

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE	PAGE OF PAGES 1 1
2. AMENDMENT/MODIFICATION NO. A090	3. EFFECTIVE DATE See Block 16C	4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO. (if applicable)
6. ISSUED BY U.S. Department of Energy Office of Civilian Radioactive Waste Management P.O. Box 364629 Las Vegas, NV 89036-8629		7. ADMINISTERED BY (if other than Item 6) CODE U.S. Department of Energy Office of Civilian Radioactive Waste Management P.O. Box 364629 Las Vegas, NV 89036-8629		
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code) Bechtel SAIC Company, LLC 1180 Town Center Drive Las Vegas, NV 89144			(%)	9A. AMENDMENT OF SOLICITATION NO.
				9B. DATED (SEE ITEM 11)
			X	10A. MODIFICATION OF CONTRACT/ORDER NO. DE-AC28-01RW12101
				10B. DATED (SEE ITEM 13) 11/14/00
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 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 ACKNOWLEDGMENT 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):

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

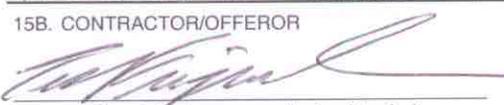
(%)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
X	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: Bilateral - Mutual Agreement of the Parties
	D. OTHER (Specify type of modification and authority)

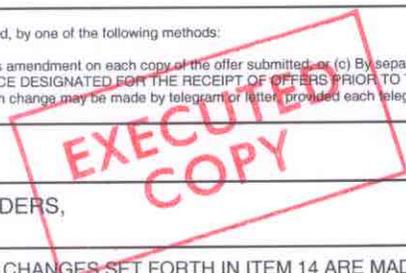
E. IMPORTANT: Contractor _____ is not, X is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

The purpose of this modification is to exercise the first year of the option period, which resulted in a revised estimated contract cost, and revised award fee. Section B of the contract is replaced in its entirety and is attached (Attachment 1). Part II - Contract Clauses, Section, I.34, DEAR 970.5215-3, Conditional Payment of Fee, Profit, or Incentives (Dec 2000), is replaced with the revised clause, DEAR 970.5215-3, Conditional Payment of Fee, Profit, and Other Incentives - Facility Management Contracts (Jan 2004) Alt II (Jan 2004) (Attachment 2). Section C of the contract is replaced in its entirety and is attached (Attachment 3).

Except as provided herein, all terms and conditions of the document referenced in Item 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print) TED C. FEIGENBAUM PRESIDENT AND GENERAL MANAGER		16. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Birdie Hamilton-Ray Contracting Officer	
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED 4/11/06	16B. UNITED STATES OF AMERICA BY  (Signature of Contracting Officer)	16C. DATE SIGNED 4/5/06



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PART I – THE SCHEDULE

SECTION B

SUPPLIES OR SERVICES AND PRICES/COST

PART I - THE SCHEDULE

SECTION B

SUPPLIES OR SERVICES AND PRICES/COST

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PART I - SECTION B

SUPPLIES OR SERVICES AND PRICES/COST

B.1 SERVICES BEING ACQUIRED

The Contractor shall, in accordance with the terms of this contract, provide the personnel, materials, supplies, and services (except as may be expressly set forth in this contract as furnished by the Government) and otherwise do all things necessary for, or incident to, providing its best efforts so as to carry out in an efficient and cost-effective manner all necessary related services to manage the programs and operate the facilities as described in the Statement of Work in Section C of this Contract.

B.2 OBLIGATION OF FUNDS

The total amount of funds obligated under this contract, in accordance with Section I, Contract Clause DEAR 970.5232-4, entitled, "Obligation of Funds," is \$1,477,399,573.10.

B.3 ESTIMATED COST AND FEE

a. Estimated Cost for Transition Period and Phase-in Period

- (1) The transition period (effective date of award to February 11, 2001) will be on a cost reimbursement basis and the estimated cost is \$9,579,862. There will be no fee paid for the transition period.
- (2) The phase-in period (February 12 to March 31, 2001) will be on a cost reimbursement basis and the estimated cost is \$23,154,000. There will be no fee paid for the phase-in period.

b. Estimated Contract Value

- (1) The following is the estimated contract cost for the base contract period and the first year of the option period based upon the annual appropriation and out year funding requirements identified in the Civilian Radioactive Waste Management Program Plan, Revision 3, and the Total System Life Cycle Costs.

FY 01	\$ 156,483 K
FY 02	\$ 246,170 K
FY 03	\$ 366,879 K
FY 04	\$ 367,478 K
FY 05	\$ 335,506 K
FY 06 (6 months)	\$ 162,148 K
First Year of the Option	<u>\$ 308,164 K</u>
	\$ 1,942,828 K

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- (2) The maximum fee available for PBIs and Award Fee Incentive for the performance period 04/01/01 to 03/31/06 shall be \$120,147,878.

(The amount of fee which is available for the final performance period from 04/01/05 to 03/31/06 of the base contract period is \$61,231,468. Final fee for the base period and the resolution of the provisional fee will be made prior to March 31, 2007.)

- (3) The amount of the fee which is available for the performance period 04/01/06 to 03/31/07 is \$18,303,770.

- c. The fee available for the performance period 04/01/06 to 3/31/07 shall be associated with Award Fee with the following measures, amounts:

- (1) The description of the Award Fee Incentive is set forth in the following paragraphs with the details contained in the Performance Evaluation and Measurements Plan (PEMP).
- (2) The maximum fee available for Award Fee Incentive for the performance period 04/01/06 to 03/31/07 shall be \$18,303,770.
- (3) The Award Fee Incentive must be achieved within the cost and funding profile set forth in paragraph B.3.b above unless the profile is modified pursuant to paragraph B.3.d (3) below.

- d. Award Fee

Award Fee: Fee for this incentive shall be measured semi-annually. The total award fee available will be equally split between the two six-month time periods between April 1, 2006 and March 31, 2007. The Special Emphasis Areas (SEAs) will be developed for each six-month period beginning April 1, 2006. They may change from period to period to reflect their current importance and degree of concern for performance. These SEAs are defined in the PEMP. The definition will include SEA description, related expectations and evaluation criteria. It is expected that there will be from four to six SEAs for each evaluation period. The PEMP will reflect the allocation of fee for the SEA. At the conclusion of each six-month evaluation period, DOE may award fee associated with the SEAs for that period.

- (1) Adjustments to award fee may occur subject to:

The Section I, Contract Clause I.34, DEAR 970.5215-3, entitled, "Conditional Payment of Fee," is applicable.

- (2) In the event the Annual Appropriations estimated in B.3.b above deviates for any fiscal year more than plus or minus 10% from the base set forth in b

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above, the Contractor agrees to negotiate with DOE, pursuant to the Section I, Contract Clause DEAR 970.5243-1, entitled, "Changes," an equitable adjustment to the contract, which may include the maximum total available fee amount, PBIs, award fee (to include SEAs), allocation of fee to PBIs, to reflect the impact of such deviation. In the event the parties are unable to reach agreement on the maximum available fee amount, the Government reserves the right to unilaterally establish the maximum available fee amount.

(3) Changes to the fee pool, funding levels, or milestones identified in this clause may be made with the occurrence of any of the following (a) through (c).

(a) Assumptions:

The milestone, budgets, and requirements are based upon a set of assumptions which the Office of Civilian Radioactive Waste Management (OCRWM) is currently operating under. Should the basis for those assumptions change, the milestone, budgets and/or requirements may also change. Assumptions which do not impact level 2 or higher milestones will not change the fee pool or performance based milestones. A discussion of milestone levels is contained in the Civilian Radioactive Waste Management Major System Management Policy.

(b) Funding Levels:

OCRWM has established funding levels and/or Total System Life Cycle Costs necessary to meet the program mission. Annually, budget requests are submitted to Congress to support the program. If Congress does not appropriate sufficient funds to support the program mission, DOE may change the milestone and/or requirements to stay within the appropriated funding. Any time the actual funding varies plus or minus 10 percent of the requested funding level upon which the fee pool is based, a change to the fee pool amount and related requirements and/or milestone may be processed through the change control system to change the baseline with a possible change to the contract and the PEMP.

(c) Beyond the Control/Influence:

There are certain instances when changes to program mission, milestones and/or requirements may be beyond the control / influence of either the DOE or the Contractor. Some examples may include: litigation and legislation, expanding the repository to include more fuel than currently defined in legislation, acceptance of fuel earlier than anticipated, changing the radiation standards, etc. Additionally, decision-makers (to include DOE, the Executive Branch, the

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Congress, regulatory agencies) may or may not make timely reviews, approvals or decisions based on circumstances outside the control/influence of the contractor.

Examples of instances within the contractor's control or influence are quality and completeness of the documents submitted and quality, completeness and timeliness of the contractor's response to questions/concerns/issues with documents submitted.

- (4) Prior to October 1, 2003, provisional fee payments (\$ 9,725,640) had been made based on progress towards successfully completing the License Application. A resolution of the provisional fee payment will be made prior to March 31, 2007.

B.4 AVAILABILITY OF APPROPRIATED FUNDS

Except as may be specifically provided to the contrary in Section I, Contract Clause DEAR 952.250-70, entitled, "Nuclear Hazards Indemnity Agreement," the duties and obligations of the Government hereunder calling for the expenditure of appropriated funds shall be subject to the availability of funds appropriated by the Congress, which the DOE may legally spend for such purposes.

PART II – SECTION I, CONTRACT CLAUSES I.34

Delete: DEAR 970.5215-3 CONDITIONAL PAYMENT OF FEE, PROFIT, OR INCENTIVES (DEC 2000) ALTERNATE I (DEC 2000) (DEVIATION)

In order for the Contractor to receive all otherwise earned fee, fixed fee, profit, or share of cost savings under the contract in an evaluation period, the Contractor must meet the minimum requirements in paragraphs (a) and (b) of this clause and if Alternate I is applicable (a) through (d) of this clause. (Deviation) Due to the nature of this contract and the fact there are no evaluation periods, the amount of earned fee, fixed fee, profit, or share of cost savings subject to adjustment under the terms of this clause in any one (or portion of one) of the six month periods running sequentially from the date of award of the contract is \$8,835,002. If the Contractor does not meet the minimum requirements, the Chief Operating Officer (COO) may make a unilateral determination to reduce the evaluation period's otherwise earned fee, fixed fee, profit or share of cost savings as described in the following paragraphs of this clause.

- (a) Minimum requirements for Environment, Safety & Health (ES&H) Program. The Contractor shall develop, obtain DOE approval of, and implement a Safety Management System in accordance with the provisions of the clause entitled, "Integration of Environment, Safety and Health into Work Planning and Execution," if included in the contract, or as otherwise agreed to with the contracting officer. The minimum performance requirements of the system will be set forth in the approved Safety Management System, or similar document. If the Contractor fails to obtain approval of the Safety Management System or fails to achieve the minimum performance requirements of the system during the evaluation period, the COO, at his/her sole discretion, may reduce any otherwise earned fees, fixed fee, profit or share of cost savings for the evaluation period by an amount up to the amount earned.
- (b) Minimum requirements for catastrophic event. If, in the performance of this contract, there is a catastrophic event (such as a fatality, or a serious workplace-related injury or illness to one or more Federal, contractor, or subcontractor employees or the general public, loss of control over classified or special nuclear material, or significant damage to the environment), the COO may reduce any otherwise earned fee for the evaluation period by an amount up to the amount earned. In determining any diminution of fee, fixed fee, profit, or share of cost savings resulting from a catastrophic event, the COO will consider whether willful misconduct and/or negligence contributed to the occurrence and will take into consideration any mitigating circumstances presented by the contractor or other sources.
- (c) Minimum requirements for specified level of performance.
 - (1) At a minimum the Contractor must perform the following:
 - (i) the requirements with specific incentives at the level of performance set forth in the Statement of Work, Work Authorization Directive, or similar document unless an otherwise

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minimal level of performance has been established in the specific incentive;

- (ii) all of the performance requirements directly related to requirements specifically incentivized at a level of performance such that the overall performance of these related requirements is at an acceptable level; and
 - (iii) all other requirements at a level of performance such that the total performance of the contract is not jeopardized.
- (2) The evaluation of the Contractor's achievement of the level of performance shall be unilaterally determined by the contracting officer. To the extent that the Contractor fails to achieve the minimum performance levels specified in the Statement of Work, Work Authorization Directive, or similar document, during the evaluation period, the COO, may reduce any otherwise earned fee, fixed fee, profit, or shared net savings for the evaluation period. Such reduction shall not result in the total of earned fee, fixed fee, profit, or shared net savings being less than 25% of the total available fee amount. Such 25% shall include base fee, if any.
- (d) Minimum requirements for cost performance.
- (1) Requirements incentivized by other than cost incentives must be performed within their specified cost constraint and must not adversely impact the costs of performing unrelated activities.
 - (2) The performance of requirements with a specific cost incentive must not adversely impact the costs of performing unrelated requirements.

The Contractor's performance within the stipulated cost performance levels for the evaluation period shall be determined by the contracting officer. To the extent the Contractor fails to achieve the stipulated cost performance levels, the COO, at his/her sole discretion, may reduce in whole or in part any otherwise earned fee, fixed fee, profit, or shared net savings for the evaluation period. Such reduction shall not result in the total of earned fee, fixed fee, profit or shared net savings being less than 25% of the total available fee amount. Such 25% shall include base fee, if any.

Add: DEAR 970.5215-3 CONDITIONAL PAYMENT OF FEE, PROFIT, OR INCENTIVES – FACILITY MANAGEMENT CONTRACTS (Jan 2004) Alt II (Jan 2004)

(a) General. (1) The payment of earned fee, fixed fee, profit, or share of cost savings under this contract is dependent upon:

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(i) The contractor's or contractor employees' compliance with the terms and conditions of this contract relating to environment, safety and health (ES&H), which includes worker safety and health (WS&H), including performance under an approved Integrated Safety Management System (ISMS); and

(ii) The contractor's or contractor employees' compliance with the terms and conditions of this contract relating to the safeguarding of Restricted Data and other classified information.

(2) The ES&H performance requirements of this contract are set forth in its ES&H terms and conditions, including the DOE approved contractor ISMS or similar document. Financial incentives for timely mission accomplishment or cost effectiveness shall never compromise or impede full and effective implementation of the ISMS and full ES&H compliance.

(3) The performance requirements of this contract relating to the safeguarding of Restricted Data and other classified information are set forth in the clauses of this contract entitled, "Security" and "Laws, Regulations, and DOE Directives," as well as in other terms and conditions.

(4) If the contractor does not meet the performance requirements of this contract relating to ES&H or to the safeguarding of Restricted Data and other classified information during any performance evaluation period established under the contract pursuant to the clause of this contract entitled, "Total Available Fee: Base Fee Amount and Performance Fee Amount," otherwise earned fee, fixed fee, profit or share of cost savings may be unilaterally reduced by the contracting officer.

(b) Reduction Amount. (1) The amount of earned fee, fixed fee, profit, or share of cost savings that may be unilaterally reduced will be determined by the severity of the performance failure pursuant to the degrees specified in paragraphs (c) and (d) of this clause.

(2) If a reduction of earned fee, fixed fee, profit, or share of cost savings is warranted, unless mitigating factors apply, such reduction shall not be less than 26% nor greater than 100% of the amount of earned fee, fixed fee, profit, or the contractor's share of cost savings for a first degree performance failure, not less than 11% nor greater than 25% for a second degree performance failure, and up to 10% for a third degree performance failure.

(3) In determining the amount of the reduction and the applicability of mitigating factors, the contracting officer must consider the contractor's overall performance in meeting the ES&H or security requirements of the contract. Such consideration must include performance against any site specific performance criteria/requirements that provide additional definition, guidance for the amount of reduction, or guidance for the applicability of mitigating factors. In all cases, the contracting officer must consider mitigating factors that may warrant a reduction below the applicable range (see 48 CFR 970.1504-1-2). The mitigating factors include, but are not limited to, the following ((v), (vi), (vii) and (viii) apply to ES&H only).

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- (i) Degree of control the contractor had over the event or incident.
 - (ii) Efforts the contractor had made to anticipate and mitigate the possibility of the event in advance.
 - (iii) Contractor self-identification and response to the event to mitigate impacts and recurrence.
 - (iv) General status (trend and absolute performance) of: ES&H and compliance in related areas; or of safeguarding Restricted Data and other classified information and compliance in related areas.
 - (v) Contractor demonstration to the contracting officer's satisfaction that the principles of industrial ES&H standards are routinely practiced (e.g., Voluntary Protection Program, ISO 14000).
 - (vi) Event caused by "Good Samaritan" act by the contractor (e.g., offsite emergency response).
 - (vii) Contractor demonstration that a performance measurement system is routinely used to improve and maintain ES&H performance (including effective resource allocation) and to support DOE corporate decision-making (e.g., policy, ES&H programs).
 - (viii) Contractor demonstration that an Operating Experience and Feedback Program is functioning that demonstrably affects continuous improvement in ES&H by use of lessons-learned and best practices inter- and intra-DOE sites.
- (4)(i) The amount of fee, fixed fee, profit, or share of cost savings that is otherwise earned by a contractor during an evaluation period may be reduced in accordance with this clause if it is determined that a performance failure warranting a reduction under this clause occurs within the evaluation period.
- (ii) The amount of reduction under this clause, in combination with any reduction made under any other clause in the contract, shall not exceed the amount of fee, fixed fee, profit, or the contractor's share of cost savings that is otherwise earned during the evaluation period.
- (iii) For the purposes of this clause, earned fee, fixed fee, profit, or share of cost savings for the evaluation period shall mean the amount determined by the contracting officer or fee determination official as otherwise payable based on the contractor's performance during the evaluation period. Where the contract provides for financial incentives that extend beyond a single evaluation period, this amount shall also include: any provisional amounts determined otherwise payable in the evaluation period; and, if provisional payments are not provided for, the allocable amount of any incentive determined otherwise payable at the conclusion of a subsequent evaluation period. The allocable amount shall be the total amount of the earned incentive divided by the number of evaluation periods over which it was earned.

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(iv) The Government will effect the reduction as soon as practicable after the end of the evaluation period in which the performance failure occurs. If the Government is not aware of the failure, it will effect the reduction as soon as practical after becoming aware. For any portion of the reduction requiring an allocation the Government will effect the reduction at the end of the evaluation period in which it determines the total amount earned under the incentive. If at any time a reduction causes the sum of the payments the contractor has received for fee, fixed fee, profit, or share of cost savings to exceed the sum of fee, fixed fee, profit, or share of cost savings the contractor has earned (provisionally or otherwise), the contractor shall immediately return the excess to the Government. (What the contractor "has earned" reflects any reduction made under this or any other clause of the contract.)

(v) At the end of the contract:

(A) The Government will pay the contractor the amount by which the sum of fee, fixed fee, profit, or share of cost savings the contractor has earned exceeds the sum of the payments the contractor has received; or

(B) The contractor shall return to the Government the amount by which the sum of the payments the contractor has received exceeds the sum of fee, fixed fee, profit, or share of cost savings the contractor has earned. (What the contractor "has earned" reflects any reduction made under this or any other clause of the contract.)

(c) Environment, Safety and Health (ES&H). Performance failures occur if the contractor does not comply with the contract's ES&H terms and conditions, including the DOE approved contractor ISMS. The degrees of performance failure under which reductions of earned or fixed fee, profit, or share of cost savings will be determined are:

(1) First Degree: Performance failures that are most adverse to ES&H. Failure to develop and obtain required DOE approval of an ISMS is considered first degree. The Government will perform necessary review of the ISMS in a timely manner and will not unreasonably withhold approval of the contractor's ISMS. The following performance failures or performance failures of similar import will be considered first degree.

(i) Type A accident (defined in DOE Order 225.1A).

(ii) Two Second Degree performance failures during an evaluation period.

(2) Second Degree: Performance failures that are significantly adverse to ES&H. They include failures to comply with an approved ISMS that result in an actual injury, exposure, or exceedence that occurred or nearly occurred but had minor practical long-term health consequences. They also include breakdowns of the Safety Management System. The following performance failures or performance failures of similar import will be considered second degree:

(i) Type B accident (defined in DOE Order 225.1A).

(ii) Non-compliance with an approved ISMS that results in a near miss of a Type A or B

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accident. A near miss is a situation in which an inappropriate action occurs, or a necessary action is omitted, but does not result in an adverse effect.

(iii) Failure to mitigate or notify DOE of an imminent danger situation after discovery, where such notification is a requirement of the contract.

(3) Third Degree: Performance failures that reflect a lack of focus on improving ES&H. They include failures to comply with an approved ISMS that result in potential breakdown of the System. The following performance failures or performance failures of similar import will be considered third degree:

(i) Failure to implement effective corrective actions to address deficiencies/non-compliances documented through: external (e.g., Federal) oversight and/or reported per DOE Order 232.1A requirements; or internal oversight of DOE Order 440.1A requirements.

(ii) Multiple similar non-compliances identified by external (e.g., Federal) oversight that in aggregate indicate a significant programmatic breakdown.

(iii) Non-compliances that either have, or may have, significant negative impacts to the worker, the public, or the environment or that indicate a significant programmatic breakdown.

(iv) Failure to notify DOE upon discovery of events or conditions where notification is required by the terms and conditions of the contract.

(d) Safeguarding Restricted Data and Other Classified Information. Performance failures occur if the contractor does not comply with the terms and conditions of this contract relating to the safeguarding of Restricted Data and other classified information. The degrees of performance failure under which reductions of fee, profit, or share of cost savings will be determined are as follows:

(1) First Degree: Performance failures that have been determined, in accordance with applicable law, DOE regulation, or directive, to have resulted in, or that can reasonably be expected to result in, exceptionally grave damage to the national security. The following are examples of performance failures or performance failures of similar import that will be considered first degree:

(i) Non-compliance with applicable laws, regulations, and DOE directives actually resulting in, or creating a risk of, loss, compromise, or unauthorized disclosure of Top Secret Restricted Data or other information classified as Top Secret, any classification level of information in a Special Access Program (SAP), information identified as sensitive compartmented information (SCI), or high risk nuclear weapons-related data.

(ii) Contractor actions that result in a breakdown of the safeguards and security management system that can reasonably be expected to result in the loss, compromise, or unauthorized disclosure of Top Secret Restricted Data, or other information classified as Top Secret, any classification level of information in a SAP, information identified as SCI, or high risk nuclear weapons-related data.

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(iii) Failure to promptly report the loss, compromise, or unauthorized disclosure of Top Secret Restricted Data, or other information classified as Top Secret, any classification level of information in a SAP, information identified as SCI, or high risk nuclear weapons-related data.

(iv) Failure to timely implement corrective actions stemming from the loss, compromise, or unauthorized disclosure of Top Secret Restricted Data or other information classified as Top Secret, any classification level of information in a SAP, information identified as SCI, or high risk nuclear weapons-related data.

(2) Second Degree: Performance failures that have been determined, in accordance with applicable law, DOE regulation, or directive, to have actually resulted in, or that can reasonably be expected to result in, serious damage to the national security. The following are examples of performance failures or performance failures of similar import that will be considered second degree:

(i) Non-compliance with applicable laws, regulations, and DOE directives actually resulting in, or creating risk of, loss, compromise, or unauthorized disclosure of Secret Restricted Data or other information classified as Secret.

(ii) Contractor actions that result in a breakdown of the safeguards and security management system that can reasonably be expected to result in the loss, compromise, or unauthorized disclosure of Secret Restricted Data, or other information classified as Secret.

(iii) Failure to promptly report the loss, compromise, or unauthorized disclosure of Restricted Data or other classified information regardless of classification (except for information covered by paragraph (d)(1)(iii) of this clause).

(iv) Failure to timely implement corrective actions stemming from the loss, compromise, or unauthorized disclosure of Secret Restricted Data or other classified information classified as Secret.

(3) Third Degree: Performance failures that have been determined, in accordance with applicable law, regulation, or DOE directive, to have actually resulted in, or that can reasonably be expected to result in, undue risk to the common defense and security. In addition, this category includes performance failures that result from a lack of contractor management and/or employee attention to the proper safeguarding of Restricted Data and other classified information. These performance failures may be indicators of future, more severe performance failures and/or conditions, and if identified and corrected early would prevent serious incidents. The following are examples of performance failures or performance failures of similar import that will be considered third degree:

(i) Non-compliance with applicable laws, regulations, and DOE directives actually resulting in, or creating risk of, loss, compromise, or unauthorized disclosure of Restricted Data or other information classified as Confidential.

(ii) Failure to promptly report alleged or suspected violations of laws, regulations, or directives pertaining to the safeguarding of Restricted Data or other classified

information.

(iii) Failure to identify or timely execute corrective actions to mitigate or eliminate identified vulnerabilities and reduce residual risk relating to the protection of Restricted Data or other classified information in accordance with the contractor's Safeguards and Security Plan or other security plan, as applicable.

(iv) Contractor actions that result in performance failures which unto themselves pose minor risk, but when viewed in the aggregate indicate degradation in the integrity of the contractor's safeguards and security management system relating to the protection of Restricted Data and other classified information.

(e) Minimum requirements for specified level of performance. (1) At a minimum the contractor must perform the following:

(i) The requirements with specific incentives which do not require the achievement of cost efficiencies in order to be performed at the level of performance set forth in the Statement of Work, Work Authorization Directive, or similar document unless an otherwise minimum level of performance has been established in the specific incentive;

(ii) All of the performance requirements directly related to requirements specifically incentivized which do not require the achievement of cost efficiencies in order to be performed at a level of performance such that the overall performance of these related requirements is at an acceptable level; and

(iii) All other requirements at a level of performance such that the total performance of the contract is not jeopardized.

(2) The evaluation of the Contractor's achievement of the level of performance shall be unilaterally determined by the Government. To the extent that the Contractor fails to achieve the minimum performance levels specified in the Statement of Work, Work Authorization Directive, or similar document, during the performance evaluation period, the DOE Operations/Field Office Manager, or designee, may reduce any otherwise earned fee, fixed fee, profit, or shared net savings for the performance evaluation period. Such reduction shall not result in the total of earned fee, fixed fee, profit, or shared net savings being less than 25% of the total available fee amount. Such 25% shall include base fee, if any.

(f) Minimum requirements for cost performance. (1) Requirements incentivized by other than cost incentives must be performed within their specified cost constraint and must not adversely impact the costs of performing unrelated activities.

(2) The performance of requirements with a specific cost incentive must not adversely impact the costs of performing unrelated requirements.

(3) The contractor's performance within the stipulated cost performance levels for the performance evaluation period shall be determined by the Government. To the extent the contractor fails to achieve the stipulated cost performance levels, the DOE Operations/Field Office Manager, or designee, may reduce in whole or in part any

otherwise earned fee, fixed fee, profit, or shared net savings for the performance evaluation period. Such reduction shall not result in the total of earned fee, fixed fee, profit or shared net savings being less than 25% of the total available fee amount. Such 25% shall include base fee, if any.

PART I – THE SCHEDULE

SECTION C

DESCRIPTION / SPECIFICATION / WORK STATEMENT

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Part I - The Schedule

Section C

Description / Specification / Work Statement

Description of Work and Services

Statement of Work

C1. GENERAL INFORMATION

1.0 Introduction

This document describes the statement of work of the management and operating contractor for the Office of Civilian Radioactive Waste Management (OCRWM) Program's Yucca Mountain Project. A management and operating contract is defined at FAR 17.6 and DEAR 917.6. This document describes the scope of work that shall be performed under this contract period through March 31, 2007.

The Program's mission, as set out in the NWSA, is to implement the Federal policy for permanent disposal of spent nuclear fuel and high-level radioactive waste, in order to protect the public health and the environment. The Program provides leadership in developing and implementing strategies to accomplish this mission in a manner intended to ensure public and worker health and safety, protect the environment, merit public confidence, and be economically viable.

2.0 Background

The U.S. Department of Energy (DOE) is responsible for the development of the nation's high-level nuclear waste disposal system. The Nuclear Waste Policy Act of 1982, as amended, (NWSA) established the Office of Civilian Radioactive Waste Management (OCRWM) within the DOE and assigned it the responsibility to design, construct, and operate a system for spent nuclear fuel and high-level radioactive waste disposal, including a permanent geologic repository, and transportation.

In 1987, the NWSA was amended to focus OCRWM's siting activities on a site at Yucca Mountain, Nevada to determine whether it was suitable to serve as a geologic repository for the nation's spent nuclear fuel and high-level radioactive waste.

Commercial spent nuclear fuel, DOE spent nuclear fuel, Naval spent nuclear fuel

and high-level radioactive waste generated primarily by defense activities will be disposed of at Yucca Mountain if a License Application to the U.S. Nuclear Regulatory Commission ("USNRC" or "NRC") to construct, operate and eventually permanently close the repository is approved.

OCRWM is headquartered in Washington, D.C. The Director, OCRWM reports to the Under Secretary of the Department of Energy. OCRWM carries out its mission through two OCRWM offices: the Office of Repository Development (ORD) in Las Vegas, Nevada, and the Office of Strategic Planning and Program Development (OSPD) in Washington, D.C. Certain functions are unique to one or the other of the two offices. However, the Contractor is responsible for the planning, management and integration of all activities supporting both unique and non-unique functions of the offices in the most cost-effective manner possible.

The scope of activities that are to be performed and the available budget during this period shall be subject to DOE approval. The Contractor shall utilize any government-furnished facilities and equipment as appropriate to minimize costs.

The pre-emplacment construction will start after NRC issues a construction authorization to DOE for all or part of the repository. The Contractor shall develop the license application amendments to be submitted to the NRC for the construction authorization, if necessary, and license to receive and possess. This amendment shall address the safety, common defense and security and environmental aspects of Yucca Mountain, as required by the NRC. Current plans indicate that the construction authorization may be granted as early as TBD. The construction activities will include, but not be limited to, site preparation activities, construction of surface facilities, construction of a pre-emplacment lag-storage facility, transition of existing underground drifts to repository facilities, excavation of subsurface facilities, and demonstration of select repository operations. Detailed design and operational information is available in the Subsurface Construction and Development Analysis, Subsurface Development Design, and Surface Nuclear Facility Space Program analysis. Construction of the underground facilities will continue during the waste handling and emplacment operations phase.

3.0 Site and Regional Information

The Yucca Mountain Site occupies 195 square miles in a remote area about 100 miles northwest of Las Vegas, Nevada, on the edge of the nation's Nevada Test Site. As of July 1, 2003, the site includes a facility to store drilling samples in a controlled environment; laboratory facilities for testing samples; buildings used to administer field operations; 20 miles of paved roads and 28 miles of unpaved roads; utilities; communication systems; and approximately 800 test areas, including 338 boreholes, 276 pits and trenches, environmental plots, and exposed geological pavements. The underground facilities include the main loop of the Exploratory Studies Facility, which is 7.9 kilometers (5 miles) long and 7.6 meters

(25 feet) in diameter, and the cross-drift (East-West drift), an excavation 2.4-kilometers (1.7-miles) long and 4.9 meters (16 feet) in diameter that crosses the potential repository block from east to west. The alcoves and niches constructed within the Exploratory Studies Facility, the cross drift and Busted Butte Facility contain scientific equipment used for testing and monitoring.

The preponderance of the current contractor employees work in leased office space in Las Vegas, Nevada. Support of functions in Washington, D.C. (rapid response, technical and regulatory analyses, waste acceptance/standard contract activities, etc.) requires the Contractor to plan for limited office space in the Washington, D.C. metropolitan area. Space requirements in the Washington, D.C. area are to be minimized as the functions to be performed and supported at this location are expected to be a small fraction of the overall contract effort.

4.0 General Management Guidelines

DOE is responsible for all programmatic, policy and funding decisions; the establishment of goals and objectives; monitoring and measuring the performance of the Contractor; and performance of all inherently governmental functions (see FAR 7.5). DOE will be the licensee and is responsible for all programmatic interactions and interfaces with the Nuclear Regulatory Commission (NRC). The work to be accomplished is identified in the multi-year baseline plan, which may be modified on a periodic basis due to funding fluctuations and/or incremental programmatic changes. Development of the multi-year baseline is a collaborative process with DOE retaining the final authority. DOE will conduct audits and surveillance of all aspects of the work performed under the terms of this Statement of Work to ensure compliance, including Safety Conscious Work Environment (SCWE). DOE reserves the right to intervene, as necessary and appropriate, to redirect Program activities for the purposes of assuring DOE retains its ownership, accountability, fiduciary and licensing responsibilities. The Program is executing the work steps identified in the Program Plan. Specific work activities and schedules may be impacted by congressional funding and/or legislation. The Contractor is fully accountable for the entire scope of work as described in this Statement of Work, with special emphasis on accomplishing the Performance Based Incentives defined in Section B of the contract.

5.0 General Contractor Guidelines

The Contractor shall provide the technical products and support necessary for successful milestone completion. The Contractor shall be responsible for performing the work identified by OCRWM using integrated technical plans, schedules and cost control systems, to ensure that the statement of work is accomplished. The Contractor is to determine which organizations are to perform

the work. It should be noted that the milestone schedule dates in the planning guidance may differ from the Project Summary Schedule dates due to planning assumptions. The Project Summary Schedule dates represent the official Program milestone dates. As defined by DOE, the Contractor shall integrate the work of the other organizations and prime contractors supporting the OCRWM Program in the accomplishment of Program Milestones.

The Contractor is to assure all Program deliverables comply with acceptance criteria. The Contractor shall ensure that the project activities, as defined in this Statement of Work, are executed within available funding levels. The Contractor shall implement a fully integrated management system in compliance with OCRWM requirements and shall implement quality, timely, and cost-effective programs and operations.

The Contractor will define, establish, and execute an effective corrective action program that recognizes process and behavior based conditions adverse to quality, safety, operability, and performance. This is a vital tool for improving safety, reliability, and performance as well as helping to prevent recurrence events. This program is intended to promote behaviors throughout the organization that support objective self-assessment and effective problem identification, evaluation, tracking, correction, and trending. The Contractor shall foster an environment that promotes strong learning culture, supports a questioning attitude within the workforce, promotes a safety-conscious work environment, and encourages the discovery and reporting of areas for improvement. The Contractor is accountable for aggressively identifying problems, correcting performance shortfalls, documenting and sharing knowledge through a strong Lessons Learned program, and striving for continuous improvement in processes and activities.

In performing work under this contract, the Contractor shall comply with the applicable Federal, State and local laws and regulations (including DOE regulations). The Contractor shall comply with the requirements of DOE directives, or parts thereof, identified in the List of Applicable Directives (Section J Appendix E), or a tailored set of requirements developed under a DOE approved process. The Contractor shall continuously evaluate work activities and associated hazards to assure Environmental, Safety and Health standards, practices and controls are appropriate. The Contractor is responsible for assuring compliance with the requirements made applicable to the contract regardless of the performer of the work.

C2. WORK REQUIREMENTS

This Scope of Work addresses the planning and implementation of activities to be performed by the Management and Operating contractor in support of the scientific investigation, licensing, design, engineering, construction, operation and eventual permanent closure of the geologic repository at Yucca Mountain, Nevada. In addition,

this scope includes the work associated with any other tasks that may be assigned to the M&O and authorized by OCRWM.

1.0 Yucca Mountain Project

The mission of the Yucca Mountain Project is to manage and dispose of high-level radioactive waste and spent nuclear fuel in a manner that protects health, safety, and the environment; enhances national and energy security; and merits public confidence.

The DOE has focused its activities on site characterization, principally to develop subsurface testing facilities, and to complete the necessary technical and scientific work at Yucca Mountain. In 2002, site investigation activities culminated in a series of statutory decisions on whether a repository should be developed at Yucca Mountain.

In accordance with the detailed Site Recommendation process established in the NWPA, site characterization activities culminated in 2002, when the Secretary of Energy recommended to the President that the site was acceptable and should be developed. The President accepted the Secretary's recommendation and forwarded it to Congress, where it was approved/affirmed in July 2002.

The NWPA requires the Secretary to submit a license application for a high-level nuclear waste repository, in accordance with applicable laws and regulations. The scope, complexity, and duration of repository licensing will require a significant amount of work related to licensing and interaction with the NRC. As a license applicant, DOE will be responsible for interactions with the NRC with Contractor support. This support will include maintaining an overall repository post-closure and pre-closure safety strategy, maintaining technical sufficiency arguments for the representation of natural and engineered barriers, drafting the necessary submittals for the License Application and amendments, and assisting DOE in the presentation of technical issues leading up to and during the licensing hearing process.

A. Licensing

DOE, as the applicant for a license, has overall responsibility for the licensing of a repository at Yucca Mountain. As the licensee, DOE is responsible for all programmatic interactions and interfaces with the Nuclear Regulatory Commission.

In addition to the licensing requirements in 10CFR63, the NRC has developed approaches for License Application (LA) development in the Yucca Mountain

Review Plan, NUREG 1804, and other NRC documents including regulatory guides. The license review and approval process will be multi-phased requiring the submission and periodic updating of a Safety Analysis Report (SAR). The project will develop and submit a LA, including a Safety Analysis Report (SAR), for authorization to begin construction.

The Contractor shall be responsible for the preparation of a license application that satisfies all regulatory requirements. The Contractor shall prepare and utilize a management plan for the development, review and approval of the license application. The Contractor shall identify and monitor a set of past and current licensing proceedings for applicable licensing precedent. The Contractor shall support DOE in defining the necessary information for any subsequent license application updates.

The Contractor shall provide the development, technical editing, graphics, and production control functions for the preparation of the LA. The Contractor will be responsible for the production of hard copy and electronic file versions of the LA. The Contractor shall ensure that the regulatory filing and distribution requirements are satisfied.

The Contractor shall provide regulatory and licensing support to the DOE.

Examples of reports, documents or other products produced within this activity may include, but are not limited to: draft LA, final LA to DOE for approval and signature, develop responses to NRC requests for additional information.

B. Pre-closure Safety Analysis

The License Application (LA) must include a pre-closure safety analysis (PCSA) of the geologic repository operations area, for the period before permanent closure of the repository. The NRC regulations for Yucca Mountain provide pre-closure performance objectives and the requirements for the PCSA.

The Contractor shall coordinate and integrate the design functions to ensure compliance with regulatory requirements for protecting the public, workers, and the environment. The Contractor shall be responsible for developing and conducting the pre-closure safety analysis. The Contractor shall prepare and maintain the *Q-List*. The Contractor shall report the results of the PCSA in the LA submitted for Construction Authorization. The information presented in the LA shall address the review methods and acceptance criteria of the Yucca Mountain Review Plan (YMRP). Examples of reports, documents, or other products produced within this activity may include, but are not limited to final PCSA inputs to the LA, revised CD-1 package and final PCSA input to the

license application amendment to receive and possess.

C. Engineered Barrier Components

The repository will house commercial spent nuclear fuel, DOE spent nuclear fuel, Naval spent nuclear fuel, and high-level radioactive waste. These types of materials will be loaded into various configurations of waste packages that will be closed and emplaced in the repository. A drip shield is planned for closure and works in concert with the waste package over the disposal period.

The Contractor shall be responsible for developing the waste package, including: specifications, procurement and fabrication of prototype Waste Packages and associated components, and final design and delivery of the waste packages design with configurations to accommodate all scheduled waste forms and associated components. Associated components include transportable, ageable, disposable canisters (TAD); waste basket internals; trunnion collars, and emplacement pallets.

The Contractor shall design multiple waste package configurations as necessary to accommodate the diverse inventory of waste forms. The design must ensure that the waste package has the appropriate corrosion resistance to protect the waste form for the duration credited in the post-closure safety analyses.

The Contractor shall design mockup and test facilities and perform prototype testing of the waste package, as necessary, to support equipment and process development and testing.

The Contractor shall perform structural, thermal, radiation shielding, criticality, and operational analyses; as well as, development of fabrication, welding and nondestructive examination methods for both fabrication and final closure after nuclear waste has been placed in the waste packages at the repository.

The Contractor shall be responsible for developing the design of the drip shield, and preparing the specification for fabrication, and testing. The design for the drip shield includes resistance to corrosion and maximizes the manner in which it protects the waste package(s).

Examples of reports, documents or other products produced within this activity may include, but are not limited to revised CD-1 package, completion of waste package design, and waste package prototypes.

D. Surface Facilities

The Monitored Geologic Repository includes an integrated set of surface facilities for the receipt, handling, and packaging of spent nuclear fuel and DOE high level radioactive waste. Transportation casks must be received, staged, unloaded, and returned. Waste packages must be received, staged, loaded, sealed, and transported to the subsurface for emplacement. Support facilities and systems for administration, maintenance, safeguards and security, mine rescue, training, and other required functions must be provided as well as interfaces with transportation systems.

The Contractor shall be responsible for providing surface engineering designs for waste receipt, surface aging facility, waste transfer from shipping casks into waste packages, waste package sealing, and waste package staging for underground emplacement. Other major facility designs may include a waste treatment facility, heavy equipment maintenance building, site utilities, warehouses, maintenance shops, and administrative facilities.

The Contractor shall be responsible for developing the surface facility design products to support the development of the safety analyses, the design bases, and a general description of surface systems, structures and components. The Contractor shall develop the surface waste handling and disposal processes and design the surface facilities necessary to support those processes. This includes, but is not limited to, radioactive waste management systems, performance confirmation systems, maintenance and support facilities, training facilities, shops, warehouses, and administrative and safety facilities. This also includes roads, onsite rail lines, power lines, communications, decontamination and decommissioning, and other necessary design work for support systems and facilities. The Contractor shall design mockup and test facilities and perform prototype testing, as necessary, to support equipment and process development and testing.

Examples of reports, documents or other products produced within this activity may include, but are not limited to: Complete Repository Design for LA (revised Cd-1 package), Design for CD-2 Estimate, Detailed Design,

E. Subsurface Facility Design

The Monitored Geologic Repository includes an integrated set of subsurface facilities used for the final emplacement of waste. This includes, but is not limited to, required ground support and invert systems, ventilation and utility systems, emplacement and retrieval systems, performance confirmation support systems, and designs for final closure of the repository.

The Contractor shall be responsible for providing subsurface designs for waste emplacement, engineered barrier system, thermal load management, excavation stability, occupational safety, waste package emplacement and monitoring, waste package retrieval, and repository closure.

The Contractor shall design subsurface support systems and facilities necessary to support the waste disposal process including ventilation systems, utility systems, performance confirmation systems, backfill systems, and closure systems.

Examples of reports, documents or other products produced within this activity may include, but are not limited to: Complete Design for LA (revised CD-1 package), Design for CD-2 Estimate, Detailed Design, etc.

F. Construction

Construction activities include constructing, modifying and maintaining underground and surface test areas; changing the configuration of the Exploratory Studies Facility to provide a fully functional underground facility; providing direct support for test setup and execution; and constructing surface and subsurface facilities required for the Monitored Geologic Repository (MGR).

The MGR includes an integrated set of surface and subsurface facilities used for the final emplacement of waste. This includes, but is not limited to, receiving and processing facilities, emplacement and retrieval systems, and subsurface facilities to support emplacement.

The Contractor shall be responsible for all phases of construction for the temporary and permanent surface facilities. Surface facilities include access roads, temporary and permanent infrastructure, construction facilities, permanent plant process buildings, support facilities, auxiliary equipment, and balance of plant structures. Subsurface facilities include excavation and support of main entries, emplacement drifts, shafts and alcoves, ventilation and utilities systems, and performance confirmation testing support systems.

Examples of reports, documents or other products produced within this activity may include, but are not limited to: Establish the initial MGR construction baseline for CD-2, and Develop a Construction Execution Plan for CD-2.

G. Repository Operations

Repository Operations activities includes preparing various plans needed to put an operations organization into place for the initial operations of the repository, staffing for testing and startup of surface and subsurface facilities, and initial operations of the facility.

The Contractor shall provide operations input to the design and license application, and prepare for operations. Examples of reports, documents or other products produced within this activity may include, but are not limited to: Prepare draft and final Startup and Testing Plans.

H. Systems Engineering

The Systems Engineering function focuses on defining needs and required functionality early in the project life-cycle; developing, documenting, and validating additional requirements; and verifying that the solution meets requirements.

Systems engineering ensure that several process control activities are established and are performed during project execution. These activities include Functions and Requirements Analysis and Allocation; Alternative Solutions Evaluation and Selection; Technical Integration; Configuration Management and Interface Control; and Verification and Validation.

The Contractor shall be responsible for implementing the Systems Engineering process in developing the configuration of the repository systems, structures, and components using a graded approach based on risk (safety, technical, programmatic (e.g., regulatory or other commitments), and cost). The contractor shall ensure that the Risk Management Program considers integrated risk issues as input into the Risk Management Program.

Examples of reports, documents or other products produced within this activity may include, but are not limited to: Project Requirements Document, Project Design Criteria, System Description Documents, Facility Description Documents and Functional and Operational Requirements Document.

I. Site Operations

Site Operations activities include operation and maintenance of the systems, structures and components within the Yucca Mountain site (e.g., planned land withdrawal area). This includes operation and maintenance of the Exploratory Studies Facility tunnel, North and South portal pads, all associated utilities, systems, structures and facilities.

The contractor shall be responsible for the safe and reliable operation of the Yucca Mountain site supporting testing, public outreach, and engineering. The contractor shall identify applicable system, structure and component requirements, determine performance specifications, and document and control configuration using standard engineering processes. Life cycle asset management shall be employed. Effective work planning/work control processes shall be implemented integrating safety management and environmental management system process requirements.

The contractor shall be responsible for establishing a consistent set of ES&H, operational and security requirements applicable to all YMP funded or related work or access (e.g., tours) within the Yucca Mountain site. The contractor shall manage, control, monitor and report for site access (e.g., Ranch Control) for all activities within the Yucca Mountain site.

The contractor shall identify needs, determine strategies including funding estimates, and following DOE approval, develop design and construct infrastructure necessary to support site operations reducing risk for site workers and visitors.

2.0 Nevada Transportation Project

Nevada Transportation shall be responsible for: producing the conceptual design for the Nevada Rail; perform data collection required in support of the Rail Alignment EIS (including; Photogrammetry and Aerial Mapping, Geotechnical Engineering Analysis, and Hydrological Analysis); development of Nevada Transportation Project Level 3 Requirements; establishment of Design Criteria, as appropriate for the conceptual phase; identification and control of required interfaces; Institutional support; required data transmittal to the DOE EIS contractor; and necessary configuration management/integration to ensure efficient and acceptable performance of all associated work.

Examples of reports, documents or other products produced within this activity may include, but are not limited to: TBD

3.0 National Transportation Project

DOE may decide at a later date that the Contractor may be responsible for spent nuclear fuel and high-level radioactive waste transportation services. These include the development or acquisition of the necessary hardware, the operation of the hardware, the acceptance of spent nuclear fuel at reactor sites and DOE sites, and the necessary institutional expertise to support transportation of spent nuclear fuel and high-level radioactive waste to a DOE facility or facilities. The present DOE plans are to utilize Regional Services

Contractors to provide these services, through direct DOE contracts. The integration of these activities with the Program will be the responsibility of the Contractor.

Prior to the start of any shipping campaign, DOE is responsible, as described in Section 180(c) of the NWPA, to provide funds and technical assistance to States and Indian Tribes for training public safety officials of appropriate units of local government and Indian tribes through whose jurisdiction the Department plans to transport spent nuclear fuel or high-level waste. The law directs DOE to provide this assistance to States and Indian tribes to train their personnel responding to emergency situations and for safe routine transportation of nuclear materials. As the transportation component of the system is developed, the Contractor shall be responsible for assisting the Department in the development and implementation of the technical assistance program to the States and Indian Tribes eligible for assistance.

4.0 Essential Functions

A. Quality Assurance

1. The NWPA mandates that the OCRWM Program comply with applicable NRC regulations, including NRC quality assurance (QA) requirements and guidance for all aspects of the OCRWM Program. A comprehensive and effective Quality Assurance (QA) Program is essential for the performance of work for all phases of the OCRWM Program. OCRWM responsibilities, as the potential licensee and owner, are to ensure that appropriate QA controls are in place for verification by NRC; and to ensure that the systems, structures, and components important to safety and waste isolation under postulated conditions will not cause undue risk to health and safety of the workers and the public.

As such, the OCRWM QA Program, as delineated in the Quality Assurance Requirements and Description (QARD, DOE/RW-0333P), Augmented Quality Assurance Program (AQAP, DOE/RW-0565), and approved implementing documents, has been established for items and activities governed by NRC regulations in relation to site characterization, design, and construction of the geologic repository at Yucca Mountain.

2. When performing quality-affecting work, the Contractor shall implement and comply with the applicable controls of the OCRWM QA Program. However, the Contractor is authorized to develop, implement, and maintain its own QA program based on the applicable requirements of the QARD (latest version) and of the AQAP (latest version) that encompasses the scope of work that is contractually assigned to the Contractor.

The Contractor shall develop and document a Quality Assurance Plan (QAP) that describes the Contractor's QA program based on the requirements of the QARD and AQAP that are appropriate to the Contractor's scope of work, and the Contractor shall submit the QAP to the OCRWM Office of Quality Assurance (OQA) for review and acceptance. The Contractor shall not implement its QA program prior to receipt of OQA's written acceptance of the QAP.

3. The QA functions to be performed by the Contractor include quality systems, quality engineering, quality verification, and quality control for work performed under this contract by the Contractor, National Laboratories, U. S. Geological Survey (USGS), and Contractor's subcontractors. Specific QA activities to be performed by the Contractor include, but are not limited to review of Contractor QA procedures and procurement documents; development of the Contractor's QA Program; performance of in-process reviews of Contractor technical and design documents; guidance to Contractor line organizations, Contractor's subcontractors, National Laboratories, and USGS on QA matters; and QA representation at the National Laboratories, USGS, and OCRWM Headquarters.

Additional specific QA activities to be performed by the Contractor include: QA program audits and surveillance of Contractor, National Laboratories, and USGS quality-affecting activities; QA program audits and surveillance of Contractor's suppliers of items and services subject to the OCRWM QA Program; maintenance of the OCRWM Qualified Suppliers List jointly with OQA; reviews, approvals, and processing of Contractor identified Level A and B Condition Reports and Nonconformance Reports; and generation of quarterly trend reports of Contractor conditions adverse to quality, and data for OCRWM identified conditions. Other specific QA activities to be performed by the Contractor include independent inspections of in-process items, inspections and tests of installed facility items, receipt inspections of procured items, and nondestructive examination (NDE) as required by specifications, drawings, standards, and/or procedures.

The Contractor shall maintain an inspection and test qualification and certification program for inspection and test personnel and an NDE qualification program for NDE personnel. The Contractor shall provide for management and integration of the Suspect and Counterfeit Items (S/CI) program. The Contractor's QA Manager shall have stop work authority over Contractor's activities to ensure that work does not continue in areas found to be significantly deficient in implementing QA program requirements.

4. OCRWM shall have access to Contractor and Contractor's supplier facilities for purposes of OQA oversight such as audits, surveillance and

reviews. Observers from NRC, state, and local governments may participate in these oversight activities. The Contractor shall respond to all deficiencies identified.

5. OQA retains the responsibility for oversight of YMP Affected Organizations' activities subject to the QARD including independent QA audits and surveillance.

6. The Contractor shall identify and pass on to subtier suppliers all applicable QA program and technical requirements.

B. Environmental Safety & Health

Worker and public safety and health, and protection of the environment, are critical objectives for the Contractor's Environment, Safety, and Health (ES&H) program during licensing, construction, and operation of a geologic repository.

The Contractor's Environment, Safety, and Health program shall be developed in accordance with a documented Integrated Safety Management System, as described in 48 CFR 970.5223-1, as amplified by the OCRWM Integrated Safety Management Plan. The Contractor shall develop and maintain implementing procedures that translate the Integrated Safety Management Plan requirements into work procedures and processes.

The Contractor shall continuously evaluate work activities and associated hazards to assure Environmental Safety and Health standards, practices and controls are appropriate. The Contractor shall, as appropriate, consider Environmental Safety and Health performance in selection of its subcontractors and incorporate Environmental Safety and Health requirements into subcontracts. The Contractor shall ensure that cost reduction and efficiency efforts are fully compatible with Environmental Safety and Health performance.

Protection of workers, the public and the environment are fundamental responsibilities of the Contractor and a critically important performance expectation. The Contractor's Environment, Safety and Health program shall be operated as an integral, but visible, part of how the organization conducts business. The Contractor shall monitor all work performance to ensure compliance with implementing documents.

At different phases varying agreements between the Department of Energy and regulatory agencies are required. A systematic approach is needed to ensure that all agreements between the Department of Energy and regulatory agencies are complied with fully and commitments are met. The Contractor shall ensure that their subcontractors meet the terms and conditions of these agreements in

the performance of their subcontracts.

The Contractor shall perform all activities in compliance with applicable health, safety, and environmental laws, orders, regulations, and national consensus standards where applicable and appropriate; and governing agreements and permits executed between the Department of Energy and regulatory and oversight government organizations. A systematic approach is needed to ensure full compliance. The Contractor shall take necessary actions to preclude injuries and/or fatalities, keep worker exposures and environmental releases as low as reasonably achievable below established regulatory limits, minimize the generation of waste, and maintain or increase protection to the environment, public and worker safety and health.

The Contractor will be expected continually to improve the Project's Integrated Safety Management System amplified by the OCRWM Integrated Safety Management Plan and its implementation. Safety and Health programs include those for industrial safety in office, field, and tunnel construction environments; industrial hygiene programs to include those for radon and silica protection; fire protection; occupational medicine; training; self and independent assessment programs; integrated safety review processes; operational and event reporting; accident investigations; emergency management; and development and use of performance indicators and lessons learned programs. Radiological protection programs will be required to control radon exposures and incidental use of source materials for testing and experimentation. It is recognized that the radiological protection program has to be expanded to address work activities associated with surface facility operations and handling high level waste. Environmental protection programs include maintenance and acquisition of regulatory permits and assuring operations are maintained as required by those permits, agreements or other regulatory requirements.

The Contractor shall be responsible for monitoring and data collection of the weather and other environmental conditions. These data will be used for models that support the repository design and the total system performance assessments. Monitoring results during the construction and operation phase will provide evidence of the Contractor's performance in maintaining acceptable environmental conditions.

The Contractor's ES&H program also must maintain effective and efficient communication with all OCRWM organizations, with the USGS and National Laboratories, and with other elements of the Contractor's organization to ensure that ES&H activities are fully implemented and coordinated and the fundamental objectives of the ES&H program are achieved.

C. Public Information

The Contractor will provide timely and accurate information to government officials, the media, employees, stakeholders, and members of the public. Activities will include; provide for the design, maintenance and support for the OCRWM external web site, public policy and legislative analyses of OCRWM-related issues; management of public hearings and meetings; development of public information programs and products; supporting interactions with government entities, regulatory bodies and interested parties; internal communications; tours of Yucca Mountain; operation of three science information centers and a Freedom of Information Act reading room; and community outreach programs.

D. Support Functions

The Contractor shall be responsible for ensuring that common services are provided for health, safety and environmental protection, emergency management, and real property management. Some of the key common support functions are:

- requirements management and flowdown
- training of Contractor personnel and others as specified by DOE
- property management
- inventory control
- fleet management
- design standards
- design control procedures
- general design criteria
- planning
- work control procedures
- safety analysis reviews
- site operations/infrastructure readiness
- energy management
- capital assets management
- procurement
- computer training
- media arts
- technical support in analyzing regulatory and legislative proposals
- life cycle asset management

The Contractor shall be responsible for providing information management services, including information technology, telecommunications, records

management, document production, reprographic services and publication capabilities.

The Contractor shall acquire information technology assets in accordance with Agency guidance that requires full compliance with OMB Circulars A-11, A-127, A-130, and A-94. The circulars are incorporated into Agency guidelines for budget formulation and program and project management, as provided for in the contractor requirements document (CRD) of DOE O130.1 and DOE O 413.3, respectively. Budget formulation guidance specific to Information Technology is provided by the DOE Office of Chief Information Office and shall be incorporated into the planning and budget formulation process. The contractor shall demonstrate analysis of selected technology investments as well as control and evaluation of selected technology projects as required by OMB Circulars A-11 and A-130.

The contractor shall ensure compliance with Agency guidance on Cyber-security recognizing the need for heightened vigilance. The contractor shall be responsive to agency guidance and direction required to secure information technology systems an assets. The contractor shall support and comply with Agency guidance for compliance with the President's Management Agenda (PMA). Guidance on PMA scorecard requirements are updated quarterly. The contractor shall comply with direction received from the Program when information is required to comply with PMA scorecard quarterly requirements. The contractor shall cooperate and support Agency initiatives to improve and modernize the Information Technology infrastructure operations.

E. Management, Planning, and Control System Functions

The Contractor shall maintain management and project control systems in accordance with the Major System Management Policy and DOE Order 413.3, Project Management for the Acquisition of Capital Assets including the requirements and guidance in the Project Management Manual, related DOE Orders, and OCRWM procedures.

The Contractor shall maintain a management, planning and cost control structure, which utilizes work packages as the basis of the performance measurement process. The structure will ensure that, 1) at the work package level, work scope, cost, and schedule will be planned, baselined, and performed; 2) budgets will be established for labor, travel, subcontracts, materials, and other direct costs at the work package level time phased per the program schedule, and basis of estimates will be maintained; 3) actual performance will be assessed against the work package in terms of work accomplished and the actual cost of the work collected; 4) at the work package

level, performance will be summarized into the Project Work Breakdown Structure (PWBS) at increasingly higher levels; 5) job numbers are established for the purpose of appropriately charging costs for the work being performed and tiered into the work package; 6) actual costs are reported at the work package level and summarized at each level of the PWBS.

The process of initiating job numbers will be defined and controlled by approved procedures to ensure that the work has been authorized and funded prior to costs being incurred. Actual and accrued costs will be collected at the job number level for the resources applied in the performance of the work, and the Contractor will ensure that these costs are linked to the accounting system as identified in Business Administration Functions.

The management and project control systems shall be used to identify risks and priorities; support project requirements (e.g., resources, financial and human resource management systems); assess performance against the baseline; allow the evaluation of the consequences (technical, cost, schedule) of new information, alternative activities and/or new financial scenarios; include estimating procedures, based on proven commercial techniques; propose, accumulate and report costs consistent with Generally Accepted Accounting Principles, Cost Accounting Standards, and DOE Accounting Policy; provide integrated financial, schedule, critical path analysis and activity tracking data to support baseline management; emphasize performance measurements, change control and trending data; provide the ability to both control and report direct and indirect costs; integrate data generated and provided by DOE, other prime contractors, the Contractor and its subcontractors; provide the information necessary to support the preparation of DOE reports pursuant to or as required by regulatory agreements; and provide DOE, via computerized files, periodic reports and analysis.

F. Business Administration Functions

The Contractor will provide, in the Las Vegas, Nevada area, general management activities, which include but are not limited to, legal services, audit services, payroll processing, business systems management, human resources, budget preparations, financial management, industrial relations and procurement. The Contractor shall maintain necessary systems to ensure that accurate and timely information is available for program management.

The Contractor must maintain, in Las Vegas area, a fully-integrated, automated accounting system that is linked to DOE's accounts through the use of reciprocal accounts and that has electronic capability to transmit monthly and

year-end self-balancing trial balances to the Department's Primary Accounting System for reporting financial activities under this contract in accordance with requirements imposed by the contracting officer pursuant to the Laws, regulations and DOE directives clause of the contract. The system must have the capability to record the required financial transaction including encumbrances, to control and report costs by DOE reporting structure (appropriation, budget reporting number, activity, job, project number), and to produce auditable records.

5.0 Program Integration Functions

The Contractor shall implement a fully integrated management system in compliance with OCRWM requirements and shall implement quality, timely, and cost-effective programs and operations. The Contractor shall ensure all work under its direction is conducted in a manner that complies with applicable health, safety and environmental regulations; promotes and improves productivity and efficiency; and complies with regulatory requirements, agreements and guidance. The Contractor shall maintain the project decision schedule and budgeting system, including the Integrated Budget Database. The Contractor shall support Program planning activities including assistance with revisions to the Civilian Radioactive Waste Management Program Plan and with Program planning sessions.

The Contractor shall manage work using integrated technical management systems in accordance with the Major System Management Policy (MSMP). The MSMP is a policy document, which defines how the CRWM Program is managed. The Contractor's integrated management system is to integrate the technical management (e.g., technical responsibilities and requirements, control and integration of the design process, and physical assets management); planning and control (e.g., establish cost and schedule baselines, identify roles and responsibilities, preparation of accurate cost estimates, establish work authorization process, and provide timely and traceable performance reports); and baseline management (e.g., establish a formal baseline change control process, and establish a formal configuration management system). The baseline shall describe activities over multiple years. The Contractor shall analyze and report on Program progress against the baseline. The Contractor shall maintain baseline control documents, such as, a work breakdown index, cost and schedule baselines, and monthly management reports on Program status.

The Contractor shall accept the OCRWM baseline documentation and the Configuration Management Information System at the expiration of the incumbent's contract and maintain both in accordance with the formal change control systems. The Contractor's transition plan shall address the review of the baseline documentation for continued implementation and enhancement.

The Contractor shall maintain a post-closure safety case sufficient to provide an adequate basis for assessing the safety of the repository system and explaining the performance roles of the natural and engineered systems. The Contractor shall be capable of accommodating new information by periodically performing a Total System Performance Assessment (TSPA) and incorporating the most up-to-date information each time the TSPA is run. The post-closure safety case must address the ability of the repository system to protect the health and safety of the public. This strategy focuses on demonstrating how multiple natural and engineered barriers would work together to enhance post-closure performance. Information about the site has increased, design has evolved, and performance assessments have become increasingly more sophisticated and the basis for the post-closure safety case has improved. Accordingly, the strategy has evolved as the understanding of what is important to performance has improved. The Contractor must be capable of accommodating new information and changing Program constraints.

The Contractor shall coordinate and integrate the design functions to ensure compliance with regulatory requirements for protecting the public, workers, and the environment; to demonstrate that designs will operate cost-effectively and efficiently; to ensure that changes to designs and specifications are documented and controlled in accordance with OCRWM quality assurance requirements; and to verify that designs for facilities and equipment meet acceptance criteria and design requirements.

The Contractor shall maintain a Total System Life Cycle Cost estimate to be used in preparing an annual draft Fee Adequacy Report in accordance with the NWPA and use value engineering techniques to maintain lowest life cycle costs consistent with required levels of performance. The Contractor shall process and verify utility fee payment data and develop quarterly revenue projections.

In performing work under this contract, the Contractor shall comply with the applicable Federal, State and local laws and regulations. The Contractor shall comply with the requirements of DOE directives, or parts thereof, identified in the List of Applicable Directives (Section J Appendix E), appended to the contract, or a tailored set of requirements developed under a DOE approved process. The Contractor shall continuously evaluate work activities and associated hazards to assure Environmental Safety and Health standards, practices and controls are appropriate. The Contractor is responsible for assuring compliance with the requirements made applicable to the contract regardless of the performer of the work.

The Contractor shall maintain a fully integrated surveillance tracking, trending (excluding Program deficiencies trended by OCRWM, C.2.4 Quality Assurance Functions) and reporting system to ensure site compliance with applicable health,

safety, and environmental regulations; applicable DOE Orders and Standards; and quality assurance requirements. This includes the reporting and documenting of unplanned occurrences such as spills, fires, damage to operating systems, personnel accidents, and exposure to hazardous material; subsequent critiques; disposition of unplanned occurrences; and tracking of corrective actions. The Contractor shall develop and implement a formal lessons learned program.

The Contractor shall ensure that all personnel, facilities, equipment, material, supplies, and services, except as may be expressly set forth in this contract or as furnished by the Government, are available to satisfy the terms of this contract. Further, the Contractor shall take all actions necessary for, or incident to, providing all necessary and related services to manage and subcontract for the programs and operations of the facilities as described in this Statement of Work. All supplies and services are to be procured in accordance with applicable rules, regulations and policies.

The decisions to license and approve the Yucca Mountain will entail significant policy decisions based on technical information about not only the site but also other components of a waste management system, including transportation, predisposal storage, finance, and system management. These policy decisions will involve the Secretary and other DOE programs, including Environmental Management, Defense Programs, Environmental Safety and Health, and the Office of Nuclear Nonproliferation; other federal agencies, particularly the Environmental Protection Agency, the Nuclear Regulatory Commission, the President's Council on Environmental Quality, and the Department of Interior; the President and the White House staff, including the Cabinet Council; the Congress; the State of Nevada and other states that may wish to comment; the nuclear utility industry; the nonproliferation and national security communities; the scientific community both within the U.S. and other nations also grappling with the nuclear waste problem; international organizations, such as the Nuclear Energy Agency and the International Atomic Energy Agency; and other stakeholders.

The Contractor will support DOE, both in Washington and Las Vegas, to shepherd the site recommendation through the policy process, including extensive communications with the many participants in the process, the analysis of policy issues, and other support activities. The integration of these support activities, including Science and Technology activities, with the technical program is vitally important. Similarly, the licensing process, though obviously focused on the Nuclear Regulatory Commission, also will involve many other parties, some supportive and others opposed, and will require significant contractor support that is integrated with the technical program.

C.3 WORK INTERACTIONS

1.0 Interaction with Other Program Participants

The OCRWM has interaction with and participation by numerous other organizations and prime contractors. The Contractor shall identify and integrate the work of the other organizations and prime contractors supporting the OCRWM Program in the accomplishment of Program milestones. The Contractor shall be required to integrate the Waste Acceptance and National Transportation functions if these functions are provided by other prime contractors.

The contractor shall coordinate the activities of the United States Geologic Survey. The United States Geological Survey (USGS) has provided many years of scientific and engineering studies on issues relevant to the natural physical processes of the site and the engineered materials. It is anticipated that the USGS will continue to support the Program throughout the licensing process. The Contractor shall plan, integrate and manage the work activities of the USGS. The work scope of the USGS shall be defined by the Contractor, subject to DOE approval. The identification of work to be accomplished or continued by the USGS shall be consistent with Program needs. The Contractor shall ensure that all necessary testing data is appropriately incorporated into project documents for development of the technical bases and the successful completion of scheduled milestones.

The NNSA/NSO currently provides infrastructure, emergency medical, fire response, security and logistical support and is the landlord of the site until such time as the Program receives congressional land withdrawal. The Contractor shall ensure that interfaces with the NNSA/NSO are maintained, work is coordinated effectively, and appropriate site support services continue. All of the NNSA/NSO services may be contracted for separately based upon make or buy analysis, the best overall interest of the government and DOE approval.

The Contractor shall coordinate with and provide support to the DOE and its Litigation Support Contractor in developing and implementing the Licensing Support Network. The Contractor shall transmit documents and relevant records to the Litigation Support Contractor (LSC) for screening and loading into the LSN.

The Contractor shall provide engineering support interface for activities conducted under DOE cooperative agreements with Inyo County, Nye County, University and Community College System of Nevada, Atomic Energy of Canada Limited, Regulators, and others, as designated. The Contractor shall transition the National Laboratories work scope (specifics to be defined). The Contractor shall coordinate with activities performed by the Science and Technology program.

C.4 INTEGRATION WITH NATIONAL LABORATORIES

1.0 Licensing Support

The Contractor will manage and integrate the scientific and technical work necessary to support the preparation of, maintenance of, and updates to the post-closure portions of the license application (LA) for the geologic repository. In particular, The contractor will be responsible for: post-closure scientific programs including defining work activities and priorities related to repository science needs and creating a responsible performance confirmation program; the portions of the LA that set forth the scientific work for which The contractor is responsible in a form that permits its incorporation into the LA without further substantive work; providing information, analyses, documents, expert witnesses, and other scientific and technical support needed for the adequate and successful legal defense of the LA during the NRC licensing process and any related litigation; compliance with applicable document production and retention requirements, including those requirements related to the Licensing Support Network (LSN); allocation of funding and the assignment of technical tasks to selected supporting organizations (e.g., other national laboratories, subcontractors, Federal agencies, universities, expert panels); and assuring technical integrity and sufficiency and product quality of the deliverables and other work supporting the licensing technical basis, and representing the technical basis to regulatory, stakeholder, and other constituencies.

The contractor shall be responsible for integrating the scientific and technical tasks related to the post-closure performance assessment.

The contractor shall work with the DOE and other project participants to determine the appropriate scope of scientific and technical post-closure work to support project needs. The contractor shall be responsible for designing and preparing the appropriate analyses, conducting postclosure total system performance assessments (TSPAs) to support the repository license application, the technical aspects of construction authorization amendments, if any, and the license application amendment related technical issues needed to obtain a license to receive and possess nuclear material.

The contractor shall maintain a postclosure safety case sufficient to provide an adequate technical basis for assessing the safety of the repository system and explaining the technical performance roles of the natural and engineered systems. The contractor shall be capable of accommodating new information and periodically performing a TSPA update. The postclosure safety case must address the technical ability of the repository system to meet applicable NRC post-closure regulatory standards and to protect the health and safety of the public.

The contractor must be capable of accommodating new scientific and technical information and adjust analyses to changing Program constraints.

The contractor will supply information as requested to support updates of the Project Environmental Impact Statement (EIS)/Supplemental EIS, if needed, in accordance with all applicable requirements. The contractor will perform the work scope associated with the review of proposed Program and Project changes that could affect the environmental impacts described in the *Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (2002)* and subsequent environmental baseline.

The contractor shall use their scientific and technical expertise to perform the work that includes support for preparation, approval, and submittal to NRC of subsequent updates to the post-closure portions of the LA, including an update of the license to receive and possess waste and subsequent updates as post-receive and possess construction, operations, and performance confirmation may require.

The contractor shall perform scientific and technical work that includes support for preparation of post-closure portions of the update to the LA that precedes receipt of the license to receive and possess high-level radioactive waste (HLW). It also includes support for preparation of the LA updates after NRC issues the license to receive and possess waste until the final update for closure of the facility.

The contractor shall perform the work that includes enhancement and update of the TSPA-LA model, the validation and documentation of the model, the analyses that will be completed using those models and submodels, the documentation presenting the technical results and scientific conclusions in support of the update of the LA for receive and possess, and subsequent updates to the license for the operational life of the repository.

The contractor will provide technical input for responses to requests for additional information, open items, and confirmatory items, and provide support at technical meetings with NRC staff and the Advisory Committee on Nuclear Waste (ACNW) to resolve issues during review. The contractor will support meetings and resolve issues with the Nuclear Waste Technical Review Board (NWTRB).

The contractor shall perform all work in accordance with a quality assurance program that meets requirements defined in the OCRWM Quality Assurance Requirements Document (QARD), as discussed below.

The contractor and the Department of Energy (DOE) have a common interest in NRC's granting, in a timely manner, authorization to construct a repository at Yucca Mountain and permission to operate the repository. Accordingly, the contractor shall perform all work in a manner that provides a sound and adequate scientific and technical basis for the legal defense of the license application in the NRC licensing proceeding and any related litigation. Among other things, The contractor shall, as needed and requested, make expert witnesses available, organize information and analyses in a manner consistent with and supportive of litigation strategy, provide scientific and technical responses to information requests and assistance in the preparation of motions, responses to motions, testimony,

cross-examination and other litigation material in a timely manner that permits compliance with NRC schedules, and comply with LSN and other discovery and record retention requirements. In this regard, the contractor will work closely with and provide adequate and timely scientific and technical assistance in support of the efforts of the Office of the General Counsel and its licensing support contractor (Hunton and Williams) who have primary responsibility for the legal defense of the license application.

2.0 Safety Analyses

The contractor will conduct a technically based postclosure safety analyses for the Yucca Mountain Project. This includes collection of data, conducting analyses, and developing the TSPA and performance confirmation program and associated documents. It also includes support for the writing, updating and supporting the development of the technical safety analyses related portions of the LA general information section and Safety Analysis Report (SAR), and their subsequent updates, as needed.

3.0 Safety Analyses Integration

The contractor will manage technical activities, provide coordination of technical analyses, and integration of postclosure safety analyses base support, including prioritizing the postclosure work with an emphasis on identifying scope of work that balances project management risks in the LA with other technical issues related to regulatory risks. This also includes supervision of the contractor staff; administrative support to safety analyses planning activities; establishment of controls that meet administrative, technical, and quality requirements; and identification and control of interfaces with other participants, as needed. This includes integrating and monitoring scientific and technical performance associated with safety analyses and work activities carried out at National Laboratories, contractors, and universities as appropriate. This includes providing technical and strategic input to safety analyses, as required. This includes coordination to update the features, events, and processes (FEP) identification; classification; and screening, as necessary, to address comments from DOE, NRC, NWTRB and other Agencies. The primary purpose of the revisions is to improve the transparency and traceability of scientific and technical aspects of the FEP screening decisions and their implementation in the TSPA, and to improve the defensibility of screening arguments for the LA. Work scope for The contractor includes interface with the other Project organizations and functions to ensure the safety analyses adequately address the technical content requirements of the safety analyses portions of the LA and subsequent LA updates. It includes input provisions to the LA Chapters' text associated with postclosure safety analysis in general, and integrating technical products supporting the post-closure safety analyses in order to enhance transparency and traceability for regulatory purposes. It includes the procurement of services, equipment, materials, and supplies uniquely associated with the safety analyses effort.

The contractor will perform tasks associated with the development and implementation of project control tools, systems, procedures, and guidance needed to support the performance assessment/confirmation team in the execution of its work. This also includes

management and integration of work scope conducted by other National Laboratories, contractors, and universities supporting the postclosure safety models and analyses.

4.0 Total System Performance Assessment

The contractor will maintain, document, update, and validate the TSPA model. The contractor will conduct the technical analyses using the model and document the scientific results and conclusions. The contractor will support the development of the TSPA subproducts. This includes enhancement and update of the current and next-generation TSPA models, the validation and documentation of the models, the analyses that will be completed using those models, the documentation presenting the results and conclusions in support of an update of the LA for receipt and possession of spent nuclear fuel (SNF) and HLW, and supporting the associated TSPA subproducts.

TSPA sensitivity analysis results will support the development of the Performance Confirmation Plan. The contractor will provide technical expertise to support writing, updating, and developing related portions of the LA, general information, and SAR, and their subsequent updates, as needed. The contractor will support the performance confirmation program by developing the performance confirmation testing strategy, providing specific modeling activities to support performance confirmation test plans, and using the TSPA to inform decisions on specific testing.

5.0 Subsystem Models

The contractor will develop, update, and support the subsystem models contributing to the following technical models that will be used in analyses of nominal and disruptive performance, as appropriate: Unsaturated Zone Flow and Transport Models; Saturated Zone Flow and Transport Model; Engineered Barrier System Performance, including Waste Package and Drip Shield Performance, and integration of coupled processes in the drift and near-field environment; and Biosphere. Work will include the investigations of natural analogs and other lines of scientific and technical evidence that support NRC acceptance of the validity of the models. The contractor will develop associated technical reports (e.g., Analysis Model Reports (AMRs)) and work necessary to support development and update of the SAR during the period prior to the issuance of a license (both construction authorization and receive and possess). The contractor will support technical meetings and resolve scientific and technical issues with NRC, ACNW, and the NWTRB. The models describe implementation of the relevant FEP that collectively support each model.

The work will result in integrated models of the thermally driven, coupled processes that affect the thermal-hydrological-chemical-mechanical environment in the host rock, especially around the drifts, and summarize the interrelations of the various submodels, as well as the connections between process models. The various technical reports (e.g., AMRs) will support the development of the applicable LA chapters and support the performance confirmation efforts for both the development of the active performance confirmation testing strategy and the specific modeling needs associated with it. The

contractor will test and validate models in accordance with the requirements defined in the Quality Assurance Requirements Document (QARD).

The contractor will develop, update, and support models for predicting the long-term degradation behavior of the waste package and drip shields as identified in the design for the LA. These include the reference materials identified for the waste package outer barrier, inner shell, SNF and HLW baskets, emplacement pallets, and drip shields.

The contractor will establish, document, and update, as appropriate, the baseline properties and characteristics for the candidate materials for each component of the waste package, drip shield, and emplacement pallet.

The contractor will perform tests, analyses, and modeling to predict the relevant range of local environments the engineered barriers will experience in the emplacement drifts, as well tests, analyses, and modeling to predict the long-term behavior of Alloy 22 and Titanium Grade 7 in those environments.

The contractor may be required to include other appropriate candidate materials and other component reference materials in the testing program to the extent needed to achieve the Waste Package Degradation Work Breakdown Structure Element objectives and satisfy the information needs identified by other Pre-closure Safety and Postclosure Safety Work Breakdown Structure Elements.

6.0 Disruptive Events

A disruptive event is defined as an unlikely event that could affect the performance of the repository. Events that have an occurrence probability equal to or greater than the regulatory threshold of one chance in 10,000 in 10,000 years, and are not excluded because of low consequence to dose, will be included in the TSPA analyses (see FEP element under safety analyses integration). The contractor will evaluate the probability and consequences of igneous and seismic activity in the Yucca Mountain region and the impact on the repository. The contractor will expand the technical basis for the LA, including additional support to satisfy the criteria of NRC's Yucca Mountain Review Plan and the related key technical issues agreements.

The contractor will address the post-closure effects of seismic activity through the development of probabilistic seismic hazard analyses and site-specific seismic design inputs to support analyses of damage to engineered components and rockfall hazard. The contractor will remain cognizant of and utilize, as appropriate, data and analysis developed from seismic related tasks under the cooperative agreement with the University and Community College System of Nevada. The contractor will support technical meetings and resolve scientific and technical issues with NRC, ACNW, and the NWTRB. The contractor will conduct any specific testing to support either the probability or consequences of volcanic or seismic events. The contractor will provide technical input for update of the SAR, as appropriate, to support the license to receive and possess. The contractor will

support the performance confirmation efforts for both development of the active performance confirmation testing strategy and specific modeling needs associated with it.

7.0 Neutronics

The contractor will develop and apply a disposal criticality analysis methodology. The methodology applies to the criticality related analyses needed to evaluate compliance with the applicable NRC post-closure regulatory requirements, and will include analyses of potential criticality in both the engineered and natural systems.

The contractor will support DOE in interactions with NRC to resolve the items in the revised *Disposal Criticality Analysis Methodology Topical Report*. The contractor will support development and update of the SAR to support the license to receive and possess and other updates as required. The contractor will support technical meetings and resolve scientific and technical issues with NRC, ACNW, and the NWTRB.

8.0 Postclosure Safety Test Coordination

The contractor will coordinate testing activities related to the above scope of work and conducted underground in the Exploratory Studies Facility, east-west cross drift, and surface-based activities. These services include the preparation of field work packages, location surveys, determination of importance evaluations, and administration of data acquisition activities.

The contractor will coordinate and support testing activities for the Atlas Facility and other Yucca Mountain Project offsite locations, as necessary, and manage the Sample Management Facility. Such activities include providing test coordination interface for activities conducted under DOE's cooperative agreements with Inyo County, Nye County, University and Community College System of Nevada, Atomic Energy of Canada Limited, State of Nevada, regulators, and/or oversight bodies (NWTRB, etc.).

9.0 Performance Confirmation Support

Performance confirmation is the set of activities, including monitoring, testing, and analyses, required to help provide data that indicate, where practicable, that the systems will behave as described in the LA following repository closure. This scope of work also includes scientific and technical support for the development of the LA, including support for writing, review, comment resolution, and revision, as needed. The main focus of this work will be Chapter 4 of the SAR.

The contractor will revise the performance confirmation plan to reflect regulatory changes, changes to the LA process, and an evolving LA design. Revisions will refine the performance confirmation program, in accordance with 10 CFR 63, subpart F, and affect lower tier documents and the System Description Documents necessary to execute a successful Program based on regulatory requirements and programmatic guidance, using a risk-informed, performance-based approach. The contractor will provide input for update of

the SAR during the period prior to the issuance of a license to receive and possess. The contractor will support technical meetings and resolve scientific and technical issues with NRC, ACNW, and the NWTRB.

10. Quality Assurance Requirements

When performing work for the Office of Civilian Radioactive Waste Management (OCRWM), the contractor shall implement and comply with OCRWM's QARD and the current version of the Augmented Quality Assurance. Upon notification from OCRWM that a later version of the QARD or the Augmented Quality Assurance Program has been adopted, the contractor shall either agree to implement and comply with the applicable requirements in that version or terminate work. The contractor is responsible for ensuring all entities (i.e., National Laboratories, subcontractors, universities and other entities) comply with all applicable QA requirements.

OCRWM shall have access to the contractor facilities for purposes of quality assurance oversight of OCRWM-funded activities. The contractor's subcontracts will provide for similar access by OCRWM as it relates to this Statement of Work. Subject to National Security requirements, observers from NRC and State and local governments may participate in these oversight activities consistent with any agreement between OCRWM and NRC or other entity or with any applicable regulation. The contractor shall respond to all deficiencies identified as related to this Statement of Work. The contractor will notify NNSA and OCRWM whenever it believes work by the contractor or any other entity for which The contractor is responsible for the management and integration under this arrangement has been or may be performed in a manner inconsistent with NRC quality assurance requirements or OCRWM's implementation of those requirements. Any determination by OCRWM or NRC as to what action is necessary to comply with those requirements will be transmitted to the Contracting Officer (CO) for action as necessary.

The OCRWM COR for QA will promptly notify the CO of any significant contractor performance deficiencies and upon notification, the CO will immediately take the necessary action to require The contractor to remedy performance or if necessary, stop work and/or terminate work consistent with the direction of OCWRM and the terms and conditions of the prime contract. The OCRWM may withhold future funding for the work described herein in the event a QA deficiency is not promptly remedied.