

Enhancing the RP Workforce:

**by Incorporating International Training
Standards, defining Junior Surveyor
pathways, and professionalizing the
Decontamination Role**

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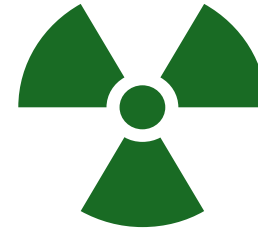
About Me: Global Perspective, Local Experience



The Journey

Originally from Sweden, now based in Canada.

Operating globally to coordinate, align, and drive workforce mobility across NUVIA's international entities.



The Technical DNA

Decades of hands-on Radiation Protection and Decontamination experience.

Cross-border operational expertise spanning many major reactor technologies:

- Light Water: PWR & BWR
- Gas-Cooled: Magnox & AGR
- Heavy Water: CANDU

The Core Problem – Critical Resource Shortages

A Shrinking Pool of Expertise.

- Mature nuclear markets are experiencing a severe shortage of qualified radiation protection technicians (RPTs), particularly at the senior level.
- **Staggering attrition rates (US example):** Between Fall 2018 and Fall 2021, Junior RP Technicians (JRS) saw a 42% attrition rate, while the available Senior RP Technician (SRS) workforce experienced a net attrition of 37%.
- **Demographic shift:** The remaining senior talent pool is already at or rapidly approaching retirement age.

High Turnover and the "Broken Pipeline"

The Three Structural Workforce Challenges.

- **The Revolving Door (Junior Level):** Intensive training programs are replacing the 42% of departing juniors, but the industry fails to retain them long enough for the training to fully take effect.
- **The Broken Pipeline:** High turnover among juniors who are close to reaching senior-level skills means they are constantly replaced by entry-level staff, disrupting the natural development pathway and eliminating the "middle" workforce.
- **The Net Drain (Senior Level):** The 37% decline in senior staff represents a permanent loss of institutional expertise that cannot be fixed by training alone.

Regulatory Divergence and "Latent Risk"

- **The Threat to Workforce Mobility.**
 - The US regulatory framework is shifting away from cumulative and five-year dose averages, differing from international ICRP recommendations maintained by most utilities.
 - **The Latent Risk:** As the senior workforce declines, utilities may be tempted to exploit these higher US dose limits to fill staffing gaps and maintain outage schedules.
- **The Two-Way Mobility Barrier:**
 - **Outbound:** US technicians adopting higher limits may be disqualified from international projects that strictly enforce 5-year averages.
 - **Inbound:** International technicians may decline US work, fearing a single high-dose year could ruin their employment prospects in their home markets.

The Burden of Fragmented Qualifications

Time Wasted on Redundant Training.

- Currently, a wide variety of qualifications exists between countries and even between different site operators within the same country.
- This forces already qualified workers to undergo redundant, time-consuming site-specific training that merely confirms their existing skills rather than enhancing them.

Consequences: Reduced mobility for technicians, making it harder for them to sustain a livelihood. Power plants with only a few reactors, or future small modular reactor (SMR) sites, are especially vulnerable to these resource constraints.

The EPRI Framework – A Blueprint for Success

- Historically, supplemental contract technicians in the US had to be repeatedly retrained on core RP tasks at each new site, wasting thousands of person-hours.
- EPRI and the industry successfully established a universally accepted baseline for core tasks to create a portable workforce.
- **The Three Key Pillars:**
 - **Unified Procedures (NISPs):** Standardized operating procedures for essential tasks like operating survey instruments.
 - **Portable Evaluations (STEs):** Standardized exams with passing scores recorded in a central registry to prevent duplicate testing.
 - **Vendor Pre-Qualification (AP3):** Third-party providers are authorized to conduct standard assessments so technicians arrive on-site fully qualified.

Advancing International Training Standards

Aligning Core Principles Across Borders.

- While fully unified international procedures are unrealistic due to varying local regulations, the industry can align on the core principles of radiation protection based on international standards.
- Adopting a foundation from higher training standards will facilitate seamless bridging training and assist emerging nuclear nations.
- **The Role of Technology:** Modern simulated source systems (e.g., VIZRAD Frisk) are now highly effective for standardizing unbiased practical assessments and preparing both junior and senior staff for fieldwork without radiation exposure.

Redefining Junior Surveyor Pathways

Unlocking the Potential of Junior Staff.

- **The Issue:** Utilities frequently request versatile senior personnel for tasks that junior surveyors could easily manage, limiting the juniors' opportunities to advance.
- **The Solution:** The industry must clearly define junior roles so they can be deployed sooner and given more meaningful, rotating tasks to prevent complacency.
- A tiered approach should be adopted to recognize the distinct capabilities of a "seasoned junior" compared to a brand-new entry-level employee.

The Risks of Improper Decontamination

Decontamination is Not Just "Facility Cleaning."

- **The Misconception:** Decontamination is often wrongly grouped into facility management and performed by civil maintenance workers with minimal radiation knowledge.
- **The Hazard:** Improper techniques easily spread contamination. For example, using a circular wiping motion (like cleaning a restaurant table) spreads and dilutes radioactive material rather than removing it.
- Proper decontamination requires a strict "clean to dirty" methodology, carefully folding cloths to avoid cross-contamination. Incorrect tool combinations, like using static maslin cloths with ammonia-based cleaners, render the process ineffective and create unnecessary waste.

Professionalizing the Decontamination Role

Elevating Decontamination Operatives.

- Deploying dedicated, highly skilled decontamination operatives significantly reduces delays on the critical path, such as during reactor pool decontamination or moving shielding flasks during refurbishments.
- **A New Pipeline:** A strong background in decontamination builds an excellent foundation for future RPTs, as it embeds a deep understanding of contamination management that often exceeds standard junior expectations.
- **Actionable Change:** Decontamination operatives must be removed from facility management, professionalized, and fully integrated into the radiation protection organization.

Conclusion

A Multistage Approach to Fortify the Workforce.

- There is no single "silver bullet" to fix the critical shortage of senior radiological protection staff.
- To secure the future of the industry, we must aggressively enhance the RP workforce by **incorporating international training standards**, clearly **defining Junior Surveyor development pathways**, and fully **professionalizing the Decontamination role**.



Q & A

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