Auditing Internal Dosimetry Programs

Learning Objectives

- Identify lines of investigation for program audits
- Suggest questions to be asked of licensees

Areas to Review

- Has the workplace been characterized?
- Is there a need for monitoring?
- Are monitoring methods appropriate?
- Is monitoring frequency appropriate?
- Are results correctly interpreted?
- Are doses assigned correctly?
- Is performance assessed regularly?
- Are unusual circumstances addressed?
- What about respiratory protection?
- What about worker training?

Has the Workplace Been Characterized?

- What radioactive materials are present?
- How much is present/in routine use?
- What are the physical and chemical forms of the materials?
- What processes involve the materials?
- What controls are in place?
  - Engineering controls
  - Administrative controls

Is There a Need for Monitoring?

- Do any workers have a potential to receive 500 mrem from all intakes in a year?
- Are there airborne radioactivity areas?
- Does total activity exceed 10,000 ALI over the course of a year?
- Are workers using respiratory protection?
- Any history of internal exposures?
- Any declared pregnant workers?

Are Monitoring Methods Appropriate?

- Is there a technical basis document supporting the choice of methods?
- Is there adequate laboratory capability to meet the needs of the program?
- Is there any confirmatory monitoring for intakes determined by DAC-hrs of exposure?

Is Monitoring Frequency Appropriate?

- Have the sensitivities of the analytical methods been determined?
- Have potential missed doses been determined?
- Have derived action levels been established and provided to the analytical laboratory (or WBC provider)?

Are Results Correctly Interpreted?

- For airborne monitoring, are DACs calculated correctly?
- Are intake retention fractions applied correctly?
- If NUREG/CR-4884 not used, is there a technical basis justification for an alternate approach?
- Are times of intakes known or reasonably estimated?

Are Doses Assigned Correctly?

- Are DAC-hrs calculated correctly?
- Are DAC-hrs correctly related to ALI or dose?
- Are the right ALI's used (10CFR20, FGR-11)?
- Are the right dose coefficients used?
- Are organ doses calculated correctly?

Is Performance Assessed Regularly?

- Are service laboratories evaluated for QA/QC?
- Are internal audits of the program performed and documented?
- Is the program re-evaluated if workplace conditions change?
- Are the results used to evaluate working conditions and review the ALARA program?

Are Unusual Circumstances Addressed?

- What about chronic/multiple intakes?
- What about particle sizes and solubility classes?
- Does chemical toxicity need to be considered?
- Would an accident situation change the characteristics of radioactive materials?

What About Respiratory Protection?

- Does the RP program meet the requirements of Reg. Guide 8.15?
- Is ALARA really considered?
- Is respiratory protection used in place of engineering controls?

What About Worker Training?

- Do workers receive instruction about the internal dosimetry program?
- What is worker compliance like regarding sample submission?
- Do they believe a rem is a rem?