

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		1. CONTRACT ID CODE	PAGE <b>1</b>	OF <b>1</b>	PAGES <b>4</b>
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2. AMENDMENT/MODIFICATION NO. <b>M920</b>	3. EFFECTIVE DATE (M/D/Y) See Block 16C	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
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6. ISSUED BY CODE <b>U.S. Department of Energy Pacific Northwest Site Office Post Office Box 350 Richland, WA 99352</b>	7. ADMINISTERED BY (If other than Item 6) CODE
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8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP code)  <b>Battelle Memorial Institute Pacific Northwest Division Richland, Benton County, WA 99352 DUNS # 032987476</b>	<input type="checkbox"/>	9A. AMENDMENT OF SOLICITATION NO.
	<input type="checkbox"/>	9B. DATED (SEE ITEM 11)
	<input checked="" type="checkbox"/>	10A. MODIFICATION OF CONTRACT/ ORDER NO. <b>DE-AC05-76RL01830</b>
	<input checked="" type="checkbox"/>	10B. DATED (SEE ITEM 13) <b>December 30, 1964</b>

CODE	FACILITY CODE
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11. THIS ITEM APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers  is extended,  is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE DATE AND HOUR SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and amendment and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

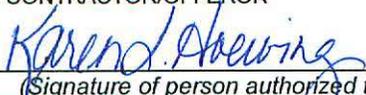
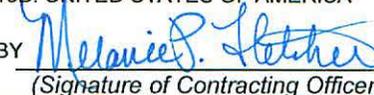
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS SET FORTH IN ITEM 14.

CHECK <input type="checkbox"/>	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE
<input type="checkbox"/>	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO AUTHORITY OF FAR 43.103(b).
<input checked="" type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO THE AUTHORITY OF: The mutual agreement of the parties
<input type="checkbox"/>	D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor  is not,  is required to sign this document and return 2 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including a solicitation/contract subject matter where feasible.)  
This bilateral contract modification incorporates changes to Part I, Section H, and Part III, Section J. (See Continuation Pages for the purpose and description of this modification)

15A. NAME AND TITLE OF SIGNER (Type or print) <b>Karen L. Hoewing General Counsel</b>	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) <b>Melanie P. Fletcher Contracting Officer</b>
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15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED <b>1-17-13</b>	16B. UNITED STATES OF AMERICA BY  (Signature of Contracting Officer)	16C. DATE SIGNED <b>1/17/2013</b>
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**Purpose of Modification:**

The Department of Energy (DOE), Office of Science (SC), Pacific Northwest Site Office (PNSO) is modifying the contract to update Sections H and J to its most current form.

1. Delete and replace Part I, Section H, Special Contract Requirements, H-39, Definition of Unusually Hazardous or Nuclear Risk for FAR Clause 52.250-1 Indemnification Under Public Law 85-804, in accordance with the Secretary of Energy's "Memorandum of Decision" regarding same, dated December 5, 2012.
2. Revise Part III, Section J – List of Attachments, Table of Contents, to delete "(Reserved)" from the title of Appendix I, List of Battelle Memorial Institute Legacy Work.
3. Add to Part III, Section J – List of Attachments, Appendix I – the List of Battelle Memorial Institute Legacy Work.

Description of Modification:

The following changes are hereby incorporated into the Contract:

1. Delete Part I, Section H, Clause H-39, Definition of Unusually Hazardous or Nuclear Risk for FAR Clause 52.250-1 Indemnification Under Public Law 85-804 in its entirety and replace with the following:

**1.0 H-39 Definition of Unusually Hazardous or Nuclear Risk for FAR Clause 52.250-1 Indemnification Under Public Law 85-804**

- A. The term "a risk defined in this contract as unusually hazardous or nuclear" as used in FAR Clause 52.250-1 means the risk of legal liability to third parties (including legal costs as defined in paragraph (jj) of section 11 of the Atomic Energy Act of 1954, as amended, 42 U.S.C. §2014(jj), notwithstanding the fact that the claim or suit may not arise under section 170 of said Act, 42 U.S.C. §2010) arising from actions or inactions in the course of the following work performed by the Contractor under the Contract:
- (1) Providing assistance in implementing physical security at nuclear and radiological facilities worldwide to ensure effective safeguards and security of weapons-usable nuclear materials and high-risk radiological materials both domestically and internationally under Department of Energy's (DOE) Global Threat Reduction Initiative (GTRI). Supporting activities shall include vulnerability assessments; design and installation of physical security systems; material consolidation; secure transportation; materials disposition and conversion to less attractive forms; implementation of detection and measurement technologies; and security operations training.
  - (2) Providing assistance in DOE's Material Protection Control and Accounting (MPC&A) program including cooperative work outside the United States on the design and implementation of MPC&A systems for facilities processing, handling, and storing nuclear materials, and the transportation of nuclear materials; provision of U.S.-manufactured equipment, and procurement of equipment for installation in facilities in order to implement the above systems; training in the design, use and assessment of MPC&A systems, export control, and facility transition support.
  - (3) Participation in the DOE/National Nuclear Security Administration program(s) focusing on the complete denuclearization of the Democratic People's Republic of Korea (DPRK),

including cooperative work outside the United States on the disablement and dismantlement of all declared and undeclared DPRK nuclear facilities and the verification of activities, equipment, and materials at said facilities; inspection, packaging, removal, securing in place, transportation, storage and disposition of spent nuclear fuel, nuclear materials (including uranium, highly-enriched uranium, and plutonium), and other radiological materials and equipment; and the conversion of any reactors using highly-enriched uranium fuel to low-enriched uranium fuel.

- (4) Participation in tasks or activities by the Contractor or its subcontractors on or after March 11, 2011 that is directed or authorized by the U.S. Department of Energy or the U.S. Department of Energy National Nuclear Security Administration as an element of activities taken in response to the Japanese earthquake and tsunami, including efforts to address and assess damage to nuclear power plants and potential radioactive releases from these plants now and into the future. **[M764]**
- (5) Other activities relating to nonproliferation, emergency response, anti-terrorism activities, or critical national security activities that involve the use, detection, identification, assessment, control, containment, dismantlement, characterization, packaging, transportation, movement, storage or disposal of nuclear, radiological, chemical, biological, or explosive materials, facilities or devices, provided such activities are specifically requested or approved, in writing, by the President of the United States, the Secretary of Energy, the Deputy Secretary of Energy, or an Under Secretary, and further provided that the request or approval specifically identifies a particular project involving one of those activities and makes the indemnity provided by this clause applicable to that particular project under the contract.

- B. The unusually hazardous or nuclear risks described above are indemnified only to the extent that they are not covered by the Price-Anderson Act (section 170d of the Atomic Energy Act of 1954, as amended 42 U.S.C. §2210d) or where the indemnification provided by the Price Anderson Act is limited by the restriction on public liability imposed by section 170e of the Atomic Energy Act of 1954, as amended, (42 U.S.C. §2210e) to an amount which is not sufficient to provide complete indemnification for the legal liability to which the Contractor is exposed.

**[M920]**

2. Part III, Section J – List of Attachments, Table of Contents, is revised to delete “(Reserved)” from the title of Appendix I, List of Battelle Memorial Institute Legacy Work.
3. Part III, Section J – List of Attachments, Appendix I – the List of Battelle Memorial Institute Legacy Work, is added to the contract. (See Attached)
4. This modification results in no further changes to the Contract.

**(End of Contract Modification)**

**APPENDIX I**  
**LIST OF BATTELLE MEMORIAL INSTITUTE LEGACY WORK**  
**(LEGACY PROJECT AUTHORIZATION - OCTOBER 2012)**

Contract No. DE-AC05-76RL01830  
Modification M920

SCOPE NO	PROPOSAL TITLE	CONT_CLNT_NAME	FUND_CLNT_NAME	WALS	WALS
				COST_AMT	PROP_END_ DATE
63499	56067 - Predicting Kinetic Rate Constants for Condensed Phas	Spectral Sciences, Inc.	Air Force Research Laboratory	146,891	3/13/2013
63767	58844 - Potsdam Roadmaps towards Sustainable Energy Futures	Potsdam Institute for Climate Impact Research	Potsdam Institute for Climate Impact Research	245,000	6/30/2013
63607	62301 - INSPIRE Maintenance	Multi-client Industrial	Multi-client Industrial	62,443	9/30/2013
63766	58619 - Links - Linking Global and Regional Energy Strategie	SINTEF Energy Research	SINTEF Energy Research	71,000	4/25/2014
63619	62654 - Enhancement of the Light Right Survey (LRS) Tool	Philips Lighting	Philips Lighting	40,064	12/20/2012
63451	48887 - Improving Efficiency of Commercial Buildings in WA	State of Washington, Attorney Generals Office	State of Washington, Attorney Generals Office	1,630,000	12/31/2014
63828	FRAPCON-3 User Group. Paper study.	Multi-client	Multi-client	75,000	9/30/2013
63594	61846 - Silicon Detectors for High Resolution Radioxenon Mea	XIA, LLC	DOE - SC Germantown Building	70,000	2/12/2014
63759	52172 - Economic Methods for Assessing Climate Change	Mizuho Information & Research Institute	Mizuho Information & Research Institute	17,294	1/31/2013
63602	62215 - Helium Ion Microscopy of Shale Mineral Deposits	ExxonMobile Research and Engineering Company	ExxonMobile Research and Engineering Company	6,845	8/31/2013
63513	57320 - The Impact of geo-engineering by aerosols on the cli	University of Calgary	University of Calgary	224,674	9/30/2013
63551	APT Analysis	GE Global Research	GE Global Research	37,046	12/31/2013
63508	AMS Deployment at National Parks	Electric Power Research Insitute - EPRI	Electric Power Research Insitute - EPRI	5,797	12/31/2013
63574	Evaluation of Dose and Dose Rate Effects in Beagle dogs expo	Electric Power Research Insitute - EPRI	Electric Power Research Insitute - EPRI	50,949	12/31/2013
63503	Develop and Utilize an Integrated Model of GHG Emissions	Electric Power Research Insitute - EPRI	Electric Power Research Insitute - EPRI	126,140	12/31/2013
63583	61605 - Polymer Characterization	PepsiCo, Inc.	PepsiCo, Inc.	59,236	12/31/2013
63492	55433 - Seamless prediction of cold clouds (NCAR)	National Center of Atomospheric Research	NASA - National Aeronautics & Space Administration	115,819	5/31/2014
63603	62232 - Analyzing Model Simulations from the Community Land	Carnegie Institution of Washington	NASA - National Aeronautics & Space Administration	31,780	7/30/2014
63482	54211 - Collaborative Research: The Role of Surface, Subsurf	National Oceanic and Atmospheric Administration (NOAA)	National Oceanic and Atmospheric Administration (NOAA)	57,288	7/31/2014
63520	58354 - Integrated Assessment Modeling of Major Forest Distu	University of Maryland at College Park	NASA - National Aeronautics & Space Administration	297,040	8/31/2014
63516	57489 - Integrated Assessment of Coupled Human-Forest Dynami	University of New Hampshire	NASA - National Aeronautics & Space Administration	391,305	8/31/2014
63475	53677 - Comparative proteomics of women infected with Malaria	Seattle Biomedical Research Institute	NIH - National Institutes of Health	268,370	11/30/2014
63507	56613 - GEPR: Soybean Root Hairs: A model for single-cell pl	University of Missouri	National Science Foundation	107,341	8/31/2015
63545	Impact of Organic Matter and Black Carbon Emissions	National Oceanic and Atmospheric Administration (NOAA)	National Oceanic and Atmospheric Administration (NOAA)	455,008	8/31/2015
63558	60730 - High Order Model, Computation, and Stochastic Hybrid	University of Notre Dame	National Science Foundation	28,124	9/30/2015
64029	62438 - Prediction and Network Construction Using High-throu	University of Washington	NIH - National Institute of General Medical Sciences	46,326	6/30/2013
63489	54923 - Genetic analysis of Salmonella typhimurium virulence	Oregon Health Science University	NIH - National Institutes of Health	85,890	11/30/2013
63477	53776 - Genetic Analysis of Salmonella Typhimurium Virulence	Oregon Health Sciences University	NIH - National Institutes of Health	144,012	11/30/2013
63885	58766 - Automated NMR Potato Sensing	Lamb Weston	Lamb Weston	27,072	12/31/2012
63468	53063 - Evaluation and development of FT catalysts	Korea Institute of Energy Research	Korea Institute of Energy Research	28,958	12/31/2012
63742	61886 - COMcheck Ontario	Municipal Affairs & Housing Building	Municipal Affairs & Housing Building	8,127	3/31/2013
63604	62241 - CSC FRAMES Support Task Order 1521.02	Computer Sciences Corporation	EPA Mid-Continent Ecology Division	125,453	5/7/2013
63760	61148 - NREL WIND SITE SWEA	Los Alamos Technical Associates (LATA)	National Renewable Energy Laboratory - NREL	17,000	9/30/2013
63573	61088 - CO2BOLs post combustion	U.S. Department of Energy (DOE)	U.S. Department of Energy (DOE)	455,333	3/31/2014
63585	61615 - EMFP of Bitumen for Fuel and Chemical Production	H-Quest Partners, LP	H-Quest Partners, LP	20,064,674	9/30/2015
63524	59070 - Numerical Simulator for the Kinetic Exchange of Gas	Korea Institute of Geoscience & Mineral Research	Korea Institute of Geoscience & Mineral Research	85,464	3/31/2013
63622	62715 - GS3 for EPA Region 5	EPA, Environmental Protection Agency	EPA, Environmental Protection Agency	37,136	9/30/2013
63496	55898 - Shell Oil Co.	Shell Oil Company	Shell Oil Company	360,000	12/31/2014
63453	Carbon Sequestration Field Pilot Study	National Energy Technology Laboratory (NETL)	National Energy Technology Laboratory (NETL)	2,167,949	12/31/2014
63587	61713 - Support for RTI	Real-Time Innovations, Inc.	Air Force, Research Laboratory	182,414	9/30/2013
63755	63106 - Installation of SAIC P7500 at 3440 Test Track	Science Applications International Corporation - SAIC	DHS - Customs & Border Protection	300,000	10/31/2012
63854	63166 - Installation of Smiths IRD & HE System at 3440 Test	Smith's Detection	DHS - Customs & Border Protection	710,000	12/30/2012
63493	Visual Sample Plan Training Course in Support of AMEC	AMEC	AMEC	30,000	4/30/2013
63544	60207 - Geometric flow approach to implicit solvation modeli	Michigan State University	NIH - National Institutes of Health	118,823	7/31/2013
63737	60586 - Characterization/bioinformatics-modeling	Washington University School of Medicine	National Institute of Health (NIH)	254,386	8/31/2013
63511	57182 - Natural Products	Antelope Therapeutics, LLC	Antelope Therapeutics, LLC	572,712	9/30/2013
63614	62510 - NEIMiner Phase II	Intelligent Automation, Inc.	U.S. Army Corps of Engineers	8,472	11/13/2013
63541	National Biomedical Computation Resource	University of California, San Diego	NIH - National Institutes of Health	57,659	4/30/2014
63579	61394 - Immunization Safety Beliefs in Microblogs	Infectious Deseases Society of America Edu & Rsch	Sealy Center for Vaccine Development, UTMB	50,956	5/1/2014
63589	61764 - Nanophotonic sensor fabrication and characterization	University of Delaware	National Science Foundation	39,000	3/31/2015
63542	59994 - Mechanism of Oxysterol Activation of Membrane Choles	Washington University School of Medicine	NIH - National Institutes of Health	158,361	9/30/2015
63479	54067 - RL16 Laboratory (post-cert)	CTBTO	CTBTO	375,000	9/30/2015
63440	28480 - Chernobyl Shelter Implementation Plan Project Manage	Ministry of Energy of Ukraine State Dept. of Nuclear Safety	European Bank for Reconstruction and Development	45,000,000	9/30/2015
63834	59383 - GC PUD Productivity	Grant County Public Utility District	Grant County Public Utility District	8,110	12/31/2012
63842	61023 - Spawn Habitat	Grant County Public Utility District	Grant County Public Utility District	7,582	12/31/2012
63833	59272 - Fall Chinook Working Group	Grant County Public Utility District	Grant County Public Utility District	11,000	12/31/2012
63851	62541 - Phase 2-O2 Isotopes Fall Chinook	Idaho Power Company	Idaho Power Company	83,000	12/31/2012
63606	62290 - McNary Steelhead Fallback	Army Corps of Engineers - Walla Walla District (USACE)	Army Corps of Engineers - Walla Walla District (USACE)	99,677	12/31/2012

**APPENDIX I**  
**LIST OF BATTELLE MEMORIAL INSTITUTE LEGACY WORK**  
**(LEGACY PROJECT AUTHORIZATION - OCTOBER 2012)**

Contract No. DE-AC05-76RL01830

Modification M920

SCOPE NO	PROPOSAL TITLE	CONT_CLNT_NAME	FUND_CLNT_NAME	WALS COST_AMT	WALS PROP_END_ DATE
63837	59746 - Egg to Fry Survival	Grant County Public Utility District	Grant County Public Utility District	50,000	12/31/2012
63624	62747 - Tailrace Tracking	Army Corps of Engineers - Walla Walla District (USACE)	Army Corps of Engineers - Walla Walla District (USACE)	290,951	2/15/2014
63623	62724 - External JSATS Field Test	Army Corps of Engineers - Walla Walla District (USACE)	Army Corps of Engineers - Walla Walla District (USACE)	568,597	3/29/2013
63618	62636 - Steelhead Kelt Passage	Army Corps of Engineers - Walla Walla District (USACE)	Army Corps of Engineers - Walla Walla District (USACE)	567,550	3/29/2013
63913	Spawning & Overwintering of Rainbow Trout	Fish & Wildlife Department - Colville Confederated Tribes	BPA - Portland	288,000	4/30/2013
63577	61316 - WW JSATS	Army Corps of Engineers - Walla Walla District (USACE)	Army Corps of Engineers - Walla Walla District (USACE)	7,519,737	5/1/2014
63738	61110 - Basin of Origin	Grant County Public Utility District	Grant County Public Utility District	450,000	12/31/2013
63840	60894 - Stranding/Entrapment	Grant County Public Utility District	Grant County Public Utility District	750,804	9/30/2015
63835	59402 - Life Cycle Model	Grant County Public Utility District	Grant County Public Utility District	305,017	9/30/2015
63568	61020 - Survival Study	Army, Corps of Engineers - Portland District	Army, Corps of Engineers - Portland District	742,526	9/30/2013
63841	60989 - Barotrauma Consultation	Symbiotics, LLC	Symbiotics, LLC	101,000	9/30/2013
63836	59599 - GC Thermal Modeling	Grant County Public Utility District	Grant County Public Utility District	317,000	12/31/2014
63888	60676 - PRD Turbine Assessment	Grant County Public Utility District	Grant County Public Utility District	848,000	12/31/2014
63829	Tech Services GC PUD	Grant County Public Utility District	Grant County Public Utility District	5,000,000	9/30/2015
63488	54761 - In vivo Characterization of Extracellular Reduction	Bowling Green State University	NIH - National Inst of Environmental Health Sciences (NIEHS)	5,959	11/30/2012
63580	61486 - Research Consultation for American Chemical Council	American Chemistry Council	American Chemistry Council	4,601	12/31/2012
63890	61593 - Airborne Ammonia Sensor Test Flight	Los Gatos Research	U.S. Department of Energy (DOE)	7,900	12/31/2012
63570	61062 - Calculations of Airflow and Particle Breakup Inside	Oregon State University	NASA - John C. Stennis Space Center	3,636	2/5/2013
63598	61949 - Social Network Analysis: Enhance Climate Change Adap	Centre for Environmental Mgmt, CQ University Australia	National Climate Change Adaptation Research Facility	43,632	2/6/2013
63740	61690 - Inhalation Route Isobutyl Series Pharmacokinetics	Oxo Process Panel, ACC	Oxo Process Panel, ACC	40,769	3/31/2013
63850	62322 - UMCP Human Dimensions of Global Change(HDGC) Researc	University of Maryland at College Park	University of Maryland at College Park	67,000	4/30/2013
63481	54193 - PBPK Enabled Urine Biomarker Based Human BPA Exposur	EPA, Environmental Protection Agency	EPA, Environmental Protection Agency	274,080	5/3/2013
63556	Validation of Biomarkers for Triple Negative Breast Cancer	University of Texas Health Science Center-San Antonio	NIH - National Cancer Institute	600,000	6/30/2013
63500	Exceptional, Unconventional Research Enabling Knowledge Acce	University of Miami	NIH - National Institutes of Health	209,112	8/31/2013
63626	62847 - Migration of Y-90 in Tumor	Advanced Medical Isotope Corporation	Advanced Medical Isotope Corporation	412,435	9/30/2013
63609	62435 - Intergenerational & intragenerational equity- climat	Ragnar Frisch Centre for Economic Research	Norwegian Research Council	56,222	12/31/2013
63559	60829 - Modeling International Offsets	Electric Power Research Institute	Electric Power Research Institute	50,431	12/31/2013
63497	Support for GTSP	Electric Power Research Institute	Electric Power Research Institute	179,199	12/31/2013
63910	48559 - Vinyl Acetate Council Consulting	Vinyl Acetate Council	Vinyl Acetate Council	1,000,000	1/3/2014
63832	59135 - Molecular Mechanisms of LPS Preconditioning in Strok	Oregon Health & Science University	NIH - NINDS	80,000	6/30/2014
63746	62182 - Evaluation of BPA Dermal Exposure and TK Among Cashi	Ohio State University	Centers for Disease Control & Prevention	88,663	6/30/2014
63728	54142 - Mitral-FSI	University of Maine	NIH - National Institutes of Health	381,000	6/30/2014
63729	55374 - Urinary Proteome Monitoring for Transplant Injury	Stanford University	NIH - National Institutes of Health	800,000	7/31/2014
63566	60962 - A 1.5-T superconducting solenoid-dipole magnet for M	Massachusetts Institute of Technology (MIT)	NIH - National Institutes of Health	152,010	9/30/2014
63745	62084 - Reduction of Black Carbon from Diesel Sources	EPA, Office of International Affairs	EPA, Office of International Affairs	1,000,000	9/30/2015
63540	59973 - Structure-Function of Dirigent Protein in Lignan Bio	Washington State University	National Science Foundation	219,024	9/30/2015
63726	53375 - Administrative Core for OSU/PNNL Superfund	Oregon State University	National Toxicology Program (NIEHS)	251,596	9/30/2015
63735	60260 - Deep RNA sequencing and proteomic analysis of a hybr	University of California, Los Angeles	NIH - National Institutes of Health	575,107	9/30/2015
63597	61923 - Structural Genomics on Infectious Diseases	Seattle Biomedical Research Institute	NIH - Nat'l Inst of Allergy & Infectious Diseases (NIAID)	809,184	9/30/2015
63560	60831 - Vulnerability of DOD facilities to climate change	DOD - Strategic Environmental Research & Development-SERD	DOD - Strategic Environmental Research & Development-SERPD	1,734,518	9/30/2015
63464	52726 - Statistics & Bioinformatics for SBRP	Oregon State University	NIH - National Institutes of Health	3,152,595	9/30/2015
63518	57951 - Transplacental pharmacokinetics of dibenzo[a,h]pyren	Oregon State University	National Toxicology Program (NIEHS)	3,261,092	9/30/2015
63549	Animal Model Development for Medical Countermeasures	Department of Health and Human Services	Department of Health and Human Services	26,000,000	9/30/2015
63831	56852 - IEA Task 34	IEA Bioenergy	IEA Bioenergy	86,500	12/31/2012
63467	Aberdeen Proving Ground	Johnson Controls, Federal Solutions	Army, Aberdeen Proving Grounds	209,934	12/31/2012
63452	48997 - ENVIRONMENT-ASSISTED CRACKING MECHANISMS	Rolls Royce & Associates Ltd.	Rolls Royce & Associates Ltd.	223,504	3/31/2013
63744	62045 - Production of Bio-Hydrogenated Diesel (BHD) in Micro	Oregon State University	PTT Public Company Limited	108,500	6/20/2013
63843	61182 - Membrane Evaluation for Redox Flow Battery	LynnTech, Inc.	U.S. Department of Energy (DOE)	125,000	9/30/2014
63847	62021 - FCE UVP Components	Fuel Cell Energy, Inc.	Navy, Office of Naval Research	300,000	9/30/2014
63839	60752 - Sustainable Alternative Jet Fuel from Cellulosic Bio	LanzaTech	US Department of Transportation	200,009	9/30/2014
63519	57999 - ARRA - Pacific Northwest Smart Grid Demonstration	U.S. Department of Energy (DOE)	U.S. Department of Energy (DOE)	46,128,990	9/30/2015
63550	60549 - ARRA Technical Support to FutureGen Industrial Alli	FutureGen Industrial Alliance, Inc.	National Energy Technology Laboratory (NETL)	68,539,852	9/30/2015
63536	59676 - NEEA Industrial Model	Northwest Energy Efficiency Alliance	Bonneville Power Administration - Portland	52,780	12/31/2012
63564	60951 - American Samoa Tropical Energy Code Adoption and Tra	American Samoa Energy Office	DOE, Energy Efficiency and Renewable Energy Network	106,964	12/31/2012
63581	61493 - Transcriptomics Analysis of Fermentation Organisms	LanzaTech	LanzaTech	67,109	3/31/2013
63439	28336 - CVSA Pilot Inspection Study	Commercial Vehicle Safety Alliance	DOE, Office of Civilian Radioactive Waste Management	66,000	9/30/2013
63480	54159 - SECA Vertical Team Coal Based SOFC Stack Development	Delphi	DOE, Office of Fossil Energy	705,000	6/30/2014
63621	62676 - Low Cost Vacuum Insulated Glass Windows	Milgard Windows & Doors	Milgard Windows & Doors	205,288	12/31/2012

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Contract No. DE-AC05-76RL01830  
Modification M920

SCOPE NO	PROPOSAL TITLE	CONT_CLNT_NAME	FUND_CLNT_NAME	WALS	WALS
				COST_AMT	PROP_END_ DATE
63546	60306 - Biomarkers for pulmonary injury following deployment	Institute for Systems Biology	Army, Medical Research and Materiel Command	179,775	7/31/2013
63476	53773 - Technical Assistance to Ashland for Catalytic Hydrot	Ashland Speciality Chemical Company	Ashland Speciality Chemical Company	45,902	7/2/2013
63474	Quality Assurance Support	Theseus Professional Services, LLC	DOE, Office of Environmental Management	139,111	9/30/2013
63514	57361 - Quality Assurance Support	Theseus Professional Services, LLC	Farris Engineering Curtiss Wright Flow Control Corp	16,715	9/30/2013
63748	62446 - Infrared Transmitting Glass Ceramics	Raytheon - Integrated Defense Systems	Defense Advanced Research Projects Agency (DARPA)	144,549	12/31/2013
63887	59828 - AECL Reactor Dosimetry	Atomic Energy of Canada Limited	Atomic Energy of Canada Limited	17,722	3/31/2013
63463	52687 - Tri Cities Patient Safety Improvement	Benton Franklin Community Health Alliance	Benton Franklin Community Health Alliance	30,839	12/31/2012
63571	61072 - EPRI PWR Reactor Support	Electric Power Research Institute	Electric Power Research Institute	12,068	12/31/2012
63461	52306 - Southern California Edison Co.	Southern California Edison Co.	Southern California Edison Co.	36,640	12/31/2012
63484	54489 - SM Stoller - Germanium Detector	SM Stoller Corporation	SM Stoller Corporation	996	3/31/2013
63534	59658 - Chemical Waste Management Northwest	Chemical Waste Management	Chemical Waste Management	854	5/31/2013
63533	59647 - STTR Phase II: Development of an Integrated In Situ	EIC Laboratories, Inc.	DOE, Office of Science	35,874	8/14/2013
63535	59674 - SBIR Phase II: Development of a Compact Fiber Optica	EIC Laboratories, Inc.	DOE, Office of Science	106,733	8/14/2013
64040	53725 - Isotope Production from Gamma and Neutron Generators	Thorenco, LLC	Thorenco, LLC	30,000	9/30/2013
63449	47859 - Westinghouse Retrospective Reactor Dosimetry	Westinghouse Electric Company - Nuclear Fuel Unit	Westinghouse Electric Company - Nuclear Fuel Unit	115,763	9/30/2013
64028	57296 - Modeling/Simulation Studies of Cincinnati Arch Mt.	Battelle Memorial Institute	National Energy Technology Laboratory (NETL)	11,000	10/31/2012
63501	56185 - Hunters Point Parcel F BCO Support	Battelle Columbus Operations	Naval Facilities Engineering Command - Southwest Division	15,000	10/31/2012
63523	DU Soil Contamination and Transport	Battelle Eastern Science & Technology Center	Army Public Health Command	1,162	11/30/2012
63915	62594 - Sulfuryl Fluoride Modeling support	Battelle Columbus Operations	Dow Chemical Company	20,000	12/31/2012
63627	62879 - ExFIRS Support	Battelle Columbus Operations	Internal Revenue Service	50,000	12/31/2012
63884	First Wave	Battelle Columbus Operations	Independent Establishments and Government Corporations	75,000	12/31/2012
63973	54140 - Technical and Analytical Support to NA-24	Battelle Columbus Operations	DOE - National Nuclear Security Administration	200,000	1/31/2013
63912	57119 - Chlorpyrifos Children Modeling	Battelle Columbus Operations	Dow Chemical Company	72,000	2/28/2013
63562	60928 - Veterinary Support for Tox Northwest	Battelle Columbus Operations	National Institutes of Health (NIH)	15,000	3/31/2013
63563	60931 - Veterinary Support for Tox Northwest	Battelle Columbus Operations	National Institutes of Health (NIH)	10,000	3/31/2013
63578	61370 - RNTRA	Battelle Columbus Operations	DHS - Department of Homeland Security	261,000	3/31/2013
63510	56994 - Fagitue Management for Rapid Renewal Highway Const	Battelle Columbus Operations	DOE Transportation Research Board	82,300	3/31/2013
63855	63175 - EDSP - TO 03	Battelle Columbus Operations	EPA, Environmental Protection Agency	47,000	4/30/2013
64049	59343 - ACRP 03-16	Battelle Memorial Institute	Transportation Research Board	40,000	4/30/2013
63889	Assessment of Contamination after Laundering	Battelle Columbus Operations	EPA Office of Research and Development	133,980	8/31/2013
63506	56589 - High-Flyer Dosimetry Testing	Battelle Memorial Institute	Air Force, School of Aerospace Medicine	110,000	9/30/2013
63438	27190 - Provide Multiple Services to Pre Clinical Drug Devel	Battelle Columbus Operations	Department of Health and Human Services	350,000	9/30/2013
63911	55031 - Brooks Air Force Base - Dosimeter Irradiations	Battelle San Antonio Operations	Air Force, Brooks Air Force Base	76,465	8/1/2014
63538	59781 - Biological Threat Reduction Program (BTRP/BTRIC)	Battelle Crystal City Office	Defense Threat Reduction Agency (DTRA)	1,500,000	9/30/2013
63491	PBPK Model Support for EPA-ORD	Battelle Memorial Institute	EPA, Environmental Protection Agency	350,000	10/31/2013
63530	Evaluation of PB Biokinetic Model for Bacillus anthracis	Battelle Memorial Institute	EPA, National Risk Management Research Laboratory	174,000	10/31/2013
64041	59556 - ICM Benefit Analysis	Battelle Columbus Operations	US Department of Transportation	75,000	4/30/2014
63495	55879 - MRCS Phase III	Battelle Columbus Operations	National Energy Technology Laboratory (NETL)	1,000,000	9/30/2014
63856	63219 - Evaluation of AEP Oklahoma gridSMART Volt Var Projec	Battelle Columbus Operations	American Electric Power Service	75,000	12/15/2012
63436	07182 - Monitoring marine receiving water	City of Sequim	City of Sequim	9,943	12/31/2012
63442	41578 - Biomarkers and Toxicology involving EVOS-related Spe	Exxon Mobil Corporation	Exxon Mobil Corporation	62,000	12/31/2012
63445	44198 - Silver and Copper Analysis in Effluent	City of Salisbury, WWTP	City of Salisbury, WWTP	5,100	12/31/2012
63515	57393 - Hydrodynamic Modeling Analyses for the Mill Road Res	Columbia Land Trust	Bonneville Power Administration - Portland	19,252	12/31/2012
63505	56575 - Kitsap Co EPA Region X 2009	Kitsap County Public Works	EPA Region 10 - Seattle	12,978	12/31/2012
63617	62562 - USACE NYD Arthur Kill	Battelle Ocean Sciences Laboratory	Army - Corps of Engineers - New York District	28,125	12/31/2012
63521	58366 - Palau Circulation Modeling	University of California, San Diego	Navy, Office of Naval Research	61,239	2/26/2014
63612	62488 - Pelton Round Butte - Temperature Model - FY 2012	Portland General Electric	Portland General Electric	119,910	12/31/2012
63611	62452 - BW Treatment Technology Verification using Test Orga	National Science Foundation International	U.S. EPA - Great Lakes Region	117,640	1/31/2013
63590	61780 - EDSP - TO 38	EPA, Environmental Protection Agency	EPA, Environmental Protection Agency	362,824	2/28/2013
63754	63005 - FSU Mercury	Florida State University	National Oceanic and Atmospheric Administration (NOAA)	12,000	3/1/2013
63543	60076 - EDSP - TO 33	EPA, Environmental Protection Agency	EPA, Environmental Protection Agency	332,854	3/21/2013
63527	59495 - EDSP-TO 31 Larval Amphibian	EPA, Environmental Protection Agency	EPA, Environmental Protection Agency	444,663	3/21/2013
63528	59496 - EDSP-TO 32 Medaka	EPA, Environmental Protection Agency	EPA, Environmental Protection Agency	676,818	3/21/2013
63485	54627 - Hecla Greens Creek Mining Company	Hecla Green Creek Mining Company	Hecla Green Creek Mining Company	15,566	4/16/2013
63596	Fish and Shellfish Monitoring-Analytical	Aluminum Company of America (ALCOA)	Aluminum Company of America (ALCOA)	45,000	6/26/2013
63460	52238 - Ballast Water RDTE Facility	National Oceanic & Atmospheric Administration (NOAA)	National Oceanic & Atmospheric Administration (NOAA)	569,821	9/30/2013
63586	61699 - META CCA Analysis	META Environmental	Electric Power Research Institute	3,569	9/30/2013
63444	43549 - Morro Bay Taxonomic Identifications	Marine Research Specialists	City of Morro Bay	2,800	9/30/2013

**APPENDIX I**  
**LIST OF BATTELLE MEMORIAL INSTITUTE LEGACY WORK**  
**(LEGACY PROJECT AUTHORIZATION - OCTOBER 2012)**

Contract No. DE-AC05-76RL01830  
Modification M920

SCOPE NO	PROPOSAL TITLE	CONT_CLNT_NAME	FUND_CLNT_NAME	WALS	WALS
				COST_AMT	PROP_END_ DATE
63446	EPA Region 2 Low Level Hg Analyses	EPA Region 2 - New York	EPA Region 2 - New York	7,500	9/30/2013
63450	47930 - Eagle River Water and Sanitation District	Eagle River Water & Sanitation District	Eagle River Water & Sanitation District	10,988	9/30/2013
63443	42556 - Englewood Mercury Analyses 2001 Open PO	City of Englewood Colorado	City of Englewood Colorado	12,000	9/30/2013
63592	61829 - Carbon Footprint Tool Technical Support	Noblis	Noblis	86,723	9/30/2013
63616	62561 - USACE NYD Newark Bay	Battelle Ocean Sciences Laboratory	Army - Corps of Engineers - New York District	57,956	4/30/2013
63458	51728 - Penobscot River Mercury Study	Eviron International Corporation	Mallinckrodt	99,290	9/30/2013
63547	60371 - 2010 Maine DEP Gulfwatch	AXYS Analytical Services Ltd	Maine Department of Environmental Protection	56,500	9/30/2013
63600	62172 - TO 1 Chemical Repository	Battelle Columbus Operations	EPA, Environmental Protection Agency	90,260	9/30/2013
63599	61985 - USACE NYD HARS Sampling	Battelle Ocean Sciences Laboratory	Army - Corps of Engineers - New York District	111,488	9/30/2013
63457	DuPont South River Project	Dupont De Nemours and Company, Inc.	Dupont De Nemours and Company, Inc.	176,645	9/30/2013
63526	59394 - Fir Island Farm Restoration	Shannon & Wilson, Inc.	Shannon & Wilson, Inc.	138,733	9/30/2013
63531	59524 - CSF Proteomics	University of Medicine & Dentistry of New Jersey	NIH - National Institutes of Health	155,000	9/30/2013
63487	54715 - Temperature Modeling Support Boundary Hydroelectric	Seattle City Light	Seattle City Light	76,065	12/31/2013
63454	Mercury Analysis - Olin Corporation	Olin Corporation	Olin Corporation	27,434	12/31/2013
63509	56654 - City of Greeley - Hg Analysis	City of Greeley - WPCF	City of Greeley - WPCF	10,983	12/31/2013
63610	62444 - Alyeska Work Order for 2012	Alyeska Pipeline Services Company	Alyeska Pipeline Services Company	95,293	12/31/2013
63739	61146 - High throughput screening of endocrine disruptors	EPA, Environmental Protection Agency	EPA, Environmental Protection Agency	1,200,000	9/30/2015
63494	55849 - Population-Climate Project	Population Action International	Population Action International	4,017	9/30/2013
63576	61262 - Nerospora quantitative proteomics study	University of California, Berkeley	British Petroleum	49,500	10/31/2012
63478	53806 - Modeling Post-2012 International Climate Policy Scen	Pew Center on Global Climate Change	Pew Center on Global Climate Change	18,796	12/31/2012
63747	62434 - Cardiac Metabolism and Protein Synthesis during Extr	Seattle Children's Research Institute	NIH - National Institutes of Health	12,000	12/31/2012
63525	59310 - Characterization of Thin Films for Mermistor Devices	Oregon State University	Navy, Office of Naval Research	35,000	12/31/2012
63532	59531 - Characterize the proteome response to hydrocodone	Genova Foundation	Army, Medical Research and Materiel Command	170,839	2/28/2013
63483	A Systems Biology Approach to Emerging Respiratory Viral Dis	University of Washington	NIH - Nat'l Inst of Allergy & Infectious Diseases (NIAID)	1,880,000	9/25/2013
63539	Blood plasma biomarker verification from early state breast	Fred Hutchinson Cancer Research Center	Susan G. Komen Breast Cancer Foundation	5,984	9/30/2013
63465	52792 - Support for GTSP 3	Chevron Environmental Management Company	Chevron Environmental Management Company	72,968	9/30/2013
63502	56191 - Optimal U.S. freight transport to reduce emissions	University of Illinois	EPA, Environmental Protection Agency	34,225	10/31/2013
63459	51834 - Support for GTSP Phase 3	ExxonMobil Corporation	ExxonMobil Corporation	463,201	12/31/2013
63472	53527 - Chairmanship of GOFc/GOLD	American Geophysical Union	NASA - National Aeronautics & Space Administration	90,089	4/13/2014
63914	61077 - High-Content High-Throughput Zebrafish Assays for Pr	Oregon State University	EPA, Environmental Protection Agency	450,000	1/31/2015
63522	Biomarkers for prostate cancer	University of Washington	NIH - National Cancer Institute	355,000	6/30/2015
63567	Microbiome Studies of Type 1 Diabetes	J. Craig Venter Institute	NIH - Nat'l Inst of Diabetes, Digestive, & Kidney Diseases	823,378	8/31/2015
63753	62860 - Gryphon Scientific	Battelle Columbus Operations	DHS - Department of Homeland Security	50,000	3/31/2013
64155	62631 - Support for Midwest Carbon Sequestration	Battelle Columbus Operations	Ohio Department of Development	10,000	10/31/2012