

EXCEPTION TO SF 30, APPROVED BY NARS 5/79				1. CONTRACT ID CODE	PAGE 1 OF 2
AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT					
2. AMENDMENT/MODIFICATION NO. M053	3. EFFECTIVE DATE October 1, 2008	4. REQUISITION/PURCHASE REQ. NO. NA27344		5. PROJECT NO. (If applicable)	
6. ISSUED BY U.S. Department of Energy/NNSA SC M&O Contract Support Division P.O. Box 5400 Albuquerque, NM 87185-5400	CODE	7. ADMINISTERED BY (If other than Item 6) U.S. Department of Energy/NNSA Livermore Site Office M/S L-293 7000 East Avenue Livermore, CA 94550			
8. NAME AND ADDRESS OF CONTRACTOR (No., street, country, State, and ZIP Code) Lawrence Livermore National Security, LLC Lawrence Livermore National Laboratory M/S L-294 7000 East Avenue Livermore, CA 94550			9A. AMENDMENT OF SOLICITATION NO.		
			9B. DATED (SEE ITEM 11)		
			X 10A. MODIFICATION OF CONTRACT/ORDER NO. DE-AC52-07NA27344		
			10B. DATED (SEE ITEM 13) May 8, 2007		
CODE	FACILITY CODE				
11. THIS ITEM ONLY 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 25, 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 HOUR AND DATE 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 this amendment, and is received prior to the opening hour and date specified.					
12. ACCOUNTING AND APPROPRIATION DATA (If required) see attached					
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS , IT MODIFIES THE CONTRACT /ORDER NO. AS DESCRIBED IN ITEM 14.					
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN CONTRACT/ORDER NO. IN ITEM 10A.					
B. THE ABOVE NUMBERED CONTRACT /ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation data, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103 (b).					
X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Clause H-19 Modification Authority, Clause I-120 Changes, and Mutual Agreement					
D. OTHER (Specify type of modification and authority)					
E. IMPORTANT: Contractor ___ is not, <u>XX</u> is required to sign this document and return <u>2</u> copies to the issuing office.					
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) The contract is hereby modified to incorporate the changes to the contract Terms and Conditions as specified on page 2 of this modification. All other terms, conditions, total estimate cost and fees remain unchanged.					
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.					
15A. NAME AND TITLE OF SIGNER (Type or print) Kathleen K. Vaselopoulos Director, Prime Contract Management			16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Ronna Promani, Contracting Officer U.S. Department of Energy/NNSA		
15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign)		15C. DATE SIGNED 12/22/08	16B. UNITED STATES OF AMERICA By		16C. DATE SIGNED 11/8/09 (Signature of Contracting Officer)

The following changes to the contract terms and conditions are incorporated into the contract and are summarized as follows.

H-6 Parent Oversight Plan	Paragraph (c) revised.
H-8 Utilization of Parent Organization Support	Paragraph (b)(1) revised.
B-2 Contract Type and Value	Paragraph (e)(2) revised.
I-044 Cost Accounting Standards	Incorporation of modifications announced in FAC 2005-27. Paragraphs (a)(5) and (e) revised.
I-054 Subcontracts for Commercial Items	Incorporation of modifications announced in FAC 2005-28. New paragraph (c)(1)(i).
Appendix B; Statement of Work	Sections (2.0), (3.1.1.6), and (3.1.1.7) revised.

H-6 PARENT OVERSIGHT PLAN (M-053)

- (a) On an annual basis, the Contractor shall provide a Parent Oversight Plan that details the Parent Organization’s planned activities to monitor the Contractor’s performance of statement of work activities including ISM and ISSM performance, and to assist the Contractor in meeting Laboratory mission and operational requirements. Elements of the Plan may be incorporated into the Laboratory’s Performance Evaluation Plan. The Parent Oversight Plan for the FY 2008 is set forth as an appendix to the Contract’s Section J. The Parent Oversight Plan shall identify the official(s) responsible for administration of the plan.
- (b) The annual Parent Oversight Plan update shall be submitted to the Contracting Officer six months prior to the forthcoming fiscal year for Contracting Officer review and approval.
- (c) The annual estimated cost for the Parent Oversight Plan is detailed below by contract period. Costs associated with subsequent annual Plan updates for the remainder of the Contract term will be incorporated into this clause via supplemental agreement modification. Costs shall only include: the actual direct labor costs of the persons performing such services; a percentage factor of direct labor costs to cover fringe benefits and payroll taxes; travel; and other direct costs. Any fee or other indirect costs such as allocation for overhead, G&A, and Cost of Money will not be reimbursed. The Contractor shall charge to the account of the Government using the special financial institution account as provided in the Contract’s Section I Clause entitled "Payments and Advances," or as otherwise directed by the Contracting Officer.

Contract Period	Cost Estimate	Mod #
10/01/2007-09/30/2008	\$4,177,243.00	M-003
10/01/2008-09/30/2009	\$3,712,955.00	M-053
10/01/2009-09/30/2010		
10/01/2010-09/30/2011		
10/01/2011-09/30/2012		
10/01/2012-09/30/2013		
10/01/2013-09/30/2014		

- (d) The Contractor shall provide periodic reports of Parent Oversight activities and costs incurred as required by the Contracting Officer.
- (e) Cost limitations set forth in paragraph (c) above shall not be exceeded without prior Contracting Officer approval. The Parties agree that the costs may be reviewed further for appropriateness and scope. In addition, the Parties agree that a tracking process, acceptable to the Contracting Officer, providing sufficient detail for reasonable accountability, shall be

implemented. The Parties agree to negotiate in good faith any adjustments to these amounts as a result of empirical information from any such tracking system or reviews.

H-8 UTILIZATION OF PARENT ORGANIZATION SUPPORT (M-053)

(a) Parent Organization Systems

- (1) The Parties agree that applying the Contractor's Parent Organization systems to site operations for the purpose of streamlining the Laboratory's operational, administrative and business systems, and Parent Organization services provided for that purpose, are allowable costs. The use of the Contractor's Parent Organization systems is encouraged provided that such systems are more efficient and represent an overall cost savings to the Government versus existing site systems, and data is readily transferable to a successor contractor. The Contracting Officer must approve the Contractor's proposed plan to use its Parent Organization systems. Such system and related support services are not considered a "Subcontract" as contemplated by the Contract's Section I Clause entitled "DEAR 970.5244-1 Contractor Purchasing System.(Deviation)"
- (2) If the Contractor's proposed plan is approved by the Contracting Officer, the Contractor may incur amounts for the approved systems and related support services and shall charge to the account of the Government using the special financial institution account as provided in the Contract's Section I Clause entitled "Payments and Advances," or as otherwise directed by the Contracting Officer. Costs shall only include: the actual direct labor costs of the persons performing such services; materials; subcontracts; travel; other direct costs; and applicable indirect costs applied in accordance with the Contractor's Parent Organization's disclosed accounting practices, or, if applicable, Cost Accounting Standards Disclosure Statement. A separate fee for use of such systems and associated services is unallowable.
- (3) The Contractor shall provide periodic reports of activities and costs incurred as required by the Contracting Officer.
- (4) Rights in software and systems. The Contractor agrees to and does hereby grant to the Government an irrevocable, nonexclusive, paid-up license by or for the Government, in any Contractor-owned software and systems brought in and used under this Clause. Said license shall be limited to the continued operations of the Lawrence Livermore National Laboratory by successor contractors.

(b) Parent Organization Experts

- (1) The utilization of Parent Organization experts, which are defined herein as employees of Parent Organizations, for the purpose of achieving improvement in management and performance either to resolve deficiencies identified through Parent Organization oversight or in accordance with the Section H clause entitled "Contractor Multi-Year Strategy For Performance Improvement" are allowable costs subject to the conditions contained herein. Such Parent Organization experts' services are not considered a "Subcontract" as contemplated by the Contract's Section I Clause entitled "DEAR 970.5244-1 Contractor Purchasing System." The total estimated cost for Parent Organization experts' services is to be determined by the Contracting Officer during the Transition Period, and annually thereafter, and added via supplemental agreement contract modification.

Contract Period	Estimated Cost	Actual Cost	Mod #
10/01/2007-09/30/2008	\$925,000		M-003
10/01/2008-09/30/2009	\$1,250,000		M-053
10/01/2009-09/30/2010			
10/01/2010-09/30/2011			
10/01/2011-09/30/2012			
10/01/2012-09/30/2013			
10/01/2013-09/30/2014			

- (2) The Contractor may incur costs for its Parent Organization experts and shall charge to the account of the Government using the special financial institution account as provided in the Contract's Section I Clause entitled "Payments and Advances," or as otherwise directed by the Contracting Officer. Costs shall only include: the actual direct labor costs of the persons performing such services; a percentage factor of direct labor costs to cover fringe benefits and payroll taxes; travel; and other direct costs. Any fee or other indirect costs such as allocation for overhead, G&A, and Cost of Money will not be reimbursed.
- (3) The Contractor shall provide periodic reports of activities and costs incurred as required by the Contracting Officer.

B-2 CONTRACT TYPE AND VALUE (M-053)

(a) This Contract is a Cost-Reimbursement Management and Operating type contract that includes a Fixed Fee and a Performance Incentive Fee for the Basic Term of the Contract and the Award Term earned periods. Fee is associated with the DOE/NNSA work and Reimbursable work. DOE/NNSA Work as used herein is the work performed by the Contractor that is funded out of the Laboratory's Table included in the President's annual budget request for LLNL. Reimbursable work as used herein is the work performed by the Contractor that is not funded out of the Laboratory's Table included in the President's annual budget request for LLNL.

(b) Estimated Cost for the Contract's Transition Term.

(1) The Estimated Cost for the Transition Term of the Contract is:

<u>Transition Term of the Contract</u>	<u>Cost Ceiling</u>
09May07 – 30Sep07	\$ 13,836,279.00

(2) The Transition Term effort shall be performed on a Cost-Reimbursement, no fee basis.

(c) Total Estimated Cost, including Fee, for the Contract's Basic Term related to the DOE/NNSA work effort, excluding Reimbursable work.

(1) The Total Estimated Cost, including fee, for the DOE/NNSA work effort, excluding Reimbursable work, for the Basic Term of the Contract is:

<u>Basic Term of the Contract Fee</u>	<u>Total Estimated Cost and</u>
01Oct07 – 30Sep08	\$1,260,000,000
01Oct08 – 30Sep09	\$1,260,000,000
01Oct09 – 30Sep10	\$1,260,000,000
01Oct10 – 30Sep11	\$1,260,000,000
01Oct11 – 30Sep12	\$1,260,000,000
01Oct12 – 30Sep13	\$1,260,000,000
01Oct13 – 30Sep14	\$1,260,000,000

- (2) The Maximum Available Fee related to the DOE/NNSA work effort, excluding Reimbursable work, for the Basic Term of the Contract is:

<u>Contract Period Fee</u>	<u>Maximum Available</u>
01Oct07 – 30Sep08	\$45,542,169
01Oct08 – 30Sep09	\$45,542,169
01Oct09 – 30Sep10	\$42,506,024
01Oct10 – 30Sep11	\$42,506,024
01Oct11 – 30Sep12	\$42,506,024
01Oct12 – 30Sep13	\$39,469,880
01Oct13 – 30Sep14	\$39,469,880

- (3) Since the Maximum Available Fee has been established, there will be no annual negotiation of the Maximum Available Fee. However, in the event the Congressional appropriation for a particular fiscal year deviates by more than (plus or minus) 10% from the Total Estimated Cost and Fee, the Contracting Officer shall unilaterally modify the Contract to adjust the Maximum Available Fee for DOE/NNSA related work amounts, excluding for Reimbursable work, utilizing the calculation method described below.

$$\begin{array}{rcccl}
 \text{Congressional Appropriation} & & \text{Maximum} & & \text{Adjusted} \\
 \hline
 \text{Available} & \times & \text{Available} & = & \text{Maximum} \\
 \text{Total Estimated Cost \& Fee} & & \text{Fee} & & \text{Fee for that Year}
 \end{array}$$

- (4) For FY 2008 through FY 2014, 30% of the Maximum Available Fee will be applied to Fixed Fee and 70% of the Maximum Available Fee will be applied to Performance Incentive Fee.
- (d) The Maximum Available Fee related to the DOE/NNSA work effort, excluding Reimbursable work, for each Award Term period earned by the Contractor is:

- (1) For the Award Term period specified in (d)(2) below, 30% of the Maximum Available Fee will be applied to Fixed Fee and 70% of the Maximum Available Fee will be applied to Performance Incentive Fee.
- (2) The Fixed Fee for each Award Term period earned by the Contractor related to the DOE/NNSA work effort, excluding Reimbursable work, is 0.90% of the Total Estimated Cost. The Total Estimated Cost is the Laboratory Table amount included in the President's Budget request to Congress, divided by 1.03.

<u>Contract Period</u>	<u>Total Estimated Cost</u>	<u>Fixed</u>
<u>Fee</u>		
*	\$ *	\$ *

[*To be completed by the Contracting Officer prior to the applicable award term period.]

- (3) The Maximum Available Performance Incentive Fee for each Award Term period earned by the Contractor related to the DOE/NNSA work effort, excluding Reimbursable work, is 2.1% of the Total Estimated Cost. The Total Estimated Cost is the Laboratory Table amount included in the President's Budget request to Congress, divided by 1.03.

<u>Contract Period</u>	<u>Total Estimated Cost</u>	<u>Maximum</u>
<u>Incentive Fee</u>		<u>Available</u>
*	\$ *	Performance
\$ *	\$ *	

[*To be completed by the Contracting Officer prior to the applicable award term period.]

The sum of the Total Estimated Cost plus the Fixed Fee and Maximum Available Performance Incentive Fee is the total Laboratory Table amount.

- (4) In the event Congressional appropriation deviates by more than (plus or minus) 10% from the applicable fiscal year Laboratory Table in the President's Budget annual requests, the Contracting Officer shall unilaterally modify the Contract to adjust the Fixed Fee and Maximum Available Performance Incentive Fee for DOE/NNSA related work, excluding Reimbursable work. The fee will be adjusted in proportion to the change between the President's Budget and the Congressional appropriation.

Congressional Appropriation	Maximum	Adjusted
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$$\frac{\text{President's Budget}}{\text{X Available Fee}} = \text{Maximum Available Fee for that Year}$$

(e) Estimated Cost and Fee for Reimbursable Work.

(1) The estimated cost and the maximum available fee for FY 2008 and each subsequent fiscal year during the Basic Term of the Contract and for each Award Term period earned by the Contractor, will be established by NNSA prior to the commencement of the applicable fiscal year and will be incorporated into paragraph (e)(2) below through a modification to this clause. The fee for each reimbursable work project will be 2.5% of the estimated cost of each project. If the work sponsor or the Government subsequently orders material changes in the amount or character of the Reimbursable Work, an equitable adjustment of the fee, if any, shall be made in accordance with the "Changes" clause. If the Contractor anticipates exceeding the estimated cost for reimbursable work due to new reimbursable work projects, an adjustment to the estimated cost and maximum available fee for reimbursable work shall be submitted for approval by the Contracting Officer.

(2) The maximum available fee for each fiscal year shall be 2.5% of the estimated cost of NNSA's total estimated budget for reimbursable work. The estimated cost and maximum available fee related to the reimbursable work effort for the specified period is:

<u>Contract Period</u>	<u>Estimated Cost</u>	<u>Maximum Available Fee</u>	<u>Estimated Cost + Max Available Fee</u>
01Oct07 – 30Sep08	\$ 328,000,000	\$ 8,200,000	\$ 336,200,000
01Oct08 – 30Sep09	\$ 332,000,000	\$ 8,300,000	\$ 340,300,000
01Oct09 – 30Sep10			
01Oct10 – 30Sep11			
01Oct11 – 30Sep12			
01Oct12 – 30Sep13			
01Oct13 – 30Sep14			

(f) Provisional Payment of Fee.

(1) The Fixed Fee for FY 2008 and each subsequent fiscal year shall be paid monthly at the rate of one-twelfth (1/12) of the annual fixed fee amount per month. Such payment amounts are to be drawn down by the Contractor from the Contract's special financial institution account in monthly installments on the last day of each month.

(2) (i) The Performance Incentive Fee for DOE/NNSA related work, excluding Reimbursable work, is authorized for draw down by the Contractor from the Contract's special financial institution account as follows:

- (I) in monthly provisional fee payments equivalent to 3% of the Maximum Available Performance Incentive Fee, and
 - (II) the balance, if any, upon issuance of the Contracting Officer's notification in accordance with the Section H Clause entitled "Performance Incentives."
- (ii) If the provisional payments made in (2)(i) above exceed the Performance Incentive Fee earned determination, the Contractor shall remit any balance due payable to the Government in accordance with directions to be provided by the Contracting Officer.
- (g) Except for the condition identified in (c)(3) and (d)(4) above, there shall be no adjustment in the amount of the Contractor's fee by reason of differences between any estimate of cost for performance of the work under this Contract and the actual cost of performance of that work.
- (h) Pursuant to the Contract's Section I Clause entitled "Obligation of Funds," the total amount obligated by the Government is \$13,836,279.00 and associated accounting and appropriation data is:

<u>Fund</u>	<u>Year</u>	<u>Report</u>	<u>SGL</u>	<u>Object Class</u>	<u>Program</u>	<u>Amount</u>
00900	2007.01	100351	61000000	25200	2220660	\$ 867,500
00900	2007.01	100351	61000000	25200	2220743	\$ 1,750,000
00900	2007.01	100351	61000000	25200	2221940	\$ 1,873,000
00900	2007.01	100351	61000000	25200	2221079	\$ 1,270,500
01551	2007.01	100351	61000000	25200	2220210	\$ 1,239,000
00900	2007.01	100351	61000000	25200	2220660	\$ 595,000
00900	2007.01	100351	61000000	25200	2220684	\$ 290,279
00900	2007.01	100351	61000000	25200	2220715	\$ 725,000
00900	2007.01	100351	61000000	25200	2220723	\$ 2,405,000
00900	2007.01	100351	61000000	25200	2221925	\$ 965,000
00900	2007.01	100351	61000000	25200	2221946	\$ 600,000
00900	2007.01	100351	61000000	25200	2220803	\$ 600,000
00900	2006.01	100351	61000000	25200	2220785	\$ 315,000
00900	2007.01	100351	61000000	25200	2221949	\$ 88,000
00900	2007.01	100351	61000000	25200	2222031	\$ 253,000

- (i) (1) If the Contractor is part of a "teaming arrangement" as defined in Federal Acquisition Regulation (FAR) 9.601, the team shall share in the Fixed Fee and Performance Fee structure in paragraphs (c), (d) and (e) of this clause. Separate additional subcontractor fees for individual team members will not be considered an allowable cost under the Contract.

(2) If a subcontractor, supplier, or lower-tier subcontractor is a wholly owned, majority owned, or affiliate of any team member, any fee or profit paid to such entity will not be considered an allowable cost under this Contract unless otherwise approved by the Contracting Officer.

I-044 FAR 52.230-2 COST ACCOUNTING STANDARDS (OCT 2008) (M-053)

(a) Unless the contract is exempt under 48 CFR 9903.201-1 and 9903.201-2, the provisions of 48 CFR Part 9903 are incorporated herein by reference and the Contractor, in connection with this contract, shall --

(1) *(CAS-covered Contracts Only)* By submission of a Disclosure Statement, disclose in writing the Contractor's cost accounting practices as required by 48 CFR 9903.202-1 through 9903.202-5, including methods of distinguishing direct costs from indirect costs and the basis used for allocating indirect costs. The practices disclosed for this contract shall be the same as the practices currently disclosed and applied on all other contracts and subcontracts being performed by the Contractor and which contain a Cost Accounting Standards (CAS) clause. If the Contractor has notified the Contracting Officer that the Disclosure Statement contains trade secrets and commercial or financial information which is privileged and confidential, the Disclosure Statement shall be protected and shall not be released outside of the Government.

(2) Follow consistently the Contractor's cost accounting practices in accumulating and reporting contract performance cost data concerning this contract. If any change in cost accounting practices is made for the purposes of any contract or subcontract subject to CAS requirements, the change must be applied prospectively to this contract and the Disclosure Statement must be amended accordingly. If the contract price or cost allowance of this contract is affected by such changes, adjustment shall be made in accordance with subparagraph (a)(4) or (a)(5) of this clause, as appropriate.

(3) Comply with all CAS, including any modifications and interpretations indicated thereto contained in 48 CFR Part 9904, in effect on the date of award of this contract or, if the Contractor has submitted cost or pricing data, on the date of final agreement on price as shown on the Contractor's signed certificate of current cost or pricing data. The Contractor shall also comply with any CAS (or modifications to CAS) which hereafter become applicable to a contract or subcontract of the Contractor. Such compliance shall be required prospectively from the date of applicability to such contract or subcontract.

(4)

(i) Agree to an equitable adjustment as provided in the Changes clause of this contract if the contract cost is affected by a change which, pursuant to subparagraph (a)(3) of this clause, the Contractor is required to make to the Contractor's established cost accounting practices.

(ii) Negotiate with the Contracting Officer to determine the terms and conditions under which a change may be made to a cost accounting practice, other than a change made under other provisions of subparagraph (a)(4) of this clause; provided that no agreement may be made under this provision that will increase costs paid by the United States.

(iii) When the parties agree to a change to a cost accounting practice, other than a change under subdivision (a)(4)(i) of this clause, negotiate an equitable adjustment as provided in the Changes clause of this contract.

(5) Agree to an adjustment of the contract price or cost allowance, as appropriate, if the Contractor or a subcontractor fails to comply with an applicable Cost Accounting Standard, or to follow any cost accounting practice consistently and such failure results in any increased costs paid by the United States. Such adjustment shall provide for recovery of the increased costs to the United States, together with interest thereon computed at the annual rate established under section 6621(a)(2) of the Internal Revenue Code of 1986 (26 U.S.C.6621(a)(2)) for such period, from the time the payment by the United States was made to the time the adjustment is effected. In no case shall the Government recover costs greater than the increased cost to the Government, in the aggregate, on the relevant contracts subject to the price adjustment, unless the Contractor made a change in its cost accounting practices of which it was aware or should have been aware at the time of price negotiations and which it failed to disclose to the Government.

(b) If the parties fail to agree whether the Contractor or a subcontractor has complied with an applicable CAS in 48 CFR 9904 or a CAS rule or regulation in 48 CFR 9903 and as to any cost adjustment demanded by the United States, such failure to agree will constitute a dispute under the Contract Disputes Act (41 U.S.C.601).

(c) The Contractor shall permit any authorized representatives of the Government to examine and make copies of any documents, papers, or records relating to compliance with the requirements of this clause.

(d) The Contractor shall include in all negotiated subcontracts which the Contractor enters into, the substance of this clause, except paragraph (b), and shall require such inclusion in all other subcontracts, of any tier, including the obligation to comply with all CAS in effect on the subcontractor's award date or if the subcontractor has submitted cost or pricing data, on the date of final agreement on price as shown on the subcontractor's signed Certificate of Current Cost or Pricing Data. If the subcontract is awarded to a business unit which pursuant to 48 CFR 9903.201-2 is subject to other types of CAS coverage, the substance of the applicable clause set forth in subsection 30.201-4 of the Federal Acquisition Regulation shall be inserted. This requirement shall apply only to

negotiated subcontracts in excess of \$650,000, except that the requirement shall not apply to negotiated subcontracts otherwise exempt from the requirement to include a CAS clause as specified in 48 CFR 9903.201-1.

I-054 FAR 52.244-6 SUBCONTRACTS FOR COMMERCIAL ITEMS (Dec 2008) (M-053)

(a) *Definitions.* As used in this clause—

“Commercial item” has the meaning contained in Federal Acquisition Regulation 2.101, Definitions.

“Subcontract” includes a transfer of commercial items between divisions, subsidiaries, or affiliates of the Contractor or subcontractor at any tier.

(b) To the maximum extent practicable, the Contractor shall incorporate, and require its subcontractors at all tiers to incorporate, commercial items or nondevelopmental items as components of items to be supplied under this contract.

(c)(1) The Contractor shall insert the following clauses in subcontracts for commercial items:

(i) 52.203-13, Contractor Code of Business Ethics and Conduct (DEC 2008) (Pub. L. 110-252, Title VI, Chapter 1 (41 U.S.C. 251 note).

(ii) 52.219-8, Utilization of Small Business Concerns (May 2004) (15 U.S.C. 637(d)(2) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds \$550,000 (\$1,000,000 for construction of any public facility), the subcontractor must include 52.219-8 in lower tier subcontracts that offer subcontracting opportunities.

(iii) 52.222-26, Equal Opportunity (Mar 2007) (E.O. 11246).

(iv) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (Sept 2006) (38 U.S.C. 4212(a));

(v) 52.222-36, Affirmative Action for Workers with Disabilities (June 1998) (29 U.S.C. 793).

(vi) 52.222-39, Notification of Employee Rights Concerning Payment of Union Dues or Fees (Dec 2004) (E.O. 13201). Flow down as required in accordance with paragraph (g) of FAR clause 52.222-39).

(vii) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (Feb 2006) (46 U.S.C. App. 1241 and 10 U.S.C. 2631) (flow down required in accordance with paragraph (d) of FAR clause 52.247-64).

(2) While not required, the Contractor may flow down to subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(d) The Contractor shall include the terms of this clause, including this paragraph (d), in subcontracts awarded under this contract.

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1.0 General.

Inasmuch as the assigned missions of the Lawrence Livermore National Laboratory (Laboratory) are dynamic, this Statement of Work (SOW) is not intended to be all-inclusive or restrictive, but is intended to provide a broad framework and general scope of the work to be performed at the Laboratory. This SOW does not represent a commitment to, or imply funding for, specific projects or programs. The National Nuclear Security Administration (NNSA) and Department of Energy (DOE) work requirements are developed through strategic planning and program plans.

The Contractor shall, in accordance with the provisions of this Contract, provide the resources, intellectual leadership and management expertise necessary and appropriate to: (1) manage and operate the Laboratory; (2) accomplish the missions assigned by the National Nuclear Security Administration (NNSA) to the Laboratory and perform work from other sponsors; (3) enhance and promote communications, cooperation, integration, and interdependency across the Nuclear Weapons Complex (Weapons Laboratories, Production Plants and Test Site) that will result in improvements in performance of the Nuclear Weapons Complex; and, (4) foster and strengthen the Laboratory's role as a lead participant in the nuclear weapons program; and (5) emphasize cross-site coordination with NNSA's other nuclear design laboratory, Los Alamos National Laboratory. The Contractor shall integrate performance of world-class science and technology with laboratory operations, business operations and laboratory management.

Work under this Contract shall be conducted in a manner that will protect the environment; assure the safety and health of employees and the public; safeguard classified information; and, protect special nuclear material. In performing the Contract work, the Contractor shall assure and maintain: (1) that through its Management Systems, the products and services meet or exceed customer expectations, including using an integrated and effective Quality Assurance Program; (2) an earned-value management system for program activities and projects across the Laboratory to track progress and increase cost effectiveness of work activities; (3) integrated, resource-loaded plans and schedules to achieve program objectives and incorporate input from NNSA, DOE and stakeholders; (4) sufficient technical depth to manage activities and projects throughout the life of a program; (5) appropriate technologies to reduce costs and improve performance; (6) a system of management and business internal controls to assure the safeguarding of government funds and assets; and, (7) Laboratory facilities to accomplish assigned missions.

2.0 Laboratory Mission and Scope of Work.

The Contractor shall manage, operate, protect, sustain and enhance the Laboratory's ability to function as a NNSA Multi-Program Laboratory, while assuring accomplishment of the Laboratory's primary mission - strengthening the United States' security through development and application of world-class science and technology to enhance the nation's defense and to reduce the global threat from terrorism and weapons of mass destruction. The Contractor shall, with the highest degree of vision, quality, integrity and technical excellence, maintain a strong, multi-disciplinary scientific and engineering base responsive to scientific issues of national importance in addition to national security responsibilities, including broadly based programs in such areas as the environment, national infrastructure, health, energy, economic and industrial competitiveness, and science education. The scope of work of this Contract includes:

- Conducting major NNSA research and development programs including using an earned-value management system;
- Fostering an environment of scientific skepticism and peer review of research programs;
- Assuring the safety, security, reliability, and performance of the national nuclear weapons stockpile pursuant to national security policy and Presidential and Congressional directives;
- Demonstrating design and development capabilities to support a Reliable Replacement Warhead strategy, and stockpile and complex transformation;
- Providing scientific, engineering, and computational capabilities that support assessment, dismantlement, manufacturing, and refurbishment of the enduring stockpile at a number of sites;
- Operating major facilities including the National Ignition Facility that support broad national interests and users.
- Ensuring the secure handling and safe disposition of plutonium, highly enriched uranium, and tritium;
- Helping to deter, detect, and respond to the proliferation of weapons of mass destruction;
- Conducting fundamental science research, nuclear energy development, and nuclear waste management technology in support of other DOE programs;
- Contributing to civilian and industrial needs and non-NNSA defense activities through a work for others program by using the scientific and technical expertise that derives from carrying out the Laboratory mission;
- Providing access to the capabilities of the laboratory to further Department of Homeland Security mission objectives;
- Advancing of science, mathematics, and engineering education;
- Advancing science through technological innovation, public and private sector collaboration, and technology transfer to enhance U.S. economic competitiveness and national security;

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- Managing and operating the Laboratory facilities and infrastructure in an efficient, cost effective, and innovative manner;
- Remediating and restoring the Lawrence Livermore National Laboratory sites;
- Managing waste minimization, treatment, storage, and disposal of all wastes; and
- Assisting the nuclear weapons complex in waste stabilization, storage and disposition technologies.

The Contractor shall engage in the strategic and institutional planning necessary to assure that the Laboratory maintains a posture aimed at anticipating the national technical and scientific needs and is dedicated to providing practical solutions. The Contractor shall carry out these plans consistent with NNSA planning guidance and strategic planning material to assure uniformity with DOE and NNSA missions and goals. The Contractor shall also study and explore innovative concepts to minimize or mitigate possible national security threats, current and future.

The Contract's Scope of Work activities are in support of scientific and technical programs sponsored by major NNSA and DOE organizations. Primary NNSA and DOE sponsors include:

- Defense Programs
- Defense Nuclear Nonproliferation
- Emergency Operations
- Infrastructure and Environment
- Nuclear Safeguards and Security
- Environmental Management
- Science
- Nuclear Energy, Science and Technology
- Energy Efficiency and Renewable Energy
- Fossil Energy
- Intelligence

Additionally, the Contractor will pursue other DOE and non-DOE science and technology initiatives that derive from the Laboratory missions and use the Laboratory's core competencies in nuclear weapons science and technology, earth and environmental science, nuclear and atomic physics, materials, bioscience and biotechnology, nuclear science, plasmas and beams, complex experimentation and measurements, theory, modeling, high-performance computing, and analysis and assessment.

This SOW covers four general Performance Group activities critical to the Laboratory's management of corresponding programs, projects and processes. These Performance Groups are: Science & Technology, Laboratory Operations, Business Operations and Laboratory Management.

3.0 Science & Technology.

In support of major DOE sponsor organizations, the Laboratory is to serve as a national resource in science and engineering, focused on national security, energy, the environment, and bioscience, with special responsibility for nuclear weapons stockpile stewardship. The Laboratory will continue to use its multidisciplinary capabilities and apply its expertise to conduct research for the civilian and industrial sectors and conventional defense activities.

3.1 Defense Programs.

The Contractor shall support the NNSA's Defense Programs to ensure long-term safety, reliability and security of the nation's nuclear weapons stockpile. This includes support for the current stockpile and support for transformation activities leading to a future stockpile and infrastructure. The Contractor shall support Defense Programs in the development of an overall strategic plan and shall execute the plan as it pertains to the Laboratory. The Defense Programs strategic plan integrates programmatic work to maximize scientific and technical work accomplishment, to minimize duplication between programs and sites while providing for major investments in facilities.

3.1.1 Stewardship of United States Nuclear Weapons.

The Contractor shall support the science-based Stockpile Stewardship Program that underpins the technical basis for designing and certifying the safety, security and reliability of all nuclear weapons in the United States stockpile. In addition, this Program sets all technical specifications for manufacturing and surveillance operations as well as for maintenance activities conducted by the Department of Defense (DOD).

3.1.1.1 Stockpile Certification.

The Contractor shall provide elements of Stockpile Certification to include the following:

1. Laboratory Director's annual assessment of the stockpile;
2. A nuclear weapons quality control and stockpile evaluation program to detect defects and determine their effect on safety, security and reliability of the stockpile; support joint Department of Defense (DOD)/NNSA weapons system testing; perform reliability assessments and calculations; prepare reliability reports for all Laboratory assigned nuclear weapons in the stockpile; and

3. Continue technical support, and military liaison and training programs for the DOD in support of Laboratory assigned nuclear weapons in the stockpile.

3.1.1.2 Stockpile Stewardship.

The Contractor shall meet the near-term scientific and technical demands of the Laboratory's stockpile stewardship goals while strengthening its longer-term, technical, capability-based deterrent posture. Under this Program, the Contractor shall conduct the fundamental research, the development of physical models, the integration of these models into computer simulation codes, the experimental validation, and the engineering that are required to maintain the stockpile in a safe, secure and reliable manner. The Contractor shall provide technical specifications, engineering drawings and releases that direct planned and corrective activities both by NNSA production activities and by the DOD depots that support warhead and bomb component weapon manufacturing, maintenance, assembly and surveillance operations. The Program relies on three interconnected areas of surveillance activity which examine and diagnose aging phenomena in stockpile weapons, assess physical observations by calculations and experiments to evaluate safety and performance, and develop responses to assessments to provide the basis for continued stockpile certification and reliability assurance. These three areas are: (1) simulation codes and computational resources; (2) surveillance and surety; and (3) scientific capabilities, experiments and tests:

1. Simulation Codes and Computational Resources
 - A. Support the design, development and engineering stockpile life-cycle acquisition phases with modeling and simulation activities;
 - B. Develop high-performance computing and computational simulations to validate and certify the safety, reliability, and performance of the nuclear package in the absence of nuclear testing;
 - C. Conduct stockpile assessment of nuclear weapons components and the analysis of surveillance findings through the use of nuclear weapon simulation codes, computational resources, full-scale flight tests, and experiments;

- D. Participate in the Advanced Simulation and Computing program to enable model-and simulation-based life-cycle engineering that meets the NNSA vision for responsiveness; and
 - E. Archive previously recorded nuclear weapons data for assessment of stockpile weapons systems and improving models and codes.
2. Surveillance and Surety
- A. Participate in the Enhanced Surveillance Campaign to develop a capability to predict age-related phenomena in stockpile warheads and provide enhanced diagnostic tools;
 - B. Conduct core stockpile surveillance to evaluate safety, security, and reliability of the stockpile and develop design changes to correct findings; and
 - C. Evaluate current and develop new surety technology to address the safety, security, and control of nuclear warheads that extend over the entire weapons life cycle.
3. Scientific Capabilities, Experiments and Tests
- A. Improve the scientific basis for stockpile assessment through a balanced experimental and theoretical approach. This includes maturing scientific tools and capabilities that address fundamental questions relating to the stockpile;
 - B. Conduct experiments including hydrodynamic tests at Site 300 and the Nevada Test Site that provide non-nuclear testing capability to address the functionality and safety of the nuclear weapon primary;
 - C. Develop high-energy density physics and inertial fusion ignition to provide nuclear reaction information relevant to the nuclear portion of warhead performance, and lead the development of high-energy density physics and inertial fusion for

stockpile applications and for other national science and technology applications;

- D. Conduct experiments at the Nevada Test Site, consistent with U.S. policy, to validate models and codes that expand knowledge of dynamic properties of nuclear materials and reduce the need for underground nuclear tests;
- E. Participate in the Stockpile Readiness, High Explosives Manufacturing and Weapon Assembly/Disassembly Readiness, Non-nuclear Readiness, and Tritium Readiness campaigns which are designed to reestablish, maintain, and enhance manufacturing and other capabilities needed for the future production of weapons components for both the near-term Life Extension Programs and the Reliable Replacement Warhead Program; and
- F. Activities necessary to maintain nuclear underground test readiness according to defined National timelines.

3.1.1.3 Research and Development (R&D).

The Contractor shall develop R&D program plans, in conjunction with and approved by NNSA, for nuclear weapons R&D activities, and perform nuclear weapons R&D in accordance with the program plans. The Contractor shall explore and document nuclear weapons technology and systems concepts and perform and document feasibility studies and engineering development of nuclear weapons to meet NNSA and DOD mission requirements. The Contractor shall perform and document R&D to support the NNSA technology base and engineering that will assure nuclear competency and effectively support the varied demands of nuclear weapon activities and enhance the ability to anticipate significant scientific or technological advances that impact national security. The Contractor shall provide R&D and engineering support related to international mutual defense agreements.

The Contractor shall maintain state-of-the-art technologies and capabilities to support high-performance computing, modeling, and simulation; communications; and information management. The Contractor shall participate in the Advanced Simulation and Computing Campaign and

other associated research on complex and large-scale national problems in computational science.

3.1.1.4 Support to Nuclear Weapons Complex (NWC) Production Mission.

The Contractor shall provide technical support to the NNSA at nuclear weapon production sites. The Contractor shall support the NWC production sites by:

1. Developing, maintaining and providing specialized manufacturing technologies and expertise to support production of systems and components. This includes providing technical support in developing and implementing necessary tooling and procedures to perform production that meets Seamless Safety for the 21st Century (SS-21) standards;
2. Developing and providing engineering, testing and production process development guidance for systems and components.;
3. Designing, developing, and certifying systems and components to support assigned activities for Life Extension Programs and Reliable Replacement Warhead Program;
4. Performing all life cycle management responsibilities in design, engineering development, component acceptance and stockpile certification to support weapon alterations, modifications, refurbishments and replacements;
5. Evaluating weapon response to hazard analysis scenarios in support of the SS-21 activity;
6. Participating in the development of the Documented Safety Analyses to support safe operations at the Pantex Plant;
7. Providing development of specialized facility criteria; recommending and managing R&D and testing for emerging technologies;
8. Providing technical support and independent technical oversight for needed physical rearrangements;

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9. Establishing testing and acceptance criteria; participating in approval of test procedures and results;
10. Contributing to the development of training requirements;
11. Supporting the implementation of steps that support the NNSA responsive infrastructure vision that supports the complex of the future; and
12. Providing the necessary documentation for the items listed above to support nuclear weapons production.

3.1.1.5 Nuclear Materials Management and Dismantlement.

The Contractor shall conduct a Nuclear Materials and Stockpile Management Program. The Contractor shall support the following activities of that program:

1. Stockpile evaluation;
2. Weapons dismantlement and component disassembly including weapon component material characterization, material disposition processes;
3. Safety analysis of disassembly techniques and tools;
4. Providing prescriptions and technical assistance for nuclear materials recovery and reuse, storage, processing, and disposition;
5. Residue elimination, waste minimization, and environmental and mixed-waste management;
6. Test-component remanufacture;
7. Materials characterization; site cleanup and materials stabilization;
8. Contamination control;
9. Health and safety issues;
10. Operating highly specialized facilities that are key to Laboratory efforts in this program; and,

11. Providing support to NNSA for stabilizing nuclear materials and overseeing a core technology program that will improve the understanding of underlying material interactions.

3.1.1.6 Device Assembly Facility.

The Contractor shall conduct research and support activities related to NNSA's Stockpile Stewardship Program, including test readiness and assembly of subcritical experiments at the Device Assembly Facility (DAF).

3.1.1.7 Joint Actinide Shock Physics Experimental Research

At the Joint Actinide Shock Physics Experimental Research (JASPER) gas gun, the contractor shall conduct research in material physics.

3.1.1.8 Site 300 Operations.

The Contractor shall operate the Site 300 to support hydrodynamic testing and other experiments in accordance with program plans approved by the NNSA.

3.1.2 Inertial Confinement Fusion.

The Contractor shall conduct an inertial confinement fusion program that maintains United States leadership in high energy density physics. This includes achieving ignition and using ignition facilities to gather information relevant to stockpile stewardship. The program of ignition is a national effort that depends on cooperation and collaboration with multiple NNSA contractors and includes major experimental activities at the National Ignition Facility (NIF) and other NNSA sites. As part of this effort, the Contractor will participate as a leading member of a national team that supports all aspects of the national program; including target physics, target fabrication, diagnostics, experimental planning, and any other activities necessary to achieve the ignition program goals.

3.1.3 National Ignition Facility.

The Contractor shall complete construction of NIF. The NIF is a Laboratory micro fusion experimental facility for defense and civilian applications. The Contractor shall operate the NIF (i) to conduct science-based stockpile stewardship experiments for the purpose of simulating, analyzing, and validating the safety, reliability, and performance of

nuclear weapons in the absence of nuclear testing; and (ii) for the national user community to support research and simulation in high-energy density physics, atomic and nuclear physics, fusion energy, and astrophysics as well as other defense and civilian applications.

3.1.4 Building 332 Plutonium Facility

The Contractor shall conduct research and development on Special Nuclear Material and operate Building 332 Plutonium Facility consistent with the current Authorization Agreement, including any revisions.

3.1.5 Long-Range Planning and Systems Integration.

The Contractor shall support Sandia National Laboratories in the long-range planning and systems integration activities for the Nuclear Weapons Complex. This will include independent research, trade-off studies, cost analyses, systems analyses.

3.1.6 Stockpile and Infrastructure Transformation.

The Contractor shall support NNSA's transformation plans to reduce the nuclear weapons stockpile and NWC infrastructure, NWC infrastructure modernization, and to also achieve efficiencies and savings from improved methods, modern technologies, and adoption of modern management systems and techniques. Transformation of the NWC may involve NNSA assigning work from its NNSA's laboratories, production plants, or Test Site to the Contractor or reassigning work from the Contractor to another NWC contractor in order to capitalize on integration and interdependencies within the NWC.

3.1.6.1 Reliable Replacement Warheads (RRW)

The Contractor shall support NNSA initiatives in partnership with the Department of Defense to transform the nuclear stockpile through design and development of RRWs.

3.1.6.2 Closure of Site 300

If directed by NNSA, the Contractor shall support the closure of Site 300.

3.1.6.3 Removal of Category I and II materials from LLNL

If directed by NNSA, the Contractor shall plan for and implement the elimination of Category I and II materials from LLNL

consistent with the availability of repository sites, but no later than 2014, while preserving the materials skills for Category III and below.

3.1.6.4 Closure of Building 332

If directed by NNSA, the Contractor shall support the removal of Special Nuclear Material and closure of Building 332 Plutonium Facility in accordance with NNSA direction.

3.2 Defense Nuclear Nonproliferation.

The Contractor shall develop and apply the science and technology, and perform appropriate related analytical tasks required to detect, deter, prevent and respond to proliferation of weapons of mass destruction worldwide.

3.2.1 Global Threat Reduction Programs.

The Contractor shall develop and apply the science and technology, and perform appropriate related analytical tasks required to reduce inventories of weapons-useable nuclear materials and dangerous radiological materials, including: (1) converting U.S. and foreign research reactors to the use of low enriched uranium fuel or other proliferation-resistant technologies, (2) repatriating Highly Enriched Uranium and Low Enriched Uranium to countries of origin for secure storage, disposition or blend-down, and (3) securing, transporting, storing or dispositioning radiological materials.

3.2.2 Nonproliferation Research and Engineering.

The Contractor shall develop and apply the science and technology, and perform appropriate related analytical tasks required to develop advanced remote sensing, monitoring and assessment technologies to address the most challenging problems related to detection, location, and analysis of global proliferation of nuclear weapon technology, and the diversion of special nuclear materials. This includes detecting and identifying emanations, effluents, and other distinctive signatures of potential nuclear weapons research and development efforts.

3.2.3 Nuclear Risk Reduction.

The Contractor shall develop and apply the science and technology, and perform appropriate related analytical tasks required to eliminate surplus inventories of weapons-useable materials, including materials from dismantled weapons and production reactors and facilities, to support

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verification of international agreements, and to strengthen foreign and international efforts to respond effectively to nuclear emergencies.

3.2.4 Nonproliferation and International Security.

The Contractor shall develop and apply the science and technology, and perform appropriate related analytical tasks required to support the application and strengthening of international nuclear safeguards, support United States (U.S.) Government negotiations and policy analysis, strengthen U.S. and allied export control diplomacy and policy development, improve workforce transition and scientist engagement efforts around the world, improve regional and international security, permit intelligence monitoring and arms control treaty verification, strengthen global controls on nuclear materials and weapons, protect nuclear materials from theft or diversion, assess foreign Weapons of Mass Destruction programs, and develop tools and techniques to encourage proliferation-resistant fuel cycle technologies.

3.2.5 International Material Protection and Cooperation.

The Contractor shall develop and apply the science and technology, and perform appropriate related analytical tasks required to secure nuclear weapons and materials in Russia and other weapons states, including both military and civilian facilities, support the blenddown of excess weapons-useable Highly Enriched Uranium to Low Enriched Uranium, deploy radiation detection monitors at strategic border crossings and transit points, and to expand the capacity of other countries to properly secure their nuclear weapons and materials.

3.2.6 Fissile Materials Disposition.

The Contractor shall develop and apply the science and technology, and perform appropriate related analytical tasks required to eliminate surplus plutonium and Highly Enriched Uranium.

3.2.7 Nonproliferation, National Security and Verification Technology.

The Contractor shall conduct a nonproliferation, national security, treaty verification technology program, and dismantlement verification program; including the development of methods for detection/verification of underground nuclear testing and of undeclared enrichment and reprocessing activities. The Contractor shall perform R&D for nuclear security, nonproliferation of weapons of mass destruction (nuclear, chemical and biological, and of missile delivery systems), and treaty verification technologies. This can include the application of remote sensing, monitoring and assessment technology to identify emanations, effluents, and other distinctive signature of potential nuclear, biological,

and chemical weapons efforts, as well as to the detection of nuclear explosions and other national security applications. The Contractor shall perform and assist with the application of security technology to international nuclear materials and weapons protection.

3.2.8 Nuclear, Biological, and Chemical Weapons

The Contractor shall apply science and engineering technologies to reduce the threat of nuclear, radiological, biological and chemical weapons proliferation and terrorism. The Contractor shall provide a scientific and technological knowledge base in chemistry and materials science to support security needs, and development of new areas for science based stockpile stewardship, NIF, and other programs.

3.2.9 National Atmospheric Release Advisory Center (NARAC)

The Contractor shall conduct operational and research activities for the National Atmospheric Release Advisory Center (NARAC). NARAC is the national capability for emergency response assistance following the release of radioactive or toxic materials into the atmosphere resulting from accidents at nuclear reactors or in nuclear weapons handling and transport, and industrial or transportation releases in the United States.

3.3 Science Programs.

3.3.1 Basic Science Programs.

The Contractor shall conduct research in the areas of materials sciences, chemistry, and geosciences, providing knowledge essential to defense, energy efficiency, industrial competitiveness, engineering sciences, atomic physics, computational sciences, biological sciences, nanoscience, and other areas of national interest, including scientifically tailored materials and mathematics, and advancing the state of science for the benefit of DOE/NNSA.

3.3.2 Fusion Energy Sciences.

3.3.2.1 The Contractor shall conduct modest scale experimental, theoretical, and technological studies to advance plasma science, fusion science, and fusion technology.

3.3.2.2 The Contractor shall conduct an inertial confinement fusion program to understand the science and develop the technology of inertial confinement fusion with the goal of demonstrating controlled thermonuclear fusion ignition and energy gain.

3.3.2.3 The Contractor shall conduct a magnetic fusion energy program that advances the physics and technologies required for magnetic fusion and that advances international cooperation in magnetic fusion energy to share the cost and technical risks of large-scale fusion devices.

3.3.3 High Energy and Nuclear Physics.

The Contractor shall conduct high energy and nuclear physics research involving experimental and theoretical programs in nuclear and particle physics.

3.3.4 Lasers and Electro-Optics.

The Contractor shall conduct research in lasers and electro-optics technologies for astronomical imaging, and other defense and civilian needs.

3.3.5 Advanced Scientific Computing Research (ASCR).

The Contractor shall conduct the ASCR program by supporting research in applied mathematics, computer science and high-performance networks and providing high-performance computational and networking resources.

3.3.6 Atmospheric Research

The Contractor shall conduct research on climate and atmospheric processes in the study of human effects on global climate including a program for climate model diagnosis and intercomparison that studies atmospheric models to diagnose and improve the predictive credibility of climate models.

3.3.7 BioScience Research

The Contractor shall conduct research supporting bioscience, biodefense, biotechnology and health of the nation. The Contractor provides support to study the consequences of adverse environments on living systems, DNA mutations, understanding the role in reducing health risks from environmental exposures such as radiation, improvements in technology for human health care diagnoses such as cancer, biological pathogens, and toxins.

3.4 Energy Technology Programs.

The Contractor shall conduct research and studies to address national energy needs in fundamental areas including integrated chemical and materials processing, energy supply and the environment, and transportation and infrastructure.

3.4.1 High-Temperature Superconductivity.

The Contractor shall develop practical high-temperature, high-current-density superconductors and form partnerships with U.S. industry to expedite the development of commercially feasible high-temperature superconductor technology.

3.4.2 Energy Supply.

The Contractor shall conduct research that addresses energy supply issues by applying capabilities in the areas of exploration, reservoir modeling, integrated assessments, and environmental transport. The Contractor shall support DOE/NNSA's efforts in the broad areas of energy efficiency, renewable energy, fossil energy, and nuclear energy.

3.4.3 Transportation and Infrastructure.

The Contractor shall conduct research, development, and demonstration of alternative and advanced energy programs including fuel cell and hydrogen production, delivery, and storage technologies to accelerate the introduction of these technologies into the transportation sector.

3.5 Environmental Technologies Development.

The Contractor shall apply scientific and engineering capabilities to develop new technologies for timely, cost-effective, and comprehensive solutions for local, regional, and global environmental problems. This includes waste management, environmental stewardship, and environmental resource problems. This also includes new approaches to treatment, disposal, storage, and reduced generation of waste and the safety, security, reliability and sustainability of environmental resources, technologies, engineered systems, and public policies to produce, deliver and use the resources where needed. The Contractor shall apply, with Contracting Officer approval, capabilities to waste management, environmental restoration, and facility stabilization problems at the Laboratory, within the NNSA Nuclear Weapons Complex and other locations.

3.6 U.S. Department of Homeland Security Programs.

The Contractor shall make Laboratory resources available and perform work for the U.S. Department of Homeland Security.

3.6.1 Forensic Science Center.

The Contractor shall enhance the disciplines of forensic science/chemical and material sciences by conducting a program of research and development in advanced analytic methods and shall provide forensic support to investigations conducted by the domestic law enforcement, counter terrorism, intelligence, and regulatory agencies as well as support to the Organization on the Prohibition of Chemical Weapons (OPCW).

3.7 Work for Others.

The Contractor shall conduct a Work for Others (WFO) Program, as approved by the Contracting Officer. Some of the major WFO sponsors include DOD, National Aeronautics and Space Administration, National Institutes of Health, the National Science Foundation, the Department of State, non-federal entities, local and state governments, and academia.

3.8 Laboratory-Directed Research and Development.

The Contractor shall conduct an NNSA approved Laboratory Directed Research and Development program that encourages multidisciplinary, multidivisional, and innovative research on complex scientific and engineering problems and on individual basic and applied research projects to enhance the core capabilities and competencies required to fulfill the Laboratory's missions.

3.9 Industrial Partnerships and Technology Transfer Programs.

The Contractor shall, as approved by the Contracting Officer, establish industrial partnerships that transfer new technologies from the Laboratory to public and private sector collaboration and make available to private industry the unique capabilities of the Laboratory in order to enhance the Laboratory's ability to meet mission requirements and improve the industrial competitiveness and national security of the U.S.

4.0 Laboratory Operations.

The Contractor shall operate the Laboratory to; function as a NNSA multi-program laboratory, provide the infrastructure and support activities, and support the accomplishment of the Laboratory's missions.

4.1 Security.

The Contractor shall conduct a security program that fosters an institutionalized security conscious culture that performs work securely and assigns unambiguous roles, responsibilities, authorities, and accountability while integrating excellence in safeguards and security into all Laboratory activities. The Contractor shall support NNSA and DOE overarching security initiatives such as (1) the study of alternative contracting arrangements for the protective force including the feasibility of a single protective force unit for LLNL and Sandia National Laboratories - California; and (2) security technology deployment efforts including the ARGUS complex-wide deployment.

4.2 Environment, Safety and Health.

The Contractor shall conduct an Environment, Safety and Health (ES&H) program that (1) achieves an institutionalized ES&H conscious culture that embraces Conduct of Operations and allows work to be performed safely, (2) assigns unambiguous roles, responsibilities, authorities, develops appropriate work controls and ensures accountability for the performance of work in a manner that ensures protection of workers, the public and the environment, and (3) integrates excellence in ES&H into all Laboratory activities. Through an Integrated Safety Management System, ES&H management processes, formal work control and work performance processes, the Contractor shall ensure the safe performance of all Laboratory work. The Integrated Safety Management System shall be applied to all Contractors, including subcontractors or other entities' activities conducted at the Laboratory.

The Contractor shall conduct a hazard categorization and analysis process, a startup and restart process, as well as a safety authorization basis process for non-nuclear facilities that includes approval by the Contracting Officer for moderate hazard facilities/operations and high hazard facilities/operations. The Contractor shall ensure implementation of a formal ES&H performance based self-assessment process addressing both ES&H program and line management implementation that is (1) risk based and has the requisite depth, breadth, rigor and defensibility, (2) conducted with the appropriate subject matter expertise, (3) performance and behavior based, and (4) tied to an institutional issues management program that ensures closure of findings and opportunities for improvement.

The Contractor shall cooperate with worker health studies conducted by other Federal agencies and contract researchers under NNSA/DOE sponsorship.

4.3 Nuclear Safety

The Contractor shall conduct a safety management system addressing nuclear safety requirements including: (1) achieving an institutionalized nuclear safety conscious culture that embraces Conduct of Operations and allows work to be performed safely, (2) assigning unambiguous roles, responsibilities, authorities, developing appropriate work controls and ensuring accountability for the performance of work in a manner that ensures protection of workers, the public and the environment, (3) integrating excellence in nuclear safety into all appropriate Laboratory activities, (4) using a robust safety authorization basis process, (5) using system engineering and configuration management of structures, systems and components important to safety, (6) assuring quality, (7) stabilization and disposition of nuclear materials, and (8) startup and restart of nuclear facilities.

The Contractor shall also conduct activities in accordance with those DOE commitments to the Defense Nuclear Facilities Safety Board (DNFSB) contained in Secretary of Energy's implementation plans and other DOE correspondence to the DNFSB. The Contractor shall support, as directed by the Contracting Officer, preparation of DOE responses to DNFSB issues and recommendations accepted by the Secretary of Energy which affect Contract work. The Contractor shall fully cooperate with the DNFSB and provide access to facilities, information and Contractor personnel. The Contractor shall maintain a document process consistent with the DOE Manual on interfacing with the DNFSB. The Contractor shall ensure that subcontractors adhere to these requirements.

4.4 Counterintelligence and Counter Terrorism.

The Contractor shall conduct a comprehensive counterintelligence and counter terrorism program to assess, detect and deter foreign intelligence, espionage, and international terrorist threats to the personnel, facilities, and technologies within the Contractor's purview.

4.5 Emergency Operations.

4.5.1 Emergency Management

The Contractor shall conduct an emergency management program that encompasses all laboratory activities and includes planning, preparedness, response, and readiness assurance as well as an emergency occurrence notification and reporting system, and operation of an Emergency Operations Center (which includes support to the County of Alameda).

4.5.2 Emergency Response

The Contractor shall maintain emergency response capabilities for local, regional, and national missions to include a Radiological Assistance Program and support to the NNSA Nuclear Emergency Support Team, and the Accident Response Group in the areas of nuclear weapons expertise, nuclear weapons surety, atmospheric modeling and projections, consequence management, radiation monitoring and sampling, dose assessment, radiation protection, sample processing and analysis, environment, safety, and health, waste management, transportation, and other areas requiring specialized planning, training, and response to nuclear weapons accidents or incidents.

4.6 Environmental Management.

For all work performed at the Laboratory or Nevada Test Site, the Contractor shall: (1) conduct environmental restoration activities, including characterization and remediation, in accordance with regulatory and enforceable agreements requirements and milestones (2) conduct environmental compliance activities, including management of cultural resources, threatened and endangered species and their habitats, designated critical habitats, and National Environmental Policy Act (NEPA), in accordance with programmatic agreement requirements and milestones, biological opinions, and federal regulations; (3) manage waste and facilities to support Laboratory missions including treatment, storage, and disposal of solid, hazardous, mixed, and radioactive wastes; (4) decontaminate and decommission facilities and infrastructure; (5) coordinate and implement waste minimization and pollution prevention initiatives; and (6) implement International Organization for Standards (ISO) 14001: 2004, and any revisions.

4.7 Facility Operations, Infrastructure, Design and Project Management.

4.7.1 Facility Operations and Infrastructure.

The Contractor shall manage Government-owned facilities and infrastructure, both provided and acquired, to further national interests and to perform NNSA/DOE statutory missions. The Contractor shall use a performance-based approach to real property life-cycle asset management to perform overall integrated planning, acquisition, maintenance, operations, upgrades, and management of Government-owned, leased or controlled facilities and infrastructure, and real property accountable to the Laboratory. The Contractor shall employ facilities management practices that are best-in-class and integrated with mission assignments and business operations. The Contractor's maintenance management program shall be based on best practices to maintain Government property in a manner which: (1) promotes and continuously improves operational

safety, environmental protection and compliance, property preservation and cost effectiveness, (2) ensures continuity and reliability of operations, fulfillment of program requirements and protection of life and property from potential hazards, and (3) ensures the condition of all assets will continuously improve over the period of performance; and, (4) assists NNSA/DOE through direct participation and other support in achieving DOE's energy efficiency goals and objectives in electricity, water, and thermal consumption, conservation, and savings, including goals and objectives contained in Executive Order 13423 "Strengthening Federal Environmental, Energy, and Transportation Management." Facility and infrastructure planning and performance shall be documented in a Ten-Year Comprehensive Site Plan that is updated annually, for review and approval by the Contracting Officer, and covers a ten-year planning horizon. The Site Plan should include detailed plans and milestones for achieving site-specific energy efficiency goals and objectives. With respect to 4.7.1 paragraph (4) above, the Contractor shall maximize the use of private sector, third-party financing applied on a life-cycle cost effective basis, particularly from Energy Savings Performance Contracts and Utility Energy Services Contracts awarded by DOE and supported by the Contractor with minimal DOE funding.

4.7.2 Facility Design and Project Management.

The Contractor shall use a resource loaded Earned-Value Project Management System across the Laboratory. The Contractor shall provide design and risk analysis, value engineering, configuration management, conceptual designs, preliminary designs, material testing, and surveying in support of engineering designs; final designs and construction drawings; and as-built drawings pursuant to construction inspections, surveying, and material testing services for activities supporting NNSA and its programmatic customers. The contractor shall perform all support activities for DOE/NNSA small business construction contracts and Energy Savings Performance Contracts (ESPC) from the initial proposal phase through the performance period. These support activities include and are not limited to engineering and design review, providing security escorts, construction inspection, project and construction management, maintenance and operations commissioning, and measurement and verification oversight.

4.8 User Facilities.

The Contractor shall manage all Laboratory User Facilities. The Contractor shall make available and encourage use of Laboratory research facilities designated by NNSA as Technology Deployment Centers or User Facilities by the U.S. industry, universities, academia, other laboratories, state and local governments, and the

scientific community in general. Contracting Officer approval is required prior to entering into any user agreement. Such centers and facilities consist of physical facilities, equipment, instrumentation, scientific expertise and necessary operational personnel.

4.9 Waste Storage Facilities.

The Contractor shall conduct storage activities and operate the waste storage facilities consistent with the current Authorization Agreement and any revisions.

4.10 On-site Nuclear Material Transportation Activities.

The Contractor shall conduct on-site nuclear material transportation activities safely, securely, and efficiently, consistent with the current Authorization Agreement and any revisions.

5.0 Business Operations.

The Contractor shall manage and administer a system of internal controls for all business and administrative operations. Management of the Laboratory business and administrative operations shall include integrating common systems of internal controls across the Laboratory and implementing business processes that are risk-based, cross-functional, cost effective, optimize and streamline operations, increase efficiency and enhance productivity.

5.1 Strategic Human Capital Management.

The Contractor shall maintain a strategic human capital management system to attract and retain a world class workforce and promote workforce diversity. This system shall promote workforce excellence by attracting and retaining a world class science and technology workforce and by ensuring maintenance of critical skills for the nuclear weapons program and limiting the number and duration of vacancies in positions requiring critical skills while optimizing direct to indirect employee ratios. The Contractor shall conduct comprehensive pre-employment screening as part of its strategic human capital management system.

5.2 Financial Management.

The Contractor shall maintain a financial management system that is integrated with NNSA's financial management system and provides sound financial stewardship and public accountability. The overall system shall be suitable to: collect, record, and report all financial activities; include a budgeting system for the formulation and execution of all resource requirements; include a disbursements system for employee payroll and supplier payments; and contain an effective internal control system for all expenditures.

5.3 Purchasing Management.

The Contractor shall maintain a NNSA-approved purchasing system to provide purchasing support and subcontract administration, including subcontract pre-award and post-award reviews. The Contractor shall actively participate in strategic sourcing activities and centralized purchasing for the Nuclear Weapons Complex. The Contractor shall, when directed by NNSA and may, but only when authorized by NNSA, enter into subcontracts for the performance of any part of the work under this Contract.

5.4 Personal Property Management.

The Contractor shall maintain an NNSA-approved personal property management system for overall integrated planning, acquisition, maintenance, operation, control, accountability, utilization, and disposal of Government owned personal property.

5.5 Real Property Management.

The Contractor shall manage Government-owned and Contractor-leased real property. The Contractor shall perform overall integrated planning, acquisition, maintenance, operation, management and disposition of Government-owned real property and Contractor-leased facilities and infrastructure used by the Laboratory. Real property management shall include providing office space within the Laboratory site, including laboratory services and parking, for the NNSA Livermore Site Office as identified by the Contracting Officer, and any other additional space, parking and related laboratory services as requested by the Contracting Officer. Real property may also be made available to private and public sector entities, including universities, industry, and local, state, and other government agencies, subject to the Contracting Officer's approval.

5.6 Information Resources Management.

The Contractor shall maintain the inter-site and intra-site classified and unclassified information system for technical programs, organizational, business and operations functions and for activities including general purpose programming, data collection, data processing, report generation, software, electronic and telephone communications. The Contractor shall provide computer resource capacity and capability sufficient to support (1) Laboratory-wide information management requirements and (2) Laboratory wide classified computing infrastructure. The Contractor shall also maintain a records management program. The Contractor shall, with Contracting Officer approval, standardize non-scientific software and hardware programs/platforms within the Laboratory for generating and storing electronic information.

5.7 Legal Affairs.

The Contractor shall maintain a legal program to support contract activities including those related to patents, licenses, and other intellectual property rights; subcontracts; technology transfer; environmental compliance and protection; labor relations; and litigation and claims.

6.0 Laboratory Management.

The Contractor shall provide the management and expertise to lead the Laboratory in accomplishing the Science and Technology, Laboratory Operations and Business Operations activities.

6.1 Audits and Assessments.

The Contractor shall conduct an audit program which provides capabilities for internal and subcontractor audits and supports external audits, reviews, and appraisals.

6.2 Community Support.

The Contractor shall, with Contracting Officer approval, provide community support to facilitate Laboratory operations, including coordination with the Counties of Alameda, Contra Costa, and San Joaquin. The Contractor shall perform periodic needs assessments to determine what support to the community is necessary to facilitate Laboratory operations.

6.3 Science and Math Education.

The Contractor shall conduct a science and mathematics education program . The program may include, with the Contracting Officer's approval, technical assistance; loans of scientific equipment; programs of "hands on" research experience for students, teachers and faculty members; a program of encouraging volunteerism and community service; and cooperative programs.

6.4 Communications and Public Affairs.

The Contractor shall conduct communications and public affairs programs including public participation, internal and external communications; community involvement and outreach; interactions with the media, businesses, and the scientific and technical community; and liaison and consultation with local, state, federal agencies and Congressional offices.

6.5 Other Administrative Services.

The Contractor shall provide other administrative services to include operating communications systems; operating transportation and traffic management services, operating a records management system; and operating a systems of records for individuals including those related to personnel radiation exposure information, medical, safety and health; logistics support to the NNSA Livermore Site Office, when approved by the Contracting Officer; and, support other NNSA Nuclear Weapons Complex initiatives, when approved by the Contracting Officer.

6.6 Training.

The Contractor shall implement a training and qualification program including general training, orientation, and indoctrination; employee development; educational and professional advancement, and facilities-specific training and qualification. All Laboratory training and qualification programs shall emphasize the environment, safety and health (ES&H), and safeguards and security aspects of job and position responsibilities. The Contractor's training and qualification program shall be an element of the laboratory integrated safety management process. The Contractor shall provide other training programs and opportunities as approved by the Contracting Officer. The Contractor shall ensure the continuing involvement by senior laboratory line management in directing and evaluating the training and qualification program.

7.0 Reports and Other Deliverables.

The Contractor shall prepare, submit, disseminate, or otherwise publish financial, schedule, scientific, and technical performance plans and reports; and other information and deliverables as required elsewhere in this Contract or as required by the Contracting Officer or his/her authorized representative in accordance with the provisions of this Contract.

The Contractor shall provide a Deliverable Tracking System that will track and report all required reports and other deliverables, such as those specified in the contract terms, appendices, directives, and work authorizations. At a minimum, the Deliverable Tracking System and report shall track the name of the report or other deliverables, requirement document name, document tracking number, document tracking number, due dates, deliverable requestor, and date transmitted; and shall be submitted to the Contracting Officer upon commencement of the contract term and on a monthly basis thereafter.