



Appendix C
OPEX SPECIAL FACTORS

**WICS REPORTER SERVICES
STRATEGIC REVIEW OF CHARGES 2006
Second Draft Business Plan**

**REPORTER'S REPORT
Appendix C**

SPECIAL OPEX FACTORS REPORT

CONTENTS

C1.	INTRODUCTION	C1-1
C2.	LEAKAGE	C2-1
C3.	CENTRAL REGULATORY LABORATORY	C3-1
C4.	TRAVEL COSTS	C4-1
C5.	SERVICE RESERVOIRS	C5-1
C6.	ELECTRICITY	C6-1
C7.	SUPPLY OF MATERIALS TO RURAL LOCATIONS	C7-1
C8.	BAD DEBT	C8-1
C9.	SEWER LATERALS	C9-1
C10.	WATERWORKS SLUDGE	C10-1
C11.	POLITICAL QUERIES	C11-1
C12.	CRYPTOSPORIDIUM	C12-1

RECORD OF ISSUE

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2	20/06/05	Incorporated in Reporter's Report	JW	JBM	DA

C1. INTRODUCTION

The Water Industry Commissioner for Scotland (WICS) has functions and duties established under the Water Industry Act 1999 and confirmed in the Water Industry (Scotland) Act 2002 for the regulation of the water industry in Scotland.

The WICS has appointed a named regulatory Reporter for the Scottish water industry to assist in the discharge of his duties. Mr David Arnell of Black & Veatch is the named regulatory Reporter (the Reporter).

This report on Special Factors forms Appendix Y of the Reporter's on the second draft Business Plan prepared by Scottish Water as part of the Strategic Review of Charges 2006 and should be read in conjunction with the main report.

In Volume 4 of a series of documents which sets out his proposed approach to the *Strategic Review of Charges 2006*, WICS sets out an approach to setting the allowed level of operating costs based on models which compares the operating cost of Scottish Water with those of the England & Wales water industry. It is recognised that special factors may require adjustments to the results of the benchmark models. To justify a special factor, Scottish Water is asked to provide evidence in the following areas:

- the special circumstances which demonstrates material difference from industry norms;
- the quantification of the impact of the special factor;
- what Scottish Water has done to manage the additional costs arising from the special factors and to limit their impact;
- are there other special factors that reduce costs relative to industry norms

In their second draft Business Plan Scottish Water identifies special factors which it believes justifies higher operating expenditure than is predicted by the benchmarking models used by WICS. Scottish Water's assessment of the financial impact of these special factors is summarised in the table below at 2003-04 price base.

SPECIAL FACTOR	First DBP	Second DBP
Inherited Asset Base		
Leakage	£7.85 m/a	£9.76 m/a
Central regulatory laboratory	£0.70 m/a	£0.70 m/a
Geography and Environment		
Travel costs	£16.79 m/a	£11.36 m/a
Service reservoirs and water towers	£1.88 m/a	£2.12 m/a
Electricity	£4.63 m/a	£4.67 m/a
Supply of materials to rural locations	£0.50 m/a	£0.50 m/a
Bad debt	£7.79 m/a	£7.33 m/a
Legal		

SPECIAL FACTOR	First DBP	Second DBP
Sewer laterals	£10.01 m/a	£11.73 m/a
Waterworks sludge disposal	£2.30 m/a	£2.30 m/a
Political queries	£0.25 m/a	£0.25 m/a
Cryptosporidium	£1.70 m/a	£1.96 m/a
Total financial impact at 2003-04 price base	£54.41 m/a	£52.68 m/a

Scottish Water had identified the following four special factors in the first draft Business Plan which were not quantified:

- High number of small treatment works;
- “flashy” supplies;
- sludge treatment costs – topography; and
- phosphorus content.

Scottish Water has not made any claim in respect of these factors.

Scottish Water has also noted that it would prefer to progress the potential special factor in respect of the Freedom of Information as a notified item.

Scottish Water has not identified special factors that reduce operating costs relative to industry norms.

As requested by WICS, the Special Factors audit for the second draft Business Plan covered all ten Special Factors although we have focussed attention on the six which contribute 90% of the financial impact namely, leakage, travel costs, electricity, bad debt, sewer laterals and waterworks sludge.

For each special factor, we received and reviewed the report prepared by Scottish Water to support the special factor. We met with the Scottish Water staff to discuss the basis of the special factor and audited key data. In our audits, we have focused on the quality of data and analysis which supports the assessment of cost not included in the econometric models. We have commented on the principles of the special factor claim where we have appropriate information. Our audit does not reach a conclusion on whether a particular special factor claim can be supported in principle.

This report has been prepared by the Reporter for the use of the Water Industry Commissioner for Scotland and Scottish Water only and is written assuming the knowledge already held by these organisations and the objectives of these organisations in undertaking the work covered by the report. No responsibility is accepted by the Reporter or Black and Veatch for any reliance that may be placed by any third parties on the information contained in this report.

C2. LEAKAGE

C2.1 Overview

We have reviewed Scottish Water's assessment of leakage as a special factor and conclude that:

1. Scottish Water's level of leakage is significantly higher than in England &. There has been a perception in Scotland that resources were cheap and plentiful and there has been no regulatory pressure, to date, to reduce leakage through the imposition of mandatory leakage targets. The resources and treatment econometric model does not adequately recognise the high distribution input resulting from the relatively high leakage levels compared with utilities in England & Wales.
2. Scottish Water has assessed the value of the special factor claim for the high level of leakage as £9.76 m in 2003-04 prices. This compares with £7.85 m in the first draft Business Plan. The main change has been the use of the 2003-04 econometric models rather than the 2002-03 models.
3. Scottish Water has assessed the claim as two components (see Section 3): these are that high leakage is penalised by the resources & treatment econometric model and that Scottish Water incurs additional treatment costs to treat the additional distribution input to compensate for high leakage.
4. The resources & treatment econometric model uses the ratio of the number of sources to the distribution input to predict a unit operating cost. Scottish Water has a much greater number of sources per population served than companies in England & Wales and this has a beneficial impact on the resources & treatment econometric model. This impact, which partly offsets the impact of higher distribution input, has not been fully accounted for in the assessment of the leakage special factor claim.

C2.2 Basis of the Leakage Special Factor

The level of leakage for Scottish Water reported in the 2004 Annual Return is high in comparison with utilities in England & Wales whether expressed as a percentage of distribution input or as a unit leakage in l/property/day or m³/km/day (as shown in Figure 1 of the Company submission). Only Thames Water has higher levels of leakage and the company is subject to a leakage action plan that envisages a significant reduction over the next three years [Ofwat (2003) Security of supply, leakage and the efficient use of water, 2002-03 report]. Ofwat has granted Thames Water an operating expenditure special factor allowance to take account of elements of north London leakage "that are outside management control in the short to medium term".

The resources and treatment econometric model relates a unit opex [(R&T opex less SEPA charges less power costs)/population] directly to the number of sources divided by distribution input (DI). This means that unit opex (opex per population served) will decrease with higher distribution input i.e. with high levels of leakage. Hence, Scottish Water considers that the model disadvantages the company in comparison with English & Welsh companies. The 2003-04 model is:

$$(\text{Resources \& Treatment opex} - \text{SEPA} - \text{power})/\text{population} = 0.468 + 22.415(\text{sources/DI}) + 5.933(\text{proportion DI from river sources})$$

During the current financial period (Q&S 2 that runs until March 2006), Scottish Water has no funding specifically for leakage reduction. There are some areas with funding to tackle security of supply and others in which there is a mains renewal programme driven by quality considerations: both these programmes of work will impact on leakage. Most supply areas are still subject to passive leakage control whereby reported leaks are repaired on a reactive basis. There is no concerted effort to find and repair leaks (active leakage control). Appendix B of the Company submission (Tables B1 and B2) show that estimates of total leakage have actually increased over the period 2000-01 to 2003-04.

We questioned whether a comparison of SEPA and EA charges has been carried out as this would also have an impact on the econometric model. Scottish Water considers that that the “overall charges are slightly higher with water charges being cheaper (due to the lack of abstraction licences) and sewerage charges more expensive”. However, Scottish Water considers that the comparison is not relevant as Ofwat subtracts EA costs and WICS subtracts SEPA costs prior to the econometric modelling exercise.

We have also questioned the comparison of Scottish Water’s numbers of sources with utilities in England & Wales as this has a direct impact on the econometric model. Figures from the Annual Returns for 2003-04 show that Scottish Water has 663 sources compared with 248 for United Utilities, 226 for Severn Trent, 218 for Dwr Cymru and lower numbers for other utilities. Expressed as sources per population served, Scottish Water is by far the highest (see Table below). In our view, Scottish Water has not adequately assessed the impact of the greater number of sources as part of the special factor claim. Unit opex is related to the ratio of sources to distribution input rather than simply the inverse of distribution input; Scottish Water is less of an outlier in terms of this ratio at present although the assumed position at the end of Q&S II is more of an outlier.

Utility	Population served (water supply) m	Imp. Res.	River abst.	Bore-holes	Total water sources	No. sources per million population served	Dist. Input (Ml/d)	Ratio (Sources / Dist. Input)
Anglian	4.3	2	16	197	215	50.0	1174	0.183
Dwr Cymru	2.8	81	81	56	218	77.9	876	0.249
Severn Trent	7.3	27	18	181	226	31.0	1967	0.115
South West	1.5	16	22	24	62	41.3	459	0.135
United Utilities	6.7	104	34	110	248	37.0	1984	0.125
Wessex	1.2	13	4	108	125	90.0	379	0.330
Scottish Water (now)	4.9	293	272	98	663	135	2387	0.277
Scottish Water (end Q&S II)	4.9				608	124	1748	0.348

C2.3 Quantification of Net Additional Costs of Leakage

Scottish Water has assessed the claim as two components:

- The net impact on predicted opex from the resources & treatment and the power econometric models which is assessed at £7.74 m. Scottish Water assumes that leakage is reduced from 1,146 MI/d to 505 MI/d (which is the average for all utilities in England & Wales using leakage per km of mains per day), distribution input is reduced from 2,387 MI/d to 1748 MI/d and the number of sources is reduced from 633 to 608. The latter assumption is highly subjective and would result in Scottish Water being even more of an outlier in terms of the key ratio (number of sources / distribution input) than at present as shown in the table above. Also, Scottish Water argues that, as the power model shows opex increasing with distribution input, it does not penalise Scottish Water for having high leakage. Hence, no adjustment for the impact on the power model has been made.
- The costs of treating and distributing additional distribution input to cover the higher levels of leakage is assessed at £2.02 m. The cost of treatment is based on the additional cost of materials and chemicals, assuming these are directly proportional to distribution input. The cost of distributing the additional distribution input is derived from the power model using original and revised distribution inputs.

We questioned why Scottish Water did not use a marginal cost approach particularly for assessing the costs of treating and distributing water. Scottish Water comments that a marginal cost approach was considered but was deemed too complex and insufficiently robust.

As noted in Section 2.2 above, we are particularly concerned that the assessment does not take into account the ratio of the number of sources over distribution input (which is the key ratio in the resources and treatment model) rather than simply the distribution input. We are also concerned that no adjustment of the power model has been made for the first component of the claim.

Scottish Water comments that “the relationship between sources and distribution input will change as leakage is reduced. An adjustment was not made to the power because there is a positive relationship between distribution input and power costs. This means that Scottish Water already receives predicted opex for the additional distribution input necessary to cover high leakage (having demonstrated that high leakage is outwith managerial control). The problem only exists in the resources and treatment model where there is the counter-intuitive negative relationship between distribution input and predicted opex.”

Scottish Water also comments that the leakage claim will be updated in June 2005 when the latest leakage figures are available following submission of the Annual Return.

C3. CENTRAL REGULATORY LABORATORY

C3.1 Overview

We have reviewed Scottish Water's assessment of leasing rather than owning the central regulatory laboratory in Edinburgh as a special factor and conclude that:

1. The lease costs for the laboratory are classified as an operating cost whereas Scottish Water argues that companies in England & Wales who own such a facility would incorporate the costs under the current cost depreciation charge and would not have an equivalent operating cost. This assumes that all companies in England & Wales own a laboratory whereas, in practice, a number (including Dwr Cymru, mentioned in the Scottish Water report) outsource laboratory testing.
2. Scottish Water has assessed the additional operating cost as £0.697 m per annum in 2003-04 prices. This is similar to the first draft Business Plan.
3. Scottish Water has estimated the additional operating cost as the annual lease payments comprising ground rental £0.086 m and laboratory rental of £0.611 m per annum.
4. The Scottish Water case for the special factor hinges on accounting rules under SSAP21; these dictate that, where the lease is 25 years or less, lease costs are classified as an operating cost. If Scottish Water receives unfavourable treatment on operating expenditure then, by definition, it receives favourable treatment in terms of capex modelling.

C3.2 Basis of the Central Regulatory Laboratory Special Factor

Scottish Water contends that the costs of leasing the Central Laboratory are included in operating costs and are not captured in the econometric modelling as companies in England & Wales would own the laboratory facility and costs would be captured within depreciation. This assumes that all companies own a facility whereas, in practice, some companies choose to outsource laboratory testing and hence incur a similar operating expenditure. Scottish Water comments that Dwr Cymru outsources laboratory facilities from Severn Trent but receives an allowance from Ofwat against the depreciation charged by Severn Trent. We are not able to verify details of the allowance.

The laboratory was procured under a 25-year operating lease by the former East of Scotland Water in 1998. Scottish Water inherited the lease in 2002 and argues that the breaking the lease arrangements would have a significant cost implication for Scottish Water (Appendix A of their submission). Sub-letting would be difficult under the terms of the lease.

C3.3 Quantification of Net Additional Costs of the Central Regulatory Laboratory

The annual lease payments comprise ground rental and laboratory rental. Ground rental has been fixed at £85,955 per year (or the current open market rent, if greater). Scottish Water expects the ground rent to rise in the near future.

Laboratory rental increases annually at 2.5% on 27th April from a base rent of £544k in 1999. Scottish Water calculates current rental as £611k at 2003-04 prices.

C3.4 Other Factors

The facility at Watermark House comprises laboratories (about 75% of floor space) and offices (about 25% of floor space). The offices are used for laboratory administration and general head office facilities. The laboratories provide a service to all of Scottish Water's operating areas but there are some smaller laboratories that deal with the outer islands.

The laboratories provide for mainly core business but do provide some services for non-core business. Scottish Water estimates the non-core business at about 5%.

The Scottish Water case for the special factor hinges on accounting rules under SSAP21; these dictate that, where the lease is 25 years or less, lease costs are classified as an operating cost. If Scottish Water receives unfavourable treatment on operating expenditure, then by definition, it receives favourable treatment in terms of capex modelling.

Scottish Water comments that there is no capital maintenance included within the investment plan for this building.

C4. TRAVEL COSTS

C4.1 Overview

1. Scottish Water's operational area is significantly larger than utilities in England & Wales. The population served is more sparsely distributed and Scottish Water also serves a large number of island communities. These factors mean that SW staff spend a disproportionate amount of time travelling (see Section 3.2).
2. Scottish Water has assessed the value of the special factor claim for travel in rural areas as £11.36 m in 2003-04 prices. This compares with £14.81 m in the first draft Business Plan. The main change has been the use of a better sample of data from the Vehicle Telematics System.
3. Scottish Water reasonably uses the SW South West operational area as a proxy for England & Wales in terms of population spread. Most additional costs relate to labour time lost, business and operational mileage and vehicle repairs and maintenance. Scottish Water has replaced the very small sample data from the pilot Vehicle Telematics System (used for the first draft Business Plan) with a larger sample from the implemented system. However, the sample only covers a short period (10th January to 17th March 2005) and the analysis cannot yet be considered sufficiently robust.
4. Scottish Water comments that the Vehicle Telematics System will be fully implemented across all operating divisions by June this year and that a revised claim will be prepared at about that time.

C4.2 Basis of the Travel in Rural Areas Special Factor

The econometric models allow for a typical amount of travel within the English & Welsh utilities. Scottish Water has a much larger supply area and a much lower population density leading to increased travel costs.

In Section 6 of the Company submission, Scottish Water sets out the procedures that have been adopted to minimise travel where possible through, for example, better work scheduling, video conferencing and cross-functional working. We accept that efforts have been and are being made in this respect.

C4.3 Quantification of the Net Additional Costs of Travel in Rural Areas

Scottish Water reasonably uses its own South West operational area as a proxy for utilities in England & Wales on the basis that:

- The South West operational area of Scottish Water is most similar to England & Wales in terms of population spread
- Detailed travel data are not available from English & Welsh utilities
- It helps to remove the effects of differing efficiencies between Scottish and English & Welsh utilities

The extra travel costs incurred by Scottish Water in the North West, North East and South East operational areas are separately identified as:

- Labour time lost for the operational fleet
- Business and operational mileage
- Vehicle repairs and maintenance
- Accommodation costs
- Ferry costs
- Flight costs

The first three components form the bulk of the claim. Basic data such as business mileage, costs of vehicle repairs and maintenance and fuel costs are drawn from the Management Accounts for the 12-month period to 31st March 2004. Appropriate adjustments are made for capitalisation of some operating costs and for the split into core and non-core business. We have reviewed the data sources and the spreadsheet analysis under-pinning the submission and comment as follows:

- The total miles travelled by Scottish Water's fleet vehicles were previously derived from a pilot Vehicle Telematics System that uses a global positioning system (GPS) to locate vehicles. For this submission, an implementation period from 10th January 2005 to 17th March 2005 has been used. A mileage per vehicle per day has been established from the sample period and grossed up by all vehicles in each business area to obtain a total mileage per day. An annual mileage was determined assuming 220 working days per year.
- At the first draft Business Plan stage, we were concerned that the vehicle sample in the system trial was very limited and that grossing-up may have led to a substantial statistical error. For this submission, the sample size is much better but the period of sampling remains very short (10th January to 17th March) particularly in the South West operational area where installation of vehicle tracking software took place in February / March. There is bound to be a seasonal pattern which will not become evident until further data are available. Scottish Water comments that a further submission of the claim will be made in June.
- Numbers of vehicles in the operational system are shown in the following table. Although implementation had reached an overall 50% by mid-February (72% by mid-March 2005), it was still only 14% in mid-February in the South West operational area which is being used as the proxy for England & Wales.

Vehicle Telematics System: sample size implementation period						
<i>Ops. Area</i>	<i>01/01/05</i>	<i>01/02/05</i>	<i>18/02/05</i>	<i>18/03/05</i>	<i>Total in fleet</i>	<i>% on 18/02/05</i>
Asset Ops. NW	232	232	232	231	310	75%

Vehicle Telematics System: sample size implementation period						
<i>Ops. Area</i>	<i>01/01/05</i>	<i>01/02/05</i>	<i>18/02/05</i>	<i>18/03/05</i>	<i>Total in fleet</i>	<i>% on 18/02/05</i>
Asset Ops. NE	2	249	270	270	270	100%
Asset Ops. SE	0	0	152	218	243	63%
Asset Ops. SW	0	2	54	263	392	14%
Sampling	19	40	73	81	112	65%
Customer Service	3	11	14	25	44	32%
Contracting	0	16	36	63	85	42%
Logistics	2	3	2	4	103	2%
Others	5	6	3	50	117	3%
All	263	559	840	1205	1675	50%

- The average internal labour recharge rate of £16.02 per hour used in Tables 1 and 2 of the Scottish Water submission now represents a weighted average of labour rates for 7 types of operative (team leader, inspector, network operative, wastewater operative, water operative, tanker driver, electrical & mechanical craftsman and maintenance operative) which is better than the previous simple average. The hourly rates include direct costs (basic pay, call-out supplements, national insurance and pension) plus a utilisation factor that allows for holidays, sickness other non-productive time). For tanker drivers, for example, average direct pay for all operating areas is £10.92 per hour and this is enhanced by 28% to £13.98 per hour as a productive rate (or internal labour recharge rate). Productive rates range from £13.98 per hour to £23.61 per hour for team leaders.
- Additional accommodation, ferry and flight costs constitute a small proportion of the total claim. For accommodation (Table 8 of the Company submission), Scottish Water has tried to identify extra costs by operating division that relate particularly to island travel (e.g. Isle of Arran in the South West area). Most additional accommodation costs relate to the North West and North East areas.
- For ferry and flight costs, Scottish Water assumes that all costs will be additional as English & Welsh utilities will have no similar costs. We accept that this is largely true but note that English & Welsh utilities will incur some flight costs through, for example, attendance at national and international conferences. However, such costs are likely to be small.

- For the first draft Business Plan, we questioned the magnitude of the special factor claim for travel costs on the basis of a top-down analysis. The claim, representing additional travel time, equated to about 44% of operational staff time, a high figure. With the revised data, this has reduced to about 29% of operational staff time.

C5. SERVICE RESERVOIRS

C5.1 Overview

1. Scottish Water's operational area is significantly larger and more sparsely populated than for utilities in England & Wales. Scottish Water has more service reservoirs and water towers. This leads to higher operating costs because of additional labour costs associated with reservoir inspections and monitoring.
2. Scottish Water has assessed the value of the special factor claim for service reservoirs as £2.12 m in 2003-04 prices. This compares with £1.88 m in the first draft Business Plan.
3. To quantify the claim, Scottish Water calculates the ratio of the number of service reservoirs per winter population for Scotland and for England & Wales. It then deduces that, if the ratios were similar, Scottish Water would operate some 1,206 fewer service reservoirs. A direct operating expenditure for 2003-04 is calculated, variable costs (such as power and materials) removed and the additional operating costs for the 1,206 reservoirs estimated.
4. The additional operating costs mainly relate to labour costs associated with regular reservoir inspections, monitoring and security. There would appear to be some double counting in that labour costs are already subject to a special factor claim for travel costs that amount to 29% of operational staff time (see Section 4).

C5.2 Basis of the Service Reservoirs and Water Towers Special Factor

Scottish Water operates 1,692 service reservoirs (including 16 water towers) for a winter population of 4.9 million giving a ratio of 343 reservoirs per million population. Wessex Water and Dwr Cymru, the nearest English & Welsh equivalents have ratios of 320 and 262 respectively. The average for all English & Welsh utilities is 98.5.

Scottish Water contends, reasonably, that this higher ratio incurs a greater operating expenditure mainly associated with regular reservoir inspections and monitoring.

C5.3 Quantification of the Net Additional Costs of Service Reservoirs and Water Towers

To quantify the claim, Scottish Water calculates the ratio of the number of service reservoirs per winter population for Scottish Water and for the Water and Sewerage Companies (WASCs) and the Water Only Companies (WOCs) in England & Wales (Appendix A of the Company submission). It then deduces that, if the ratios were similar at 98.5 reservoirs per million population served, then Scottish Water would operate some 1,206 fewer service reservoirs.

Scottish Water has abstracted operating expenditure associated with service reservoirs from the Activity Based Finance Model for year 2003-04. Indirect operating expenditure such as depreciation and rates has been removed. Also, direct operating expenditure that varies with reservoir size (such as power, planned and unplanned E&M repairs, secondary chlorination) have been removed. The remaining direct operating expenditure amounts to £2.976 m with the main breakdown as follows:

Activity	Amount (£ m)
Basic staff costs	0.231
Emergency planning & security	0.652
Asset related insurance	0.139
Telemetry	0.507
Vehicles and plant provision	0.129
Vehicles and plant hire	0.139
Vehicles and plant maintenance	0.111
Service reservoir cleaning	0.428
Miscellaneous	0.640
Total	2.976

This converts to a direct cost of £1,759 per service reservoir per year. Applying this to the additional 1,206 reservoirs gives an estimated additional opex of £2.12 m.

C5.4 Other Comments

A large number of the additional service reservoirs operated by Scottish Water consist of small / very small tanks that service small communities. These will undoubtedly have a significant impact on the average operating expenditure per service reservoir. Scottish Water comments that the removal of variable costs (such as power and materials) attempts ensure that the costs which are related to the size of the service reservoir are removed. Any other savings due to the small size of the reservoirs will be captured within the actual costs used to calculate the claim.

The labour components within the above activities (where these relate to Scottish Water staff) are already subject to a special factor claim for travel costs that amount to 29% of operational staff time (see Section 4 above). There would, therefore, appear to be an element of double counting. Scottish Water comments that travel costs included in the staff costs is only a minor contributor to the special factor claim.

C6. ELECTRICITY

C6.1 Overview

1. Scottish Water incurs electricity charges above those predicted by the econometric models because use of system charges for transmission and distribution are higher in Scotland than in England & Wales, the Company has a large number of small works serving small communities, a higher proportion of power is used for non-pumping processes (see Section 4.2) and there is no model component to adequately reflect this. However, Scottish Water does not assess the impact of higher distribution input (as a result of higher levels of leakage) on the power econometric model as part of this claim. Scottish Water considers that all issues concerning leakage are dealt with in the leakage special factor claim.
2. Scottish Water has assessed the value of the special factor claim for electricity charges as £4.67 m in 2003-04 prices. This compares with £4.63 m in the first draft Business Plan.
3. Quantification of the net additional costs of electricity charges has been carried out in three stages (see Section 4.3). Calculations are based on the 12-month period July 2003 to June 2004. The supporting calculations are complicated and are based on several assumptions, notably that the four (and in the case of the third component, three) English & Welsh benchmarked utilities are representative of England & Wales.
4. Scottish Water confirms that 117 energy audits at sites such as treatment works and pumping stations have been completed to date. Three examples were provided for review. Scottish Water has about 4,100 power supply points: some of the larger water and wastewater treatment works may have more than one power supply point. Scottish Water comments that there are no plans to carry out audits at other sites because findings from previous audits are in the process of being implemented.

C6.2 Basis of the Electricity Charges Special Factor

Scottish Water incurs electricity charges above those predicted by the econometric models because:

- Use of system (UoS) charges for transmission and distribution are higher in Scotland than in England & Wales
- Scottish Water has a large number of small works serving small communities; small sites can only be connected at low voltage which incurs higher distribution costs than sites connected at high voltage. Scottish Water comments that the higher costs at small sites result from the higher tariff; one of the reasons for which is voltage but it is also a reflection of the lower quantities consumed at these sites.
- The power econometric model for the water sector predicts operating expenditure as a function of the work required to pump water (distribution input times average pumping head). Scottish Water argues that it relies less on electricity for pumping than in England & Wales. A higher proportion is therefore used for

non-pumping processes and there is no model component to adequately reflect this. However, Scottish Water does not assess the impact of higher distribution input on the model caused by a higher leakage level. Scottish Water comments that no adjustment is necessary because of the positive relationship between power costs and distribution input.

C6.3 Quantification of the Net Additional Costs of Electricity Charges

The special factor claim for higher electricity charges comprises three components:

Component	Claim (£ m)
Higher electricity use of system charges	1.75
Higher costs to supply small rural sites	1.31
Under prediction of non-pumping element of power costs in the econometric model	1.61
Total	4.67

The Scottish Water estimate is based on data for the 12-month period July 2003 to June 2004 rather than the regulatory year. This period was selected as Scottish Water has carried out a significant data cleansing exercise between April and June 2004. This was a continuation of an on-going data improvement exercise with specific emphasis on completing missing data fields and verifying existing process information (e.g. wastewater treatment). Data are drawn from the STC Energy Navigator database managed by STC Energy Management. The database was not available for review during the audit process although some screen dumps have been provided.

Scottish Water has provided copies of the two Energy Information Centre (EIC) reports quoted in the submission and the spreadsheet used to quantify the net additional costs in the submission. The spreadsheet includes raw data abstracted as a June 2004 snapshot from the energy database.

EIC (2004) calculate that UoS charges represent a 38% share of total electricity costs for Scottish Water compared with an average 29% for four WASCs in England & Wales. These UoS charges comprise both transmission use of system (TUoS) and distribution use of system (DUoS) charges. Scottish Water has applied the 38% and 29% figures to the separate components for low voltage (LV) and high voltage (HV and EHV) sites of the total power cost of £18.54 m to derive the higher electricity use of system charges of £1.75 m.

The figure of £18.54 m represents actual electricity costs over the period July 2003 to June 2004. This compares with the £8.49 m for water and £8.49 m for sewerage reported in the annual return (Tables E1b and E2b) for the period April 2003 to March 2004 plus an approximate £1.5 m (ignoring the different reporting periods) related to depots and offices and reported under general and support activities in the annual return. The £18.54 m was abstracted directly from the STC Energy Navigator database, not from regulatory returns.

As shown in the table below, Scottish Water has 4,122 power supply points of which 3541 (86%) are in the low voltage block tariff category.

Scottish Water: power supply profiles				
Supply points	Typical kVA	Tariff	Voltage type	Voltage
267 (6.5%)	>100	Half hourly	LV/HV/EHV	400,11000,33000
277 (6.7%)	45-100	Max. demand	LV	400
3541 (85.9%)	<45	Block tariff	LV	400
27 (0.7%)	<12	Domestic	LV	400, 240
10 (0.2%)	-	Missing	-	-

The North West operational area has a particularly high proportion of the supply points on the more expensive block tariff (Tables 3 and 5 of the Company's submission).

Using the power supply database and excluding sites identified as Sewage Treatment Works, Scottish Water estimates actual power costs as £13.397 m for the 12-month period July 2003 to June 2004. Applying an average England & Wales tariff split (based on the four benchmarked companies) and unit rates derived for the South West operational area in £/kWh, produces a power cost of £11.66 m. Scottish Water assumes the difference of £1.74 m represents the additional cost of being obliged to take power on the more expensive block tariff compared with the benchmarked utilities. This assumes the four benchmarked utilities are representative of England & Wales. The figure is adjusted to £1.31 m to take account of the variance in use of system charge (as the first component quantified above).

Scottish Water comments that it has made significant efforts to gather benchmarking information from England and Wales companies. Benchmark companies include Anglian, Yorkshire, South West and Southern in the second component of the claim and Wessex, Yorkshire, United Utilities and Dwr Cymru in the third component of the claim. We believe this covers a representative range of WASCs.

The third component of the claim relates to non-pumping power costs that Scottish Water considers are not adequately captured in the econometric model. The Scottish Water average pumping head is reported as 50.6 m head compared with over 120 m head reported for three of the four benchmarked English & Welsh utilities. Scottish Water has rejected information from one utility that actually reports a lower pumping head than Scottish Water on the basis that the information does not seem to be correct. For the three utilities (taken to be representative of England & Wales), Scottish Water shows that over 90% of power consumption relates to pumping compared with about 69% for Scottish Water. In Fig 3 of their submission, they derive a special factor component for non-pumping power costs of £1.61 m.

In conclusion, the Scottish Water estimates of the three components of the electricity special factor are complicated and are based on several assumptions, notably that the four (and in the case of the third component, three) English & Welsh utilities are

representative of England & Wales. Scottish Water believes that the companies benchmarked are representative of England & Wales.

We have questioned Scottish Water on progress with energy efficiency audits at supply sites. Scottish Water comments that 117 audits have been carried out to date at high energy sites; reports on three typical works were provided for review. Scottish Water comments that the audit recommendations have been used to generate investments such as heating and aeration control. It is not clear whether there is a firm programme for completion of audits at the substantial number of outstanding sites.

C7. SUPPLY OF MATERIALS TO RURAL LOCATIONS

C7.1 Overview

Scottish Water supplies chemicals such as chlorine, hydrated lime, polyelectrolytes and aluminium sulphate to water and wastewater treatment works in locations that are more rural than in England & Wales. This is supported by the greater population sparsity within Scotland, the greater spread of sites and the larger number of small sites.

C7.2 Basis of the Supply of Materials to Rural Locations Special Factor

Scottish Water has assessed the value of the special factor claim for the supply of materials to rural locations as £0.50 m in 2003-04 prices. This is similar to the value in the first draft Business Plan.

C7.3 Quantification of the Net Additional Costs of the Supply of Materials to Rural Locations

The South West operational area of Scottish Water has been used as a proxy for England & Wales in that the rural nature and spread of treatment works are reasonably similar. The cost differential for the delivery of chemicals to the North East, North West and South East operational areas is used as the basis of the claim.

Scottish Water has established one framework contract for the supply of chemicals to all locations. The contract has rates for the delivery of chemicals that vary by operational area. Using the five main chemicals used at water and wastewater treatment works (chlorine, hydrated lime, aluminium sulphate and polyelectrolytes for both water and wastewater treatment), Scottish Water has used the framework rates and the predicted annual volumes of chemicals to calculate the costs in each operational area if they were based on the South West price. The analyses are presented in Appendix 1 of the Scottish Water submission and summarised in Table 8. The price differential ranges from 82% for hydrated lime to 96% for aluminium sulphate or a weighted average of 93% for all chemicals.

Scottish Water has abstracted actual outturn costs for 2003-04 from the Profit and Loss Account for all chemicals, amounting to £7.2 m. For the main chemicals, the calculated price differential has been applied. For other chemicals, the average differential of 93% has been applied. Based on 2003-04 expenditure on chemicals, a net additional cost of £0.496 m is calculated representing the additional cost of supplies to the North East, North West and South East operational areas.

C8. BAD DEBT

C8.1 Overview

1. The operating regime for Scottish Water is different from England & Wales in terms of billing, collection and recovery of bad debt (see Section 5.2). Scottish Water contends that this is not adequately reflected in the business activities econometric models for the water and sewerage services.
2. Scottish Water has assessed the value of the special factor claim for bad debt as £7.33 m in 2003-04 prices. This compares with £7.79 m in the first draft Business Plan.
3. The Scottish Water claim comprises three components namely, an estimated reduction in opex if the level of bad debt is similar to the average in England & Wales, less the estimated difference in the cost of collection in Scotland less the difference in cost of dealing with metered properties (see Section 5.3). The first two components are derived from data obtained from four benchmarked WASCs in England & Wales. The third component is derived from data obtained from two benchmarked WASCs. We appreciate the difficulty in obtaining confidential information that is not published in the June Returns.
4. The costs of billing, collection and recovery of bad debt are lower in Scotland than in England & Wales. This reflects an efficiency saving in issuing combined bills for Council Tax and Water and Sewerage Services. We note that both the Local Authorities and Scottish Water have policies of not writing off domestic bad debt whereas utilities in England & Wales do write off bad debt. Scottish Water comments that it has a policy of not writing off domestic bad debt, which follows the approach adopted by Local Authorities. This approach has no impact on the level of bad debt charge, currently being charged to the Profit & Loss Account and hence has no impact on the value of the special factor claim.

C8.2 Basis of the Bad Debt Special Factor

The operating regime for Scottish Water is different from England & Wales because:

- Scottish Water is obliged to use Local Authorities to bill and collect for domestic water and sewerage charges and to recover bad debt
- Scottish Water pays for this service at an agreed baseline fee. The Company argues that it has only limited influence over costs through Service Level Agreements that are allowed for in the legislation and that increase the baseline fee in exchange for improved performance.
- The socio-economic characteristics of the supply area are lower than for England & Wales
- Scottish Water has never had the power to disconnect households whereas in England & Wales, the law was recently amended under the Water Industry Act, 1999.

- Scottish Water has a level of domestic bad debt that is about £12.5 m higher than in England & Wales. Scottish Water has a policy of not writing-off domestic bad debt (in line with the Local Authorities) and the books carry domestic bad debt that dates back to 1996/97.

Scottish Water considers that the business activities econometric models for the water and sewerage services do not adequately reflect the operating factors in Scotland that generate a higher level of domestic bad debt compared with England & Wales.

C8.3 Quantification of the Net Additional Costs of Bad Debt

Scottish Water calculates the extra operating costs incurred as a result of the high levels of domestic bad debt in three components as shown in the table below:

Component	Claim (£ m)
Reduction in opex if domestic bad debt similar to average in England & Wales	12.49
Less difference in cost of collection in Scotland compared with England & Wales	-0.67
Less difference in cost of billing metered properties in Scotland compared with England & Wales	-4.49
Total	7.33

Table 8 of the Company submission shows a comparison of the level of domestic and non-domestic debt for Scottish Water and for the 10 WASCs in England and Wales based on the 2004 Annual Returns. The values for bad debt represent the charge to the P&L Account for bad and doubtful debts in the Report Year. The numbers of properties represent a combination of those provided with water and sewerage services. Scottish Water contends that the level of debt in Scotland is driven largely by socio-economic factors. Only United Utilities (UU) has a similar level of debt per property served. Scottish Water argues that UU is atypical and has been granted a bad debt special factor based on the level of deprivation in the area served.

It should be noted that Scottish Water has a policy of not writing-off domestic debt whereas, in England & Wales, WASCs have various policies of writing-off debt once all reasonable recovery measures have been exhausted. For Scottish Water, gross domestic debt at 31st March 2004 stood at £207.5 m with bad debt provisions of £170.9 m and a net debt of £36.6 m. The profiles for gross debt and provisions date back to 1996/97.

In Table 9, Scottish Water uses data from four benchmarked WASCs (Welsh Water, United Utilities, Wessex and Yorkshire) to estimate the “average” level of domestic debt per property in England & Wales. This is then used to calculate what the domestic debt in Scotland would be using the English & Welsh average. Scottish Water then uses the business activities econometric model to determine the impact of the change in doubtful debt on operating costs (Figure 2 and Appendix 5). The change in residuals for the water and sewerage (waste) sectors amounts to £12.49 m.

Scottish Water estimates the average cost of billing, collection, customer enquiries and customer complaints in England & Wales as £6.23 per domestic property using data from four benchmarked WASCs for both measured and unmeasured customers for both water and sewerage services. This figure excludes the “cost of metering”, that is the additional costs of meter reading. The equivalent cost for Scottish Water is estimated as £5.93 per property (Table 10 of the company submission) assuming 2.219 m connected domestic properties for water supply (Annual Return, Table A1, Line A1.1). The difference between Scottish Water and England & Wales is estimated to be £0.67 m and this is deducted from component 1 above.

In Scotland, only 741 (0.03%) domestic properties are metered compared with an average 24% from all utilities in England & Wales. Scottish Water assesses the additional cost of reading meters, billing and collecting from metered domestic properties as £8.41 per property. This is based on only two benchmarked WASCs: Scottish Water comments that only two provided accurate data. Scottish Water then applies the £8.41 to 24% of its own domestic property base to estimate the additional costs associated with metered properties of £4.49 m. This third component is also deducted from component 1 to arrive at the overall claim of £7.33 m (see table above).

Scottish Water confirms that money collected by the Local Authorities for Council Tax and for Water and Sewerage is proportioned on a monthly basis as described in Appendix 1 of their submission. Hence, the level of debt associated with Council Tax and Water and Sewerage charges will be in similar proportions. We understand that the Local Authorities also have policies of not writing-off domestic debt.

C9. SEWER LATERALS

C9.1 Overview

We have reviewed Scottish Water's assessment of sewer laterals as a special factor and concluded that:

1. Scottish Water has legal responsibilities for sewer laterals which water and sewerage companies in England and Wales do not (see Section 9.2).
2. Scottish Water has assessed the additional cost of dealing with sewer laterals as £11.73 million in 2003-04 prices. This assumes that WICS includes the estimated 16,238 km of sewer laterals in sewer length used in the benchmark models.
3. Scottish Water's assessment of net additional costs is based on allocating recorded costs in proportion to activities on sewer laterals recorded on PROMIS in August 2004 and March 2005. We remain concerned about the use of this data to apportion costs. Scottish Water has recently introduced additional categories in its internal reports to identify work on laterals which should allow the allocation to be improved in subsequent submissions. (see Section 9.3).
4. The estimated length of sewer laterals has increased to 16,238 km from the 13,200 km reported in the 2003-04 Annual Return. We believe that this is an improvement of previously reported data. The length of lateral does not have any material impact on the assessment of net additional costs (see Section 9.4)

C9.2 Basis of the Sewer Lateral Special Factor

Scottish Water's has an obligation to operate sewer laterals which is not an obligation on the water and sewerage companies in England & Wales.

We understand that the obligations of Scottish Water are defined as follows:

- Scottish Water is responsible for all sewer in Scotland.
- A sewer includes all pipes and drains used for the drainage of buildings and associated yards which are connected to the public sewerage system which is not a drain as defined in the Sewerage Scotland Act (1968).
- Within the meaning of the Act, a drain in relation to premises means any pipe or drain within the curtilage of the those premises used solely for or in connection with the drainage of one building or of any buildings or yards within the same curtilage.

In effect, Scottish Water has responsibility for the whole sewerage stock outside property curtilage and all sewers across private property curtilage to the point the sewer divides to serve a single property.

In England and Wales a distinction is made between public sewers, private sewers and drains as follows:

- a drain serves a single property;

- a pipe becomes a sewer from the point at which two drains join;
- a private sewer is a sewer crossing private and public land to the point it joins the public sewer;
- the public sewers are the responsibility of the water and sewerage company and are the main sewers normally sited in public areas.

This structure was formalised under the 1936 Public Health Act. As a result the water and sewerage companies in England & Wales usually have operational responsibility for private sewers which pre-date 1937.

We understand that:

- Scottish Water has a policy of recharging for call outs which are found to be on drains. However, we have not seen any data to confirm how this policy is monitored and the extent to which costs are recovered.
- Some of the sewers defined as laterals in the Scottish Water special factors will be pre-1937 sewers which are the responsibility of the water and sewerage companies in England & Wales. Scottish Water has not been able to identify the extent of these sewers or whether costs incurred and recovered by the water and sewerage companies in England & Wales in respect of operating expenditure has been included in the models.

C9.3 Quantification of Net Additional Costs of Sewer Laterals

Scottish Water has assessed the net additional cost of their responsibility for sewer laterals as £11.73 m at a 2003-04 price base. The assessment of cost made in Table 4 of Scottish Water's report is reproduced below.

Description		£m/a
A	Cost of operating the sewer network	39.45
	Cost of operating sewers (excluding pumping wastewater and storm overflows and outfalls).	22.45
	Less administrative costs associated with sewer operation	(1.06)
	Less travel time covered elsewhere in the special factors claim	(.24)
	Net cost of operating sewers	21.15
	Proportion of employee time spent on resolving incidents on laterals	65.4%
B	Cost of operating sewer laterals (£21.15m * 65.4%)	13.83
C	Adjustment for Section 24 sewers in England & Wales	(1.45)
D	Net cost of operating sewer laterals	12.38
C	Predicted opex (based on main + lateral sewer length of 16283 km)	23.74

Description		£m/a
D	Less predicted opex (based on main sewer length of 31 654 km)	23.09
E	Adjustment for marginal predicted opex of 16283 km laterals	0.65
	Value of the claim (B-E)	11.73

The **cost of operating the sewer network** (£39.45 m) is the functional expenditure on sewerage reported in the 2003-04 Annual Return Table E2 less SEPA costs which are assumed to be attributed to overflow consents. This cost is provided for information but is not used further in the analysis.

The **cost of operating the sewer network** (£22.45 m) was taken from the ABM analysis which allocates cost from the general ledger to operational activities. We audited the system during the AR04 audits and found it to be reasonable.

The cost of operating the sewer network excludes an adjustment of £1.923 m to represent cost allocated to capital by the ABM system over and above the amounts capitalised by Scottish Water in its financial accounts.

The **costs associated with sewer operation** (£1.06 m) was also generated from the ABM analysis. Scottish Water has aimed to identify general management and admin costs which would not vary relative to the activity on sewer laterals. We recognise that the level of detail available from the ABM systems is limited and an element of judgement is required to allocate these costs. We have reviewed the allocation and believe that it is reasonable

The **proportion of employee time spent on resolving incidents on laterals** was determined from an analysis of data collected on Scottish Water's customer contact system PROMIS in August 2004 and March 2005. We have reviewed this data in and note the following:

- Data is only recorded on PROMIS in response to customer contacts. We understand that work on sewer laterals is only likely to be initiated in response to a customer contact. However, it is possible that other operational activities are carried out on the main sewerage network which are not represented on PROMIS. As a result, it is possible that activity recorded on PROMIS is biased towards activity on laterals. Scottish Water has provided further information from their asset management records which indicates that planned work has a similar mix of laterals and main sewers.
- We understand that the main activities undertaken on sewer laterals are reactive maintenance including repairs to collapse and clearing blockages. Scottish Water has a limited number of staff involved in these activities. We recommend that an assessment is made at a global level to ensure that the cost allocated is a reasonable reflection of the costs resources applied to this type of work.
- The special factor claim is based on the 2003-04 accounts. Subsequent changes in capitalisation rules appear to be moving more sewerage reactive maintenance expenditure from OPEX to CAPEX accounts. We do not believe that this should affect the special factor claim but we recommend that it is considered as the claim is assessed.

Scottish Water has stated its approach to calculating an **adjustment for Section 24 sewers in England & Wales**. The calculation appears to be a reasonable assessment given the information available.

C9.4 Estimated Length of Sewer Lateral

A length of sewer lateral was first reported in the 2002-03 Annual Return. The reported length increased in the 2003-04 Annual Return and a further update has been included in the special factors claim. The assessment of length has developed as follows:

Source	Average length (m)	Number of properties	Length of lateral (km)	Comment
AR03	5.00	2,000,000	10,000	Nominal length and number of laterals.
AR04	5.90		13,200	Length assessed on survey of 100 properties applied to number of connected properties and rounded up.
Draft SBP	6.87	2,370,228	16,283	Average length update on completion of 213 properties and applied to total properties connected including voids.

The current assessment appears to be generally well founded. It draws on a survey of 213 laterals. We have reviewed a sample of the surveys and identified some minor discrepancies in a sample of the surveys audited which are being reviewed. The laterals were initially sampled at random with the survey extended to compensate for a perceived lack of data in the NE area. The average length has been applied to Scottish Water's current estimate of domestic and non-domestic properties including void properties. The increase in estimated length from the 2003-04 Annual return can be attributed to:

- The completion of the lateral survey. The first 100 surveys appear to have been biased towards urban centres with shorter lateral lengths and more laterals serving multiple properties reducing the average length.
- Including non-domestic properties in the assessment of total lateral length.

The estimated 95%-ile limits on the estimated length of lateral is 13% based on the statistics of the survey only. However, remaining uncertainty over the length of sewer lateral does not have a material impact on the estimated net additional cost of.

Scottish Water has assessed the impact of sewer laterals on the econometric models published by Ofwat for 2003-04. This indicates a smaller adjustment than the 2002-03 Ofwat models which formed the basis of the adjustment calculated in for the first draft Business Plan.

C10. WATERWORKS SLUDGE

C10.1 Overview

We have reviewed Scottish Water's assessment of waterworks sludge recycling as a special factor and conclude that:

1. The interpretation of legislation relating to the disposal of sludge from water treatment works varies between the SEPA interpretation in Scotland and the EA interpretation in England & Wales. Scottish Water uses this as the basis of the claim as SEPA does not permit disposal of waterworks sludge to farmland under any circumstance. We have questioned the basis of the claim as, in practice, a high proportion of the waterworks sludge in England & Wales is disposed of to sewers or to landfill and only a small proportion to farmland despite the variance in interpretation of legislation (see Section 7.2). Scottish Water comments that this is contradicted by the information received from Dwr Cymru which has 95% disposal to agriculture.
2. Scottish Water has assessed the additional cost of dealing with waterworks sludge due to non-exemption from the Waste Management Licensing Regulations as £2.30 m in 2003-04 prices. This is similar to the first draft Business Plan.
3. Scottish Water has estimated the extra costs as landfill gate fee and landfill tax for 42 sites where sludge is currently sent to landfill. A further 12 sites are excluded on the basis that suitable farmland would be unavailable for sludge disposal. There are some approximations in the costing process (see section 7.3)
4. We recommended at first draft Business Plan stage that Scottish Water carried out further research into actual waterworks sludge disposal practice in England & Wales and that the special factor claim should be based on practical differences rather than variations in legislation. Some further research has been carried out showing that, of three utilities in England & Wales that provided information, none disposed of waterworks sludge direct to agricultural land. Sludge was either integrated with wastewater sludge through the sewerage system or was sent to landfill. Scottish Water maintains the view that if SEPA were to permit disposal to land, then disposal to farmland would be more economic at the 42 sites identified by them.

C10.2 Basis of the Waterworks Sludge Special Factor

Scottish Water demonstrates that the interpretation of legislation relating to the disposal of sludge from water treatment works varies between Scotland and England & Wales. In practice, SEPA does not currently permit the disposal of sludge from water treatment works to agricultural land under any circumstances. In England & Wales, there are some situations where the EA takes a more relaxed view and disposal to agricultural land is permissible, although, in practice, very little direct disposal to agricultural land takes place.

The Special Factor claim is based on the assumption that where Scottish Water presently disposes of waterworks sludge to landfill, given equality in legislation, sludge would be disposed of more economically on agricultural land. This affects 54 treatment works out

of the total 371 treatment works on the asset register. An exception is made where suitable farmland may not be available. Scottish Water estimates that 12 of the 54 works are located in areas where the soil pH is predominantly less than 5 (i.e. the soils are significantly acidic in nature).

We have challenged the basic assumptions underpinning the claim as, in practice, a high proportion of the waterworks sludge in England & Wales is disposed of to sewers or to landfill despite the variance in interpretation of legislation. For example, Frankley treatment works provides supplies to a population of about 3.5 million in Birmingham; the sludge is dewatered in filter presses and transported as sludge cake to landfill. Other utilities use a combination of disposal by sewer (integration with wastewater sludge) or disposal to landfill. In our view, only a small proportion of waterworks are able, in practice, to economically dispose of sludge to agricultural land. Actual practice regarding waterworks sludge disposal (rather than theoretical possibilities) is reflected in the econometric models developed by Ofwat.

Scottish Water comments that “the above view is contradicted by the information received from Dwr Cymru which has 95% disposed of to agriculture. The point being made in our claim is that the most cost effective route will be selected by benchmarking companies and Scottish Water is penalised by having this alternative low cost route denied.”

C10.3 Quantification of the Net Additional Costs of Waterworks Sludge

Scottish Water has outlined the claim in the Executive Summary and provided a detailed breakdown in Appendix B of the submission. There are three components:

- Extra cost of the landfill gate fee (typically £16.5 per tonne compared with a typical gate fee of £6 per tonne on average in England & Wales) for disposal to farmland, amounting to £1.0 million
- A landfill tax of £15 per tonne for non-hazardous waste (48 works) and £2 per tonne for inert waste (6 works in Dumfries and Galloway where the sludge has been accepted as inert), amounting to £1.44 million)
- A reduction of £0.14 million for 12 works where disposal to farmland is discounted on the basis that soil pH is less than 5

Appendix B of the Scottish Water submission identifies 54 treatment works where sludge is presently disposed of to landfill.

Appendix C provides some evidence from recent tenders for waterworks sludge disposal to support the landfill gate fee, landfill tax and farmland gate fees. The final two columns show average tendered gate fee and negotiated contract gate fee for 17 works including 6 works in Dumfries and Galloway with gate fees of £2. The Company confirms that tenders are normally invited for both sludge transport and disposal. Some tenders offer transport only, some landfill only and some offer both. Scottish Water then chooses the lowest cost combination of transport and landfill gate fee. Contracts may be awarded for individual sites or for the region. Contracts are normally for 2 years with an option for extension by a year.

Scottish Water assumes that all waterworks sludge will be classified as non-hazardous (with a landfill tax of £15 per tonne) except for those works in Dumfries and Galloway where agreement has already been reached that the sludge is inert material, attracting a much lower landfill tax of £2 per tonne. This assumption is based on a letter from SEPA dated 17th September 1999 dealing specifically with aluminium hydroxide cake.

The current cost of landfill tax was calculated on a series of assumptions. We understand that the amount paid in landfill tax on water treatment works sledges in 2003-04 was £0.345 million. The assumptions made in the special factor claim pre-empt future increases in landfill tax which are covered in the Business Plan by Special Operating Expenditure Adjustments. We believe that the special factors claim is overstated by £1.095 million in respect of landfill tax. Scottish Water comments that the landfill tax calculation within the Special Factor report is based on indications from SEPA about charging rates. This has not been transformed into practice as quickly as expected but it is fully anticipated this will be the case by 2005-06.

Identification of those works where disposal to farmland may be discounted on the basis of neighbouring soil characteristics was carried out using a very large scale map published by SEPA. It is therefore an imprecise science. In practice, there would be discussions at a local level with SEPA and with local farmers to try to find suitable areas for disposal taking full account of the characteristics of the sludge and the soil types.

Scottish Water comments that on the basis that the average transport distance is 20 miles per m³ and two WTWs transport over 70 miles, this map is considered more than adequate for the purpose. A conservative approach was taken in identifying unsuitable WTWs from this map. It is agreed that discussions would be held at a local level and consequently it is likely that more land would be available than the conservative approach taken.

Scottish Water comments that SEPA has been challenged with regard to the hard line interpretation of the legislation. We understand that a meeting was held with SEPA on 22nd February 2005 to discuss a number of items including waterworks sludge disposal to agricultural land. Scottish Water comments that in the event disposal to agricultural land was not discussed at this meeting.

C11. POLITICAL QUERIES

C11.1 Overview

1. Scottish Water argues that there is more political interest in Scottish Water than in any English & Welsh Utility. This arises from the additional layer of Government in Scotland through the Scottish Parliament and results in a higher level of resources to respond to the political letters and queries.
2. Scottish Water has assessed the value of the special factor claim for political queries as £0.25 m in 2003-04 prices. This is a similar claim to that presented in the first draft Business Plan.
3. To quantify the claim, Scottish Water compares the queries received per MP / MSP / AM with five benchmarked utilities from England & Wales. If Scottish Water were to receive queries at the rate per MP for England & Wales, then it would receive 982 less queries per year at a saving of £0.25 m (see Section 11.3).

C11.2 Basis of the Political Queries Special Factor

As a public body, Scottish Water receives a significant number of political queries from both Members of Parliament (MPs) and from Members of the Scottish Parliament (MSPs). In comparison, companies in England & Wales receive fewer queries from MPs.

Scottish Water considers that dealings with the Finance Committee and Scottish Executive will be broadly equivalent to English & Welsh PLCs dealing with shareholders, the Stock Exchange and investors. Scottish Water also considers that queries raised by MEPs and Local Authority Councillors will be broadly equivalent. Hence, the claim only relates to queries from MPs and MSPs.

C11.3 Quantification of the Net Additional Costs of Political Queries

All queries from MPs and MSPs are channelled through the External Communications Section based in Castle House. The team maintains statistics on spreadsheets and received 1609 such queries in regulatory year 2003-04.

There are 201 politicians in Scotland comprising 72 MPs and 129 MSPs. Scottish Water has compared this with five benchmarked companies in England & Wales where there is a combined total of 244 MPs and 60 Members of the Welsh Assembly. The five benchmarked companies have provided estimates of the numbers of queries received from MPs (or MPs plus AMs in the case of Dwr Cymru). These are approximate as there is no regulatory requirement to report political queries in England & Wales.

The five benchmarked companies received an estimated total of 949 queries from MPs and AMs in 2003-04. This equates to an average 3.12 queries per year per MP and AM. The equivalent ratio for Scottish Water is 8.0 queries per year per MP / MSP. If Scottish Water were to receive queries on the basis of 3.12 per year, it would equate to 627 queries (compared with the actual 1609 received). Thus, Scottish Water estimates there were an additional 982 queries during 2003-04 compared with utilities in England & Wales.

The average cost of dealing with each query, at £250, allows for time spent by the External Communications Section and by the General Managers, Directors or Chief Executive, as appropriate. The unit cost, which includes allowances for overheads, is based on estimated inputs for each stage of the process. Assumed breakdowns for both local (or constituency related queries) and policy related queries were provided and amounted to £251 and £261 per query respectively; these were rounded to £250. The average unit cost is approximate as individual time inputs on these activities are not accurately logged.

The combination of the estimated additional 982 political queries and the £250 unit cost amounts to £245,500 over the year.

C12. CRYPTOSPORIDIUM

C12.1 Overview

1. Compliance with the Cryptosporidium Directions (2003) is more onerous for Scottish Water than for utilities in England & Wales since Scottish Water have to sample at surface raw water sources and for treated water at all treatment plants (not just those at high risk). Also, any detected oocysts are reportable whereas the threshold is higher for England & Wales.
2. Scottish Water has assessed the value of the special factor claim for cryptosporidium as £1.96 m in 2003-04 prices. This compares with £1.71 m in the first draft Business Plan.
3. To quantify the claim, Scottish Water assesses the collection costs as £66 per sample based on a budget estimate and the analysis costs as £74 per sample based on a cost recovery estimate. The claim assumes an additional 13,870 samples (including 1743 follow-up samples) at an overall unit rate of £140 per sample.
4. Scottish Water uses a 2002 DWI presentation to support the unit cost although the benchmark cost comprises a significantly different breakdown for sampling and analysis. The budgets used to derive the unit costs and the analysis presented in the submission assume different levels of sampling, as discussed in Section 12.3 below.

C12.2 Basis of the Cryptosporidium Special Factor

The Cryptosporidium (Scottish Water) Directions (2003) became effective in July 2004 and impose a stricter environment on Scottish Water than the equivalent Directions in England & Wales. In particular, Scottish Water is required to:

- Sample for surface raw water sources, based on a catchment risk assessment score
- Sample final (treated) water at all treatment plants, not just high risk plants, based on a catchment and treatment risk score
- Report any detected levels of cryptosporidium oocysts, not just those where levels exceed 1 oocyst per 10 litres of treated water

Scottish Water shows that the number of sample sites per million properties served is 149 in Scotland compared with 7 in England & Wales. Also, the number of samples taken is 7440 per million properties served in Scotland compared with 2230 in England & Wales.

C12.3 Quantification of the Net Additional Costs of Cryptosporidium monitoring

Scottish Water's costs are based on a 2004-05 budget figure of £915k for collecting an estimated 13,870 additional samples (including a 33% allowance for re-sampling) giving £66 per sample. To this is added an analysis cost of £74 per sample, (based on a 2004-05

cost recovery estimate for SW Scientific) giving an overall total of £140 per sample for collection and analysis.

The breakdown of the sample collection budget is as follows:

Item	Opex (£)
Employee costs assuming 12 FTE	378,000
Costs of filters (10,000 samples at £22)	220,000
External courier costs	150,000
Additional IT recharges	37,000
Additional property recharges	42,000
Additional fleet recharges	92,000
Less travel and subsistence (1.1% of employee costs)	-4,000
Total	915,000

As a benchmark cost for England & Wales, Scottish Water uses an average cost for sampling and analysis quoted by D Drury of DWI in a presentation in 2002 of £27.50 for sampling and £110 for analysis. Allowing 2.5% for RPI gives a total of £144.50 per sample for 2003-04. Although the total appears to give some comfort for the Scottish Water estimate of £140 per sample, we note the significant and unexplained variances in the collection and analysis breakdowns. We also note that the Scottish Water cost estimate is based on two separate 2004-05 budgets. The budgets and the analysis presented in Tables 5.1 and 5.2 of the submission assume different levels of sampling as shown below. The apparent variances detract from the robustness of the costing.

Source	Cost per sample (£)	No. of additional samples	Total no. of samples (including follow-up samples)
Sampling budget	66	10,000	
Analysis budget	74		23,224
Tables 5.1 and 5.2	140	13,981	19,084

Scottish Water comments that the unit rates were derived from estimated sampling and analysis numbers used to generate 2004/05 budgets. Actual sampling and analysis numbers did vary from initial budget estimates. A variance between predicted and actual is normal in budgeting exercises. The apparent variances are explainable and do not

detract from the robustness of the claim. Unit rates derived from actual sampling numbers would be higher than those in the claim.