Upstream Services
Methodology/Commentary 2013/14

The upstream split of the 2013/14 total operating costs line has been completed in line with the Accounting Separation Methodology Statement. In order to reflect the extended rags (including Network Plus) categories, this statement shows for each service -

- The Ofwat definition.
- YW methodology and assumptions.
- Volumes / drivers used for unit costing (where possible YW has used drivers linked to PR14 tables or CCC tables).

A year on year comparison of costs by service is included at the at the end.

1) Abstraction licence

a) Ofwat definition

This service has been identified separately from the raw water abstraction service because of the potential for a market to emerge in the future, which would enable abstraction licences to generate a separate income stream.

This service includes activities related to negotiating with third parties to obtain abstraction rights and to agree charges, as well as the annual cost of the licence itself. This service should not include activities that are incurred in choosing abstraction sites, optimising abstraction or ensuring compliance with licence conditions. All such abstraction planning activities and licence administration activities should be included in the 'raw water abstraction' service.

b) YW methodology and assumptions.

Abstraction licence costs payable to the Environment Agency are held on a separate general ledger code within the SAP system.

The only other costs to be booked here would be the salaries and related costs of dealing with new negotiations. No time was spent on this activity by the Water Resources Planning Team during 2013/14. A review of salaries costing takes place each quarter, and this would identify if any time should need to be booked to this service in the future.

Payment of abstraction licences is an operating cost and no fixed assets are used in this process. Therefore CCD is zero.

c) Volumes / drivers used for unit costing.

Number of licences.

2) Raw water abstraction

a) Ofwat definition

Start: none.

End: supply of raw and partially treated (non-potable) water through a pump or gravity fed through a valve into the raw water distribution system.

The water abstraction service includes activities related to the identification of new sources, including catchment management, licence management, and the abstraction infrastructure.

Pre-treatment processes can vary, from a relatively simple physical separation of the largest impurities, to more complex chemical treatments, depending on the source of abstraction and on the type of treatment plant to which the raw water is transferred. Therefore, it seems appropriate to combine activities related to abstraction and pre-treatment within the same service. Moreover, any transport from the water abstraction site is included within the abstraction service, although these costs are expected to be very small. For example, transport between reservoirs where both reservoirs have an abstraction licence is considered to be part of the raw water abstraction service. However, transport which occurs between a reservoir with an abstraction licence and a reservoir/storage tank without an abstraction licence would be considered to be part of the raw water transport service. The activities relating to the inspections, operation and maintenance of impounding reservoirs are included in this service.

All activities related to planning are to be included in 'water abstraction' and it is only the administrative costs involved in obtaining the licence and the cost of the licence itself that should be included in the 'water licence' service.

b) YW methodology and assumptions.

The Yorkshire Water coding structure is set up in such a way that the cost centres within the SAP system reflect the definition, although not all costs are posted to resource type level. It is assumed that Impounding Reservoirs are under raw water abstraction. All Yorkshire Water Impounding Reservoirs have abstraction licences either individually, or as a group (ie those in the Washburn Valley).

CCD in this service is the figure identified for Water Resources in the Regulatory Accounts as no further subdivision is required.

c) Volumes / drivers used for unit costing.

M/I abstracted for total abstraction costs. No split by resource type is available as not all costs are posted at this level.

3) Raw water transport

a) Ofwat definition

Start: raw and partially treated (non-potable) water that has been pumped or gravity fed through an outlet valve.

End: raw and partially treated (non-potable) water entering treatment works or raw water storage facilities or being delivered to the end customer or to a third party water company.

This service includes the activities related to transporting the raw water from the boundaries of the abstraction site to a treatment plant, a raw water storage facility, or to large industrial customers that require untreated water in their production processes.

The activities allocated to this service include primarily the development and maintenance of the physical raw water transport network.

b) YW methodology and assumptions.

The Yorkshire Water coding structure is set up in such a way that the cost centres within the SAP system reflect the definition of raw water transport.
In line with operating costs, CCD relating to en-route storage reservoirs has been moved to raw water storage. The remaining raw water distribution CCD is classified as raw water transport. The IRC figure identified as relating to raw water distribution in the regulatory accounts has been apportioned between transport and storage on the basis of CCD.

c) Volumes / drivers used for unit costing.

Length of main – raw water aqueducts (km) used as this information is available from PR14 table W5.

4) Raw water storage

a) Ofwat definition

Start: raw water and partially treated (non-potable) water entering the storage facility.

End: raw water and partially treated (non-potable) water pumped or gravity fed out of the storage facility.

This service includes activities related to the construction, operation and maintenance of raw water storage facilities. In general, no transport costs should be allocated to this service, since the cost of transport should be included within the 'raw water transport' service. Reservoirs that do not have an abstraction licence attached to them and are used to store raw water should be included under raw water storage. Associated activities, such as control of the inflow to prevent overfilling and outflow (which ensures continuity of availability of supply) and planned and emergency drawdown and discharge facilities (with associated permitting) should also be included in this service. Activities related to determining losses due to leakage and to ensuring security of the site from contamination are also expected to be included.

b) YW methodology and assumptions.

The Yorkshire Water coding structure is set up in such a way that the cost centres within the SAP system reflect the definition of raw water storage.

In line with operating costs, CCD relating to en-route storage reservoirs has been moved to raw water storage. The IRC figure identified as relating to raw water distribution in the regulatory accounts has been apportioned between transport and storage on the basis of CCD. This has resulted in a small allocation to raw water storage.

d) Volumes / drivers used for unit costing.

Number of units. Volume (maximum contents) data not available for all En Route storage reservoirs, so not used.

5) Water treatment

a) Ofwat Definition

Start: input of raw and partially treated (non-potable) water from raw water distribution system into treatment plant.

End: discharge of treated water through a pump or gravity fed into the treated water distribution network.

This service includes all the activities involved in the treatment of raw water, including both chemical and physical treatment. This also includes activities within the treatment plant.

The water treatment process may result in the production of sludge. In such cases, an appropriate share of the costs incurred during treatment and/or disposal of this sludge should be allocated to the water treatment service, regardless of whether the treatment and disposal of this sludge occurs at the water treatment or at the sludge treatment plant.

b) YW methodology and assumptions.

Not all costs are posted to individual treatments works, for example salary costs are posted at service level. Provision of unit costing for individual works or at large / small works type is therefore not possible.

c) Volumes / drivers used for unit costing.

Total distribution input from all water treatment works used as this data is available from CCC table 10.

6) Trunk and local treated water distribution.

a) Ofwat definition.

Trunk

Start: treated (potable) water that has been pumped or gravity fed into the treated water distribution network.

End: input of treated (potable) water into local distribution network or delivered to a third party company.

Trunk treated water distribution assets are strategic, that is, they are important or essential to the supply of water across the company area.
Trunk treated water transport includes activities related to transporting treated water from the treatment works to local distribution areas including secondary disinfection and other chemical dosing. This service includes all trunk network repair and maintenance activities, as well as activities associated with any new network development. In addition to directly attributable costs, other activities that might need to be considered within this service may include the provision and maintenance of storage towers and reservoirs and ancillaries such as booster pumps, pressure reduction, hydrants, air release valves, washouts and flow measurement

Local

Start: discharge of treated (potable) water within a district metered area (DMA).

End: supply of treated (potable) water to retail customer.

Local treated water distribution assets are local assets serving the immediate, or a restricted, area.

Local treated water distribution includes the activities related to distributing treated water to customers within DMAs including secondary disinfection and other chemical dosing. This service includes all distribution network repair and maintenance activities, as well as the activities associated with any new network development.

Other activities that may be considered within this service include the provision and maintenance of district and customer meters, storage towers and reservoirs and ancillaries such as booster pumps, pressure reduction, hydrants, air release valves, washouts and flow measurement.

b) YW methodology and assumptions.

The Yorkshire Water coding structure is set up such that treated water distribution costs are at the level of Treated Water Transmission Section (TWT). Each section contains both above and below ground assets with no split between trunk treated water transport and local treated water distribution. Some larger assets (eg Grid Pumps) do have their own cost centre.

In order to complete the upstream services table the above and below ground assets within each TWT were assigned to either trunk or local with the following assumptions being made.

Above Ground Assets

The following types of assets were split between trunk and local.

Water Pumping Stations (WPS)
Water Towers (WTR)
Service Reservoirs (SRE)
Critical Supply Reservoirs (CRE)

The treated water storage assets (Towers, Services Reservoirs and Critical Supply Reservoirs) could be either trunk or local – but only a small number are likely to be local. Therefore all treated water storage costs have been dealt with as trunk.

Water pumping stations could be deemed to be either trunk or local so an exercise has been carried out to determine of the operational Water Pumping Stations into which category they belong. Power costs by metered supply have been assigned based on this data. Other costs such as maintenance have been split pro rata.

There is no specific field in the asset database to identify whether treated water distribution assets relate to trunk or local mains. However CCD is only found on above ground assets within this business unit, and the CCD value has been allocated in a consistent manner to operating costs.

Below Ground Assets

Below ground assets within the Yorkshire Water Asset Inventory System have a flag attached to them, indicating whether they are ‘Main Treated’ or ‘Distribution Management Area’ For the

purposes of the 2013/14 return, 'Main Treated' assets have been classed as trunk and 'Distribution Management Area' as local.

Based on this assumption, analysis of main repair costs via the Work Management System (job costing) suggests that very little is coded to trunk mains. Analysis of job data shows that repair jobs are very rarely raised against the trunk main but to the distribution management area within which the trunk main is located (therefore coded to local). If an assumption is made that bursts on these types of assets tend to be major and are usually coded to Capital then this does not cause a problem. However, if this is not the case, a split of costs between trunk and local is not possible unless a change is made to the business process of how jobs are raised within the Work Management System.

The leakage 'proactive find and fix' activity on mains is dealt with differently from that mentioned above but does not cause any problems in relation to the split between trunk and local as detailed below.

- The find activity is carried out by both external contractor and by Yorkshire Water staff. Very little proactive leakage work is done on trunk mains so all contract costs and salary allocations for the leakage team have been allocated to local.
- The fix activity is not coded to the treated water transmission section but to area based codes. Few of the repairs carried out are as a result of find activity on trunk mains so all repair costs have been allocated to local.

The IRC figure identified as relating to treated water distribution in the regulatory accounts has been apportioned between trunk and local distribution on the basis of CCD.

Repairs to trunk mains are more likely to be capital in nature and this means a large proportion of the IRC value relates to trunk treated distribution.

c) Volumes / drivers used for unit costing.

Length of main used on the assumption that mains ≥ 320mm are trunk mains and that communication pipes and mains < 320mm are local. This information is available from PR14 table W5.

7) Foul sewage collection and Surface / Highways drainage

a) Ofwat definition.

Foul

This service includes the activities related to collection of foul sewage from customers' properties. The activities included in this service relate to the development, repair and maintenance of the sewage collection infrastructure. Other activities that should be considered within this service may include the provision and maintenance of ancillaries such as overflows, screens, on-line and off-line retention tanks, rising main wells and pumps and flow measurement.

Surface

This service includes the activities related to the collection of surface water from exterior areas of customers' properties. The activities included in this service relate to the development, repair and maintenance of the sewage collection infrastructure. Other activities that should be considered within this service may include the provision and maintenance of ancillaries such as overflows, screens, on-line and off-line retention tanks, rising main wells and pumps and flow measurement.

Highways

This service includes the activities related to collection of surface water that runs off roads and pavements. The activities included in this service relate to the development, repair and maintenance of the sewage collection infrastructure. Other activities that should be considered within this service may include the provision and maintenance of ancillaries such as overflows, screens, on-line and off-line retention tanks, rising main wells and pumps and flow measurement.

b) YW methodology and assumptions.

Yorkshire Water splits its sewage collection assets into four categories, foul, surface water, highways and combined. However from a costing perspective, sewage collection costs are held on cost centres at drainage area zone (DAZ) level for both above and below ground assets with no split between foul, surface, highways or combined.

An exercise has been carried out to look at sewer lengths in each of the three 'Network plus' categories.

Split by function, as recorded in YW mapping system

Function	Length_m	% By Function
Combined	16694234	56%
Foul	5973954	20%
Surface Water	7139776	24%
Grand Total	**29807964**	

Allocation to Network plus definitions

Proposed Combinations	Sum of Lengths (Km)	% Allocation
Foul = Combined + Foul	22668	32%
Surface Water = Combined+SW	23834	34%
Highway Drainage = Combined+SW	23834	34%
Total	70336	

Above Ground Assets

Yorkshire Water's operational (non terminal) stations are categorised as foul, surface or combined. No pumping stations have been identified specifically under the Highway drainage category.

Power costs have been booked direct to appropriate service (ie. foul, surface) with the costs attributed to combined being split Foul 32%, Surface 34% and Highways 34% - see table above.
All other costs have been split Foul 32%, Surface 34% and Highways 34%.

In line with the treatment of operating costs, CCD relating to sewage pumping stations has been apportioned based on the relative number of operational foul, surface water and combined pumping stations.

CCD on all assets carrying combined flows have been split Foul 32%, Surface 34% and Highways 34% - see table above.

Below Ground Assets

Repair and maintenance work (cyclical or reactive) is carried out by contractors on jobs raised via the Work Management System (job costing). Costs are collected at drainage area zone level only.

Costs have been allocated as follows - Foul 32%, Surface 34% and Highways 34% - see table above.

The IRC has been apportioned between foul and surface water and highways sewage collection on the basis of CCD.

c) Volumes / drivers used for unit costing.

YW does not collect data on peak daily flow and only have data on volume of sewage collected (daily average) but this data is not split between foul, surface and highways. No data is available in respect of permeable area drained. For these reasons the cost driver used is sewer length based on allocation to network plus definitions (see table above).

8) Sewage treatment and disposal

a) Ofwat definition.

Start: sewage arriving at the boundary of sewage treatment works.

End: discharge of treated wastewater to receiving watercourse and discharge of sludge from sewage treatment works into pipework or holding tanks for transport to sludge treatment processes.

This service includes all the activities related to the treatment and disposal of sewage. This includes the costs of development, repair and maintenance of treatment plants and sludge holding tanks, as well as any intra-plant transport required.

b) YW methodology and assumptions.

Not all costs are posted to individual sewage treatment works treatments works, for example salary costs are posted at service level. Provision of unit costing for individual works or at large / small works type is therefore not possible .

c) Volumes / drivers used for unit costing.

Equivalent population served (resident).

9) Sludge transport

a) Ofwat definition.

Start: point of discharge of sludge from holding tanks or sewage treatment process into pipework or tankers for transport to sludge treatment processes.

End: input of sludge into sludge treatment works.

This service includes the transport of sludge from the sewage to the sludge treatment plant. All types of transport, and associated fuel costs, are included within this service. However, transport within the

treatment plant or between sludge treatment plants is not included in this service, which is instead an activity of the 'sludge treatment' service.

b) YW methodology and assumptions.

Transport costs are held in two places within the general ledger. The largest element of cost is held under the Product, Logistics and Recycling team but costs are also assigned to individual works managers codes.

It is assumed that both liquid sludge and cake movements are included under transport.

Transport costs within individual works manager's cost codes are difficult to identify as they are included within costs associated with other general types of hired and contracted services. Therefore these costs have not been included under Sludge transport.

Sludge transport assets include vehicles used in the transport of sewage sludge from one site to another, and also equipment found at treatment facilities used in loading such vehicles, for example tanker loading pumps.

c) Volumes / drivers used for unit costing.

Sludge volume (m3)

10) Sludge treatment

a) Ofwat definition

Start: storage of sewage sludge in holding tanks and input into sludge treatment sites.

End: point at which the treated sludge is collected for disposal.

This service includes all the activities related to sludge treatment. While different technologies exist for sludge treatment, sludge treatment is defined as a technology-neutral service for the purpose of accounting separation.

b) YW methodology and assumptions.

The Yorkshire Water coding structure is set up in such a way that the cost centres within the SAP system reflect the definition of sludge treatment. Not all costs are posted to sludge treatment facility, for example salary costs are posted at service level. Provision of unit costing for individual works or at large / small works type is therefore not possible.

CCD in this area relates to assets at sludge treatment facilities, excluding equipment used in loading sludge tankers, which is contained within sludge transport.

c) Volumes / drivers used for unit costing.

Total sewage sludge produced in tonnes of dried solids as a pre-treatment weight used as this figure is available on CCC table 15.

11) Liquor treatment

a) Ofwat definition

Start: pipework from sludge treatment process to liquor treatment plant or sewage works.

End: discharge of treated liquor to receiving watercourse.

Includes all activities in transporting and treating liquors generated during the sludge treatment process. The liquors may be treated either on site at a sludge treatment plant or at a sewage treatment plant.

b) YW methodology and assumptions.

A small proportion of direct costs are allocated to this activity as most of the liquor is gravity returned to the front in-let of a sewage treatment works and therefore incurs very little cost

Salary costs are posted at service level based upon management assessment and power costs are a split of whole site costs based on management assessment of power usage on liquor treatment.

CCD in this area is for liquor pumps and inter-process pipework used to transfer sludge liquor back into the sewage treatment process.

c) Volumes / drivers used for unit costing.

Ofwat's guidance of volume and strength (kg NH4-N/day) is not recorded by YW and we do not have an alternative unit of measurement.

Therefore, given that the value assigned to liquor treatment is very small, no cost driver has been provided.

12) Sludge disposal

a) Ofwat definition

Start: point at which the treated sludge is collected.

End: sludge disposed.

This service includes all the activities related to the storage and disposal of treated sludge, regardless of the method of disposal. The most commonly used sludge disposal methods include land spreading, ash from incineration, landfilling, forestry, land reclamation and combustion.

b) YW methodology and assumptions.

The Yorkshire Water coding structure is set up in such a way that the cost centres within the SAP system reflect the definition of sludge disposal. Not all costs are posted at site level, for example salary costs are posted at service level. Provision of unit costing for individual works or at large / small works type is therefore not possible.

c) Volumes / drivers used for unit costing.

Total sewage sludge disposal in tonnes of dried solids as a pre-treatment weight used as this figure is available on CCC table 15.

Year on year comparison.

The following tables show the year on year percentage movement for each service. Where the percentage movement is in excess of 10% an explanation is provided.

Wholesale Water.

	Percentage Movement 2012/13 - 2013/14						
	Abstraction Licence	Raw Water abstraction	Raw water transport	Raw water storage	Water Treatment	Trunk treated water distribution	Local treated water distribution
Total operating costs	-7.0%	-2.0%	-13.0%	246.0%	2.0%	24.0%	17.0%

a) Raw water abstraction / transport.

Local Authority rates figure for 2012/13 on raw water transport £5.7 should have been under raw water storage and £1.3m on raw water storage should have been under raw water transport. Figures in correct service in current numbers.

Proportion of Engineering Reliability staff costs allocated to raw water storage in this year with non in last.

b) Trunk / Local treated water distribution.

Current cost depreciation increase on both trunk and local distribution. This is due to a change in process as this year YW moved from apportioning assets that are used by several business units to allocating assets to the business unit of principle use and then calculating a recharge.

Wholesale Waste Water.

		Foul	Surface water drainage	Highway drainage	Sewage treatment and disposal	Sludge transport	Sludge treatment	Liquor treatment	Sludge disposal
Total operating costs	£m	10.0%	20.0%	19600.0%	0.0%	10.0%	-10.0%	-90.0%	50.0%

a) Sewage Collection.

The split on sewage collection is difficult to tie back to last year's figures as YW did not assign any costs to highway drainage. This year after further review of the guidelines the split of costs does include a figure under highways.

The overall amount to sewerage collection has increased year on year by 60%. This is made up of 20% on operating costs, 110% on IRC and 80% on CCD.

The operating costs increase is due to higher salaries and related costs on operations and a higher proportion of Engineering Reliability staff costs allocated to sewage collection.

The increase in IRC is due to the following –

The infrastructure renewals charge ("IRC") is a 15-year average of actual and forecast infrastructure renewals expenditure ("IRE") in the previous, current and next AMP periods.

FRS15 requires that forecast IRE should 'calculated be from an asset management plan that is certified by a person who is appropriately qualified and independent'. YW have interpreted this as being the IRE planned in the 5-year PR14 business plan submitted to Ofwat, which is subject to an independent audit process. YW submitted its business plan to Ofwat in late 2013, and at this point updated the AMP6 IRE figures in the IRC calculation with those in the new business plan. Prior to this, the AMP6 IRE figures were taken from the Ofwat Final Determination five years previous.

Due to a refocus on maintaining infrastructure assets in AMP6, the IRE has increased significantly in the new business plan from five years before. The effect of this is to increase the 15-year average IRC for the remaining 7 years from 1st April 2014.

The increase in Current cost depreciation is due to a change in process as this year YW moved from apportioning assets that are used by several business units to allocating assets to the business unit of principle use and then calculating a recharge.

b) Liquor treatment.

The amount booked to this service in 2012/13 was based upon management assessment of 12% of Sewage treatment costs. This year we have allocated costs for power (based upon sites with liquor treatment and assessment of usage) and salaries (based upon management assessment) to this service but have been unable to identify costs associated with maintenance. This has resulted in a much reduced value ie. from £7.7m in 2012-13 to £0.8m in 2013-14.

c) Sludge disposal.

This area of the business has seen an increase in costs due to changes in EA approach impacting the disposal route of sludge. Historically raw sludge was conditioned using wood waste to help stabilise the product during the conditioning process. However, this end product was classed as a waste instead of a recycled product and was required to be disposed through Land Reclamation (at a higher unit price than the norm) and became a liability which the team sent offsite. The new approach uses green waste and requires higher volumes to stabilise the sludge resulting in higher volumes required for transportation for disposal which will have also contributed to some increase in costs in this area of the business.