NRC Inspection Program

Linda M. Gersey
NRC Region IV

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Three Discussion Topics

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Pre-operational Inspections
- Inspection Lessons Learned
- Contamination Limits - DOT vs. Restricted Area Releases

Pre-operational Inspections

- NRC does not have a formal inspection procedure for pre-op inspections
- Formal pre-op inspection procedure will be developed for re-starts and new facilities
- In the interim, NRC will use licensee-specific inspection plans and current inspection procedures as appropriate

Pre-operational Inspections

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- This is a multi-disciplined team inspection, includes HPs, hydros, PM, geotechs
- We will spend 2 weeks on-site
  - First week determines program readiness
  - Second week ensures issues are resolved
- This is a programmatic review, different from normal inspection. Does the licensee have procedures/equip/personnel in place to meet regulatory requirements?

Inspection Lessons Learned

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Three types of non-compliances have been identified during recent inspections:

- Failure to post radiation areas and failure to restrict access
- Errors in spreadsheet calculations
- Inadequate training of RPTs

Inspection Lessons Learned

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

NRC has identified various failures to post radiation areas and to restrict access

Be careful of “roving” radiation areas

- Tanks in CPP
- Filters in header houses
- ROs in satellites
- Waste storage bins

Inspection Lessons Learned

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Second, we identified flaws in spreadsheets that perform critical calculations

- Background subtracted twice
- Time factors table used for modified Kusnetz method for calculating radon progeny not electronically locked, some time factors got deleted

Inspection Lessons Learned

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Third, radiation protection technicians don't always meet the education, training, and experience stipulated in RG 8.31

There are 2 pathways for RPT qualification per RG 8.31

Inspection Lessons Learned

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

2.4.2 Health Physics Technicians

"In addition to the RSO, there should be a minimum of one full-time health physics technician at any full-scale operating UR facility. The health physics technician should have one of the following combinations of education, training, and experience:"

- Education: An associate degree or 2 or more years of study in the physical sciences, engineering, or a health-related field;
- Training: At least a total of 4 weeks of generalized training (up to 2 weeks may be on the job training) in radiation health protection applicable to UR facilities;
- Experience: One year of work experience using sampling and analytical laboratory procedures that involve health physics, industrial hygiene, or industrial safety measures to be applied in a UR facility; **or**

- Education: A high school diploma;
- Training: A total of at least 3 months of specialized training (up to 1 month may be on the job training) in radiation health protection relevant to UR facilities;
- Experience: Two years of relevant work experience in applied radiation protection.
- The health physics technician should demonstrate a working knowledge of the proper operation of health physics instruments used in the UR facility, surveying and sampling techniques, and personnel dosimetry requirements

DOT vs. Restricted Area Surveys

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Licensed material transported over public highways and released from a restricted area must be surveyed to meet both DOT and NRC release criteria
  - Examples include: resin trucks, sock filters transported from satellites to CPP, and 11e.(2) trash transported from satellite to another satellite

DOT vs. Restricted Area Surveys

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

49 CFR 173.443 provides the removable contamination limits for DOT shipments

For beta, gamma & low toxicity alpha emitters (e.g., U-nat, and Th-230 contained in ores and concentrates), the limit is 220 dpm/cm^2, using the wipe method and assuming 10% smear efficiency. For other alpha emitting radionuclides, the limit is 22 dpm/cm^2

DOT vs. Restricted Area Surveys

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Alternatively, the level of non-fixed radioactive contamination may be determined by using other methods of equal or greater efficiency than the wipe method

DOT vs. Restricted Area Surveys

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- Table 2 of RG 8.30 requires surveys for release of equipment from restricted areas
- Standard license condition requires surveys for release of contaminated equipment, materials, or packages from restricted areas
- Removable contamination limit under these criteria is 1,000 dpm alpha/100cm^2

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

- You must show compliance with both limits (DOT transportation limit and equipment release limit)
- You could use equipment release limit for both surveys

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Questions?