



InFocus Document

Cashflow and Consolidation Options

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Scope

This document covers Cash Flow & Consolidation Options in SuperVal.

SuperVal allows users to consolidate valuation results and generate cashflows. This document describes how the user can make use of the different options available.

This document is based on Version 9.25 of SuperVal. Any screenshots which may be included from previous versions of SuperVal are not materially different from those in V9.25.

1 Initial Set Up

1.1.1 All runs that need to be consolidated must have the same consolidation folder

The screenshot shows the EQUINITI software interface. The 'File' menu is open, and the 'Consolidation Results File Folder' field is highlighted with a red box. The field contains the path 'C:\INFOCUS\CONSOL\'. Other fields visible include 'Input Data Files Folder' (C:\INFOCUS\INPUT\), 'Output Files Folder' (C:\INFOCUS\OUTPUT\), 'Scheme Name' (InFocus), 'Superval/21 Migration Folder', 'Scheme Level Parameter File' (EXAMPLE 2), 'Rate Tables File' (SVDECR REGRESSION.SF), and 'Factor File' (SVFACTORS.SF). Buttons for 'Save', 'Quit', and 'Help' are at the bottom right.

The Consolidation can be set through File > Properties and whenever opening a new scheme.

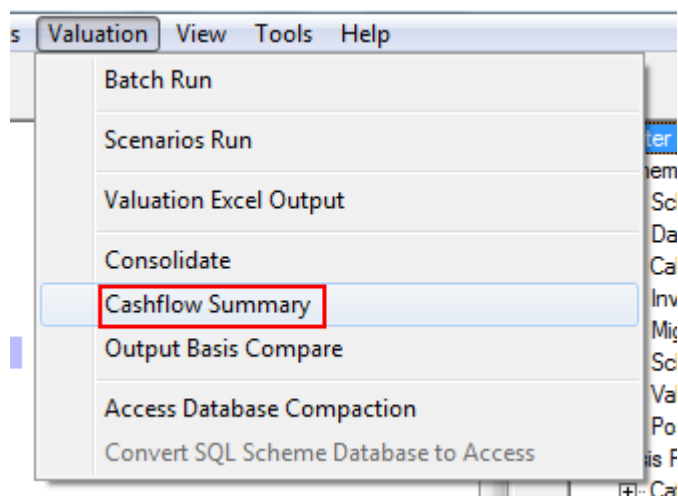
All runs that are to be consolidated must all have the same Client Name. The Client Name should be the same across modules (i.e. actives, deferreds, ensioners).

You will only be able to run a consolidation on runs of the same type and with the same valuation date. Hence you wouldn't be able to consolidate an Active PUC run with an Active AAN run, or an Active PUC run with a Pensioner PPF run (say)

All SuperVal results are written into a database file (SVResults.mdb) which is located in the consolidation folder. This folder is used for consolidation purposes, so users should not delete it if they need to run a consolidation.

Liabilities (and cashflows) can be split / grouped according to pension increase type. To make use of this new functionality, the different types of increase rate need to be specified as follows:

Cashflow and Consolidation Options



The names for the cashflows split by pension increase can be defined in the Scheme Financial assumptions:

	Inflation	Revaluation	Increase	
Increase Rate Assumptions				
	Global Name	Global Value	Description used for Consolidation	Description
1	Pre97 Pen Inc	2.95	RPI (0,5)	Black Scholes vol 1.4%
2	Post97 Pen Inc	3.5	RPI (3,5)	Black Scholes vol 1.4%
3	Post09 Pen Inc	2.2	RPI (0,2.5)	Black Scholes vol 1.4%
4	Post10 Pen Inc	2	CPI (0,5)	Black Scholes vol 1.4%
5	Pre88 GMP Pen Inc	0	Fixed 0%	
6	Post88 GMP Pen Inc	1.8	CPI (0,3)	Black Scholes vol 1.4%

The column named "Description used for Consolidation" should be populated so that the Cashflow Summary will have column headers using the descriptions above.

As the descriptions are specified in the Scheme > Financial Assumptions there is no need to do any additional work in the basis elsewhere.

2 Cashflow Options

2.1.1 The Cashflow parameters are specified on the Main tab in the Active and Deferred modules:

2.1.2 The Deferred Module has the following options:

Cash Flow Parameters

Pension Benefits Capitalised or Spread

Underpin Method

Retirement Age

Death Age

The Active module has slightly more parameters:

Cash Flow Parameters

Pension Benefits Capitalised or Spread

Death in Deferment Method

Underpin Method

Pension Age

Lump Sum Age

Retirement Age

Leaving Age

2.1.3 Pension Benefits Capitalised or Spread?

Select “C – Capitalise” if you wish exit liabilities to be displayed as capitalised values. Otherwise “S – Spread” for a payment flow of the exit liabilities.

2.1.4 Death in Deferment – Method

This is only used if “S – Spread” is selected in the above parameter. Death in Deferment benefits will still be valued on a capitalised basis. However there is a choice as to where the capitalised value will appear.

Select “T – Table” if you wish to specify a table to determine the point where the capital value of the Death in Deferment Pension and Lump Sum are to appear in the cash flow. Otherwise select “D – Default” for the capital value of the Pension and Lump Sum to appear at the exit point (withdrawal).

2.1.5 Underpin – Method

This is only used if “S – Spread” is selected in the above parameter. Death in Deferment benefits will still be values on a capitalised basis. However there is choice as to where this capitalised value will appear.

Select “T – Table” if you wish to specify the table to determine the point where the Underpin in excess of the capitalised Retirement and Withdrawal benefits is to appear in the case flow. Otherwise select “D – Default” if you wish the Underpin excess to appear at the respective retirement or earlier exit point.

2.1.6 Using the Death in Deferment and Underpin “Table” Options:

An age related rate table, i.e. “EX” type, is needed if the “Table” option is to apply. The reference age is the age nearest at the start of the exit year. The corresponding entry is the age that the capital value is to appear in the cash flow for that year’s Death in Deferment or Underpin excess benefit.

For example:

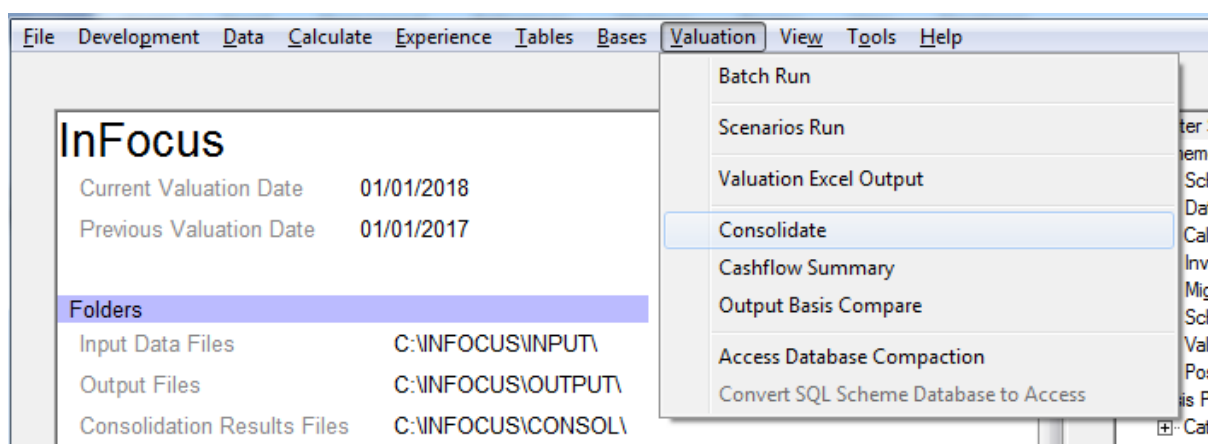
Age	Entry
...	...
45	48
46	49
47	50
...	...

Applying such a table means that the capital value will appear in the 3rd year following the exit year. The value would be rolled forward for 2.5 years interest (allowing for the fact that the value initially is half way through the year) and survivorship.

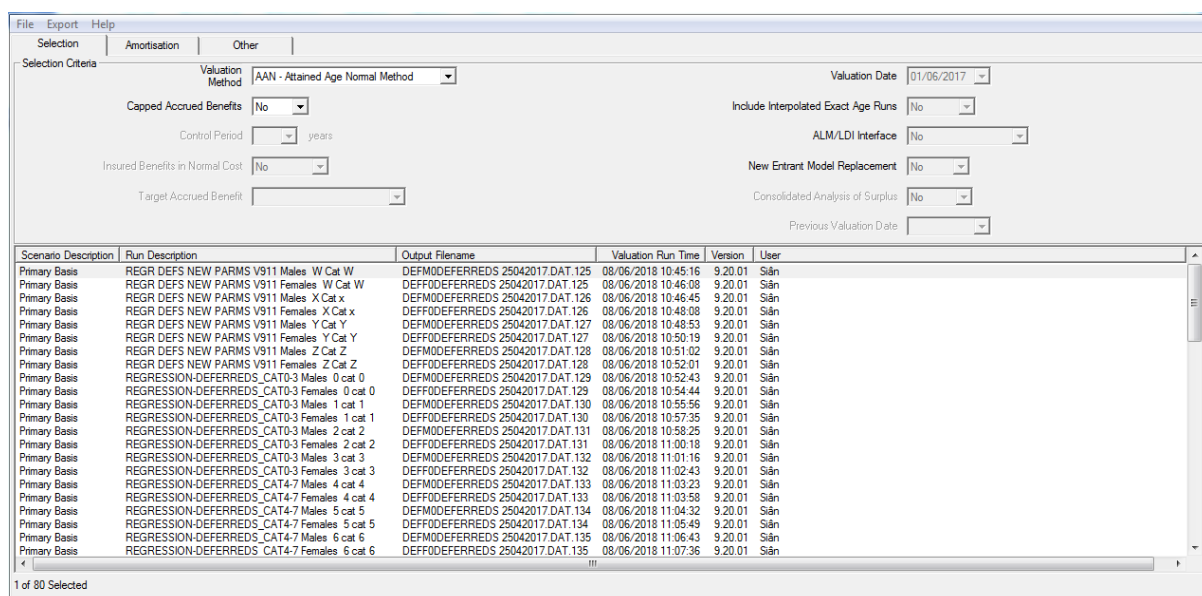
3 Consolidation

3.1 Consolidation Set Up

3.1.1 Once all runs have been done, the next step is to consolidate the runs.



Once a consolidation file and selection edit file have been specified, users will be asked to select the type of consolidation required:



Users will need to select the type of run they have and then highlight the categories they want to consolidate.

Cashflow and Consolidation Options

3.1.2 Amortisation

Users can specify up to two different recovery plans on this page. The amount amortised and the level of payments needed will be displayed on the Excel output.

The amount amortised can be paid off in level amounts, fixed amounts with accrued interest or as a percentage of salaries.

This can be a useful way to test out initial thoughts for recovery plans and allows users to select yield curves for the amortisation interest rate.

3.1.3 Asset Values, Other Liabilities and Expenses

On the tab labelled “Other” users can specify Expenses and any additional liabilities.

The Assets and the asset roll up rate can be specified here.

The tab is also used to name the consolidation database and the excel output produced.

3.2 Excel Output

Users can choose from several different sheets. The liabilities on the Valuation Statistics sheet are grouped as specified by the user under the Pension Increases in the Financial Assumptions.

The sheets produced are as follows:

- Valuation Run Summary
- Basis Details (different sheet for different modules)
- Actives Membership Projection (if applicable)
- Valuation Balance Sheet
- Valuation Statistics
- Projected Cash Flows
- Projected Accrued Benefits

Valuation Run History			
Valuation Run History (Consolidation)			
Training Scheme UC 1/12/2014			
Category Description			Data File
- NRA 60			Training DeferredData.dat
13	3(C)	16 December 2014 2:51 PM	C - NRA 55 Comm 34% with CF 12 at all ages Training DeferredData.dat

3.2.1 Cash Flow Output

For AAN and PUC runs the Cash Flows given continue until the last benefit payment has been made. For DAB runs the Cash Flow Summary Listings continues for the Control Period only (& only actives).

See next page for example screenshot.

Ill Health (Cash/ Pension/ Insured):

The “Cash” column will show the capitalised liability if this has been selected in the basis.

If “S – Spread” has been selected, then any pension liability is shown under “Pension”.

Leaving Service (Cash/ Pension/ Death in Def):

The capitalised liability will appear under the “Cash” column if “C – Capitalise” has been selected.

When “S – Spread” has been selected: All death in deferment and cash liabilities are separately shown and the spread deferred retirement liability is shown under column “Pension”.

Pensioners & Deferreds modules*Deferreds / Pensioners:*

This column is for valuation runs from the Pensioner and Deferred modules. Pensioner cash flows are spread by default. The Deferred cashflows can be spread or capitalised if desired. The spread or capitalised options are specified on the Main tab in the basis.

Cash Flow Parameters

Pension Benefits Capitalised or Spread

Underpin Method

Retirement Age

Death Age

Other Cash Flow outputs*Total benefits cash flow:*

This is simply a sum across the rows for Actives, Deferreds & Pensioners.

Member Contributions:

This column shows the value of the (Active) members’ contributions in each year.

Company Contributions:

The value of company contributions in each year is shown here. This equals:

- Future Liability less Member’s Contributions plus Insurance and Expenses

Expenses:

Scheme expenses in each year are specified in the Consolidation parameters.

Investment Income:

This is a balancing item. The formula for Duration “t” is:

$$\begin{aligned} & \text{Assets at Start Year (t+1)} - \text{Assets at Start Year t} \\ & \quad - \text{Company Contributions at time t} \\ & \quad - \text{Member Contributions at time t} \\ & \quad + \text{Total Projected Benefit Payments at time t} \end{aligned}$$

Assets at Start Year:

The formula for Duration “t” is:

$$\begin{aligned} & \text{Assets at Start Year (t-1) plus 1 year's interest} \\ & \quad + \text{Member Contributions year (t-1) with } \frac{1}{2} \text{ year's interest} \\ & \quad + \text{Company Contributions year (t-1) with } \frac{1}{2} \text{ year's interest} \\ & \quad - \text{All Projected Benefit Payments year (t-1) excl. Normal Retirement with } \frac{1}{2} \text{ year's interest} \\ & \quad - \text{Normal Retirement Liability year (t-1) with 1 year's interest} \end{aligned}$$

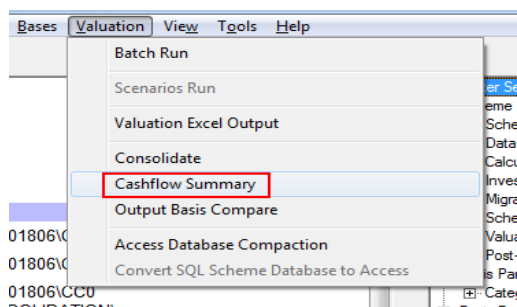
Accrued Benefit (PUC runs only):

This is the past service liability at each (Curtate) Duration allowing for projected salaries i.e. “ongoing” past service liability at each future duration.

3.4 Generating Cashflows Split by Pension Increase Type

The projected cashflows given in the Excel consolidation output are not split by pension increase type as defined in the Pension Increase parameters. These are available, though, if the user selects the Cashflow Summary option:

Cashflow and Consolidation Options



The user is asked to specify the consolidation database file created when running the initial consolidation, and then a separate Excel file is created showing the cashflows split by pension type. The user can opt to filter the results by membership type (i.e. Actives, Deferreds, Pensioners, All) and/or pension type. Results are also shown graphically.

SuperVal - Summary of Cash Flows

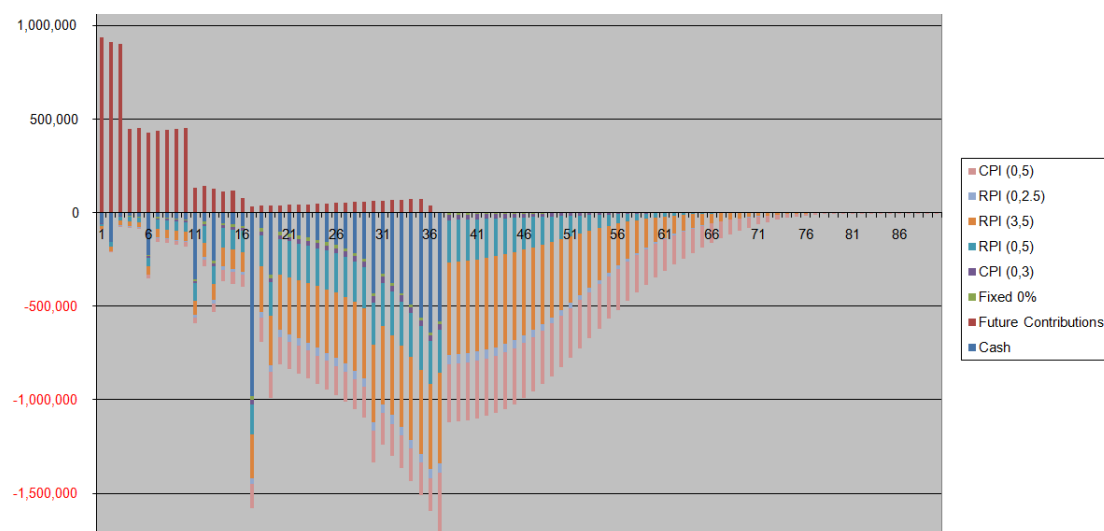
Consolidation Database File: PUC Consolidation.mdb

Output Excel Filename: PIA Cash Flows.xls

OK Cancel Help

	A	B	C	D	E	F
1	Client:	Training Scheme				
2	Valuation Date:	31/12/2014				
3						
4	Member Status	(All)				
5						
6	Sum of Cash Flow	Increase Rate				
7	Payment Year	Cash	Future Contributions	Fixed 0%	CPI (0,3)	RPI (0,5)
8	1	-55,117	938,895	-2,917	-1,761	-12,702
9	2	-153,921	912,661	-2,911	-1,805	-22,476
10	3	-15,047	901,009	-2,904	-1,849	-23,376
11	4	-17,450	447,975	-2,896	-1,895	-24,326
12	5	-20,198	454,659	-3,981	-3,278	-22,865

Cashflow and Consolidation Options



Appendix A Notes on Consolidation Output

Excel Consolidation

Consolidations Results are produced in Excel rather than text output. The (visible) changes that have been made to each of the worksheets within the Excel output are as follows:

Each worksheet now displays the following information:

- Client
- Valuation Method
- Valuation Date
- Basis File (only on the Active Membership Projection worksheet)
- Control Period (only on the Valuation Balance Sheet)

A dropdown allows you to view any worksheet you want:

Valuation Balance Sheet

Valuation Balance Sheet													
Client:		Training Scheme											
Valn Method:		PUC											
Valn Date:		31/12/2014											
Control Period:		1 year											
Select	Category Description	Number of Members	Annual Salaries/ Pensions	Retirement	Funded Benefits		Insured Benefits				Leaving Service	Death in Deferment	Total
					Death	Ill-Health	Death Cash	Death Pension	Ill-Health Cash	Ill-Health Pension			
Past Service Liability													
Actives													
	Females A - NRA 65	1	95,000	997,870	23,126	0	0	0	0	0	0	0	1,020,996
	- NRA 55 with 34% Comm and 12 CF	1	80,000	845,675	3,356	0	0	0	0	0	0	0	849,031
	NRA 62.5 with 5% Sal Inc on Post97	1	75,000	565,629	34,148	0	0	0	0	0	0	0	599,777
	Males D - NRA 60	1	92,500	486,076	33,615	0	0	0	0	0	0	0	519,691
	Males E - NRA 70 with GMP Reval 10%	1	1,000,000	149,557	1,165,898	0	0	0	0	0	0	0	1,318,455
	Males F - CARE	1	80,000	267,318	31,521	0	0	0	0	0	0	0	298,839
	Active Total	6	1,422,500	3,312,125	1,294,664	0	0	0	0	0	0	0	4,606,769
Deferreds													
	A - NRA 65	1	0	1,717,843								127,485	1,845,328
	B - NRA 60	1	0	1,466,133								43,653	1,509,785
	55 Comm 34% with CF 12 at all ages	1	0	233,225								0	233,225
	-NRA 62.5 Fixed 5% Reval on Post97	1	0	719,424								42,777	762,200
	E - NRA 70 Fixed 10% GMP Reval	1	0	201,706								36,465	238,171
	Deferreds Total	5	0	4,338,330								290,380	4,628,709
Pensioners													
	A - Above SPA and Dependents	1	0	173,001								0	173,001
	A - Above SPA and Dependents	1	0	77,502								0	77,502
	B - Below SPA	1	2,211	199,658								0	199,658
	C - Children	1	0	57,327								0	57,327
	Pensioners Total	4	2,211	507,488								0	507,488
Additional Liabilities													
Scheme Totals													
Scheme Past Service Liability													9,702,967
Net Scheme Assets													7,000,000
Unfunded Scheme Past Service Liability at Valuation Date													2,702,967
Amortisation Contributions													
Amortisation 1 - Repaid by a Company Contribution of £ 326,782 per annum for 10 years													
Discounted at 4% per annum													-2,702,967
Amortisation 2 - Repaid by a Company Contribution of £ 450,498 Flat per annum plus Accrued Interest for 3 years													
Discounted at 4% per annum													-1,351,493
Unfunded Scheme Past Service Liability													-1,351,493
Control Period Liability													
Actives													
	Females A - NRA 65	1	95,000	22,047	864	0	0	0	0	0	0	0	22,910
	- NRA 55 with 34% Comm and 12 CF	1	80,000	13,043	60	0	0	0	0	0	0	0	13,103
	NRA 62.5 with 5% Sal Inc on Post97	1	75,000	20,400	2,002	0	0	0	0	0	0	0	22,401
	Males D - NRA 60	1	92,500	21,942	2,388	0	0	0	0	0	0	0	24,329
	Males E - NRA 70 with GMP Reval 10%	1	1,000,000	9,563	4,212	0	0	0	0	0	0	0	13,775
	Males F - CARE	1	80,000	10,453	1,899	0	0	0	0	0	0	0	12,352
	Active Total	6	1,422,500	97,447	11,424	0	0	0	0	0	0	0	108,871
Expenditure - Company Contributions (UK), Member Contributions (UK),													
Salaries (0%), Inflation Post Member Fee (6%) and													
Scheme Fee (60 Inflation at 1.04% pa)													
Member Contributions:													25,984

- The Actives Results are split to show Past and Future Service Liability.
- Past Service Liability Totals are provided for Deferreds and Pensioners.

Valuation Summary and Statistics Worksheet

- Breakdown of control period liability for Actives
- Valuation Statistics show the Liabilities split by Pension Increase and cause of emerging benefit
- 'PV 1% of Salaries' figured are formatted so that figures exactly equal to previous period are not displayed.
- Average Age and Remaining Service Life along with details of how they are weighted

Membership Projection Worksheet (Actives Only)

- This starts with the Fund total and subtracts the exits during that year (next line) and adds new entrants to get a new Fund Total.
- The Active Membership Projection also shows the projection of salaries

Active Membership Projection

Client: Training Scheme
Valn Method: PUC
Valn Date: 31/12/2014
Basis File: ACTIVES TRAINING BASIS

Year	Date	New Entrants	Fund Total	Late Retirements	Number of Members				III Health Retirements	Leavers	New Entrants	Fund Total	Late Retirements	Annual Salaries of Members				III Health Retirements	Leavers
					Normal Retirements	Early Retirements	Deaths							Normal Retirements	Early Retirements	Deaths			
0	31/12/2014	-	6.00	-	-	-	0.02	-	-	-	-	521,590	-	-	-	-	1,300	-	-
1	31/12/2015	-	5.98	-	1.00	-	0.01	-	-	-	-	539,009	-	77,717	-	1,121	-	-	-
2	31/12/2016	-	4.97	-	-	-	0.01	-	-	-	-	476,459	-	-	-	1,237	-	-	-
3	31/12/2017	-	4.98	-	-	-	0.01	-	-	-	-	492,095	-	-	-	1,383	-	-	-
4	31/12/2018	-	4.95	-	-	-	0.02	-	-	-	-	508,209	-	-	-	1,501	-	-	-
5	31/12/2019	-	4.93	-	0.98	-	0.01	-	-	-	-	524,808	-	97,978	-	1,089	-	-	-
6	31/12/2020	-	3.94	-	-	-	0.01	-	-	-	-	440,572	-	-	-	1,198	-	-	-
7	31/12/2021	-	3.93	-	-	-	0.01	-	-	-	-	454,738	-	-	-	1,309	-	-	-
8	31/12/2022	-	3.92	-	-	-	0.01	-	-	-	-	469,340	-	-	-	1,433	-	-	-
9	31/12/2023	-	3.91	-	-	-	0.01	-	-	-	-	484,384	-	-	-	1,587	-	-	-
10	31/12/2024	-	3.89	-	-	-	0.01	-	-	-	-	499,880	-	-	-	1,715	-	-	-

Projected Accrued Benefits

Projected Accrued Benefits

Projected Accrued Benefits

Client: Training Scheme
Valn Method: PUC
Valn Date: 31/12/2014

Discontinuation Liabilities at each Year																
Duration Start Year	Year Start Date 3/1/12	Projected Assets	Projected Benefit Obligation	Funding Ratio	Status at Valuation Date						Total Discontinuity Liability	Funding Ratio	Death in Deferment			
					Actives		Deferreds		Pensioners	Total			GMP	Excess	Total	
					GMP	Excess + DID	GMP	Excess + DID								
0	2014	7,000,000	9,702,987	72%	243,144	2,665,837	194,965	4,350,640	507,488	7,962,074	88%	-	-	-		
1	2015	8,288,560	10,294,045	81%	255,382	2,995,342	204,853	4,556,635	501,342	8,513,554	97%	-	-	-		
2	2016	9,497,300	10,765,944	88%	269,264	3,115,791	215,324	4,819,236	494,359	8,913,974	107%	-	-	-		
3	2017	10,911,102	11,416,269	96%	282,927	3,404,055	226,408	5,096,423	486,479	9,496,292	115%	-	-	-		
4	2018	11,937,922	12,106,080	99%	296,235	3,721,430	238,141	5,388,988	477,632	10,122,426	118%	-	-	-		
5	2019	13,027,368	12,837,649	101%	309,044	4,070,857	250,561	5,697,773	467,796	10,796,032	121%	-	-	-		

- The discontinuity liabilities are rolled forward using the expected cashflows produced in the runs.
- The assets are rolled forward using the asset roll up rate allowing for any benefit payments

Projected Cash Flows Worksheet

- Company Contributions column matches text output. The Valuation Excel output Company Contributions column does not match Consolidation Excel Output. The difference is that Valuation Excel output does not include Insured Benefits.