Actuarial 101 for Non-Actuaries

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Agenda

- Intro
- Traditional DB Plan
  - ➢ Benefits
  - ➢ Funding
  - ➢ AFTAP
  - ➢ PBGC AFN
- Cash Balance DB Plan
  - ➢ Benefits
  - ➢ Funding
  - ➢ AFTAP

Intro

- Both sample plans are ‘DB/DC combo plans’ and covered by PBGC.
- ‘Combo plan,’ the employer sponsors both a Defined Benefit (DB) and a Defined Contribution (DC) plan.
- The two plans are aggregated to satisfy 410(b), 401(a)(4) and are top-heavy.
- The DB plan provides maximum benefits to owner(s) while minimizing the benefits to the employees.
- The DB fails testing/top-heavy on it’s own, but when aggregated with the allocations from the DC plan, it passes non-discrimination.
- The employee PS allocations must also satisfy top-heavy and gateway.
  - ➢ With a DB/DC plan, gateway is different than a stand-alone DC plan.

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Intro

- Once a participant works a certain number of hours in a DB, they've 'earned' the right to that benefit.
  - As defined in the plan, usually 1,000 hours
- Once that happens, the DC plan allocations are no longer discretionary.
- Your actuary will provide you with DB/DC testing reports.
- DB plans have a valuation date.
- For plans with over 100 participants, on any day of the preceding plan year, the valuation date must be the first day of the plan year.
- For plans with 100 or less, the valuation date can be any day of the plan year.
  - Usually the last day of the plan year.

Intro

- A 2014 calendar plan year:
- 1/1/14 valuation date uses:
  - 12/31/13 census data
  - 12/31/13 asset data (including 2013 contribution receivables)
- 12/31/14 valuation date uses:
  - 12/31/14 census data
  - 12/31/14 asset data

Intro

- The endless actuary debate, BOY versus EOY…
- BOY: can provide numbers early in the plan year provided data provided timely.
- BOY: may help spread work outside of normal ´busy season.´
- BOY: reports can be confusing
  - Benefit statements for the 2014 valuation are actually as of 12/31/13.
  - Data doesn't line up with 5500 year end such as participant count, etc.
- EOY: flows better (IMHO)
- EOY: easier to follow by both TPA and sponsor.
- EOY: one set of data received and used for all tasks associated with that plan year.
- Both the traditional and cash balance are 2014 plan years with an End-of-Year (EOY) valuation date.

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Traditional DB Plan

- Traditional DB Plan - **Open Handout #1.**
- The plan document will have a benefit formula that defines how much each participant will receive as a monthly annuity payable at Normal Retirement Age (NRA).
- Once earned, a participant's accrued benefit cannot be reduced.
  - Unlike DC plans, the sponsor bears the risk of investment returns.
- A traditional DB benefit formula is usually based on some percentage of pay multiplied by some definition of Average Monthly Compensation (AMC) multiplied by some definition of Years of Credited Service (YOCS).

Traditional DB Plan

- Traditional DB benefit formula usually falls into one of three formula types.
- Unit credit: a percentage of AMC x YOCS.
  - Five percent of highest three-year AMC x YOCS counting service as a participant in the plan
- Unit dollar formula: a specified dollar amount x YOCS.
  - $100 per month x YOCS counting all years of service with the employer.
- Fixed formula (projected): a percentage of AMC (usually reduced for years of service less than a stated amount, like 25), then accrued pro-ratably over YOCS (fraction accrual).
  - Projected benefit = 100 percent of AMC reduced 1/25th for each YOCS less than 25.
  - Accrued benefit = projected benefit x completed YOCS/YOCS at NRA.

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Traditional DB Plan

- Page #1 and #2 – Plan Specifications

		EIN: 45-1234567 TIN: Plan #: 002 Plan Type: Defined Benefit
Dates:		Effective - 01/01/2008 Year end - 12/31/2014 Valuation - 12/31/2014
		Top Heavy Years - 2008, 2009, 2010, 2011, 2012, 2013, 2014
Eligibility:		All employees excluding non-resident aliens, members of an excluded class and union
		Minimum age - 21 Months of service - 12
	Hours Required for -	Eligibility - 1000 Benefit accrual - 1000 Vesting - 1000
	Plan Entry -	First day of 1st or 7th month of plan year on or next following eligibility satisfaction
Retirement:	Normal -	First of month coincident with or next following attainment of age 62 and completion of 5 years of participation
	Early -	Not provided
Average Compensation:		Highest 3 consecutive years of participation
	Top Heavy Minimum Benefit -	Highest 5 consecutive top heavy years of participation

Traditional DB Plan

Top Heavy Minimum Benefit - Highest 5 consecutive top heavy years of participation

Plan Benefits: Retirement - Derived from the graded benefit formula below:

Employee Classification	Benefit Formula
1	not less than 8% of average monthly compensation per year of participation
2	not less than 0.5% of average monthly compensation per year of participation

Accrued Benefit - Unit credit based on participation

Minimum Benefit - None

Maximum Benefit - None

Maximum allowable distribution is lump sum equivalent of normal form not to exceed 415 maximum allowable distribution, which is the lesser amount computed using a) 5.5% interest and the Applicable Mortality Table or b) the greater of plan actuarial equivalence interest and mortality or 417(e) Minimum

Death Benefit - Present Value of Accrued Benefit

Top Heavy Minimum: Provided in another plan

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Traditional DB Plan

IRS Limitations:	415 Limits -	Percent: 100	Dollar: $210,000
	Maximum 401(a)(17) compensation - $260,000		
Normal Form:	Life Annuity		
Optional Forms:	Lump Sum Joint with 50%, 75% or 100% Survivor Benefit		

Vesting Schedule:

Years	Percent
0-1	0%
2	20%
3	40%
4	60%
5	80%
6	100%

Service is calculated using all years of service except years prior to plan effective date

- Normal form tells us how the benefit will be <u>valued</u> at NRA, not the same as the plan's automatic form for a married participant.

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Traditional DB Plan

Present Value of Accrued Benefit: Based on the greater of 417(e) or Actuarial Equivalence

417(e):

Interest Rates -

Segment #	Years	Rate %
Segment 1	0 - 5	1.25
Segment 2	6 - 20	4.57
Segment 3	> 20	5.60

Mortality Table - 14E - 2014 Applicable Mortality Table for 417(e) (unisex)

Actuarial Equivalence:

Pre-Retirement - Interest - 5%

Mortality Table - None

Post-Retirement - Interest - 5%

Mortality Table - G94 - 1994 Group Annuity Reserving Proj 2002, Scale AA (unisex)

Benefits

- Page #4 Employee Census

Key	Percent Owner	SVC PS	SVC FS	Gender	Ages PA	Ages AA	Ages ARA	Dates Birth	Dates Hire	Dates Part	Dates Retire	Compensation
Tempe B.												
		7	5	F	50	57	62	01/01/58	01/01/00	01/01/08	01/01/20	$260,000.00
Angela M.												
		7	33	F	22	29	62	01/01/86	01/01/07	01/01/08	01/01/48	$42,000.00

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Benefits

- Page #5 – Schedule Of Benefits

	Beg Year Acc Ben Monthly Compensation	End Year Acc Ben Monthly Compensation	Monthly Benefit	Lump Sum @ Ret	Accrued Benefit	Vest Pct	Vested Accrued Benefit	Present Value of Vested Accrued Benefit
Tempe B.								
	20,833.33	21,250.00	17,500.00	2,613,190	11,900.00	100	11,900.00	1,421,427
Angela M.								
	2,861.11	3,194.44	700.00	106,510	111.81	100	111.81	3,400

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Benefits

- Group 1 defined in document as Tempe B.
- Benefit formula = eight percent of AMC x YOP
- Tempe's high three-year average monthly compensation = $21,250

  2012: $250,000

  2013: $255,000

  2014: $260,000

- Monthly accrued benefit (page 5) = $21,250 x .08 x 7 = **$11,900**

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Benefits

- Group 2 defined as 'All Other Eligible Participants.'
- Benefit formula = .50 percent (one-half of one percent) of AMC x YOP
- Angela's high three-year average compensation = $3,194.44

  2012: $35,000

  2013: $38,000

  2014: $42,000
- Monthly accrued benefit =

  $3,194.44 x .005 x 7 = **$111.81**

Benefits

- Why is Angela receiving a .50 percent benefit?
- 401(a)(26) is a rule only applicable to DB plans, often referred to as the 40-percent rule.
- A two-prong test that mandates:
  - A DB plan must <u>benefit</u> the lesser of
    - 50 employees
    - 40 percent of non-excludable employees
      - But in no event less than two employees
  - The benefit must be meaningful.
- Meaningful is not defined in law or regulations.
- In 2002 there was an IRS memo referred to as the 'Paul Schultz' memo.
- It established that a person is 'benefitting' from this rule if they have at least a .50 percent of pay annuity benefit at NRA for the current plan year.

Benefits

- Page #6 'Present Value of Accrued Benefits" provides three 'pieces' that go into calculating the PVAB shown on page #5 Benefits.

	Accrued Benefit	#1 PVAB Based on Plan Assumptions	#2 PVAB Based on 417(e) Assumptions	#3 PVAB Based on IRC Section 415	Greater of Plan or 417(e) Assumptions as Limited by 415
Tempe B.					
	11,900.00	1,418,709	1,433,332	1,421,427	1,421,427
Angela M.					
	111.81	3,400	2,616	348,920	3,400

Benefits

- Present Value Accrued Benefit (PVAB) means the current lump-sum value of the monthly annuity benefit at NRA.
- The PVAB is determined under the Actuarial Equivalent (AEQ) assumptions defined in the plan document.
- Actuarial equivalent means two things are considered equal in value.
- The PVAB is considered to be 'actuarially equivalent' to the annuity benefit using the plan's AEQ assumptions.

Benefits

- Plan assumptions are found in the plan document under the definition of Actuarial Equivalence (AEQ).
- Page #2 plan provisions:

Actuarial Equivalence:

Pre-Retirement -	Interest -	5%
	Mortality Table -	None
Post-Retirement -	Interest -	5%
	Mortality Table -	G94 - 1994 Group Annuity Reserving Proj 2002, Scale AA (unisex)

Benefits

- <u>Angela's plan 'PVAB' on 12/31/14.</u>
- Angela is exactly age 29 and her NRD is exactly age 62 (from page #4).
- Angela is exactly 33 years away from NRD.
- Plan PVAB = monthly benefit at NRD x Annuity Purchase Rate (APR) at NRD, discounted 33 years.
- The APR represents the cost of a $1 per month benefit payable at NRD.
- APR at age 62 = 152.1573
  - Using 94 GAR mortality and five percent interest
- $111.81 x 152.1573 = $17,013 (LS at NRD)
- Discount from NRA to AA (interest only) = $17,103 ÷ (1.05)^33 = <u>**$3,400**</u>

Benefits

- If the plan had 5.50 percent pre-ret instead of five percent, the APR would be the same but the discount would look like this:

  $17,103 ÷ (1.055)^33 = $2,922 (versus $3,400)

- Interest discounting: lower interest rates mean higher present values and higher interest rates mean lower present values.
- But…Angela's lump sum cannot be less than the minimum PVAB calculated under§417(e)(3)(D).*
- 417(e) rates are mandated by the IRS and considered a minimum threshold on the 'plan' PVAB.
- The lump sum payable to a terminated participant is the greater of the 'plan' or the '417(e)' calculation.

*We will refer to §417(e)(3)(D) as 417(e).

Benefits

- 417(e) says to use the applicable mortality table and the applicable interest rates.
- Applicable mortality table is the IRS issued table for each calendar year.
- Applicable interest rates are based on three segment rates.
  - Segment 1 rate applies to benefit payments in the first five years.
  - Segment 2 rate applies to benefit payments in the next 15 years.
  - Segment 3 rate applies to benefit payments more than 20 years.

Benefits

- The plan document defines which assumptions to use for 417(e) by defining a stability period and a lookback month.
- Stability period is the length of time during which the plan will use the same applicable interest rates.
- Lookback month defines which IRS monthly 417(e) segment rates will be used during the stability period.

Benefits

- The plan document can define these terms in the following possible ways:
  - Stability Period

    One month
    One calendar quarter
    One plan quarter
    One calendar month
    One plan year

  - Lookback Month

    First month
    Fourth month
    Second month
    Fifth month
    Third month

    - Averaging of any number (second through fifth) of any consecutive lookback months if document specifies

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Benefits

- Our plan defines stability period as one year and lookback month is one.
- The 12/31/14 417(e) PVAB is valued using:
  - 2014 Applicable Mortality Table
    - Table in effect on the first day of stability period.
  - December 2013 417(e) segment rates
    - One month prior to the stability period that started on 1/1/14.

Benefits

- From Page #2 these are the 417(e) AEQ:

417(e):

Interest Rates -

Segment #	Years	Rate %
Segment 1	0 - 5	1.25
Segment 2	6 - 20	4.57
Segment 3	> 20	5.60

Mortality Table - 14E - 2014 Applicable Mortality Table for 417(e) (unisex)

https://www.irs.gov/Retirement-Plans/Minimum-Present-Value-Segment-Rates

Benefits

- Because Angela is 33 years away from (greater than 20) all her benefits valued under segment 3.
- Segment 1 factor (five years) = -0-
  - No payments under 1.25 percent segment 1 rate
- Segment 2 factor (15 years) = -0-
  - No payments under 4.57 percent segment 2 rate
- Segment 3 factor (remaining years) = 24.5090
  - PV at **5.60 percent** of deferred annuity payable at age 62
- 417(e) factor* = 0 + 0 + 24.5090 = 24.5090
- 417(e) PVAB = 111.81 x 24.5090 = **$2,740**

*Without pre-retirement mortality

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Benefits

- Page #5- Schedule of Benefits reflects the greater of the plan PVAB ($3,400) versus the 417(e) PVAB ($2,740).
- Our sample case was exactly age 29 to make it easy to demonstrate, but people not always born on 1/1.
- For payout purposes we <u>do not</u> use rounded ages.
- More than one acceptable method to calculate age including (but not limited to):
  - Age in completed months
  - Exact age
- Valuation reports are often approximations.
- NEVER use a valuation report to pay out a terminated participant lump sum.

Benefits

- When does a lump-sum value change?
  - ➢ The lump-sum values can change daily, weekly or monthly!
- Administratively not feasible
- Actuary will calculate a specific "as of' date, then lock the lump sum for a 60- or 90-day administrative delay period.
- The lump sum will also change when you move from one stability period to another.
- So Angela's PVAB shown on the valuation report will expire on the next stability period that starts on 1/1/15.
- On 1/1/15 the plan has a new set of 417(e) assumptions.

Benefits

- What is Angela's PVAB on 1/1/15?
- The plan PVAB, which has static AEQ assumptions, will be on the same $3,400 on 1/1/15 (one day later).
- On 1/1/15 the applicable mortality changes to the 2015 applicable table
- Applicable interest from December 2014:
  - **1.48%**; **3.77%; 4.79%***

  Versus 1.25%, 4.57%, 5.60% from 12/31/13.

Benefits

- Segment 1 factor (five years) = -0-
  - ➢ No payments under 1.48 percent segment 1 rate
- Segment 2 factor (15 years) = -0-
  - ➢ No payments under 3.77 percent segment 2 rate
- Segment 3 factor (remaining years) = 34.1025
  - ➢ PV at **4.79 percent** of deferred annuity payable at age 62
- 417(e) factor* = 0 + 0 + 34.1025 = 34.1025
- 417(e) PVAB = 111.81 x 34.1025 = **$3,813**

*Without pre-retirement mortality

Benefits

- On 1/1/15 Angela's lump sum is the greater of:
- Plan PVAB = $3,400
- 417(e) PVAB = **$3,813**
- It's important to know when a benefit calculation 'expires.'
- The actuary should include that information when providing terminated-participant calculations.
- Tempe's PVABs, Page #6
- Tempe is exactly age 57, her NRD is exactly age 62, and she is exactly five years away from NRD.
  - From Census Page #4
- Plan PVAB = monthly benefit at NRD x Annuity Purchase Rate (APR) at NRD, discounted five years.

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Benefits

- APR = 152.1573
- $11,900 x 152.1573 = $1,810,672 (LS at NRD)
- Discounted to AA = $1,810,672 ÷ $(1.05)^{\wedge 5}$ = $1,418,709. (Plan PVAB)

Benefits

- Tempe is five years away from NRD
- Segment 1 factor (five years) = -0-
  - No payments under 1.25 percent segment 1 rate
- Segment 2 factor (15 years) = 97.8900
  - PV at **4.57 percent** of temporary deferred annuity payable from ages 62–77
- Segment 3 factor (remaining years) = 25.0477
  - PV at **5.60 percent** of deferred annuity payable from 77
- 417(e) factor* = 0 + 97.89 + 25.0477 = 122.9377
- 417(e) PVAB = $11,900 x 122.9377 = $1,462,959

*Without pre-retirement mortality

Benefits

- Why does the PVAB shown on Page #5 = $1,421,427?
- DB plan 415 limits define the maximum monthly annuity benefit payable at any time.
- 415 also limits the PVAB/lump sum that can be paid.

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Benefits

- DB 415 benefit limit defined as maximum monthly benefit payable at the annuity starting date (the payment date).
- The lesser of:
  - 415 dollar limit
    - Reduced by one-tenth for each **YOP** less than ten
  - 415 comp limit
    - Highest three consecutive year average
    - Reduced by one-tenth for each **YOS** less than ten

Benefits

- The dollar limit is issued by the IRS same as the 415 DC limits.
- The 2014 dollar limit = $210,000/year payable from ages 62 through 65.
  - Must be adjusted to the payment date
- The high-three comp limit is payable at any age.
- The 415 lump sum limit is determined by applying 5.5 percent interest and the applicable mortality table to the maximum benefit.
- Different rules if the plan has more than 100 employees who receive compensation = >5,000 and plans that have actuarial 'conversion factors' defined in the plan document (different from AEQ factors)
- Again, cannot use rounded ages.

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Benefits

- The unreduced 2014 415 dollar limit at ages 62-65 = \$210,000 annually, \$17,500 monthly.
- Tempe has seven YOP, her 415 dollar limit at NRA:
  - \$17,500 x 7/10 = \$12,250/month at age 62.
- Next determine the AEQ of the \$12,250 age 62 415 dollar limit at 12/31/14 (age 57) using the plan definition of AEQ.
- AEQ of age 62 415 dollar limit at age 57:
- Plan APR's (1994 GAR/five percent):
  - Age 62 = 152.1573
  - Age 57 = 168.7738
- \$12,250 x 152.1573 ÷ 1.05^{5} ÷ 168.7738 =
- Maximum 415 dollar limit age 57 = **\$8,653.21**

Benefits

- Maximum 415 dollar limit lump-sum limit:
- Age 57 415 LS APR = 164.2659*
- $8,653.21 x 164.2659 = **$1,421,427**

*2014 applicable table/5.5 percent

Benefits

- 415 comp limit is reduced for YOS less than ten.
- Tempe 12/31/14 YOS greater than ten.
- No reduction on the comp limit.
  - ➢ 2014 high-three comp limit = $21,250.
- 415 maximum = lesser of the dollar versus comp limit.
- Clearly the dollar limit is the lesser of....but
- $21,250 x 164.2659 = $3,490,650

*2014 applicable table/5.5 percent

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Benefits

- From Page #5

	Beg Year Acc Ben Monthly Compensation	End Year Acc Ben Monthly Compensation	Monthly Benefit	Lump Sum @ Ret	Accrued Benefit	Vest Pct	Vested Accrued Benefit	Present Value of Vested Accrued Benefit
Tempe B.								
	20,833.33	21,250.00	17,500.00	2,613,190	11,900.00	100	11,900.00	1,421,427
Angela M.								
	2,861.11	3,194.44	700.00	106,510	111.81	100	111.81	3,400

Funding

- The actuary should provide several numbers after the valuation is performed.
- The Minimum Required Contribution (MRC)
  - ➢ Calculated under IRC 430
- The Maximum Deductible Contribution
  - ➢ Calculated under IRC 404
- The ‘Recommended’ Contribution
  - ➢ Usually the amount that makes the plan PVAB’s whole.

Funding

- MRC and maximum-deductible calculations based on three segment interest rates mandated by the IRS we'll call PPA rates.
- Not the same as 417(e).
- Without regard to MAP-21 and HATFA rules, the interest rates are issued for each month.
- The default (no employer election) is to use the rates in effect on the valuation date.
- The sponsor can elect a one-, two-, three-, or four-month lookback.

Funding

- IRS passed rules that established different (higher) interest rates (MAP-21) in 2012 then amended by HATFA in 2013, to be used for MRC.
  - Maximum deductions (404) are calculated under original PPA segment rates.
- IRS issues one set of segment rates under HATFA for each calendar year.
- The plan will use the HATFA rates for the calendar year that contains the first day of the plan year.

Funding

- Page #3 shows both our PPA rates for 404 (maximum deduction) and 430 (MRC)

Used for Maximum Deductible

Segment rates for the Valuation Date as permitted under IRC 430(h)(2)(C)

Segment #	Year	Rate %
Segment 1	0 - 5	1.20
Segment 2	6 - 20	4.10
Segment 3	> 20	5.20

Used for Minimum Required Funding:

The same rates used for all PYB in 2014

Segment rates as of September 30, 2013 As permitted under IRC 430(h)(2)(C)(iv)(II) - HATFA

Segment #	Year	Rate %
Segment 1	0 - 5	4.99
Segment 2	6 - 20	6.32
Segment 3	> 20	6.99

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Funding

- Definitions for MRC:
- Target Normal Cost (TNC) is the present value of the increase in accrued benefit (AB) for the current plan year using the 430 segment rates.
  - Represents the benefit earned during the year.
  - EOY AB minus BOY AB.
- Funding Target (FT) is the present value of the benefit accrued on the first day of the plan year using the 430 segment rates.
- Actuarial Assets – the DB trust valued on the valuation date, excluding rollovers accounts and any current year contributions.
- For some purposes AA are reduced by any prefunding balances.

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Funding

- Prefunding Balance (PFB): when a sponsor contributes more than the MRC for any given plan year (excess).
- An election can be made (in writing) to 'add' the excess to a PFB.
  - Can be used in future years to apply against the MRC just like a contribution, provided certain conditions are met.
- There is the option to have the sponsor sign a single election (standing election) to automatically add all excess contributions to the PFB.
- Not a smart thing to do since there are situations where having a PFB can lead to higher required MRC.
- Additions to the PFB should be decided by the actuary on a case-by-case and year-by-year basis.

Funding

- Another type of funding balance 'Carryover Balance' (COB) that would only apply if a plan existed prior to 2008 and had a credit balance as defined in the pre-PPA rules.
- **Prefunding balances are a pain and should only be created in situations where the actuary feels it is necessary.**
- Shortfall. If the FT is greater than the adjusted assets, the difference is called a shortfall.
  - This indicates the plan is underfunded.
- Shortfall charge. The shortfall amortized over seven years.

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Funding

- Effective Interest Rate (EIR) – a single rate that if used, would produce the same FT and TNC liabilities as calculated as using the 430 funding-segment rates.
- EIR is used for discounting contributions (in some cases) and certain adjustments to funding balances.

Funding

- Minimum funding <u>charges</u>
  - ➢ Target normal cost
  - ➢ Shortfall amortizations
  - ➢ Prior unpaid minimums
- Minimum funding <u>credits</u>
  - ➢ Contributions <u>discounted</u> to valuation date
  - ➢ Surplus of adjusted asset over FT, not to exceed TNC
  - ➢ Funding balance elections <u>discounted</u> to valuation date

Funding

- Page 7 – FT and TNC

BOY AB before 2014 Accruals-->>	Accrued Benefit	Funding Target	Benefit Increase	Target Normal Cost
Tempe B.				
	10,000.00	1,120,000	1,900.00	212,800
Angela M.				
	85.83	1,405	25.98	425
Totals:	$10,085.83	$1,121,405	$1,925.98	$213,225

- 430 funding liabilities lower than the PVAB due to higher segment rates under 430.

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Funding

- Page 9C – Funding Shortfall

Funding Shortfall

14. Reduced Funding Target (C9)	1,121,405
15. Applicable Assets (IRC 430(f)(4)(B)(i) (C5))	1,123,500
16. Funding Shortfall (IRC 430(c)(3) (C14-C15, not less than 0)	0
17. Shortfall Amortization Charge (C25a)	0

- Assets on 12/31/14 without 2014 CTBs.
- No shortfall since assets are greater than the funding target.

Funding

- Page 9D – Minimum Required Contribution

D. Minimum Required Contribution

1. Target Normal Cost (A2)	213,225
2. Funding Surplus (C5-A1, not less than 0)	2,095
3. Reduced Target Normal Cost (D1-D2, not less than 0)	211,130
4. Shortfall Amortization Charge (C17)	0
5. Waiver Amortization Charge	0
6. Minimum Contribution (D3+D4+D5)	211,130

- Line D2 'Funding Surplus' = Assets – FT =
- $1,123,500 – $1,121,405 = $2,095
  - Reduces the TNC to $211,130

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Funding

- $211,130 MRC represents the amount of contribution that would need to be deposited on the valuation date (12/31/14) to meet minimum funding.
- Contributions are discounted with interest from the date of deposit to the valuation date to credit against the MRC 'charges.'

Funding

- If contributions are deposited during the year they are increased with interest when the plan has an EOY valuation date.
  - Results in higher ‘credit’ toward minimum funding.
- If contributions are deposited after the valuation date they are discounted to the valuation date.
  - Results in lower credit to minimum funding.

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Funding

- If a sponsor wants to know the absolute minimum funding we need to know the date the deposit will be made.
- Difficult to manage.
- One solution is to assume the deposit will be made on the latest possible date.
    - Nine and a half months after the plan year end.

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Funding

- In this plan* it's easy to show how to calculate the MRC assuming a 9/15/15 deposit date.
- Number of days between 9/15/15 - 12/31/14 = 258 days.
- Project the 12/31/14 MRC to 9/15/15 to determine amount of CTB necessary.
- \$211,130 x <u>1.0633</u>^(258/365) = **\$220,491**
  - In real life would round up to \$220,500 for 'wiggle room.'

*Some plans have quarterly contribution requirements that result in more complex discount rules

Funding

- If sponsor is desperate to fund the absolute minimum ask for the expected deposit date (or dates) so actuary can give the contribution required as of that date.
- Confirmation is not:
  - Advance notice of future funding
  - Email from TPA
- Confirmation is:
  - Forwarded email from broker or sponsor confirming date(s) and amount(s)
  - Copy of check, bank statement or sponsor certification
    - Can be a cell phone image!

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Funding

- Page #11, SB Assets, 430 FT, EIR and 430 TNC.

1	Enter the valuation date: Month 12 Day 31 Year 2014			
2	Assets:			
	a Market value		2a	1,123,500
	b Actuarial value		2b	1,123,500

3 Funding target/participant count breakdown:	(1) Number of participants	(2) Vested Funding Target	(3) Total Funding Target
a For retired participants and beneficiaries receiving payment	0	0	0
b For terminated vested participants	0	0	0
c For active participants	2	1,121,405	1,121,405
d Total	2	1,121,405	1,121,405

4	If the plan is in at-risk status, check the box and complete lines (a) and (b) ☐		
	a Funding target disregarding prescribed at-risk assumptions	4a	
	b Funding target reflecting at-risk assumptions, but disregarding transition rule for plans that have been in at-risk status for fewer than five consecutive years and disregarding loading factor	4b	
5	Effective interest rate	5	6.33 %
6	Target normal cost	6	213,225

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Funding

- Page #12, SB line 18 = exact date and amount of employer contribution.
- Line 19 = discounted value of contribution.

18 Contributions made to the plan for the plan year by employer(s) and employees:

(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees	(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees
09/15/2015	220,491				
			Totals ▶ 18(b)	220,491	18(c) 0

19 Discounted employer contributions -- see instructions for small plan with a valuation date after the beginning of the year:

a Contributions allocated toward unpaid minimum required contributions from prior years	19a	0
b Contributions made to avoid restrictions adjusted to valuation date	19b	0
c Contributions allocated toward minimum required contribution for current year adjusted to valuation date	19c	211,130

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Funding

- Page #13 –430 Segment Rates and Miscellaneous

Part V Assumptions Used To Determine Funding Target and Target Normal Cost

21 Discount rate:

a Segment rates:	1st segment: 4.99 %	2nd segment: 6.32 %	3rd segment: 6.99 %	☐ N/A, full yield curve used
b Applicable month (enter code)			21b	0
22 Weighted average retirement age			22	62

23 Mortality table(s) (see instructions) ☒ Prescribed - combined ☐ Prescribed - separate ☐ Substitute

Part VI Miscellaneous items

24 Has a change been made in the non-prescribed actuarial assumptions for the current plan year? If "Yes," see instructions regarding required attachment ☐ Yes ☒ No

25 Has a method change been made for the current plan year? If "Yes," see instructions regarding required attachment ☐ Yes ☒ No

26 Is the plan required to provide a Schedule of Active Participants? If "Yes," see instructions regarding required attachment ☒ Yes ☐ No

Funding

- Page #13, SB MRC charges and credits.
- Contribution is the <u>discounted</u> value

31	Target normal cost and excess assets (see instructions):			
	a Target normal cost (line 6)		31a	213,225
	b Excess assets, if applicable, but not greater than line 31a		31b	2,095
32	Amortization installments:		Outstanding Balance	Installment
	a Net shortfall amortization installment		0	0
	b Waiver amortization installment		0	0
33	If a waiver has been approved for this plan year, enter the date of the ruling letter granting the approval (Month____ Day____ Year ____) and the waived amount		33	0
34	Total funding requirement before reflecting carryover/prefunding balances (lines 31a - 31b + 32a + 32b - 33)		34	211,130
		Carryover balance	Prefunding Balance	Total balance
35	Balances elected for use to offset funding requirement	0	0	0
36	Additional cash requirement (line 34 minus line 35)		36	211,130
37	Contributions allocated toward minimum required contribution for current year adjusted to valuation date (line 19c)		37	211,130
38	Present value of excess contributions for current year (see instructions)			
	a Total (excess, if any, of line 37 over line 36)		38a	0

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Funding

- Page #10 – Maximum Deductible.

Maximum Contribution

1) Funding Target	1,285,005
2) Target Normal Cost	214,504
3) 50% of the Funding Target	642,503
4) Increase in Funding Target Due to Salary Increases	51,853
5) Cushion Amount (3+4)	694,356
6) Total (1+2+5)	2,193,865
7) Funding Target as if At-Risk	1,332,791
8) Target Normal Cost as if At-Risk	253,544
9) Total (7+8)	1,586,335
10) Greater of 6 and 9	2,193,865
11) Assets	1,123,500
12) Undeducted Contributions	0
13) Maximum Contribution (IRC 404(o) (10-(11-12)))	1,070,365

Funding

- The FT and TNC used for maximum deduction are different than MRC.
  - Remember MAP-21/HATFA rates are for MRC only.
- The maximum amounts shown on valuation not always accurate due to limitation is valuation systems.
  - If the plan had any amendment increasing the plan benefit for HCE’s in the prior two plan years, those increases are excluded in the maximum deduction calculations.

Funding

- We don't always quote the true maximum deductible.
- Could lead to the plan having assets too much in excess of the owner's 415 lump-sum maximums.
- The goal is to keep assets and benefit liabilities (on a termination basis) close to the assets.
- A little overfunding may be right for a particular plan.
- Page #5 shows the total benefit liabilities on a termination basis = $1,424,827.
- The total DB assets on 12/31/14 (before CTB) = $1,123,500
- Amount necessary to fully fund on a termination basis:
  - ➢ $1,424,827 **-** $1,123,500 = **$301,327**

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Funding

- A good recommended contribution for this plan would be \$301,400 (unfunded benefits).
- Because the owner has benefits at the 415 limit, the same amount might be quoted as the maximum deductible.
- If client is pushing for the highest deduction the actuary may be comfortable quoting something higher as the maximum deductible.

AFTAP

- Page #14 - what is an AFTAP?
- Adjusted Funding Target Attainment Percentage represents the plans funded status:

$$\frac{\text{Assets} - \text{COB} - \text{PFB} + \text{NHCE Annuities}}{\text{Funding Target} + \text{NHCE Annuities}}$$

- The better funded the plan, the fewer restrictions.
- The actuary certifies the AFTAP.
- The TPA's job is to make sure it's given to the plan sponsor by the last day of the ninth month after the plan year.
- The 2015 AFTAP for a calendar year plan was due by 9/30/15.
- 2016 AFTAP due by 9/30/16.

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AFTAP

- The AFTAP is very significant to the plan even though it's not filed with the IRS.
- If the actuary has provided the AFTAP timely but your annual administration package is not ready, you need to send it to the plan sponsor anyway.
- Emailing the AFTAP to the sponsor is fine!
- Because the AFTAP due date is earlier than the 5500 due date it is important for plan sponsors to confirm the DB plan contributions as soon as possible.
- The TPA's job is to properly train his or her clients to send confirmations as soon as deposited.
- Keep actuary happy! Don't send confirmations in September for deposits made much earlier in the year.

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AFTAP

- Various types of restrictions (small plans) depending on AFTAP less than 80 percent or less than 60 percent.*
- AFTAP less than 80 percent:
  - ➢ Amendments increasing benefits
  - ➢ Only 50 percent of lump sums can be paid if over $5,000*
- AFTAP less than 60 percent:
  - ➢ Freezes future benefit accruals
  - ➢ No lump sums can be paid if over $5,000*

*Exception if plan was frozen on or before 9/1/05.

AFTAP

- If no AFTAP is certified the plan operates as if the AFTAP is under 60 percent.
- This is called a ‘presumed’ AFTAP.
- There is another presumed AFTAP on the first day of the fourth month of the next plan year.
- For a 2015 AFTAP (calendar YE), that would be 4/1/16.
  - Know that your actuary may need to issue a new AFTAP mid-year and you may need to provide the actuary with some prior year-end data to avoid benefit restrictions.

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AFTAP

- The actuary should alert you when there is an AFTAP problem and what to do about it.
- Any AFTAP below 80 percent will require an employee notice (called a 101(j) or 436 Notice).
  - Different notices for AFTAP under 80 percent versus AFTAP under 60 percent.
- The notice is due to participants 30 days after certified AFTAP or presumed under 60 percent.
    - Your actuary should prepare the 436 Notice for you.

AFTAP

- AFTAP regulations written for BOY valuations.
- Regulations say to use funding target and assets on first day of plan year.
  - FT represents benefits accrued as of BOY.
  - Assets on first day with <u>prior year</u> deposited receivable.
- 2015 AFTAP for BOY valuation = 1/1/15 liabilities and assets.
- 1/1/15 liabilities based on 12/31/14 census data.
- 1/1/15 assets based on 12/31/14 year-end trust accounting including 2014 CTB receivables.

AFTAP

- 2015 AFTAP for EOY valuation will step back one day to 12/31/14.
- FT used for the 2015 EOY val AFTAP is actually FT and TNC to represent liabilities on 1/1/15.
- Assets will be 12/31/14 assets + 2014 CTB receivables.
- The 2015 AFTAP for BOY versus EOY based on liabilities and assets at same point in time.
- The interest rates to value liabilities are from different years.

AFTAP

- Page # 14 2015 AFTAP (EOY valuation).
- 2015 AFTAP based on the same FT and TNC that was used in the 2014 430 valuation.
- 12/31/14 assets include 2014 discounted CTB receivables.
  - 2015 AFTAP for EOY valuation on line 15 of 2015 SB.

AFTAP

- Page #14: 2015 AFTAP –
- Assets = (1,123,500 + 211,130) =<u>1,334,630</u>

  FT + TNC (1,121,405 + 213,225) 1,347,976

<u>Certification of Adjusted Funding Target Attainment Percentage (AFTAP) for the 2015 Plan Year</u>

<u>Determination of AFTAP as of **December 31, 2014**</u>

1.	Funding Target plus Target Normal Cost	$1,347,976
2.	a. Market Value of Assets	$1,123,500
	b. Discounted Receivable Contributions, Received by AFTAP Certification date using **6.33%**	211,130
	c. Carryover Balance	0
3.	Funding Target Attainment Percentage (FTAP Exempt) (equals items (2a + 2b) divided by item 1)	99.00%
4.	Adjustment for Annuity Purchases for NHCE's during the last 2 years	$0
5.	Adjusted Funding Target Attainment Percentage (AFTAP) (equals items (2a + 2b - 2f - 2k + 4) divided by items (1 + 4))	99.00%

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AFTAP

- On BOY vals the 2015 AFTAP (based on 1/1/15 valuation data) reported on line 15 of 2016 SB.
- If a plan has any funding balances the formula to calculate the AFTAP could be different than what was shown for this plan.

PBGC AFN

- This plan is covered by PBGC.
- PBGC covered plans have an different participant notice requirement called the Annual Funding Notice (AFN).
- The AFN can replace the Summary Annual Report (SAR) for DB plans covered by PBGC Provided the proper small plan audit exception language is included.
- The AFN is due to the participants by the date the 5500 is filed.
- Page 15 starts the AFN (five pages).
- Majority of contents are the same for all plans.
  - ➢ Blah blah blah…
- The highlighted boldfaced portions are 'plan specific.'

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PBGC AFN

- Page #15 - ‘How Well Funded is Your Plan’ reflects the last three years of assets and FT liabilities as of the first day of plan year, valued on the valuation date.
- This is called the FTAP (different than the AFTAP).

PBGC AFN

	2014 Plan Year	2013 Plan Year	2012 Plan Year
1. Valuation Date	12/31/2014	12/31/2013	12/31/2012
2. Plan Assets			
a. Total Plan Assets	1,123,500	977,500	739,904
b. Funding Standard Carryover Balance	0	0	0
c. Prefunding Balance	0	0	0
d. Net Plan Assets (a) – (b) – (c) = (d)	1,123,500	977,500	739,904
3. Plan Liabilities	1,121,405	755,546	532,406
4. At-Risk Liabilities	Does Not Apply	Does Not Apply	Does Not Apply
5. Funding Target Attainment Percentage (2d)/(3)	100.19%	129.38%	138.97%

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PBGC AFN

- Page #16 :

Year-End Assets and Liabilities

The asset values in the chart above are measured as of the valuation date for the Plan. **As of 12/31/2014, the fair market value of the Plan's assets was $1,334,630. On this same date, the Plan's liabilities were $1,524,038** based on the PBGC interest rates in effect on the last day of the Plan Year. These liabilities were determined as required using PBGC assumptions, which are not the assumptions used for determining the Funding Target Attainment Percentages above.

- The year-end labilities shown on the AFN use different interest rates than all our other calculations.
  - Based on PBGC segment rates in effect on the last day of the plan year.

PBGC AFN

- Page #17 asset breakdown percentages

Asset Allocations	Percentage
1. Interest-bearing cash	10%
2. U.S. Government securities	
3. Corporate debt instruments (other than employer securities):	
Preferred	15%
All other	
4. Corporate stocks (other than employer securities):	
Preferred	
Common	15%
5. Partnership/joint venture interests	
6. Real estate (other than employer real property)	
7. Loans (other than to participants)	
8. Participant loans	
9. Value of interest in common/collective trusts	
10. Value of interest in pooled separate accounts	
11. Value of interest in registered investment companies (e.g., mutual funds)	60%
12. Value of funds held in insurance co. general account (unallocated contracts)	
13. Employer-related investments:	
Employer Securities	
Employer real property	
14. Buildings and other property used in plan operation	
15. Other:	

PBGC AFN

- If something has changed, like the plan being frozen or any other amendment that affects benefits, it is reported here:

Events with Material Effect on Assets or Liabilities

Federal law requires the plan administrator to provide in this notice a written explanation of events, taking effect in the current plan year, which are expected to have a material effect on plan liabilities or assets. For the plan year beginning on 1/1/2015 and ending on 12/31/2015, the following events are expected to have such an effect: **None.**

PBGC AFN

- Page #18:

Where to Get More Information

For more information about this notice, you may contact **Traditonal DB Plan, at (202) 555-1212.** For identification purposes, the official plan number **is 002** and the plan sponsor's employer identification number or "EIN" is **45-1234567.** For more information about the PBGC and benefit guarantees, go to PBGC's website, www.pbgc.gov, or call PBGC toll-free at 1-800-400-7242 (TTY/TDD users may call the Federal relay service toll free at 1-800-877-8339 and ask to be connected to 1-800-400-7242).

- Page #19

As of the last day of the period covered by this Annual Funding Notice, the plan had:

$112,350 in cash held by Wells Fargo Bank.
$1,011,150 in securities held by ABC Securities.

Cash-Balance DB Plan

- **Open Handout #2** – Cash-Balance DB Plan Valuation
- What is a cash-balance plan?
  - Benefit defined in the document as a current Hypothetical Account Balance (HAB) as opposed to a monthly annuity payable at NRD.
  - In a sense it's the benefit's PVAB or lump sum that's defined in the document with the annuity benefit at NRD calculated from that lump sum.
  - For the participants it looks more like a PS plan.

Cash-Balance DB Plan

- The HAB is credited each year with:
  - Contribution or pay credits (some call principle credits).
  - Interest credits at a rate defined in the plan.
- In most cash-balance plans there are no 417(e) calculations.
  - There are exceptions not covered here.
- Other than the formula and 417(e) issues the cash-balance plan is a defined-benefit plan!
- The MRC calculation in a cash-balance plan is based on the annuity benefit at NRD.
- The monthly annuity at NRD is determined from the current values of the HAB.
- Once that annuity is determined it operates like a traditional DB plan.

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Benefits

- Page #1 reflects the plan document CB formula:

Plan Benefits:

Retirement - Actuarial equivalent of the hypothetical account balance derived from annual Pay Credits and Interest Credits.

Pay Credits - Classification	Pay Credit Formula
1	$200,000
2	1.5% of compensation

- Annual interest credit = five percent

Benefits

- All the assumptions including the 'Plan AEQ' are the same as in our prior example.

Actuarial Equivalence:

Pre-Retirement -	Interest -	5%
	Mortality Table -	None
Post-Retirement -	Interest -	5%
	Mortality Table -	G94 - 1994 Group Annuity Reserving Proj 2002, Scale AA (unisex)

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Benefits

- Page #2 Census – same ages as in our traditional DB example:

Key	Percent Owner	SVC PS	SVC FS	Gender	Ages PA	Ages AA	Ages ARA	Dates Birth	Dates Hire	Dates Part	Dates Retire	Compensation
Seeley B.												
		7	5	M	50	57	62	01/01/58	01/01/00	01/01/08	12/31/19	$260,000.00
Jack H.												
		7	33	M	22	29	62	01/01/86	01/01/05	01/01/08	12/31/47	$65,000.00

Benefits

- 2014 pay credit (benefit) calculation
- Seeley: $200,000 (not pay related)
- Jack: $65,000 x .015 = $975
    - Compensation shown on Page #2
- Total pay credits = $200,975

Benefits

- Page #3 – HAB Statement:
- 1) BOY AB = beginning balance plus interest credit
- 2) Current year AB increase = pay credit
- 3) EOY AB = sum of 1) and 2)

AB BOY comes from here-->>

<--AB increase from here -

EOY Total AB from here-->>

	Beginning Balance	Interest Credit	Pay Credit	Distribution	Adjustments	Ending Balance	F
Seeley B.							
Cash Balance							
Cash Balance	1,070,286.92	53,514.35	200,000.00	0.00	0.00	1,323,801.27	
Jack H.							
Cash Balance							
Cash Balance	5,503.94	275.20	975.00	0.00	0.00	6,754.14	
Grand Total:	$1,075,790.86	$53,789.55	$200,975.00	$0.00	$0.00	$1,330,555.41	

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Benefits

- Seeley's EOY AB = year-end balance projected to NRA ÷ by the Plan APR
  - ➢ Five years to NRA
  - ➢ Age 62 APR = 152.1573
- Total AB = $1,323,801.27 x 1.05^5 ÷ 152.1573 = $11,103.92
- Same steps for Jack's EOY AB:
- $6,754.14 x 1.05^33 ÷ 152.1573 = $222.09

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Benefits

- Page #4 - Schedule of Benefits: EOY AB

	Beg Year Acc Ben Monthly Compensation	End Year Acc Ben Monthly Compensation	Monthly Benefit	Lump Sum @ Ret	Accrued Benefit	Vest Pct	Vested Accrued Benefit	Present Value of Vested Accrued Benefit
Seeley B.								
	21,250.00	21,666.67	17,500.00	2,613,190	11,103.92	100	11,103.92	1,323,801
Jack H.								
	5,166.67	5,416.67	735.12	111,854	222.09	100	222.09	6,754

	415 Max Proj Lump Sum	Plan PVAB	417(e)	415 Maximum PVAB
		(Distributions Limited to 415 Limits)		
Seeley B.				
	2,613,190	1,323,801		1,421,427
Jack H.				
	808,845	6,754		348,920
	$3,422,035	$1,330,555		$1,770,347

Funding

- Page #5 = FT and TNC.
- Same methodology from prior slide to determine benefits for FT and TNC.
- FT and TNC are determined from the annuity benefit at NRA determined from the Hypothetical Account Balance.
  - BOY AB based on BOY HAB plus 2014 interest credit.
  - 2014 AB increase based on 2014 pay credit.
  - End-of-year total AB based on the sum of the above.

Funding

- Seeley BOY AB for FT:
- (1,070,286.92 + 53,514.35) x $1.05^{\wedge 5}$ ÷ 152.1573 = **<u>$9,426.34</u>**
- Jack BOY AB for FT:
- (5,503.94 + 275.20) x $1.05^{\wedge 33}$ ÷ 152.1573 = **<u>$190.03</u>**
- Same methodology from prior slide using the 2014 <u>pay credit</u> to determine the 2014 accrued benefit increase for TNC…or
- Subtract the BOY AB from the EOY AB.
- Seeley's 2014 AB increase =

  11,103.92 – 9,426.34= $4,677.58
- Jack's 2014 AB increase =

  222.09 – 190.03 = $32.06

Funding

- Page #3 – FT and TNC from 430 segment rates based on the monthly benefits at NRA.

BOY AB using BOY HAB + 2014 Interest Credit------------------------>>	Accrued Benefit	Funding Target	From 2014 Pay Credit->> Benefit Increase	Target Normal Cost
Seeley B.				
	9,426.34	1,055,750	1,677.58	187,889
Jack H.				
	190.03	3,110	32.06	525
Totals:	$9,616.37	$1,058,860	$1,709.64	$188,414

Funding

- Remember under 401(a)(26) (the 40% test) both participants must receive a monthly benefit at NRA equal to at least .50 percent of pay.
- We know Seeley's benefit satisfies the meaningful-benefit test.
- Jack's benefit as a percent of pay =

  $32.06 ÷ $5,416.67* = .59 percent
- Greater than .50 percent, plan passes the 401(a)(26) meaningful benefit based on <u>benefit at NRA.</u>

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Funding

- Shortfall from Page #7:

Funding Shortfall

14. Reduced Funding Target (C9)	1,058,860
15. Applicable Assets (IRC 430(f)(4)(B)(i) (C5))	1,050,000
16. Funding Shortfall (IRC 430(c)(3) (C14-C15, not less than 0)	8,860
17. Shortfall Amortization Charge (C25a)	1,483

- Assets on 12/31/14 without 2014 CTBs.
- FT - assets produce a $8,860 shortfall, seven-year amortization charge = $1,483.

Note there are situations where the assets are less than FT but there are no amortization charges.

Funding

- Page #7D – Minimum Required Contribution

D. Minimum Required Contribution

1. Target Normal Cost (A2)	188,414
2. Funding Surplus (C5-A1, not less than 0)	0
3. Reduced Target Normal Cost (D1-D2, not less than 0)	188,414
4. Shortfall Amortization Charge (C17)	1,483
5. Waiver Amortization Charge	0
6. Minimum Contribution (D3+D4+D5)	189,897

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Funding

- Cash balance pay credits do not equate to minimum required funding.
- MRC is based on 430 benefit liabilities/assets, not account balances.
- MRC can be greater or less than the pay credits.
- 2014 MRC = $189,897.
- 2014 pay credits = $200,975.

Funding

- Page #4
- Recommended funding to fully fund the plan on a termination basis = HAB - assets:
- $1,330,555 – $1,050,000 = **$280,555.**
- The calculated maximum deductible (Page 7 line E) is over 900,000, which is much higher than I would quote to the TPA/sponsor.
- Depending on how the plan tests for non-discrimination I might quote $300,000 as maximum, maybe more.

Funding

- Page #7E:

E. Maximum Contribution

1. Funding Target	1,178,655
2. Target Normal Cost	209,712
3. 50% of the Funding Target	589,328
4. Increase in Funding Target Due to Salary Increases	0
5. Cushion Amount (E3+E4)	589,328
6. Total (E1+E2+E5)	1,977,695
7. Funding Target as if At-Risk	1,228,903
8. Target Normal Cost as if At-Risk	218,650
9. Total (E7+E8)	1,447,553
10. Greater of E6 and E9	1,977,695
11. Assets (A3)	1,050,000
12. Undeducted Contributions (A4)	0
13. Maximum Contribution (IRC 404(o) (E10-(E11-E12)))	927,695

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Funding

- Sponsors really like to fund the pay credits.
- The $200,975 pay credits fall within our MRC and maximum deductible range.
- The sponsor funded a $200,975 contribution on 5/15/15.

Funding

- Page #6 = 430 and 404 segment rates, Cash Balance interest crediting rate and EIR:

Rates For:	1st Segment	2nd Segment	3rd Segment
IRC 430	4.99%	6.32%	6.99%
IRC 404	1.20%	4.10%	5.20%

Effective Interest Rate:	6.34%	Current Year Actual Rate of Return:	-10.12%	Current Year Projection Rate:	5.00%
Prior Year Effective Interest Rate:	6.77%	Prior Year Actual Rate of Return:	4.25%	Prior Year Projection Rate:	5.00%
				Future Projection Rate:	5.00%

- EIR used to discount employer contribution.

Funding

- If we discount employer contribution back to 12/31/14 using EIR
- = 5/15/15 - 12/31/14 = <u>135</u>
- \$200,975 ÷ x <u>1.0634</u>^(135/365) = **\$196,457**
- But some plans have 'quarterly contribution' requirements.
  - ➢ Applies if plan had a shortfall in prior plan year.
- The consequence is a higher interest rate used to discount the contribution for MRC only.
  - ➢ EIR plus five percent.
  - ➢ If deposited after quarterly due date(s) results in a higher contribution to satisfy the MRC.

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Funding

- Assume this plan had a 2014 quarterly CTB requirement.
- The contribution was deposited after the quarterly due dates.
- Results in the increased interest discount for <u>purposes of Minimum Required Contribution only.</u>
    - ➢ MRC discount based on 6.34 percent + five percent = 11.34 percent.
- The mathematics of discounting contributions for MRC purposes using the increased interest discount rate for missed quarterly contributions is complicated and outside the scope of this presentation.
- Discounted contribution for Schedule SB = $191,789.

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Funding

- Page #9 (Sch SB) Assets, FT, TNC EIR

Part I	Basic Information			
1	Enter the valuation date: Month 12 Day 31 Year 2014			
2	Assets:			
	a Market value		2a	1,050,000
	b Actuarial value		2b	1,050,000

3	Funding target/participant count breakdown:	(1) Number of participants	(2) Vested Funding Target	(3) Total Funding Target
	a For retired participants and beneficiaries receiving payment	0	0	0
	b For terminated vested participants	0	0	0
	c For active participants	2	1,058,860	1,058,860
	d Total	2	1,058,860	1,058,860

4	If the plan is in at-risk status, check the box and complete lines (a) and (b) ☐		
	a Funding target disregarding prescribed at-risk assumptions	4a	
	b Funding target reflecting at-risk assumptions, but disregarding transition rule for plans that have been in at-risk status for fewer than five consecutive years and disregarding loading factor	4b	
5	Effective interest rate	5	6.34 %
6	Target normal cost	6	188,414

Funding

- Page #10 – Deposited and discounted CTB

Part IV **Contributions and Liquidity Shortfalls**

18 Contributions made to the plan for the plan year by employer(s) and employees:

(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees	(a) Date (MM-DD-YYYY)	(b) Amount paid by employer(s)	(c) Amount paid by employees
05/15/2015	200,975				
			Totals ► 18(b)	200,975	18(c) 0

19 Discounted employer contributions -- see instructions for small plan with a valuation date after the beginning of the year:

a Contributions allocated toward unpaid minimum required contributions from prior years	**19a**	0
b Contributions made to avoid restrictions adjusted to valuation date	**19b**	0
c Contributions allocated toward minimum required contribution for current year adjusted to valuation date ..	**19c**	191,789

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Funding

- Page #11 – MRC data

31 Target normal cost and excess assets (see instructions):			
a Target normal cost (line 6)		**31a**	188,414
b Excess assets, if applicable, but not greater than line 31a		**31b**	0
32 Amortization installments:		Outstanding Balance	Installment
a Net shortfall amortization installment		8,860	1,483
b Waiver amortization installment		0	0
33 If a waiver has been approved for this plan year, enter the date of the ruling letter granting the approval (Month______ Day______ Year ______) and the waived amount		**33**	0
34 Total funding requirement before reflecting carryover/prefunding balances (lines 31a - 31b + 32a + 32b - 33)		**34**	189,897
	Carryover balance	Prefunding Balance	Total balance
35 Balances elected for use to offset funding requirement			
36 Additional cash requirement (line 34 minus line 35)		**36**	189,897
37 Contributions allocated toward minimum required contribution for current year adjusted to valuation date (line 19c)		**37**	191,789
38 Present value of excess contributions for current year (see instructions)			
a Total (excess, if any, of line 37 over line 36)		**38a**	1,892

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AFTAP

- Page #8 – 2015 AFTAP
- Discounted contribution for AFTAP and AFN is the CTB discounted at EIR = $196,457
- AFTAP Assets = ($1,050,000 + $196,457) = $<u>1,334,630</u>
- AFTAP FT + TNC = (1,058,860 + 188,414) = $<u>1,247,274</u>

AFTAP

Certification of Adjusted Funding Target Attainment Percentage (AFTAP) for the 2015 Plan Year

Certification of Adjusted Funding Target Attainment Percentage (AFTAP) for the 2015 Plan Year

The Pension Protection Act of 2006 (PPA) and Section 436 of the Internal Revenue Code require the calculation of a funding ratio called the Adjusted Funding Target Attainment Percentage (AFTAP) in order to determine whether the Plan is subject to new restrictions on plan amendments, lump sum distributions and benefit accruals.

Determination of AFTAP as of **December 31, 2014**

1.	Funding Target plus Target Normal Cost	$1,247,274
2.	a. Market Value of Assets	$1,050,000
	b. Discounted Receivable Contributions, Received by AFTAP Certification date using **6.34%**	196,457
3.	Funding Target Attainment Percentage (FTAP Exempt) (equals items (2a + 2b) divided by item 1)	99.93%
4.	Adjustment for Annuity Purchases for NHCE's during the last 2 years	$0
5.	Adjusted Funding Target Attainment Percentage (AFTAP) (equals items (2a + 2b - 2f - 2k + 4) divided by items (1 + 4))	99.93%

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Questions?

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