

# **APPENDIX I**

# **PREPARERS**

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## I.1.0 PREPARERS

### I.1.1 OFFICE OF RIVER PROTECTION

**Robert M. Yasek**, Physical Scientist

B.S. Geophysics, New Mexico Institute of Mining and Technology 1984

Mr. Yasek has over 16 years of experience in leadership and management of government projects, both military and civilian. He currently serves as the Department of Energy project manager for the Hanford Tank Farms Vadose Zone Project. Prior to working at Hanford, he was the Department of Energy Lead for Thermal Testing for the DOE Yucca Mountain Project. Additional duties at the Yucca Mountain Project included project management of borehole geophysics for the high-level waste repository program. Mr. Yasek's military experience includes project management for flight testing of advanced weapons systems for the U.S. Air Force and operations of radar and command, control and communications (C<sup>3</sup>) systems. Between military and civilian government service, Mr. Yasek worked as a field geophysicist for a privately owned company, specializing in borehole geophysics.

### I.1.2 CORE TEAM

**Frank J. Anderson**, Scientist, CH2M HILL Hanford Group, Inc.

B.S. Geological Engineering, Colorado School of Mines 1964  
M.S. Geological Engineering, University of Arizona 1968

Mr. Anderson has over 31 years of experience as a geological engineer, environmental consultant, government manager, and professor involving environmental characterization, compliance and remediation, mining, geology, water resources development, and program and project management. He has worked as a consultant at five Department of Energy sites during the past decade: Hanford and Oak Ridge reservations, Portsmouth and Paducah Gaseous Diffusion Plants, and Idaho National Engineering and Environmental Laboratory. He has also been a manager for the U.S. Geological Survey and the U.S. Office of Surface Mining, and an assistant professor of geology. Mr. Anderson was responsible for fiscal year 2001 interim measures engineering design and construction activities for the Tank Farm Vadose Zone Project and prepared Section 3.5 and Appendix F in this document.

**Dwayne Crumpler**, Senior Hydrogeologist, Columbia Engineering and Environmental Services

B.S. Geology, Lamar University 1985  
M.S. Geology, Baylor University 1989

Mr. Crumpler has over 15 years of experience in groundwater field investigations related to RCRA facility investigations and CERCLA remedial investigations at municipal landfills, Department of Defense, and Department of Energy facilities. He serves as a Senior Geologist and Regulatory Specialist for the preparation of various RCRA and NEPA documents related to the Hanford Site. He has conducted and analyzed seismic field studies, aquifer pumping tests and slug tests, installed monitoring wells and soil borings, and conducted groundwater and

surface-water sampling programs at Department of Energy and Department of Defense facilities. He has prepared the site-specific work plans associated with the single-shell tanks RCRA corrective action program and has been involved in the single-shell tank retrieval program. He was the coordinator for the document and preparation of the human health risk analyses, regulatory analyses, introduction, approach, conclusions, and recommendations for this document.

**Sonia Enloe**, Senior Administrative Secretary, Pacific Northwest National Laboratory

Ms. Enloe currently provides direct administrative support to Dr. John Zachara within the Environmental Dynamics and Simulations Directorate at the W.R. Wiley Environmental Molecular Sciences Laboratory. Ms. Enloe has 13 years of administrative experience, 12 of which have been working with Dr. Zachara. In her position, she performs full secretarial, administrative, and general office duties of a responsible and confidential nature. Ms. Enloe formatted and edited Appendix D for the WMA B-BX-BY field investigation report.

**Vernon G. Johnson**, Staff Scientist V, Pacific Northwest National Laboratory

B.S.	Geology and Chemistry, Oregon State University	1964
M.S.	Oceanography and Chemistry, Oregon State University	1966
Ph.D.	Oceanography and Water Resources, Oregon State University	1979

Dr. Johnson has over 30 years experience in surface and groundwater environmental aspects of nuclear and hazardous waste and is a licensed hydrogeologist in the state of Washington. He has been involved in groundwater and site characterization activities at the Hanford Site since 1983. He conducted RCRA groundwater assessments at Hanford single-shell tank farm waste management areas from 1996 until April 2002. Prior to coming to Hanford, he was a health physicist at Grand Junction, Colorado and at several nuclear facilities at the Idaho National Engineering and Environmental Laboratory where he was involved in nuclear safety assessments, effluent monitoring, and radionuclide transport studies. In his earlier career, he conducted radioecological research in the Columbia River and estuary while at Oregon State University and transport and fate studies of hazardous chemicals in soils while employed at the Environmental Protection Agency Environmental Research Laboratory in Corvallis, Oregon. He was responsible for preparation of the groundwater contamination and related sections of the B-BX-BY field investigation report.

**Thomas E. Jones**, Principal Scientist, CH2M HILL Hanford Group, Inc.

B.S.	Chemistry, College of Great Falls	1970
Ph.D.	Chemistry, Washington State University	1974

Tom Jones holds a Ph.D. in Inorganic/Analytical Chemistry from Washington State University and has over 20 years experience at the Hanford Site in the areas of tank waste characterization, development of tank waste inventory estimates, and tank farm vadose zone investigations. Over the past four years, Dr. Jones has led the task developing tank leak inventory estimates.

**Raziuddin Khaleel**, Consulting Engineer, Environmental and Nuclear Initiatives, Fluor Federal Services

B.S.	Civil Engineering, Bangladesh University of Engineering and Technology	1966
M.S.	Water Science and Engineering, Asian University of Technology	1970
Ph.D.	Soil and Water Engineering, Texas A&M University	1977

Dr. Khaleel has over 30 years of experience in groundwater hydrology and numerical simulations of subsurface flow and transport. He was a key contributor to the Hanford Site solid waste performance assessments and the immobilized low-activity waste performance assessment, particularly in the area of conceptual model development, direction of modeling, and in writing the document. For this document, he was responsible for creating the modeling data package, coordinating the modeling work, and writing of several sections.

**Anthony J. Knepp**, Manager, CH2M HILL Hanford Group, Inc.

B.S.	Engineering, Johns Hopkins University	1971
M.S.	Environmental Systems Engineering, Clemson University	1973

Anthony Knepp was responsible for the management and direction of the field investigation report including its conclusions and recommendations. Mr. Knepp has over 25 years of experience in environmental cleanup and has worked as a consulting engineer, project engineer, government manager, and project manager. His experience includes water resources planning, development of water supply systems, construction of industrial treatment facilities, and environmental characterization and cleanup. For the last 10 years, he has concentrated on remediation of radiologically contaminated groundwater and soils.

**Karrol D. Lehman**, Senior Technical Writer/Editor, Mid-Columbia Engineering, Inc.

B.A.	Biology, Central Washington University	1975
J.D.	University of Puget Sound School of Law	1987

Ms. Lehman has over 29 years of experience in regulatory programs, environmental compliance, safety analysis and authorization basis documentation, and laboratory analyses. She has provided technical and administrative expertise on regulatory compliance issues, authorization basis management, regulatory inspections and audits, commitment tracking, and other topics related to environmental compliance and radiological, nuclear, and process safety. She has coordinated the production and assisted in the development and drafting of formal safety documentation for Department of Energy facilities and has provided legal support, litigation preparation, and case management support for a corporate legal department. She has conducted training courses in various settings and is a Certified Hazardous Materials Manager.

Ms. Lehman was the technical information coordinator for this field investigation report and maintained and coordinated the document production schedule in addition to providing technical editing support.

**Clark W. Lindenmeier**, Senior Research Scientist, Pacific Northwest National Laboratory, Applied Geology and Geochemistry Group

B.S.	Biology/Genetics option and Psychology minor, Washington State University	1984
M.S.	Psychology (clinical emphasis), Eastern Washington University	1986
M.S.	Environmental Sciences (Earth Sciences option), Washington State University	1996

Mr. Lindenmeier currently is the Pacific Northwest National Laboratory (PNNL) project manager under the direction of the Tank Farm Vadose Zone Project supporting the Office of River Protection. Mr. Lindenmeier is responsible for supervising the PNNL laboratory and data management activities associated with the Tank Farm Vadose Zone Project and coordinating the laboratory investigation activities to meet the project objectives of senior PNNL and CH2M HILL Hanford Group, Inc. technical staff. Mr. Lindenmeier has 18 years of laboratory experience with areas of emphasis in experimental design, analytical measurements, data management, data quality objectives, and project planning.

**Frederick M. Mann**, Scientist, CH2M HILL Hanford Group, Inc.

B.S.	Physics, Stanford University	1970
Ph.D.	Physics, California Institute of Technology	1975

Dr. Mann is the team leader for the immobilized low-activity waste performance assessment activity, which is charged with preparing this document. He was the main author of the 1998 and 2001 versions of the Hanford *Immobilized Low-Activity Tank Waste Performance Assessment*. He has worked for over 25 years in the field of nuclear data and the application of those data to large energy facilities. He has advised the Department of Energy and the International Atomic Energy Agency. He was the chief internal reviewer of the document.

**David A. Myers**, Scientist, CH2M HILL Hanford Group, Inc.

B.S.	Geology, University of Puget Sound	1965
M.S.	Geology and Hydrology, University of Idaho	1967

David Myers is a registered professional geologist in Idaho and Oregon. His work has focused on water resources, as well as environmental monitoring and remediation of groundwater contamination. Since arriving at the Hanford Site in 1974, Mr. Myers has provided technical support for the Site-Wide Groundwater Monitoring Program, as well as early development of the *Resource Conservation and Recovery Act of 1976* monitoring program for the low-level waste burial grounds. He served as a senior hydrogeologist within the environmental restoration program, actively participating in the design and implementation of groundwater remediation projects. He supports the Tank Farm Vadose Zone Project as a technical coordinator, ensuring that multiple aspects of this complex problem are integrated and coordinated. For this document, he was responsible for preparing the geology sections and field investigation activities sections in Sections 2.0 and 3.0 and Appendices B and C.

**R. Jeffrey Serne**, Staff Scientist, Pacific Northwest National Laboratory, Applied Geology and Geochemistry Group

B.S.	Chemistry, University of Washington	1969
B.S.	Oceanography, University of Washington	1969

Mr. Serne currently is leading the Pacific Northwest National Laboratory applied geochemical research and characterization efforts supporting the Office of River Protection Vadose Zone and Immobilization Low-Activity Waste Projects. The goal of the Vadose Zone Project is to determine the distribution of contaminants that have leaked from SSTs and their future fate. Mr. Serne is also lead geochemist for the near-field and the far-field geochemical studies for the proposed immobilized low-activity waste repository. Mr. Serne is a co-investigator/collaborator on four Environmental Management Science Program basic science projects pertaining to the vadose zone. He was lead author on the two borehole characterization reports in support of the field investigation report. Mr. Serne was co-author of Appendix B.

**Harold A. Sydnor**, Scientist, CH2M HILL Hanford Group, Inc.

B.S.	Geology, Western Kentucky University	1979
M.S.	Environmental Resource Management, University of Findlay	1998

Mr. Sydnor is the team leader for characterization activities inside the single-shell tank farms. He has over 20 years of experience performing geologic and hydrogeologic investigations and evaluations in the private and public sectors. He was the field team leader for characterization activities associated with the work plan addendum.

**Marcus I. Wood**, Principal Scientist, Fluor Hanford, Inc.

B.S.	Geology, University of North Carolina	1973
Ph.D.	Geology, Brown University	1980

Dr. Wood currently is responsible for developing the performance assessment analyses for the disposal of solid low-level waste at the Hanford Site. He is the coordinating author of the Hanford Site solid waste performance assessments and has been largely responsible for the integration and the interpretation of the analytical results in those documents. He has coordinated similar analyses for the Environmental Restoration Disposal Facility (ERDF), at which wastes generated in the remediation of Hanford Site waste sites that are regulated under the *Comprehensive Environmental Resource Conservation and Recovery Act of 1981* and the 200 West Area low-level burial grounds are disposed. He has directed numerous projects to quantify the geochemical properties of radionuclides in the Hanford Site geohydrologic environment. He also was responsible for developing a multifunctional waste package backfill material for isolating spent fuel and high-level waste. He was responsible for the conceptual model and for writing portions of Sections 3 and 5, and Appendix B.

**John M. Zachara**, Chief Scientist VI, Pacific Northwest National Laboratory

B.S.	Chemistry and Geology, Bucknell University	1973
M.S.	Soil/Watershed Chemistry, University of Washington	1979
Ph.D.	Soil Chemistry, Washington State University	1986

Dr. Zachara is chief scientist and one of four associate scientific directors of the William R. Wiley Environmental Molecular Sciences Laboratory (EMSL) at Battelle, Pacific Northwest National Laboratory. The EMSL is a state-of-science U.S. Department of Energy user facility focused on environmental molecular science. Dr. Zachara employs various molecular spectroscopies, electron and scanning probe microscopies, and modeling techniques in the study of contaminant geochemistry. He has performed research on these subjects for over 25 years and is the author of over 120 scientific publications. Dr. Zachara coordinates EMSL research focused on the Hanford Site vadose zone, and he functioned as chief scientist for the Science and Technology portion of the B-BX-BY tank farms study that is summarized in Appendix D.

**I.1.3 PEER REVIEW TEAM**

Charles R. Cole	Pacific Northwest National Laboratory
Karl R. Fecht	Bechtel Hanford, Inc.
Bruce H. Ford	Fluor Hanford, Inc.

**I.1.4 SUPPORT TEAM****I.1.4.1 Field Work**

Kevin Hartelius (Health Physics Technician)	CH2M HILL Hanford Group, Inc.
Lisa Hartley (Nuclear Chemical Operator)	CH2M HILL Hanford Group, Inc.
Klint Johnson (Field Work Supervisor)	CH2M HILL Hanford Group, Inc.
Kelly Olson	Resonant Sonics International
Steve Olson	Resonant Sonics International
Loyd Petty (Field Work Supervisor)	CH2M HILL Hanford Group, Inc.
Kent Reynolds	Duratek Federal Services
Rick Sharp (Nuclear Chemical Operator)	CH2M HILL Hanford Group, Inc.
Dave Skoglie (Site Safety Designer)	Duratek Federal Services
Scott Snook (Nuclear Chemical Operator)	CH2M HILL Hanford Group, Inc.
Greg Sullivan (Nuclear Chemical Operator)	CH2M HILL Hanford Group, Inc.

**I.1.4.2 Computer Modeling and Risk Calculations**

Robert Emmel	Jacobs Engineering Group, Inc.
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Vicky Freedman	Pacific Northwest National Laboratory
Mark D. White	Pacific Northwest National Laboratory
Mark D. Williams	Pacific Northwest National Laboratory

### I.1.4.3 Laboratory Measurements and Analysis

Steven R. Baum	Pacific Northwest National Laboratory
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Christopher F. Brown	Pacific Northwest National Laboratory
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Clark W. Lindenmeier	Pacific Northwest National Laboratory
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### I.1.4.4 Science and Technology Participants

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Paul L. Gassman	Pacific Northwest National Laboratory
Glendon W. Gee	Pacific Northwest National Laboratory
Steven M. Heald	Argonne National Laboratory; Pacific Northwest National Laboratory
Peter C. Lichtner	Los Alamos National Laboratory
Chongxuan Liu	Pacific Northwest National Laboratory
James P. McKinley	Pacific Northwest National Laboratory
Zheming Wang	Pacific Northwest National Laboratory
Anderson L. Ward	Pacific Northwest National Laboratory
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Zhuanfang L. Zhang	Pacific Northwest National Laboratory

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