

RONALD A. CAIN

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Career Summary

A senior technical staff member in the Nuclear Security and Isotope Development Division at Oak Ridge National Laboratory (ORNL), Mr. Cain has thirty-seven years' experience leading the design and development of a variety of information resources. More recently, Mr. Cain has applied his expertise to the area of nuclear nonproliferation, developing tools to support international safeguards, implementation of the Additional Protocol (AP) within the United States, and international collaboration on implementation of International Atomic Energy Agency (IAEA) reporting requirements. As part of the Department of Energy/National Nuclear Security Administration (DOE/NNSA) International Nuclear Safeguards Engagement Program (INSEP), Mr. Cain has participated in and led workshops for ten countries in various stages of AP implementation. His current focus includes the application of knowledge management tools/techniques to establish sustainability of safeguards expertise domestically, and in states with small staff or high turnover rates.

Academic Degrees:

- Master of Science, Computer Science - University of Tennessee, Knoxville, Tennessee, 1983
- Bachelor of Science, Computer Science; Second Major, Mathematics; Minor, Physics – Western Kentucky University, Bowling Green, Kentucky, 1978

Professional Certifications

- Knowledge Management Institute (KMI), Certified Knowledge Manager (CKM)
- Project Management Institute (PMI) Project Management Professional (PMP)
- Microsoft Certified Systems Engineer (MCSE)
- Certified Manager (CM), Institute of Certified Professional Managers (ICPM)

Technical/Managerial Training (last five years):

Certified Knowledge Manager	Nuclear Fuel Cycle Operations
Nuclear Materials Management & Safeguards Systems	TQM Module 1: Leadership
IAEA SSAC International Training Course	Cyber Security for Managers
Engineer/Scientist as Manager	Technical Project Officer Training
Leadership & Management of Energy Systems Projects	Procurement Integrity Act
Physical Inventory Taking (PIT) Workshop	Ethics
Level 1 Radiological Training for Off-Site Work	Advanced Project Management
Challenges Facing the Technical Leader	

Other

- Currently holds a Department of Energy (DOE) "Top Secret" security clearance
- Over 25 years' experience in managing supplemental staff and associated contracts
- Extensive experience leading application development, deployment, and maintenance in classified environments

Current Activities

Project Lead, IAEA Protocol Reporter 3.0. Principal ORNL technical point-of-contact working with the IAEA Safeguards Information Management (SGIM) group to develop the next version of the AP Protocol Reporter software.

Team Member, DOE/NNSA INSEP team. The goal of the INSEP Program is to assist countries signing, entering into force, and effectively implementing the IAEA AP. Current responsibilities are to conduct training on AP-related software such as the IAEA Protocol Reporter and the DOE/NNSA Additional Protocol Declaration Helper, and to lead workshop sessions addressing specific logistical AP implementation issues. Principal Investigator to develop an Information Management methodology to support and sustain IAEA safeguards reporting obligations.

Manager, Additional Protocol Reporting System (APRS). The APRS is an ORNL-developed suite of software modules used by DOE and DOE facilities to identify, compile, review, and submit AP submissions to the IAEA.

Contributor, Human Capital Development (HCD) Roadmap Project. Technical contributor to the DOE Next Generation Safeguards Initiative (NGSI) Roadmap Project, a multi-year strategy to assess capture, transfer, and management techniques for identification and retention of critical nuclear safeguards knowledge.

Other

- Project Lead, AP Declaration Helper. Responsible for oversight, development, and maintenance of the Additional Protocol Declaration Helper, an open, publically accessible software tool to assist member states who have entered the AP into force in making a preliminary determination of declarability.
- Instructor. On request, provide on-site training to DOE Headquarters (DOE HQ) Office of Nonproliferation and International Security staff and others in the areas of project initiation, planning, management, and closeout.

Professional Experience

Principal Investigator (11/2010 – present) Lead for a multi-million dollar effort to develop an expert system supporting an export control program.

Project Lead, AP Knowledgebase (6/2013 – 10/2014) Principal Investigator to develop an online AP knowledgebase containing key AP implementation and support elements derived from INSEP AP workshops.

Principal Investigator (10/2009 – 10/2011) Worked with a matrixed Oak Ridge National Laboratory technical staff to evaluate, procure, and install air monitors and a drum evaporator at a research reactor facility within an Asian country as part of the DOE/NNSA INSEP outreach program.

Manager (4/2006 – 9/2009) NA-24 Strategic Management And Results Tracking (SMART) Information System. The SMART system is the tool by which the DOE Office of Nonproliferation and International Security manages scope, schedule, and budget when providing guidance to facilities across the DOE Complex.

Project/Transition Manager (3/2007 – 9/2009) Proliferation Trade Control Directory (PTCD). PTCD is an electronic encyclopedia of strategic export-controlled commodities for use in preventing proliferation of Weapons of Mass Destruction and conventional weapons.

IAEA Inspection Liaison (7/2007 – 4/2009) Served as official liaison between DOE/NNSA and the IAEA for monthly Interim Inventory Verification (IIV) inspections at the NNSA Y-12 National Security Complex in Oak Ridge, Tennessee. In this position, was responsible for accompanying the IAEA inspector onsite, monitoring inspection activities, drafting/filing the inspection report, and addressing findings noted during the inspection.

Program Manager (6/03 – 12/05) BWXT Y-12, Advanced Computing Technologies (ACT). Directly responsible for management of multiple classified information systems at the Oak Ridge National Security Complex. Notable achievement of reducing annual project expenses by an average of 30% while meeting or exceeding all performance metrics. Annual budget for FY06 (after reduction) was approximately \$1.7M.

Manager (7/02 – 12/05) BWXT Y-12, ACT. Manager for the Department of Justice (DOJ) National Law Enforcement and Corrections Technology (NLECTC) Biometric Counting System (BCS) Project. The BCS was a research and development project tasked to assess recent advancements in computing technology to improve the efficiency of prison inmate accountability. The concept of using biometric identifiers to shorten the time required to count inmates, provide positive identification, and, eliminate the need for recounts was explored. A prototype system was developed and tested in the field, and a follow-on recommendations report was authored.

Manager (1/01 – 5/02) BWXT Y-12, ACT. Transition Manager for relocation of the Department of Energy's Office of Industrial Technology (OIT) Industrial Projects Locator (IPLocator) information system from the National Renewable Energy Laboratory to the Oak Ridge National Security Complex, and Project Manager for conversion of the IPLocator to a web-based application. As such, was fully responsible for all aspects of the project, including scope definition, planning/execution, and customer interface, as well as configuration, procurement, and administration of the hardware/software platform. Level of effort was approximately 2.0 full-time equivalents.

Manager (10/99 – 11/00) BWXT Y-12, ACT. Manager for development of the Integrated Manufacturing Technology Initiative (IMTI) Integrated Manufacturing Technology Roadmap (IMTR) web-based application used to apply a structured methodology to develop technology roadmaps that identify the "Grand Challenges" and define specific goals and requirements to meet the defined needs of the national manufacturing infrastructure. Responsibilities included project planning and execution, technical oversight, customer interface, and requirements management in a dynamic environment. Average level of effort was 2.5 full-time equivalents over the lifetime of the project.

Project Manager (3/98 – 9/99). Lockheed Martin Energy Systems (LMES), ACT. Assumed Technical Project Lead in research and development of a Multilevel Secure (MLS) electronic document management center which provides enhanced security and accessibility for DOE Office of Safeguards and Security (OSS) document storage and retrieval. Responsibilities have included acting as Point-of-Contact for the OSS; assessing and redefining project objectives, deliverables, schedules, and budgets; financial and technical oversight; and co-authoring of two technical documents. Average level of effort has varied from .5 – 2.5 full-time equivalents over the lifetime of the project.

Manager (7/98 – 12/98). LMES, ACT. Assumed Administrative Lead for the DOE Office of Industrial Technologies (OIT) Information System (OITIS). OITIS employs web-based technologies coupled with relational database tools to support OIT by tracking a \$120M portfolio involving 300 projects performed by 40 staff members at five field offices and four national laboratories. This project required extensive skills in requirements identification, documentation, implementation, and verification. Effective performance in conflict resolution and management of interpersonal relationships was essential.

Project Manager/Database Administrator (2/96 – 9/98). LMES, ACT. Acted as Project Manager and Database Administrator in development of a large database application implementing a World Wide Web (WWW) based user interface for the Veterans Employment Training Service (VETS), an agency of the Department of Labor (DOL). The application employed innovative Internet technologies to provide real time access to a centralized database by VETS staff located in all 50 states, Puerto Rico, the Virgin Islands, and Washington, D.C. As the Project Leader, support was provided in the ongoing definition of system requirements, identification of a networking solution that meets the agency's unique needs, development and presentation of proof-of-concept prototypes, and cost/schedule management. As Database Administrator, ensured that the database remained available and functioning as expected, monitored and reviewed data to verify that overall

database integrity remained intact, responded to user requests, and coordinated/implemented system changes. Average level of effort was 2.5 - 4.0 full-time equivalents.

Project Manager (10/95 - 2/96). LMES, ACT. Worked as Project Manager on the Technical Reference Model (TRM) project for the Office of Information Resources Management (IRM) of the Nuclear Regulatory Commission (NRC). The purpose of the project was to develop a standards-based guideline for implementing an open systems environment across IRM. Successful project completion required strong technical and writing skills necessary to document the architectural environment and strategic plan associated with seventeen different discipline areas including: operating systems, database management systems, security services, networking standards, client services, application development tools, and human/computer interfaces; coordination of input and review from service area experts for each discipline; and overall project management. Project effort included full or part time participation of approximately 20 staff members.

Program Manager (6/91-9/95). LMES, ACT. Provided technical and managerial guidance in support of the Energy Systems Waste Management Organization (ESWMO) Centralized Waste Information Services Environment (C-WISE) Program. The C-WISE Program consisted of several projects, including the Central Waste Tracking System (CWTS), a large client-server application for identifying and tracking hazardous wastes across the Oak Ridge Reservation; the Waste Management Support Network (WMSN); the Strategic Vision Implementation Plan (SVIP); and the Common Look Up Environment (CLUE). As the C-WISE Program Manager, defined problems and identified appropriate technical solutions; selected project approaches; evaluated and recommended appropriate technical architectures for the computing environment; served as point-of-contact for the project sponsor representative and assumed accountability for all aspects of program development; developed project scopes, plans, schedules, and budgets; and provided oversight of system development and implementation. The capability to recognize root-cause issues and work towards common solutions involving multiple organizational entities was especially important. Project budget averaged approximately \$1.7m/year and involved 10-18 full-time staff.

Manager (11/91-10/92). Martin Marietta Energy Systems (MMES), ACT. Provided technical leadership and management in support of the K-25 Site Waste Management Division (WMD) K-25 Waste Tracking and Reporting System (KWTARS). Tasks performed included primary project management activities as well as acting as the key technical lead in identification, procurement, and development of system hardware and software components; management and oversight of subcontractor support staff; and serving as liaison between the development group and other Lockheed Martin Energy Systems organizations. KWTARS funding grew to \$1.25M by fiscal year 1992 and maintained a yearly budget of approximately \$1M until 1997.

Task Leader (4/90-7/92). MMES, ACT. Provided technical leadership in the design and development of the Waste Information Network (WIN) Program's Planning, Budget & Control (PB&C) system used to establish, maintain, and report on the DOE's \$6.6bB yearly Environmental Management national budget. Responsibilities included: Analyzing project scope and system requirements; directing Energy Systems and subcontracting support staff in meeting project deliverables; ensuring technical and user interface compatibility between PB&C and other WIN information systems; development of program-wide Quality Assurance standards and procedures; and coordinating activities between the development group, Energy Systems sponsor, and DOE Headquarters staff. Annual funding levels for PB&C were approximately \$750k.

Computing Analyst II (7/81-4/90). MMES, Computing & Telecommunications Division (CTD). Provided general computer help desk consulting in the user community at Oak Ridge National Laboratory. Provided system support and user assistance of graphics software and hardware for general use by division customers, including evaluation and installation of new products; interfaces with existing software and hardware across multiple operating systems; user documentation, user training and assistance; and applications development.

Computing Analyst I (6/78-7/81). Union Carbide Corporation (UCC), CTD. Responsible for maintenance of large, established production COBOL programs for use by Production Management Division (PMD) at the Y-

12 Plant. Frequently worked with large amounts of data and large reporting systems. Responsible for managing the remote job entry station located in building 9201-5.

Relevant Publications (Partial List)

Knowledge Management Overview, Presentation, Ron Cain, January 2015

INSEP Approach to Bilateral Cooperation in SSAC Information Management, Ron Cain, John Oakberg, INMM, July 2014

Additional Protocol (AP) Protocol Reporter version 3.0 (PR3) System Requirements Specification (SRS), Ron Cain, Dylan Wolf, Kevin Hannan, March 2014

State Information Management Implementation, Presentation, Ron Cain, September 2013

Nuclear Material Information Requirements for Comprehensive Safeguards Agreements, John Oakberg, Ron Cain, April 2013

Additional Protocol Reporting System (APRS) How-to Guide, Ron Cain, Daniel Ellis, Kevin Hannan, August 2012

Additional Protocol Reporting System (APRS) Technical Manual, Ron Cain, Daniel Ellis, Kevin Hannan, June 2012

Factors for Effective SSAC Information Management, Presentation, Ron Cain, John Oakberg, March 2012

Additional Protocol Declaration Helper User's Guide, Cain, Hannan, March 2012

Nonproliferation Policy Analysis and Interdiction Resource (NPAIR) Information System Project Management Plan, Ron Cain, Daniel Fetzer, Jerrid Holt, February 2012

A Review of U.S. Cooperation with the Government of Iraq on Implementation of the Additional Protocol, Jonathan Essner, Ronald Cain, Linda Hansen, Mark Killinger, John Valente, INMM, July 2011

Implementation of the IAEA Additional Protocol in the Philippines: USDOE/PNRI Cooperation, Killinger, Seguis, Hansen, Cain, Elkhamri, Burbank, Van Sickle, INMM, July 2011

An Index of Modeling and Simulation Activities at Oak Ridge National Laboratory, Jessica L. White and Ronald A. Cain, INMM, July 2011

Developments in Assisting Countries in Implementing the IAEA Additional Protocol, Killinger, Hansen, Cain, Kovacic, Apt, Van Sickle, INMM July 2010

The Additional Protocol Declaration Helper: A Software Tool to Help Determine What Must be Declared to the IAEA, Cain, Ron, Kovacic, Donald N., Sunshine, Alexander D., Ellis, Daniel, Hannan, Kevin, INMM, July 2010

Preparations for Additional Protocol Implementation at Oak Ridge National Laboratory, R. A. Cain and O. J. McCowan, July 2009

Gap Analysis Report: Comparison of NA-24 Strategic Management and Results Tracking (SMART) Information System versus NA-21 GTRI Program Management System 2 (G2), Chris O'Neal, Catherine P. Toth, Ron Cain, July 2008

NA-24 Strategic Management And Results Tracking (SMART) Information System Project Management Plan, Ron Cain, Tim Wynn, January 2008

Proliferation Trade Control Directory (PTCD) Functional Design Specification, Bjerke, Cain, Claiborne, Donaldson, Wheeler, December 2007

System Requirements Specification: Proliferation Trade Control Directory, Bjerke, Cain, Claiborne, Donaldson, Wheeler, September, 2007

Additional Protocol Reporting System (APRS) Cyber Security Plan, Cain, Wheeler, August 2007

Project Management Basics, Cain, R. A., Eipeldauer, D. L., September 2006

UF6 Cylinder Tagging System for a Uranium Enrichment Plant, David Burk, Ron Cain, Sysan Hayes, Donald Kovacic, Jim Morgan, Michael Whitaker, June 2006

Biological Warning and Incident Characterization (BWIC) Project Management Plan, Cain, R. A., October 2005

Biometric Counting System (Phase II), Project Management Plan, Cain, R. A., January 2005

Integrated Document and Records Management System (IDRMS) Project Plan, Cain, R. A., Domm, T. C., Dravecky, T. M., April 2004

The National Institute of Justice (NIJ) National Law Enforcement and Corrections Technology (NLECTC) Biometric Counting System (BCS) User Manual, Cain, R. A., Streetman, K. D., April 2003

United States Department of Energy (USDOE) Material Protection, Control and Accounting (MPC&A) Application Security Specification and Controls Document. Cain, R. A., Wynn T. G., August 1999

United States Department of Energy (USDOE) Office of Safeguards and Security (OSS), NN-50 Multilevel Secure (MLS) Document Management Center, Feasibility Study of a System Architecture for an MLS Electronic File Room. Cain, R. A., Rome, J. A., Streetman, K. D., October 1999

United States Department of Labor (USDOL) Veterans Employment and Training Service (VETS) Uniformed Services Employment and Reemployment Rights Act (USERRA) Information Management System (IMS) User's Manual. Cain, R. A., Donner, C., October 1998

United States Department of Labor (USDOL) Veterans Employment and Training Service (VETS) Uniformed Services Employment and Reemployment Rights Act (USERRA) Requirements Definition and Design Document (RDD). Cain, R. A., Decker, C. H., Tittsworth, R. E., Tudor, R. G., September 1998

United States Department of Energy (USDOE) Office of Safeguards and Security (OSS), NN-50 Multilevel Secure (MLS) Fileroom Requirements Specification. Cain, R. A., Dillow, D. A., Rome, J. A., Streetman, K. D., August 1998

United States Department of Labor (USDOL) Veterans Employment and Training Service (VETS) Uniformed Services Employment and Reemployment Rights Act (USERRA) Information Management System (IMS) Training Manual. Borgsmiller, M., Cain, R. A., Donner, C., Tudor, R. G., March 1998

United States Department of Labor (USDOL) Veterans Employment and Training Service (VETS) Disabled Veterans' Outreach Program and Local Veterans' Employment Representative (DVOP/LVER) Requirements

Definition and Design Document (RDD). Cain, R. A., Decker, C. H., Tittsworth, R. E., Tudor, R. G., August 1997

Lockheed Martin Energy Systems (LMES) Waste Management Organization (WMO) Centralized Waste Information Services (C-WISE) Common Look-Up Environment (CLUE) Functional System Design. Cain, R. A., Carter, C. K., Goforth, C. H. et. al., January 1996

Lockheed Martin Energy Systems (LMES) Waste Management Organization (WMO) Energy Systems Waste Management Information Services Strategic Vision Implementation Plan. Beeler, P. A., Cain, R. A., Fetzer, D. T., Tannert R. A., et. al., February 1994

Project Plan for the Energy Systems Waste Management Organization Strategic Vision Implementation Plan. Beeler, P. A., Cain, R. A., Fetzer, D. T., Tannert R. A., et. al., November 1993

Software Quality Assurance Plan (SQAP) for the Centralized Waste Information Services Environment (C-WISE) Central Waste Tracking System (CWTS). Bowers, O. G., Cain, R. A., Goforth, C. H., King, B. M., October 1993

Configuration Control Plan (CCP) for the K-25 Waste Tracking and Reporting System (KWTARS). Cain, R. A., Mountain, P. J. et. al., May 1993

Emergency and Disaster Recovery Plan for the K-25 Waste Tracking and Reporting System (KWTARS). Cain, R. A., Mountain, P. J., et. al., April 1993

Software Quality Assurance Plan (SQAP) for the K-25 Waste Tracking and Reporting System (KWTARS). Cain, R. A., Mountain, P. J., et. al., April 1993

United States Department of Energy (USDOE) Waste Management/Tracing Information Systems, Candidate Presentation for the Navy Best Manufacturing Practices Survey Team. Cain, R. A., March 1993

Test Plan for the Query and Reports Module for the Decontamination and Decommissioning Tracking and Reporting System. Cain R. A., Mountain, P. J., et. al., January 1993

Five Plant Performance Improvement Process (PIP) Committee Recommendations. Cain, R. A., Mountain, P. J., et. al., July 1992

Hazardous Waste and Remedial Action Program (HAZWRAP) Waste Information Network (WIN) System Design Specifications for the Planning, Budget, and Control (PB&C) Information System. Bowers, O. G., Cain, R. A., Langford, M. L., Pierce, S. A., March 1992

Subsystem Scope for the Waste Information Network – DOE Environmental & Waste Management Planning, Budget & Control Information System. Cain, R. A., January 1992