



Dr. Jeremy Whitlock

SCIENTIST, MANAGER, COMMUNICATOR

PROFESSIONAL PROFILE

A full-service nuclear professional: scientist, manager and communicator, with three decades' experience in the Canadian and international nuclear communities. Supporting nuclear technology and policy development, with expertise in nonproliferation, security and stakeholder engagement.

Founder and principal at Ottertail Consulting Inc. Led initiatives on advanced safeguards at the International Atomic Energy Agency (IAEA), helping to ensure that nations meet their obligations under the Nuclear Non-proliferation Treaty (NPT). Managed the non-proliferation and safeguards R&D program at Canadian Nuclear Laboratories, following years as a Reactor Physicist. A Past-President, Fellow, and former Communications Director of the Canadian Nuclear Society (CNS), as well as a public speaker and author on nuclear issues. Currently lives near Toronto, Canada, and feels that canoes are the closest humans have come to inventing a perfect machine.

WORK EXPERIENCE

CONSULTANT (FOUNDER AND PRINCIPAL)

Ottertail Consulting Inc. (Stratford, ON) | Jan 2025 – present

Provides technical and policy support for nuclear development in the areas of reactor physics, safeguards, security and stakeholder engagement.

- Support for timely, sustainable deployment of advanced reactors and other nuclear fuel cycle developments throughout the facility life cycle.
- 8 years' experience in the IAEA Division of Safeguards Concepts and Planning (SGCP), preparing stakeholders for safeguards obligations applied to innovative nuclear technology.
- 22 years' experience as a reactor physicist and non-proliferation leader at Canadian Nuclear Laboratories / Atomic Energy of Canada Ltd.
- Experienced communicator, skilled in writing, presenting, and engaging stakeholders from many backgrounds. Past engagements include schools, community groups, industry/science meetings, and government panels.
- Adjunct Professor, Dept. of Engineering Physics, McMaster University

SENIOR TECHNICAL ADVISOR, SAFEGUARDS

International Atomic Energy Agency (Vienna) | Mar 2023 – Dec 2024

Provided oversight of initiatives on *Safeguards by Design*, supporting efficient and effective safeguards solutions for innovative nuclear technology.

- Provided *Safeguards-by-design* (SBD) guidance for both IAEA and Member States in support of new nuclear technology development (e.g., SMRs, DGRs, other advanced nuclear fuel-cycle facilities and processes).
- Supported IAEA initiatives on Small Modular Reactors (SMRs), including SMR Platform for SMR development by Member States.
- Reported to: Kory Sylvester (Director, Division of Concepts and Planning)

CONTACT

☎ (+1) 613-854-9723

✉ jeremyjwhitlock@gmail.com

📍 23 Coriano Street, Stratford, Ontario, CANADA N5A 6C4

in www.linkedin.com/in/jeremy-whitlock-phd-fcns/

EDUCATION

Ph.D. ENGINEERING PHYSICS (Reactor Physics)

McMaster University
Hamilton, Ontario, Canada
1995

M.Eng. ENGINEERING PHYSICS (Reactor Physics)

McMaster University
Hamilton, Ontario, Canada
1991

B.Sc. HONOURS PHYSICS

University of Waterloo
Waterloo, Ontario, Canada
1988

SECONDARY SCHOOL DIPLOMA

Champlain High School
Pembroke, Ontario, Canada
1984

SKILLS

Teamwork & collaboration
Technical analysis & writing
Public communication (written, oral)
Strategic and tactical team management

PERSONAL INFO

Citizenship: Canadian

Birthplace, date: Chipping Sodbury, UK, 1965 Sept 15

Marital Status: married, three adult children

Languages: English, basic French (Ontario Grade 13), basic German (CEFR A2 level)

PROFESSIONAL INTERESTS

Application of nuclear science and technology to unique energy sustainability problems:

emerging nuclear markets, remote locations, Small Modular Reactors

Nuclear non-proliferation and counter-terrorism:

policy, technology, and methodologies

Reactor design:

advanced power, research reactors

Communication strategies:

public understanding, consensus decision making, socio-political interactions in science

PERSONAL INTERESTS

Family, Music (clarinet, piano, choral), Community theatre, Canoeing, History, Astronomy, Public science communication

WORK EXPERIENCE Cont.

page 2

SECTION HEAD, SAFEGUARDS CONCEPTS AND APPROACHES

International Atomic Energy Agency (Vienna) | Jan 2017 – Feb 2023

Managed a diverse staff of 16 analysts developing safeguards approaches, policies, and guidance in support of IAEA Safeguards operations.

- Chair of IAEA Safeguards Technical Review Committee (TRC).
- Technical Secretary to the IAEA State-level Safeguards Committee (SSL).
- Developed guidance, in a team environment, on application of safeguards to all aspects of the nuclear fuel cycle.
- Reported to: Kory Sylvester (Director, Division of Concepts and Planning)

MANAGER, NON-PROLIFERATION AND SAFEGUARDS

Canadian Nuclear Laboratories (Chalk River) | Sep 2007 - Dec 2016

Coordinated CNL's research and development activities in non-proliferation and safeguards, and represented Canada on national and international expert working groups advancing the global non-proliferation regime. (Note: until 2015 this position was directly under Atomic Energy of Canada Ltd., which then transferred operations to CNL.)

- Project Lead, *Enhancing National and International Counter-Proliferation Measures*, 2015-2016.
- Project Lead, *Non-proliferation and Counter-terrorism Technologies*, 2012-2015.
- International Co-chair, GenIV International Forum Proliferation Resistance & Physical Protection (GIF-PRPP) Working Group, OECD-NEA, 2006-2016.
- Program Authority, CNL Nuclear Criticality Safety Program, 2007-2013.
- Deputy Project Manager, *Canadian National Nuclear Forensics Development Project*, a pan-governmental nuclear security initiative.
- Canadian representative on IAEA *International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO)*, including two Collaborative Research Projects: "Proliferation Resistance: Acquisition/Diversion Pathway Analysis (PRADA)", 2007-2010; and "Proliferation Resistance and Safeguardability Assessment Tools (PROSA)", 2012-2015.
- Technical and public communication on non-proliferation issues (government, public, international), including support for several international CANDU marketing missions by AECL Mississauga office (prior to federal divestiture of CANDU development in 2011).
- Level 3 Government of Canada security clearance (Top Secret).
- Reported to: Bhaskar Sur (Director, Nuclear Science Division).

RESEARCH SCIENTIST, NON-PROLIFERATION AND SAFEGUARDS

Atomic Energy of Canada Ltd. (Chalk River) | Jun 2006 - Dec 2007

Provided technical support to AECL's R&D in non-proliferation and safeguards.

- Provided detailed technical analysis of proliferation resistance and physical protection (PR&PP) of various nuclear systems.
- Contributed to international development of PR&PP assessment methodologies through national GenIV support program.
- Provided internal and external stakeholder communication on non-proliferation and safeguards technical and policy issues.
- Level 3 Government of Canada security clearance (Top Secret).
- Reported to: Richard Nishimura (Manager, Non-proliferation & Safeguards)

COMMUNICATIONS EXPERIENCE

Communications Director (2012-16) and Chair of Education and Communication Committee (1998-2012) for *Canadian Nuclear Society*

Recipient of the Education & Communication Award from the *Canadian Nuclear Society*, 1999

Public speaker, demonstrator, author on nuclear issues, including classroom (all grades), Ontario Science Centre, AECL Open Houses and public speaker program, and NWMO community meetings

Invited expert witness, including:

- Presentation on 'Safeguards by Design' to US National Academies of Sciences (NAS) committee on *Merits and Viability of Different Nuclear Fuel Cycles and Technology Options and the Waste Aspects of Advanced Nuclear Reactors*: May 17, 2021
- Consultation to Canadian House of Commons Standing Committee on *Environment and Sustainable Development*: February 15, 2022

Initiator of two Ontario historical plaque projects honouring Canadian nuclear milestones: NPD (2002) and Douglas Point (2006)

Creator (1996) and maintainer of the *Canadian Nuclear FAQ* website: www.NuclearFAQ.ca

For sample of writing skills, see *Editorials* section at above website (includes editorial contributions to *CNS Bulletin*, 1998-2016)

REFERENCES

Available upon request

WORK EXPERIENCE CONT.

page 3

REACTOR PHYSICIST, REACTOR AND RADIATION PHYSICS

Atomic Energy of Canada Ltd. (Chalk River) | Jan 1998 - Jun 2006

Provided reactor physics analysis in support of reactor design and development (research reactors and power reactors).

- Supported CANDU advanced fuel cycles development.
- Provided reactor physics support (planning, analysis, and experimental) to nuclear commissioning of the MDS Medical Isotope Reactors (MMIR) – the planned successor to the NRU research reactor at Chalk River Laboratories in terms of medical isotope production.
- Software QA Auditor, 2002-2006.
- Managed software quality assurance for AECL reactor physics codes.
- Reported to: Jim Sullivan, Bruce Wilkin, Rick Jones (Reactor Physics Branch).

REACTOR PHYSICIST, CANADIAN NEUTRON FACILITY PRE-PROJECT

Atomic Energy of Canada Ltd. (Chalk River) | Nov 1995 - Jan 1998

Provided reactor physics analysis in support of the development of the Canadian Neutron Facility (CNF), the planned successor to the NRU research reactor at Chalk River Laboratories in terms of fuels and materials testing.

- Provided reactor physics support to nuclear and safety analysis in the design and development of the Canadian Neutron Facility research reactor.
- Reported to: Bill Bishop (CNF Pre-Project).

JUNIOR ANALYST, REACTOR CORE PHYSICS

Atomic Energy of Canada Ltd. (Mississauga) | Nov 1994 - Nov 1995

Provided reactor physics support for the safe and efficient operation of CANDU 6 nuclear power plants. (*NOTE: this office now AtkinsRéalis*)

- Provided reactor physics support to AECL team supporting the operating CANDU 6 nuclear power plants in Canada and international.
- Updated computer codes and related documentation in support of AECL reactor core physics analysis.
- Reported to: Ben Rouben (Reactor Core Physics Branch).

OTHER PROFESSIONAL ACTIVITY

- **Co-chair**, GenIV International Forum Proliferation Resistance & Physical Protection (GIF-PRPP) Working Group, OECD-NEA, 2006-2016
- **President**, Canadian Nuclear Society (CNS), 2003-2004.
- **Fellow** of the Canadian Nuclear Society (FCNS), 2008.
- **Communications Director**, Canadian Nuclear Society (CNS), 2012-2016.
- **Chair**, CNS Education and Communication Committee, 1998-2012.
- **Member**, Board of Directors, American Nuclear Society (ANS), 2004-2007.
- **Member**, ANS Special Comm. on Nuclear Non-Proliferation, 2004-2013.
- **Member**, CNS and ANS, 1988-present.
- **Member**, Institute of Nuclear Materials Management (INMM), 2020-present
- **Member**, Canadian Pugwash Group, 2017-present
- **Member**, AECL Public Speakers program, 2005-2011