

Tritium: Managing the Regulatory and Litigation Challenges

Thomas C. Poindexter
Glen R. Stuart

Please dial: 800.203.2706

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Participant Passcode: 18647071

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Agenda

- **Nuclear Regulatory Commission**
 - ◆ Key regulatory requirements, NRC strategies and enforcement mitigation opportunities
- **Litigation and Risk Management**
 - ◆ Potential claims/defenses, Price-Anderson considerations, proactive investigation
- **Environmental Regulatory Agencies**
 - ◆ Reporting obligations, permits, civil and criminal enforcement

Nuclear Regulatory Commission -Tom Poindexter

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What is Tritium?

- Exists Naturally in the Environment
- Produced During Weapons Explosions
- Byproduct of Reactors Producing Electricity
- Emits Very Weak Beta Particle (not a source of External Dose)
- Used In Self-luminescent Devices Such As Exit Signs, Aircraft Dials, Gauges, Luminous Paints and Wristwatches
- Key “Trigger” for Thermonuclear Weapons

Regulatory “Requirements”

- **Numerous Qualitative and Quantitative Regulatory Requirements**
 - ◆ 10 C.F.R. § 20.1301: Dose Limits To Public
 - ◆ 10 C.F.R. § 20.1301(e): Incorporation Of EPA Regulations
 - ◆ 10 C.F.R. § 20.1501: Performance of Radiological Surveys
 - ◆ 10 C.F.R. Part 50, Appendix A, General Design Criteria 60, 61, 64: Regulatory Basis Descriptions
 - ◆ 10 C.F.R. § 50.36a: Radiological Effluent Technical Specifications (RETS)
 - ◆ 10 C.F.R. § 50.75(g)(1): Records of Spills or other Unusual Occurrences Involving the Spread of Contamination in and Around the Facility
 - ◆ 10 C.F.R. Part 50, Appendix I: Design Objectives
 - ◆ 40 C.F.R. Part 190: Exposure To The Public
 - ◆ License Requirement - Radiological Environmental Monitoring Program (REMP): Requires Sampling and Analysis of Various Environmental Pathways Including Waterborne Pathways at Required Intervals
 - ◆ Numerous NRC Regulatory Guides and NUREGs

Dose Limits

- Compare: Average Background Dose is **360 Millirem/Yr**
- 10 CFR Part 20, Subpart D, Radiation Dose Limits for Individual Members of the Public
 - ◆ **100 Millirem/yr**
- 10 CFR § 20.1301(e), which Leads to EPA Regulation 40 CFR Part 190 (Planned discharges to general environment)
 - ◆ **25 Millirem/yr** to the Whole Body
 - ◆ **75 Millirem/yr** to the Thyroid
 - ◆ **25 Millirem/yr** to any Organ
- 40 CFR Part 141, Subpart G, Table A, EPA Drinking Water Standard
 - ◆ 20,000 PicoCuries Per Liter (pCi/L), Based on an Annual Dose Of **4 Millirem/yr**

Dose Limits (CONTINUED)

- 10 CFR § 50.34(a), which leads to 10 CFR Part 50, Appendix I:
Estimated Annual Dose or Dose Commitment from Liquid Effluents for
any Individual in an Unrestricted Area from all Pathways of Exposure
in Excess of
 - ◆ < **3 Millirems** to the Total Body or **10 Millirems** to any Organ in a Year.
 - ◆ Less than **1.5 Millirems** to the Whole Body and less than **5 Millirems** to
any Organ for a Quarter
 - ◆ Additive **3 Millirems** Criteria for Each Unit
 - ◆ This Regulation is an ALARA (As Low As Reasonably Achievable) Design
Objective, not a Regulatory Limit

NRC Strategic Focus

- NRC Focus On Regaining Regulatory Credibility
 - ◆ Modification of Reporting Thresholds And Bases
 - ◆ Modification of Inspection Frequency
 - Currently, Inspections of Licensee Environmental Monitoring Programs Occur Every Two Years (Inspection Procedure 71122, “Public Radiation Safety”)

Regulatory Inconsistencies

- **NRC vs. EPA Regulations**

- ◆ Jurisdiction
 - Without a Spill
 - With a Spill
- ◆ Lowest Level Detectable (LLD) Standard
 - 200 pCi/L; 2,000 pCi/L; 3,000 pCi/L
- ◆ 40 CFR Vs. 10 CFR Part 20

- **NRC Use Of 10 CFR Part 50, Appendix I, as the Actual Requirement**

- ◆ Reporting Requirements at Various Dose Thresholds
- ◆ NRC Considers Appendix I to be a Condition of Each License

NRC Enforcement Trends

■ **Significance Determination Process**

- ◆ Dose Assessment
- ◆ Impact on the Environment Assessment
- ◆ Reporting
 - 10 CFR § 50.75(g)(1)
 - Progression Toward Thresholds
 - 10 CFR Part 20
 - 10 CFR Part 50, Appendix I

■ **Traditional Enforcement Policy**

- ◆ 10 C.F.R. § 50.9, Submittal of Inaccurate Information
- ◆ Deliberate Misconduct – 10 CFR § 50.5 (Willful Violation)
 - Potential Criminal Referral

Current Regulatory Vulnerabilities

- Existence (Or Not) of a § 50.75(g) Plan
- Spill Characterization, Documentation, Recordation
- Completeness and Accuracy of Annual Effluent Report
- Monitoring of Piping, Tritiated Water Flow Pathway
- Confusion Between Safety Significance and Regulatory Significance

General Recommendations

- Do Not Ignore This Issue
- Perform Reassessment of Effluent Programs
- Probe Potential for Past Unreported Spills
 - ◆ Speak With Long-term Employees
- Develop Tritium Communications Plan
 - ◆ Expect to Have to Respond to Local Politicians and Media
 - ◆ Expect to Have to Respond to Numerous NRC Inquiries
- If You Find Tritium Issues, Consider a Community Outreach Program
- Have Tritium Experts on Reserve
- If You Have Tritium, Do Not State that it Poses No Adverse Health Consequences
 - ◆ Better To State that it does not Result in a Significant Increase in Health Consequences (or Something Similar), as Applicable

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Potential Litigation

- Property Damage Claims (Real And Threatened or Unimpaired)
- Personal Injury Claims (Real And Threatened or Monitoring)
- State Attorney General Claims (Civil And Criminal)

Actual Litigation

- Claims Already Filed Regarding Braidwood
- Class Action by Adjacent (Or Not So Adjacent) Landowners
- Attorney General's Complaint

Price-Anderson Act

- Sudden or Gradual Release of any Radioactive Materials may Constitute a “Nuclear Incident” Under Price-Anderson Act (PAA)
- Lawsuits Involving Third-party Claims for Personal Injury or Property Damage Arising Out of Nuclear Incident Must be Brought Under PAA
- PAA Lawsuits can be Filed in State or Federal Court, but Defendant can Transfer Case to Local U.S. District Court. State Tort Law Generally Applies
- Compliance with NRC Regulatory Requirements (e.g., Dose Limits, Permissible Levels Of Radioactive Releases) may be Applicable Standard of Care in Many States

Price-Anderson Act (CONTINUED)

- Generally Difficult to Prove that Personal Injury or Property Damage was Actually Caused By Low-Level Releases of Radioactive Materials
- Omnibus PAA Nuclear Liability Insurance Coverage Provided Under American Nuclear Insurers (ANI) “Facility Form” Policies for Nuclear Reactor Sites
- \$300 Million in Coverage under Primary Insurance Layer; Over \$10 Billion in Coverage Available Under Retrospective Premium Plan in Secondary Layer
- ANI Obligated to Defend Claims, but Additional Defense Counsel Usually Employed to Protect Interests of Reactor Owners and Operators

Price-Anderson Act (CONTINUED)

■ **Potential Coverage Disputes with ANI with Respect to:**

- ◆ Claims Involving Alleged Injuries or Damages Arising out of Releases of Both Radioactive and Non-radioactive Materials
- ◆ Claims Involving Environmental Cleanup and Remediation Costs
- ◆ Claims for Punitive Damages
- ◆ Litigation Strategy
- ◆ Settlement Proposals and Options

Proactive Measures in Anticipation of Litigation

- Proactive Remedial Measures
 - ◆ Potentially Defuse the Situation Before it Gets Worse
- Proactive Internal Investigation
 - ◆ Identify the Key Players and Know the Relevant Facts
- Standby Press Release
 - ◆ Be Ready to Respond with the Company's Position
- Informational Website
 - ◆ Control and Provide Relevant Information and Respond to Misinformation
- Community Meeting
 - ◆ Public Outreach
 - ◆ Substantive Communication

Anticipation of Litigation

■ **Document Creation**

- ◆ Attorney Work Product
- ◆ Attorney-Client Privilege
- ◆ Considerations Specific to E-mail

Anticipation of Litigation

(CONTINUED)

■ **Considerations Specific To E-mail**

- ◆ More Than 99% of all Documents are Created and Stored Electronically.
- ◆ In 2006, Businesses Predicted to Generate 17.5 Trillion Electronic Documents.
- ◆ In 2006, more than 60 Billion E-mails Daily Predicted (Most Never Printed).
 - [Http://www.sims.berkeley.edu/research/projects/how-much-info-2003](http://www.sims.berkeley.edu/research/projects/how-much-info-2003)

■ **Beware the Casual Approach to E-mail**

Anticipation of Litigation

(CONTINUED)

- **Document Preservation**

- ◆ Litigation Hold

- What ?
 - When?
 - Why?

Response to Litigation

- Removal
- Standing
- Preemption
- Statutes Of Limitations
- Motions To Dismiss

Class-Action Considerations for Property Damage Claims

■ **Develop And Stress Differences**

- ◆ Contaminated vs. Not Contaminated
- ◆ If Contaminated, Levels of Contamination (e.g., *De Minimis*, Above Nonresidential Standards, Above Residential Standards)
- ◆ If Not Contaminated, Relative Degrees of Proximity and Threat
- ◆ Stigma

Class-Action Considerations for Personal Injury Claims

■ **Develop And Stress Differences**

- ◆ Personal Injuries Existing or Threatened?
- ◆ If Existing, Degree and Nature of Injuries?
- ◆ If Existing, Degree of Support for Causal Relationship Between Alleged Cause and Purported Injury?

Response to Litigation

- Case Management Tools
- Bifurcation
- Class Certification Discovery And Hearing
- *Lone Pine* Order
- *Daubert* Challenges to Experts

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The U.S. EPA

- The Clean Water Act (CWA) requires a permit for the discharge of any pollutant into a water of the United States
- Rivers, lakes, oceans, and comparable surface waters, and adjacent wetlands, are waters of the U.S.
- Groundwater is *NOT* a water of the U.S.
- EPA does not issue NPDES permits for discharges into groundwater
- While CWA definition of pollutants is broad enough to include radioactive isotopes, EPA has chosen not to regulate some of them under the CWA

The U.S. EPA (CONTINUED)

- EPA rules exclude AEA (Atomic Energy Act) regulated materials from the definition of pollutant in 40 CFR 122
- In *Train v. Colorado Public Interest Research Group*, 426 U.S. 1 (1975), the Supreme Court held that because the NRC via the AEA, regulates source, byproduct and special nuclear materials, the U.S. EPA properly declined to regulate these radioactive materials in discharges from two nuclear plants that had been operating in compliance with AEA standards; indeed, the Court said that states could not regulate them either
- The U.S. EPA has said that tritium is a byproduct

State EPAs

- States Typically Define Waters of the State to Include Groundwater
- Most States have been Delegated Authority to Issue NPDES Permits
- Most States Require an SPDES Permit to Discharge into Groundwater

NPDES & SPDES Permit Applications

- The Permit Application Requires the Applicant to Identify all Pollutants in the Discharge
- Some Regulations Limit the Discharge of Pollutants Mentioned in the Application but not Specifically Limited by the Permit

Permit Limitations

- Permits Impose Limits on Numerous Parameters, Including Radioactive Pollutants
- Tritium, Even if Not Specifically Identified in The Permit, Could Fall Within a More General Description
- While Legitimate Questions Could Have Been Raised About Authority of EPA or States to Regulate Tritium in an NPDES Permit, Some Plants May Have Accepted Permit Limitations

Reporting Permit Exceedances

- The Permit, and/or the State Rule, Requires Reports to the EPA or State Issuing Agency
- When a Permit Limitation is Exceeded, Some Reports Must Be Made Immediately, Some Within a Few Hours, Some With the Monthly DMR

General Reporting Requirements Under Other Laws

- CERCLA, EPCRA, and Other Laws Require Reports to the National Response Center, and State and Local Agencies, as soon as an Unauthorized Release Exceeds a Reportable Quantity
- No Specific Reportable Quantity has been Established for Tritium
- A Release Solely Within the Facility Might be Excluded From Some Reporting
- Some States Require Reports for any Unpermitted Release of a Radioactive Substance (e.g., Oregon)

Enforcement

- The CWA Civil Penalty Ranges up to \$32,500 per day of Violation
- The CWA Criminal Penalties for "Negligent Violations" Range Up To \$25,000 per day, plus Imprisonment for up to One Year
- Criminal Penalties for "Knowing Violations" are up to \$50,000 per day, Plus Imprisonment for up to Three Years
- Criminal Penalties for "Knowing Endangerment" are up to \$250,000, plus Imprisonment for up to 15 Years
- Criminal Penalties for "Knowing Endangerment" are up to \$1 Million for a Corporation
- The "Responsible Corporate Officer" is Subject to Criminal Sanctions

Cleanup

- Aside from the NRC, EPA and State Environmental Agencies Can Impose Cleanup Requirements Under CERCLA and RCRA and Comparable State Laws
- Drinking Water Standards Might be Used to set the Cleanup Standard
- U.S. EPA Drinking Water Limits for Tritium (740 Bq/L or 20,000 pCi/L)

Defenses

- EPA and State EPAs may not Regulate Byproduct Material (*see Train*)
- Preemption of the States by a Comprehensive Federal NRC-AEA Program

Tritium Resources On The Internet

- <http://www.epa.gov/radiation/radionuclides/tritium.htm>
- <http://www.nrc.gov/reactors/operating/ops-experience/grndwtr-contam-tritium.html>
- <http://www.epa.gov/superfund/resources/radiation/pdf/tritium.pdf>