

DUNS: 078636196

CAGE: 6SRM5

NAICS Codes:

541690, 541330, 541620,  
541990, 541618, 541611,  
541712, 561210, 561320,  
562910, 611430, 611699,  
336611

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**ISMSOLUTIONS, Inc.**  
A Balanced Approach

## Nuclear Safety

Management & Technical Consulting Services

### Independent Strategic Management Solutions, Inc.

is a management and technical consulting company that assists government and private organizations in effectively addressing challenges while balancing competing priorities. We have extensive experience servicing the nuclear industry including the nuclear navy, commercial nuclear power industry and Department of Energy (DOE) weapons and environmental clean-up programs. We specialize in nuclear and criticality safety, hazard analysis, nuclear facility licensing, independent assessments, and nuclear policies and standards. Our company is made up of a diverse team of former federal professionals and managers, industry specialists, and nationally recognized engineers and scientists. We provide objective and pragmatic solutions and guidance to assist our clients in delivering quality and sustainable results safely, consistently and cost-effectively.



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**Shirley J. Olinger** – Shirley Olinger has 30 years of experience managing and directing multi-disciplined teams of engineers and scientists in the nuclear and criticality safety fields.

Throughout her 25-year career with the Department of Energy for Defense Programs in DOE-HQ, Rocky Flats, Richland Field Office, and Office of River Protection, she has directed nuclear safety, criticality safety, fire protection, radiological protection, industrial hygiene, occupational safety and health, quality assurance and engineering programs and technical staff. This included reviewing and preparing the technical bases and recommending approval of the licensing conditions [e.g., AAs, Documented Safety Analyses (PDSAs/DSAs), Safety Evaluation Reports, PDSAs/DSAs, Technical Safety Requirements, Justification for Continued Operation, and SARPs] required to operate the Hazard Category 2 and 3 nuclear facilities and radiological facilities at Rocky Flats, Hanford, Waste Isolation Pilot Plant (WIPP) and Savannah River.

In addition, as the Manager of the Office of River Protection she was the signatory authority for the DOE to allow the contractors to operate the nuclear and radiological facilities. This included reviewing the technical bases in supporting documents such as FHAs, CSEs, Preliminary Hazards Analysis, hazard & operability studies, Unreviewed Safety Questions, and Emergency Preparedness Hazards Analysis, etc.

Ms. Olinger has a B.S. in Civil Engineering from University of Hawaii/Purdue University, was a DOE Senior Technical Manager during her DOE career, attended the Naval Nuclear Power School at Pearl Harbor Naval Shipyard, and holds an active DOE Q-clearance.



**Steve Additon** – Steve Additon brings more than 45 years of experience in ensuring nuclear safety for Department of Energy (DOE) facilities, nuclear plant safety assessment and licensing, transient computer modeling of reactor plant systems, thermal-hydraulic problem solving, and related technical and program management.

His recent experience has focused on safety basis development and implementation, including the writing of Technical Safety Requirements (TSRs) and the development and application of the Unreviewed Safety Question (USQ) process at Rocky Flats, Idaho Cleanup Project, and Hanford Plateau Remediation.

At Rocky Flats he maintained the evolving safety basis as D&D evolved to demolition, preparing hundreds of USQs and various safety basis changes in the process. At Idaho, he developed and obtained DOE approval for the USQ process and the generic site safety basis, and again served as a USQ-qualified safety analyst. He also developed a Justification of Continued Operation that permitted the Radioactive Waste Management Complex to resume suspended waste retrieval and disposal; the permanent safety basis which he then developed supported the successful operation of a succession of retrieval facilities to comply with waste removal objectives established with the state of Idaho.

At Hanford, he developed the new TSRs needed to support the packaging and drying of the last remaining fuel material in the K-West Basin, made key contributions to the strategic plan for subsequent sludge removal, and led the safety basis team at the K-area cleanup site. His experience is much broader than safety basis maintenance. Also while at Hanford, for example, he supported DOE-ORP, by preparing complex Safety Evaluation Reports for redefinition of the material at risk in the waste stream, and new engineering criteria for piping design to resist explosions at the Waste Treatment Project.

While at Rocky Flats, he also led the contractor efforts to resolve DNFSB issue 94-3 involving the seismic capability of Building 371 for its proposed plutonium storage mission, persuading the Board that an existing facility needed to focus on practical upgrades rather than new design criteria appropriate for a replacement facility. He supported DOE-HQ on seismic policy drafting the report that set the stage for national consensus standards to replace the 1020 series; he was an author of ANS 2.26. He led the DOE-sponsored Advanced Reactor Severe Accident Program supporting vendors and the Electric Power Research Institute in the application of severe accident insights from liquid metal design programs, and sponsoring new research to support robust passive designs. He led root cause evaluation and collective significance determinations for construction quality issues affecting startup of Comanche Peak.

Earlier in his career, he led the natural circulation design of the Fast Flux Test Facility, interacting with both NRC and ACRS to obtain design approval while planning the test program that successfully demonstrated the design capability. In the process, he managed the analysis group that supported FFTF startup and led the technical evaluation of the implications of the TMI accident for this diverse design.

Overall, his career has spanned various nuclear applications, from one-of-a-kind advanced reactors, to current and future standardized light water reactor designs, and from operating DOE facilities to DOE facilities undergoing Decontamination and Decommissioning (D&D). Mr. Additon has sought out and succeeded in challenging assignments that invited application of his technical, strategic, and oral and written communication skills. Mr. Additon has focused on ensuring safety and regulatory compliance with an eye for more practical approaches consistent with the facility's mission.

Mr. Additon holds a B.S. in Mathematics and Nuclear Engineering from Carnegie-Mellon University, an MBA from the University of Washington, and has had both L and Q-clearances.







**Evan Berg** – Mr. Berg has more than 6 years of experience providing nuclear safety and nuclear criticality safety support across the Hanford site. He has provided hazards analysis and control selection support for the Low-Activity Waste Vitrification and High-Level Waste Vitrification facilities. He worked with a multi-disciplinary team of engineers and operations personnel to evaluate potential hazards using HAZOP studies and What-If scenario development and the graded approach to select effective, implementable candidate control strategies.

Mr. Berg has also provided nuclear safety expertise on the Central Plateau at Hanford to Surveillance and Maintenance facilities, Transportation Safety activities, and Solid Waste and Fuels facilities. He demonstrates a comprehensive understanding of federal law, DOE requirements, and Hanford procedural requirements while providing support involving the various aspects of nuclear safety including USQ reviews, safety basis document development and implementation, hazard categorization, hazards analysis, fire hazards analysis development, accident analysis, procedure development and maintenance, and assessments. He also regularly provided nuclear safety support to Operations and Engineering management on emergent issues and performed facility walk downs and surveillances to ensure compliance with nuclear safety and criticality safety requirements.

Mr. Berg provided nuclear safety support to the Solid Waste Operations Complex (T Plant, Central Waste Complex, Waste Receiving and Processing Facility, and Low-Level Burial Grounds) and all Central Plateau Surveillance and Maintenance nuclear facilities (224-B, 224-T, Fast Flux Test Facility [FFTF], B Plant, U Plant, Reduction-Oxidation Facility, and Plutonium-Uranium Extraction Facility [PUREX]). Mr. Berg led the safety basis maintenance activities for 224-B, 224-T, and the PUREX facility. Additionally, he was the technical authority for the FFTF DSA. He was also the Transportation Safety Field Representative for the Plutonium Finishing Plant. Mr. Berg authored USQ Screens, Determinations, and PISA evaluations for activities that impacted all of the facilities listed above as well as transportation and packaging operations.

Mr. Berg has a Bachelor of Science in Mechanical Engineering from the University of Idaho.



**Herb Berman** – Herb Berman brings more than 42 years of experience in the management, supervision and performance of nuclear/radiological work, cleanup of radiological waste, and the establishment of appropriate safety basis, conduct of operations and engineering controls in a working plant environment.

Along with his distinguished career in Chief Engineer positions at the Pearl Harbor Naval Shipyard, the DOE Rocky Flats Plant, the DOE Pantex Plant and the DOE Hanford Tank Farms, he is recognized for “turning around” the performance of engineering and operations organizations, including nuclear and criticality safety staff. He managed the complete update of all criticality controls and equipment at the DOE Rocky Flats Plant, and instituted in-depth criticality controls for plutonium and uranium pit storage and handling at the DOE Pantex Plant.

He has directed numerous investigations of nuclear safety, radiological process chemistry, engineering or operations-related problems with nuclear and other hazardous materials, radiological waste handling and storage, and industrial and nuclear facilities, and operations safety basis. He also possesses a proven track record of managerial and program management accomplishments, successfully directing successively larger, more complex organizations and projects. In addition, he has significant experience and a background in metallurgy and materials failure analyses.

Mr. Berman holds a B.S. in Metallurgy and Materials Science from Massachusetts Institute of Technology, completed his doctorate coursework in Solid State Physics at the University of Pennsylvania and has an inactive Q-clearance.



**Richard L. Black** – Richard L. Black has over 35 years of experience in managing and directing organizations responsible for nuclear regulation and nuclear safety. He is a recognized expert in nuclear licensing and standards. As the Office Director of Nuclear Safety Policy and Standards, Mr. Black led the development and implementation of DOE’s Nuclear Safety Rule, 10 CFR Part 830. He also was responsible for developing guidance and standards to implement the rule.

As the Office Director of Nuclear Safety Enforcement, Mr. Black was instrumental in developing and implementing DOE’s Procedural Rules for Enforcement, 10 CFR Part 820. He organized a staff of investigators, safety experts, and lawyers to fulfill this function. He also served on DOE’s Committee on External Regulation that assessed NRC regulation of non-defense DOE nuclear facilities and activities. Mr. Black was the lead DOE official to respond to and implement 2 DNFSB safety recommendations.

He was the first director of the Office of Advanced Reactor Concepts within the Office of Nuclear Energy (NE), which is responsible for the research, development and deployment of advanced reactor technologies, including SMRs and fast reactors. He was responsible for developing a plan that implemented NE’s Research, Development and Deployment Roadmap for advanced reactor, and was instrumental in establishing DOE’s SMR program. His background demonstrates excellent leadership, communications, team building, and organizational skills.

As an attorney at the NRC, Mr. Black led the NRC environmental and safety licensing case for numerous nuclear power plants and several fuel reprocessing facilities before the Atomic Safety and Licensing Board.

Mr. Black holds a J.D. from Georgetown Law School and a B.S. in Finance from Michigan State University.



**Bruce Campbell** – Bruce Campbell has over 35 years of experience in fire protection engineering for the nuclear and commercial industry and various DOE Sites. He manages fire protection programs and serves as a technical expert on complex engineering jobs requiring fire modeling and fire hazards analysis.

He has supported the development of Fire Hazards Analysis Reports and Fire Safety Assessments for the Rocky Flats, Idaho National Laboratory, Brookhaven National Laboratory, Nevada Test Site and Los Alamos National Laboratory. The Fire Hazards Analysis was used as input into several Hazard Category 2 and 3 nuclear facility DSAs.

Mr. Campbell holds a B.S. in Fire Protection/Industrial Safety from the University of Maryland.



**Marc Danna** – Mr. Danna has 25 years of experience working in nuclear safety organizations at various Department of Energy (DOE) nuclear sites including Rocky Flats, Pantex, Hanford Tank Farms, East Tennessee Technology Park, and the Plutonium Finishing Plant (PFP) at Hanford. He has recently been contracted to DOE Office of River Protection as a Safety Basis Review Team member supporting review of Waste Treatment Plant safety basis documents. Mr. Danna has expert level knowledge of





10CFR830, Part B, Nuclear Safety Management as well as related DOE safe harbor methods and guidance. Mr. Danna has developed and reviewed the spectrum of nuclear safety basis documents required by 10CFR830 to support nuclear operations, deactivation and decommissioning, transportation, and environmental cleanup. Mr. Danna's work in nuclear safety has involved the implementation of contractor nuclear safety programs including the Unreviewed Safety Question (USQ) Process, as well as development and implementation of Documented Safety Analysis (DSA) and Technical Safety Requirement (TSR) documents.

At the Plutonium Finishing Plant, Mr. Danna was the lead nuclear safety engineer responsible for implementation of contractor nuclear safety program requirements. Responsibilities included USQ review of proposed plant activities, and maintenance of the safety basis documents in an evolving deactivation and decommissioning environment. In this capacity, he was directly responsible for managing and contributing to the development of hazards analyses, safety analyses, control set selection documentation, and revisions to the Documented Safety Analysis and Technical Safety Requirements to support "step-out" of nuclear safety controls and to accomplish demolition of the PFP nuclear facilities. Challenges in this environment involved development of safety basis documents adequate to address the potential for discovery of legacy plutonium hold-up, changes to contaminated equipment removal methods, and changes to final demolition plans.

Mr. Danna has a B.S. degree in Mechanical Engineering Technology from Texas Tech University.



**David Faulkner** – David Faulkner has over 35 years in nuclear power operations, maintenance, regulation, oversight, quality assurance, and nuclear safety. Mr. Faulkner has extensive experience as an author, team member, team leader, and peer reviewer to unclassified and classified safety analyses and risk assessments.

Mr. Faulkner has supported both the DOE and operating contractors in the development and approval of safety basis documents for plutonium residue stabilization, interim storage of special nuclear materials, transuranic (TRU) and low-level wastes, deactivation and decommissioning, and environmental restoration. He has provided independent and team-based nuclear safety reviews for new and major modifications to plutonium processing and storage facilities, and TRU and low-level waste facilities. He has also been involved in the development of standards for engineering program as well as standards for nuclear safety.

Mr. Faulkner attended the Naval Nuclear Power School, was a plank owner on the USS Indianapolis (SSN-697), a former S1W Prototype Instructor and trainer of enlisted and officer students, qualified in submarines, Engineering Officer of the Watch and Engineering Watch Supervisor, and has an active Q-clearance.



**Terry Foppe** – Terry Foppe has 38 years of experience in hazard analysis, chemical process safety management, fire protection engineering, and occupational safety and health, with the last 30 years supporting non-reactor nuclear safety basis development or approvals across the U.S. Department of Energy weapons complex (e.g., Rocky Flats, LANL, Hanford, WIPP, Sandia, others). This included hazards and accident analysis, facility hazards categorizations, qualitative or quantitative risk assessments, establishing Documented Safety Analyses and Technical Safety Requirements to define operating limits and controls, and Unreviewed Safety Question Determinations of proposed

changes or discoveries.

Mr. Foppe's prior experience included developing, coordinating, and implementing safety management and fire protection programs for DOE and other commercial companies to protect employees, the public, property, and the environment.

He has a B.S. in Aerospace Engineering from Parks College of St Louis University, a M.S. in Safety Management from University of Arizona, is a Registered Professional Engineer (fire protection engineering) and a Certified Safety Professional (comprehensive practice) and has an active Q-clearance.



**John Greeves** – John Greeves has 40 years of nuclear safety experience, including senior level management of licensing, inspection, construction and regulation development applied to management and disposal of low-level and high-level nuclear waste; licensing of nuclear fuel cycle facilities; siting, design, construction and decommissioning of nuclear reactors.

He spent 25 years managing NRC programs, serving as Director of NRC's Division of Waste Management and Environmental Protection, Director of NRC's Low-Level Waste and Decommissioning Division, and Deputy Director of NRC's Division of Fuel Cycle Safety and Safeguards. He has extensive experience in technical and risk management, policy development, planning, budgeting, and project, contract and personnel management. Mr. Greeves directed the NRC's program for licensing, inspection, and regulation to assure safety and quality associated with the management, treatment, and commercial disposal of low-level nuclear waste (LLW), high-level waste disposal (HLW) and material facility and power reactor decommissioning. He developed, implemented, and evaluated safety and environmental policies and long-range goals for these activities. He was responsible for developing the regulations and NRC staff review plans for the Yucca Mountain project and the NRC staff review plans for complex decommissioning activities including nuclear reactors.

Mr. Greeves also served on a number of national and international panels regarding waste management activities. He co-chaired the U.S. Interagency Steering Committee on Radiation Standards (ISCORS) from 1995 to 2004. He was the U.S. government's representative to the IAEA Waste Safety Standards Committee (WASSC), and has participated extensively in the development of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

Mr. Greeves has a B.S. in Civil Engineering from the University of Maryland and has pursued graduate studies in groundwater analysis and business management. He is a registered Professional Engineer.



**Alan Horner** – Mr. Horner has over 20 years of experience working in nuclear safety in a broad range of complex nuclear facilities including: production and fast reactor fuel fabrication facilities; diverse laboratory operations for examination of reactor fuels, irradiated materials, and cesium capsules; and decommissioning of some of the most highly contaminated facilities at the Hanford site. Mr. Horner's experience is primarily focused on developing Documented Safety Analysis and Technical Safety Requirements, documentation of readiness, supporting development and implementation of Unreviewed Safety Question (USQ) programs including providing USQ Evaluator training. He has also contributed to facility safety in the capacity





of lead criticality safety representative for fissionable material facilities with criticality alarm systems, system engineering for ventilation control and fire protection systems, and as the site laser safety officer. In addition to extensive experience providing technical support to Hanford Site contractors Mr. Horner has supported the Department of Energy (DOE) Office of River Protection as a Safety Basis Review Team member.

Mr. Horner's work, primarily as the lead nuclear safety engineer in the Hanford Site 300 Area, has been deactivation and decommissioning of nuclear facilities with millions of curies ranging from fuel fabrication to research. Activities include: integrating safety in remediation design, performing hazards identification and analysis, control selection, performing fire hazards analysis, interpreting requirements and interfacing with DOE and Defense Nuclear Facilities Safety Board (DNFSB). Challenges in deactivation and decommissioning include unanticipated facility conditions, discovery of substantial legacy contamination, and evolving controls to address changing facility risks and available controls. Mr. Horner's management of the safety analysis and controls has maintained the authorization basis during the safe remediation and cleanup of the majority of the 300 area facilities. The remediation met milestones and earned fees for cost efficiency, while achieving a high degree of compliance and maintaining active communication with regulators.

As a system engineer for the 324 Facility Mr. Horner's attention to detail greatly improved accuracy of system documentation, identified components not previously tested, reactivated partial systems taken out of service for adjoining structure demolition to provide needed coverage, performed troubleshooting and repair of faulty circuitry, and comprehensively tested the ventilation system interlocks.

Mr. Horner has a M.S. degree in Physics from the University of Central Florida with a focus in crystalline materials and nonlinear optics and a Bachelor of Science in Engineering Physics from the University of Nevada Reno.



**Mark Jackson** – Mark Jackson has over 20 years of experience implementing DOE nuclear safety requirements, including safety analysis, risk assessment, transportation safety, program management and compliance with 10CFR830, Subpart B, Nuclear Safety Management. His primary effort has been reviewing and preparing the technical bases for approval of safety basis documents, which entailed supporting the development, review and approval of Documented Safety Analyses, Technical Safety Requirements, and Unreviewed Safety Question implementation.

Additional experience includes operational readiness reviews, corrective action development and completion, ISMS implementation/certification reviews, and hazard categorizations for unique environmental restoration activities. Mr. Jackson has been a lead nuclear engineer and Team Lead for the Department of Energy Richland Operations Office Authorization Basis Team.

Mr. Jackson holds B.S. degrees in Medical Technology, Mathematics and Mechanical Engineering, and an M.S. in Environmental Engineering, and held a Q-clearance.



**Jeffrey Lee** – Jeff Lee has 35 years of collective experience with the government working on nuclear facilities at Department of Energy sites, in the commercial nuclear power industry, and in the nuclear navy. Mr. Lee's career includes more than 16 years identifying nuclear safety hazards, accident scenarios, and mitigating control strategies for various nuclear facilities throughout the DOE complex [e.g., the Waste Treatment Plant at Hanford and nuclear surplus facility D&D projects at the Savannah River Site (SRS)].

Mr. Lee conducted nuclear criticality safety baseline assessments as a Senior Nuclear Safety Engineer for the SRS production reactors, he was a Lead Design Engineer on the SRS New Production Reactor, and as a process manager on the Naval Fuels Manufacturing Facility. In addition, Mr. Lee has experience with Authorization Basis / Safety Basis issues at commercial nuclear power plants (Dresden and Millstone) and as a nuclear-qualified submariner on the USS Gato (SSN-615).

During Jeffrey Lee's career, he has prepared and reviewed Preliminary Safety Analysis Reports (Documented Safety Analysis Reports) and Technical Safety Requirements; performed Preliminary Hazards Analyses and Unreviewed Safety Question Determinations; administered Quality Assurance and Quality Control measures, and modified fire protection systems in nuclear facilities. Mr. Lee has addressed Occupational Safety and Health issues and incorporated Human Factors Engineering initiatives into nuclear facility process design.

Mr. Lee has a B.S. in Mechanical Engineering from the United States Naval Academy and an MBA (Finance) from the University of South Carolina. Mr. Lee has held management, supervision, and analyst positions during his career. Mr. Lee held a Q-clearance while at the Savannah River Site.



**Kathy Lehw** – Kathy Lehw has over 20 years of experience in nuclear engineering, nuclear facility operations and nuclear safety basis. She was in engineering and facility operations management positions for Hazard Category 2 and 3 nuclear facilities at Savannah River, Idaho, and Rocky Flats.

As the Engineering and Technical Support Manager at Rocky Flats, she was responsible for engineering, nuclear and criticality safety support, training, procedures, and program technical support for the facility. Ms. Lehw was responsible for the technical safety basis of the facility, including design basis and the authorization basis as approved by the Department of Energy. She developed and implemented a new authorization basis for the facility which served as the primary safety documentation for nuclear material stabilization and packaging and deactivating, decontaminating, decommissioning and demolishing the facility.

As a shift supervisor for a naval nuclear aircraft carrier prototype in Idaho, she was responsible for all aspects of operation of the 2 reactor plants and training naval personnel in the operation of the plants. Ms. Lehw holds a B.S. degree in Chemical Engineering and a Master of Business Administration degree from the University of Colorado, as well as the equivalent of a Masters in Nuclear Engineering through the Naval Reactors program.



**Paul J. Macbeth** – Paul Macbeth has over 30 years of experience in nuclear safety and waste management, dealing with diverse topics and complex issues, including assessment of environmental impacts from waste management activities,





cryogenic storage of radioactive krypton, remediation of uranium mill tailings sites and contaminated federal facilities, and waste classification and associated risk assessment, as well as design and operational experience at a commercial nuclear power plant.

Mr. Macbeth has provided senior level expertise in transportation and packaging, nuclear and criticality safety and documented safety analyses, as well as radioactive and mixed waste management in review and oversight functions for DOE/RL. He has direct expertise in preparation and review of USQ determinations at both a commercial nuclear power plant (Columbia Generating Station) and Hanford nuclear facilities. His involvement includes performance of a comprehensive review of USQ evaluations prepared for Hanford waste management facilities, development and delivery of USQ training to qualify USQ Evaluator personnel, integration of facility and transportation, USQ review procedures, and reviews of annual USQ report submittals to DOE for compliance with 10CFR830 requirements. His reviews and oversight have helped ensure compliance with applicable DOE, EPA, State of Washington, NRC, and DOT regulatory requirements and guidelines through review and assessment of design, safety, NEPA, RCRA and budgetary documentation.

Mr. Macbeth participated in the DOE review of the CH2M Hill Plateau Remediation Contractor's readiness and implementation of their Integrated Safety Management/ Environmental Management program. He documented the basis for DOE approval of the foregoing Authorization Basis documents in Safety Evaluation Reports.

Paul Macbeth has a M.S. degree in Nuclear Physics from Brigham Young University, and completed most of the coursework for the PhD degree in Nuclear Engineering from the University of Utah.



**Roger Mattson, PhD** – Dr. Roger Mattson has 49 years of experience in the nuclear safety field. He has developed and reviewed safety systems for nuclear facilities, including 17 years with AEC and NRC. He has participated in reviews of more than 150 nuclear facilities in the U.S. and abroad.

He developed NRC's new safety requirements after the accident at Three Mile Island, for which he received NRC's Distinguished Service Award. He served as a safety consultant to DOE and its contractors at Rocky Flats, Savannah River, Los Alamos, Pantex, Mound, Idaho and Livermore. He served on nuclear safety review boards for eight facilities. He developed and applied safety analysis techniques, including plant dynamic analysis, systems interaction studies, probabilistic safety assessments, reliability analysis and hazards analysis. He has led independent reviews of operational readiness, and design and management of various nuclear facilities.

Dr. Mattson participated as senior safety expert in criticality safety assessments of DOE's plutonium facilities at Hanford, Rocky Flats and Los Alamos. He assisted in a root cause review of an intentional violation of criticality limits at Rocky Flats. He conducted independent reviews of the criticality safety program at Rocky Flats and has reviewed the criticality safety programs at other nuclear materials processing facilities.

Dr. Mattson holds a PhD in Mechanical Engineering from the University of Michigan and holds an active DOE L-clearance at INL.



**Andrew R. Marchese** – Andy Marchese has 48 years of experience working on reactor and non-reactor nuclear facilities, including his service at DOE, NRC, former AEC, and nuclear safety consulting across the DOE complex and

commercial nuclear sites. As a senior nuclear safety consultant for the past 15 years, he performs nuclear safety hazard and accident analyses, and safety basis development for private firms and government contractors involved in nuclear facility development and operations, including hands-on experience in developing SARs, DSAs, USQs, and EISs for nuclear, chemical, waste storage, and accelerator facilities.

At the former Atomic Energy Commission (AEC), Mr. Marchese played a key role in developing the regulatory criteria for licensing the Clinch River Breeder Reactor Plant (CRBRP) and the safety review of the Fast Flux Test Facility (FFTF). He developed requirements for licensing advanced nuclear power plants that included safety design criteria and system safety classifications, as well as engineered safety features, and design basis accident conditions.

As a Project/Systems Engineer with Rockwell International Corporation, Mr. Marchese designed, analyzed, and tested various fluid and mechanical systems for AEC-sponsored advanced nuclear reactors and NASA advanced energy conversion concepts for space power and propulsion systems. This work included performing fluid flow, heat transfer, thermal stress analyses, tests, and systems engineering evaluations of high-temperature gas-cooled and liquid-metal cooled reactors and advanced space nuclear power concepts.

Mr. Marchese holds an M.S. in Aeronautical Engineering from M.I.T. and a B.S. Degree in Aerospace Engineering from Pennsylvania State University. In addition, he has completed extensive graduate coursework in nuclear, mechanical and chemical engineering at the University of California, San Diego and Los Angeles campuses.



**Vern Peterson, PhD** – Dr. Vern Peterson has over 40 years of experience in the fields of nuclear safety, atmospheric sciences, and related disciplines. He is a nationally recognized expert in the MACCS2 computer code for accident analysis and has extensive experience in the use of other dispersion codes. He was also the technical lead in numerous safety analysis reports and similar evaluations.

Vern was the principal author of the Safety Analysis and Risk Assessment Handbook (SARAH) and developed RADDOSE and RADTOX tools for evaluating radiological doses and toxicological consequences from postulated accidents. Dr. Peterson was one of the lead authors of the Accident Analysis Guidebook, a DOE/HQ publication. He developed many other methods and tools that have become standards for consequence evaluations. He developed methods for deriving atmospheric dispersion parameters from weather data (atmospheric stability classes and the X/Q dispersion factor).

Mr. Peterson is a former chairman of the Accident Analysis Subgroup of Energy Facility Contractors Group (EFCOG) the Safety Analysis Working Group (SAWG), and a member of the Safety Software Expert Working Group (SSEWG).



**William M. Shields, PhD** – Dr. William M. Shields is in his 38th year of work in the nuclear industry. As both a technical professional and attorney, he has served in the Nuclear Regulatory Commission, private clients in the commercial and defense nuclear arenas, and the Defense Nuclear Facilities Safety Board (DNFSB). His expertise spans all aspects of both NRC's and DOE's nuclear safety programs.

In the field of fire protection for nuclear facilities, Dr. Shields has 31 years of experience, serving six years on the NFPA's Code Committee for Nuclear Facilities and is currently teaching nuclear facility fire protection at Worcester Polytechnic Institute. At NRC, Dr. Shields was a specialist in reactor safety rulemaking and guidance development, and worked on new requirements and





guidance for fire protection, environmental qualifications, pressurized thermal shock, anticipated transients without scram, station blackout, seismic qualification, leak before break, emergency planning and backfitting.

In private consulting after leaving NRC, he served as a technical and regulatory consultant to 22 nuclear utilities and major utility groups such as the Nuclear Utility Fire Protection Group, the Equipment Qualification Group, the Seismic Qualification Group, and the Station Blackout Group. At the DNFSB, Dr. Shields fulfilled dual assignments as a fire protection expert and legal advisor, providing a wide range of technical, regulatory and legal services for the DNFSB's safety oversight of nuclear weapons facilities.

Dr. Shields holds a degree in astrophysics from MIT, a law degree from Columbia University, and a PhD from Virginia Tech in Science and Technology Studies. His professional affiliations include the American Nuclear Society, the Society of Fire Protection Engineers, and the National Fire Protection Association.

Since retiring from full-time federal service in 2011, he has served as a consultant to government clients on nuclear matters. He holds an active DOE Q-Clearance.



**Craig Sprain** – Craig Sprain has 30 years of nuclear and utility industry and related experience including nuclear and utility facility operation, maintenance and regulation. He has expert level knowledge of 10CFR830, Part B, Nuclear Safety Management, program development and implementation; as well as related Department of Energy (DOE) guidance and safe harbor methods. This includes Unreviewed Safety Question (USQ) Process, Documented Safety Analysis (DSA) and Technical Safety Requirement (TSR) development and implementation, programmatic assessment, event and root cause analysis, and corrective action development and evaluation.

Mr. Sprain has developed and reviewed the spectrum of nuclear safety basis documents required by 10CFR830 to support nuclear operations, transportation and environmental cleanup at Rocky Flats, Los Alamos National Laboratory, Hanford, Oak Ridge, Sandia Laboratory and Argonne Laboratory.

Mr. Sprain has a B.S. and M.S. in Chemistry from San Jose State University with post-graduate studies at Oregon State University in Chemical Engineering and Atmospheric Chemistry and holds an active Q-clearance.



**Bruce Zimmerman** – Mr. Zimmerman has over 40 years of experience in nuclear safety and licensing, nuclear engineering, test engineering, and nuclear operations support. He has served in numerous lead engineer positions, including oversight of contractor and engineering department personnel.

He has extensive experience in nuclear safety, and is recognized as a subject matter expert in accident analysis methodology. His previous DOE program involvement includes the Waste Treatment Plant Project, Hanford Tank Farms, Hanford Site-Wide Environmental Restoration, N-Reactor, the Hanford Radioisotope Program, and the Fast Flux Test Facility. Mr. Zimmerman is a former Nuclear Navy officer, and was selected to serve on Adm. Hyman Rickover's Washington DC engineering staff. He has BSE & MSE degrees in Nuclear Engineering from the University of Michigan and is a graduate of the Naval Reactors Reactor Engineering Program. He holds an MBA degree from the University of Washington.

At Hanford Tank Farms, Mr. Zimmerman had lead responsibility for the development and implementation of the accident analysis methodology for the Tank Farms Documented Safety Analysis, including being an author or

peer reviewer of the Tank Farms accident analysis documents. Mr. Zimmerman was the Nuclear Safety lead for several Tank Farms projects, including construction of an interim waste storage facility, and various nuclear facility infrastructure upgrades. He was the Nuclear Safety coordinator for the 242-A Evaporator DSA upgrade, and was the lead for revising the 242-A Evaporator Facility Fire Hazards Analysis. He served as a member of the Single-Shell Tank Interim Stabilization Project consent decree technical support team, providing technical support for negotiations with DOE-RL, DOE-HQ, and the Washington State Department of Ecology. He has held USQ and JTWG qualifications, as well as Engineering Technical Manager qualification and signature authority.

Prior to Hanford Tank Farms, Mr. Zimmerman held various Senior, Principal, and Senior-Principal Engineer positions involving nuclear system neutronic and thermal-hydraulic analysis, computer-based system simulation, nuclear plant test engineering, and advanced computer systems applications. He has served as a Chief Test Engineer and as an interim engineering section manager.

Mr. Zimmerman's most recent assignment has been as a consultant to the DOE Office of River Protection, where he helped provide oversight of the Waste Treatment Plant Project in the area of nuclear safety.

Mr. Zimmerman has previously held Q and Secret clearances.



**Gary Zimmerman** – Gary Zimmerman has over 40 years of experience in the nuclear power industry, working with utilities and Department of Energy (DOE) facilities. He has expert knowledge of 10CFR, particularly Parts 50, 52, 72, and 830. He managed the nuclear regulation and licensing activities for an operating nuclear power plant, managed the Unreviewed Safety Question Determination (USQD) program at a DOE facility, managed the development of hazards analysis and the preparation of a site Safety Analysis Report at a DOE facility, and performed periodic assessments of USQD processes at DOE facilities.

Mr. Zimmerman was responsible for obtaining the Independent Spent Fuel Storage Installation (ISFSI) for the Trojan Nuclear Plant, assisting in the decommissioning activities for Trojan and developing a draft decommissioning plan for the Westinghouse Hematite Fuel Fabrication Facility. He has performed numerous USQ Program Assessments at Los Alamos National Laboratory and the Savannah River Site.

Mr. Zimmerman has a B. S. in General Engineering from the U. S. Naval Academy and a M. S. in Psychology Counseling from Pacific University. He has extensive project management experience and was certified as a Project Management Professional and registered as a Professional Engineer.





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