

# Chapter 17b

## Sewerage service explanatory factors

Covering:  
Sewage treatment works: large works

## Chapter 17b

# Sewage treatment works: large works

### Guidance

Two tables have been provided. One for NI Water data only, a second for PPP data only.

The purpose of these tables is to allow us to update the econometric modelling of large sewage treatment works (STWs).

Large STWs are defined as those which receive an average loading in excess of 1500kg BOD<sub>5</sub>/day (including effluent from both domestic and trade sources, but excluding any allowance for non-resident population). This is roughly equivalent to a population of 25,000.

The company must complete a column of this table for each large sewage treatment works but should not complete it for individual sea outfalls. A separate table for PPP works has been provided for those works operating under a PPP contract.

The total number of large sewage treatment works must be consistent with the figures reported in table 17f; that is, the total number of large sewage treatment works reported in this table must equal the sum of columns 1 to 7 of table 17c line 6. Line 6 should indicate how each large works is classified in tables 17 c to f.

Works that have been commissioned during the report year should be clearly identified in the commentary along with the commissioning date of the works. This should reflect the period of the year that the reported costs reflect.

Works that have been upgraded during the report year should be clearly identified in the commentary along with an indication of the date the upgrade was complete.

The company must also explain how the costing has been obtained, reveal any assumptions made, and comment on any areas of uncertainty.

For the PPP table, costs for PPP works should be reported in accordance with RAG 4.03, with line 9 Direct Costs taken as the payment by the Concession company to the Operating company for the operation of each asset. Line 12 should be NI Waters costs to manage the PPP contracts and line 12a the PPP Operating company's General and Support expenditure as per RAG 4.03.

The costs reported in this table should be consistent with the sewage treatment costs reported in table 22 for both NI Water assets and PPP assets.

Do not include any costs in line 15 other than estimated sludge costs, if you wish to tell us about other costs not requested in the guidance please mention this in the accompanying commentary.

Tankered waste is a non-appointed business activity. The costs reported in table 17b relate to a company's appointed activity. To avoid any inconsistency in our relative efficiency analysis, the population equivalent of total load for each works should exclude the population equivalent relating to tankered loads, or relating to any other non-appointed activity.

The company must check that the following data are consistent.

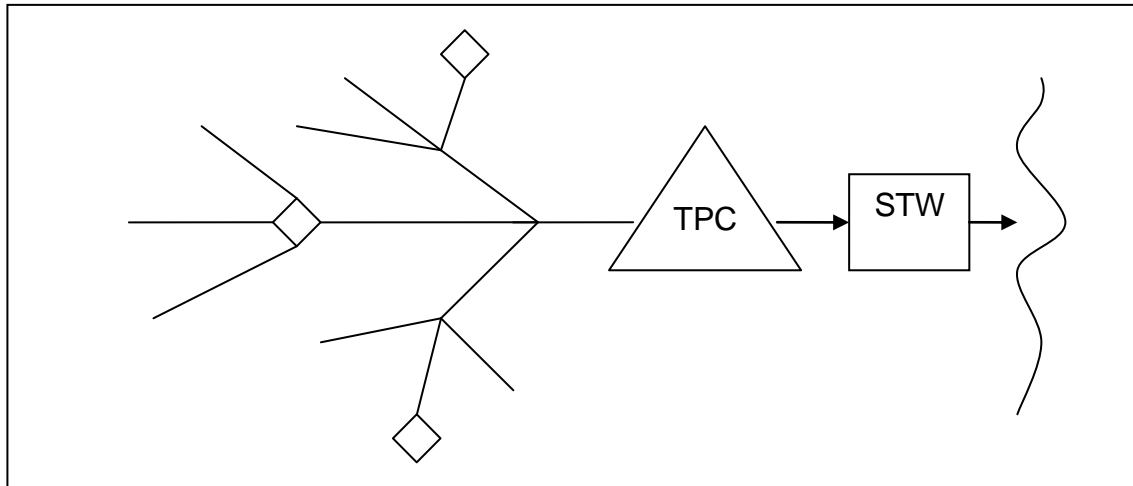
- Total number of STWs in should equal the corresponding treatment category in Number of STWs in size band 6 in table 17c (line 6, columns 1-7);

- Total direct cost in table 17b (line 9) should equal the total direct costs in table 17f (line 6, column 11).

The consent standards are those that apply at the end of the report period.

**Terminal Pumping Station**

For the purpose of the annual information return, a terminal pumping station is considered to be the last pumping station before the sewerage treatment works, as evidenced by the diagram below. This can include pumping stations on-site. Final pumping stations with attenuation ability within a gravity sewer should also be considered terminal.



Asset	Symbol
Network pumping station	◇
Terminal Pumping Station	△
Sewage Treatment Works	□
River	〰

**Company commentary**

The company should:

- inform us of any works which may not have a consent for both Suspended Solids (SS) and Biochemical Oxygen Demand (BOD) consent, but which has one of these consents set so low (tight) that this would automatically mean that the other consent would also be low (tight); and
- inform us if a works without an SS and BOD consent has a particularly tight ammonia consent which involves treatment far in excess of that required to lower BOD or SS levels.

## Guidance to Reporters

The Reporter should:

- ensure that any assumptions made in reporting this information are revealed and comment on the accuracy of the information provided;
- comment on the methods used to record the costs of individual treatment works and on the methods used in allocating costs between treatment works;
- check whether the cost reported here for individual sewage treatment works, and the overall costs for large sewage treatment works, are consistent with the costs reported in table 22 of the Annual Information return. Any concerns or discrepancies should be highlighted;
- comment on any works that are identified by the company as having no consent for either BOD or SS but which has one of these consents set so low (tight) that this means that the other consent would also be low (tight); and
- comment on any works identified as having particularly tight ammonia consents which involves treatment far in excess of that required to lower BOD or SS levels.

**Table 17b line definitions**

<b>1</b>	Works Name	N/A	N/A
<b>Definition</b>	The name of the sewage treatment works as given on the consent register of the Environment Agency.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

**A WORKS SIZE**

<b>2</b>	Population equivalent of total load received	000	0dp
<b>Definition</b>	The average equivalent population of the total load received by the treatment works during the year. Total load will be comprised of both resident and non-resident population loads.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

**B EFFLUENT CONSENT STANDARD**

<b>3</b>	Suspended solids consent	mg/l	0dp
<b>Definition</b>	The value of the effluent consent standard with respect to suspended solids. This figure must be as determined by the Environment Agency and not a company's own assessment of the consent standard.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

<b>4</b>	BOD <sub>5</sub> consent	mg/l	0dp
<b>Definition</b>	The value of the effluent consent standard with respect to BOD <sub>5</sub> . This figure must be as determined by the Environment Agency and not a company's own assessment of the consent standard.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

<b>5</b>	COD consent	mg/l	0dp
<b>Definition</b>	The value of the effluent standard with respect to the Chemical Oxygen Demand, if applicable at the works in question. This figure must be as determined by the Environment Agency and not a company's own assessment of the consent standard.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

<b>6</b>	Ammonia consent	mg/l	0dp
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<b>Definition</b>	The value of the effluent consent standard with respect to Ammonia. This figure must be as determined by the Environment Agency and not a company's own assessment of the consent standard.
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.
<b>Processing rule</b>	Input
<b>Responsibility</b>	Comparative Efficiency and Performance Team

<b>7</b>	Phosphates consent	mg/l	0dp
<b>Definition</b>	The value of the effluent consent standard with respect to phosphorus, if applicable at the works in question. This figure must be as determined by the Environment Agency and not a company's own assessment of the consent standard.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

### C TREATMENT CATEGORY

<b>8</b>	Classification of Treatment Works	N/A	N/A
<b>Definition</b>	The classification of the works for the purpose of tables 17c to 17f.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input P = Primary treatment;           SAS = Secondary Activated Sludge; SB = Secondary Biological;   TA1 = Tertiary A1; TA2 = Tertiary A2;           TB1 = Tertiary B1; TB2 = Tertiary B2 Where a works load is split into two treatment streams, the works should be reported in this line as the higher of the two proportions. For example, a works with a split of 60% Secondary Activated Sludge and 40% Secondary Biological, should be classed as Secondary Activated Sludge (SAS) in this line.		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

**D COSTS**

<b>9</b>	Direct cost	£000	0dp
<b>Definition</b>	<p>The total direct cost of sewage treatment, that is the payment by the Concession company to the Operating company. (as defined in RAG4.03) at the works in question (i.e. excluding services provided to third parties).</p> <p>Where the works also undertakes sludge treatment, it may not be possible to exclude the costs associated with sludge treatment in a meaningful way at the works level. If any sludge costs are included here, an estimate of the costs should be made in line 15.</p> <p>If terminal pumping costs are included here, the costs should be estimated in line 14.</p> <p>The figures reported here should reconcile with table 17f, that is, the total direct cost of all large Sewage Treatment Works should equal the sum of table 17f line 6 columns 1 to 7.</p> <p>The PPP table commentary should split this figure out into opex, capital maintenance and any operator profit.</p>		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

<b>9a</b>	Total Unitary Charge	£000	0dp
<b>Definition</b>	The total PPP unitary charge attributable to each works.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

<b>10</b>	Power costs	£000	0dp
<b>Definition</b>	<p>The total power cost for the STW included in the direct costs above. The power costs for large STWs should be consistent with those reported in table 22.</p> <p>The power costs of terminal pumping may only be included if the costs of a terminal pumping station at the STW are included in line 14. The company must clearly indicate in their commentary whether or not such costs are included.</p>		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

<b>11</b>	Service charges	£000	0dp
<b>Definition</b>	The total service charges (Environment Agency) for the STW included in the direct costs above.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

<b>12</b>	General and support expenditure (NIW Only)	£000	0dp
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<b>Definition</b>	The general and support expenditure of NI Water only allocated to each sewage works (as defined in RAG4.03). Where possible, such expenditure should be attributed on a causal basis; otherwise it should be apportioned in proportion to direct costs.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

<b>12a</b>	General and support expenditure (PPP Operator only)	£000	0dp
<b>Definition</b>	The general and support expenditure allocated to each sewage works (as defined in RAG4.03) by the PPP Operator only. Where possible, such expenditure should be attributed on a causal basis; otherwise it should be apportioned in proportion to direct costs.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

<b>13</b>	Functional expenditure	£000	0dp
<b>Definition</b>	The sum of direct costs and general support expenditure (NIW and PPP) for each sewage works (as defined in RAG4.03).		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Calculation: line 9 plus line 12 for each works.		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

<b>14</b>	Estimated terminal pumping costs	£000	0dp
<b>Definition</b>	The estimated direct cost of terminal pumping stations (as defined in RAG 4.03) pumping to the works in question, for which costs are included in lines 9-13.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		

<b>15</b>	Estimated sludge costs	£000	0dp
<b>Definition</b>	If the cost of sludge treatment is included in lines 9-13 above, the company must enter an estimate of the costs involved (otherwise, zero). If sludge costs are included, the company must comment in their return on the basis of their estimate of the costs.		
<b>Primary Purpose</b>	Informing relative performance and efficiency assessments.		
<b>Processing rule</b>	Input		
<b>Responsibility</b>	Comparative Efficiency and Performance Team		



CHANGE CONTROL SHEET  
CHAPTER 17b

2008/1.0	First issue of chapter for the SBP period
2009/1.0	Second issue of chapter for the SBP period <ul style="list-style-type: none"><li>- clarification on definition of a terminal pumping station added with supporting diagram</li><li>- guidance on consent standards added</li><li>- inclusion of a works name instead of a sub-area name</li><li>- inclusion of general and support expenditure for PPP operators</li></ul>