$FTDBP$
Annual Price Property Drainage	PDP
Annual Price Roads Drainage	RDP
Annual Volumes (per charge band)	VA_1, VA_2, VA_3
Annual Weighted Average	AWA
Availability Charge	AC_{Cd}
Biological Capacity charging component in pence/kg per Day	Ba
Biological Treatment Indicator	BTI
Capacity Volume Charge	$CVCHARGE$
Capacity Volume Price	CVP
Capacity Volume Threshold	CVT_i
Chargeable Daily Volume of the Trade Effluent in m^3	CDV_d
Connected	$CONN_d$
Consumption Indicator	CI_d
Croft	$CROFT_d$
Daily Actual Volume Discharged	$DAVD_d, DAVD_{Td}$
Daily Availability Charge	AC_{Cd}
Daily Metered Cost	DMC_d, DMC_{Kd}
Daily Operating Charge	OP_{Cd}
Daily Trade Effluent Charge	$DTEC_d$

Daily Volume	DV_{Ld}, DV_{Kd}
Days	D_1, D_2
Days in Year	DIY
Days in Year within DPID Chargeable Period DPID neither vacant nor in SGES	DIY_DP
DPID	T
Derived Daily Volume	DDV_{Kd}
DPID Active Period	D_{Tl}^A, D_{Tu}^A
DPID Chargeable Period	D_{Tl}^C, D_{Tu}^C
DPID Minimum Charge (and LP's share)	MC_A, MC_{LP}
Equivalent AWA	AWA_d
Equivalent Actual Sewerage Yearly Volume	$ASYV_d$
Equivalent Actual Yearly Volume	AYV_d
Estimated Daily Volume	EDV_{Kd}
Estimated Weighted Average	EWA
Farm	$FARM_d$
Fixed Allowance	FA_{Td}
Fixed strength (settled Chemical Oxygen Demand) of the Trade Effluent	Ot
Fixed strength (settleable solids) of the Trade Effluent	St
Industry Level Estimates	ILE
Live Rateable Value	LRV_d
Lower Meter Size	LMS, LMS_i
Meter Active	MA_{Kd}
Meter Advance Chargeable Days	$MACD$
Meter Advance Period	MAP
Meter Advance Volume	MAV
Meter DPID Association	$MDASSOC_{KTd}$

Meter DPID Volume	$MDVOL_{KTd}$
Meter Capacity Volume Threshold	$MCVT_{KTd}$
Meter Free Allocation	MFA, MFA_{Kd}
Meter Readings	R_1, R_2
Meter Sewerage Capacity Volume Threshold	$MSCVT_{Kd}$
Meter Sewerage Free Allocation	$MSFA, MSFA_{Kd}$
Meter Size	MS_i
NDA Included	$NDAINC$
NDA Split	$NDASPLIT$
Non Domestic Allowance	NDA_{Td}
Number of Days DPID registered to an LP and neither vacant nor SGES	NRD_{LP}
Number of table items	nT
Outside Taps	OT_d
Outside Taps Charge	OTC_d
Percentage Allowance	PA_{Td}
Percentage Exemption for the day	PCE_d
Preliminary Treatment Indicator	PTI
Private	PVT_K
Property Drainage	PD_d
Property Drainage Charge	PDC_d
Proportional Capacity Volume Threshold	$PCVT$
Proportional Free Allocation	PFA
Proportional Premium Volume Limit	$PPVL$
Proportional Volume Limits	PV_1, PV_2
Return to Sewerage	RTS_{Kd}
Roads Drainage	RD_d

Roads Drainage Charge	RDC_d
Reception charging component in pence/m^3	Ro
Reception charging component in pence/m^3 per Day	Ra
Residual Days in Year	RDIY
RV Unmeasurable Period	D_l^{RV}, D_u^{RV}
RV Unmeasurable Chargeable Period	D_l^C, D_u^C
Section 29e Discount	$S29e_d$
Seasonal Factor	SF
Settlement Day	d
Secondary Treatment charging component in pence/m^3	Bo
Service Element Reports	SER_d
Sewage Sludge Indicator	SSI
Sewerage Allocated Tranche	SFA
Sewerage Capacity Volume Charge	$SCVCHARGE$
Sewerage Capacity Volume Price	$SCVP$
Sewerage Capacity Volume Thresholds	$SCVT_i$
Sewerage Chargeable Meter Size	$SCMS_{Kd}$
Sewerage Derived Daily Volume	$SDDV_{Kd}$
Sewerage Meter Chargeable	SMC_{Kd}
Sewerage Meter Annual Non-Volumetric Charge	$SMANVC_i$
Sewerage Meter Based Charge	$SMBC_{Kd}$
Sewerage Proportional Capacity Volume Threshold	$SPCVT$
Sewerage Proportional Free Allocation	$SPFA$
Sewerage Schedule 3	$SS3$
Sewerage Standard Volume Charge	$SSVCHARGE$
Sewerage Standard Volume Price	$BS1$

Sludge Treatment charging component in pence/m^3	So
Sludge Capacity charging component in pence/kg per Day	Sa
SPID Chargeable Period	D_l^A, D_u^A
SPID Settlement RF (or IP) Chargeable Period	D_l^{CRF}, D_u^{CRF} or D_l^{CIP}, D_u^{CIP}
SPID Residual RF Period	D_l^{RS}, D_u^{RS}
SPID SWWater Meter Active	$SSWMA_d$
SPID Water Meter Chargeable	$SWMC_d$
Sewerage Schedule 3 Discount	$SS3_d$
SGES Refund Applicable	$SGES_d$
SGES Water Refund	$SGESWR$
SGES Sewerage Refund	$SGESSR$
Standard strength of Settled Chemical Oxygen Demand of the foul sewage	Os
Standard strength of settleable solids in the foul sewage	Ss
Standard Volume Charge	$SVCHARGE$
Trade Effluent Meter	TEM_K
Trade Effluent Schedule 3	$TES3_d$
Trade Effluent Yearly Estimate Volume	$TEYVE$
T17 Meter Chain	K
T17 Meter Chain "Active Period"	D_{Kl}^A, D_{Ku}^A
T17 Meter Chain Chargeable Period	D_{Kl}^C, D_{Ku}^C
Tabular Meter Size	TMS_{Kd}
Temporarily Disconnected	$TDISC_d$
Total Sewerage Meter Chargeable	$TSMC_d$
Total SWWater Meter Active Days	$TSWMAD$
Troughs and Drinking Bowls	TBD_d
Troughs and Drinking Bowls Charge	$TBDC_d$

Unadjusted Daily Availability Charge	UAC_{Cd}
Unadjusted Daily Operating Charge	UOP_{Cd}
Unadjusted Actual Daily Volume	$UADV_{Kd}$
Unadjusted Daily Metered Cost	$UDMC_{Kd}$
Unadjusted Discounted Daily Availability Charge	$UDAC_{Cd}$
Unadjusted Discounted Daily Operating Charge	$UDOC_{Cd}$
Unadjusted Discounted Outside Taps Charge	$UDOTC_d$
Unadjusted Discounted Property Drainage Charge	$UDPDC_d$
Unadjusted Discounted Roads Drainage Charge	$UDRDC_d$
Unadjusted Discounted Troughs and Drinking Bowls Charge	$UDTDBC_d$
Unadjusted Discounted Sewerage Meter Based Charge	$UDSMBC_{Kd}$
Unadjusted Discounted Water Meter Based Charge	$UDWMBC_{Kd}$
Unadjusted Estimated Daily Volume	$UEDV_{Kd}$
Unadjusted Outside Taps Charge	$UOTC_d$
Unadjusted Property Drainage Charge	$UPDC_d$
Unadjusted Roads Drainage Charge	$URDC_d$
Unadjusted Sewerage Meter Based Charge	$USMBC_{Kd}$
Unadjusted Troughs and Drinking Bowls Charge	$UTDBC_d$
Unadjusted Water Meter Based Charge	$UWMBC_{Kd}$
Upper Meter Size	UMS
Vacancy Adjusted SPID SW Water Meter Active	$VASSWMA_d$
Vacant	VAC_d
Volumetric/Primary charging component in pence/m^3	Vo
Volumetric/Primary charging component in pence/m^3 per Day	Va
Water Chargeable Meter Size	$WCMS_{Kd}$
Water Schedule 3 Discount	$WS3_d$

Water knots	V_1, V_2
Water Meter Annual Non-Volumetric Charge	$WMANVC_i$
Water Meter Based Charge	$WMBC_{Kd}, WMBC_d$
Water Standard Volume Prices	B_1, B_2, B_3
Yearly Proportion	YP
Year	Y
YVE	YVE

A.3. Meter Advance Periods

A.3.1. The terms "Meter Pre-Advance Periods", "Meter Advance Periods", and "Meter Post-Advance Periods" are all formally defined in the Market Code, Schedule 1. The following diagrams are provided as an aid to the correct interpretation of each of these terms. In the event of a conflict between any of these terms and the diagrams below, the definition in the Market Code shall prevail.
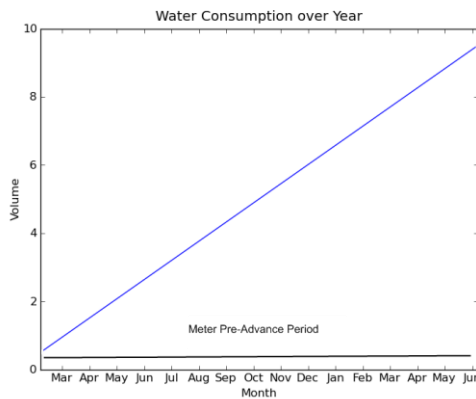

Figure 1: A Single Meter which is Active in Central Systems (from cutover). No reads. Whole period is a "Meter Pre-Advance Period" Volumes estimated from either: *YVE* if submitted, else Industry Level Estimates (*ILE*).

Note – *as per definition; changes to meter Water or Chargeable Sewerage Size would force multiple Meter Pre-Advance Periods in all the examples.*
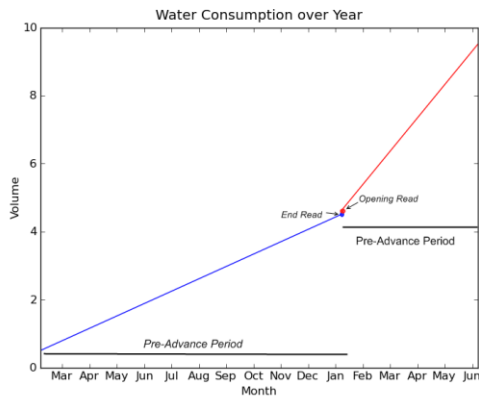
Figure 2: A T17 Meter Chain which is Active in the Central Systems (from cutover). Two Meter Pre-Advance Periods First meter has a single "End" Read. Volumes estimated from appropriate YVE or ILE. Second meter has a single "Opening" Read. Volumes estimated from appropriate YVE or ILE. *Note 1* - YVE is set separately for each meter. *Note 2* - a change in meter size for either meter would force a new Meter Pre-Advance Period
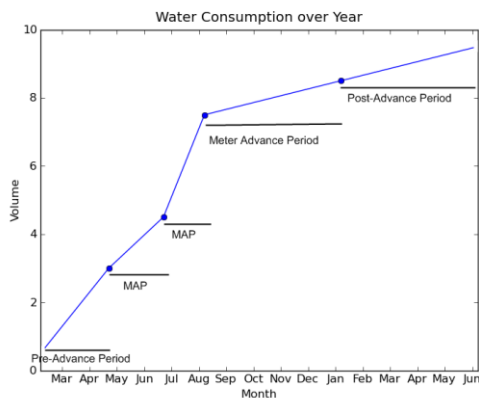

Figure 3: A single meter which is Active in the Central Systems (from cutover) with several reads. The diagram shows (i) A Meter Pre-Advance Period; (ii) Several Meter Advance Periods; and (iii) A Meter Post Advance Period