



Combined Nuclear Pension Plan
Nirex Section
Scheme Funding Report as at 31 March 2016

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Executive Summary

The report sets out the results of the actuarial valuation for the Nirex Section (the "Section") of the Combined Nuclear Pension Plan ("the Plan") as at 31 March 2016 (the "Valuation Date"). This report has been prepared for the Trustee of the Section ("the Trustee"). The key results of the valuation are set out below.

1.1 Overview of results – past service

For the Funding Valuation the Trustee has adopted the Statutory Funding Objective ("SFO") as outlined in their Statement of Funding Principles i.e. that the Section has sufficient and appropriate assets to cover its Technical Provisions (see Appendix D).

Table 1 summarises the SFO Valuation of the Section as at 31 March 2016. For comparison purposes, I also show the corresponding values of the assets and Technical Provisions from the Previous Valuation.

Table 1

SFO Valuation	31 March 2016 £'000	31 March 2013 £'000
Technical Provisions for:		
Active members	-	-
Deferred pensioners	14,578	15,641
Pensioners	18,198	15,645
Total Technical Provisions	32,776	31,286
Market value of assets	29,466	25,956
Surplus/(Deficit)	(3,310)	(5,330)
Funding level	90%	83%

The key reasons for the changes in the SFO Valuation between the two dates are discussed in Section 3 and Section 6.

1.2 Overview of results – contribution requirements

The Trustee has agreed a Schedule of Contributions with Nuclear Decommissioning Authority ("the Employer"). This document sets out the future level of contributions payable to the Section.

1.2.1 Ongoing contribution rate

The Section is closed to future accrual hence no contributions are payable by members or the Employer for future benefit accrual.

The Employer pays for the Section's administration expenses and levy payments to the Pension Protection Fund.

1.2.2 Recovery Plan contributions

The Trustee and Employer have agreed a Recovery Plan to eliminate the deficit at the Valuation Date over a recovery period ending on 31 March 2022. To eliminate the funding shortfall, the Employer has agreed to pay contributions of £556k per annum, payable monthly, until 31 March 2022.

Details of the agreed contributions are discussed in Section 7.

Executive Summary (continued)

1.3 Pension Protection Fund ("PPF") and Solvency valuations

I have also carried out valuations to determine the funding positions on the PPF and a Solvency basis.

The S179 Valuation shows an estimated shortfall of £0.7m corresponding to a PPF Funding level of 98%. Therefore if an insolvency event had occurred, it is likely that the Board of the PPF would have been required to assume responsibility for the Section.

If the Section had been wound-up on the Valuation Date, with the assets being used to secure the Section benefits with an insurance company, the Solvency shortfall is estimated to be £31.3m, corresponding to a Solvency Funding level of 49%.

1.4 Integrated Risk Management ("IRM")

A central part of the valuation discussions has involved the Trustee's consideration of an integrated framework for managing risk in the Section, taking account of the Pensions Regulator's new guidance on integrated risk management issued in December 2015.

The integrated approach to risk management has allowed the Trustee to assess, prioritise and manage the employer covenant, investment and funding risks of the Section.

Signature 

Date 30 August 2017

Name Mark McClintock

Qualification Fellow of the Institute
and Faculty of Actuaries

Address Deloitte Total Reward
and Benefits Limited
Lincoln Building
27-45 Great Victoria Street
Belfast
BT2 7SL

Introduction

This document is an “aggregate” report, i.e. it is the culmination of various “component” reports and discussions regarding the valuation.

2.1 Background

The actuarial valuation of the Section as at 31 March 2016 has been carried out to satisfy the requirements of the Trust Deed and Rules and part 3 of the Pensions Act 2004.

The Trustee’s key funding objective is in line with the Statutory Funding Objective, that the Section has sufficient and appropriate assets to cover its Technical Provisions. In meeting this objective, the Trustee is mindful of the integrated framework for managing risk in the Section, taking account of the Pensions Regulator’s guidance on integrated risk management issued in December 2015.

Throughout this document:

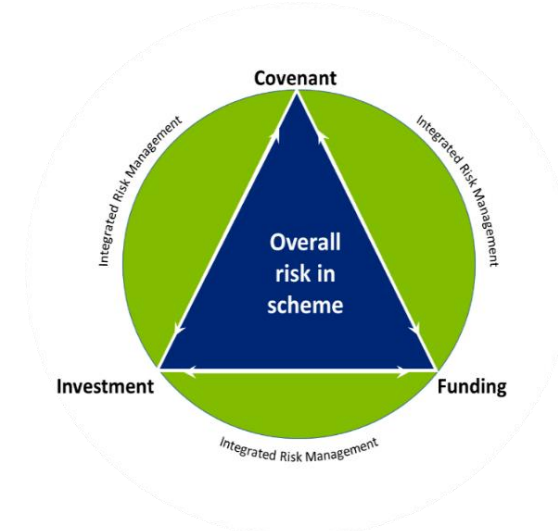
- “Section” refers to the Nirex Section of the Combined Nuclear Pension Plan
- “Trustee” refers to the Trustee of the Combined Nuclear Pension Plan
- “Employer” refers to the principal (and only) employer, Nuclear Decommissioning Authority

Further definitions are provided in the Glossary – Appendix B

2.2 An integrated approach to risk management

A central part of the valuation discussions has involved the Trustee’s consideration of an integrated framework for managing risk in the Section, taking account of the Pensions Regulator’s guidance on integrated risk management issued in December 2015. The integrated approach to risk management has allowed the Trustee to assess, prioritise and manage the Employer covenant, investment and funding risks of the Section. The process has involved the Trustee:

- Identifying key objectives of the Section;
- Identifying the key risks of the Section and mitigation options for those risks; and
- Establishing a monitoring framework in relation to these risks.



“A robust approach to integrated risk management enables the Trustees to engage with the Employer to develop a common understanding of the relationships between the risks in order to maintain a balance of risk which is sustainable for both the Scheme and the Employer.”

The Pensions Regulator, December 2015

Introduction (continued)

2.3 Application to funding

2.3.1 Employer covenant risks

As Scheme Actuary, I am required to draw the Trustee's attention to the issues they should consider when setting a contribution rate. The issues relating to the assessment of the Employer covenant of the Section are set out in paragraphs 61 to 87 of the Pension Regulator's Code of Practice No 3 (Funding defined benefits). I have not advised the Trustee on the following matters, which are associated with the Employer covenant:

- the Employer's business plans and the likely effect any potential Recovery Plan would have on the future viability of the Employer;
- the ability of the Trustee to pursue the Employer to make good any deficit in the event of the winding up of the Section;
- the Employer's expenditure commitments; and
- reports from industry regulators.

When determining the assumptions to use for the Funding Valuation the Trustee has assessed the Employer covenant to the Section remained strong.

The Pensions Regulator expects the Trustee to act as an unsecured creditor of the Employer, and the Trustee should continue to monitor the covenant and revise their SFP if their assessment of the Employer covenant changes.

2.3.2 Investment risks

The lowest risk investment portfolio is a mix of high quality fixed interest and index linked bonds. At the Valuation Date the Section's assets were invested in equities, corporate bonds and index linked gilts. The Section also holds a small proportion of its assets in cash. Further details of the Section's asset holdings are given in Section 4.

The Trustee is aware that there is a risk of volatility in the future Funding level of the Section, due to the proportion of assets invested in return-generating assets, whereas the Technical Provisions are assessed by reference to yields on government bonds.

2.3.3 Funding risks

The Trustee has considered the material risks that could affect the future funding position of the Section. The Section is exposed to certain risks, which need to be managed by the Trustee and the Employer. The only way to remove all risks from the Trustee and the Employer is to secure all the liabilities with an insurance company.

2.3.4 The Trustee's approach to risk management

The key risks for the Trustee of the Section to monitor are:

- Changes in the Employer covenant of the Section, resulting in a risk that the Employer will not be able to make good any deficit that may occur in the future or the risk that the Employer will not be able to pay the expenses associated with the day to day running of the Section. The Trustee should consider the likelihood of the Employer being able to make additional contributions to the Section if the funding level reduces further.

The Trustee should regularly discuss the Employer covenant of the Section at Trustee meetings and consider the risks associated with recovering any deficit if the strength of the covenant reduces.

- Fall in the future funding level of the Section due to unexpected improvements in life expectancy or unexpected changes in inflation resulting in higher benefits being paid from the Section than expected.

As Scheme Actuary, I will keep the Trustee up to date on changes in life expectancy and periods when actual inflation is significantly different from that assumed in the most recent actuarial valuation.

- Risk of funding level fall as a result of lower than expected future investment returns on the Section assets and the mismatch of invested assets relative to the notional portfolio (made up of government bonds), underpinning the Technical Provisions.

The Trustee should review investment performance for the Section regularly and periodically consider the level of risk adopted in the investment strategy.

- The risk that new legislation or court rulings could change the benefits that must be paid to members and/or the way in which these benefits must be funded.

As Scheme Actuary, I will keep the Trustee up to date on changes in legislation which may impact the cost of benefits in the Section.

- The risk that member experience is not as expected e.g. Section members do not commute pension at retirement for a cash lump sum, members live longer than expected.

The Trustee should review experience against assumptions made at each actuarial valuation, and ensure any significant deviations from the assumptions are reflected in the proposed assumptions for future actuarial valuations.

Update since the Previous Valuation

3.1 Key results from the Previous Valuation

The Section's assets were £26.0m and the Technical Provisions were £31.3m. This corresponded to a deficit of £5.3m and a funding level of 83%.

The Section was 94% funded on a s179 valuation (PPF) basis. The Solvency funding level of the Section was 59%.

3.2 Ageing membership profile

The Section is closed to new joiners and future accrual, therefore the age of each membership category has increased since the Previous Valuation.

Since the Previous Valuation, the profile of the membership of the Section has seen an increase in the proportion of the total liability being allocated to pensioners. See Appendix C.

Figure 1 – Technical Provisions split by membership category



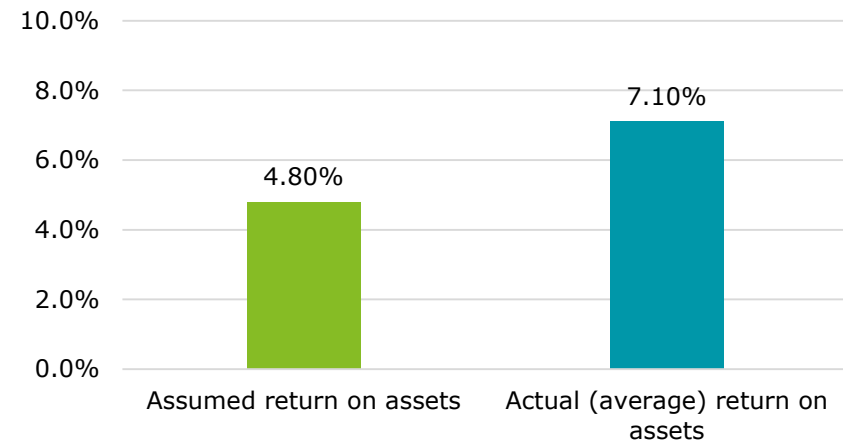
3.3 Financial development

To illustrate the Section's financial development since the Previous Valuation, we compare below the key financial assumptions made at the Previous Valuation with what actually happened over the three year intervalation period.

3.3.1 Return on assets

The actual return on assets has been higher than the assumed return over the inter-valuation period.

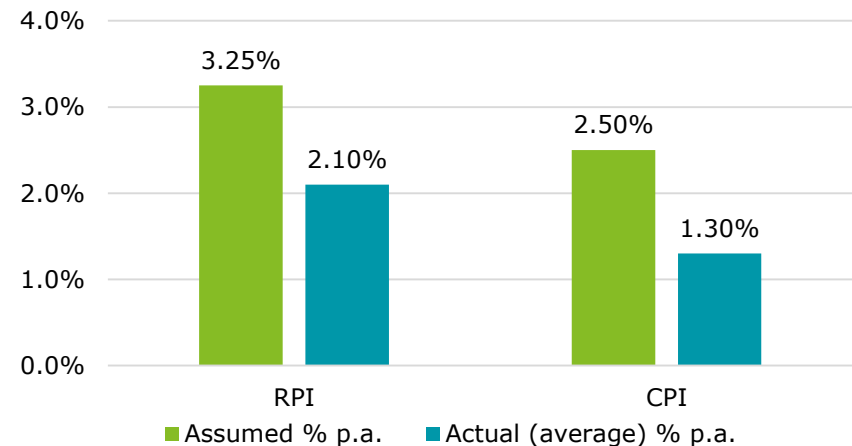
Figure 2 – assumed vs. actual investment return



3.3.2 Inflationary pension increases

Increases to pensions in payment and to pensions in deferment, which are predominantly linked to RPI and CPI inflation respectively, differed to that assumed.

Figure 3 – assumed inflation vs. actual inflation

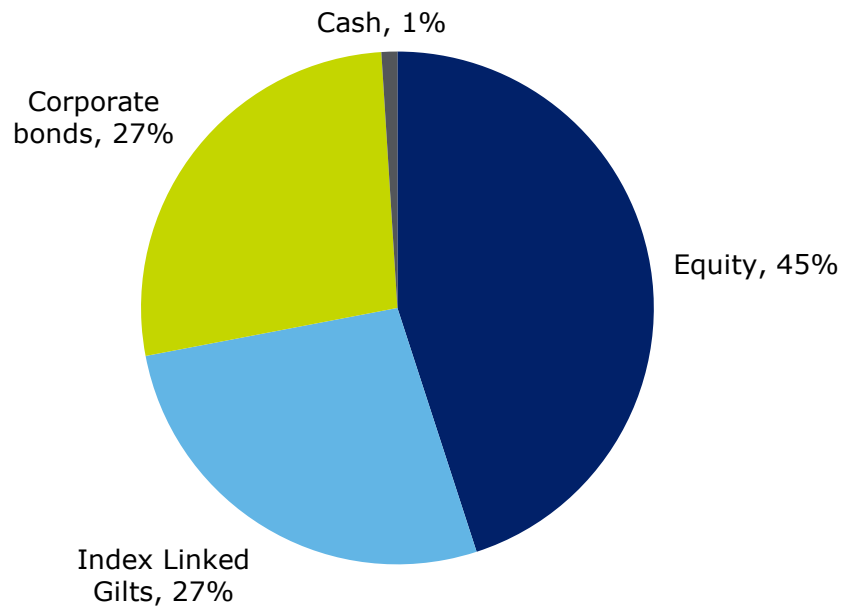


Asset data

The audited accounts for the Section for the year ended 31 March 2016 show the value of assets was £29,466,000 at the Valuation Date.

The allocation of the Section's assets at the Valuation Date are shown in Figure 4.

Figure 4 – Asset holdings of the Section as at 31 March 2016



4.1 Valuation of Section's assets

The value given to the Section's assets in the Funding Valuation is based on the market value as shown in the audited accounts. The economic assumptions used for the calculation of the Technical Provisions are related to market conditions at the Valuation Date and I consider the method of valuing the assets to be compatible with this approach.

SFO Valuation – results

In accordance with your SFP, your funding objective is to meet the SFO i.e. that the Section has sufficient and appropriate assets to cover its Technical Provisions.

5.1 The Technical Provisions

I set out a comparison of the value of the Section's assets with its Technical Provisions at the Valuation Date in Table 2. For comparison purposes, I also show the corresponding values from the Previous Valuation.

Table 2

SFO Valuation	31 March 2016 £'000	31 March 2013 £'000
Technical Provisions for:		
Active members	-	-
Deferred pensioners	14,578	15,641
Pensioners	18,198	15,645
Total	32,776	31,286
Market value of assets	29,466	25,956
Surplus/(Deficit)	(3,310)	(5,330)
Funding level	90%	83%

5.2 Method for calculating the Technical Provisions

The method adopted for the calculation of the Technical Provisions is the Projected Unit Method and is set out in the Statement of Funding Principles (see Appendix D). This is the same method as was used in the Previous Valuation.

5.3 Assumptions used to calculate the Technical Provisions

The assumptions used for the calculation of the Technical Provisions are set out in Appendix E.

5.4 Neutral estimate

I am required to include an approximate estimate of the value of the liabilities using the same assumptions that are used for the Technical Provisions, but with any margins for prudence removed. This is referred to as the "neutral estimate".

The assumptions adopted for the neutral estimate are set out in Appendix E. I estimate that the funding level using these assumptions would be 95%.

5.5 Sensitivity of Funding level to changes in assumptions

The result of the funding valuation is based on information available at the Valuation Date, including market conditions, and a number of assumptions about future experience of the Section.

If the assumptions used in the calculations are not borne out in practice then the Technical Provisions as shown in Table 2 may be less than or greater than the amount required to make provision for the Section's liabilities. In Table 3, I gave an indication of the degree of change in the overall level of the Technical Provisions for given changes in each of the assumptions to which the Funding Valuation result is particularly sensitive.

Table 3

Assumption	Variation in assumption	Percentage increase/(decrease) in Technical Provisions
Pre-retirement discount rate	Decrease/increase of 1.0% p.a.	3% / (3%)
Post-retirement discount rate	Decrease/increase of 1.0% p.a.	17% / (15%)
Rates of Inflation	Increase/decrease of 1.0% p.a.	21% / (18%)
Post retirement mortality	Probability of death amended as if members live one year longer/(less)	4% / (4%)

Please note

- the scenarios considered are not worst or best case scenarios, and could occur in combination (rather than in isolation). In reality, it is perfectly possible that the experience of the Section simultaneously deviates from more than one of the assumptions and so the precise effect on the Technical Provisions is therefore more complex.
- The above analysis does not incorporate any changes in the asset values which may occur if financial conditions alter. Section 5.6 outlines sensitivities of the funding level to changes in investment conditions.

SFO Valuation – results (continued)

The Solvency position discussed in Section 8 is also highly sensitive to all of the factors outlined above.

5.6 Sensitivity of the Funding level to changes in investment conditions

The discount rate used in the calculation of the Technical Provisions is based on the yields available on government and corporate bonds at the Valuation Date. If market yields change then the derived discount rate will change and this will result in a change in the Technical Provisions. The value of the Section's assets will also change as a result of a change in bond yields. The degree of change in the values of the assets and the Technical Provisions will not be the same and I illustrate in Table 4 the effect of the change in funding level for a 1% per annum increase and decrease in market yields of government and corporate bonds at the Valuation Date.

Table 4

Bond yields	Funding level
Yields 1% p.a. higher	100%
Yields at actual level	90%
Yields 1% p.a. lower	81%

Similarly a change in the market value of the Section's growth assets will affect the funding level as the value of the Section's assets will change but the Technical Provisions will not. The effect on the funding level for a 10% increase and decrease in the growth asset market values at the Valuation Date is shown in Table 5.

Table 5

Growth asset values	Funding level
Growth assets 10% higher	94%
Growth assets at actual level	90%
Growth assets 10% lower	86%

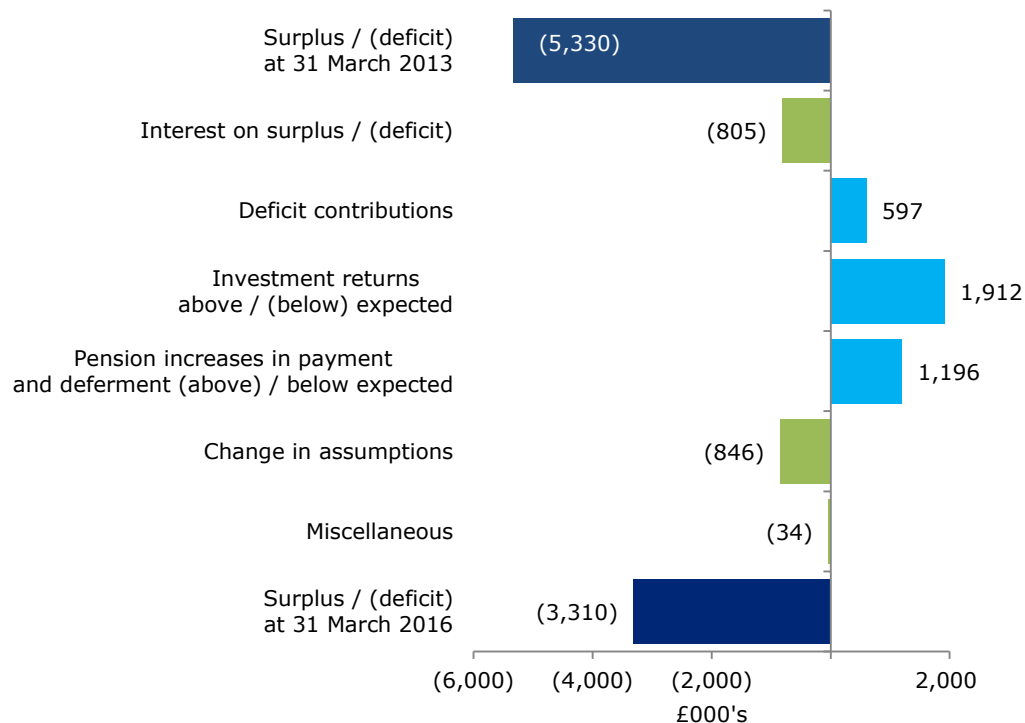
Reasons for the change in SFO Valuation Funding level

The main factors driving the change in funding position on the Section's SFO basis over the inter-valuation period include: a fall in yields on government and corporate bonds, offset by positive experience on the Section's assets and the payment of deficit contributions.

6.1 Change in the funding position since the Previous Valuation

At the Previous Valuation, the Section had a deficit of £5.3m. I have compared the results of the Funding Valuation with the position at the Previous Valuation, to analyse how the position has changed over the inter-valuation period. The key sources of surplus and deficit over the period are outlined in Figure 5.

Figure 5 – analysis of surplus



Commentary

The main factor which has affected the funding level since the Previous Valuation has been:

- A decrease in government and corporate bond yields which has resulted in a reduction in discount rate used to assess the Technical Provisions

The impact of this factor has been offset by:

- Strong investment returns on the Section's assets
- Inflationary increases on pensions in payments and revaluation in deferment being lower than assumed
- Payment of deficit contributions

The miscellaneous item relates to other areas where the actual experience has been different to the assumption at the Previous Valuation. These items include items such as:

- Deaths
- Ill-health retirements
- Membership options, such as transfers, early retirements and members commuting pension at retirement

Future contributions

The Section is closed to future accrual hence no future service contributions are required.

7.1 Recovery Plan

The Trustee and Employer have agreed a Recovery Plan to address the deficit at the Valuation Date over a recovery period ending on 31 March 2022.

To eliminate the funding shortfall, the Trustee and the Employer have agreed contributions of £556k per annum, payable monthly, being paid to the Section of the Plan by the Employer until 31 March 2022.

A copy of the agreed Recovery Plan is included in Appendix G.

7.2 Schedule of Contributions

The Trustee and the Employer have agreed and signed a Schedule of Contributions (set out in Appendix H).

Any costs, charges and expenses incurred by the Section and levies payable to the Pension Protection Fund will be met directly by the assets of the Section or by the Employer, as determined by the Employer.

The Solvency position

The Solvency position below represents the estimated cost of purchasing annuities at the Valuation Date from an insurance company to meet the Section's benefits in full.

8.1 Current Solvency position

Regulation 7(4)(b) of the Occupational Pension Schemes (Scheme Funding) Regulations 2005 requires that the Scheme Actuary includes an estimate of the Solvency of the Section. This is a comparison of the value of the assets with an estimate of the cost of winding up the Section and purchasing annuities which would be sufficient to meet the accrued liabilities in full.

The results of my Solvency estimate are shown in Table 6. The corresponding results for the Previous Valuation are also shown.

Table 6

	31 March 2016	31 March 2013
	£'000	£'000
Estimated cost of purchasing annuities for:		
Active members	-	-
Deferred members	32,495	25,029
Pensioners	26,467	17,813
Estimated cost of winding up	1,769	1,358
Total	60,731	44,200
Market value of assets	29,466	25,956
Surplus/(Deficit)	(31,265)	(18,244)
Solvency Funding level	49%	59%

The estimate above must be viewed only as a guide. Market changes both in interest rates and in demand and supply for annuity business mean that no one estimate of solvency can be relied on. Ultimately the actual position can only be established by completing a wind-up.

8.2 Method and assumptions used in solvency estimate

I have estimated the cost of annuities using the assumptions similar to those published by the Pension Protection Fund ('the PPF'), which are based on their assessment of the pensions buy-out market. The financial assumptions are based on the yields available from UK government bonds at the Valuation Date. The assumptions are summarised in Appendix E.

8.3 Solvency and the SFO

If the SFO had exactly been met at the Valuation Date then I estimate that the solvency Funding level at that date would have been 54%.

The Solvency position (continued)

8.4 Impact of priority order

Legislation requires that, in the event of a plan winding up, once the expenses of processing the winding up are paid, the remaining assets are applied to secure benefits in an order of priority. I estimate that the assets would have been sufficient to meet expenses and to secure 98% of the benefits at the level of the PPF compensation with an insurance company.

Broadly speaking the PPF provides two levels of compensation:

- For an individual who has reached their plan's normal pension age or, irrespective of age, are either already in receipt of survivor's pension or a pension on the grounds of ill health, the PPF will pay 100% level of compensation.
- In broad terms and in normal circumstances, this means a starting level of compensation that equates to 100% of the pension in payment immediately before the assessment date (subject to a review of the rules of the Plan by the PPF).
- For the majority of people below their normal pension age, the PPF will pay 90% level of compensation.
- In broad terms and in normal circumstances, this means 90% of the pension an individual had accrued (including revaluation) immediately before the assessment date (subject to a review of the rules of the Section by the PPF) and future revaluation in line with the increase in the Consumer Prices Index between the assessment date and the commencement of compensation payments, this revaluation being subject to a cap of 5% in respect of service to April 2009 and 2.5% in respect of service thereafter. These caps apply in deferment. This compensation is subject to an overall cap which at the Valuation Date equates to £28,295 p.a. at age 60 or £32,761 p.a. at age 65, after the 90% has been applied (the cap will be adjusted according to the age at which compensation comes into payment).
- Once compensation is in payment, the part that derives from pensionable service on or after 6 April 1997 will be increased each year in line with the Consumer Prices Index capped at 2.5%. Again, this will result in a lower rate of increase than the Section would have provided.

8.5 Future Solvency levels

Assuming no change in the basis used for calculating annuity prices and assuming that the future return on the Section's assets is 5.35% per annum, the overall Solvency position would improve gradually in future. On this basis and allowing for future contributions in line with the Schedule of Contributions, I estimate that the Solvency level at the date of the next valuation would be 57% and that at that date the Plan would have sufficient assets to cover 100% of the PPF compensation.

Wind up and the PPF

The Section is required to carry out a S179 Valuation using method and assumptions prescribed by the PPF. The purpose of the valuation is to determine the risk-based part of the PPF levy that will be payable in future years.

9.1 PPF compensation

The PPF is a compensation scheme that aims to provide members of private sector defined benefit schemes with a specified minimum level of compensation for pension benefits when the sponsoring employer becomes insolvent. The compensation benefits are not guaranteed and the PPF is funded by levies payable by defined benefit schemes.

If the Employer had become insolvent at the Valuation Date and no Employer debt payment was recovered, then it is likely that the Board of the PPF would have been required to assume responsibility for the Section.

Table 7 shows the results of the calculations I carried out in line with the PPF's prescribed valuation method. This S179 Valuation is a simplified version of the valuation that would be used to assess if the PPF would assume responsibility for the Section.

Table 7

	31 March 2016	31 March 2013
	£'000	£'000
Liabilities in respect of:		
Active members	-	-
Members entitled to deferred pensions	12,675	14,149
Pensions already in payment	16,453	12,583
Expenses	1,016	875
Total	30,144	27,606
Market value of assets	29,466	25,956
Surplus/(Deficit)	(678)	(1,650)
PPF Funding level	98%	94%

In carrying out this assessment, I have used versions G6 and A7 of the various guidance notes issued by the PPF.

I include a copy of the S179 Valuation certificate in Appendix I.

Appendices

Appendix A

Benefit Summary

This Report has been based upon benefits described in the Trust Deed and Rules.

Except where stated in this Report, no allowance has been made for any discretionary benefits or discretionary increases to benefits.

Appendix B

Glossary

Key terms used throughout this report are summarised below.

Actuarial valuation

A review carried out by the Scheme Actuary that assesses whether the assets are sufficient to meet a funding target. It also estimates the contributions required to meet the target.

Discount rate

This is the rate used to place a value at the Valuation Date on the payments expected to be made in the future. The lower the discount rate, the higher the resulting "present value".

Funding level

This is the ratio of the value of assets to the value of the liabilities under the relevant valuation.

Funding valuation

The actuarial valuation of the Section carried out for funding purposes as at 31 March 2016, the results of which are set out in this Report.

Guaranteed Minimum Pension ("GMP")

A member of a contracted-out occupational pension scheme will get at least this much pension for contracted-out service before 6 April 1997. GMPs ceased to build up from 6 April 1997 when the legislation changed.

PPF ("Pension Protection Fund")

A compensation scheme that aims to provide members of private sector defined benefit pension schemes a specified minimum level of compensation in respect of pension benefits when the sponsoring employer becomes insolvent. The level of PPF compensation would not normally be at the full level of the benefits that would otherwise have been due from the scheme.

The Pensions Regulator

The regulatory body for work-based pension schemes in the UK, where duties include review of the funding of private sector defined benefit pension schemes.

Previous Valuation

The actuarial valuation of the Section carried out for funding purposes as at 31 March 2013.

Recovery Plan

An agreement, between the Trustee and the Employer for setting out how any shortfall between the value of the Section assets and the Technical Provisions will be met.

S179 Valuation

The actuarial valuation of the Section carried out in accordance with Section 179 of the 2004 Act for PPF levy purposes, the results of which are set out in Section 9 of this Report.

Schedule of Contributions

The Trustee and the Employer are required to prepare and maintain a Schedule of Contributions. This shows the dates and amounts of contributions due from the Employer and members. Under the Pensions Act 2004, the schedule must be in place within 15 months of the Valuation Date.

Solvency position

This is the ratio of the market value of the Section's assets to the estimated cost of securing the Section's benefits in full in the event of the wind up of the Section.

Standard Contribution Rate ("SCR")

The contribution rate as a percentage of Pensionable Earnings required per annum to meet the cost of the benefits accruing.

Statutory Funding Objective ("SFO")

Under the Pensions Act 2004, every section is subject to the Statutory Funding Objective, which is to hold sufficient and appropriate assets to meet the Technical Provisions. The Trustee may establish other funding objectives in addition to the Statutory Funding Objective.

Statement of Funding Principles ("SFP")

The Pensions Act 2004 requires the Trustee to prepare (and from time to time review and if necessary amend) a written statement of the Trustee's policy, agreed with the Employer, for meeting the SFO. This includes setting out the principles for determining the assumptions for calculating the Technical Provisions and the period within which any shortfall is to be remedied.

Surplus / Deficit

This is the value of assets less the value of the liabilities. If the value of the liabilities under the relevant valuation is greater (lower) than the value of assets, then the difference is called a deficit (surplus).

Technical Provisions

This is the actuarial value under the SFO of the benefits members are entitled to, based on pensionable service to the Valuation Date. It generally allows for projected future increases to pay through to retirement or date of leaving service.

Transfer value

The value of a member's accrued benefits that a scheme would pay to an alternative approved pension arrangement in lieu of receiving any benefits from the scheme.

Trust Deed and Rules

The Third Definitive Trust Deed relating to the Plan, dated 28 March 2012, and any subsequent Amending Deeds.

Trustee Report and Accounts

An annual report containing information on the Section and its audited financial accounts.

Valuation Date

31 March 2016

Appendix C

Membership data

Movement in membership of the Plan

This actuarial Valuation is based on membership data as at 31 March 2016 supplied to us by the Section administrator, Barnett Waddingham.

The benefits valued are those specified in the Trust Deed and Rules.

The Section has no established practice of awarding discretionary benefits, and so no allowance has been made for discretionary benefits in this actuarial valuation.

A summary of the membership data is given in Table 8.

The results in this report rely on the accuracy of the information supplied by Barnett Waddingham.

A number of general checks have been carried out to ensure the membership data used for this actuarial valuation is consistent with the most recent Trustee Report and Accounts, at the Previous Valuation.

I have taken reasonable steps to satisfy myself that the data is of adequate quality for the purpose of the actuarial valuation.

Table 8

	31 March 2016			31 March 2013		
	Number	Total Pensionable Earnings / pension ¹ (£'000)	Average age ²	Number	Total Pensionable Earnings / pension ¹ (£'000)	Average age ²
Active members	-	-	-	-	-	-
Deferred members	80	506	53.1	91	625	51.9
Pensioners	83	792	67.5	72	649	66.7

¹ Deferred pensions are shown at the respective valuation date

² Average ages are weighted by pension

Statement of Funding Principles

Combined Nuclear Pension Plan – Nirex Section (“the Section”)

As part of the actuarial valuation of the Combined Nuclear Pension Plan (“the Plan”) as at 31 March 2016, the Trustee has reviewed the Statement of Funding Principles for the Section. This statement has been updated to reflect changes in financial market conditions and recent demographic publications since the last actuarial valuation as at 31 March 2013.

This statement has been agreed between Combined Nuclear Pension Plan Trustees Limited (the Trustee of the Plan) and Nuclear Decommissioning Authority (the “Lead Employer”) as required by section 223 of the Pensions Act 2004.

The actuarial valuation of the Section as at 31 March 2016 was carried out on the basis of these principles.

The Trustee took advice from the Scheme Actuary, Mark McClintock FIA, before drafting this statement.

The Statutory Funding Objective

This statement sets out the Trustee’s policy for securing that the Statutory Funding Objective is met.

The Statutory Funding Objective is defined in Section 222 of the Pensions Act 2004. Every scheme must have sufficient and appropriate assets to cover its Technical Provisions. The Technical Provisions are the amount that will be needed to pay the benefits of the Section that relate to service up to the valuation date, if the assumptions made are borne out in practice.

The Trustee will carry out their obligations under the Pensions Act 2004 and this Statement of Funding Principles. They will hold discussions with the Lead Employer to obtain agreement to this statement and any changes to it. Assumptions will be selected to be sufficiently prudent to ensure that both pensions and benefits already in payment to beneficiaries will continue to be paid, and to reflect the commitments which arise out of all members’ accrued rights.

The assumptions selected will provide an approximate margin for adverse deviation, taking into account any expected changes in the relevant risks, in particular the risks that, for whatever reasons, the Lead Employer may not be able to pay contributions or make good deficits on time. This may be related but not restricted to the following risks:

- the investments under-perform;
- the investments do not otherwise increase in line with the liabilities;
- inflation rates are higher than expected; and
- retired members live longer than anticipated.

Funding objectives in addition to the Statutory Funding Objective

The Plan has no funding objectives other than the Statutory Funding Objective described above.

Method and assumptions to be used in calculating the Section's Technical Provisions

Method

The Section's Technical Provisions will be calculated, as required by the Pensions Act 2004, using an "accrued benefits funding method", and the method used is the Projected Unit Method.

Assumptions

The principal assumptions used in calculating the Technical Provisions will be determined as follows. Alongside each financial assumption we show the figure used in the valuation as at 31 March 2016. These figures have been derived from market rates as at the valuation date.

Assumption	Derivation	Assumption used
Post retirement discount rate	It is selected by inspection of the yields available on fixed interest gilts with a similar duration to the Section's liabilities with an allowance for corporate bond outperformance above the yield on gilts and the expected return on the proportion of growth assets being held to back the pensioner liabilities.	3.20% p.a. (including allowance for corporate bond outperformance of 1.0% p.a. and the expected return on the 15% allocation to growth assets being held to back the pensioner liabilities)
Pre retirement discount rate	The assumption is based on the yield available on fixed interest gilts with a similar duration to the Section's liabilities plus an allowance for the higher return that would be expected from growth assets after an allowance for prudence. Consideration has been given to the level of growth assets as a percentage of the non-pensioner liabilities up to a threshold of 70%, with any excess above this ignored on the grounds of prudence.	5.00% p.a. (including allowance for 75% of the higher investment return expected from the current proportion of growth assets)
RPI inflation	The assumed rate of RPI price inflation will be assessed by reference to the Bank of England's UK implied inflation spot curve data (using duration appropriate to the Section's liabilities). An adjustment could be considered to allow for a possible inflation risk premium, reflecting the high demand for index linked gilts distorting the Bank of England's market based calculation.	3.05% p.a. (being 0.20% below the Bank of England data at a 20 year duration, the deduction being to allow for inflation risk premium)
CPI inflation	Assessed by the rate of RPI inflation less a deduction to take account of the differences in the method of calculation, goods covered in the indices and the historical rates of RPI and CPI inflation.	2.05% p.a. (being 1.0% p.a. below the RPI inflation assumption)

Assumption	Derivation	Assumption used
Increases to pensions in payment	An adjustment could be considered to the assumption for price inflation when looking at RPI inflation-linked pension increases.	3.05% p.a. (being in line with the RPI inflation assumption)
Revaluation of deferred pensions	An adjustment could be considered to the assumption for price inflation when looking at CPI inflation-linked revaluation.	2.05% p.a. (being in line with the CPI inflation assumption)
Mortality	Standard published tables of mortality would be adopted that have been found appropriate for the Plan. These tables would be adjusted to allow for expected future improvements in longevity.	S2PA Tables and CMI 2015 Projections incorporating a 1.25% p.a. long term trend
Ill health	Advice will be taken from the Scheme Actuary as to the appropriate ill health rates to adopt taking into account the experience from the Plan and the views of the Lead Employer.	See sample rates in the Appendix
Retirement	Members are assumed to retire at their Normal Pension Age. No account has been taken of the possibility of members continuing to work after Normal Pension Age but this may be reviewed in future, taking account of the Plan's experience.	Age 60 or 65 as applicable to specific members
Age differences	Advice will be taken from the Scheme Actuary as to the appropriate age difference between spouses to adopt, taking into account experience of the Plan where plausible and the views of the Lead Employer.	Males 3 years older
% married	Advice will be taken from the Scheme Actuary as to the appropriate proportions married to adopt, taking into account the experience analysis of the Plan.	NDA Unisex rates Sample rates are shown in the Appendix
New entrants	Each Section of the Plan is closed to defined benefit new entrants.	No allowance
Commutation	For CNPP members only, the assumption is based on recent experience of member's opting to commute pension for cash.	No allowance
Expenses	Expenses are paid directly by the Employer.	Paid directly by Employer
PPF and other levies	Paid directly by the Employer.	Paid directly by Employer

Assumption	Derivation	Assumption used
Assets	Market value taken from audited accounts (excluding members' money purchase AVC and Shift Pay Pension Plan).	Market value

Period within which and manner in which a failure to meet the statutory funding objective is to be rectified

The Trustee and the Lead Employer have agreed that any funding shortfalls identified at an actuarial valuation should be eliminated by the payment of additional contributions. The level and period over which these additional contributions are to be paid will be agreed between the Trustee and the Lead Employer and must not be less than the rates which would be certified by the Scheme Actuary. In determining the actual recovery period at any particular valuation, the Trustee's principles are to take into account the following factors:

- the size of the funding shortfall;
- the business plans of the Employer;
- the Trustee's assessment of the financial covenant of the Lead Employer (and in making this assessment the Trustee may make use of appropriate credit assessment providers or financial advisors);
- any contingent security offered by the Employer; and
- the Rules of the Plan.

The assumptions to be used in these calculations will be those set out above for calculating the Technical Provisions except that they may also take account of the expected investment out-performance of Plan assets.

Other contributors

There are no agreements at present for anyone other than the members and the Lead Employer to make contributions.

Policy on discretionary increases and funding strategy

No allowance has been included in the assumptions for paying discretionary benefits or making increases to benefits that are not guaranteed under the Plan.

The Trustee will not agree any benefit increase unless a specific payment is made to the Plan in respect of such an increase, or the Scheme Actuary advises that such increases can be met by any surplus held in the relevant Section.

Refund to the Employer

The Trust Deed permits refund of surplus monies to any or all of the employers who participate in the Plan, but only on the winding up of the Plan as a whole and if then the assets exceed the cost of buying out the benefits of all the beneficiaries from an insurance company.

Policy on reduction of cash equivalent transfer values (CETVs)

At each valuation, the Trustee will ask the Scheme Actuary to report on the extent to which assets are sufficient to provide CETVs for all members. If the assets are insufficient to provide 100% of benefits on that basis, so that payment of full CETVs would adversely affect the security of the remaining members' benefits, and the Lead Employer is unable or unwilling to provide additional funds, the Trustee will consider reducing CETVs as permitted under legislation.

If, at any other time, the Trustee is of the opinion that payment of CETVs at a previously agreed level could adversely affect the security of the remaining member's benefits, the Trustee will commission a report from the actuary and will use the above criteria to decide whether, and to what extent, CETVs should be reduced.

Future actuarial valuations

The actuarial valuation under Part 3 of the Pensions Act 2004 is being carried out as at the effective date of 31 March 2016 and future valuations will be due at three yearly intervals. An actuarial report on developments affecting each Section's funding level will be obtained as at each intermediate anniversary of that date.

The Trustee may call for a full actuarial valuation when, after considering the Scheme Actuary's advice, it is of the opinion that events have made it unsafe to continue to rely on the results of the previous valuation as the basis for future contributions. However, the Trustee will consult the Lead Employer before doing so.

Commissioning an additional valuation may not be necessary if agreement can be reached with the Lead Employer to revise the Schedule of Contributions in a way considered satisfactory by the Trustee and the Scheme Actuary.

This Statement of Funding Principles has been agreed by Nuclear Decommissioning Authority and the Trustee of the Combined Nuclear Pension Plan after obtaining advice from the Scheme Actuary

On behalf of the Trustee of the Combined Nuclear Pension Plan

Signature: David J. Munenorth

Name: DAVID J. MUNENORTH

Position: CHAIRMAN

Date: 30 May 2017

On behalf of the Lead Employer

Signature: P A Vaughan

Name: P A VAUGHAN

Position: Head of Group Pensions

Date: 30 May 2017

This statement has been agreed by the Trustee and Lead Employer after obtaining actuarial advice from me:

Signature: Mark McClintock

Name: Mark McClintock FIA

Position: Scheme Actuary

Date: 30 May 2017

Appendix to the Statement of Funding Principles dated 30 May 2017

Sample rates

Ill health retirement

Ill health retirement decrements		
Age	Male	Female
20	0.0001	0.0002
30	0.0002	0.0003
40	0.0007	0.0011
45	0.0018	0.0022
50	0.0038	0.0045
55	0.0109	0.0136

Proportions married

%	
Age	Male/Female
20	75
30	75
40	75
50	82
60	81
70	81
80	78
90	55

Appendix E

Actuarial assumptions

Technical Provisions assumptions

Tables 9 and 10 show the actuarial assumptions used to assess the Technical Provisions for this valuation and the assumptions used to assess the ongoing position for the Previous Valuation.

Table 9

Financial assumptions (p.a.)	Section Funding assessment	
	31 March 2016	31 March 2013
Discount rate		
Pre-retirement	5.00%	6.10%
Post-retirement	3.20%	3.50%
Price inflation		
RPI	3.05%	3.25%
CPI	2.05%	2.50%
Increases to pensionable earnings	n/a	n/a
Revaluation in deferment	2.05%	2.50%
Pension increases	3.05%	3.20%

Table 10

Demographic assumptions	Section Funding assessment	
	31 March 2016	31 March 2013
Mortality		
Base table	100% of SAPS 'S2' YoB	90% of SAPS 'S1' YoB
Longevity improvements	CMI 2015 projections with a long term trend of 1.25% p.a.	CMI 2012 projections with a long term trend of 1.0% p.a.
Proportion married	NDA Unisex rates – see 2016 SFP	NDA Unisex rates – see 2013 SFP
Age difference	Husbands assumed to be 3 years older than their wives	Husbands assumed to be 3 years older than their wives
Commutation	No allowance	No allowance

Neutral estimate assumptions

Tables 11 and 12 show the actuarial assumptions used to assess the neutral estimate for this valuation.

Table 11

Financial assumptions (p.a.)	Neutral estimate	
	31 March 2016	31 March 2013
Discount rate		
Pre-retirement	5.90%	6.00%
Post-retirement	3.30%	3.75%
Price inflation		
RPI	3.05%	3.25%
CPI	2.05%	2.50%
Increases to pensionable earnings	n/a	n/a
Revaluation in deferment	2.05%	2.50%
Pension increases	3.05%	3.20%

Table 12

Demographic assumptions	Neutral estimate	
	31 March 2016	31 March 2013
Mortality		
Base table	100% of SAPS 'S2' YoB	90% of SAPS 'S1' YoB
Longevity improvements	CMI 2015 projections with a long term trend of 1.0% p.a.	CMI 2012 projections with a long term trend of 1.0% p.a.
Proportion married	NDA Unisex rates – see 2016 SFP	NDA Unisex rates – see 2013 SFP
Age difference	Husbands assumed to be 3 years older than their wives	Husbands assumed to be 3 years older than their wives
Commutation	No allowance	No allowance

Appendix E (continued)

Actuarial assumptions

Solvency assumptions

Tables 13 and 14 show the actuarial assumptions used to assess the Solvency position for this valuation.

Table 13

Financial assumptions (p.a.)	Solvency basis	
	31 March 2016	31 March 2013
Discount rate		
Non-pensioner	1.30%	2.75%
Pensioner	1.80%	3.00%
Price inflation		
RPI	3.25%	3.20%
Increases to pensions in payment	3.25%	3.20%
Increases to pensions in deferment	3.25%	3.20%

Table 14

Demographic assumptions	Solvency basis	
	31 March 2016	31 March 2013
Mortality		
Base table	90% of SAPS 'S2' YoB	90% of SAPS 'S1' YoB
Longevity improvements	CMI 2014 projections with a long term trend of 2.0% p.a.	CMI 2012 projections with a long term trend of 2.0% p.a.
Proportion married	85%	NDA Unisex rates – see 2013 SFP
Age difference	Husbands assumed to be 3 years older than their wives	Husbands assumed to be 3 years older than their wives
Commutation	No allowance	No allowance
Expenses	3% of liabilities	In line with PPF guidance

The economic assumptions above are derived from market yields at the Valuation Date.

Note: The calculation of approximate buy-out costs as determined on the above basis is only an estimate and market changes both in interest rates and demand and supply for this type of business means no one estimate can be relied upon. Ultimately the true position can only be established by completing a wind-up.


Appendix F

Certification of Technical Provisions

Actuary's Certificate given for the purposes of regulation 7 of the Occupational Pension Scheme (Scheme Funding) Regulations 2005

Name of Section: Nirex Section of the Combined Nuclear Pension Plan

I certify that, in my opinion, the calculation of the Section's Technical Provisions as at 31 March 2016 is made in accordance with regulations under Section 222 of the Pensions Act 2004. The calculation uses a method and assumptions determined by the Trustee of the Section and set out in the Statement of Funding Principles dated 30 May 2017.

Signature		Date	30 June 2017
Name	Mark McClintock	Qualification	Fellow of the Institute and Faculty of Actuaries
Address	Deloitte Total Reward and Benefits Limited Lincoln Building 27-45 Great Victoria Street Belfast BT2 7SL		

Recovery Plan

Combined Nuclear Pension Plan – Nirex Section

This Recovery Plan has been prepared by the Trustee of the Combined Nuclear Pension Plan ("the Plan") on 30 May 2017 after obtaining the advice of Mark McClintock FIA, the Scheme Actuary.

The actuarial valuation of the Nirex Section of the Plan as at 31 March 2016 revealed a funding shortfall (technical provisions minus value of assets) of £3,310,000.

Statutory Funding Objective

To eliminate this funding shortfall, the Trustee and the Nuclear Decommissioning Authority ("Lead Employer") have agreed contributions of £556,000 per annum, payable monthly, being paid to the Nirex Section of the Plan by the Lead Employer until 31 March 2022.

Period in which the Statutory Funding Objective should be met

The funding shortfall is expected to be eliminated 6 years after the date of the 2016 Valuation, which is by 31 March 2022. This expectation is based on the following assumptions:

- Technical provisions calculated according to the method and assumptions set out in the Statement of Funding Principles dated 30 May 2017;
- The return on existing assets as set out in the Statement of Funding Principles dated 30 May 2017 for the calculation of technical provisions, with an allowance for 0.5% additional yield on the current allocation of growth assets; and
- The return on new contributions during the period as set out in the Statement of Funding Principles dated 30 May 2017 for the calculation of technical provisions, with an allowance for 0.5% additional yield on the current allocation of growth assets.

It is expected that at least half of the contributions under this Recovery Plan will be paid by 31 March 2019.

This Recovery Plan has been agreed by the Lead Employer and the Trustee of the Plan:

On behalf of the Trustee of the Plan

Signature: David J. Mungworth
Name: DAVID J. MUNGWORTH
Position: CHAIRMAN
Date: 30 May 2017

On behalf of Nuclear Decommissioning Authority

Signature: P A Vaughan
Name: P A VAUGHAN
Position: Head of Group Pensions
Date: 30 May 2017

This Recovery Plan has been agreed by the Trustee of the Plan after obtaining actuarial advice from me:

Signature: Mark McClintock
Name: Mark McClintock FIA
Position: Scheme Actuary
Date: 30 May 2017

Schedule of Contributions

Combined Nuclear Pension Plan – Nirex Section

Schedule of Contributions for the purposes of Part 3 of the Pensions Act 2004 and Section 9 of the Occupational Pensions Schemes (Scheme Funding) Regulations 2005.

Status

This Schedule of Contributions for the Nirex Section of the Combined Nuclear Pension Plan (the "Plan") has been prepared by the Trustee of the Plan, after obtaining the advice of Mark McClintock FIA, the Scheme Actuary. This Schedule of Contributions, put in place for the Plan, supersedes the previous schedule dated 30 January 2014.

The contribution rates and payment dates have been agreed between the Trustee and the Nuclear Decommissioning Authority (NDA) (the "Lead Employer"). The Trustee and the Lead Employer have signed this schedule.

Contributions to be paid to the Plan from 1 April 2016 to 31 March 2022

The Nirex Section is closed to future accrual hence no contributions are payable by members or for future benefit accrual. The Lead Employer will pay any contributions as agreed with the Scheme Actuary to meet any augmentations granted or benefit improvements, no later than the end of the calendar month following the augmentation being granted. Any costs, charges and expenses incurred by the Nirex Section of the Plan and levies payable to the Pension Protection Fund will be met directly by the assets of the Nirex Section or by the Lead Employer, as determined by the Lead Employer.

The actuarial valuation of the Nirex Section as at 31 March 2016 revealed a funding shortfall (technical provisions minus value of assets) of £3,310,000. To eliminate the funding shortfall, the Trustees and Lead Employer have agreed the NDA will contribute the amount needed in accordance with the Recovery Plan dated 30 May 2017. This amounts to £556,000 per annum payable monthly between 1 April 2016 and 31 March 2022 unless arrangements are made to meet the shortfall at an earlier date.

In addition, contributions and existing assets are assumed to return an additional yield of 0.5% p.a. (on the relevant proportion of growth assets) above the return assumed in the calculation of the technical provisions (as set out in the Statement of Funding Principles dated 30 May 2017). The level of investment performance is sufficient such that the funding shortfall is expected to be met by 31 March 2022.

This Schedule of Contributions has been agreed by Nuclear Decommissioning Authority and the Trustee of the Plan:

On behalf of the Trustee of the Plan

Signature: David J. Maguire

Name: DAVID J. MAGUIRE

Position: CHAIRMAN

Date: 30 May 2017

On behalf of Nuclear Decommissioning Authority

Signature: P A Vaughan

Name: P A VAUGHAN

Position: Head of Group Pension

Date: 30 May 2017

This Schedule of Contributions has been agreed by the Trustee of the Plan after obtaining actuarial advice from me.

Signature: Mark McClintock

Name: Mark McClintock FIA

Position: Scheme Actuary

Date: 30 May 2017

Actuary's certification of Schedule of Contributions

Name of Plan: Combined Nuclear Pension Plan – Nirex Section

Adequacy of rates of contributions

1. I certify that, in my opinion, the rates of contributions shown in this Schedule of Contributions are such that the statutory funding objective can be expected to be met by the end of the period specified in the Recovery Plan dated 30 May 2017.

Adherence to statement of funding principles

2. I hereby certify that, in my opinion, this Schedule of Contributions is consistent with the Statement of Funding Principles dated 30 May 2017.

The certification of the adequacy of the rates of contributions for the purpose of securing that the statutory funding objective can be expected to be met is not a certification of their adequacy for the purpose of securing the Nirex Section's liabilities by the purchase of annuities, if the Nirex Section were to be wound up.

Signature		Date	30 May 2017
Name	Mark McClintock	Qualification	Fellow of the Institute and Faculty of Actuaries
Address	Deloitte Total Reward and Benefits Limited Lincoln Building 27-45 Great Victoria Street Belfast BT2 7SL		

Appendix I

S179 Valuation certificate

Section / section details

Full name of Scheme	Combined Nuclear Pension Plan
Name of section	Nirex Section
Registration Number	19009609
Address of Section	c/o Nuclear Decommissioning Authority Building 587 Curie Avenue Harwell Oxford Didcot Oxfordshire OX11 0RH

s179 Valuation

Effective date of this valuation	31 March 2016
----------------------------------	---------------

Guidance and assumptions

s179 guidance used for this valuation	G6
s179 assumptions used for this valuation	A7

Assets

Total assets (this figure has not been reduced by the amount of any external liabilities and includes the insurance policies referred to below)

£29,466,000

Date of relevant accounts	31 March 2016
---------------------------	---------------

Liabilities

Liabilities excluding expenses, for	
Active members	£0
Deferred members	£12,675,000
Current Pensioners	£16,453,000
Estimated expenses of winding up	£874,000
Estimated expenses of benefit installation/payment	£142,000
External liabilities	£0
Total protected liabilities	£30,144,000

Insured benefits

Percentage of the assets shown above held in the form of a contract of insurance where this is not included in the asset value recorded in the relevant Section accounts

0%

The percentage of the liabilities shown above that are matched by insured annuity contracts for

Active members	0%
Deferred members	0%
Current Pensioners	0%

Proportion of liabilities

	The proportion of liabilities which relate to service:		
	before 6 April 1997	between 6 April 1997 and 5 April 2009 (inclusive)	after 5 April 2009
Active members	0%	0%	0%
Deferred members	50%	50%	0%
	before 6 April 1997	after 6 April 1997	
Current pensioners	65%	35%	

Membership numbers

The membership numbers at the effective date of this Valuation, for each member type:

Active members	-
Deferred members	80
Current Pensioners	83

Average ages


The average age (weighted by protected liabilities) at the effective date of this valuation, for each member type, rounded to the nearest whole year:

Active members	-
Deferred members	52
Current Pensioners	66

Appendix I (continued)

S179 Valuation certificate

I certify that this valuation has been carried out in accordance with the Pension Protection Fund (Valuation) Regulations 2005 and with the appropriate section 179 guidance and assumptions issued by the Board of the Pension Protection Fund. I also certify that the calculated value of the protected liabilities is, in my opinion, unlikely to have been understated.

Signature		Date	30 June 2017
Name	Mark McClintock	Qualification	Fellow of the Institute and Faculty of Actuaries
Address	Deloitte Total Reward and Benefits Limited Lincoln Building 27-45 Great Victoria Street Belfast BT2 7SL		

Appendix J

Investment considerations

The valuation result provides details of the financial position of the Section at the Valuation Date. It provides little guidance as to the sensitivity of the financial position to future changes in investment markets.

In the absence of any other considerations the Trustee's preferences, if there were sufficient funds, should be for the lowest risk investments.

Purchase of annuities

The purchase of annuities to match liabilities would provide the minimum risk investment. I have investigated in broad terms the feasibility of annuitisation of the accrued benefits and the results of my calculations are set out in Table 6.

Lowest risk investment bond portfolio

After the purchase of annuities the lowest risk investment portfolio is a mix of inflation linked and fixed interest bonds. The fact that the commercial sellers of pensions (i.e. insurance companies) invest wholly in bonds supports this view.

It should be noted that a 100% bond portfolio does not, unlike annuities, remove all risks. Risks remain because:

- of pensioners' longevity;
- the duration of the available bonds does not extend far enough into the future (the longest dated sterling bond is redeemable in 2060);
- cashflows cannot be precisely matched because the coupons from the bonds do not replicate each year's pension increases and also the optimal mix of fixed and inflation-linked will change from time to time; and
- Member options (eg transferring benefits out of the Plan) mean cashflows themselves are uncertain.

I am not suggesting that a 100% bond investment is always appropriate and I believe that in the circumstances of the Section, equities may have a place in its investment portfolio. This is because equities should give a higher return than bonds. However:

- equities' expected higher return is simply compensation for the greater risk of capital loss;
- it may be many years before the higher return manifests itself; and
- even over periods as long as 20 years, there is no certainty that equities must outperform bonds. History, which may not be a reliable guide, suggests only a three in four chance.



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