

APPENDIX B

ACRONYMS AND ABBREVIATIONS BIBLIOGRAPHY

AA	Atomic Absorption
A&PCT	Active and Passive Computed Tomography (non-destructive assay technique)
AEU	Analytical Equivalent Unit - The analytical burden associated with full analysis of a typical five-segment Hanford tank core sample
AFB	Air Force Base
AGL	Above Ground Level
AL	Albuquerque Operations Office
ALARA	As Low as Reasonably Achievable
ALCD	Alternative Landfill Cover Demonstration
Am	Americium
ANL	Argonne National Laboratory
ANS	American Nuclear Society
ANSI	American National Standards Institute
AOTF	Acousto-Optic Tunable Filter
APNEA	Active and Passive Neutron Examination and Assay (system)
APSF	Actinide Packaging and Storage Facility (at the Savannah River Site)
As	Arsenic
ARA	Applied Research Associates, Inc.
ARARs	Applicable or Relevant and Appropriate Requirements
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
ASV	Anodic Stripping Voltammetry
AVIRIS	Airborne Visible/Infrared Imaging Spectrometer
AVLIS	Atomic Vapor Laser Isotope Separation
Ba	Barium
BACT	Best Available Control Technology
BAR	Bulk Acoustic Resonator
BCL	Battelle Columbus Laboratories
BDAT	Best Demonstrated Available Technology
Be	Beryllium
bgs	below ground surface
BHC	Bechtel Hanford Company
BLM	Bureau of Land Management
BNL	Brookhaven National Laboratory
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethyl Benzene, Xylene
C	Celcius
Ca	Calcium
CAA	Chemical Analysis Automation and Clean Air Act
CAAA	Clean Air Act Amendments (of 1990)
CAO	Carlsbad Area Office
CCD	Charge Coupled Device
Cd	Cadmium
CEM	Continuous Emission Monitor
CEPA	California Environmental Protection Agency
CFR	Code of Federal Regulations

CH	Chicago Operations Office
CHC	Chlorinated Hydrocarbons
CIF	Consolidated Incineration Facility (a rotary kiln incinerator with wet/dry offgas treatment and integral ash handing/treatment capability at the DOE Savannah River Site)
CIM	Cylindrical Induction Melter
Cm	Curium
CMST	Characterization, Monitoring, and Sensor Technology
CMST-CP	Characterization, Monitoring, and Sensor Technology - Crosscutting Program
CMST-IP	Characterization, Monitoring, and Sensor Technology - Integrated Program
CMW	Charles Machine Works Inc.
CNDE	Center for Non-Destructive Evaluation
CPS	Cone Penetrometer System
CPT	Cone Penetrometer Technology, Cone Penetrometer Truck, Cone Penetrometer Test
Cr	Chromium
CRADA	Cooperative Research and Development Agreement
Cs	Cesium
CSCT	Consortium for Site Characterization Technologies (EPA/DOE/DoD)
CT	Computed Tomography
CVAAS	Cold Vapor Atomic Absorption Spectrometry
CVD	Chemical Vapor Deposition
CWA	Clean Water Act
D&D	Deactivation and Decommissioning
DDFA	Deactivation and Decommissioning Focus Area
DIAL	Diagnostic Instrumentation and Analysis Laboratory (Mississippi State University)
DNAPL	Dense Non-Aqueous Phase Liquids
DOAS	Differential Optical Absorption Spectrometry
DOC	Department of Commerce
DoD	Department of Defense
DOE	Department of Energy
DOI	Department of Interior
dpm	Disintegrations Per Minute
DQO	Data Quality Objective: Statement that specifies the data needed to support decisions regarding remedial response activities.
DSITMS	Direct Sampling Ion Trap Mass Spectrometry
DWPF	Defense Waste Processing Facility (vitrification plant)
EDTA	Ethylenediamine tetraacetic acid
EES	Excitation Emission Spectra
EIC	EIC Inc.
EIS	Environmental Impact Statement
EIT	Electrical Impedance Tomography
EM	Office of Environmental Management
EM-1	Office of the Assistant Secretary for Environmental Management
EM-2	Principal Deputy Assistant Secretary for Environmental Management
EM-10	Office of Policy, Planning, and Budget
EM-20	Office of Integration and Disposition
EM-30	Office of Site Closure, formerly Office of Waste Management
EM-40	Office of Project Completion, formerly Office of Environmental Restoration
EM-50	Office of Science and Technology, formerly Office of Nuclear Material and Facility Stabilization
EM-51	Office of Long Term Stewardship
EM-52	Office of Basic and applied Research
EM-53	Office of Technology Development and Demonstration
EM-54	Office of Technology Application
EMI	Electro-Magnetic Induction

EML	Environmental Measurements Laboratory (DOE, New York)
EMM	Laser-Induced Fluorescence Imaging, Laser-Induced Fluorescence Spectroscopy excitation-emission spectra, three-dimensional matrix
EMWD	Environmental Measurement While Drilling
EN	Electrochemical Noise
EPA	Environmental Protection Agency
Epcot	Walt Disney World/Epcot Center, Orlando, Florida
ERT	Electrical Resistance Tomography
ERWM	Office of Environmental Restoration and Waste Management
ESC	Expedited Site Characterization
ES&H	Environment Safety and Health
ESP	Electrostatic Precipitator or Extended Sludge Processing
ESP-CP	Efficient Separations and Processing Crosscutting Program
eV	Electron Volt
FD&R	Function, Design, and Requirements
Fe	Iron
FEMP	Fernald Environmental Management Project
FET	Field Effect Transistor
FETC	Federal Energy Technology Center, formerly Morgantown Energy Technology Center (METC) now National Energy Technology Laboratory (NETL)
FFP	Fiber-Optic Fabry-Perot Interferometer
FID	Flame Ionization Detector
FIU-HCET	Florida International University - Hemispheric Center for Environmental Technology
FM	Frequency Modulation
FONSI	Finding of No Significant Impact (issued by DOE)
FTAM	Flow Through Alpha Monitor
FTIR	Fourier Transform Infrared Spectroscopy
FTP	File Transfer Protocol
FUSRAP	Formerly Utilized Sites Remedial Action Program at Luckey, Ohio.
FY	Fiscal Year
GAAT	Gunite and Associated Tank (ORNL Project)
GAO	U.S. General Accounting Office
GC	Gas Chromatography
GC-MS	Gas Chromatography - Mass Spectrometry
Ge	Germanium
GFAAS	Graphite Furnace Atomic Absorption Spectrometry
GFC	Gas Filter Correlation (multiple wavelength infrared spectroscopy)
gfp	green fluorescent protein
GIF	Graphics Interchange File (format)
GIS	Geographic Information System
GMT	Geiger-Mueller Tube
GISC	Generic Intelligent Systems Control (computer control system for robotics)
GNAT	Gamma-Neutron Assay Technique
GPR	Ground Penetrating Radar
GPS	Global Positioning System
GRS	Gamma Ray Spectrometer
HAP	Hazardous Air Pollutant
HAZWRAP	Hazardous Waste Remediation Action Program
HDD	Horizontal Directional Drilling
He	Helium
HEPA	High-Efficiency Particulate Air (filter)
HEU	Highly Enriched Uranium
HEUN	Highly Enriched Uranyl Nitrate

Hg	Mercury
HLW	High-Level Waste
HQ	U. S. Department of Energy Headquarters
HSP	Health and Safety Plan
HTI	Hanford Tank Initiative
HTML	Hypertext Markup Language
HTO	Hydrothermal Oxidation
HTTP	Hypertext Transport Protocol
HWI	Hazardous Waste Incinerator
IAG	Interagency Agreement
IBA	Integrated Biological Assessment
IC	Ion Chromatography
ICAS	Integrated Characterization and Archiving System
ICP	Inductively Coupled Plasma
ICP-AES	Inductively Coupled Plasma-Atomic Emission Spectrometry
ICP-MS	Inductively Coupled Plasma-Mass Spectrometry
ICPP	Idaho Chemical Processing Plant
ICRP	International Commission on Radiological Protection
ID	Idaho Operations Office or Identification
IDW	Investigation-Derived Waste
IH	Industrial Hygiene
IMS	Ion Mobility Spectrometry
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Engineering and Technology Center
IP	Integrated Program
IPAN	Imaging Passive & Active Neutron (non-destructive assay technique)
IP-CMST	Integrated Program - Characterization, Monitoring, and Sensor Technology
IR	Infrared
IRS	Internal Reflection Sensor
ISE	Ion Selective Electrode
ISBN	International Standard Book Number
ISOCS	<i>In Situ</i> Object Counting System software
ISV	<i>In Situ</i> Vitrification
ITSR	Innovative Technology Summary Report
IWPF	Idaho Waste Processing Facility (for treatment of alpha-contaminated waste)
IWTF	Idaho Waste Treatment Facility
IWTP	Idaho Waste Treatment Program
JCCEM	Joint Coordinating Committee for Environmental Restoration and Waste Management
K	Potassium
K-edge	Absorption Transition in X-ray Transmission Measurements
keV	One Thousand Electron Volts
LAER	Lowest Achievable Emission Rate
LANL	Los Alamos National Laboratory
LASS	Laser Spark Spectroscopy
LAW	Low-Activity Waste
LBNL	Lawrence Berkeley National Laboratory
LC	Liquid Chromatography
LEL	Lower Explosive Limit
LESAT	Lockheed Environmental Systems and Technologies Company
LEU	Low Enriched Uranium
LIBS	Laser-Induced Breakdown Spectroscopy
LIF	Laser-Induced Fluorescence

LIFI	Laser-Induced Fluorescence Imaging
LIFS	Laser-Induced Fluorescence Spectroscopy
LITCO	Lockheed Idaho Technologies Company
LLNL	Lawrence Livermore National Laboratory
LLW	Low Level Waste
LMER	Lockheed Martin Energy Research Corporation
LMES	Lockheed Martin Energy Systems Corporation
LMHC	Lockheed Martin Hanford Corporation
LMITCO	Lockheed Martin Idaho Technology Company
LMSC	Lockheed Martin Specialty Components Corporation
LNAPL	Light Non-Aqueous Phase Liquids
LOD	Limit of Detection
LOGS	Laser Optogalvanic Spectrometry
LRAD	Long Range Alpha Detector
LSDDP	Large-Scale Demonstration and Deployment Project
LSDP	Large-Scale Demonstration Project
LSEER	Linear Solvation Energy Relationships
LSFA	Landfill Stabilization Focus Area
LTTD	Low Temperature Thermal Desorption
LW	Lamb Wave
M	Molar
MACT	Maximum Achievable Control Technology
M&O	Management and Operations Contractor
MAWS	Minimum Additive Waste Stabilization
MCA	Multi-Channel Analyzer
MCL	Maximum Contaminant Level: Established under the Safe Drinking Water Act.
MCLG	Maximum Contaminant Level Goal: Established under the Safe Drinking Water Act.
MDA	Minimum Detectable Activity
MEO	Mediated Electrochemical Oxidation
METC	Morgantown Energy Technology Center, presently National Energy Technology Laboratory, formerly Federal Energy Technology Center (FETC)
Mg	Magnesium
MIME	Multipurpose Internet Mail Extensions
MINATOM	Ministry of Atomic Energy of the Russian Federation
MIP	Microwave Induced Plasma
3M	Minnesota Mining and Manufacturing Corporation
MMES	Martin Marietta Energy System Corporation
MMR	Massachusetts Military Reserve, Cape Cod, Massachusetts (Camp Edwards)
Mn	Manganese
MOU	Memorandum of Understanding
MS	Mail Stop
MSU	Mississippi State University
MSW	Municipal Solid Waste
MWFA	Mixed Waste Characterization, Treatment, or Disposal Focus Area or Mixed Waste Focus Area
MWIR	Mixed Waste Inventory Report
MYPP	Multi-Year Program Plan
MYWP	Multi-Year Work Plan
Na	Sodium
NAA	Neutron Activation Analysis
NAAQS	National Ambient Air Quality Standards
NaI(Tl)	Sodium-Iodide (thallium-doped) Spectrometer
NAPL	Non-Aqueous Phase Liquid
NAS	National Academy of Science

NASA	National Aeronautics and Space Administration
NDA	Non-Destructive Assay
NDE	Non-Destructive Evaluation
NDEP	Nevada Division of Environmental Protection
NDIR	Non-Dispersive Infrared
NEPA	National Environmental Policy Act
NETL	National Energy Technology Laboratory, formerly Federal Energy Technology Center (FETC), and Morgantown Energy Technology Center (METC)
NIR	Near Infrared
NLT	Not Later Than
NMFA	Nuclear Materials Focus Area (formerly Plutonium Focus Area)
NMR	Nuclear Magnetic Resonance
NO3-	nitrate
NO2-	nitrite
No.	Number
NOI	Notice of Intent
NORM	Naturally Occurring Radioactive Materials
NPL	National Priorities List: A list of sites identified for remediation under CERCLA.
NRC	Nuclear Regulatory Commission or National Research Council
NV	Nevada Operations Office
OCRWM	Office of Civilian Radioactive Waste Management (DOE)
OD	Outside Diameter
OEM	Original Equipment Manufacturer
OGI	Oregon Graduate Institute
OH	Ohio Operations Office
OH-	Hydroxide
OLE	Object Linking and Embedding
OMA	Optical Multichannel Analyzer
OR	Oak Ridge Operations Office
ORR	Oak Ridge Reservation
ORNL	Oak Ridge National Laboratory
ORP	Oxidation-Reduction Potential
OSHA	Occupational Safety and Health Administration
OST	Office of Science and Technology
OTD	Office of Technology Development
OVM	Organic Vapor Meter
PACT	Plasma Arc Centrifugal Treatment
PAHs	Polynuclear Aromatic Hydrocarbons
PAN	Passive/Active Neutron (non-destructive assay technique)
Pb	Lead
PC	Personal Computer
PCBs	Polychlorinated Biphenyls
PCDDs	Polychlorinated Dibenzo-p-Dioxins
PCDFs	Polychlorinated Dibenzofurans
PCE	Perchloroethylene
PCF	Plasma Centrifugal Furnace
PCI	Peripheral Component Interconnect
PCP	Pentachlorophenol
PCT	Patent Cooperation Treaty or Product Consistency Test
PDA	Photodiode Array
PDF	Portable Document Format
PEL	Permissible Exposure Limit
PEM	Personal Exposure Monitor
PFPE	Perfluoropolyether(s)

PGE	Pacific Gas & Electric
PGNAA	Prompt Gamma Neutron Activation Analysis
pH	Measure of Effective Hydrogen-Ion Concentration or Hydrogen-Ion Activity
PI	Principal Investigator
PID	Photo Ionization Detector
PINS	Portable Isotopic Neutron Spectroscopy (chemical assay system)
PIX	Alcohol Micro-Injection/Extraction Test
PIXE	Proton Induced X-Ray Emission Spectroscopy
PLC	Programmable Logic Controller
PM	Particulate Matter
PMT	Photomultiplier Tube
PNNL	Pacific Northwest National Laboratory
POC	Physics Optics Corporation
ppb	parts per billion
PPE	Personal Protective Equipment
ppm	parts per million
PRDA	Program Research and Development Announcement
Pu	Plutonium
PuFA	Plutonium Focus Area
PVC	polyvinyl chloride
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
R	Roentgen
R&D	Research and Development
RA	Remedial Action
RACT	Reasonably Available Control Technology
rad	Radiation Absorbed Dose
RBX-CP	Robotics Technology Development Crosscutting Program
RCI	Rapid Commercialization Initiative
RCRA	Resource Conservation and Recovery Act
RCRA Metals	Ag, As, Ba, Be, Cd, Cr (hexavalent), Hg, Pb, Ni, Sb, Se, Tl (thallium)
RD	Remedial Design
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine – an explosive
rem	Roentgen Equivalent Man
RESL	Radiological and Environmental Sciences Laboratory (Idaho)
RFA	Request for Assistance
RfD	Reference Dose: An estimate (with uncertainty spanning perhaps an order of magnitude) of a daily exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious effects during a lifetime.
RFETS	Rocky Flats Environmental Technology Site
RFH	Radio Frequency Heating
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study (Under CERCLA - processes used to assess site conditions and evaluate alternatives to the extent necessary to select a remedy)
RKIS	Rotary Kiln Incinerator Simulator (Research Triangle Park, NC)
RL	Richland Operations Office
RLS	Rapid Liquid Sampler
RMI	Reactive Metals Inc. (Uranium extrusion site near Ashtabula, Ohio)
RMRS	Rocky Mountain Remedial Services (formed by BNFL and Morrison-Knudsen)
RNS	Ribbon NAPL Sampler
ROA	Research Opportunity Announcement
ROI	Region of Interest

ROSE	Residual Organic Stack Emission
RTAL	Road Transportable Analytical Laboratory
RTDF	Remedial Technology Development Forum (a consortium of federal agencies and private companies that promotes the sharing of information and collaboration in environmental technology demonstrations)
RTDP	Robotics Technology Development Program
RTF	Remote Treatment Facility (Idaho Remote-Handled Mixed Waste Treatment facility)
RTG	Radioisotopic Thermoelectric Generator
RTP	Research Triangle Park (North Carolina)
SAIC	Scientific Application International Corporation
SAIC STAR	Science and Technology Applications Research facility
SAP	Sampling and Analysis Plan
SAW	Surface Acoustic Wave
SBIR	Small Business Innovation Research (program)
SCAPS	Site Characterization and Analysis Penetrometer System
SCFA	Subsurface Contaminants Focus Area
SDWA	Safe Drinking Water Act
SEA	Science and Engineering Associates, Inc.
SERDP	Strategic Environmental Research and Development Program (Established under the DoD Authorization Bill.)
SF	San Francisco Operations Office
SGFET	Suspended Gate Field Effect Transistor
SGS	Segmented Gamma Scanner
Si	Silicon
SIMS	Secondary Ion Mass Spectrometry
SITE	Superfund Innovative Technology Evaluation Program (EPA)
SLIP	Serial Line Internet Protocol
SLS	Solid Liquid Separator System
SMTP	Simple Mail Transfer Protocol
SMTS	Slurry Monitoring Test System
SNCR	Selective Non-Catalytic Reduction
SNF	Spent Nuclear Fuel
SNL	Sandia National Laboratories
SNM	Special Nuclear Material
SNMP	Simple Network Management Protocol
SOP	Standard Operating Procedures
SSEB	Southern States Energy Board
SOW	Statement of Work
SPE	Solid Phase Extraction
SR	Savannah River Operations Office
SRS	Savannah River Site
SRTC	Savannah River Technology Center
SSAB	Site Specific Advisory Board
STAR	Science and Technology Applications Research Center (an SAIC facility in Idaho Falls, Idaho)
STCG	Site Technology Coordination Group
STL	Special Technologies Laboratory
STTR	Small Business Technology Transfer (program)
SVE	Soil Vapor Extraction
SVOA	Semi-Volatile Organic Analyses
SW	Solid Waste
SWAMI	Stored Waste Autonomous Mobile Inspector (robotics)
SWANA	Solid Waste Association of North America
SWB	Standard Waste Box (for burial)
SWEPP	Stored Waste Examination Pilot Plant (Idaho)

SWIFT	Stored Waveform Inverse Fourier Transform
Tc	Technetium
TCE	Trichloroethylene
TCL	Target Compound List
TCP	Two-Color Pyrometry
TCIRP	Two-Color Infrared Pyrometer (Pyrometry)
TCLP	Toxicity Characteristic Leach Procedure
TCP/IP	Transmission Control Protocol / Internet Protocol
2-D	Two-Dimensional
3-D	Three-Dimensional
TDGC/MS	Thermal Desorption Gas Chromatography/Mass Spectrometry
TDL	Tunable Diode Laser
TDR	Time Domain Reflectometry Probe
Te	Tellurium
TES	Thermal Emission Spectroscopy
TEVES	Thermally Enhanced Vapor Extraction System
TFA	Radioactive Tank Waste Remediation Focus Area or Tanks Focus Area
TFR	Thin Film Resonator
TFT	Thin Film Transistor
TGS	Tomographic Gamma Spectrometry (non-destructive assay technique)
Th	Thorium
TIE	Technology Information Exchange
TIFF	Tagged Image File Format
TIP	Technology Insertion Point
Tl	Thallium
TLV	Threshold Limit Value (maximum levels allowed in atmospheres to which healthy industrial workers are exposed)
TMS	Technology Management System
TMWFA	Transuranic/Mixed Waste Focus Area
TPH	Total Petroleum Hydrocarbons
TPM	Technical Program Manager
TPO	Technical Program Officer
TRU	Transuranic (TRU waste contains more than 100 nanoCuries/gram of alpha-emitting radionuclides with half-lives greater than 20 years.)
TSC	Task Sequence Control
TSCA	Toxic Substances Control Act
TSCAI	Toxic Substances Control Act Incinerator (a rotary kiln incinerator with wet offgas treatment and limited solids/ash handling capability at DOE Oak Ridge site)
TSS	Total Suspended Solids
TST	Technology Support Team
TTP	Technical Task Plan
TWA	Time Weighted Average
TWRS	Tank Waste Remediation System
U	Uranium
U (VI)	Uranium +6 Valence Oxide
UMTRA	Uranium Mill Tailings Remedial Action
URL	Uniform Resource Locator (World Wide Web)
USGS	U.S. Geological Survey
UTS	Universal Treatment Standards (EPA for hazardous waste) (40 CFR 268.40)
UV	Ultraviolet
UVB	Unterdruck-Verdampher-Brunnen (an <i>in situ</i> [in well]) groundwater remediation technology that combines air-lift pumping and air stripping to clean aquifers contaminated with VOCs - Roy F. Weston Inc./IEG Technologies Corporation)
VLF	Very Low Frequency

VOC	Volatile Organic Compound
WAC	Waste Acceptance Criteria
WDC	Whole Drum Counter
WEDF	Waste Experimental Demonstration Facility (Idaho)
WERC	Waste Management Education & Research Consortium
WERF	Waste Experimental Reduction Facility (at INEEL)
WES	Waterways Experiment Station (U.S. Army Corps of Engineers)
WESF	Waste Encapsulation and Storage Facility (Hanford)
WGA	Western Governors Association
WIPP	Waste Isolation Pilot Plant
WIT	Waste Inspection Tomography
WPI	Waste Policy Institute
WPRR	Work Plan Revision Request
WRAP	(Hanford) Waste Receiving and Processing (facility)
WSRC	Westinghouse Savannah River Company
WWW	World Wide Web
XANES	X-Ray Absorption Near-Edge Spectroscopy
XAS	X-Ray Absorption Spectroscopy
XPS	X-Ray Photoelectron Spectroscopy
XRD	X-Ray Diffraction
XRF	X-Ray Fluorescence
Zn	Zinc