

YORKSHIRE WATER SERVICES

CAPITAL MAINTENANCE
ECONOMETRIC RETURN 2008

CAPITAL MAINTENANCE ECONOMETRIC RETURN 22-02-2008

Introduction

We have prepared this Capital Maintenance Econometric Return in accordance with the reporting requirements set out in your letter of 1st November 2008 and subsequent clarifications.

The submission has been undertaken based upon a quality assurance procedure similar to that adopted in our June Return ISO9001 accredited process. This has been reviewed and challenged by our reporter SMC who will be submitting their commentary to you separately.

We will be using LEADA+ (Leading Edge Asset Decisions Assessment +) to develop our maintenance programme for PR09. This system has been developed over many years alongside the development of the UKWIR Capital Maintenance Planning Common Framework. LEADA+ is forward looking and focuses on the services we should be providing to customers through a risk based approach.

Over the last few years this process has evolved to minimise the whole life cost of maintaining and operating the assets whilst maximising the customer service. As a result, the LEADA+ economic assessment will minimise the whole life cost of future operations in a manner which is quite different to historic trends.

Our PR09 business plan submissions will demonstrate the economic benefits of undertaking maintenance activity in relation to both customer willingness to pay and whole life cost benefits. We are confident that our projections of maintenance expenditure are based on a robust economic analysis.

We consider that our LEADA+ approach makes backward looking assessments less appropriate and therefore a lower weighting should be given to the results of any econometric modelling when assessing our level of capital maintenance efficiency.

**TABLE CM1 – WATER RESOURCES AND TREATMENT
(WR&T) 2002-03 EXPLANATORY FACTORS****Commentary by COMPANY***Line 2*

The total capacity of dams and impounding reservoirs has been prepared using the Asset Inventory System and is the capacity of Dams and Impounding Reservoirs as submitted in Line 1 of FBP04 C11.

Line 5

The total capacity of intake and source pumping stations has been prepared using the Asset Inventory System and is the KW Capacity of Intake and Source Pumping Stations as reported by bands in FBP04 table C11.

Line 9

The values shown are derived from the Yorkshire Water table C11 submitted in the 2004 Final Business Plan. They comprise the percentages reported in Lines 1 to 10 and lines 13 to 14 for asset life categorisation applied to the total GMEA for each line. The totals include land values.

Lines 14-17

Water Treated at Surface Water Works and Lines 22-25 Water Treated at Ground Water Works is the output from the WTW's that were reported in FBP04 table C11.

Line 11

The sourced field within ICS for this line, is incorrect the actual total provided for PR04 was zero. We do not have any SW1 or 2 works, and therefore there should be a nil return for each of the bands.

Line 12

The sourced data field within ICS for this line, is incorrect the actual figures for this line should state as below:

Band		1	2	3	4	5
Number of SW3 works	nr	3	2	1	1	0

Date: {22/02/08}

Prepared By: {JP}

**TABLE CM2 – WATER DISTRIBUTION INFRASTRUCTURE
(WDI) 2002-03 EXPLANATORY FACTORS.****Commentary by COMPANYY***Line 1*

There has been a reduction in length between 1997/8 and 2002/03 which is mainly due to

- Structural renewal of water mains undertaken in the intervening period.
- Substantial mains rehabilitation under S19 Undertakings during AMP2 and AMP3 periods.
- Statutory mains requisition resulting in upsizing / replacement of mains, statutory diversions etc
- Better data:- In 1997/8/9 the Company undertook an extensive exercise called SAMRIP which upgraded the quality of our mains records data based upon where onsite visits validating the location of mains and fittings and any other data available with respect to materials.

Date: {22/02/08}

Prepared By: {JP}

TABLE CM3 – WATER DISTRIBUTION NON- INFRASTRUCTURE (WDNI) 2002-03 EXPLANATORY FACTORS.

Commentary by COMPANY

Line 6

The values shown are derived C11 tables submitted in the 2004 Final Business Plan. They comprise the percentages reported in Lines 11-12, 15-17 (excluding non-depreciable infrastructure assets) and customer meter part of line 18 for asset life categorisation applied to the total GMEA for each line. The totals include land values.

Line 7

The sourced field for this line, is incorrect within ICS the actual total provided for PR04 should be 477. Band 1 should have the figure 220 and not 221.

Line 11

The sourced data field for this line is incorrect within ICS the actual figures for this line should state as below:

Band		1	2	3	4	5
Number of booster pumping stations	nr	125	126	146	80	34

Line 12

The information for capacity booster pumping stations has been prepared using the Asset Inventory System and is the KW Capacity of Booster Pumping Stations as reported by bands in FBP04 table C11.

Date: {22/02/08}

Prepared By: {JP}

**TABLE CM4 – WATER MANAGEMENT AND GENERAL
(WM&G) 2002-03 EXPLANATORY FACTORS.****Commentary by COMPANY***Line 4*

The values shown are derived from C11 tables in the 2004 Final Business Plan. They comprise the percentages reported in Lines 19-23 for asset life categorisation applied to the total GMEA for each line. The totals include land values.

Date: {22/02/08}

Prepared By: {JP}

**TABLE CM5 – SEWERAGE INFRASTRUCTURE (SI) 2002-03
EXPLANATORY FACTORS.****Commentary by COMPANYY***Line 4*

Regionally the length of brick sewers has reduced by 244km, approx 16% from the 1997/98 assessment.

This reduction is due to better information and a more detailed analysis of the base sewer data for this return. The data has been analysed by individual DAZ, some 299, rather than the previous 26 areas based on Local Council districts. The data provided for 1997/98 was based directly on information used for the 1992/93 return. The data used for this analysis is a 'snap-shot' of sewer record data taken during 2002/03 and used for the 2003 June Return. This is an updated data set and gives a more accurate assignment of the data to Reporting Areas.

For the 4 Reporting Areas the length of brick sewer has changed as indicated below;

Description	Units & format	Regional Total	North	South	East	West
Difference from 1997/98	km (2dp)	-243.64	50.99	-15.97	-58.60	-220.06
Percentage change		-16	16	-10	-19	-29

The changes are the result of better information and the improved process used for this return.

The length of brick sewer represents 4% of the total sewer length in 2002/03.

The four sewerage areas are based on the four sewerage areas that we report against in the June Return. These remain unchanged from JR03.

Sub Area 1

Location: North

Topography: Predominantly rural high open moorland bordering Northumbrian Water to the North and United Utilities to the West, includes city of Bradford.

Sub Area 2

Location: South

Topography: Bordering Severn Trent. High Derbyshire peakland in the west with flatter areas in the east containing major industrial cities, towns and former coal mining areas

Sub Area 3

Location: East

Topography: Rural high steep coastal area and holiday resorts to the north and flat low lying estuary areas to the south, including urban area of Hull.

Sub Area 4

Location: West

Topography: Bordering the Pennines, undulating topography, former textile towns in valleys, major urban areas including Leeds, Huddersfield, Halifax and Wakefield.

Date: {22/02/08}

Prepared By: {JP}

**TABLE CM6 – SEWERAGE NON-INFRASTRUCTURE (SNI)
2002-03 EXPLANATORY FACTORS.****Commentary by COMPANY***Line 2 to 3*

The data for the number and capacity of pumping stations has been provided using the Asset Inventory system and is equivalent to the number provided in the JR03 Table 17a line 16.

Line 4

The values shown are derived from C13 tables in the 2004 Final Business Plan. They comprise the percentages reported in Line 6 for asset life categorisation applied to the total GMEA for each line, excluding non-depreciable infrastructure assets. The totals include land values.

The individual installations have been allocated to the 4 operational areas, where possible. Items which cannot be directly allocated (eg regional items) have been allocated to area on the basis of resident connected and non-resident population for each area.

Date: {21/03/08}
Prepared By: {JP}

TABLE CM7 – SEWERAGE TREATMENT (ST) 2002-03 EXPLANATORY FACTORS.

Commentary by COMPANYY

Lines 1 to 5

The source data used for tables 14 and 15 in JR03 was split by area to derive the data. The totals equate to the regional data reported in JR03.

Line 5

The difference between line 5 (109.37) and JR03 Table 14 Line 5 (109.02) is due to the re-running of the report on a different dates. The CM7 data of the trade effluent volumes by sewerage area was run a few days later for the benefit of compiling Table 17A line 3. We now use the same report for both tables so that the figure is consistent. We do not believe this difference will be material.

Line 6

This line contains the average domestic properties connected to the sewerage system receiving treatment which is equivalent to that in table 13 line 7 of JR03. The definition for JR03 states that :

'Properties'

Includes a breakdown of all measured and unmeasured households and non-household properties, including an analysis of the totals connected to the sewerage system and those receiving treatment.

Domestic

includes domestic drainage of factories, offices, commercial premises and households; and excludes trade effluent.

The reporting requirements for CMER say:

"The average number of domestic properties connected to the sewerage system, for effluent receiving treatment. Include void properties. Exclude from the definition treatment works where sewage receives screening only."

It was unclear if CMER should include: domestic drainage of factories, offices, commercial premises and households, therefore we have provided the properties by area and have included the alternative figures below:

Figures based on Table 13 line 7 excluding non household domestic sewage:

North	South	East	West	Total
311.234	587.223	355.065	720.419	1973.941

Line 7

The values shown are derived from C13 tables in the 2004 Final Business Plan. They comprise the percentages reported in Lines 7-10 for asset life categorisation applied to the total GMEA for each line. The totals include land values.

The individual installations have been allocated to the 4 operational areas. Regional items have been allocated to area on the basis of resident connected and non-resident population for each area.

Lines 8 to 25

The information for sewage treatment has been prepared using the Asset Inventory System and is consistent with data supplied in the June Return 2002-2003. As per OFWAT requirements the data has been apportioned to the 4 YW Operational Areas however, as this submission concentrates on Sewage Treatment Works Loads the total load in this report does not include the Hornsea Outfall that was reported in the June 2002-2003.

The four sewerage areas are based on the four sewerage areas that we report against in the June Return. These remain unchanged from JR03.

Sub Area 1

Location: North

Topography: Predominantly rural high open moorland bordering Northumbrian Water to the North and United Utilities to the West, includes city of Bradford.

Sub Area 2

Location: South

Topography: Bordering Severn Trent. High Derbyshire peakland in the west with flatter areas in the east containing major industrial sites, towns and former coal mining areas

Sub Area 3

Location: East

Topography: Rural high steep coastal area and holiday resorts to the north and flat low lying estuary areas to the south, including urban area of Hull.

Sub Area 4

Location: West

Topography: Bordering the Pennines, undulating topography, former textile towns in valleys, major urban areas including Leeds, Huddersfield, Halifax and Wakefield.

Date: {22/02/08}**Prepared By:** {JP}

TABLE CM8 – SLUDGE TREATMENT AND DISPOSAL (ST&D) 2002-03 EXPLANATORY FACTORS.

Commentary by COMPANY

Line 4 to 5

Data relating to the destruction of material over the various stages of treatment of sludge is not collected. This data is not gathered due to, for example:

- Cost and resource of instigating and maintaining a system of measurement.
- Inherent inaccuracy measurement, the cumulative effect across each process would produce an inaccurate figure.
- Potential for the production of mass balance figure is restricted for the above reasons also.
- Measurement of sludge removed off site gives a more accurate indication of production (though not destruction across a process).

We have calculated the weight of sludge disposed of after treatment and have applied an assumption of 30% destruction across the digestion process where applicable to give a broad estimate of pre-treatment weight. This is an industry recognised standard and has been used satisfactorily for many years.

Line 4

The majority of sludge was treated by 'other' means. This is due to the fact that the majority of Yorkshire Water Services (YWS) sludges are not treated by means which fall into the given categories. The other treatment processes are given below, along with the tonnage treated by that route.

Other – incineration

Area	Ttds
North	11.35
South	13.59
East	0
West	42.71

YWS has four fluidised bed sludge incinerators across the region; at Esholt WwTW, Bradford; Calder Valley Sludge Incinerator, Huddersfield; Knostrop WwTW, Leeds; and Blackburn Meadows WwTW, Sheffield. The resulting ash was landfilled.

Other – conditioning only

Area	Ttds
North	3.03
South	0
East	0
West	0

Conditioning is a process similar to composting, in that dewatered sludge is blended with a carbon based bulking agent and the mixture is windrowed. This allows further dewatering by natural means, along with associated volume reduction and degradation, and produces a friable, aerobic material. However, set temperature levels are not a requirement during a conditioning process, as they are in composting.

Other – digestion followed by conditioning

Area	Ttds
North	1.46
South	36.4
East	6.81
West	14.34

Sludge is digested by means of mesophilic anaerobic digestion, dewatered and then enters the conditioning process as described above.

Line 5

Farmland- This includes both conventional and enhanced treated material. No untreated material was recycled to farmland.

Other- Composting is classed as a separate route in the June Return. As such, we treated composting as a disposal route for the purpose of CM8 Line 5. The material which was composted in the East area was then recycled to agriculture, while the material that was composted in the West area was then recycled to land reclamation.

Date: {22/02/08}
Prepared By: {JP}

**TABLE CM9 – SEWERAGE MANAGEMENT & GENERAL
(SM&G) 2002-03 EXPLANATORY FACTORS.****Commentary by COMPANY***Line 4*

The values shown are derived from C13 tables in the 2004 Final Business Plan. They comprise the percentages reported in Lines 18-22 for asset life categorisation applied to the total GMEA for each line. The totals include land values.

Line 7

The values shown are derived from C13 tables in the 2004 Final Business Plan. They comprise the percentages reported in Lines 7-10 for asset life categorisation applied to the total GMEA for each line. The totals include land values.

The individual installations have been allocated to the 4 operational areas. Regional items have been allocated to area on the basis of resident connected and non-resident population for each area.

Date: {22/02/08}

Prepared By: {JP}

**TABLE CM10 – CAPITAL MAINTENANCE EXPENDITURE –
WATER(OUTTURN PRICES)****Commentary by COMPANY**

The figures within this table have been checked in accordance with the JR03 figures provided to Ofwat. There are no corrections required.

Date: {22/02/08}
Prepared By: {JP}

**TABLE CM11 – CAPITAL MAINTENANCE EXPENDITURE –
SEWERAGE (OUTTURN PRICES)****Commentary by COMPANY**

The figures within this table have been checked in accordance with the JR03 figures provided to Ofwat. There are no corrections required.

Date: {22/02/08}
Prepared By: {JP}