

## JEFF LAFORTUNE

University of New Brunswick:	PhD (Chemical/nuclear Engineering)
Ecole Polytechnique:	MSc (Nuclear Engineering)
Royal Naval Engineering College	Marine systems engineering professional Qualification
Royal Military College:	BEng (Engineering Physics)

## Professional Summary

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25 years experience in:

- Safety management systems (nuclear), five years experience with commercial aviation
- Risk assessment
- Safety analysis
- Safety programs
- Licensing
- Emergency response plans, procedures and systems
- Emergency response standards and guidelines
- Audits and evaluations
- Emergency response exercises
- Courses and training
- International projects

Member for six years of the Canadian Advisory Committee on Radiological Protection.

Member of the CSA Technical Committee for the revision of N288 standards on atmospheric dispersion and dose calculations.

## Employment History

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### **International Nuclear Operations Services Inc.** (2005 – present)

- President
- Responsible for the establishment of nuclear safety management services.

### **PCAIRE Inc.** (2001 – present)

- 2003-present: CFO and VP marketing
- 2001-2003: CEO. Responsible for the sales and management of a dose management system for aircrew personnel.

### **International Safety Research Inc.** (1998-present)

- 2005-present: President
- 1998-2005: President and CEO.
- Responsible for the management of nuclear safety and emergency response services.

### **Science Applications International Corporation (SAIC Canada)** (1992 - 1998)

- Program Manager for emergency support services. Responsible for 14 engineers, scientists, professional and administrative staff and annual sales of approximately \$2M. As Deputy Division Manager, responsible for 35 staff and annual sales of \$3.5M.

### International Atomic Energy Agency (IAEA) (1992 - present)

- Expert on nuclear and radiological emergency planning, implementation and exercises.

### Department of National Defence-Director General Nuclear Safety (1983-91)

- Marine Systems Engineer
- Performed nuclear safety analysis in support of the Department's nuclear activities;
- Evaluated emergency response planning, and provided technical advice to various Department sections on nuclear safety matters;
- Provided input in the development of the Department's nuclear safety policies and goals, in public relations, and in managing outside technical contracts;
- Technical Departmental lead in evaluating the safety of French and British candidate submarines during CASAP.

## Experience by Functional Area

RISK ASSESSMENT		
1997-98	Review of levels 2 and 3 PRA	Reviewed the level 2 and level 3 probabilistic risk assessment review for Koeberg nuclear power station, South Africa
1999 June	Integrated risk management course	Developed a four-day course on "Integrated risk management for off-site municipal planners" to South Africa's Western Cape officials
2001 March	Introduction to risk management	One-day introductory risk management course to MIL industries (ship-building) and Department of National Defence naval architects
1997	Single-channel flow blockage PRA	Performed a probabilistic safety assessment of single channel flow blockage events for MAPLE X10, including fuel and fission product behaviour, and dose projections
1997	Single-channel flow blockage PRA	MMIR single channel flow blockage probability and dose consequences
2007	Safety review of the transit on nuclear vessels in Canadian waters	Led the safety assessment and risk analysis associated with the transit of US and other nuclear vessels through Canadian waters.
SAFETY ANALYSIS		
1999-2000	Safety review of nuclear capable vessels	Preparation of a safety case for potential nuclear weapons accident on nuclear powered capable vessels visiting Canada, including frequency assessment, safety review, accident analysis, consequence analysis and the preparation of a technical planning basis for emergency response.
2002	Point Lepreau technical basis	Performed the analysis of CANDU accidents and potential releases, including severe accidents, to establish the technical basis for the Point Lepreau Nuclear Generating Station nuclear emergency plan, off-site emergency planning zones and off-site emergency response strategy.

1997-2001	Safety review of nuclear powered vessels	Preparation of a safety case on nuclear powered vessels visiting Canada, including safety review, accident analysis, consequence analysis and the preparation of a technical planning basis for emergency response.
2002	Severe accident management guidelines	Co-authored the proposed Canadian guidelines for the development of SAMGs for CANDU plants.
2002	Severe accident management for Gentilly-2	Conducting an analysis of the potential consequences of terrorist acts on critical systems and developing the operating strategy to minimize the impact on critical safety functions.
2002	Nuclear liability act review phase 2	Manager for the probabilistic assessment of the cost of nuclear accidents at Canadian nuclear generating stations
2002	Dry fuel storage safety analysis	Senior review of the safety analysis for the Cernavoda dry spent fuel storage facility
2003-2004	Nuclear vessel international scoping study	Review of existing technologies around the world in military nuclear propulsion with a view to adapt the Canadian safety review of nuclear vessels
2004-2005	French Technical Safety Review for the Visits of French Nuclear Powered Vessels	Senior reviewer and QA manager on a project to develop a technical safety review of the french nuclear powered vessels.
2003-2006	Safety analysis report for the refurbishment of G-2	Developed the section of the report that deals with severe accidents and their impacts.
2006	CANDU-6 source term assessment	Analysis of CANDU-6 severe accident phenomenology for the purpose of developing a source term assessment tool for accident evaluation and emergency response.
2006	Nuclear vessel technical safety review update	Revision of the technical safety review for nuclear vessels visiting Canada to cover French and Russian nuclear powered vessels
1998	Review of SMOKIN	Evaluation of the Darlington reactor regulating system and simulation program SMOKIN.
1997	Small to large LOCA event trees	Development of event trees for very small, small, medium and large LOCAs for the Point Lepreau Nuclear Generating Station to assist the regulator in making operational regulatory decisions.
1997	Irradiation Test Facility structural analysis	Analysis of the structural behaviour of AECL's Irradiation Test Facility under steam explosions.
1997	Safety evaluation of dry disposal of spent nuclear fuel	Part of the team that carried out the safety analysis for the spent fuel dry storage facility at the Gentilly-2 nuclear power station, including normal operation and accident situations.
1997	Evaluation of PEAR	Part of the team that carried out a thorough review and evaluation of PEAR, a dispersion and consequence computer program for accident analysis used by AECL.
1996	Review of emergency air filtration system	Carried out an analysis of the effectiveness of EFADS under severe accident conditions for Pickering NGS.
1995	LOCA analysis	Performed the review of the safety analysis of out-of-containment LOCAs for Bruce NGS.

SAFETY PROGRAMS AND SAFETY MANAGEMENT SYSTEMS		
2002	Subsafe program development	Project manager for the development of the Canadian submarine operational, design and maintenance safety program for the new city-class submarines.
2002	DND dose management program	Developing an operational dose management program for soldiers deployed on military missions.
2002	Safety culture evaluation	Led a team of international experts who evaluated the safety program and safety culture within DND for radioactive sources and practices.
2003-2006	SMS training of TC inspectors	Lead course developer and lecturer for the TC course on Safety Management System for commercial aviation based on the new regulations. Developed a four-day course and variants. Delivered about ten courses to a total of about 200 participants.
2005	Bordeau international conference on the safety and security of radioactive sources	Invited conference speaker on behalf of the IAEA
2006	SMS training of Geneva International Airport staff	Delivered a four-day course to the GIA personnel responsible for the implementation of SMS. Conducted a screening-level gap analysis, which was included in the course.
2006	Safety Management System for airports	Development and delivery of SMS training course for airports
2006	Dutch national security standards for CBRN material	Development of the Dutch standards for the security of CBRN material in fixed facilities, mobile use and transport activities.
2006-2007	DND Integrated Health and Safety Management System (IEHSMS)	Safety management system specialist on a project to develop an integrated risk management system for DND, covering all hazards, including radiological and chemical.
2002-present	Aircrew dosimetry	Director of PCAIRE Inc., a company providing a dose estimation software and providing a full-scope dose management program for aircrew personnel.
1996-1998	Radiological decommissioning	Managed a team of nuclear specialists and radiation protection technicians responsible for surveys and decontamination of DND units and bases. Developed the master decommissioning and decontamination procedures.
2007-2008	Airport Advisory Research Committee	Development of the guidance manual for the implementation of airport safety management system in the US. Co-project manager and senior specialist.
2007-2008	Jaxsonville Airport Authority	Development and implementation of safety management system at JAX. Co-project manager and senior SMS specialist.
2007	COG	Research in the development of a biological personal dosimeter for tritium. Senior reviewer.

2007	Halifax airport authority	Project leader for the conduct of a safety management plan gap analysis and the development of an implementation plan.
2007	TC	Review of the Transport Canada SMS course, development and enhancement of the training material in preparation for the conversion to e-learning. Project manager.
2007-2009	DGCA Kuwait	Development and implementation of the safety management system national regulations, guidance material and acceptable means of compliance; implementation of SMS in the international airport, regulatory organisation and air navigation services.
2007-08	Review of DND's nuclear safety orders and directives, and nuclear safety instructions	Managed the review of the Canadian Defence regulations and guidance on the management of radiation risks, including operational risks associated with troop deployment.
2007	Lexington airport SMS	Project director for the gap analysis and implementation of SMS.

#### LICENSING

2002-03	G2 Refection	Assisting in the environmental impact and risk assessment studies related to the dry fuel storage facility for the Gentilly-2 nuclear power station's life extension proposal.
2003	Relicensing of NRU reactor	Management and QA of a contract to provide guidance to AECL on requirements and approach for extending the license of the NRU research reactor.
2003 Sep-Dec	Nuclear waste licensing	Produced a report for the Nuclear Waste Management Organization explaining the licensing process for long-term fuel disposal
2005 Nov-2006 Apr	DRDC Radiological Training SOPs	QA manager and specialist review on a project to develop operating procedures for conducting training with live radioactive sources.
2006	Environmental Assessment Plan for the new build CANDU 6	Senior advisor on the national process on environmental impact assessment for this project, which aimed at developing a generic management plan for the environmental impact assessment of new Candu-6 nuclear stations in Canada.
2002-2004	Director General Nuclear Safety Permitting Support	Senior advisor and QA specialist for the development of DND's radiation permit system.
2000-2002	Gentilly-2 Nuclear Power Station – Internal Authorizations	Quality manager on a project for the development of internal procedures at Gentilly-2 nuclear power station to bring them in line with CNSC consultative document C-222
1998-2006	Hydro Quebec – Dosimetry and support in radiation protection	Senior reviewer and QA manager on a project to revise and qualify the radiation protection and dosimetry practices at Gentilly-2 nuclear power station.

1997	MAPLE reactor licensing	Assisted AECL in the development of the Final Safety Assessment Report (FSAR) for the MAPLE-X10 reactor.
1996	Periodic safety review process for Canada	Conducted a review of the Canadian licensing process to determine how the IAEA-recommended periodic safety review (PSR) could be adapted in the Canadian system.
1996	Reference document for Canadian operating policies and principles	Managed the reconstruction of the technical justification for Operating Principles and Policies (OP&Ps) for CANDU reactors.
1995	Criticality analysis for isotope storage facility	Prepared a safety case for regulatory approval as a proposed increase in fissile isotope concentrations in storage tanks.

#### EMERGENCY RESPONSE PLANS, PROCEDURES AND SYSTEMS

1999	Recovery guidance	Developed a reference document to provide guidance on recovery actions, clean-up and decision-making guidance for the Canadian Department of National Defence.
1999-2001	Nuclear emergency information using graphical elements (NEIGE)	Managed an international project to develop and implement a graphical data protocol for the transmission of key emergency data during a nuclear emergency. This project was conducted for the Dutch Ministry of Environment (VROM) and the International Atomic Energy Agency. The resulting software allows the translation of text-based information into graphical images that are posted on the web in a multi-layer environment.
1999-2002	Technical Advisory Group emergency procedures	Developed the Point Lepreau Nuclear Power Station emergency plan, emergency preparedness plan and emergency procedures for Technical Advisory Group, Technical Support Group and overall emergency management plan.
2001	Ministry of environment nuclear emergency procedures	Developed the nuclear emergency survey plan and procedures for Quebec Ministry of Environment, including equipment selection and impact assessment procedures.
2002	CNSC tribunal on nuclear emergency preparedness	Conducted an evaluation of major issues regarding off-site nuclear emergency preparedness and response in the three Canadian "nuclear" provinces and prepared a presentation on the findings for the CNSC commission hearing.
2003-2004	National emergency planning in Holland	Organizational specialist for the development of the national emergency plan for the Dutch BOT-mi, which is the national network of groups and specialists responsible for gathering and assessing information about industrial disasters and making recommendations for the protection of people and the environment.
2003-2007	Emergency plan and program support to the municipalities of Bécancour and Champlain	Project manager for the development of all-hazard municipal emergency plans around the Gentilly-2 nuclear power reactor site. These plans are based on the need for nuclear emergency response arrangement.

2003-2004	Emergency planning basis for Chalk River Lab	Project manager and senior specialist. Review of NRU accident analysis and development of the technical basis for the emergency planning zones and response strategy around Chalk River Labs.
2003-2004	Emergency plans for DND facilities	Senior specialist for the development of emergency plans for facilities holding large quantities of radioactive material
2003-2004	CMS TBD 2003 and Communication Strategy	Senior specialist and QA manager for the development of the Technical Bridging Document for MARCOM, which defines the link between the Technical Safety Review of the visits and the operational MARCORD and site NER plans.
2003 Dec - 2004 Feb	NBC team evaluation	Senior specialist on a team evaluating the capabilities of the Canadian Joint Nuclear, Biological, Chemical Defence Team
2005 Jan-Mar	Health radiation response plan	Project manager and senior specialists for the development of the Ontario health response plan for nuclear and radiation accidents and terrorist acts.
2004 Nov	HC/RPB restructuring	Conducted an evaluation of the requirements and challenges of restructuring the Canadian Radiation Protection Bureau as part of the newly created National Health Centre.
2005 Jan-Mar	National survey teams	Senior specialist for the development of a departmental plan to recruit, train and direct national radiation survey teams for emergencies.
2005 Jan-mar	National nuclear emergency communications	Senior specialist for the analysis of information needs and the development of information products for the federal nuclear emergency plan.
2006-2007	S3-FAST	Responsible for the concept development of an integrated system for nuclear emergency field measurements using wireless communication and web integration for real-time on-line viewing.
2005-2006	National nuclear emergency plan Netherlands	Project manager for the development of the national management process for the development and maintenance of emergency response arrangements in the Netherlands.
2005	WML water company emergency training program	Lead specialist for the development of the emergency and counterterrorism response training program for WML, the water utility serving the province of Limburg in the Netherlands.
2005	Verkeer&waterstaat emergency response systems study	Lead specialist developing a compendium of emergency response systems to deal with water, road, rail and air traffic disasters, including those involving hazardous material.
2006	Emergency preparedness briefing for off-site officials	Development and delivery of a nuclear emergency preparedness brief on the technical planning basis for Chalk River Laboratories, and discussion with off-site officials from all surrounding communities on implications for nuclear emergency planning.

2006	Chemical emergency management workshop	Coordination and facilitation of an annual workshop for the Dutch national team responsible for the assessment and response to chemical disasters in the Netherlands. The workshop focused on ways to improve the response speed and information management processes.
2006-2007	CMS MARCORD NER Guidance	Senior reviewer and EP specialist for the rewrite of the Canadian navy technical basis document for emergency response to nuclear vessels.
2006	Ministry of Environment (NL) emergency plan implementation	Development of the Dutch Ministry of Environment master emergency plan and procedures to cover the integration with the regions and all areas of jurisdiction for crisis management
2000-01	McGraw-Hill Handbook	Co-author of Chapter 9 (Nuclear Accidents, 80 pages) of <i>The Handbook of Hazardous Materials Spills Technology</i> , McGraw-Hill, 2001
1998 Sep-Dec	IAEA emergency procedures	Developed the International Atomic Energy Agency emergency procedures for nuclear accidents and radiological emergencies.
1998	Refinery emergency plan	Managed the development of Ultramar refinery risk assessment and emergency response plan.
1997-98	Emergency medical procedures	Developed emergency procedures for the transport and treatment of contaminated or overexposed casualties for small hospitals that do not have dedicated nuclear departments. These procedures have been distributed as <i>GMA-14</i> to Canadian hospitals by the Canadian Nuclear Safety Commission.
1997	AECB emergency operations centre	Managed the design of the Atomic Energy Control Board emergency operations centre.
1996-98	Canadian nuclear emergency plan	Developed the 1999 edition of the Canadian Federal Nuclear Emergency Plan (FNEP).
1996-98	Federal regulator emergency response plan	Managed the development and implementation of the Atomic Energy Control Board nuclear emergency response plan and procedures. This project included a task review, policy statement development, a new plan, new procedures, training for all staff, drills and exercises.
1996	Nuclear emergency detection and warning system for the Navy	Designed and implemented an early nuclear accident detection and warning system for accidents involving nuclear powered submarines.
1993-95	Nuclear Emergency Commander procedures	Developed the Canadian Department of National Defence (Navy) nuclear emergency commander procedures for nuclear vessel emergencies.
1992-1999	Romanian nuclear emergency response arrangements	Over seven years, provided expert assistance to the Romania Civil Protection and technical/health organizations for the development and implementation of a national nuclear emergency response plan for emergencies at Cernavoda (Romania) and Koslodui (Bulgaria).



1992	Gas turbine plant emergency procedures	Developed and implemented the emergency procedures for the Becancour Gas Turbine power plant.
1992	Gentilly-2 emergency plan and procedures	Developed and implemented the nuclear emergency response plan and procedures for the Gentilly-2 nuclear power station. This included planning, training of all emergency staff, development of all technical and management emergency procedures and the conduct of drills.
2007	Canadian Border Services Agency	Development of their radiation incident preparedness and response plan. Provided senior technical guidance and review.
2006-current	MOHLTC	On-call technical expert for nuclear and radiological emergencies in Ontario, in support of the Ministry of Health emergency response unit.
2007	Development of national contamination response plan	Senior specialist for the conduct of a national workshop and the development of a national concept of operations to respond to malicious acts involving radioactive sources, in particular alpha emitters.
2007	National nuclear plan in the Netherland	Project manager and senior specialist for the implementation of the national nuclear emergency plan in the Netherlands. This project includes the finalization of the emergency preparedness process and the development of several key planning documents, including the national nuclear emergency training and exercise program.
2007	National extreme weather for the Netherlands	Senior specialist for the development of the Dutch national plan to manage extreme weather emergencies.

#### EMERGENCY RESPONSE GUIDELINES AND STANDARDS

1999-2000	Canadian guidelines on nuclear and radiological emergency planning and response	Developed the Canadian Guidelines in off-site nuclear and radiological emergency preparedness and response. These guidelines were promulgated in draft form to all Canadian provinces and territories in 2000 and repromulgated for approval in 2002.
2001 Jun	International guideline on nuclear hazard evaluation	Developed the draft IAEA guidelines on the development of a threat-specific technical basis for emergency planning and response.
2006-07	CSA standard on atmospheric dispersion	Participation in the Technical Committee of the CSA on the revision of CSA N288.1 and 288.4 on dose calculations for accident situations.
2001 Sep	International nuclear recovery guidelines	Drafted the first version of the IAEA guidelines on recovery following a nuclear accident.
2000	International guidelines for response to radiological emergencies	Co-author of TECDOC 1162, Generic procedures for assessment and response during a radiological emergency.

1998	New Brunswick standards for nuclear emergency response exercise evaluation	Developed the performance-based emergency response and emergency exercise evaluation standards for New Brunswick.
1997	International standards on nuclear and radiological emergency preparedness and response	Developed the first draft of the IAEA nuclear and radiological emergency planning and response requirements.
1996-98	International procedures for nuclear emergency assessment and decision-making	Co-author of TECDOC 955, Generic assessment procedures for determining protective actions during a reactor accident.
1995-98	International emergency preparedness and response checklist	Co-author of the IAEA TECDOC 953, Method for the Evaluation and Development of Emergency Preparedness for Radiological and Nuclear Accidents, published by the IAEA. This document has since been used as the basis for the International Standard on the subject, published by the IAEA in 2002.

#### AUDITS AND EVALUATIONS

1999	Indonesia EP evaluation	EPREV team leader for evaluation of the national emergency response infrastructure and capabilities of Indonesia for nuclear and radiological accidents.
2003 June	Paks nuclear incident investigation	Member of the international team sent by the IAEA to the Paks nuclear plant (Hungary) to investigate the fuel damage incident of April 2003
2005 Feb	OSSART Paks	Part of the international team conducting an OSSART audit of the Paks nuclear power station. This was a follow up mission for the 2003 incident that occurred at Paks, in Hungary.
2005	Westerschelde incident evaluation	Managed an independent evaluation by a team of experts of the Westerschelde incident focusing on the response by the national technical support team. This incident involved a ship containing arsenic that ran aground on 20 Sep 2005 on the river in Zeeland leading to the major port of Antwerp.
1997-98	Koeberg audit of off-site emergency response	Led a team that evaluated the Koeberg Nuclear Power Station's off-site nuclear emergency response capabilities (South Africa). The audit included a comprehensive evaluation of current capabilities and an evaluation of projected capabilities requirements for a planned urban expansion around Koeberg.
1997	Evacuation plan assessment for Durham	Provided expert assistance for the assessment of evacuation plans for Pickering and Darlington nuclear generating stations.
1996	Durham emergency plan audit	Led a team to conduct an audit of the Durham nuclear emergency response arrangements for accidents at Darlington and Pickering nuclear power stations.

1993	FNERP evaluation	Conducted an eluation of the Canadian Federal Nuclear Emergency Response Plan. This later led to the rewrite f the federal plan.
1992-94	DND nuclear emergency planning development	Conducted an evaluation of the Canadian Department of National Defence nuclear emergency response plan and procedures for nuclear powered vessels. This evaluation produced seven reports that covered a review of the hazard assessment, technical basis for planning, statement of requirements for emergency response capabilities and resources, an option study and the elaboration of a proposed structure for meeting the capabilities requirements.

### EMERGENCY RESPONSE EXERCISES

1998	CANATEX-3/INEX-2 Evaluation	Chief evaluator for the National Support Centre, INEX-2/Canatex 3, Canadian nuclear emergency response exercise.
1999	Romania's transboundary exercise	At the invitation of the Romanian government, served as international evaluator of Romania's transboundary nuclear emergency response exercise at Bechet.
1999	International guidelines for nuclear and radiological emergency exercises	Developed the IAEA guidelines for the preparation, conduct and evaluation of nuclear and radiological emergency response exercises.
1997	Canadian guidelines for the evaluation of on-site nuclear emergency response exercises	Developed the Canadian guidelines for the evaluation of on-site nuclear emergency response exercises at nuclear power stations and provided training to the regulatory evaluators.
1999	International standard radiological emergency exercise manual	Developed the standard radiological accident response scenarios and manual for the IAEA.
2001	Brazil 2001 nuclear emergency response exercise	Developed and assisted in the conduct and evaluation of a two-day nuclear emergency response exercise involving early phase and recovery actions in Brazil.
2002 June	G-2 nuclear emergency response annual exercise - 2002	Organized Gentilly-2's 2002 audited fire exercise. Managed the staff that wrote the manual. Led the evaluation team.
2002	Netherlands nuclear exercise master plan	Developed the management plan for the preparation, conduct and evaluation of a national nuclear emergency exercise in the Netherlands
2003 Jan-Apr	Nuclear emergency exercise	Developer, head controller and/or head evaluator for major evaluated nuclear emergency response exercises for DND's NER team for nuclear powered vessel accidents: 1996 (Victoria, Nanoose), 1997 (Halifax), 1998 (Victoria, Nanoose), 1999 (Halifax), 2000 (Victoria, Nanoose), 2003 (Halifax), 2004 (Victoria, Nanoose), 2005 (Halifax), 2006 (Victoria, Nanoose)
2005	National nuclear emergency exercise in Netherlands	Conduct and evaluation of the Netherlands national nuclear emergency response exercise in 2005, which involved all levels of governments, field teams and international agencies.

2005	International evaluation of nuclear emergency exercise	Led a team of international evaluators for the Dutch nuclear emergency exercise of 2005.
2005	INEX-3 Canada	Senior specialist and main controller for the Canadian international Nuclear Exercise series 3 organized by the NEA.
2005	BOT-mi exercise, Gelderland	Prepared, conducted and evaluated five exercises of the national technical support centre for chemical emergencies in the Netherlands, in coordination with exercises conducted in the regional of Midden-Gelderland.
2005	Korea national nuclear exercise preparation	Assisted the Korean government (KINS) in the initial preparation of the 2006 and 2008 national and international nuclear emergency response exercises.
2006	Avian flu exercise	Preparation and conduct of a national avian flu pandemic exercise
2006	PLGS exercise intrepid-2006	Senior engineer and lead evaluator for the PLGS 1006 nuclear emergency exercise. Reviewed the scenario, developed the evaluation criteria and led the control and evaluation team.
2001	International radiological emergency response exercise manual	Developed the International medical/radiological standard exercise scenario and manual for the IAEA, in cooperation with the Boston University School of Medicine. This scenario covers the immediate, intermediate and longer-term phases of a radiological accident. It covers aspects related to: on-scene response, radiological assessment, medical first aid, medical treatment, hospital readiness, public health, source recovery, decontamination and clean up and media. All supporting data are provided.
2001	JINEX-1	Assisted the French government for their national response during JINEX-1, the international nuclear emergency exercise of the convention on early notification. Assistance on the provision of information at the international level. This was the first full-scale test of the graphical data transfer protocol developed for the Dutch government and the IAEA.
2000-2006	DND nuclear emergency exercises	Senior specialist and scenario developer for the small-scale periodic nuclear emergency exercises conducted by the Canadian navy.
2000 Dec	G-2 nuclear emergency response annual exercise - 2000	Assisted Gentilly-2 with the control and evaluation of the annual nuclear emergency response exercise.
2000 April	PLGS emergency exercise 2000	Assisted in the preparation of the scenario for the Point Lepreau nuclear emergency response exercise.
1998-2002	S3-Exercise software	Designed and assisted in the development of the S3-Exercise software for real-time, GPS-driven simulation of off-site surveys.
1998	INEX-2 Switzerland	Organized, conducted and evaluated the Canadian table top exercise to deal with the potential national impacts of a simulated nuclear accident in Switzerland during the INEX-2 Swiss exercise.

1998	INEX-2 Hungary	International evaluator at the INEX-2 nuclear emergency response exercise in Hungary.
1998	PLGS emergency exercise 1998	Managed the team that developed the large-scale nuclear emergency response exercise scenario, arrangements and manual for the 1998 exercise Intrepid.
1995	Romania national nuclear emergency response exercise	International evaluator of Romania's national nuclear emergency response exercise for Cernavoda nuclear power plant.
1993	Gentilly Turbine Gas Power Plant exercise	Prepared, conducted and evaluated the commissioning emergency response exercise for the Gentilly Gas Turbine power station.
1992	Gentilly-2 nuclear emergency response exercise DERAD-2	Organized, conducted and evaluated the Gentilly-2 nuclear power station's large-scale exercise for all on-site staff and off-site authorities.
2007-08	National exercise to test security arrangements	Senior adviser and exercise controller/evaluator for the preparation and conduct of a Canadian exercise to test the security response to terrorist acts during a major national event.
2007	National counterterrorism exercise in the Netherlands	Developed the evaluation methodology and supervised the evaluation of the national counterterrorism exercise, involving a chemical attack combined with a major seaway accident.

#### COURSES AND TRAINING

1998-2000	International training on emergency preparedness	Co-author of IAEA's nuclear emergency response training packages for 1) National planning, 2) Emergency response exercises preparation, conduct and evaluation, 3) Radiological emergency response and 4) Nuclear emergency response.
1999	RADRES course	Developed and delivered the RADRES (radiation incident response) course for radiation safety officers in the Ottawa region.
2000	National DND radiation safety workshop	Organized, managed and moderated a national DND radiation safety officer workshop on the impact of a new Act and regulations, with 150 participants.
2001	International emergency exercise training	Prepared and delivered a course provided in English and in Russian to international delegates on the preparation, conduct and evaluation of nuclear and radiological emergency response exercises, in Vienna.
2003-2004	Canadian Blood Services Basic Radiation Safety Training Course	Senior reviewed and QA manager for the development of a radiation safety course to Canadian Blood Services staff.
2003 Jan-Mar	Nuclear emergency management course development	Extensive revision of nuclear emergency managers training for DND incorporating. Development of a five-day course for Senior Technical Advisors supporting DND decision-makers during a nuclear accident involving naval reactors or nuclear weapons.
2003	Training for emergency response to terrorist acts	Upgraded the existing IAEA training document and material on nuclear emergency response exercises to include terrorism considerations

2004-2005	Safety Management Systems for commercial airlines	Project Manager for the development of the transport Canada training course on Safety Management System. Senior lecturer for the pilot course (Ottawa) and the Vancouver serial. Also prepared and delivered a special SMS audit course to the Transport Canada team of inspectors in preparation for the Air Transat Audit in 2004.
2004 Jan	Senior Technical Advisor course	Prepared and delivered a one-week "Masters"-level course to Department of National Defence's senior technical advisors for nuclear emergency response
2003 Sep	Emergency response training of Quebec environment ministry	Developed and delivered training to the Quebec Ministry of Environment emergency nuclear survey teams. Training included survey strategy, protection and decision-making
2003 Nov	Emergency response course Iran	Senior lecturer and coordinator of a course on practical aspects of response to radiological accidents given in Iran to delegates from West Asian countries.
1994-2006	Nuclear emergency commander management training	Developed and delivered several nuclear emergency decision-making and management courses to DND's nuclear emergency commanders. There were about 2 courses per year; senior lecturer on most courses
2004 Dec	CBRN training	Developed and delivered a one-week workshop on emergency planning for terrorist acts involving radioactive material. The workshop took place in Cairo.
2004 Sep	CBRNe workshop	Keynote speaker at the Ottawa workshop on CBRN defence, organized for government officials and services.
2004 Nov	NER management course	Developed and delivered a two-day nuclear emergency management course for emergency trainers in the Netherlands.
2006	BOT-mi training program development and implementation	Senior lecturer for the updated training and drills program aimed at maintaining the capability of the Dutch national technical support team for chemical emergencies.
2006	Federal Nuclear Emergency Plan Chair Position Training	Project manager and senior lecturer for the development and delivery of a course on crisis management and decision-making, provided to the chairs of the Canadian federal nuclear emergency response organization.
2004	COSYMA training	QA manager and developer of a course on COSYMA, a PSA level 3 code.
1998	FNEP training	Developed and delivered training to key federal staff on the Canadian nuclear emergency plan (approximately ten training sessions).
1998	Halifax airport training	Delivered training on radiation basic and radiation emergency response to Halifax international airport emergency services.
1997	CNSC emergency response training	Developed and delivered training to all Atomic Energy Control Boards (AECB) staff on the nuclear emergency response plan. This training was provided to the following: all staff (general awareness), site project officers, AECB emergency management team, executive team, technical support team (approximately ten training sessions).
1992-present	International training	Developed and delivered several international training courses for the IAEA (see below).

1992	Gentilly-2 emergency response training	Prepared and delivered training on the nuclear emergency response plan and procedures to Gentilly-2 staff, consisting of approximately ten training sessions provided to the following: emergency response team, technical assessment team, accounting team, site management group, operators, site advisory group, technical support team and survey teams.
1992	National emergency preparedness training in Romania	Prepared and delivered a three-day course for national officials on nuclear emergency procedures development in Romania.
2007	First responders training	Senior advisor for the development and implementation of first responders training for radiological and nuclear malicious acts
2007	Senior technical advisor training	Senior lecturer on this post-graduate level course for nuclear specialists who are senior advisors during a nuclear emergency.
2006-2007	Senior crisis decision-making course	Development and delivery of a crisis decision-making course applied to the context of national nuclear emergencies. Senior course developer and lecturer. The course is given at regular intervals.
2007	VROM senior emergency awareness training exercise	Developed and conducted a tabletop exercise to familiarize the Dutch ministry of environment senior executive managers with the department plans and role during an emergency.

#### OTHER INTERNATIONAL PROJECTS

2000	Slovenia	Developed and implemented a course on the practical response to radiological emergencies.
1999	International TCM on nuclear emergency preparedness and response	Chairman, IAEA's International Technical Committee Meeting on emergency preparedness and response guidance.
1999	Slovenia	Developed and delivered a course of national nuclear emergency preparedness and response.
2001	Romania	Prepared and delivered a course on research reactor safety and emergency response.
2001	Iodine administration policies	Chaired the joint WHO- IAEA international meeting on the revision of the international guidance on stable iodine administration in a nuclear emergency
2002	Korea	Prepared and delivered a course on research reactor safety and emergency response.
2002	Egypt	Delivered training to Egyptian authorities on the establishment of a national infrastructure for dealing with radiological accidents.
2003	IAEA emergency information management system	Management of a project to enhance the IAEA system for gathering and communicating emergency information about nuclear accidents with international impacts.
2003 March	Regional workshop on emergency response in Egypt	Lecturer on nuclear emergency preparedness and response at the 2003 IAEA regional workshop in Egypt

2003	International guidance of terrorism	Managed the development of IAEA TECDOC on terrorism considerations in nuclear emergency planning and response
2003 Feb	IAEA working group 3 on international information exchange	Chair of the WG-3 meeting in Den Haag for the preparation of a report on future strategy for the enhancement of international information exchange during a nuclear emergency
2003 Nov	Training course Iran	Delivered a two-week train-the-trainer course on radiological emergency preparedness and response to regional-international delegates.
2003 Dec	Training course on couter-terrorism: Slovenia	Developed and delivered a one-week train-the-trainer course on emergency preparedness and response to terrorist and malicious acts involving radioactive material
2003 Nov	Emergency planning assistance Korea 2003	Assisted the IAEA in discussions with the Korean Institute of Nuclear Safety on international cooperation in emergency response; also delivered a one-day course on response to radiological emergencies and terrorist acts involving radioactive material
2004 Nov	National planning for Morocco	Assisted the national authorities to conduct a planning workshop on the development of the national plan for radiation emergencies.
2005 Jan-Feb	International communications for nuclear emergencies	Reviewed and developed an international discussion and workplan document for the enhancement of international communications during a nuclear emergency.
2001, 2003 and 2005	International conference of national competent authorities for the IAEA conventions on early notification and assistance	Conference facilitator
2006	ANS conference 2006	Technical session chair: Enhancing the coordination of emergency response arrangement
2005	Iran regional course on emergency management	Lead lecturer for the 2005 IAEA regional course on emergency preparedness and response that took place in Iran.
2006	Emergency management course and exercise in Algeria	Developed and delivered a five-day course on emergency management for nuclear and radiological accident in Algeria; prepared and conducted an exercise with civil protection, police and radiaiton experts
2006	INEX-3 workshop	Main facilitator for the INEX-3 workshop in Paris, responsible for leading the discussion of 100 participants from 26 countries
1999	Algeria	Provided training and assistance to Algeria authorities for the development of a national infrastructure for responding to radiological emergencies.
1999	International consultant meeting on emergency notification and information exchange	Consultant for the IAEA meeting on the development of international emergency notification format and protocol.



1998	South Africa	Developed and delivered training on radiological emergency planning and response.
1997	Philippines	Developed and delivered a regional course on nuclear and radiological emergency preparedness.
1997	Cuba	Technical representative of the IAEA at Pan American Health Organisation workshop on the development of a regional nuclear emergency preparedness arrangement.
1996	Thailand	Prepared and delivered a two-week national course on radiological emergency response and medical aspects.
1995-98	Argonne National Lab	Developed and delivered training on nuclear emergency preparedness and response to four international training course at the Argonne National Lab and coordinated one of those courses.
1992-1999	Romania	Development, implementation and verification of a national nuclear emergency response infrastructure.
2007	National competent authority conference chair	Facilitator for the 2007 Emergency Response National Competent Authority meeting, in Vienna.
2007	Iran nuclear plan evaluation	Member of the team sent to Iran to evaluate the quality of the on-site emergency plan for Bushed nuclear power station.

## Professional Affiliations

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- Association of Professional Engineers of Ontario
- Association of Professional Engineers of New Brunswick
- Canadian Nuclear Society, Past Chairman, Ottawa Branch, Past Member at large, National Council

## Languages

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French: fully functional  
English: fully functional  
Dutch: functional  
Romanian: basic  
German: basic  
Chinese (Mandarin): basic

## Security clearance

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Secret (level II)