

Failures of Plaintiff's Experts in Radiation Litigation

A Technical Presentation

**Health Physics Society Midyear Meeting
Austin, Texas**

Presented

Wednesday, Feb 3, 2016 2:45 pm

by

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Failures of Plaintiff's Experts in Radiation Litigation

A 15 Minute Technical Paper Presentation for the
HPS Midyear Meeting, Austin, TX February 3, 2016

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To justify their claims for radiation related damages plaintiffs retain persons as experts who will support their case. They may chose persons who seem to have knowledge of radiation, radiation safety experience, or even advanced degrees. Unfortunately, these indicators may not adequately qualify a person as an expert according to the Daubert Standard (validated methods, peer reviewed, known errors, follows standards, and wide acceptance). A person may be an expert for some subjects but not necessarily in the topics central to the plaintiff's case.

For example, in a case claiming damages from exposures to elevated levels of radon, one of the plaintiff's experts had a PhD in toxicology and experience as a pulmonary pathologist, was a college professor, and sat on various advisory boards and panels. However, this expert got all of the information for his expert's report from public websites and did not refer to a single scientific publication. He was not a member of any professional radon organization, such as the American Association Radon Scientists and Technologists (AARST) or the HPS Radon Section. He also had never written or presented a paper on radon measurements or radon health risks. Using the result from a single radon measurement in an unoccupied basement, he proceeded to estimate a homeowner's risk from radon based on EPA estimates for lifetime exposures when the homeowner only lived in the house about seven months.

In an another case, the plaintiff's expert, retained to collect radon and NORM measurements, failed to follow EPA and AARST testing protocols for radon. He had no training for radon measurements and was not certified by any state or EPA as a radon measurement specialist. He assumed anyone could place activated charcoal detectors for radon. Although he owned a NaI detector and had done radiation measurements before, he failed to maintain uniform geometry in field measurements for NORM. He also did not understand that a NaI detector calibrated with Cs-137 will likely over respond to gamma rays attributed to Ra-226.

Both of these people had enough knowledge to sound like experts but they could not stand up to rigorous scrutiny. Lessons learned for anyone who may serve as an expert: 1) only offer expertise in areas of extensive experience and knowledge and 2) question whether what you say or do will be defensible in court. When unsure, seek confirmation from others who are well known experts.



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Director, Radiation Safety Counseling Institute 301-370-8573

- BS - Civil Engineering, University of Vermont (1961)
- MS - Sanitary Engineering, Massachusetts Institute of Technology (MIT) (1963)
- PSE - Professional Sanitary Engineer Degree, MIT and Harvard University (1963)
- PE - Licensed Professional Engineer, Vermont (1965 - present)
- PhD Studies, Radio and Nuclear Chemistry, Rensselaer Polytechnic Institute (1966-1972)
- Greater Washington Institute for Transactional Analysis - Counseling (1977-1980)
- CHP - Certified Health Physicist, American Board of Health Physics (1983-present)
- Johns Hopkins Fellow, Organizational Systems and Communications (1984-1985)
- FHPS - Fellow of the Health Physics Society and Past President (2000)
- DAAHP - Diplomate and Past President, American Academy of Health Physics (2015)
- Commissioned Stephen Minister - Counselor, United Methodist Church (2003-present)

Experience

- 2010 - pres. Director, Radiation Safety Counseling Institute. Workshops, training, and counseling for individuals, companies, universities, or government agencies with concerns or questions about radiation and x-ray safety. Specialist in helping people understand radiation, what is safe, risk communication, worker counseling, psychology of radiation safety, and dealing with fears of radiation and nuclear terrorism for homeland security.
- 2007 - pres. VP, Training Programs and consultant to Dade Moeller Radiation Safety Academy, training and consulting in x-ray and radiation safety, safety program audits, radiation instruments, NORM, and regulatory requirements.
- 1984 - 2007 Director, Radiation Safety Academy. Providing x-ray and radiation safety training, audits, and consulting to industry (nuclear gauges and x-ray), universities, research facilities, and professional organizations.
- 1988 - 2006 Manager and Contractor to National Institutes of Health (NIH) for radiation safety audits of 3,500 research laboratories and 2,500 instrument calibrations a year, along with environmental monitoring, hot lab and analytic lab operations, and inspections of three accelerators and over 100 x-ray machines.
- 1990 - 2005 President of Key Technology, Inc. a manufacturer and primary laboratory for radon analyses with over 1,500,000 measurements since 1985. Primary instructor at Rutgers University for radon, radon measurements, radiation risks, radiation instruments, and radon risk communication courses (1990-1998).
- 1986 - 1988 Laboratory Director, RSO, Inc. Directed analytical programs and Quality Assurance for samples from NIH, Aberdeen Proving Ground, radiopharmaceutical companies, and the nuclear industry.
- 1970 - 1985 EPA program manager and Chief, Radiation Surveillance Branch, EPA, Office of Radiation Programs. Directed studies of radiation exposures from all sources of radiation in the US, coordinated 7 Federal agencies for nuclear fallout events, QA officer 8 years. Head of US delegations to I.A.E.A and N.E.A. on radioactive waste disposal. ANSI N-13 delegate (1975-1985). Retired as PHS Commissioned Officer (0-6) in 1985 with 29 years of service.
- 1963 - 1970 U.S.P.H.S. Directed development of radiation monitoring techniques at DOE National Labs, nuclear plants, and shipyards in the US and Chalk River Nuclear Laboratory in Canada. Conducted doctoral research.

Health Physics and Professional Activities

Health Physics Society (HPS) plenary member 1966; President-elect, President, Past President (1998-2001), Fellow (2000), Treasurer (1995-1998); Secretary (1992-1995); Executive Cmte. (1992-2001), Chair, Finance Cmte. (1996-1998); Head of U.S. delegation to IRPA X (2000). RSO Section Founder and Secretary/Treasurer (1997-2000); Co-founder and President, Radon Section (1995-1996). Co-Chair Local Arrangements Cmte. Annual Meeting in DC (1991); Summer School Co-Chair (2004); Chair, President's Emeritus, Cmte (2006); Chair, Awards Cmte (2002); Chair, History Cmte (2005-2012); Historian (2012-Pres.) Continuing Education Cmte. (2005-2012). Chair, Professional Development School Cmte (2014-Pres.), Academic Dean for HPS Professional Development School on Radiation Risk Communication (2010) and Radiation Instruments School (2014). PEP, CEL and Journal Reviewer. AAHP Instructor; Treasurer, AAHP (2009 - 2012). AAHP President-elect, President, Past President (2012-2015). Baltimore-Washington Chapter: President (1990-1991) and Honorary Life Member; Newsletter Editor (1983-2005); Public Info. Chair (1983-1989), Science Teacher Workshop Leader (1995 - Pres.). New England Chapter HPS, Newsletter Editor, Board of Directors, Education Chair (1968-1972). President, American Association of Radon Scientists and Technologists (1995-1998) and Honorary Life Member, Charter Member; Board of Directors; Newsletter Editor (1990-1993). Founder and first President, National Radon Safety Board (NRSB) (1997-1999). Member of American Industrial Hygiene Association (1997-Pres.) (Secretary, Vice Chair, Chair, Ionizing Radiation Committee, 2009-2012), Conference of Radiation Control Program Directors (1997-Pres.), Taught 3,500 RSO students since 1985. Studied H.P. communication styles and presented Myers-Briggs seminars to over 4,000 H.P.s since 1984. Over 35 professional society awards. Licensed Professional Engineer since 1965. Certified Health Physicist since 1983.

Publications

Authored over 600 book chapters, articles, professional papers, training manuals, technical reports, and presentations on radiation safety. Author of monthly column, "Insights in Communication" HPS Newsletter 1984 - 1989, 1994 -2001, and 2012- 2013.

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Choice of Experts

- To justify claims for radiation damages
 - Plaintiffs retain experts to support their case
- They choose persons who “seem” to have knowledge of radiation, radiation safety experience, or even advanced degrees
- However, such indicators may not satisfy qualifications according to the Daubert Standard, *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993)

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Daubert Standard

1. Testimony must be “scientific” and grounded in “knowledge”
 - Based on a “scientific method”
2. Scientific knowledge must *assist the trier of fact* in understanding the evidence or determining a fact in issue in the case.
 - Valid scientific connection to the case
3. A judge determines admissibility

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Daubert Criteria

- Validated methods
- Testable hypothesis
- Subject to peer review
- Known error rate
- Existence of standards
- General acceptance within scientific community
- Qualifications of expert

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Daubert Criteria (cont'd)

- Fit Test – Is testimony relevant to the question that must be answered to resolve the litigation?
- Reliability test – Is testimony based on a reliable scientific foundation?

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Plaintiff's Qualifications

- May be truly an expert in some subjects
- Not necessarily in topics central to plaintiff's case
- Example- in case claiming radon damages
 - Expert – PhD in toxicology, pulmonary pathologist, college professor, sat on advisory panels
 - Got all of his information for his expert's report from public websites and did not quote a single scientific publication

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Lack of Qualifications

- **Radon expert**
 - Not a member of any professional radon organizations, such as the American Assoc. of Radon Scientists and Technologists (AARST), or the HPS Radon Section
 - Had never written a paper or presentation on radon measurements or health risks
 - Used single unoccupied basement measurement to estimate homeowner's lifetime risks, after only six months of residence before radon mitigation

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Another Expert's Failures

- **Expert retained to collect radon and NORM measurement data**
 - Claimed he was a Certified RSO
 - Previously had done exposure measurements
 - Purchased commercial radon kits
 - Did not follow EPA or AARST testing protocols
 - No training for radon measurements
 - Not certified by any program (EPA, NRSB, States) as a radon measurement specialist

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Expert's Failures

- **He assumed anyone could place charcoal canisters for a radon test**
 - After all, homeowners can do this
 - He failed to follow the directions from the manufacturer (EPA protocols)
- **He owned a NaI microR meter**
 - Had done measurements before
 - Failed to maintain geometry for NORM
 - Did not understand energy dependence

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Lessons Learned

- **Both people seemed like experts**
 - But, could not stand up to scrutiny
- 1. **Only offer expertise in areas of extensive experience and knowledge**
- 2. **Ask yourself if what you say or do will be defensible in court ?**
- 3. **If unsure, seek confirmation from others who are well known experts**

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Summary

- **Titles, like PhD, Dr, Prof, PE, even CHP may not qualify you as an expert by the Daubert Standard**
 - If you go beyond your experience / knowledge
- **Daubert Standard**
 1. **Testimony based on scientific method**
 2. **Testimony must be relevant to the case**
 3. **Judge decides if you qualify**
 1. **They may be misled by titles**

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Summary

- **Base testimony on good scientific publications (peer reviewed)**
- **Follow basic published procedures**
- **Remember CHP fundamentals**
- **Do not go outside area of life experience and knowledge**
- **Can you defend what you say or do ?**
- **Be cautious, but go for opportunity**

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Questions ?



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