



**Regulatory Information Conference  
Session T9, March 12, 2019**

**Modernizing the NRC's Radiation  
Protection Reactor Oversight  
Process**

**Steven Garry, CHP, Sr. Health Physicist  
Radiation Protection and Consequence Branch  
Division of Risk Assessment  
Office of Nuclear Reactor Regulation**

## Part I

# U.S. Nuclear Regulatory Commission (NRC) Regulatory Framework

## How We Regulate

- Regulations
- Regulatory guidance
- Reactor Oversight Process
  - Inspections and performance indicators
  - Significance determination process

## NRC Principles of Good Regulation

- Independence
- Openness
- Efficiency
- Clarity
- Reliability

## Health Physics Staff Focus Areas

- Consistency/clarity
- Prioritization/effectiveness
- Timeliness/efficiency
- Stakeholder engagement

**Part II**

**Regulatory Guides  
&  
Health Physics Positions**

## What Are Regulatory Guides (RGs)?

- RGs are NRC staff guidance documents that do the following:
  - Describe acceptable methods for meeting regulations
  - Explain techniques for NRC inspectors to use in evaluations
  - Provide guidance to applicants
- RGs are not substitutes for regulations, and compliance with them is not required
- Methods and solutions that differ from those described in an RG are acceptable if they provide an adequate technical basis

## Regulatory Guide Revision Process

- Identify RGs in need of improvement
  - NRC staff review
  - Stakeholder input
- Review regulatory requirements
- Draft a revision to the RG
- Publish draft RG for stakeholder review
- Incorporate stakeholder comments
- Prepare and publish a comment resolution document
- Issue final RG



## Regulatory Guides Being Finalized or Revised

- RG 4.13, “Environmental Dosimetry—Performance Specifications, Testing, and Data Analysis”
- RG 8.34, “Monitoring Criteria and Methods To Calculate Occupational Radiation Doses”
- RG 1.8, “Qualification and Training of Personnel for Nuclear Power Plants”

## RG 4.13, “Environmental Dosimetry — Performance Specifications, Testing, and Data Analysis”

- Provides achievable dosimeter-design performance specifications
- Provides a numerical method for evaluating environmental dosimeters
- Provides a method for calculating facility-related dose (or demonstrating no detectable dose)
- Data analysis method can detect ~10 millirem per quarter facility-related dose

## RG 8.34, “Monitoring Criteria and Methods to Calculate Occupational Radiation Doses”

- Reason for revision:
  - Redefine  $TEDE = EDEX + CEDE$ 
    - TEDE is the total effective dose equivalent
    - EDEX is the effective dose equivalent (for external exposure)
    - CEDE is the committed effective dose equivalent (for internal exposure)
  - Clarify prospective evaluations
  - Clarify “required” vs “voluntary” monitoring
- Miscellaneous cleanup

## RG 1.8, Revision 4, “Qualification and Training of Personnel for Nuclear Power Plants”

- Reason for revision:
  - Update to American National Standards Institute (ANSI)/American Nuclear Society (ANS) 3.1-2014, “Selection, Qualification, and Training of Personnel for Nuclear Power Plants”
  - Specify radiation protection manager position qualifications and experience
- Proposed revision will consider the following:
  - Endorsing ANSI/ANS 3.1-2014 (with exceptions)
  - Exceptions include specifying experience and qualifications needed for new radiation program managers

## Health Physics Positions

- Health Physics Positions (HPPOS) are NRC staff positions on health physics topics; e.g.,
  - NUREG/CR-5569, Revision 1, “Health Physics Positions Data Base,” (ADAMS ML093220108)
  - Issued February 1994, consists of 328 documents in the form of letters, memoranda, and excerpts from technical reports

## HPPOS Being Considered for Updating

- HPPOS-001, “Proposed Guidance for Calibration and Surveillance Requirements to Meet Item II.F.1 of NUREG-0737” (accident-range effluent monitor calibration (supplement))
- HPPOS-019, “Qualification (Experience) of Contractor Health Physics Technicians” (remove the “in no less than 30 weeks” provision and change to 2,000 hours per year)
- HPPOS-086, “10 CFR 50.59 Safety Evaluations for Changes to Radioactive Waste Treatment Systems” (electronic dosimeters)
- HPPOS-097, “Jurisdiction Over Low Level Waste Management at Reactor Sites in Agreement States” (Title 10 of the *Code of Federal Regulations* (10 CFR) 20.2002, “Method for Obtaining Approval of Proposed Disposal Procedures”)
- HPPOS-221, “Lower Limit of Detection (LLD) for Potentially Contaminated Oil” (LLDs for tritium and carbon-14 in oil)

## Potential New HPPOS

- Task Interface Agreements (TIA)
  - TIA 2012-05, “Use of a single dosimeter to measure beta, gamma and neutrons – compliance with National Voluntary Accreditation Program (NVLAP) requirements” (ADAMS ML12268A330)
  - TIA 2014-09, “Recording and Reporting of Occupational Radiation Dose” (i.e., required vs. voluntary monitoring) (ADAMS ML15187A388 and ML16137A098)
- NRC letter related to shielding design review & ALARA
  - “Radiological impact of the removal of the auxiliary shield blocks on the containment accident shield post large break loss-of-coolant accident” (i.e., inadequate shielding design review) (ML18219B296)
- OREX laundry processed for either decontamination or waste disposal
- Environmental monitoring required for iodine-131 in liquid effluents if the calculated dose is >1 millirem per year