

Hymans Robertson LLP has carried out an actuarial valuation of the Environment Agency Closed Fund ("the Fund") as at 31 March 2013, details of which are set out in the report dated 28 March 2014 ("the Report"), addressed to the Environment Agency ("the Client"). The Report was prepared for the sole use and benefit of our Client and not for any other party; and Hymans Robertson LLP makes no representation or warranties to any third party as to the accuracy or completeness of the Report.

The Report was not prepared for any third party and it will not address the particular interests or concerns of any such third party. The Report is intended to advise our Client on the past service funding position of the Fund at 31 March 2013 and employer contribution rates from April 2014, and should not be considered a substitute for specific advice in relation to other individual circumstances.

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Environment Agency Closed Fund
Valuation Report as at 31 March 2013

HYMANS  ROBERTSON

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1 Executive summary

This paper sets out the results of the 2013 actuarial valuation for the Environment Agency Closed Fund ('the Fund') as at 31 March 2013.

Whilst we have carried out a conventional actuarial valuation, the calculations are of greatest use as a platform for providing expenditure forecasts to Defra (the Department for Environment, Food and Rural Affairs), and for Defra to place a value on liabilities in its annual accounts (which use slightly different prescribed valuation assumptions outlined by Treasury Guidance in their Public Expenditure System note). The expenditure forecasts are shown in Appendix M.

Funding position

The table below summarises the financial position of the Fund at 31 March 2013 in respect of benefits earned by members up to this date.

Past Service Position	(£m)
Past Service Liabilities	860
Market Value of Assets	166
Surplus / Deficit	(694)
Funding Level	19%

Due mainly to the revised assumptions (in particular, lower assumed CPI pension increases), Defra's expenditure forecasts for the next 3 years have reduced by an average of around £0.3m a year less than was anticipated in 2010.

Experience has been mixed

The funding level has improved from 14% at 2010 to 19% at 2013. This improvement is expected over time as Defra are meeting benefit outgo through GiA payments. The experience of the last three years has been mixed;

- Less pension has ceased over the 2010-2013 period than was assumed at the 2010 valuation, despite more pensioners dying than was expected. This has resulted in the Fund paying out roughly £0.7m a year more in pension in 2012/13 than anticipated at 2010.
- Pension increases applied in April 2011, 2012 and 2013 were higher (averaging out at 3.5% p.a.) than the assumption made in 2010 (3.0% p.a.). All else being equal this has served to increase the liabilities and the GiA payments.
- The market value of the Fund's holdings in two index-linked gilts has appreciated, and this has served to reduce the deficit.
- The Fund has now discharged all Pre 74 Pension Increase Recharge liabilities back to other LGPS funds. The impact of this on the funding level is broadly neutral; however it has reduced GiA payments.

How have the assumptions changed?

The liabilities of the Closed Fund are driven by two key assumptions; pension increases and longevity. These have been adjusted at this valuation as follows:

- pension increases continue to be based on 'breakeven' inflation implied by the bond markets (3.3% a year at 2013), but adjusted downwards to 2.2% to allow for the expected gap between RPI and CPI and an assumed risk premium implicit in the pricing of index-linked gilts;



- Club Vita baseline longevity assumptions first adopted for the 2010 formal valuation have been refined to reflect the experience of the Fund over the inter-valuation period; and
- our assumption for the future rate of longevity improvements is now based on the CMI projections model. We have assumed that the recent rate of improvements has reached a peak and that this will converge to a long term rate of 0.5% per annum. This assumption leads to higher life expectancies at the 2013 valuation, compared to that at the 2010 valuation.

The future

Looking ahead, the outlook is;

- that benefit payments are expected to reduce rapidly over time (but there will be a long tail of payments);
- the duration of the Fund's liabilities will continue to reduce as members age; and
- the Fund's assets are expected to be sufficient to meet the outstanding expected benefit and expense outgo by 2030.

We recommend that particular attention should continue to be paid to the Fund's longevity experience with regular monitoring.

Richard Warden

Fellow of the Institute and Faculty of Actuaries

For and on behalf of Hymans Robertson LLP

28 March 2014

Steven Scott

Fellow of the Institute and Faculty of Actuaries



2 Introduction

We have carried out an actuarial valuation of the Environment Agency Closed Fund as at 31 March 2013. This is our report to the Environment Agency ('the Administering Authority') on the results of the valuation. A separate report relates to the Active Fund.

Purpose

The main purposes of this valuation are:

- to monitor the actual experience of the Fund compared to the assumptions made at the last valuation;
- to provide a fresh platform for the future expenditure projections;
- to quantify the sum that would be required if assets were to be set aside to meet the liabilities in full;
- to enable completion of all relevant certificates and statements in connection with all relevant regulations; and
- to comment on the main risks to the Fund that may result in future volatility in the funding position or future expenditure.

Scope

This report is provided solely for the purpose of the Administering Authority and Defra to consider the management of the Fund and, in particular, to fulfil their and our statutory obligations. It should not be used for any other purpose (e.g. for accounting purposes under IAS19). It should not be released or otherwise disclosed to any third party other than Defra, CLG and NAO except as required by law or with our prior written consent, in which case it should be released in its entirety.

Hymans Robertson LLP accepts no liability to any other party unless we have expressly accepted such liability.

Reliances and limitations

This valuation report complies with all of the relevant regulations and professional standards, as set out in Appendix A.

The figures in this report are based on our understanding of the benefit structure of the LGPS as at 31 March 2013. Details of this are provided in Appendix E.

The results of the valuation are dependent on the quality of the data provided to us by the Administering Authority and their Third Party Administrators (Capita) for the specific purpose of this valuation. We are satisfied that the data provided was fit for the purposes of this valuation. This data is summarised in Appendix F.



3 About the Fund

The Fund is part of the Local Government Pension Scheme (LGPS) and is a multi-employer defined benefit pension scheme. It is contracted out of the State Second Pension.

The Fund was created in 1989 at the time of the privatisation of the water industry. Prior to 1989 the members of the Fund were actively employed, but after privatisation most did not have a role in the new water companies and were therefore redundant. For those aged 50 or over, this led to their pensions being brought into payment early. Those made redundant under age 50 were awarded a deferred pension. Hence the Fund has no active members and no new accrual of benefits.

The financing of the Fund's liabilities is unique in the family of local government pension funds. The benefits are met via Grant-in-Aid (GiA) funding by the Department for Environment, Food and Rural Affairs (Defra) under section 173 of the Water Act 1989, the terms of the Memorandum of Understanding between Defra and the Environment Agency's Pension Committee and letters exchanged between the Environment Agency and Defra's Accounting Officers (see Appendix B).

Since April 2006 a GiA funding mechanism has been in place which involves Defra paying capital contributions based on the expected benefit expenditure over the following six months. The initial liability projections used to derive these payments were based on the data and assumptions collected for the 2004 valuation and then updated periodically. The most recent projections were determined as at 31 March 2012.

Funding Strategy Statement

The Administering Authority prepares a Funding Strategy Statement (FSS) in respect of the Fund, in collaboration with us (the Fund's actuaries) and after consultation with Defra and the Fund's investment adviser. The FSS has been reviewed as part of the 2013 triennial valuation exercise and we have taken account of this as part of our valuation of the Fund. This is included in Appendix C along with the Statement of Investment Principles for the Fund in Appendix D.

Funding objectives

The overriding funding principles for the Fund upon which our valuation is based are to ensure that sufficient funds are available to meet all liabilities as they fall due for payment.

What is the cost of members' benefits?

The cost of members' benefits depend on the profile of the membership, the benefits promised to members, the amount of benefits payable and when and for how long the benefits will be paid.

Changes in the profile of the membership are discussed in Section 6 and described in more detail in Appendix F.

The Fund provides pensions and other benefits to members and their beneficiaries. The benefits in force on the valuation date are set out in the following pieces of legislation:

- The Local Government Pension Scheme (Benefits, Membership and Contributions) Regulations 2007 (the "Benefits Regulations") as amended.
- The Local Government Pension Scheme (Administration) Regulations 2008 (the "Administration Regulations") as amended.
- The Local Government Pension Scheme (Transitional Provisions) Regulations 2008 (the "Transitional Regulations") as amended.

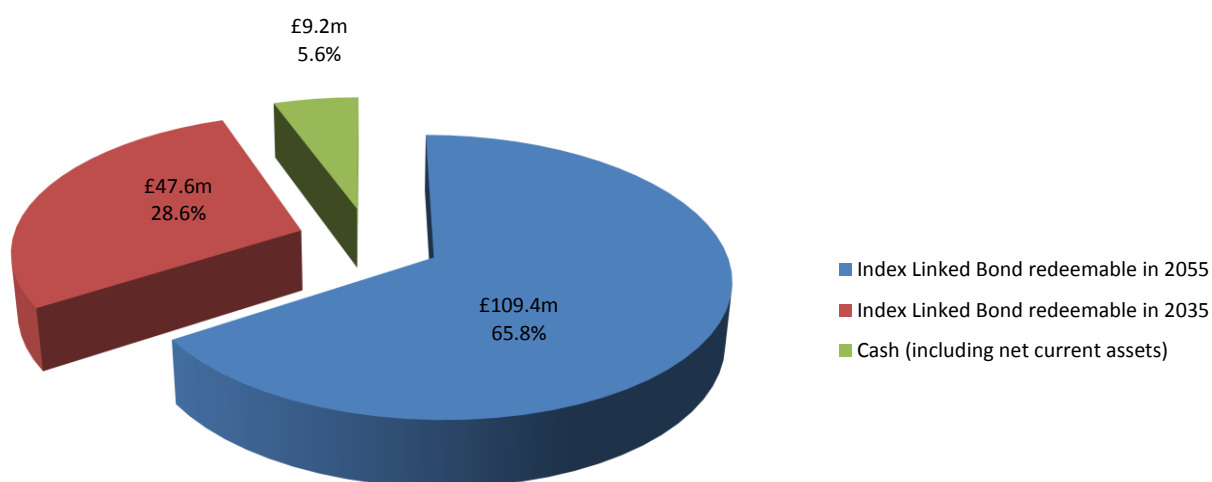


The timing of benefit payments depend on future experience, such as levels of future inflation and how long pensioners will live in retirement. In assessing the expected cost of members' benefits, we need to use actuarial assumptions about such factors. We explain the actuarial assumptions later in this report.

What are the Fund's assets?

The Fund's assets are invested by the Administering Authority. The market value of assets at 31 March 2013 (excluding money purchase AVC funds) was £166m, as shown in the audited accounts for the Fund for the period ending on 31 March 2013 that have been provided to us by the Administering Authority. No part of the Fund was comprised of insurance policies at 31 March 2013.

Asset Distribution as at 31 March 2013





4 Funding method and assumptions

We have used a funding method and set of assumptions for this valuation that are consistent with the Administering Authority's funding objectives set out in its Funding Strategy Statement.

Methodology

The method of valuation, as per the previous valuation, is based on the projected accrued benefit method. A description of this method is set out in Appendix G.

The level of contribution payable to the Fund is not directly determined from the past service funding position. Instead, a cash flow approach is used where contributions are paid by Defra on a six monthly basis, depending on expected benefits and expenses payable from the Fund for the following six months.

Actuarial assumptions

In the actuarial valuation, we must use assumptions about the factors affecting the Fund's finances in the future. Broadly speaking, our assumptions fall into two categories – financial and demographic.

Demographic assumptions typically try to forecast **when** exactly benefits will come into payment and what form these will take. For example, when members will retire (e.g. at their normal retirement age or earlier), how long they will then survive and whether they will exchange some of their pension for tax-free cash.

Financial assumptions typically try to predict the **size** of these benefits. For example, how members' pensions will increase over time. In addition, the financial assumptions also help us to estimate how much all these benefits will cost the Fund in today's money.

Details of our recommended assumptions for this valuation are set out below.

Financial assumptions

A summary of the main financial assumptions adopted for the valuation of members' benefits are shown below.

Assumption	Description	31 March 2013	
		Nominal	Real
Pension Increases	Market expectation of long term future 'break even' retail price inflation as measured by the difference between yields on fixed and index-linked Government bonds at the valuation date, less 1.1% p.a.	2.2%	-
"Gilt-based" discount rate	Yield on fixed interest (nominal) and index-linked (real) Government bonds	3.0%	0.8%

Discount rate

The funding valuation is effectively a budgeting exercise, to assess the funds needed to meet the benefits as they fall due. In order to place a current value on the future benefit payments from the Fund, we need to 'discount' these future cashflows back to the valuation date at a suitable rate.

Different valuations can be categorised by the approach taken to setting the discount rate. For example, under the accounting standard IAS19, the discount rate is determined as the yield on AA-rated corporate bonds. By comparison, for this valuation, we have assumed that the discount rate is equal to the yield on the types of assets held by the Fund if it were fully funded i.e. the return on Government bonds ('gilts').

Pension increases

Similarly to the 2010 valuation, the 'breakeven' RPI inflation assumption has been derived from the yields available on fixed-interest and index-linked government bonds. As at 31 March 2013 'breakeven' RPI inflation is assumed to be 3.3% p.a.. LGPS benefit increases are linked to CPI and, as a market for CPI linked government



bonds does not exist, we must set our pension increase assumption relative to expected RPI by making an appropriate deduction to reflect the differences between the construction of the RPI and CPI indices.

Due to changes in the construction of the CPI index since 2010 (specifically, how changes in clothing and footwear are measured) we expect the average long term difference between RPI and CPI to be 0.8% p.a. This compares to a difference of 0.5% p.a. assumed in 2010.

We have also considered the volatility present in the bond markets due to supply and demand issues, including the premium that investors are prepared to pay for inflation protection. We have estimated this has caused inflation expectations to be 0.3% p.a. higher than would otherwise be the case. This assumption has remained unchanged since 2010.

Longevity

The main demographic assumption to which the valuation results are most sensitive is that relating to the longevity of the Fund's members. For this valuation, we have adopted assumptions which give the following average future life expectancies for members:

	Deferred Pensioners*		Pensioners	
	Male	Female	Male	Female
2010 baseline	18.1	21.2	18.2	20.6
2010 with improvements	20.3	23.1	19.8	22.1
2013 baseline	19.0	22.5	18.7	21.1
2013 with improvements	21.5	24.4	20.8	22.7

*Deferred members are assumed to be age 55 at the valuation date

The figures in the above table are weighted averages for the membership of the Fund. Further details of the longevity assumptions adopted for this valuation can be found in Appendix H.

Assets

We have taken the assets of the Fund into account at their market value as indicated in the audited accounts for the period ended 31 March 2013.

In our opinion, the basis for placing a value on members' benefits is compatible with that for valuing the assets - both are related to market conditions at the valuation date.



5 Funding position at 31 March 2013

The Administering Authority has prepared a Funding Strategy Statement which sets out its funding objectives for the Fund. This involves Defra meeting expected future expenditure as it emerges (by making GiA payments), with the Fund's assets invested until these are expected to be sufficient to meet all future benefit payments.

The table below shows the funding position (ratio of the value of assets to the assessed cost of members' past service benefits) at 31 March 2013:

Valuation Date	31 March 2013
Past Service Position	(£m)
Past Service Liabilities	
Deferred Pensioners	121
Pensioners	739
Pre 1974 Pension Increase Recharges	0
Total Liabilities	860
Market Value of Assets	166
Suplus / (Deficit)	(694)
Funding Level	19%

At 31 March 2013 the funding level was 19%.

A comparison of the results of this valuation and the previous one at 31 March 2010 is provided in Appendix I.



6 Funding position: changes since the previous valuation

The previous formal actuarial valuation of the Fund was carried out with an effective date of 31 March 2010. Since then, there have been changes to the Fund and its membership and to the economic environment in which the Fund operates. Many of these changes have affected the valuation results and these are summarised below.

Changes to the Fund's membership

The Fund membership has changed since the previous valuation, as members have left the Fund, retired and died. Whilst membership changes were anticipated at the previous valuation, the actual changes have inevitably not exactly matched the assumptions made at the previous valuation.

The table below compares the average ages of the Fund membership at 31 March 2010 and 31 March 2013.

Maturity Profile	2013	2010
Average age weighted by liability:		
Current Employees	-	-
Deferred Pensioners	55.9	54.8
Pensioners	76.5	75.9

The Fund has matured since the previous valuation as would be expected with a fund closed to new members. Deferred members are, on average, closer to retirement and the portion of the total assessed value of accrued benefits attributable to pensioner members has increased.

Further details of the Fund membership and its changes since the previous valuation are given in Appendix F.

Discharge of pre 1974 Pension Increase and Water Company recharges

Since the 2010 valuation, the Fund has discharged future liabilities in relation to pension increase recharge payments for pensioners who were formerly employed by Water Act Companies and their dependants (known as "Pre 1974 Pension Increase Recharges"). The Fund has made capital payments to the LGPS funds concerned of £11.5m. This has reduced both the Fund's assets and liabilities at 31 March 2013. Defra's GiA contribution commitment has also been reduced by around £1.3m per annum.

The Fund has also discharged future liabilities in relation to compensation recharge payments to 3 separate water companies. The capital payments made totalled around £2.1m and reduced Defra's GiA contribution by around £0.1m per annum.

Changes to the Fund's assets

Actual investment returns over the intervaluation period (12.7% p.a. on average) exceeded those assumed at the 2010 valuation (4.5% p.a.). The value of the Fund's assets has risen since 31 March 2010 (from £125m to £166m).

Changes to the estimated cost of the Fund's liabilities

Economic factors

The underlying bond yields that form the foundation of our discount rate assumption were lower at 31 March 2013 as they were at the previous valuation. The discount rate we have used to estimate the cost of future benefit payments is therefore lower.

Benefit payments themselves are linked to inflation – via pension increases. Market expectations of inflation, as measured by the Retail Prices Index (RPI), have fallen since the previous valuation.



Due to changes in the construction of the CPI index since 2010 (specifically, how changes in clothing and footwear are measured) we expect the average long term difference between RPI and CPI to be 0.8% p.a. This compares to a difference of 0.5% p.a. assumed in 2010.

The overall effect of economic factors on the value of the Fund's liabilities at this valuation has been to increase the value.

Demographic factors

The value placed on the Fund's liabilities is also affected by when future benefits are expected to come into payment and how long they are expected to be paid for. A key factor in this is the life expectancy of members.

The table below provides an analysis of the demographic experience and change in membership profile of the Fund over the three years to 31 March 2013.

2010-2013 Pensioner Mortality	Number of Deaths			Amount of Pension Ceasing (£000)		
Relative to 2010 Assumptions	Actual	Expected	% Diff	Actual	Expected	% Diff
Ill Health Pensioners	203	294	-31%	1,076	1,604	-33%
Age Pensioners Former Officers	931	858	8%	5,699	5,647	1%
Age Pensioners Former Manuals	736	715	3%	4,494	4,981	-10%
Dependants	1,508	1,417	6%	4,845	4,579	6%
Total	3,378	3,285	3%	16,114	16,811	-4%

The "expected" members above are based on the assumptions adopted at the 2010 formal valuation.

It can be seen from the table above that although more pensioners have died over the inter-valuation period, less pension has ceased than was anticipated in 2010. The total difference of roughly £700k means the Fund is now paying out £700k a year more pension than anticipated at 2010.

The negative figures for ill-health pensioner deaths and pensions ceasing suggests that pensioners retiring due to ill-health are living longer than assumed.

Pensioner longevity over the 3 year period has been broadly in line with that anticipated from the 2010 assumptions. This is likely to be due to the Fund adopting Club Vita longevity assumptions which take into account specific issues that affect member longevity such as job type, geographical location and income.

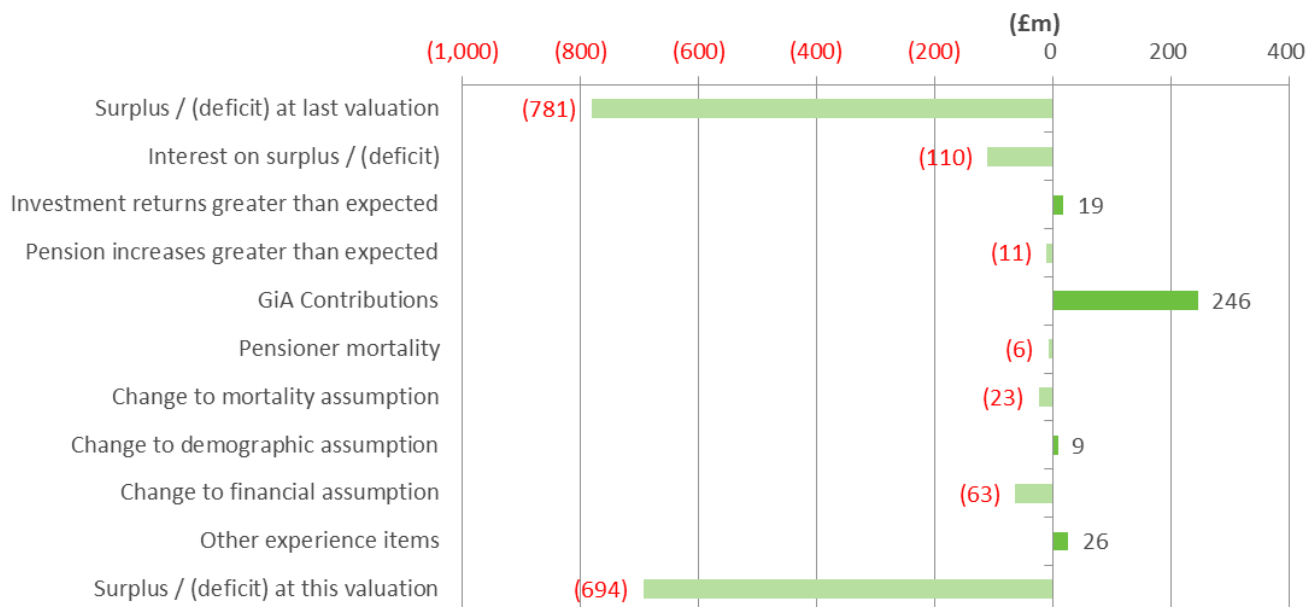
The actual experience over the last 3 years will not necessarily be repeated in the future.

The overall effect of changes in demographic factors has been to increase the value of the Fund's liabilities.



Summary of changes to the funding position

The chart below illustrates the factors that caused the funding position to improve between 31 March 2010 and 31 March 2013:





7 Expenditure Projections

Defra continue to make payments to the Fund every six months that are calculated to meet projected benefit expenditure over the following six months. The payments for 2012/13 were £79.9m for the year.

Projected benefit expenditure includes the following items:

- pension and lump sum benefits payable to pensioners;
- outgoing transfer values for deferred members; and
- administration expenses.

Details of the expected projected benefit expenditure are shown in Appendix M. Contributions payable by Defra over the next 3 years (in respect of “funded” benefits) are expected to be £76.7m for 2013/14, £73.2m for 2014/15 and £70.2m for 2015/16.



8 Risk assessment

The valuation results and expenditure projections depend critically on the actuarial assumptions that are made about the future of the Fund. If all of the assumptions made at this valuation were exactly borne out in practice then the results presented in this document would represent the true cost of the Fund as it currently stands at 31 March 2013.

However, no one can predict the future with certainty and it is unlikely that future experience will exactly match all of our assumptions. The future therefore presents a variety of risks to the Fund and these should be considered as part of the valuation process.

In particular:

- The main risks to the financial health of the Fund should be **identified**.
- Where possible, the financial significance of these risks should be **quantified**.
- Consideration should be given as to how these risks can then be **managed**.
- These risks should then be **monitored** to assess whether any risk management strategy is actually working.

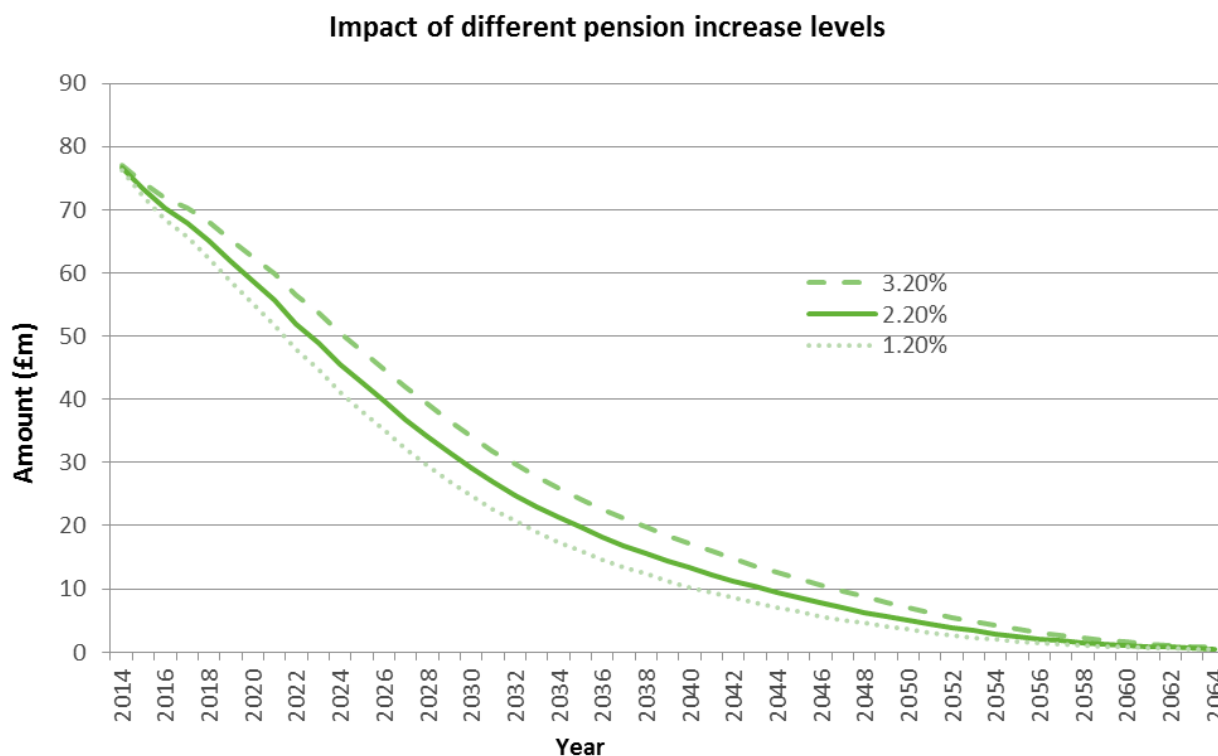
This section investigates the potential implications of the actuarial assumptions not being borne out in practice.

Set out below is an assessment of the two main risks to the Fund – inflation risk and longevity risk - and their effect on the expenditure projections.



Inflation risk

Pension increases are linked to price inflation. If pension increases are higher than assumed, the expected cashflow expenditure will increase and the funding position will deteriorate. The following chart illustrates the sensitivity of the expected cashflows to either an increase (to 3.2% p.a.) or decrease (to 1.2% p.a.) in the pension increase assumption.



The table below shows how the valuation results at 31 March 2013 are affected if pension increases are assumed to be higher or lower than expected.

Pension increase assumption	Impact	
	Funding level	Deficit (£m)
1.2% p.a.	21%	(635)
2.2% p.a. (2013 valuation)	19%	(694)
3.2% p.a.	18%	(760)

Longevity risk

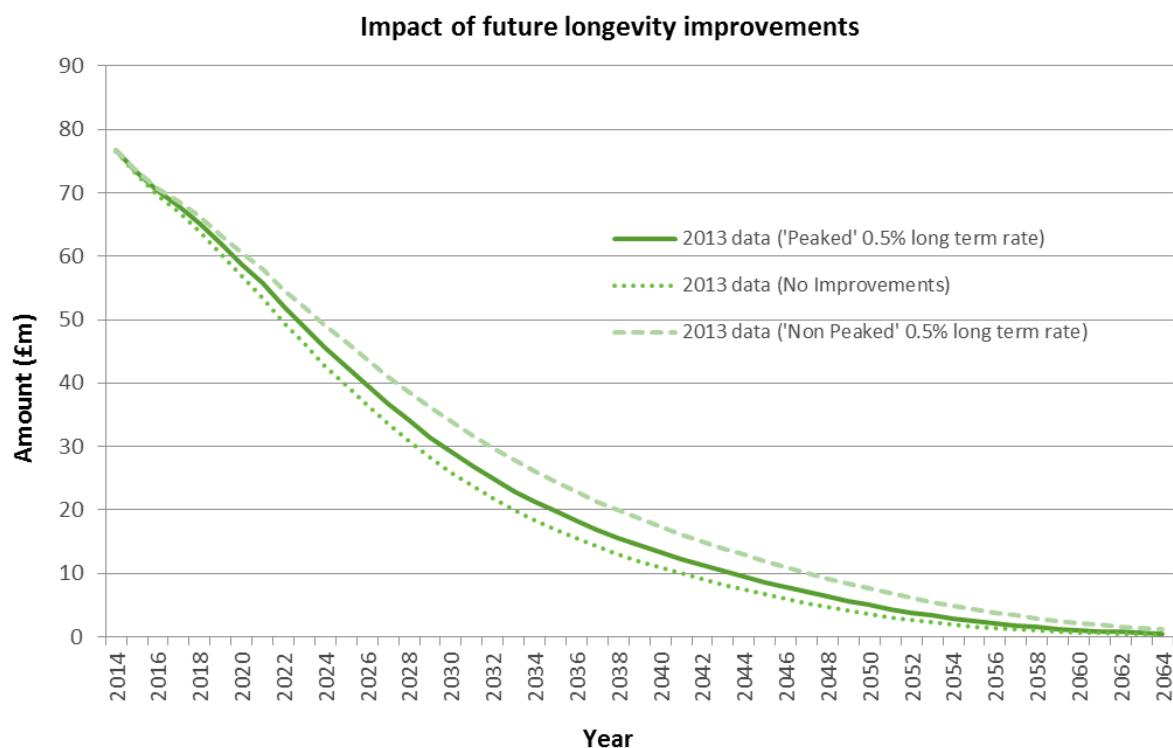
The expenditure projections are also very sensitive to unexpected changes in future longevity. All else being equal, if longevity improves in the future at a faster pace than allowed for in the valuation assumptions, the expected future funding contributions will increase.

Recent medical advances, changes in lifestyle and a greater awareness of health-related matters have resulted in life expectancy amongst pension fund members improving in recent years at a faster pace than was originally foreseen. It is unknown whether and to what extent such improvements will continue in the future.

For the purposes of this valuation, we have selected assumptions that we believe make an appropriate allowance for future improvements in longevity, based on the actual experience of the Fund since the previous valuation.



The graph below illustrates the sensitivity of future expected cashflows to longevity by comparing expected cashflows using the 2013 valuation assumptions (solid line) versus those assuming there are no future improvements in longevity (dotted line) and those assuming future improvements are greater than expected (dashed line).



The table below shows how the valuation results at 31 March 2013 are affected by adopting different longevity assumptions.

Longevity assumption	Impact	
	Funding level	Deficit (£m)
2013 valuation (baseline only)	20%	(643)
2013 valuation (with improvements)	19%	(694)
2013 valuation (further improvements)	18%	(769)

The shaded box contains the results for this valuation. The “further improvements” results allow for a “cohort effect” of strong improvements in life expectancy currently being observed amongst a generation boom around the early and mid 1930s to strengthen for a few more years (“non peaked”) before tailing off. A key question is whether these improvements have peaked or not. We have not allowed for the continuation of these strong improvements at this valuation and have effectively adopted a “wait and see” approach.

The range of assumptions shown here is by no means exhaustive and should not be considered as the limits of how extreme future longevity experience could be.

Other risks to consider

The other main assumption to which the valuation results are sensitive is commutation i.e. if members convert less pension to cash at retirement than assumed, the funding position will deteriorate.



Managing the risks

Whilst there are certain things, such as the level of future pension increases or the life expectancy of members, that are not directly within the control of the pension fund, that does not mean that nothing can be done to understand the risks further and to mitigate their effect. Although these risks are difficult (or impossible) to eliminate, steps can be taken to manage them.

Ways in which some of these risks can be managed could be:

- Set aside a specific reserve to act as a cushion against adverse future experience (possibly by selecting a set of actuarial assumptions at future valuations that are purposely more prudent).
- Take steps internally to monitor the decisions taken by members (e.g. relating to commutation) in a bid to curtail any adverse impact on the Fund.
- Carry out a bespoke analysis of the longevity of Fund members and monitor how this changes over time, so that the longevity assumptions at the valuation match as closely as possible the experience of the Fund. The Fund has adopted bespoke baseline longevity assumptions at this valuation for each member based on age, gender, salary and postcode information. This will allow changes to the observed longevity of the Fund's members to be tracked over time.

Adopting one or more of these measures can assist with the management of risk within the pension fund.

Further recommendations

Valuation frequency

Under the provisions of the LGPS regulations, the next formal valuation of the Fund is due to be carried out as at 31 March 2016. In light of the uncertainty of future financial conditions, we recommend that expenditure projections continue to be monitored by means of interim projection reviews in the period up to this next formal valuation. This will give early warning of divergences between actual and expected expenditure.



9 Summary

We have carried out an actuarial valuation of the Environment Agency Closed Fund ('the Fund') as at 31 March 2013. The results are presented in this report and are briefly summarised below.

Funding position

The table below summarises the financial position of the Fund at 31 March 2013 in respect of benefits earned by members up to this date.

Past Service Position	(£m)
Past Service Liabilities	860
Market Value of Assets	166
Surplus / Deficit	(694)
Funding Level	19%

Defra's contributions

Defra will pay contributions on a six monthly basis, based on the expected expenditure for the following six months as detailed in Appendix M.

Richard Warden

Steven Scott

Fellow of the Institute and Faculty of Actuaries

Fellow of the Institute and Faculty of Actuaries

28 March 2014



Appendix A: Regulations and professional standards

LGPS regulations

This valuation is carried out in accordance with regulation 36 of the 2008 Local Government Pension Scheme Administration Regulations, which specifies that the Administering Authority must obtain:

- an actuarial valuation of the assets and liabilities of the Fund as at 31 March 2010 and in every third year thereafter;
- a report by an actuary in respect of the valuation; and
- a Rates and Adjustments Certificate prepared by an actuary.

Under the provisions of the Regulations, we are required to have regard to:

- the existing and prospective liabilities of the Fund arising from circumstances common to all those bodies participating in the Fund,
- the desirability of maintaining as nearly constant a common rate as possible, and
- the current version of the Administering Authority's funding strategy statement.

Professional standards

Technical Actuarial Standards

Technical Actuarial Standards (TASs) are issued by the Financial Reporting Council and they set the standard for certain items of actuarial work, in terms of the type of information provided and the way it is communicated. As your actuary, we must comply with these standards when presenting the results of the triennial valuation.

The following Technical Actuarial Standard are applicable in relation to this report and have been complied within a material and proportionate manner except where specifically stated:

- TAS R – Reporting;
- TAS D – Data;
- TAS M – Modelling; and
- Pensions TAS

This report should be considered in conjunction with:

- The “Initial Results” report issued on 1 July 2013;
- The clean data report issued on 29 May 2013;
- The “Assumptions” Briefing Note issued in June 2013 to the extent that the assumptions are relevant to the Fund; and
- All other emails and correspondence issued by us up to this point regarding this 2013 valuation.



Appendix B: Government funding agreement

Extract from a letter sent on 15 April 2004 by Paul Boateng (Chief Secretary to the Treasury) to the Rt Hon Margaret Beckett (Secretary of State for the Environment)

Environment Agency Closed Pension Fund

“Thank you for your letter of 18 March requesting a change in the arrangement agreed in the 2002 spending review for funding the liabilities of the Environment Agency Closed Pension Fund. I am prepared to agree to the revised arrangements you suggest for the 2004 spending review baseline year. The funding of the Environment Agency Closed Pension Fund will remain ring-fenced and will reduce over time in line with the un-winding of the liability”.

Paul Boateng

Extract from a letter sent on 15 July 2004 by the Rt Hon Margaret Beckett (Secretary of State for the Environment) to Mr John Edmonds (Chairman of the Environment Agency Pensions Committee)

Environment Agency Closed Pension Fund

The Environment Agency Closed Pension Fund is in actuarial deficit. Current valuations indicate that the assets available will not meet its future liabilities and the Fund will be exhausted by autumn 2006. Section 173 of the Water Act 1989 gave me the function of providing funding to enable the liabilities of the Fund – a public service, final salary, funded pension scheme – to be met. I propose to exercise this function through stabilisation of the Fund and annual top-up payments from April 2006.

The assets of the Fund should be allowed to run down (rather than be liquidated) and then stabilised through annual top-up payments using section 173 provisions of the Water Act 1989, thus meeting on-going liabilities on a pay-as-you-go basis. The Chief Secretary to the Treasury has agreed to this and that we should retain financial cover sufficient to fund annual costs from 2006/07.

Actuarial valuations indicate that the Fund will fall below the £100m mark – the equivalent of a little over annual outgoings in the latter half of 2005/06. I therefore propose to top-up the Fund in April/May 2006 and again in September/October 2006 by a total amount equivalent to its annual outgoings as determined by actuarial forecasts. This will be repeated in subsequent years, with the amount proportionate to the actual Fund liabilities.

I confirm that the implementation of these proposals will not either dilute or remove my statutory funding function under section 173 of the Water Act 1989. The Fund pensioners will not see any change in how their individual pensions are paid, and they can be certain that their entitlement will be met. I would therefore commend these arrangements to you, to the Agency’s Pensions Committee and to the Fund’s members.

Margaret Beckett



Memorandum of understanding

Between:

The Secretary of State for Environment, Food and Rural Affairs of Nobel House, 17 Smith Square, London SW1P 3JR ("the Secretary of State"); and

The Environment Agency – Pensions Committee of Rio House, Waterside Drive, Almondsbury, Bristol, BS32 4UD ("the Agency")

Background

1. The Environment Agency Closed Fund ("the Closed Fund") is vested in, and required to be maintained by, the Environment Agency by regulation 2(1) of the Local Government Pension Scheme (Environment Agency) Regulations 1996.
2. Before 1989, the Water Authorities Superannuation Fund ("WASF") served the former Regional Water Authorities in England and Wales. Under the Water Act 1989 their water supply and sewerage functions were transferred to newly created water companies, together with the relevant employees. The pension liabilities and assets in respect of such employees were transferred from the WASF to the new water company pension schemes. The pension liabilities and assets in respect of the remaining employees, and also of the former employees and pensioners, were transferred with the WASF to the National Rivers Authority ("the NRA"), which set up a pension fund for its own employees ("the Active Fund") into which were transferred the pension liabilities and assets in respect of the said remaining employees.
3. Following the transfer of active employed members to both the water company pension schemes and the Active Fund, the only remaining members of the WASF were deferred and pensioner members. No further members were admitted to it, so that it became a closed scheme ("the Closed Fund"). The Secretary of State and the NRA accepted the possibility that, in due course, the Closed Fund could have insufficient resources to meet its pension liabilities. With effect from 1 April 1996 the Agency assumed the functions of the NRA and the Closed Fund is now known as the Environment Agency Closed Fund.
4. The Closed Fund is maintained for the purposes of Section 7 of the Superannuation Act 1972, and accordingly the Secretary of State has the function conferred by Section 173 of the Act to make such payments into the Closed Fund as may be considered appropriate in respect of the actual and prospective liabilities falling from time to time to be met out of the Closed Fund for the benefit of its members ("the Closed Fund members").
5. As at 31 March 2004, the Closed Fund's FRS 17 valuation indicated that it had a net deficit for accounting purposes of £826,600,000 and its actuarial valuation indicated that it had a funding level of 21% which corresponded to a net past service reserve deficit of £880,000,000. The value of the liability under both valuations is sensitive to future mortality rates, inflation rates, and the discount rate used.
6. This Memorandum of Understanding sets out the mechanism whereby the Secretary of State will exercise the function under section 173 of the 1989 Water Act with a view to addressing the deficit in the Closed Fund.
7. This Memorandum has been agreed between the Secretary of State and the Environment Agency and the arrangements for funding the Closed Fund have been approved by Her Majesty's Treasury pursuant to that section, as indicated in the letter of 15 April 2004 from the Chief Secretary to the Secretary of State, subject to the conditions referred to in that letter.



Payments into the Fund

8. The Closed Fund's funding level continues to deteriorate, and on actuarial advice it is assumed that the value of the assets will reduce to a level of between £50 million and £60 million by about April 2006. With effect from that date the Secretary of State will ensure that cash payments are made into the Fund each year totalling an amount equivalent to its total annual outgoings (defined as total anticipated payments to pensioners, transfers out of the Closed Fund, investment management or other agents' fees, administration costs, and all other liabilities or expenses whatsoever, less interest earned on such cash payments made to the Agency for the Closed Fund during the year) to be calculated and properly certified by the Agency in accordance with actuarial advice received.
9. Such payments will be solely to finance the Closed Fund's annual outgoings and will be treated separately from the Agency's mainstream finances. They will be made every six months, with the sums to be paid equalling the amount of the Fund's outgoings for the previous six months. The first payment into the Fund will be made in April 2006. These payments will continue until the liabilities of the Closed Fund have been met in full. Latest actuarial projections indicate that this will occur in 2062.
10. These payments will be in the form of ring-fenced grant-in-aid from the Secretary of State and will be paid twice each year in April and October through the normal grant-in-aid procedures to the Agency.
11. The Agency will provide the Secretary of State with a copy of actuarial advice received and such information as is reasonably required to illustrate how the payments certified as payable have been calculated. Any assets held in the Closed Fund in excess of the payments will be retained to protect against minor variations in outgoings until a certificate of the actuary to the Closed Fund confirms that their retention is unnecessary. A copy of any such certificate shall be provided by the Agency to the Secretary of State.
12. Payments made by the Secretary of State into the Closed Fund will be reported in Defra's annual accounts together with the Closed Fund's liability in accordance with FRS 17 (or any replacement accounting standard).

Payments to pensioners

13. Nothing in this Memorandum will affect the Agency's role in the making of payments from the Closed Fund which are to be made in accordance with the Local Government Pension Scheme Regulations 1997 ("LGPS Regulations").

Control, monitoring and review

14. The Agency will manage the residual assets of the Closed Fund according to the high standards of financial integrity expected of those responsible for the management of public assets. The Agency will invest any surplus funds, as required by the Local Government Pension Scheme (Management and Investment of Funds) Regulations 1998 and in accordance with the Closed Fund's Statement of investment principles and Funding strategy statement. The Agency's procedures and the accounts of the Fund will continue to be the subject of an annual external audit, and nothing in this Memorandum affects the need for an actuarial valuation of the Closed Fund as required by the LGPS Regulations.
15. For monitoring purposes, the Agency will inform the Secretary of State of the Closed Fund's liabilities at the end of each financial year in accordance with FRS 17 (or any replacement accounting standard).
16. This information will be used to update provisions in the annual accounts of Defra. Significant variations from profiled grant-in-aid payments will be fully justified by the Agency.
17. This Memorandum shall only be amended by the agreement in writing of both the Secretary of State and the Agency.



Brian Bender,
Accounting Officer, Defra
On behalf of the Secretary of State for
Environment, Food and Rural Affairs

Barbara Young,
Accounting Officer,
Environment Agency
On behalf of the Environment Agency

Date of signature: 17 May 2005



Appendix C: Summary of the Fund's benefits

The non-discretionary Fund benefits that we have taken into account in this valuation are summarised below.

Pension at Retirement Age	1/80 th of pensionable remuneration for each year of pensionable service. Pensionable remuneration is normally the average remuneration in the employee's final year.
Lump Sum at Retirement Age	3/80ths of pensionable remuneration for each year of pensionable service.
Pension Increases	All pensions in payment, deferred pensions and children's pensions other than benefits arising from the payment of additional voluntary contributions are increased annually. That part of pensions which is in excess of the GMP is increased under the Pensions (Increases) Act. That part of the pensions which is GMP increases in accordance with Section 37A of the Pensions Act.
Death after Retirement	A spouse's pension equal to one half of the member's pension (but only service from April 1988 can count for widowers' benefits).
The Scheme is contracted out of the State Second Pension (formerly the State Earnings Related Pension Scheme).	

Discretionary benefits

The Regulations give employers a number of discretionary powers, including:

- the awards of periods of augmentation under Regulation 12;
- the payment of benefits on employer's consent prior to age 60 under Regulation 30;
- the payment of benefits due to flexible retirement under Regulation 18;
- not applying the suspension of spouses' pensions on remarriage or cohabitation for members who retired before 1 April 1998.

The effect on benefits or contributions as a result of the use of these provisions prior to 1 April 2013 has been allowed for in this valuation to the extent that this is reflected in the membership data provided. No allowance has been made for the future use of discretionary powers.



Appendix D: Data

This section contains a summary of the membership, investment and accounting data provided to me by the Administering Authority for the purposes of this valuation (the corresponding membership and investment data from the previous valuation is also shown for reference).

Membership data

Deferred pensioners

	31 March 2013		31 March 2010	
	Number	Deferred Pension (£000)	Number	Deferred Pension (£000)
Male Officers	733	1,560	1,063	2,384
Female Officers	1,198	1,991	1,510	2,337
Male Manuals	772	1,439	1,035	1,779
Female Manuals	6	6	7	7
Total	2,709	4,996	3,615	6,507

The deferred pension shown includes revaluation up to and including that granted by the 2013 Pension Increase Order. The average age of deferred pensioners at 31 March 2013 was 55.9 (this figure is weighted by liability).

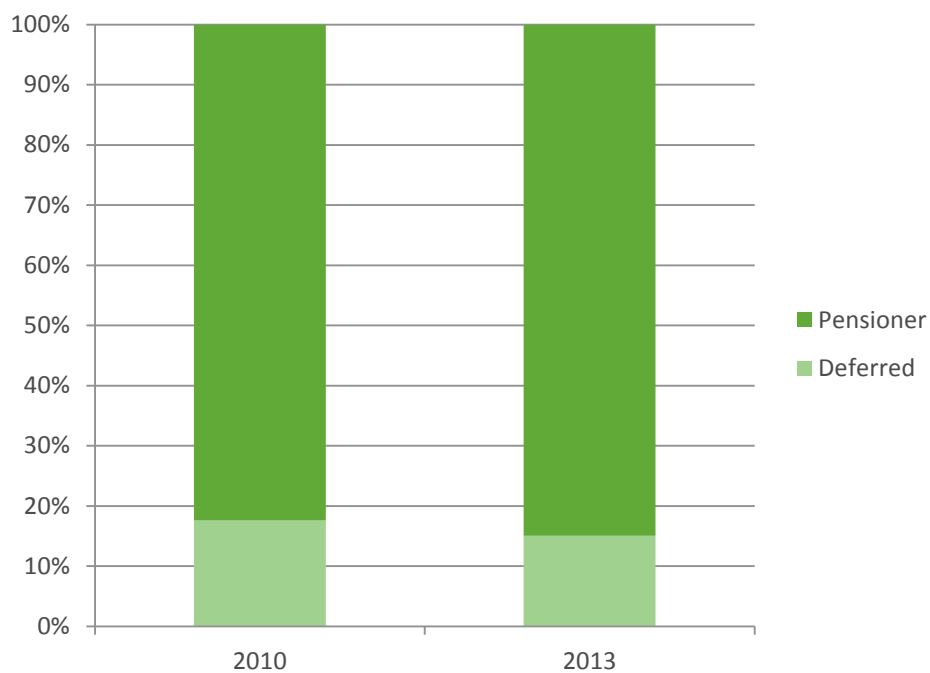
Current pensioners, spouses and children

	31 March 2013		31 March 2010	
	Number	Annual Pension	Number	Annual Pension
Normal/Early Retirements				
Male Officers	3,355	20,563	4,098	35,279
Female Officers	971	2,552	1,448	4,073
Male Manuals	2,638	18,520	2,489	7,895
Female Manuals	656	1,881	53	48
Ill Health Retirement				
Male Officers	706	4,100	360	2,394
Female Officers	100	407	206	696
Male Manuals	612	3,424	1,454	5,896
Female Manuals	69	260	13	23
Dependants				
Widows	6,109	21,271	6,756	21,106
Widowers	16	18	12	13
Children	64	87	21	22
Total	15,296	73,082	16,910	77,445

The average age of current pensioner members at 31 March 2013 (weighted by liability and excluding spouses', civil partners' and children's pensions in payment) was 76.5.



The chart below summarises the membership of the Closed Fund at this valuation and at the previous one.





Assets at 31 March 2013

A summary of the Fund's assets (excluding members' money-purchase Additional Voluntary Contributions) as at 31 March 2013 is as follows:

Asset class	Market Value at 31 March 2013 (£000)	Allocation %
Index-linked gilt redeemable in 2055	109,400	66%
Index-linked gilt redeemable in 2035	47,600	29%
Cash and net current assets	9,200	5%
Total	166,200	100%

A brief comparison of the asset allocation of the Fund at this and the previous valuation is shown below:

Asset class	Asset Allocation	
	31 March 2013	31 March 2010
Index-linked gilts	95%	97%
Cash and net current assets	5%	3%
Total	100%	100%

Accounting data – revenue account for the three years to 31 March 2013

Consolidated accounts (£000)	Year to			Total
	31 March 2011	31 March 2012	31 March 2013	
Income				
Defra contributions	84,796	80,865	79,892	245,553
Employer - additional contributions	0	0	0	0
Employer - early retirement and augmentation strain contributions	0	0	0	0
Employee - normal contributions	0	0	0	0
Employee - additional contributions	0	0	0	0
Transfers In Received (including group and individual)	0	0	0	0
Other Income	0	0	0	0
Total Income	84,796	80,865	79,892	245,553
Expenditure				
Gross Retirement Pensions	78,413	86,700	76,347	241,460
Lump Sum Retirement Benefits	2,578	2,919	2,873	8,370
Death in Service Lump sum	87	155	103	345
Death in Deferment Lump Sum	0	0	0	0
Death in Retirement Lump Sum	0	0	0	0
Gross Refund of Contributions	0	0	0	0
Transfers out (including bulk and individual)	241	950	445	1,636
Fees and Expenses	934	872	944	2,750
Total Expenditure	82,253	91,596	80,712	254,561
Net Cashflow	2,543	-10,731	-820	-9,008
Assets at start of year	125,222	133,405	152,232	
Net cashflow	2,543	-10,731	-820	-9,008
Change in value	5,640	29,558	14,848	50,046
Assets at end of year	133,405	152,232	166,260	
Approximate rate of return on assets	4.5%	23.0%	9.8%	41.1%

Note that the figures above are based on the Fund accounts provided to me for the purposes of this valuation, which were fully audited at the time of our valuation calculations.



Appendix E: Funding method

Using the actuarial assumptions described earlier (and summarised in Appendix H), we have estimated the payments which will be made from the Fund throughout the future lifetimes of existing deferred pensioners, pensioners and their dependants. We have then calculated the amount of money which, if invested now, should be sufficient to meet all of these payments in future, assuming that future investment returns are in line with the discount rate. This amount is the estimated cost of members' benefits.

Past service funding position

We have compared the value of the assets with the estimated cost of members' past service benefits (i.e. the past service liabilities) at 31 March 2013. My calculation of the liabilities allows for all expected future pension increases. The ratio of the asset value to the past service liabilities is known as the 'funding level'. If the funding level is more than 100% there is a 'surplus'; if it is less than 100% there is a 'shortfall'.

The method described above is known as the Projected Accrued Benefits Method.



Appendix F: Assumptions

Financial assumptions

Financial assumptions	31 March 2010 Funding basis (% p.a.)	31 March 2013 Funding basis (% p.a.)
Discount rate	4.5%	3.0%
'Breakeven' retail price inflation	3.8%	3.3%
Pay increases*		
Pension increases:		
pension in excess of GMP	3.0%	2.2%
post-88 GMP	2.8%	2.2%
pre-88 GMP	0.0%	0.0%
Revaluation of deferred pension	3.0%	2.2%

Mortality assumptions

Longevity assumptions	31 March 2010	31 March 2013
Longevity - baseline	VitaCurves	VitaCurves
Longevity - improvements	Original 92 series in line with member's year of birth	CMI projections model. Peaked with long term rate of 0.5% p.a.

The Fund is a subscriber to Club Vita. The longevity assumptions that have been adopted at this valuation are a bespoke set of VitaCurves that are specifically tailored to fit the membership profile of the Fund as a result of this investigation. These curves are based on the data provided for the purposes of this valuation. Full details of these are available on request.

Other demographic valuation assumptions

Age Retirements	It is assumed that deferred pensioners will retire at age 60.
Family details	A varying proportion of members are assumed to be married (or have an adult dependant) at retirement or on earlier death. For example, at age 60 this is assumed to be 90% for males and 85% for females. Husbands are assumed to be 3 years older than wives.
Commutation	Future pensioners are assumed to elect to exchange pension for additional tax-free cash up to 50% of HMRC limits.
Administration expenses (net of interest received)	0.8% p.a. of benefit expenditure subject to a minimum of £200,000 p.a. (which represents the expected cost of fixed administration expenses, and is subject to review at future valuations).



The tables below show details of the assumptions actually used for specimen ages.

Death in deferment

Age	Incidence per 1000 active members per annum			
	Male officers and Post 98	Male Manuals	Female officers and Post 98	Female Manuals
	Death	Death	Death	Death
20	0.21	0.27	0.12	0.15
25	0.21	0.27	0.12	0.15
30	0.26	0.32	0.18	0.22
35	0.30	0.37	0.30	0.37
40	0.51	0.64	0.48	0.60
45	0.85	1.07	0.77	0.97
50	1.36	1.71	1.13	1.42
55	2.13	2.68	1.49	1.87
60	3.83	4.82	1.90	2.39
65	6.38	8.03	2.44	3.07



Appendix G: Comparison of valuation results with 2010

The tables below summarise the valuation results for the Fund as a whole at this valuation and at the previous valuation.

Valuation Date	31 March 2013	31 March 2010
Past Service Position (£m)	Total	Total
Past Service Liabilities		
Deferred Pensioners	121	133
Pensioners	739	762
Pre 1974 Pension Increase Recharges	0	10
Total Liabilities	860	906
Market Value of Assets	166	125
Surplus / (Deficit)	(694)	(781)
Funding Level	19%	14%



Appendix H: Rates and Adjustments Certificate

Chairman of the Pensions Committee, Accounting Officer and Director of Finance

Environment Agency

Dear Sirs

ENVIRONMENT AGENCY CLOSED FUND ("THE FUND")

CERTIFICATE OF THE ACTUARY REGARDING SOLVENCY POSITION OF THE FUND

- 1 On your instruction we have made an actuarial valuation of the Environment Agency Closed Fund as at 31 March 2013. The value of the Fund's assets at that date was £166m.
- 2 In accordance with regulation 36(1) of the Administration Regulations we have made an assessment of the solvency of the Fund. Our results show that the solvency level of the Fund was 19% at 31 March 2013.
- 3 We hereby certify that as at 31 March 2013 the value of the Fund's existing assets fell short of the value of the Fund's existing and prospective liabilities by £694m.

Yours faithfully

Signature:

Name: Richard Warden

Steven Scott

Qualification: Fellow of the Institute and Faculty of Actuaries

Fellow of the Institute and Faculty of Actuaries

Date: 28 March 2014

Firm: Hymans Robertson LLP

20 Waterloo Street

Glasgow

G2 6DB

Appendix I: Future projections of Defra GiA funding



All Amounts in £000s														
Year to 31st March	Closed Fund Funded ¹			Closed Fund Unfunded ²										TOTAL GIA
	CF Members' LGPS Benefits	Admin Expenses net of Interest on Cash Deposits	Funded Sub-Total	CF Members' Compensation & Gratuities	Lee Conservancy CB Pension Scheme	Water Company Pension Scheme Members' Compensation					Associated (aka Water Associated Employers Pension Scheme (WAEPS) or NRA - Water Research	Water Company Sub-Total	Unfunded Sub-total	
2014	76,059	608	76,667	10,673	407	119	38	38	23	11	13	242	11,322	87,989
2015	72,594	581	73,175	10,324	408	117	37	38	23	11	13	239	10,971	84,146
2016	69,674	557	70,231	9,956	409	116	37	37	22	11	13	236	10,601	80,832
2017	67,370	539	67,909	9,548	409	113	36	36	22	11	13	231	10,188	78,097
2018	64,628	517	65,145	9,104	409	111	36	36	22	11	13	229	9,742	74,887
2019	61,428	491	61,919	8,625	408	108	35	34	22	11	13	223	9,256	71,175
2020	58,245	466	58,711	8,117	406	104	34	33	21	11	12	215	8,738	67,449
2021	55,202	442	55,644	7,583	403	100	32	32	21	11	12	208	8,194	63,838
2022	51,554	412	51,966	7,031	400	95	31	30	20	11	12	199	7,630	59,596
2023	48,599	389	48,988	6,469	396	90	29	28	20	11	11	189	7,054	56,042
2024	45,253	362	45,615	5,903	392	85	28	26	19	11	11	180	6,475	52,090
2025	42,339	339	42,678	5,333	386	79	26	24	18	11	11	169	5,888	48,566
2026	39,320	315	39,635	4,782	380	72	24	22	17	10	10	155	5,317	44,952
2027	36,436	291	36,727	4,250	373	66	22	20	16	10	9	143	4,766	41,493
2028	33,842	271	34,113	3,743	365	59	19	18	14	9	9	128	4,236	38,349
2029	31,217	250	31,467	3,265	355	53	17	15	13	9	8	115	3,735	35,202
2030	28,886	231	29,117	2,822	345	46	15	13	12	8	7	101	3,268	32,385

The figures above do not make any allowance for savings from the planned discharge of the recharge payments in respect of the Water Company Pension Scheme members

¹ These are funded benefits that members have accrued under LGPS regulations and are statutorily entitled to receive from the Closed Fund.

² These are additional unfunded benefits to those accrued under LGPS regulations which are recharged back to employers. **These benefits have not been valued or considered as part of the Closed Fund's formal 2013 valuation exercise. For the avoidance of doubt, the funding level of 19% at 31 March 2013 quoted throughout this report is based on funded benefits only.**

We estimate that, based on the assumptions used for this valuation, GiA funding from Defra will be required up to and including 2030. After this we estimate that, based on the asset value at 31 March 2013, the Fund's assets will be enough to pay for future funded and unfunded benefits after 2030. This 'cut-off' point will need regular monitoring by the Environment Agency to ensure the GiA funding mechanism is not stopped too early by Defra. The 'cut off' point will be reviewed and, if necessary, updated again as part of the 2016 triennial valuation.