LEVEL AGGREGATE COST METHODS

I. NORMAL COST CALCULATION

A. Recalculate every year, in total

B. Depends on asset value:

1. PVNC = PVB - UAL - AAV

2. NC = PVNC / (average $^{s}\ddot{a}_{X:\overline{RA-X}|}$)

II. ACCRUED LIABILITY

A. Not defined in aggregate methods

B. If needed, calculate under individual method

III. GAINS AND LOSSES

A. Define $UAL_1 = {}_eUAL_1$

B. Then G/L = ${}_eUAL_1 - UAL_1$ = zero

C. Normal cost calculation automatically reflects G/L

AGGREGATE COST METHODS

${}_eUAL_1$ definition:
$(1+i)(NC_0+UAL_0)$ - (Contribution + interest)

UAL_1 = ${}_eUAL_1$ by definition
PVNC = PVFB - AAV - UAL

AGGREGATE COST METHODS

Level % of payroll:

PV Salary = Salary ($^{s}\ddot{a}_{X:\overline{RA-X}|}$)

NC = PVNC / (ΣPV Salary / ΣSalary)

Level $ per participant:

PV Lives = $\ddot{a}_{X:\overline{RA-X}|}$

NC = PVNC / (ΣPV Lives / ΣLives)

THE AGGREGATE COST METHOD

Simplest of the aggregate methods:

Define the UAL to be zero

PVNC = PVFB - AAV

Unlike other cost methods, no unfunded accrued liability to adjust when we have plan changes or assumption changes.

With no UAL, Aggregate is the only cost method where the next year's PVNC is affected by the amount of the contribution.

NOTE:
Above discussion ignores effect of MFSA:
PVNC = PVFB - AAV - [O/S 431 Bases - CB]

Minimum Funding Standard Account - EFFECT

IGNORING MFSA:

Other cost methods

PVNC = PVFB - AAV - UAL

Aggregate method

PVNC = PVFB - AAV

REFLECTING EFFECT OF MFSA:

Other cost methods

PVNC = PVFB - AAV - [431 Bases - CB - ARA]

= PVFB - AAV - UAL

Aggregate method

PVNC = PVFB - AAV - [431 Bases - CB - 0]

Conclusion - AGG definition has been over-simplified (until we get to MFSA)

AGGREGATE COST METHODS

No Accrued Liability is defined under Aggregate Cost Methods

Original UAL = Original AL-original AAV

Original AL is defined using Individual Cost Method, and original AAV is usually zero.

Must go back to Individual cost methods for Accrued Liability:

a) Plan Changes
b) Assumption Changes
c) Change in Cost method
d) Full Funding Limitation

FROZEN INITIAL LIABILITY

Uses the Entry Age Normal cost method to define the accrued liability in the first plan year (plan inception).

After the first year, define UAL as expected from preceding year:

$$UAL_1 = (1+i)(NC_0+UAL_0) - (Contrib + i)$$
$$PVNC = PVFB - UAL - AAV$$

$$NC = PVNC / (\Sigma PV\ Salary\ / \Sigma Salary)$$
$$\text{or } PVNC / (\Sigma\ \ddot{a}_{\overline{X:RA-X|}}\ /\ \Sigma Lives)$$

For plan or assumption changes, adjust UAL by the change in Entry Age Normal Accrued Liability:

$$UAL^{new} = UAL^{old} + ({}^{EAN}UAL^{new} - {}^{EAN}UAL^{old})$$

ATTAINED AGE NORMAL

Use the Unit Credit cost method to define the Accrued Liability in the first year (plan inception).

After the first year, define UAL as expected from preceding year:

$$UAL_1 = (1+i)(NC_0 + UAL_0) - (Contrib+i)$$
$$PVNC = PVFB - UAL - AAV$$

$$NC = PVNC / (\Sigma PV\ Salary\ / \Sigma Salary)$$
$$\text{or } PVNC / (\Sigma\ \ddot{a}_{\overline{X:RA-X|}}\ /\ \Sigma Lives)$$

For plan or assumption changes, adjust UAL by the change in the Unit Credit accrued liability:

$$UAL^{new} = UAL^{old} + ({}^{UC}UAL^{new} - {}^{UC}UAL^{old})$$

INDIVIDUAL AGGREGATE

Hybrid of ILP and AGG methods

Allocate AAV to each employee, calculate normal cost on an individual basis as

$$NC = \frac{\text{PVB - alloc AAV}}{\ddot{a}_{X:\overline{RA-X}|}}$$

or

$$NC = \frac{\text{PVB - alloc AAV}}{{}^{s}\ddot{a}_{X:\overline{RA-X}|}}$$

Normal cost calculation is based on assets, reflects ALL G/L automatically. No need to separately determine Gains and Losses.

THIS PAGE WAS INTENTIONALLY LEFT BLANK