For More Information: email Support@ActexMadRiver.com or call 1(800) 282-2839
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**ASOP 23 DATA QUALITY**

FR-100-13

I. **BACKGROUND**

1. Quality of data affects the accuracy and validity of actuarial analysis
2. Users of actuarial reports expect usage of appropriate data and disclosure on material imperfections in the data.
3. Purpose of ASOP #23 (R) is to give guidance in:
   a) Selecting and reviewing the data supplied by others
   b) Making appropriate disclosures with regard to data quality

II. **DEFINITIONS (FOR THE PURPOSES OF ASOP #23)**

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<td>Appropriate Data</td>
<td>Suitable for the intended purpose and relevant to the system or process being analyzed</td>
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<td>Data Audit</td>
<td>Formal and systematic examination to ensure accuracy, using techniques employed by audit profession.</td>
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<tr>
<td>Comprehensive Data</td>
<td>Data obtained from inventory or sampling methods that contain sufficient data elements needed for the analysis</td>
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<tr>
<td>Data</td>
<td>Refers to numerical, census, or classification information. Exclude general or qualitative information. Note: actuarial assumptions are not data.</td>
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<tr>
<td>Data Element</td>
<td>An item of information, such as date of birth or risk classification</td>
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<td>Practical</td>
<td>Should consider the purpose and nature of assignment, factoring in any constraints (e.g. budget, time)</td>
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<tr>
<td>Data Review</td>
<td>Different from data audit. An informal examination of the obvious characteristics of the selected data to ensure reasonableness and consistency</td>
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III. **SELECTION OF DATA FOR ACTUARIAL ANALYSIS**

1. Actuary should select desired data elements and any possible alternative data sets/sources
2. Data should be selected on the premise of
   a) Being appropriate, reasonable and comprehensive
   b) Sound justification if alternative data elements / sources is used
   c) Any material limitations to the usefulness of the analysis
   d) Appropriate sampling method used to collect data directly (if applicable)

IV. **EXTENT OF RELIANCE BY ACTUARY**

1. Actuary may rely on (i) data and (ii) other information (e.g. plan document, reinsurance treaties, collective bargaining agreements) supplied by others, unless proves to be unreliable during the analysis.
2. Actuary should disclose the reliance on suppliers for accuracy, validity and comprehensiveness.

V. DATA REVIEW
1. Data review should be performed unless the actuary judged such reviews unwarranted.
2. Actuary should disclose judgment against data review, reasoning and the impact on the resulting analysis.

VI. ACTUARY’S RESPONSIBILITY
Actuary should make a professional judgment about the usefulness of data, whether the data:
1. Is of sufficient quality to perform the analysis
2. Require enhancement which can be obtained
3. Require adjustments applied to the data. Should disclose the adjustment mechanisms and any material bias (quantify if possible) introduced into the results.
4. Require additional extensive review to confirm its usefulness
5. Decline using the data in the analysis
6. Obtain alternative data sets (Need to go through 1. to 5. again)
7. Documentation compliance with ASOP #41, Actuarial Communications

VII. LIMITATION OF THE ACTUARY’S RESPONSIBILITY
Actuary is not required to:
1. Determine whether data/info provided by others have been falsified
2. Develop data compilations solely for the purpose of data review
3. Audit the data

VIII. DISCLOSURE
Actuary should disclose:
1. Source(s) of data
2. Results of data review or the impact of the lack of such review
3. Extent of reliance on data and other info supplied by others
4. Any material adjustments or assumptions applied to the data
5. Any impact on the usefulness of the analysis due to uncertain data quality or any unresolved data concerns.
   a) Include the nature and potential magnitude of the impact (if determinable)
6. Conflict between ASOP compliance and legal compliance (Legal has priority, not considered a breach of ASOP compliance. Note: Prescribed statement of actuarial opinion may result from legal or accounting requirement)
7. Should actuary decides to use procedures which depart materially from ASOP #23, must disclose and justify the nature, rationale and results of such departure
Canadian Standards of Practice
General Standards §1500 - §1600

The general standards are reflected throughout the syllabus material and in particular, ASOPs and professional conducts.

Note the general standards apply to all areas of traditional actuarial practices

Candidates can refer to the actual material for detail if deemed beneficial

I. §1500 THE WORK

1. Approximation
   a) Approximation in selection of a model
   b) Approximation in the selection of assumptions
   c) Approximation by sampling
   d) Approximations respecting data
   e) Approximation vs. assumption
   f) Reporting approximations

2. Subsequent events
   a) Classification
   b) Definitive and virtually definitive decisions
   c) Event provides information about entity as it was
   d) Event retroactively makes entity different
   e) Event makes entity different after
   f) Classification not clear
   g) Reporting

3. Data
   a) Sufficiency and reliability
   b) Obtaining data
   c) Reviewing data
   d) Assessing sufficiency and reliability of data

4. Control

5. Reasonableness of results

6. Documentation

II. §1600 ANOTHER PERSON’S WORK

1. Actuary’s use of another person’s work
   a) Use and take responsibility
   b) Use but not take responsibility

2. Auditor’s use of an actuary’s work
3. CIA/CICA Joint Policy Statement
   a) Purposes
      i) Communications between actuaries and auditors regarding their respective responsibilities in preparation of financial statements;
      ii) How actuaries and auditors would interact in carrying out their respective responsibilities; and
      iii) How their respective responsibilities may be disclosed to readers of financial statements
PENSION MATHEMATICS

Chapter 2: Actuarial Cost Methods

I. INTRODUCTION

- considers defined benefit pension plans only
- pension plan provides a life annuity to each participant who retires and meets the eligibility requirements
- Figure 2.1.1 shows typical pattern of benefit payments from a pension plan
  - this figure also depicts costs under a pay-as-you-go approach to funding

A. Proper Cost Recognition

- to avoid the sharply increasing costs of Figure 2.1.1, the cost of a pension plan s/b recognized during the working lifetimes of the EEs who are to receive pensions
- best if actually fund amounts so that pension can be provided by accumulation at retirement
- most industrialized countries have minimum funding standards for private plans
- however, public plans are often still pay-as-you-go, although this too is changing
- primary purpose of a pension valuation is to determine the annual costs

II. UNIT CREDIT (U.C.)

A. Assumptions and Notation

- \( w \) = age at hire
- \( B(x) = \) accrued benefit at age \( x \), \( w \leq x \leq y \)
- \( y \) = retirement age
- want to accumulate \( B(y)d^{(12)}_y \) at retirement
- assume no new entrants (for now)
- \( T = \) EEs who terminate between \( t \) and \( t + 1 \)
- \( R = \) EEs who retire between \( t \) and \( t + 1 \)
- \( A_t = \) Active EEs at time \( t \)
- thus, \( A_{t+1} = A_t - T - R \)

B. Accrued Liability

- distinguishing characteristics of UC method: ideal fund assets should equal
- the D’s are calculated using probabilities of terminations from all sources NOT just mortality
  - called a service table
- the ideal fund balance is called the accrued liability (AL)

\[
AL_t = \sum_{A_t} B^j(x)d^{(12)}_y \frac{D_y}{D_x} = \text{Present Value of accrued benefits [PV (accrued benefits)]}
\]

- this definition distinguishes it from other cost methods
  - describes completely the annual pension costs
• assume no new entrants (for now)

IDENTITY: \[ \frac{D_y}{D_{x+1}} = \frac{D_y}{D_x} (1 + i) + q_x \frac{D_y}{D_x} \]

(2.2.3) \[ AL_{t+1} = \left[ AL_t + \sum_{A_t} \Delta B^j \tilde{d}_y^{(12)} \frac{D_y}{D_x} \right] (1 + i) \]

\[ - \left[ \sum_{T} B^j(x + 1) \tilde{d}_y^{(12)} \frac{D_y}{D_{x+1}} - \sum_{A_t} q_x B^j(x + 1) \tilde{d}_y^{(12)} \frac{D_y}{D_{x+1}} \right] \]

\[ - \sum_{R} B^j(x + 1) \tilde{d}_y^{(12)} \frac{D_y}{D_{x+1}} + \sum_{N} B^j(x + 1) \tilde{d}_y^{(12)} \frac{D_y}{D_{x+1}} \]

• \( AB^j \) is increase in \( j \)'s accrued benefit during year

• \( D \)'s are based on service table

C. Normal Cost (NC)

• \( NC_t = \sum_{A_t} AB^j \tilde{d}_y^{(12)} \frac{D_y}{D_x} = \sum_{A_t} NC^j_t \)

• represents the PV of increase in accrued benefits between \( t \) and \( t + 1 \)

• NC does not usually equal the full cost of the plan unless
  a) the fund balance equals the accrued liability, and
  b) assumptions are realized exactly

D. Fund Balance \( (F_t) \)

1) \( F_{t+1} = F_t + (I)nvestment return + (C)ontributions - (P)ension purchases \)

2) \( UAL = \) Unfunded Accrued Liability

\[ UAL_{t+1} = AL_{t+1} - F_{t+1} \]

3) \( UAL_{t+1} = UAL_t (1+i) - (I-iF_t) + [NC_t(1+i) - C] \]

\[ - \left[ \sum_{T} B^j(x + 1) \tilde{d}_y^{(12)} \frac{D_y}{D_{x+1}} - \sum_{A_t} q_x B^j(x + 1) \tilde{d}_y^{(12)} \frac{D_y}{D_{x+1}} \right] \]

\[ - \left[ \sum_{R} B^j(x + 1) \tilde{d}_y^{(12)} \frac{D_y}{D_{x+1}} - P \right] \]

\[ = UAL_t (1+i) - (I-iF_t) + [NC_t(1+i) - C] - [\text{Termination Gain}] - [\text{Retirement Gain}] \]

4) Let \( I_c \) and \( I_p \) be interest on contributions and pension purchases at the assumed interest rate \( i \)

Then \( UAL_{t+1} = UAL_t (1+i) - [I-iF_t-I_c+I_p] \)

\[ - [C + I_c - NC_t(1+i) - \text{[Termination Gain]} \]

\[ - \left[ \sum_{R} B(x+1) \tilde{d}_y^{(12)} \frac{D_y}{D_{x+1}} - P - I_p \right] \]

\[ + \left[ \sum_{N} B(x+1) \tilde{d}_y^{(12)} \frac{D_y}{D_{x+1}} \right] \]

(2.2.7)
CANADIAN PENSIONS AND RETIREMENT INCOME

PLANNING

Chapter 1 Overview

I. ADVANTAGES OF TAX-SHELTERED RETIREMENT PLANS

1. Investment income accrues tax free until distribution to members
2. Tax deductible EE contributions
3. ER RPP or DPSP contributions deductible within limits and do not confer an immediate taxable benefit on the individual

II. 2 ALTERNATIVES TO TAX-SHELTERED RETIREMENT PLANS

1. A promise to pay a lifetime pension or an equivalent lump sum when individual retires, with no advance funding (Vehicle: retiring allowance)
2. Pre-funding in respect of formal commitment to provide a pension or lump sum upon retirement (Vehicles: RCA, LOC, Life insurance, after tax savings plans, EPSP, Company Stock)

III. DB PLAN

1. DB decline not met by increase in money purchase plan
2. Always face EE who like to max. own RRSP room.
   a) Make bft formula more tax effective
      i) lower lifetime bft; increase ancillary bft
      ii) But may have higher solvency liab – more volatile contributiosn
   b) Hybrid plan
      i) Meet needs of various EE groups
      ii) But higher admin costs
   c) Flexible pension plan
      i) Cost neutral to ER (EE buys ancillary bfts with after tax income as cont)
      ii) EE beware: Use it or lose it (cont. forfeited if bfts not used’
      iii) Tend to have low EE take up rate

IV. PHASED RETIREMENT

1. Abolition of mandatory retirement is just first step
2. Particularly problematic if DB plan has generous early retirement provisions
   a) Following 2 key impediments in ITA have now been resolved
      i) Can either receive pension or accruing pension but not both
      ii) Lifetime pension must be paid in equal periodic amounts
   b) Next is to update each jurisdiction’s min. standards legislation
   c) Also ER must fully understand phased retirement program - ensure motivate key EE to stay longer, not for EE to cut hours earlier than intended
3. Alternative: use other rewards
4. Also similar issues as ER with C/QPP
V. THE MONEY PURCHASE PLAN

1. ER advantages over DB
   a) Better funding cost control (no UAL, pension expense volatility etc)
   b) Simpler EE communications & education
   c) Simpler administration

2. EE Disadvantages over DB
   a) Assume investment risks
   b) No predictability of bfr payout

3. Money Purchase Plan Options
   a) Group RRSP
   b) DPSP
   c) DC RPP

VI. CAPITAL ACCUMULATION PLAN GUIDELINES

1. Has recommendations re 4 main categories
   a) Requirements for setting up a new plan
   b) Provisions of investment info and decision making tool
   c) Requirements for initial and ongoing communications and disclosure
   d) Plan maintenance criteria
CANADIAN PENSIONS AND RETIREMENT INCOME PLANNING

(5TH EDITION) BY TOWERS WATSON

Chapter 5: Introduction to Pension Adjustment (PA) and General PA Rules

I. SUMMARY

1. PA is the deemed value placed on benefits accruing under a RPP or DPSP in a particular calendar year, regardless of whether the member is vested

2. Canada Revenue Agency (CRA) uses PA to:
   a) Determine RRSP room for the following calendar year
   b) Limit the maximum permissible contributions and benefits under RPP / DPSP or a combination of such provisions
      i) Maximum PA Rule: PA cannot exceed the maximum DC contribution allowed
      ii) Max PA = Min [18% of compensation, prescribed dollar limit]
      iii) PA affected by
         ▪ Additional voluntary DB contributions
         ▪ Employee optional ancillary flexible pension plan contributions
         ▪ Employee required contributions to the DC portion of a hybrid plan
      iv) PA not affected by employee required DB RPP contributions
      v) In DPSPs, since employees may not contribute maximum allowed employer DPSP contribution is ½ of maximum PA rule
      vi) If PA reported < Maximum PA Rule, the difference generally lead to new RRSP contribution room which can be carried forward
   c) Determine maximum employee DB current service contribution. General rule is higher the PA, higher the limit on employee contributions

3. PA reporting
   a) PA is reported on T4 which must be distributed by end of February following year
   b) For employees who contribute to more than 1 pension plan under the same sponsor, plan registration number on T4 is the plan produces the largest PA
   c) Employer’s responsibility to report PA, except for specified multi-employer plan where administrator has the responsibility
   d) For employees who change employment during year
      i) PA for the year = PA from first employer + PA from second employer
      ii) Allowed to exceed Maximum PA Rule without penalty
      iii) Exception: Change of employment is due to M&A activity and there is no change in pension benefits
   e) Administrator also has to file annual information return in February

4. Pension credit
   a) Applicable to retirement savings arrangement which combines DB, DC, DPSP
   b) Pension credit is determined for each individual provision as per the usual PA rules as if the particular provision is the only provision where member is accruing benefits
   c) PA for year = Sum of pension credit from each individual provision
5. No PA reported  
   a) For the year the individual dies (RRSP room for following year is irrelevant)  
   b) For the year after the individual has reached maximum credit service limit even if  
      employee is still has to contribute  
   c) Retirement beyond NRA and delayed pension is actuarially increased  
   d) Transfer from other RPP / RRSP / DPSP or the portion of a retiring allowance within  
      a tax-free rollover  

6. Employees may receive additional benefits due to downsizing. When employee is re-  
   hired, these additional benefits must be “returned”.  
   a) The methodology of returning is through freezing new service accrual until the total  
      pension at rehire (which include the additional benefits) is achieved by the new  
      service after re-hire. Only then would service accrual begins and pension benefits  
      will resume increasing  
   b) No PA will be determined in respect of the re-employed individual until the  
      additional service results in an increased pension  

7. PA for connected person  
   a) For the first year, the connected person’s RRSP room is reduced by a prescribed  
      amount = Min [A, $11,500]  
      i) A = 18% of 1990 earned income for RRSP purpose  
   b) For second year and on, PA follows the usual rule  

8. Specified retirement arrangement (SRA)  
   a) If sponsor is a tax-exempt employer and individual also has PA from another RPP /  
      DPSP / foreign pension plan  
      i) Special PA = Min [A, B] – Actual PA reported from the other plan  
      ii) SRA PA = 0.85 * Min [A, B] – Actual PA reported from other plan  
          • A = 18% of individual compensation form employer - PA offset  
          • B = Money purchase limit for year – PA offset  

9. For government sponsored retirement arrangement (GSRA), RRSP room is further  
   reduced by a prescribed amount  
   a) GSRA is an unregistered arrangement using public funds to benefit individual who  
      provide professional services that are paid for out of public funds  

10. For Canadian residents who belong to foreign registered pension plans:  
    a) For those who provide services in Canada, PA depends on contributions made to  
       foreign plan and if CRA treat the foreign plan as RCA  
    b) For those who provide service outside Canada, RRSP room is reduced by a  
       prescribed amount  

11. Correction to PA may result upon realization of a calculation error or when employee  
    returns from a leave of absence within a certain timeframe  
    a) No need to report if correction is less than $50, unless requested by employee  
    b) Can potentially impact previously filed tax return
HANDBOOK OF CANADIAN PENSION AND BENEFIT PLANS
(15TH EDITION) BY MORNEAU SHEPELL

Chapter 8: Pension Standards Legislation

I. HISTORY OF PENSION STANDARDS LEGISLATION

1. The Development of Pension Standards Legislation
   a) Provincial pension benefits acts were passed in 1950/60s (re rapid pension plan growth)
   b) Initial concern was over preservation of benefits
   c) Substantial disparities remain between the provisions of different provinces

2. Registration Requirements and Applicable Laws
   a) Provisions of pension standards legislation
      i) comprehensive set of rules governing the operation of pension plans
      ii) a regulator who has the authority to enforce compliance
   b) Federal Pension Benefits Standards Act applies to employees in industries under federal jurisdiction, in Yukon, Northwest Territories and Nunavut
   c) Plan subject to provincial jurisdiction
      i) Must be registered in and supervised by province with the plurality of members
      ii) Must comply with each province with respect to members in that province

3. Regulatory Cooperation toward Uniformity
   a) Memorandum of Reciprocal Agreement (1968)
      i) Administration and procedural matters ruled by province of registration
      ii) Regulator in province of registration cannot ignore legislation of provinces with minority of members in event of surplus application
   b) Canadian Association of Pension Supervisory Authorities (CAPSA)
      i) Original objective: Greater regulatory uniformity (stalled by political difficulties)
      ii) Current objective: Ensure pension plans regulated in orderly and coordinated manner; to resolve inter jurisdictional disputes
   c) No move towards uniform pension legislation but a degree of harmonization emerging

II. MINIMUM STANDARDS

1. Eligibility for Membership
   a) Every employee with two years of service must be eligible if that employee is a member of the class for whom the plan is designed
   b) Part time employees with earnings of at least 35% of YMPE must be eligible to join unless an alternative separate plan for part-time employees which is reasonably equivalent has been established
   c) Manitoba makes participation compulsory as employment conditions if a plan exists

2. Vesting and Locking-In
   a) Minimum vesting standards vary by province with a common standard for new benefits being 2 years of service or plan membership
b) New rules are usually not retroactive and do not affect pensions accrued prior to reform legislation which are often subject to an age 45 and 10 years of service requirement

c) Some jurisdictions require 100% vesting at pensionable or normal retirement age. Quebec requires immediate vesting to all benefits

d) Locked in benefits cannot be withdrawn with certain exceptions
   i) 100% of pre-reform pension (BC)
   ii) 50% of pre-reform pension (Sask)
   iii) 25% of pre-reform pension (Alberta, Manitoba, Ontario and PEI)

e) Trend to allow unlocking of benefits under certain conditions
   i) Limited life expectancy
   ii) Commutation of pension benefits for non-residents in some jurisdictions
   iii) Financial hardships in some jurisdictions

f) Some jurisdictions also permit former members with specified age to make a one-time election to unlock pension funds or on transfer to certain locked in accounts.
   i) Sask RRIF allow EE 55 & up to access formerly locked in pension money, replacing LIF and LRIF
   ii) New Brunswick allows terminated EE to transfer max. 25% of pension to RRIF
   iii) Alberta permits EE 50 & up to unlock max. 50% of amount otherwise transferrable to LIF from LIRA or pension plan.
       Also consolidate LIF (Old LIF) and LRIF into a single LIF (New LIF) structure
   iv) Ontario allows unlocking max. 25% of amount otherwise transferrable to a New LIF from a LIRA, old LIF, or pension plans within 60 days of transfer
   v) Federal government allow unlocking max. 50% of amount otherwise transferrable to a Restricted LIF (RLIF) from locked-in RRSP, LIF or pension plan within 60 days. Establish Restricted Locked in savings plan (RLSP) to receive transfers from RLIFs

3. Portability
   a) Most jurisdictions require the member be given the option to transfer the commuted value of the deferred vested benefit to another plan before retirement age
   b) It is possible but not mandatory to require such a right to those that have attained retirement age (except Manitoba: must provide portability at all ages)
   c) Sponsors typically allow portability
   d) Transfer options for a deferred pension can include
      i) transfer to another pension plan (RPP)
      ii) locked in registered retirement savings plan (locked-in RRSP)
      iii) life income fund (LIF)
      iv) locked-in retirement account (LIRA) or retirement income fund (LRIF)
      v) registered retirement income fund (RRIF)
      vi) LIF style account within a DC plan
      vii) insurance company for annuity purchase

4. Retirement Age
   a) All jurisdictions demand plans to have rules regarding earliest age or NRA
      i) Different jurisdictions have different rules on NRA
   b) Many jurisdictions require a right to an immediate pension if employment ceases within 10 years of normal retirement age
      i) All jurisdiction require any reduced pension must be at least actuarially equivalent to pension at NRA
§ 3100: SCOPE

1. Section 3200 re Going concern funding
2. Section 3300 re funding under full/ partial windup
3. Section 3400 re accounting costs and obligations
4. Section 3500 re CV
5. 3100-3500 apply to plan
   a. Whether funded or not / private or public
6. Standards not apply to: DC / Insurer guaranteed bfts / Social security programs

(Candidates should already be very familiar with the first 3 types of valuations. Emphasis here is not placed on memorization of sections required in external user reports)

§ 3200: ADVICE ON THE FUNDED STATUS

1. Actuary advice should consider circumstances of work
   a. Whether advice relates to funding or funded status
   b. Terms of appropriate engagement
   c. Applicable law
2. Select actuary cost method
   a. Cost allocation methods
   b. Bft allocation methods
   c. Forecast actuarial cost methods
3. Select asset valuation method
   a. MV with / without adjustment to moderate investment return volatility
   b. PV of post calculation date cash flow
   c. For illiquid assets with fixed redemption values – assume constant return to maturity
4. Deferred recognition of pending amendments
   a. Amendments must be definitive or virtually definitive
   b. Treatment depends on effective date vs. calculation date
5. To set Next calculation date, consider laws and terms of engagements

§ 3230: GOING CONCERN VALUATION

1. Assumes plan ongoing
2. Assumptions - Best estimate with or without margins for adverse deviations
3. Consider all benefits (including contingent benefits) unless exclusion required by law, or exclusion permitted by law and engagement terms
§ 3240: HYPOTHETICAL WINDUP VALUATION

1. Precision of membership data less important than in a real windup (can make assumptions regarding missing data)
2. Reflect treatment of contingent benefits
   a. Contingent upon windup scenario – e.g. plant closure benefits
   b. Required by law (e.g. early pension start date in plan windup)
   c. Contingent on other non-windup factors (e.g. provision permitting waiving early retirement reduction)
3. Subsequent event – Can reflect as long as it affects financial position at calculation date
4. Windup expenses – Not considered
5. Settlement methods assumptions
   a. Method permitted by law / regulation / guidelines (may account for potential changes e.g. exercise of regulatory discretion)
   b. By means of replicating investment portfolio if permitted or where annuities won’t be purchased.

§ 3250: SOLVENCY VALUATION

1. Apply standards of hypothetical windup unless required by law or permitted by law and stipulated by engagement terms

§ 3255: OTHER VALUATION

1. Methods and assumptions consistent with terms of appropriate engagement

§ 3260: REPORTING – EXTERNAL USER REPORT

1. Sufficiently detailed to enable another actuary to assess reasonableness of valuation
2. Going concern valuation external user report should:
   a. Describe rationale for any assumed additional returns in discount rate
      i. For active strategy - net of investment management expenses
   b. Report funded status at calculation date and service cost or service cost calculation rule between the calculation date and the next calculation date
   c. Disclose pending but definitive or virtually definitive amendment that actuary is aware of and whether such are reflected in funded status and service cost
   d. Describe contingent benefits and extent these are included / excluded in funded status and service cost
   e. Describe non-contingent benefits that are excluded from funded status and service cost
   f. State in report if no provision for adverse deviations
3. Hypothetical wind-up valuation and solvency valuation external user report should:
   a. Describe basis for inclusion and amount considered re Letter of credit
   b. Report funded status at calculation date
   c. Describe postulated scenario
   d. Describe extent contingent benefits are included / excluded in funded status
4. If external user report includes multiple hypothetical wind-up or solvency valuations, for any one valuation or solvency valuation, external user report should:
   a. Report incremental cost between calculation date and next calculation date (for DB portion)
   b. If no going concern valuation, report incremental cost between calculation date and next calculation date (for DC portion)
   c. Report sensitivity analysis (effect on hypothetical wind-up or solvency liabilities at calculation date, of (discount rate less 100 bps)
   d. If no going concern valuation, describe and quantify G/L between prior calculation date and calculation date unless
      i. It is a “designated plan”
      ii. Valuation based on extrapolation from previous external user report
5. If no going concern, hypothetical wind-up or solvency valuation, external user report should describe the extent contingent bfts are included / excluded

§ 3300: full or partial wu valuation

1. Not intended to prescribe how to
   a. Allocate of pension assets among several jurisdiction
   b. Determine bft entitlements
   c. Determine conts to pension bft guarantee funds
   d. Funding obligations
   e. Allocate plan assets between ER and EE

§ 3400: FINANCIAL ACCOUNTING FOR PENSION COSTS

1. Assumptions: Best estimate unless specified in accounting standards or by financial stmt prepares (If latter, control of work rule apply regardless whether actuary is expressing an opinion or not)

§ 3500: Pension Commuted Values

§ 3510: SCOPE

1. Specifically, 3500 standards apply:
   a. In any jurisdiction
   b. Independent of ITA tax-sheltered transfers limits
   c. Under a reciprocal pension agreement to establish
      i) a pension amount on DC basis
      ii) an account value under DC provision
   d. Determine entitlement to former spouse in marriage breakdown
2. Section 3500 standards DO NOT apply to
   a. Providing pension benefits under reciprocal pension agreement
   b. Non-registered arrangements (e.g. non-registered RCA)
   c. Conversion to DC arrangement where there is no termination of employment
   d. To determine CVs of pensions that have commenced payment and where commutation is at discretion of member
      i) Except as required under 3510.02 or 3560.01
Review Questions

This section of the study manual contains an array of review questions covering the entire syllabus. These questions were written to serve as an aid in assessing your understanding of the material after you have completely covered it through your studies. It is unlikely that you would see questions of this type on the actual exam, since those questions are developed with an eye toward application of multiple parts of the syllabus in actual job situations.

While these questions were not developed as possible exam questions by themselves, it is entirely possible that you could see some of these questions as parts of actual exam questions.

OBJECTIVE 1

1. How do you judge actuarial data for usefulness?

2. When is an actuary not responsible for evaluating the usefulness of data?
OBJECTIVE 2

1. What is the general process for selecting actuarial assumptions?

2. How are the following assumptions normally selected and what are their usual components if applicable?
   - Investment return assumption
   - Discount rate assumptions
   - Termination of employment
   - Percentage married and spousal age difference
   - Retirement
   - Disability
   - Mortality
   - Inflation
   - Administrative expense
   - Crediting rate assumption for cash balance plan
   - Compensation increase assumption
   - Social Security Assumptions

3. To reflect expense assumptions, actuaries most often lower the discount rate, but sometimes build an explicit allowance in normal cost, or use a combination of methods. Describe these approaches.

4. For a discount rate assumption, describe in detail how it is determined under the following approaches:
   - Building block
   - Stochastic methodology
   - Fixed income yields.