



From Research to Regulation, or Nicole Goes to Washington

Nicole Fields
Health Physicist

Talk Overview

- Biography
- Career at the NRC
- NRC Organization
- Applying for NRC jobs

Education

- University of Virginia, 2003-2008
 - B.A. in Astronomy-Physics, May 2008
- University of Chicago, 2008-2014
 - M.S. in Physics, August 2009
 - Ph.D. in Physics, December 2014

Graduate Fellowships

- Stewardship Science Graduate Fellowship (Nuclear Science), 2009-2013
- Robert R. McCormick Fellowship, 2008-2010
- Robert G. Sachs Summer Fellowship, 2009
- Clare Boothe Luce Graduate Fellowship, 2008-2009



Graduate Work in Physics at the University of Chicago

- PhD Advisor: Professor Juan Collar
- Studied Astroparticle Physics at the Kavli Institute for Cosmological Physics (KICP)
- Dissertation Research
 - Coherent Neutrino Scattering (C^oSI)
 - Direct Detection of WIMP Dark Matter



Graduate School Teaches You Useful Skills

- Technical Skills
- People Skills
- Written/Verbal Communication Skills
- Project Management Skills
- Organizational Skills
- Critical Thinking Skills

Career at the NRC

- At the NRC since October 2014
- Hired into the Nuclear Safety Professional Development Program (NSPDP)
- Located in Region III (Midwest), just outside of Chicago, IL
- Qualifying as an Independent Spent Fuel Storage Installation (ISFSI) Inspector

Nuclear Safety Professional Development Program (NSPDP)

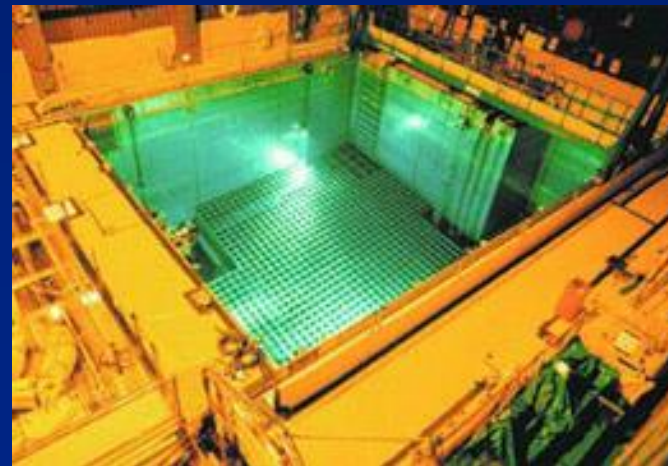
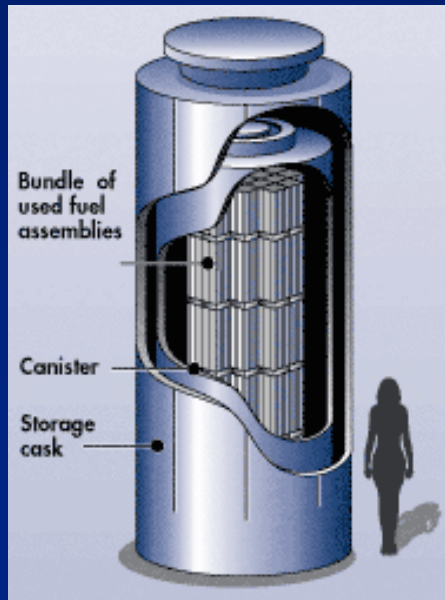
- 18 month development program
- 3 month rotation to another part of the agency
- Agency-wide program over many different divisions
- Must have a Bachelor's, Master's, or **Doctoral** degree in a technical (engineering or science) field within the last two years
- Must be a US citizen
- Drug testing is required
- Background investigation leading to a clearance is required

Qualifying to be an ISFSI Inspector

- Two year training program for entry level hire
- Part of qualification program is generic to the NRC (Basic Level)
- Part of qualification program is specific to ISFSI (Technical Proficiency Level)
- Includes self-study material, online classes, in-person classes, and on-the-job experience
- Must pass an oral board in order to be a qualified regional inspector
- Similar qualification programs for many NRC jobs (Inspectors/Reviewers)

What is an ISFSI anyway?

- Independent Spent Fuel Storage Installation
- Where commercial nuclear spent fuel is stored for interim storage
- Mostly dry cask storage, horizontal or vertical



Why do we inspect?

- Inspection is part of the process of ensuring compliance with federal regulations, license conditions, certificates of compliance, technical specifications
- NRC applicants, licensees and certificate holders need to comply with Chapter 10 of the Code of Federal Regulations
- 10 CFR Part 72 applies to storage of spent nuclear fuel, high-level radioactive waste, and reactor-related greater than Class C waste

What does an ISFSI inspector do?

- Requests and reviews licensee documents
- Travels to ISFSI sites (some co-located with operating commercial nuclear power reactors)
- Observes risk significant activities, i.e. dry runs, fuel selection and loading, canister processing, heavy crane lifts, cask transport
- Writes publicly available inspection reports detailing observations/findings



About the NRC

- Independent Executive Branch Agency
- Created by the Energy Reorganization Act of 1974
- Headed by a five-member Commission, one of whom is chosen to be the Chairman
- Annual Budget of ~1 Billion Dollars
- Workforce of ~3800 employees

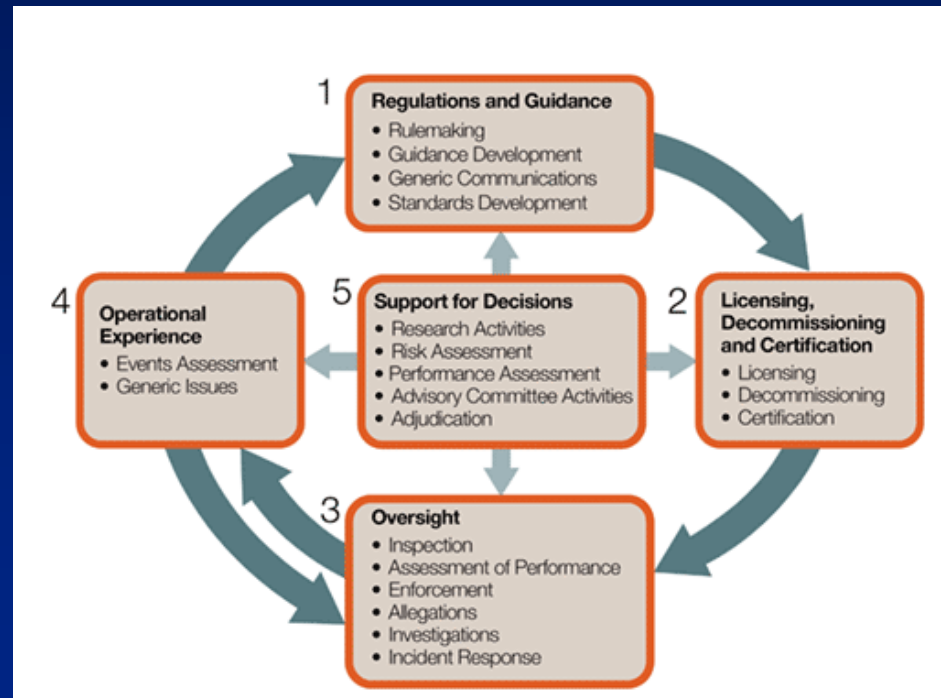


Our Mission

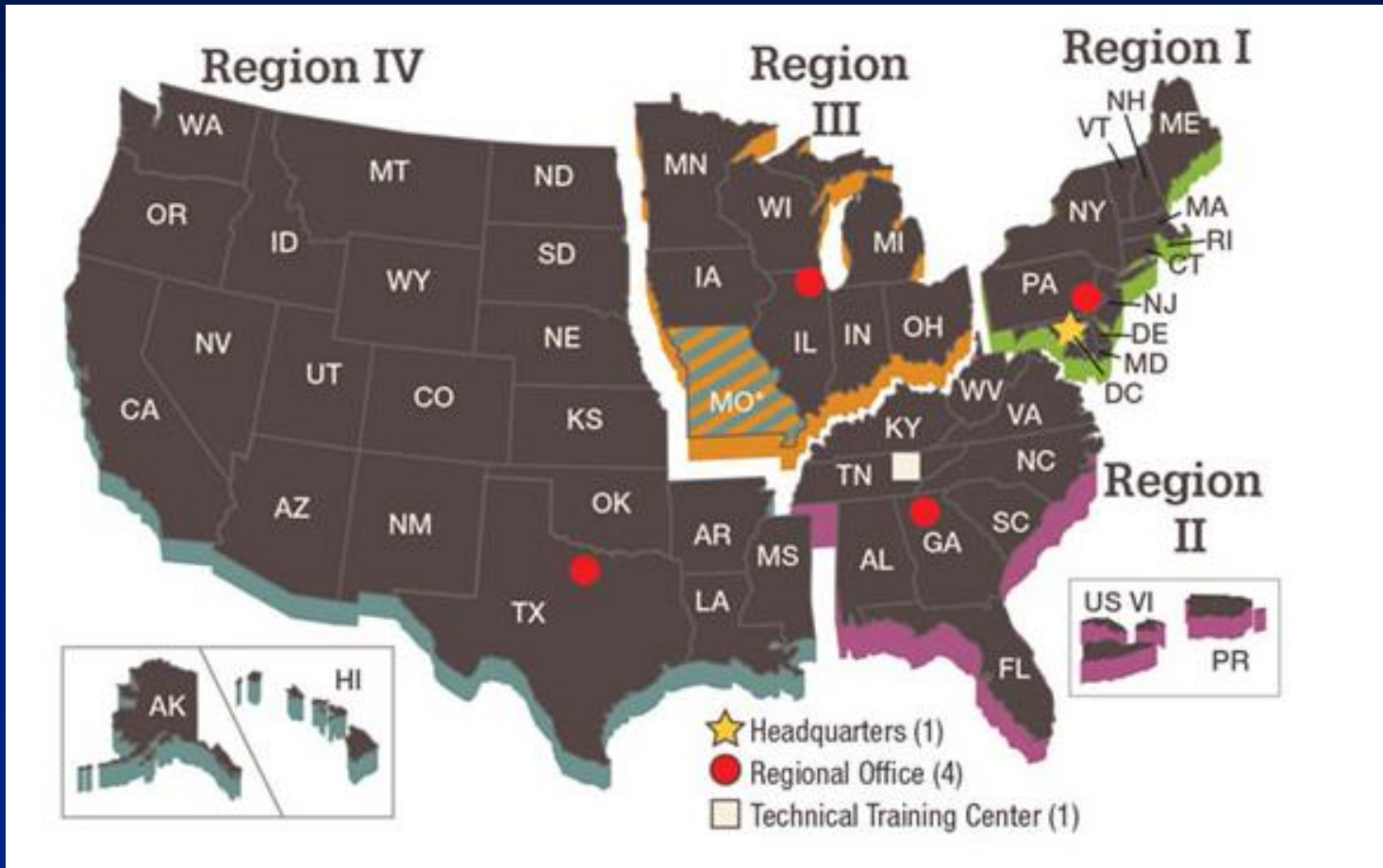
To license and regulate the Nation's civilian use of radioactive materials to protect public health and safety, promote the common defense and security, and protect the environment.

The NRC regulates...

- Commercial Power Reactors
- Research and Test Reactors
- Nuclear Materials
- Nuclear Waste
- Nuclear Security
- Fuel Cycle Facilities



NRC Locations



NRC Organization

- Headquarters in Rockville, MD
 - Makes policy
 - Writes regulations (Rulemaking)
 - Performs Technical Reviews (Safety Evaluation Reports)
 - Office of Nuclear Regulatory Research
- Four Regional Offices
 - “Boots on the ground”
 - Carries out inspection program
 - Resident inspectors located at ALL operating power reactors

NRC Organization

- Region III Office
 - ~250 employees
 - Three technical divisions (DRP, DRS, and DNMS)
 - One support division
- Division of Nuclear Material Safety (DNMS)
 - ~50 employees
 - Three branches (MIB, MLB, MCID)
- Materials Control, ISFSI, and Decommissioning Branch (MCID)
 - ~10 employees

My NRC Job Application Process

WWW.USAJOBS.GOV

- Posting for NSPDP September–November 2013
- Applied September 2013
- Invited for interview February 2014
- Interviewed March 2014
 - Two Branch Chiefs and Deputy Division Director
- Offered and accepted job March 2014
- Start Date October 19th 2014

Questions?