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<u>NOTE</u>: THERE ARE TWO PERFORMANCE-BASED STATEMENTS OF WORK; ONE COVERING PADUCAH, KY SCOPE, AND ONE COVERING PORTSMOUTH, OH/EAST TENNESSEE TECHNOLOGY PARK (ETTP) SCOPE. ETTP IS LOCATED IN OAK RIDGE, TN.

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(a) **Introduction**

Depleted Uranium Hexafluoride (DUF_6) results from the process of making uranium suitable for use as fuel for nuclear reactors or military applications. The use of uranium in these applications requires increasing the proportion of the uranium-235 isotope found in natural uranium, which is approximately 0.7%, through an isotopic separation process called uranium enrichment. Gaseous diffusion is the enrichment process used at three plants in the United States.

The gaseous diffusion process requires uranium in the form of UF_6. UF_6 is a chemical compound consisting of one atom of uranium combined with six atoms of fluorine. It can be a solid, liquid, or gas, depending on its temperature and pressure. It is used for the gaseous diffusion process primarily because it can conveniently be used in the gas form for processing, in the liquid form for filling or emptying containers or equipment, and in the solid form for storage. At atmospheric pressure, UF_6 is a solid at temperatures below 134°F (57°C) and a gas at temperatures above 134°F. Solid UF_6 is a white, dense, crystalline material that resembles rock salt.

In the gaseous diffusion process, a stream of heated UF_6 gas is separated into two parts: one enriched in uranium-235 and the other depleted in uranium-235. The enriched UF_6 is used for manufacturing commercial reactor fuel, which typically contains 2 to 5% uranium-235, or for military applications (e.g., naval reactor fuel), which requires further enrichment of up to 95% or more uranium-235. The depleted DUF_6, which typically contains 0.2 to 0.4% uranium-235, is stored as a solid in large metal cylinders at the gaseous diffusion facility.

Large-scale uranium enrichment in the United States began as part of atomic bomb development by the Manhattan Project during World War II. Uranium enrichment activities were subsequently continued under the U.S. Atomic Energy Commission and its successor agencies, including DOE. The K-25 plant in Oak Ridge, TN, (now East Tennessee Technology Park - ETTP) was the first of three gaseous diffusion plants constructed to produce enriched uranium followed by plants in Paducah, KY, and Portsmouth, Ohio. The ETTP plant ceased operations in 1985, but uranium enrichment continues at both the Paducah and Portsmouth sites. These two plants are now operated by the United States Enrichment Corporation (USEC), created by law in 1993 to privatize the uranium enrichment program.

Since the 1950's, DUF_6 has been stored at Oak Ridge, TN; Paducah, KY; and Portsmouth, OH, in large steel cylinders. Several different cylinder types are in use, although the vast majority of cylinders have a 14-ton (12-metric-ton) capacity. The cylinders are typically 12 ft (3.7 m) long by 4 ft (1.2 m) in diameter, with most having a wall thickness of 5/16 in. (0.79 cm) of steel. Similar, but slightly smaller, cylinders with a capacity of 10 tons (9 metric tons) are also in use. During storage, a cylinder contains solid DUF_6 in the bottom and DUF_6 gas at less than atmospheric pressure. The DUF_6 cylinders managed by DOE at the three sites are typically stacked two cylinders high in large areas called yards.

The characteristics of DUF_6 pose potential health risks, and the material is handled accordingly. Uranium is radioactive, and DUF_6 in storage emits low levels of gamma and neutron radiation. The radiation levels measured on the outside surface of filled DUF_6 storage cylinders are typically about 2 to 3 millirem per hour (mrem/h), decreasing to about 1 mrem/h at a distance of 1 ft (0.3 m). In addition, if DUF_6 is released to the atmosphere, it reacts with water vapor in the air, forming hydrogen fluoride (HF) and a uranium-fluoride compound called uranyl fluoride (UO2 F2). These products are chemically toxic. Uranium is a heavy metal that, in addition to being

radioactive, can have toxic chemical effects (primarily on the kidneys) if it enters the bloodstream by means of ingestion or inhalation. HF is an extremely corrosive gas that can damage the lungs and cause death if inhaled at high enough concentrations.

Cylinders are stored with minimum risks to workers, members of the general public, and the environment at the Paducah, Portsmouth, and ETTP sites. DOE maintains an active cylinder management program to improve storage conditions in the cylinder yards, to monitor cylinder integrity by conducting routine inspections for breaches, and to perform cylinder maintenance and repairs as needed.

Because storage began in the early 1950's, many of the cylinders now show evidence of external corrosion. Before 1998, seven cylinders (one at Paducah, two at Portsmouth, and four at ETTP) had developed holes (breaches), generally around spots previously damaged by handling activities. In 1998, one additional cylinder breach occurred during the course of cylinder maintenance operations. Because the DUF_6 is a solid at ambient temperatures and pressures, it is not readily released from a cylinder following a leak or breach. When a cylinder is breached, moist air reacts with the exposed DUF_6 solid and iron, resulting in the formation of a dense plug of solid uranium and iron compounds and a small amount of HF gas. This plug limits the amount of material released from a breached cylinder. When a cylinder breach is identified, the cylinder is repaired or its contents are transferred to a new cylinder.

DOE has responsibility for continued management of the DUF_6 cylinders stored at the Paducah, Portsmouth, and ETTP sites. The Department's cylinder management plan since 1990 has focused on cylinder inspections, re-coatings, and relocations to assure that DUF_6 is safely stored pending its ultimate disposition. Thus the program has largely focused on the ongoing surveillance and maintenance of the cylinders containing DUF_6. The question, however, of the long-term management and eventual disposition of DUF_6 remains and is the subject of considerable interest within the Congress, the Department, and with concerned citizens and stakeholders.

Congress stated its intentions with regard to DUF_6 in Public Law (P.L.) 105-204, signed by the President in July 1998. This law directed the Secretary of Energy to prepare and submit to Congress a plan to ensure that all funds accrued on the books of the USEC for the disposition of DUF_6 will be used for the construction and operation of plants to treat and recycle the DUF_6 consistent with the National Environmental Policy Act. The Department has responded to the law by initiating a procurement action through release of a Request for Expressions of Interest on March 4, 1999, and issuing the "Final Plan for the Conversion of Depleted Uranium Hexafluoride," in June 1999.

The Department's "Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride," issued April 15, 1999, described the preferred alternative for managing the depleted uranium hexafluoride; to begin conversion of the DUF_6 inventory to oxide or metal as soon as possible for use or long-term storage. The conversion to metal was contingent upon uses being identified. The Record of Decision concerning the Department's decision on the long-term management and use of DUF_6 was issued in August 1999.

DOE has decided to promptly convert the depleted UF_6 inventory to depleted uranium oxide, depleted uranium metal, or both. The depleted uranium oxide products would be used as much as possible , and the remaining depleted uranium oxide would be stored for potential future uses or disposal, as necessary. The Department currently expects that conversion to depleted metal would be performed only if uses become available. At this time, the Department does not believe that long-term storage as depleted uranium metal and disposal as depleted uranium

metal are reasonable alternatives; however, the Department remains open to exploring these options further.

The Department will initiate project-specific environmental impacts statements for facilities to convert the depleted uranium hexafluoride inventory to a more stable form. The Department intends to complete site-specific National Environmental Policy Act review(s) prior to commencing construction. These reviews will be coordinated with the procurement process specified in the Final Plan.

Consistent with the desire to utilize the DUF_6 or place it in final disposition, the first step – for either future use or disposition – is to convert the material by removing the fluorine component and transforming the material into a safer, more stable form. To do so, construction and long-term operation of conversion plants is essential. Conversion, then, is the centerpiece of an integrated approach for management of the Department's DUF_6 inventory.

(b) **Base Contract Statement of Work**

Base contract requirements and associated deliverables include:

- Cylinder Management - Involves maintaining an inventory of approximately 37,900 cylinders containing UF_6,
- Conversion Services - Converting approximately 425,000 metric tons of DUF_6 in approximately 35,300 cylinders, and
- Conversion Product Storage - Storing the converted DU in disposable DOT compliant containers at Paducah, KY.

A conversion facility shall be constructed at Paducah, KY for either oxide or metal end products. DOE shall lease to the contractor land located on DOE property at Paducah, KY, for construction of the facility and associated ancillary facilities. The services provided by this procurement shall include all functions necessary to develop a comprehensive, integrated DUF_6 conversion project complete with facilities (both conversion and storage) constructed to regulatory requirements.

The base scope of work shall be performed in a five and one-half year period (April 1, 2000-September 30, 2005), comprised of: five years of cylinder management (October 1, 2000 - September 30, 2005), four years and nine months for conversion facility design and construction (April 1, 2000 - December 31, 2004), and nine months of conversion and storage operations (January 1, 2005 - September 30, 2005). Construction shall begin no later than March 31, 2002. Options 1 through 5 include four 5-year option periods and one 4-year 3-month option period for continued services provided in the base scope. Option 6 consists of decontamination and decommissioning of the conversion facilities and ancillary facilities. Option 7 consists of cleaning empty or heel UF_6 cylinders currently on the DOE inventory.

Plans, as defined under Sections C.1(b)(4) through C.1(b)(10), span the entire base scope, Cylinder Management, Conversion Services, and Conversion Product Storage.

(1) **Cylinder Management**

Cylinder Management will begin October 1, 2000. A three month transition period **[CLIN 0001a]**, beginning July 1, 2000, and ending September 30, 2000, during which time the contractor shall develop plans and obtain approvals to assume cylinder management responsibilities.

The Contractor shall be responsible for all activities necessary to manage the Paducah UF_6 cylinder inventory (listed in Section J, Attachment A). Cylinder size, type, condition, assay, and amount of material stored in the cylinders vary. Some cylinders are empty. The entire population will not be converted. See footnote on Tables listed under Section J, Attachment A. Cylinder Management Services shall consist of routine operations and cylinder painting.

The Contractor shall ensure the requirements from the following document, contained in Section J, Attachment B, are incorporated into the cylinder management activities:

- *Department of Energy Implementation Plan for Defense Nuclear Facility Safety Board (DNFSB) Recommendation 95-1* dated October 16, 1995.

(i) **Routine Cylinder Management:** Provide personnel, equipment, and materials to manage the Paducah cylinder management program **[CLIN 0002a]** including:

(A) Strategically plan, develop, prioritize, and optimize yard management and staging of DUF_6 cylinders for conversion.
(B) Develop and maintain a summary level, UF_6 cylinder project cost and schedule baseline, to meet overall DUF_6 conversion goals and milestones. The Contractor is responsible for developing and maintaining site-specific goals and milestones.
(C) Reply to DOE-ORO and DOE-HQ UF_6 cylinder project information requests.
(D) Provide monthly status to DOE-ORO program and project management on performance relative to budget, schedule, and milestones.
(E) Stage cylinders for conversion in accordance with Cylinder Management Plan, Section C.1(b)(1)(iii).
(F) Perform required annual and quadrennial visual inspections of UF_6 cylinders, monitoring cylinder valves and plugs, and taking non-destructive measurements of wall thickness on selected cylinders to characterize the conditions of the cylinder population in order to verify compliance with DNFSB Recommendation 95-1 and the following documents referenced therein: Systems Requirements Document, Systems Engineering Management Plan, Engineering Development Plan, Depleted UF_6 Cylinder Program Management Plan, and Depleted UF_6 Cylinder Safety Analysis.
(G) Provide surveillance operations on UF_6 cylinders, storage yards, and the environment associated with UF_6 cylinders in storage.
(H) Perform general maintenance of cylinders including valve and plug management, nameplate management, cylinder coating maintenance, and skirt cleaning.
(I) Maintain yards and cylinder handling equipment.
(J) Verify sorting and staging of cylinders based on age and/or assay prior to conversion.
(K) Provide development and technical operations needed to clarify the technical basis, optimize the configuration, and resolve deficiencies identified internally or externally through audits, assessments, or reviews.
(L) Maintain existing cylinder data tracking/database.
(M) Construction of additional cylinder storage yards will become a separately priced option.
(N) Remove the contents of a cylinder including capability to transfer contents, execute the transfer, and decontaminate and dispose of

cylinder heel materials and the cylinders themselves if they are removed from service. For planning and pricing purposes, anticipate two cylinders will require content transfer during the base term.

(O) Prepare plans, procedures, and techniques for managing substandard cylinders, including personnel, equipment, and materials needed to stabilize breached or severely degraded cylinders.

Deliverable: TBD

(ii) **Cylinder Painting:** Cylinder painting and inspection **[CLIN 0003a]** includes:

Provide personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections under routine cylinder management verify non-compliant conditions. All cylinders shall be inspected by a National Association of Corrosion Engineers (NACE) certified inspector following painting.

Deliverables: Full body paint 2,000 cylinders per year.

(iii) **Cylinder Management Plan:** The contractor shall submit to the Contracting Officer for approval, a **Cylinder Management Plan [CLIN 0032a].** The plan must convey the Contractors approach for managing all cylinders listed in Section J, Attachment A, and in accordance with services listed above. The plan must be maintained as a living document with updates provided to DOE for approval.

Deliverable: Cylinder Management Plan. Schedule, format, and content TBD.

(2) **Conversion Services**

(i) **Design [CLIN 0005a(1)] and Construction [CLIN 0005a(2)]**

The Contractor shall perform conceptual, preliminary, and final designs; and construction of the conversion facility. The conversion facility shall be sized to convert DUF_6 cylinders as listed in Section J, Attachment A, over a 25 year period.

The contractor's services shall consist of:

- obtaining all necessary licenses and permits for design and construction;
- designing the conversion facility to meet Functional Requirements listed in C.1(b)(2)(iii) and with consideration for ease and cost effectiveness of D&D;
- support NEPA analysis; [See Section C.1(b)(9).]
- obtaining an Environmental Protection Agency Identification number;
- obtain all permits and sign as owner and operator of the conversion facility;
- provide a Safety Analysis Report;
- mobilizing and demobilizing for construction;
- constructing new facility or reuse of existing facilities;
- designing and constructing all utilities including coordination with all utility sources to obtain needed services;
- designing, constructing, and maintaining all necessary roadway(s) including those required for ingress and egress to the conversion facility and storage yards/areas and to accommodate transfer of DUF_6 cylinders

from existing cylinder storage yards to the conversion facility;
- developing feed storage area, if required;
- establish and maintain site security [See Section C.1(b)(7)];
- meeting all applicable local, state, and federal codes and standards;
- performing pre-operational system testing; and
- conducting an operational readiness review.

DOE is responsible for:

- completing the site specific NEPA requirements;
- if necessary, completing supplemental PEIS and/or analysis, as required, to support metal storage development;
- reviewing and approving documents required in Section C.1(d), Deliverables;
- assisting with interface between the contractor, the management and integrating (M&I) contractor, and/or others during design, construction, and pre-operational readiness review;
- providing all necessary easements for utilities;
- authorizing start of construction;
- conducting operational readiness review; and
- performing environment health and safety reviews during construction and pre-operation as determined in the ISMS.

Deliverable: Final Design Documents shall be submitted to DOE for information **[CLIN 0032a].** [See Section C.1(d), Deliverables.] As-Built Drawings shall be provided to DOE for information prior to start of operations **[CLIN 0032a]**. [See Section C.1(d), Deliverables].

(ii) **Conversion Facilities Functional Requirements**

The Contractor shall ensure that the design of the Conversion Facilities incorporates the following functional requirements:

(A) Shall provide final product per Uranium Products, Section C.1(b)(2)(vii).
(B) Shall convert 18,000 metric ton DUF_6 per year.
(C) Shall perform value engineering activities in accordance with Clause I.97.
(D) Shall provide space and supporting infrastructure sufficient for staging DUF_6 feed cylinders and for staging conversion product.
(E) Shall convert DUF_6 such that a minimum of 99.9% of the fluorine is removed.
(F) Uranium in fluorine shall be less than 1/10 part in a million.
(G) Shall provide 1,600 square feet of non-hardened office space for DOE personnel.
(H) Shall decontaminate empty cylinders, if required, for reuse or disposal. Contraction shall arrange and pay for disposition of empty.
(I) Design shall provide for decontamination and decommissioning of the facility in a manner which is cost effective and efficient, and minimizes the generation of radioactive waste and radiation exposure to personnel.
(J) Shall meet the principles of ALARA (As Low As Is Reasonably Achievable) as specified in 10 CFR Part 835, Occupational Radiation Protection.
(K) Shall provide a fully integrated material inventory control system. [See Section C.1(b)(7).]
(L) Shall meet all applicable Federal, State, and local laws and regulations and conform with all specific agreements and requirements of the Paducah Site and all relevant standards of the nuclear and chemical

industries.

(M) Shall provide capability of receiving, storing, and processing Export Control Information and Unclassified Controlled Nuclear Information in conformance with applicable laws and regulation. [See Section C.1(b)(7).]

(N) Shall utilize existing proven technologies in process and facility designs.

(O) Shall provide laboratory and analytical services in support for the conversion facilities operations.

(P) Shall comply with DOE Safeguards and Security requirements. [See Section C.1(b)(7).]

(Q) Shall minimize waste. [See Section C.1(b)(10).]

(R) Shall handle and convert various cylinder designs and sizes. (See Section J, Attachment A.)

(S) Shall perform surveillance and maintenance of all DUF_6 cylinders in feed staging area includes all cylinders regardless of size, content, assay, or condition. (See Section J, Attachment A.)

(T) Feed process shall take into account varying cylinder wall thicknesses. Some cylinders have a wall thickness that may not conform to ANSI specification N14.1.

(U) Shall comply with DOT regulation, 49 CFR 173, applicable to product conversion containers.

(iii) **Conversion Services [CLIN 0006a]**

The conversion services shall consist of:

- performing routine operation and preventative maintenance of all DOE furnished property in accordance with current procedures;
- sequencing and staging cylinders for conversion [See Section C.1(b)(2)(iv).];
- performing all DUF_6 conversion operations;
- properly loading and disposal of all process waste including pretreatment characterization of process waste, if necessary; obtaining final waste form certification from licensed disposal site(s); and arranging for and paying all transportation and disposal costs of waste disposed; and
- performing closure per the RCRA permit of all the contractor's equipment and material or DOE equipment and material contaminated by the contractor, if applicable.

DOE is responsible for:

- assisting interface between the contractor, the management and integrating (M&I) contractor, and/or others during operations and plant modifications.
- authorizing start of operations;
- performing environment, health and safety reviews during operation as determined in the ISMS; and
- approving conversion operations deactivation condition.

(iv) **Conversion Sequence Plan**

The contractor shall define the sequence for feeding cylinders to the conversion facilities. The plan shall provide for conversion of cylinders of poor integrity first. Cylinders with assays greater than 0.45% shall not be sequenced for conversion until last. The conversion sequence plan shall take into account varying cylinder wall thicknesses, as some cylinders have a wall thickness that may not conform to ANSI specification N14.1, as well as purity of the material, the assay of the

material, and the quantity of the material. The conversion sequence plan shall take into account cylinder location and accessability to the cylinder for staging for conversion (i.e. minimizing the number of movements required).

Deliverable:

The contractor shall submit to the Contracting Officer for approval, a proposed **Conversion Sequence Plan [CLIN 0032a]** for feeding cylinders to the conversion process. The plan shall be submitted 12 months after contract award and annually thereafter. The plan shall include the Contractors rational for the proposed conversion sequence based on considerations identified above. Annual updates to the plan shall include the Contractor's proposed handling of non-DOE DUF_6.

(v) **Suspension of Operations Plan**

The Contractor shall prepare a Suspension of Operations Plan for the Conversion Facility. The plan shall explain the approach to suspending conversion process(es) and meet the following goals: 1) minimize radiological hazards to the workers, public and environment; 2) place the facility in a safe condition that minimizes risks from physical or chemical hazards; and 3) allows for ease of facility restart.

As a minimum, the Suspension Plan shall consider:

(A) How long operations may be interrupted before implementing the Suspension Plan;
(B) Removal of all readily accessible and removable surface radiological contamination such that the facility is accessible without protective clothing. This excludes piping and other systems where there is no reasonable expectation of personnel entry;
(C) Sealing systems to prevent foreign debris entry and to serve as a containment boundary;
(D) Placing systems at or near atmospheric pressure and disabled, as applicable, to meet the risk reduction goals;
(E) Physically disconnected DUF_6 feed cylinders, purging process lines, and all resultant product material cleared from the process stream and packaged into closed containers;
(F) Isolating all processing chemical substances from the process line. Disposal of the chemicals should be considered dependent upon the length of suspension.

Deliverable:

The Contractor shall submit to DOE for information only, a **Suspension of Operations Plan [CLIN 0032a]**prior to completion of final design.

(vi) **Fluorine Related Products**

The Contractor assumes ownership and assumes responsibility for all fluorine products and fluorine contaminated wastes resulting from the uranium conversion process. The DOE believes the fluorine products represent a saleable product. The Contractor is expected to develop a customer base for the fluorine products. The fluorine product shall be the full responsibility of the contractor for collection, handling, packaging and shipment of the fluorine product to customer(s). Contractor shall utilize best available fluorine technologies and industry safety practices for safe handling, packaging, and transportation of fluorine compounds. Fluorine product storage on-site is limited

to no more than 6 months of generated fluorine at any given time. Revenues generated from the sale of the fluorine may be retained by the contractor. The unit price for conversion [CLIN 0006a] shall reflect anticipated revenues.

The responsibilities for waste disposal are addressed in Section C.1(b)(10).

(vii) **Uranium Products**

The contractor will convert the DUF_6 into uranium oxide or uranium metal that meets or exceeds the following requirements:

(A) UO2 - ASTM C753-94, Standard Specification for Nuclear Grade, Sinterable UO2 Powder.
(B) UO3 or U3O8 - ASTM C1334, Standard Specification Uranium Oxide with U-235 less than 5%.
(C) Metal - MILSPEC-B-70838(1), Billet, Depleted Uranium.

Note: For the draft RFP, the proposer is encouraged to respond with other recommendations as to specifics of the product.

(D) Product Packaging - The uranium oxide or metal product shall be placed in packaging that at a minimum conforms with DOT 49 CFR 173 for LSA-I material and containing a minimum of __ (volume or weight depending on product.) The contractor shall evaluate the intermediate storage of the product, particularly oxides, in non 49CFR173 compliant containers if corrosive fume evolution from the product would rapidly degrade the 49CFR173 compliant container to the point of non-compliance. The intent is to have the DU product placed into a container that is suitable for storage and/or transportation without significant future handling.

(E) Product Handling - The contractor shall place the product into a storage facility. If warranted, the construction of new storage facilities is within the scope of this contract. [See Section C.1(b)(3).]

(viii) **Cylinder Disposition**

The contractor shall assume ownership and responsibility for the DUF_6 feed cylinders immediately upon physical connection for feeding the contents to the conversion process.

Empty cylinders awaiting disposition shall not be staged longer than six months. During this time, the contractor shall take steps to dispose of cylinders. Disposition methods may include, but are not limited to:

(A) Reuse of intact cylinders.

(B) Scrap value, either clean or contaminated.

(C) Disposal of cylinders as waste, either clean or contaminated.

Revenues generated from the sale of the cylinders may be retained by the contractor.

Any waste generated from cleaning of cylinders shall be treated in such a manner that waste acceptance criteria (WAC) at disposal sites are met. [See Section C.1(b)(10).] The contractor shall negotiate their own waste disposal contracts. Disposal of all wastes shall be the responsibility of the contractor.

(3) **Conversion Product Storage**

The Conversion Product Storage base scope of work includes construction of storage facilities (if required by the contractor's design) and storage of the converted depleted uranium product also on-site. This consists of two elements; (1) construction of storage facilities (if required) to accommodate the anticipated depleted uranium conversion products generated by seven years of conversion operations, and (2) container handling and stacking, container inspections/surveillance, management of substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage.

(i) **Design [CLIN 0007a(1)] and Construction [CLIN 0007a(2)]**

If required, the Contractor shall provide design, and construction of Conversion Product Storage. The Contractor services shall consist of:

- obtaining all necessary licenses and permits for design and construction of Conversion Product Storage;
- designing the conversion product storage facility to store seven years worth of material (approximately x metric tons) in accordance with storage standard (See Section J, Attachment TBD);
- supporting the NEPA analysis; [See Section C.1(b)(9).]
- obtain all permits and sign as owner and operator of the conversion product storage facility;
- provide a Safety Analysis Report;
- mobilizing and demobilizing for construction;
- constructing the conversion storage product facility or reuse of existing facilities;
- designing and constructing all utilities including coordination with all utility sources to obtain needed services;
- designing, constructing, and maintaining all necessary roadway(s);
- establish and maintain conversion storage product facility site security [See Section C.1(b)(7)];
- meeting all applicable local, state, and federal codes and standards;
- performing pre-operational system testing; and
- conducting an operational readiness review.

DOE is responsible for:

- completing the site specific NEPA requirements for conversion product storage facility;
- reviewing and approving documents required in Section C.1(d), Deliverables;
- assisting with interface between the contractor, the management and integrating (M&I) contractor, and/or others during design, construction, and pre-operational readiness review;
- providing all necessary easements for utilities;
- authorizing start of construction of conversion product storage facility;
- conducting operational readiness review; and
- performing environment health and safety reviews during construction and pre-operation as determined in the ISMS.

(ii) **Conversion Product Storage [CLIN 0008a]**

The conversion product storage shall consist of:

- provide personnel, equipment and materials to move storage containers;
- pretreatment characterization of waste necessary for storage and/or

treatment;

- develop and maintain data necessary to obtain final waste form certification from appropriate disposal site for end product disposition;
- disposing of all secondary waste generated during conversion product storage;
- provide personnel, equipment, and material for thorough visual inspection of the conversion product storage containers to verify compliance with storage standards;
- provide operational and maintenance activities necessary to maintain conversion product storage containers, equipment, and conversion product storage yards;
- develop and maintain uranium product tracking database;
- prepare plans, procedures, and techniques for managing substandard conversion product storage containers, including personnel, equipment, and materials needed to respond to breached or severely degraded containers to stabilize them; and
- provide development and technical operations needed to clarify the technical basis, optimize the configuration, and resolve deficiencies identified internally or externally through audits, assessments, or reviews

DOE is responsible for:

- developing and providing storage standard (TBD);
- reviewing and approving documents required in Section (d), Deliverables;
- assisting interface between the contractor, the management and integrating (M&I) contractor, and/or others during conversion product storage activities; and
- performing environment health and safety reviews during conversion product storage operation.

(4) **Project Management and Administration**

The Contractor shall perform all project management and administration activities. This includes, but is not limited to: project baseline development; performance measurement; change control/management; risk assessment; support for project budget requests; configuration management; integration of project technical requirements; integration of transportation requirements related to cylinder movement and product disposition; development and maintenance of an outreach program; contract administration; procurement, except as specified elsewhere in the contract, of goods and services to support the project; and other support activities.

(i) **Project Planning, Control, and Reporting**

(A) **Development of a Project Management Plan**

The Contractor shall develop, implement and update as required a Project Management Plan (PMP) which sets forth the plans, organization and systems to be utilized by the Contractor to manage the project. The PMP requires DOE approval. The PMP shall include, but is not limited to: a detailed description of the methodology for ensuring the successful integration of all management and technical requirements of the project across all participating organizations; a clear identification of the limits of management authority (e.g., work authorization, funds management, control of indirect costs) for all project activities; a project organizational chart; a procedure for the replacement of key members; and a summary description of the Contractor's plan for addressing labor relations issues for the project. The PMP shall also include the following:

(1) A Project Execution Risk Assessment (PERA) which grades areas of identified risk as low, medium, or high, relative to their potential impact on the project. The PERA shall include a schedule benefit analysis strategy for the identified areas of risk. The PERA shall be updated annually.

(2) A detailed description of the Contractor's Project Management and Control System (PMCS). The PMCS shall serve as the basis for planning, development and management of technical and schedule baselines for all project activities. The PMCS shall contain a detailed description of the configuration management program including when each major element of design is to be placed under configuration control. The PMCS shall also be used for budget development, performance measurement, project reporting and analysis and funds management.

(3) A Project Baseline Plan (PBP) which describes the technical and schedule baselines for the DUF_6 cylinder project in accordance with the PMCS. The Contractor shall expand the detail of the Project Baseline Plan submitted in response to the RFP to the work package level as appropriate. Technical and schedule baseline information for unexercised contract options shall be summarized.

Deliverable:

The Contractor shall submit a **Project Management Plan** with proposal. The Project Management Plan shall be regarded as approved by DOE 45 days after contract award unless approved or rejected, in writing, by DOE at an earlier date.

(B) **Project Review Meetings**

The Contractor shall participate in quarterly project reviews with the DOE project and program management staff. The reviews shall include project status on all elements of the project (design, construction, conversion operations, cylinder management, and product storage), and performance to date and outstanding issues. Status on progress, planned operational outages, throughput variances, etc. must also be addressed. Quarterly review meetings will be scheduled by mutual agreement of the Contractor and DOE. The Contractor shall be responsible for preparing and distributing to DOE meeting minutes.

(ii) **Outreach Programs**

In cooperation with DOE, the Contractor shall develop and implement an Outreach Program to support DOE's commitment to openness and appropriate public participation in decision-making. Key attributes of the Outreach Program are as follows:

(A) Development of a program and program materials describing the DUF_6 Conversion Project for use with local, state, and national interest groups.

(B) Development of a protocol for coordinating outreach activities with DOE and DOE Host Site contractors for responding to the news media and information requests from the public.

©) Contractor shall hold periodic meeting with interest groups.

(5) **Integrated Safety Management Plan**

Under the Atomic Energy Act, DOE is the responsible agency with regulatory authority for radioactive/nuclear materials and for on-site worker safety and health. Current DOE policy regarding ISM is contained in DOE P 450.4, Safety Management Policy, and DOE P 411.1, Safety Management Functions, Responsibilities, and Authorities and their associated guides and manuals. The DOE exercises this responsibility for environment, health and safety through the review and approval of the contractor's Integrated Safety Management System (ISMS). The contractor, through the ISMS, shall maintain compliant and safe operations; integrate safety and health into all activities; identify hazards; manage risks; and perform self-evaluations of its ISMS.

The ISMS authorization process objectives are: (1) to allow the private contractor to accomplish work for DOE in a fair, logical, cost-effective, and compliant manner; and (2) to allow the DOE to satisfy its safety and health responsibilities under the Atomic Energy Act.

The principal steps in the ISMS authorization process are as follows:

(i) **Contractor's Development of the Integrated Safety Management System (ISMS)**

The contractor shall develop an ISMS plan that identifies the environment, safety and health requirements and describes how they will be met by the contractor during all phases of the project. The Plan shall be developed by evaluating the requirements listed in Section J, Attachment E and describing in detail how they will meet these applicable requirements. The contractor shall identify those Order requirements that are not applicable or describe an equivalent measure that meets or exceeds the intent of the Order requirement. The outline for developing the ISMS is shown in Section J, Attachment E. Environmental, safety and health information contained in other formal permits (such as state or federal permits, e.g., RCRA or air permits) and/or licenses (if applicable) need not be duplicated in the ISMS.

(ii) **DOE Review and Approval of the Contractor's ISMS**

DOE will review the draft ISMS Plan and provide comments. Once the ISMS plan is found to be complete by DOE, both the contractor and DOE will sign the plan, thus formally approving use of the plan and delegating the responsibility for its implementation/execution to the contractor. The ISMS plan shall be incorporated into the contract. The signed ISMS plan will represent the formal authorization to conduct operations and handle DOE radioactive materials.

(iii) **DOE Oversight of the Contractor's ISMS Activities**

DOE will perform oversight of operations by periodic reviews of the contractor's operations. DOE may assess all aspects of the Contractor's and sub-contractor operations including procedures, policies, processes, organization, personnel, facilities and equipment as committed to in the ISMS Plan. The DOE may also accompany state or federal officials during permit inspections of the contractor's operations.

Direct interface with the Defense Nuclear Facilities Safety Board (DNFSB) will be the responsibility of DOE. The contractor shall cooperate with DOE to allow inspection of the facility by DNFSB. If DNFSB should have findings related to the safety of the facility

or operation, DOE will determine whether the findings identify noncompliance with the ISMS Plan. Findings that demonstrate noncompliance with the signed ISMS plan shall be immediately corrected by the contractor at his own expense. Findings agreed upon by the DOE and not covered by the signed ISMS plan or other contract requirements will be implemented via a change order to the contract.

Deliverable:

The contractor shall submit the **ISMS Plan** with proposal. The Plan shall identify DOE Order requirement applicability. The ISMS Plan submission shall be regarded as approved by DOE 90 days after award unless approved or rejected, in writing, by DOE at an earlier date, and shall include any modification made or directed by DOE. In the event DOE does not sign the ISMS plan within the review period stated below [See Section C.1(d), Deliverables.], the contractor shall annotate the ISMS plan as approved by default.

(6) **Quality Assurance Program**

The Contractor shall develop a Quality Assurance Program Plan (QAPP) in accordance with 10 CFR 830.120 for the scope of this contract. The contractor shall submit a QAPP not later than 180 days from the date of contract award. 10 CFR 830.120's reference to an implementation plan is not applicable since this is a new contract. The portion of the QAPP for cylinder management shall be submitted to the DOE Contracting Officer's Representative (COR) for approval at least 90 days prior to assuming cylinder management responsibilities.

Deliverable:

The contractor shall submit a **Quality Assurance Program Plan (QAPP)** **[CLIN 0032a]** for Cylinder Management 3 months after contract award to the respective site Contracting Officer's Representative (COR) for approval; 180 days after contract award for the balance of the scope of work.

(7) **Security and Material Safeguards Plan**

The Contractor shall ensure that a Security and Material Safeguards Plan is prepared incorporating the DOE requirements listed below. This document shall be a compendium of plans for the Security and Material Safeguards requirements. The plan shall include the Contractor's methodology for physical protection of the conversion facilities, material control and accountability for uranium feed and conversion products, information security and personnel security (if required). This plan shall be prepared in accordance with the DOE O 470 series order requirements. The Nuclear Materials Control and Accountability portion shall be prepared in accordance with DOE Order 5633.3B. The plan shall include protection of information from disclosure pursuant to Export Controlled Information (ECI) in accordance with 15 CFR 774 and Unclassified Controlled Nuclear Information (UCNI) requirements in 10 CFR 1017. The Security and Material Safeguards Plan shall be coordinated with other on-site activities to ensure adequate protection of the conversion facilities and uranium bearing materials.

Deliverable:

The Contractor shall submit the **Security and Material Safeguards Plan** for DOE approval. The Security and Material Safeguards Plan includes the individual plans listed below:

- Security Plan,
- Nuclear Materials Control and Accountability Plan,
- Information Security Plan,

- Personnel Security Plan, and
- Technology Control Plan.

These plans will be compiled and will constitute the **Security and Material Safeguards Plan [CLIN 0032a]**. The Security and Material Safeguards Plan shall be submitted to the Contracting Officer 3 months after contract award.

(8) **Regulatory Management Plan**

The Contractor shall ensure that a Regulatory Management Plan is developed which describes the strategy for ensuring the facilities are constructed and operated in accordance with all applicable Federal, State, and local laws and regulations taking into account appropriate DOT, OSHA, EPA, and DOE ES&H requirements and standards while interacting with state regulators. The Regulatory Management Plan shall also address issues such as facility safety and integrated safety management. The Regulatory Management Plan shall identify proposed safety standards, describe why those safety standards were chosen, describe the implementation process for the proposed safety standards, demonstrate the administrative and management processes and infrastructure that support implementation of the proposed safety standards, and the approach to management of the regulatory process.

The Contractor shall consider all applicable and appropriate design and construction standards. The Contractor shall include in the plan a schedule of regulatory actions. The schedule shall identify major milestones and all critical actions which are necessary to assure that all licenses and permits have been obtained. Copies of all license and permit application documents shall be furnished to DOE for information purposes simultaneously with submittal to regulatory agencies.

Deliverable:

(i) The Contractor shall submit for DOE approval a **Regulatory Management Plan [CLIN 0032a]** no later than six months after contract award and updated annually thereafter.

(ii) The Contractor shall submit copies of all **Regulatory Documentation [CLIN 0032a]** (copies of all license and permit application documents) to the DOE for information only, simultaneously with submittal to regulatory agencies.

(9) **NEPA**

The Contractor shall utilize DOE/EIS-0269, *Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride* as a basis for supplying information needed to develop site specific NEPA documentation. All offerors shall supply initial information to support the environmental analysis as required by Section L (Environmental Data Work Sheet). This information is necessary for DOE to develop reasonable alternatives and in preparation of the environmental critique and synopsis.

DOE will prepare an environmental impact statement (EIS) per NEPA regulations [10 CFR 1021 Subpart C and 40 CFR 1500 et seq.] and DOE policy ["Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements", (March 1993)]. DOE has the responsibility of conducting the NEPA review, however, the contractor shall provide environmental information and analyses to support this review. This information shall be provided by the contractor in the form of a draft report entitled “Required Information for the National Environmental Policy Act” to be submitted to the Contracting Officer Representative (COR) with the proposal. In addition to NEPA information, the contractor shall attend and, as needed, participate in stakeholder meetings in the Paducah, Portsmouth and Oak Ridge areas throughout the NEPA review

period. DOE must complete its appropriate NEPA analysis and issue a Record of Decision before a contractor may proceed with detailed design under this contract.

Pursuant to Section 216 of the DOE NEPA regulations (10 CFR 1021.216), the information to be provided by the contractor to enable DOE to prepare the appropriate NEPA documentation for the conversion facility shall include: a description of the project including project objectives, a project schedule, a summary of test plans, map location(s); a description of existing facilities to be used, and a description of facilities to be constructed for the project; conversion process flow diagrams and plan elevation views; sizes and capacities for major equipment; a discussion on the quantities and types of materials to be used in the project including feedstocks, utilities, fuels, reactants, products, effluents, unrecovered materials, and solid waste; a discussion regarding current environmental characteristics of the site(s) and any potential environmental impacts from the project; and include a discussion regarding compliance with Federal, State, and local environmental regulations.

Information on environmental impacts should provide data in terms of minimum, maximum, and average values rather than qualitative statements, such as, “insignificant” or “minimal”, which are subject to interpretation.” The following is a list of potential environmental impacts to be included in the discussion:

Air Quality - Describe potential environmental impact from the seven criteria pollutants in the Clean Air Act (i.e., sulfur oxides, nitrogen oxides, carbon monoxide, volatile organic carbon, total suspended particles, sulfuric acid mist, and fluorides) and the Hazardous Air Pollutants (i.e., Air Toxics) list in the 1990 Title III amendment to the Clean Air Act. Include discussion regarding other potential air pollutants including carbon dioxide and radioactive isotopes.

Water Resources - Describe potential environmental impact to surface and ground water. The uses of the surface and ground waters should be included in the discussion. The discussion should include sources of water supply (e.g., public water supply or dedicated well) and any National Pollutant Discharge Elimination System (NPDES) permit(s) and Kentucky Pollutant Discharge Elimination System (KPDES) permit(s).

Land Use - Describe the amount of land at the existing site and the amount that will be used for construction of the project. Include the current use of the land, zoning requirements, current access to the land, and also discuss the uses and zoning of surrounding property, any modifications needed for access to the land as a result of the project, and impacts to visual and aesthetic values.

Waste Management - Describe solid and liquid waste management approval including waste characteristics, quantities, pre-treatment, storage, transportation and disposal practices. Identify any potentially hazardous waste materials.

Ecological Impacts - Describe any potential environmental impacts to vegetation, terrestrial wildlife, aquatic wildlife, threatened and endangered species, flood plains and wetlands.

Socioeconomic Impacts - Describe any availability of labor for the project, availability of transportation, and any potential impact on public services. Also consider the implications of environmental justice in this evaluation.

Archaeological, Cultural, and Historical Resources - Describe contacts with state agencies to assess project impact on archaeological, cultural, and historically-significant resources.

Noise - Discuss possible environmental impacts from noise generated by the project. Describe current noise levels and any possible increases in noise levels from the project. In general, the noise level is measured at the nearest point of public access. Include a

discussion regarding proximity and any possible impact to noise-sensitive sites such as schools, hospitals, and nursing homes.

Occupational Safety and Health - Describe approach to protect worker safety and health on the project (e.g., clothing, hearing protection, operating practices). If the project presents a potential safety hazard beyond the project boundaries, emergency response plans should be included in the discussion. Include information on worker safety and health protection programs and procedures, compliance with OSHA regulations, and facility design features related to mitigation of occupational impacts. Discuss hazards and mitigation measure related to construction activities and exposure to hazardous substances, heat, noise, and odors.

Summary of Environmental Impact - Include a summary of potential environmental impacts.

Deliverables:

Provide a paper report entitled "**Required Information for the National Environmental Policy Act**." This report shall be submitted to the Contracting Officer Representative (COR) as soon as possible but no later than nine months after contract award.

A **table** should be prepared that identifies all Federal, state, and local permits required for the project. The table should provide information on the permitting schedule and current status of each permit. A discussion should be included on the allowable release of solid, liquid, and air pollutants under the permit(s).

Additionally, **a listing** shall be provided which includes complete addresses and phone numbers for agencies and persons contacted to collect information on the environment, safety, and health aspects of the project.

(10) **Waste Management**

Consistent with applicable laws, regulations, Executive Orders, and Department policy, pollution prevention and waste minimization, the contractor shall be responsible for all waste disposal. The contractor shall prepare a Waste Management Plan (WMP) in accordance with DOE Order 5400.1. The WMP, subject to approval of DOE, shall identify all waste streams that will be generated from the contractor's operations and identify the treatment or disposal option for each waste stream. The DOE facilities generate wastes in the following categories: waste water, nonhazardous, non-radioactive hazardous, low level, and low level mixed. The offeror may negotiate costs and waste acceptance criteria with each of these sites to determine the amounts of wastes the sites will accept and the associated costs of utilizing their waste disposal capabilities, or they may establish their own contracts to dispose of the waste, whichever is most beneficial to the pricing structure offered the government.

Deliverable:

The contractor shall provide a **Waste Management Plan** (WMP) **[CLIN 0032a]** in accordance with DOE Order 5400.1. DOE must approve the plan prior to disposal of any waste.

(c) **Options**

(1) **Option 1 (October 1, 2005 - September 30, 2010)**

Continuation of cylinder management, conversion services, and conversion product storage described in the base scope for an additional five year period (October 1, 2005 - September 30, 2010). The conversion facility construction will have been completed, and is therefore not needed in this option. Construction of additional conversion

products storage facilities may still be necessary depending on the storage space constructed in the base scope and any potential reuse activities associated with the conversion product. This option consists of four suboptions; option 1a is Routine Cylinder Management **[CLIN 0009a]**, option 1b is Cylinder Painting **[CLIN 0010a]**, option 1c is Conversion Operations **[CLIN 0012a]**, and option 1d is Conversion Product Storage **[CLIN 0013a]**.

(i) The UF_6 Routine Cylinder Management scope of work includes cylinder handling and stacking, cylinder inspections, management of substandard cylinders, cylinder recoating, general cylinder maintenance, general cylinder yard maintenance, handling equipment maintenance, purchase of new cylinder handling equipment as needed, system engineering, system administration, configuration management, and data tracking. **[CLIN 0009a]**

(ii) Cylinder Painting scope of work includes providing personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections verify non-compliant conditions. All cylinders shall be inspected by a National Association of Corrosion Engineers (NACE) certified inspection following painting. **[CLIN 0010a]**

(iii) The Conversion Services scope of work includes maintaining appropriate Federal, State, and local permits and licenses; protecting the workers and the public from hazards associated with the facilities; protecting and accounting for the uranium feed material and products; packaging and staging the converted uranium products; sale of the fluorine compounds with minimum storage on-site; disposition of the empty DUF_6 cylinders (including cylinder washing capability); and disposition of process waste. The containers used for storage of converted uranium products must meet DOT requirements for shipment if the conversion products are shipped off-site for reuse and must meet waste acceptance criteria of an existing licensed disposal facility. **[CLIN 0012a]**

(vi) The Conversion Product Storage scope of work includes construction of storage facilities (if required), continued storage of the converted uranium product on-site, container handling and stacking, container inspections, management of substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage. **[CLIN 0013a]**

(2) **Option 2 (October 1, 2010 - September 30, 2015)**

Continuation of cylinder management, conversion services, and conversion product storage in the base scope for an additional five year period (October 1, 2010 - September 30, 2015). This option consists of four suboptions; option 2a is Routine Cylinder Management **[CLIN 00014a]**, option 2b is Cylinder Painting **[CLIN 0015a]**, option 2c is Conversion Operations **[CLIN 0016a]**, and option 2d is Conversion Product Storage **[CLIN 0017a]**.

(i) The UF_6 Routine Cylinder Management scope of work includes cylinder handling and stacking, cylinder inspections, management of substandard cylinders, cylinder recoating, general cylinder maintenance, general cylinder yard maintenance, handling equipment maintenance, purchase of new cylinder handling equipment as needed, system engineering, system administration, configuration management, and data tracking. **[CLIN 0014a]**

(ii) Cylinder Painting scope of work includes providing personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections verify non-compliant conditions. All cylinders shall be

inspected by a National Association of Corrosion Engineers (NACE) certified inspection following painting. **[CLIN 0015a]**

(iii) The Conversion Services scope of work includes maintaining appropriate Federal, State, and local permits and licenses; protecting the workers and the public from hazards associated with the facilities; protecting and accounting for the uranium feed material and products; packaging and staging the converted uranium products; sale of the fluorine compounds with minimum storage on-site; disposition of the empty DUF_6 cylinders (including cylinder washing capability); and disposition of process waste. The containers used for storage of converted uranium products must meet DOT requirements for shipment if the conversion products are shipped off-site for reuse and must meet waste acceptance criteria of an existing licensed disposal facility. **[CLIN 0016a]**

(iv) The Conversion Product Storage scope of work includes construction of storage facilities (if required), continued storage of the converted uranium product on-site, container handling and stacking, container inspections, management of substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage. **[CLIN 0017a]**

(3) **Option 3 (October 1, 2015 - September 30, 2020)**

This option is a continuation of cylinder management, conversion services, and conversion product storage in the base scope for an additional five year period (October 1, 2015 - September 30, 2020). This option consists of four suboptions; option 3a is Routine Cylinder Management **[CLIN 0018a]**, option 3b is Cylinder Painting **[CLIN 0019a]**, option 3c is Conversion Operations **[CLIN 0020a]**, and option 3d is Conversion Product Storage **[CLIN 0021a]**.

(i) The UF_6 Routine Cylinder Management scope of work includes cylinder handling and stacking, cylinder inspections, management of substandard cylinders, cylinder recoating, general cylinder maintenance, general cylinder yard maintenance, handling equipment maintenance, purchase of new cylinder handling equipment as needed, system engineering, system administration, configuration management, and data tracking. **[CLIN 0018a]**

(ii) Cylinder Painting scope of work includes providing personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections verify non-compliant conditions. All cylinders shall be inspected by a National Association of Corrosion Engineers (NACE) certified inspection following painting. **[CLIN 0019a]**

(iii) The Conversion Services scope of work includes maintaining appropriate Federal, State, and local permits and licenses; protecting the workers and the public from hazards associated with the facilities; protecting and accounting for the uranium feed material and products; packaging and staging the converted uranium products; sale of the fluorine compounds with minimum storage on-site; disposition of the empty DUF_6 cylinders (including cylinder washing capability); and disposition of process waste. The containers used for storage of converted uranium products must meet DOT requirements for shipment if the conversion products are shipped off-site for reuse and must meet waste acceptance criteria of an existing licensed disposal facility. **[CLIN 0020a]**

(vi) The Conversion Product Storage scope of work includes construction of storage facilities (if required), continued storage of the converted uranium product on-site, container handling and stacking, container inspections, management of

substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage. **[CLIN 0021a]**

(4) **Option 4 (October 1, 2020 - September 30, 2025)**

This option is a continuation of cylinder management, conversion services, and conversion product storage in the base scope for an additional five year period (October 1, 2020 - September 30, 2025). This option consists of four suboptions; option 4a is Routine Cylinder Management **[CLIN 0022a]**, option 4b is Cylinder Painting **[CLIN 0023a]**, option 4c is Conversion Operations **[CLIN 0024a]**, and option 4d is Conversion Product Storage **[CLIN 0025a]**.

(i) The UF_6 Routine Cylinder Management scope of work includes cylinder handling and stacking, cylinder inspections, management of substandard cylinders, cylinder recoating, general cylinder maintenance, general cylinder yard maintenance, handling equipment maintenance, purchase of new cylinder handling equipment as needed, system engineering, system administration, configuration management, and data tracking. **[CLIN 0022a]**

(ii) Cylinder Painting scope of work includes providing personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections verify non-compliant conditions. All cylinders shall be inspected by a National Association of Corrosion Engineers (NACE) certified inspection following painting. **[CLIN 0023a]**

(iii) The Conversion Services scope of work includes maintaining appropriate Federal, State, and local permits and licenses; protecting the workers and the public from hazards associated with the facilities; protecting and accounting for the uranium feed material and products; packaging and staging the converted uranium products; sale of the fluorine compounds with minimum storage on-site; disposition of the empty DUF_6 cylinders (including cylinder washing capability); and disposition of process waste. The containers used for storage of converted uranium products must meet DOT requirements for shipment if the conversion products are shipped off-site for reuse and must meet waste acceptance criteria of an existing licensed disposal facility. **[CLIN 0024a]**

(iv) The Conversion Product Storage scope of work includes construction of storage facilities (if required), continued storage of the converted uranium product on-site, container handling and stacking, container inspections, management of substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage. **[CLIN 0025a]**

(5) **Option 5 (October 1, 2025 - December 31, 2029)**

This option is a continuation of cylinder management, conversion services, and conversion product storage in the base scope for an additional five year period (October 1, 2025 - December 31, 2029). This option consists of four suboptions; option 5a is Routine Cylinder Management **[CLIN 0026a]**, option 5b is Cylinder Painting **[CLIN 0027a]**, option 5c is Conversion Operations **[CLIN 0028a]**, and option 5d is Conversion Product Storage **[CLIN 0029a]**.

(i) The UF_6 Routine Cylinder Management scope of work includes cylinder handling and stacking, cylinder inspections, management of substandard cylinders, cylinder recoating, general cylinder maintenance, general cylinder yard maintenance, handling equipment maintenance, purchase of new cylinder

handling equipment as needed, system engineering, system administration, configuration management, and data tracking. **[CLIN 0026a]**

(ii) Cylinder Painting scope of work includes providing personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections verify non-compliant conditions. All cylinders shall be inspected by a National Association of Corrosion Engineers (NACE) certified inspection following painting. **[CLIN 0027a]**

(iii) The Conversion Services scope of work includes maintaining appropriate Federal, State, and local permits and licenses; protecting the workers and the public from hazards associated with the facilities; protecting and accounting for the uranium feed material and products; packaging and staging the converted uranium products; sale of the fluorine compounds with minimum storage on-site; disposition of the empty DUF_6 cylinders (including cylinder washing capability); and disposition of process waste. The containers used for storage of converted uranium products must meet DOT requirements for shipment if the conversion products are shipped off-site for reuse and must meet waste acceptance criteria of an existing licensed disposal facility. **[CLIN 0028a]**

(iv) The Conversion Product Storage scope of work includes construction of storage facilities (if required), continued storage of the converted uranium product on-site, container handling and stacking, container inspections, management of substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage. **[CLIN 0029a]**

(6) **Option 6 - End of Life Decontamination and Decommissioning [CLIN 0030a]**

The contractor shall negotiate with the Government in good faith to return the site to “pre-existing site conditions.” All facilities, equipment, materials, etc. will be decontaminated and decommissioned and disposed of accordingly. The contractor D&D activities shall include, but is not limited to the following: closure per RCRA permit of all the contractor’s equipment and material or DOE equipment and material contaminated by the contractor during the conduct of this contract; dispose of all secondary waste generated; removal of all waste and other contaminated materials including any media impacted from spills; and, removal from the site all equipment, including structures erected by the contractor and all other materials and equipment associated with this project.

(7) **Option 7 - Cleaning and Disposition of Heels/Cylinders [CLIN 0031a]**

The contractor shall clean and dispose of empty and heel cylinders in the current DOE cylinder inventory located at the Paducah Site. These cylinders ***do not*** require conversion of the contents and may contain a range of material assays ranging from depleted to enriched. The cylinders in this option range from 1S size (nominal 1.5 inch diameter) up to and including 48Y size (nominal 48 inch diameter). (See Section J, Attachment A.)

The Contractor shall assume ownership and responsibility for the cylinders in this option immediately upon physical connection to the cleaning process. The Contractor shall take steps to dispose of cylinders by such methods including but not limited to:

(i) Reuse of intact cylinder(s).

(ii) Scrapping cylinder(s), either clean or contaminated.

(iii) Disposal of the cylinder as waste, either clean or contaminated.

Options that result in the sale of the cylinders are preferred as long as the cost involved in preparing the cylinder for sale do not exceed the cost for disposal as waste. Revenues generated from the sale of the cylinders are the contractors.

Any waste generated from cleaning of cylinders shall be treated in such a manner that the waste acceptance criteria (WAC) at disposal sites are met. The contractor shall negotiate their own waste disposal contracts.

(d) **Deliverables [CLIN 0032a]** (Plans designated with an asterisk shall be submitted with proposal shall not be priced under CLIN 0032a.)

Submit one copy of each to the Contracting Officer listed under Clause G.4 and four copies of each to the Contracting Officer Representative designated under Clause G.4.

Plan	Submittal Schedule	DOE Action/Acceptance
Cylinder Management Plan, Section C.1(b)(1)(iii)	4 month after contract award.	DOE - 45 days review Contractor - 30 days to incorporate
Final Design Packages, Section C.1(b)(2)(i)	Upon issuing Certified For Construction Drawings	For Information
As-Built Drawings, Section C.1(b)(2)(i)	Prior to start of operations	For Information
Conversion Sequence Plan, Section C.1(b)(2)(iv)	12 months after contract award	DOE - 45 days review Contractor - 30 days to incorporate
Suspension of Operations Plan, Section C.1(b)(2)(v)	By completion of Final Design	For Information
* Project Management Plan, Section C.1(b)(4)(i) and Clause M.4	with proposal and with any material change	DOE - 45 days review after contract award; Contractor - 30 days to incorporate
* Integrated Safety Management Plan; Section C.1(b)(5), Clause M.4, and Clause L.27	with proposal and with any material change	DOE - 90 days review after contract award; Contractor - 30 days to incorporate
Quality Assurance Plan, Section C.1(b)(6)	For CM, 3 months after contract award. For remainder of QA Plan, 6 months after contract award.	DOE - 90 days review for each segment.
Security and Material Safeguards Plan. Section C.1(b)(7)	3 months after contract award and prior to assuming responsibilities for Cylinder Management	DOE - 45 days review Contractor - 30 days to incorporate.
Regulatory Management Plan and Regulatory Documents, Section C.1(b)(8)	6 months after contract award	DOE - 45 days review Contractor - 30 days to incorporate
* NEPA data, Section C.1(b)(9) NEPA report, Section C.1(b)(9)	NEPA data - with proposal NEPA report - 9 months after contract award	For Information
Waste Management Plan (Section C.1(b)(10)	Prior to disposal of any waste	DOE - 45 days review Contractor - 30 days to incorporate

Plan	Submittal Schedule	DOE Action/Acceptance
* Labor Relations Plan; Clause M.4, H.34, and L.27	with proposal	For Information
Diversity Plan, Clause H.12	90 days after award	DOE - 45 days review Contractor - 30 days to incorporate

(e) **Acronyms**

ALARA	As Low As Is Reasonably Achievable
CAA	Clean Air Act
CFR	*Code of Federal Regulations*
CLIN	Contract Line Item Number
COR	Contracting Officer Representative
CM	Cylinder Management
CWBS	Contract Work Breakdown Structure
D&D	decontamination and decommissioning
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
DOT	Department of Transportation
DU	Depleted Uranium
DUF_6	Depleted Uranium Hexafluoride
ECI	Export Controlled Information
EPA	U.S. Environmental Protection Agency
ES&H	Environment, Safety and Health
HF	hydrogen fluoride
HQ	Department of Energy Headquarters
ISMS	Integrated Safety Management System
KPDES	Kentucky Pollutant Discharge Elimination System
M&I	Management and Integrating
mR	millirem
NACE	National Association of Corrosion Engineers
NPDES	National Pollution Discharge Elimination System
NEPA	National Environmental Policy Act of 1969
ORO	Oak Ridge Operations Office
OSHA	Occupational Safety and Health Administration
PBP	Performance Baseline Plan
PEIS	Programmatic Environmental Impact Statement
PERA	Project Execution Risk Assessment
PMCS	Project Management and Control System
PMP	Project Management Plan
QA	Quality Assurance
QAPP	Quality Assurance Program Plan
RCRA	Resource Conservation and Recovery Act of 1976
SAR	Safety Analysis Report
SO	System Operational Testing Plan
SOW	Statement of Work
UCNI	Unclassified Controlled Nuclear Information
UF_6	Uranium Hexafluoride
USEC	United States Enrichment Corporation
WAC	waste acceptance criteria
WMP	Waste Management Plan

(f) **Definitions**

Characterization: All measurements that must be made on a waste material, waste treatment product, or process treatment intermediate to ensure that it meets transportation, treatment, and final waste certification. Examples of tests include, but are not limited to, under characterization are radioactive materials assay, chemical characterization for elemental composition, oxidative or reductive potential, reactivity, leachability, and physical characterization such as hardness, bulk density, and particle size.

Decommissioning: The actions taken as required by permits, licenses, and regulations to reduce the potential health and safety impacts of contaminated facilities. Includes activities to remove radioactive materials or to demolish the facilities.

Decontamination: The removal of radioactive contamination from all facilities and equipment by washing, heating, chemical or electrochemical action, mechanical cleaning, or other techniques as required to meet license, permit, or regulatory release criteria.

Hazardous Waste: Those wastes that meet the definition of hazardous waste as defined by regulations promulgated under the Resource Conservation and Recovery Act of 1976.

Low-Level Waste (LLW): Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, or spent fuel or 11e(2) byproduct material.

Package: The packaging, with its radioactive contents, as presented for transport (As defined in 10 CFR 71.4 and 49 CFR 173.403).

Packaging: The assembly of components necessary to ensure compliance with packaging requirements of 49 CFR Subtitle B. It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, and devices for cooling or absorbing mechanical shock. The conveyance, tie-down system, and auxiliary equipment may sometimes be designated as part of the packaging (As defined in 10 CFR 71.4 and 49 CFR 173.403).

Process Waste:

Safety Analysis Report: Written document that details the safety review performed on the treatment system and the results of the review.

Secondary Waste: Waste that is generated as a result of waste removal or treatment, maintenance operations, or equipment change-out, and that may be contaminated but does not contain bulk quantities of the treated waste product. This includes additional aqueous liquid that may be generated during the removal or treatment process.

Waste Acceptance Criteria:

Waste Container: Any receptacle (i.e., drums, boxes, bins, canisters) used to contain radioactive waste.

C.2 PERFORMANCE-BASED STATEMENT OF WORK (PORTSMOUTH/ETTP)

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(a) **Introduction**

Depleted Uranium Hexafluoride (DUF_6) results from the process of making uranium suitable for use as fuel for nuclear reactors or military applications. The use of uranium in these applications requires increasing the proportion of the uranium-235 isotope found in natural uranium, which is approximately 0.7%, through an isotopic separation process called uranium enrichment. Gaseous diffusion is the enrichment process used at three plants in the United States.

The gaseous diffusion process requires uranium in the form of UF_6. UF_6 is a chemical compound consisting of one atom of uranium combined with six atoms of fluorine. It can be a solid, liquid, or gas, depending on its temperature and pressure. It is used for the gaseous diffusion process primarily because it can conveniently be used in the gas form for processing, in the liquid form for filling or emptying containers or equipment, and in the solid form for storage. At atmospheric pressure, UF_6 is a solid at temperatures below 134°F (57°C) and a gas at temperatures above 134°F. Solid UF_6 is a white, dense, crystalline material that resembles rock salt.

In the gaseous diffusion process, a stream of heated UF_6 gas is separated into two parts: one enriched in uranium-235 and the other depleted in uranium-235. The enriched UF_6 is used for manufacturing commercial reactor fuel, which typically contains 2 to 5% uranium-235, or for military applications (e.g., naval reactor fuel), which requires further enrichment of up to 95% or more uranium-235. The depleted DUF_6, which typically contains 0.2 to 0.4% uranium-235, is stored as a solid in large metal cylinders at the gaseous diffusion facility.

Large-scale uranium enrichment in the United States began as part of atomic bomb development by the Manhattan Project during World War II. Uranium enrichment activities were subsequently continued under the U.S. Atomic Energy Commission and its successor agencies, including DOE. The K-25 plant in Oak Ridge, TN, (now East Tennessee Technology Park - ETTP) was the first of three gaseous diffusion plants constructed to produce enriched uranium followed by plants in Paducah, KY, and Portsmouth, Ohio. The ETTP plant ceased operations in 1985, but uranium enrichment continues at both the Paducah and Portsmouth sites. These two plants are now operated by the United States Enrichment Corporation (USEC), created by law in 1993 to privatize the uranium enrichment program.

Since the 1950's, DUF_6 has been stored at Oak Ridge, TN; Paducah, KY; and Portsmouth, OH, in large steel cylinders. Several different cylinder types are in use, although the vast majority of cylinders have a 14-ton (12-metric-ton) capacity. The cylinders are typically 12 ft (3.7 m) long by 4 ft (1.2 m) in diameter, with most having a wall thickness of 5/16 in. (0.79 cm) of steel. Similar, but slightly smaller, cylinders with a capacity of 10 tons (9 metric tons) are also in use. During storage, a cylinder contains solid DUF_6 in the bottom and DUF_6 gas at less than atmospheric pressure. The DUF_6 cylinders managed by DOE at the three sites are typically stacked two cylinders high in large areas called yards.

The characteristics of DUF_6 pose potential health risks, and the material is handled accordingly. Uranium is radioactive, and DUF_6 in storage emits low levels of gamma and neutron radiation. The radiation levels measured on the outside surface of filled DUF_6 storage cylinders are typically about 2 to 3 millirem per hour (mrem/h), decreasing to about 1 mrem/h at a distance of 1 ft (0.3 m). In addition, if DUF_6 is released to the atmosphere, it reacts with water vapor in the air, forming hydrogen fluoride (HF) and a uranium-fluoride compound called uranyl fluoride (UO2 F2). These products are chemically toxic. Uranium is a heavy metal that, in addition to being radioactive, can have toxic chemical effects (primarily on the kidneys) if it enters the bloodstream by means of ingestion or inhalation. HF is an extremely corrosive gas that can damage the lungs and cause death if inhaled at high enough concentrations.

Cylinders are stored with minimum risks to workers, members of the general public, and the environment at the Paducah, Portsmouth, and ETTP sites. DOE maintains an active cylinder management program to improve storage conditions in the cylinder yards, to monitor cylinder integrity by conducting routine inspections for breaches, and to perform cylinder maintenance and repairs as needed.

Because storage began in the early 1950's, many of the cylinders now show evidence of external corrosion. Before 1998, seven cylinders (one at Paducah, two at Portsmouth, and four at ETTP) had developed holes (breaches), generally around spots previously damaged by handling activities. In 1998, one additional cylinder breach occurred during the course of cylinder maintenance operations. Because the DUF_6 is a solid at ambient temperatures and pressures, it is not readily released from a cylinder following a leak or breach. When a cylinder is breached, moist air reacts with the exposed DUF_6 solid and iron, resulting in the formation of a dense plug of solid uranium and iron compounds and a small amount of HF gas. This plug limits the amount of material released from a breached cylinder. When a cylinder breach is identified, the cylinder is repaired or its contents are transferred to a new cylinder.

DOE has responsibility for continued management of the DUF_6 cylinders stored at the Paducah, Portsmouth, and ETTP sites. The Department's cylinder management plan since 1990 has focused on cylinder inspections, re-coatings, and relocations to assure that DUF_6 is safely stored pending its ultimate disposition. Thus the program has largely focused on the ongoing surveillance and maintenance of the cylinders containing DUF_6. The question, however, of the long-term management and eventual disposition of DUF_6 remains and is the subject of considerable interest within the Congress, the Department, and with concerned citizens and stakeholders.

Congress stated its intentions with regard to DUF_6 in Public Law (P.L.) 105-204, signed by the President in July 1998. This law directed the Secretary of Energy to prepare and submit to Congress a plan to ensure that all funds accrued on the books of the USEC for the disposition of DUF_6 will be used for the construction and operation of plants to treat and recycle the DUF_6 consistent with the National Environmental Policy Act. The Department has responded to the law by initiating a procurement action through release of a Request for Expressions of Interest on March 4, 1999, and issuing the "Final Plan for the Conversion of Depleted Uranium Hexafluoride," in June 1999.

The Department's "Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride," issued April 15, 1999, described the preferred alternative for managing the depleted uranium hexafluoride; to begin conversion of the DUF_6 inventory to oxide or metal as soon as possible for use or long-term storage. The conversion to metal was contingent upon uses being identified. The Record of Decision concerning the Department's decision on the long-term management and use of DUF_6 was issued in August 1999.

DOE has decided to promptly convert the depleted UF_6 inventory to depleted uranium oxide, depleted uranium metal, or both. The depleted uranium oxide products would be used as much as possible , and the remaining depleted uranium oxide would be stored for potential future uses or disposal, as necessary. The Department currently expects that conversion to depleted metal would be performed only if uses become available. At this time, the Department does not believe that long-term storage as depleted uranium metal and disposal as depleted uranium metal are reasonable alternatives; however, the Department remains open to exploring these options further.

The Department will initiate project-specific environmental impacts statements for facilities to convert the depleted uranium hexafluoride inventory to a more stable form. The Department intends to complete site-specific National Environmental Policy Act review(s) prior to commencing construction. These reviews will be coordinated with the procurement process specified in the Final Plan.

Consistent with the desire to utilize the DUF_6 or place it in final disposition, the first step – for either future use or disposition – is to convert the material by removing the fluorine component and transforming the material into a safer, more stable form. To do so, construction and long-term operation of conversion plants is essential. Conversion, then, is the centerpiece of an integrated approach for management of the Department's DUF_6 inventory.

(b) **Base Contract Statement of Work**

Base contract requirements and associated deliverables include:

- Cylinder Management - Involves maintaining an inventory of approximately 25,200 storage cylinders containing UF_6,
- Conversion Services - Converting approximately 250,000 metric tons of DUF_6 in approximately 20,900 cylinders, and
- Conversion Product Storage - Storing the converted DU in disposable DOT compliant containers at Portsmouth, OH.

A conversion facility shall be constructed at Portsmouth, OH, for either oxide or metal end products. DOE shall lease to the contractor land located on DOE property at Portsmouth, OH, for construction of the facility and associated ancillary facilities. The base contract shall include the removal of the UF_6 inventory from ETTP. The services provided by this procurement shall include all functions necessary to develop a comprehensive, integrated DUF_6 conversion project complete with facilities (both conversion and storage) constructed to regulatory requirements.

The base scope of work shall be performed in a five and one-half year period (April 1, 2000-September 30, 2005), comprised of: five years of cylinder management (October 1, 2000 - September 30, 2005), four years and nine months for conversion facility design and construction (April 1, 2000 - December 31, 2004), and nine months of conversion and storage operations (January 1, 2005 - September 30, 2005). Construction shall begin no later than March 31, 2002. Options 1 through 5 include four 5-year option periods and one 4-year 3-month option period for continued services provided in the base scope. Option 6 consists of decontamination and decommissioning of the conversion facilities and ancillary facilities. Option 7 consists of cleaning empty or heel UF_6 cylinders currently on the DOE inventory.

Plans, as defined under Sections C.2(b)(4) through C.2(b)(11), span the entire base scope, Cylinder Management, Conversion Services, and Conversion Product Storage.

(1) **Cylinder Management**

Cylinder Management will begin October 1, 2000. A three month transition period **[CLIN 0001b]**, beginning July 1, 2000, and ending September 30, 2000, during which time the contractor shall develop plans and obtain approvals to assume cylinder management responsibilities.

The Contractor shall ensure that all activities necessary to manage the UF_6 cylinder inventory (listed in Section J, Attachment A) at Portsmouth, OH; and Oak Ridge, TN

(ETTP). Cylinder size, type, condition, assay, and amount of material stored in the cylinders vary. Some cylinders are empty. The entire population will not be converted, see footnote on Tables listed under Section J, Attachment A. Cylinder Management Services shall consist of routine operations, cylinder painting, and ETTP Cylinder Transportation.

The Contractor shall ensure the requirement from the following documents, contained in Section J, Attachments B, C, and D, are incorporated into the cylinder management activities, as appropriate:

- *Department of Energy Implementation Plan for Defense Nuclear Facility Safety Board (DNFSB) Recommendation 95-1* dated October 16, 1995.

- Ohio EPA, *Directors Final Findings and Orders [US EPA ID No.: OH7 890 008 983]* dated February 24, 1998.

- State of Tennessee, Department of Environment and Conservation, Division of Waste Management, *Consent Order No. 97-0378/98-H0023, Docket No. 04.27.004303A*, dated February 8, 1999.

(i) **Routine Cylinder Management:** Provide personnel, equipment, and materials to manage Portsmouth cylinder management program **[CLIN 0002b(1)]** and ETTP cylinder management program **[CLIN 0002b(2)]** including:

(A) Strategically plan, develop, prioritize, and optimize yard management and staging of DUF_6 cylinders for conversion.
(B) Develop and maintain a summary level, UF_6 cylinder project cost and schedule baseline, to meet overall DUF_6 conversion goals and milestones. The Contractor is responsible for developing and maintaining site-specific goals and milestones.
(C) Reply to DOE-ORO and DOE-HQ UF_6 cylinder project information requests.
(D) Provide monthly status to DOE-ORO program and project management on performance relative to budget, schedule, and milestones.
(E) Stage cylinders for conversion in accordance with Cylinder Management Plan, Section C.2(b)(1)(iii).
(F) Perform required annual and quadrennial visual inspections of UF_6 cylinders, monitoring cylinder valves and plugs, and taking non-destructive measurements of wall thickness on selected cylinders to characterize the conditions of the cylinder population in order to verify compliance with DNFSB Recommendation 95-1 and the following documents referenced therein: Systems Requirements Document, Systems Engineering Management Plan, Engineering Development Plan, Depleted UF_6 Cylinder Program Management Plan, and Depleted UF_6 Cylinder Safety Analysis.
(G) Provide surveillance operations on UF_6 cylinders, storage yards, and the environment associated with UF_6 cylinders in storage.
(H) Perform general maintenance of cylinders including valve and plug management, nameplate management, cylinder coating maintenance, and skirt cleaning.
(I) Maintain yards and cylinder handling equipment.
(J) Verify sorting and staging of cylinders based on age and/or assay prior to conversion.

(K) Provide development and technical operations needed to clarify the technical basis, optimize the configuration, and resolve deficiencies identified internally or externally through audits, assessments, or reviews.

(L) Maintain existing cylinder data tracking/database.

(M) Construction of additional cylinder storage yards will become a separately priced option.

(N) Remove the contents of a cylinder including capability to transfer contents, execute the transfer, and decontaminate and dispose of cylinder heel materials and the cylinders themselves if they are removed from service. For planning and pricing purposes, anticipate two cylinders will require content transfer during the base term.

(O) Prepare plans, procedures, and techniques for managing substandard cylinders, including personnel, equipment, and materials needed to stabilize breached or severely degraded cylinders.

Deliverable: TBD

(ii) **Cylinder Painting:** Cylinder painting and inspection **[CLIN 0003b]** includes:

Provide personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections under routine cylinder management verify non-compliant conditions. All cylinders shall be inspected by a National Association of Corrosion Engineers (NACE) certified inspector following painting.

Deliverables: Full body paint 2,000 cylinders per year.

(iii) **ETTP Cylinder Transportation:** Package and transport TBD cylinders currently located at ETTP **[CLIN 0004b]** including:

(A) Prepare ETTP cylinders for shipment to Portsmouth, OH. Overpacks for shipment of ETTP cylinders will be Government Furnished Equipment. (See Section J, Attachment J.) Overpacks shall be reused multiple times and returned to the Government after all ETTP cylinders have been relocated to Portsmouth.

(B) Ensure cylinders shipments meet DOT regulations, including obtaining applicable State and local permits.

(C) Ship ETTP cylinders to Portsmouth, OH, for storage and/or conversion.

Deliverable: Shipping invoices of relocated cylinders.

(iv) **Cylinder Management Plan: [CLIN 0032b]** The contractor shall submit to the Contracting Officer for approval, a **Cylinder Management Plan.** The plan must convey the Contractors approach for managing all cylinders listed in Section J, Attachment A, and in accordance with services listed above. The plan must be maintained as a living document with updates provided to DOE for approval.

Deliverable: Cylinder Management Plan.

(2) **Conversion Services**

(i) **Design [CLIN 0005b(1)] and Construction [CLIN 0005b(2)]**

The Contractor shall perform conceptual, preliminary, and final designs; and construction of the conversion facility. The conversion facility shall be sized to convert DUF_6 cylinders as listed in Section J, Attachment A, over a 25 year period.

The contractor's services shall consist of:

- obtaining all necessary licenses and permits for design and construction;
- designing the conversion facility to meet Functional Requirements listed in C.2(b)(2)(iii) and with consideration for ease and cost effectiveness of D&D;
- support NEPA analysis; [See Section C.2(b)(9).]
- obtaining an Environmental Protection Agency Identification number;
- obtain all permits and sign as owner and operator of the conversion facility;
- provide a Safety Analysis Report;
- mobilizing and demobilizing for construction;
- constructing new facility or reuse of existing facilities;
- designing and constructing all utilities including coordination with all utility sources to obtain needed services;
- designing, constructing, and maintaining all necessary roadway(s) including those required for ingress and egress to the conversion facility and storage yards/areas and to accommodate transfer of DUF_6 cylinders from existing cylinder storage yards to the conversion facility;
- developing feed storage area, if required;
- establish and maintain site security [See Section C.2(b)(7)];
- meeting all applicable local, state, and federal codes and standards;
- performing pre-operational system testing; and
- conducting an operational readiness review.

DOE is responsible for:

- completing the site specific NEPA requirements;
- if necessary, completing supplemental PEIS and/or analysis, as required, to support metal storage development;
- reviewing and approving documents required in Section C.2(d), Deliverables;
- assisting with interface between the contractor, the management and integrating (M&I) contractor, and/or others during design, construction, and pre-operational readiness review;
- providing all necessary easements for utilities;
- authorizing start of construction;
- conducting operational readiness review; and
- performing environment health and safety reviews during construction and pre-operation as determined in the ISMS.

Deliverable: Final Design Documents shall be submitted to DOE for information. **[CLIN 0032b]** [See Section C.2(d), Deliverables.] As-Built Drawings shall be provided to DOE for information prior to start of operations. **[CLIN 0032b]** [See Section C.2(d), Deliverables.]

(ii) **Conversion Facilities Functional Requirements**

The Contractor shall ensure that the design of the Conversion Facilities incorporates the following functional requirements:

(A) Shall provide final product per Uranium Products, Section C.2(b)(2)(vii).
(B) Shall convert 10,200 metric ton DUF_6 per year.
(C) Shall perform value engineering activities in accordance with Clause I.97.
(D) Shall provide space and supporting infrastructure sufficient for staging DUF_6 feed cylinders and for staging conversion product.
(E) Shall convert DUF_6 such that a minimum of 99.9% of the fluorine is removed.
(F) Uranium in fluorine shall be less than 1/10 part in a million.
(G) Shall provide 1,600 square feet of non-hardened office space for DOE personnel.
(H) Shall decontaminate empty cylinders, if required, for reuse or disposal. Contraction shall arrange and pay for disposition of empty.
(I) Design shall provide for decontamination and decommissioning of the facility in a manner which is cost effective and efficient, and minimizes the generation of radioactive waste and radiation exposure to personnel.
(J) Shall meet the principles of ALARA (As Low As Is Reasonably Achievable) as specified in 10 CFR Part 835, Occupational Radiation Protection.
(K) Shall provide a fully integrated material inventory control system. [See Section C.2(b)(7).]
(L) Shall meet all applicable Federal, State, and local laws and regulations and conform with all specific agreements and requirements of the Paducah Site and all relevant standards of the nuclear and chemical industries.
(M) Shall provide capability of receiving, storing, and processing Export Control Information and Unclassified Controlled Nuclear Information in conformance with applicable laws and regulation. [See Section C.2(b)(7).]
(N) Shall utilize existing proven technologies in process and facility designs.
(O) Shall provide laboratory and analytical services in support for the conversion facilities operations.
(P) Shall comply with DOE Safeguards and Security requirements. [See Section C.2(b)(7).]
(Q) Shall minimize waste. [See Section C.2(b)(10).]
(R) Shall handle and convert various cylinder designs and sizes. (See Section J, Attachment A.)
(S) Shall perform surveillance and maintenance of all DUF_6 cylinders in feed staging area includes all cylinders regardless of size, content, assay, or condition. (See Section J, Attachment A.)
(T) Feed process shall take into account varying cylinder wall thicknesses. Some cylinders have a wall thickness that may not conform to ANSI specification N14.1.
(U) Shall comply with DOT regulation, 49 CFR 173, applicable to product conversion containers.

(iii) **Conversion Services [CLIN 0006b]**

The conversion services shall consist of:

- performing routine operation and preventative maintenance of all DOE furnished property in accordance with current procedures;
- sequencing and staging cylinders for conversion [See Section C.2(b)(2)(iv).];
- performing all DUF_6 conversion operations;

- properly loading and disposal of all process waste including pretreatment characterization of process waste, if necessary; obtaining final waste form certification from licensed disposal site(s); and arranging for and paying all transportation and disposal costs of waste disposed; and
- performing closure per the RCRA permit of all the contractor's equipment and material or DOE equipment and material contaminated by the contractor, if applicable.

DOE is responsible for:

- assisting interface between the contractor, the management and integrating (M&I) contractor, and/or others during operations and plant modifications.
- authorizing start of operations;
- performing environment, health and safety reviews during operation as determined in the ISMS; and
- approving conversion operations deactivation condition.

(iv) **Conversion Sequence Plan**

The contractor shall define the sequence for feeding cylinders to the conversion facilities. The plan shall provide for conversion of cylinders of poor integrity first. Cylinders designated for another DOE program (approximately 130 cylinders at Portsmouth, See Section J, Attachment A) and those with assays greater than 0.45% shall not be sequenced for conversion until last. The conversion sequence plan shall take into account varying cylinder wall thicknesses, as some cylinders have a wall thickness that may not conform to ANSI specification N14.1, as well as purity of the material, the assay of the material, and the quantity of the material. The conversion sequence plan shall take into account cylinder location and accessability to the cylinder for staging for conversion (i.e. minimizing the number of movements required).

Deliverable:

The contractor shall submit to the Contracting Officer for approval, a proposed **Conversion Sequence Plan [CLIN 0032b]** for feeding cylinders to the conversion process. The plan shall be submitted 12 months after contract award and annually thereafter. The plan shall include the Contractors rational for the proposed conversion sequence based on considerations identified above. Annual updates to the plan shall include packaging and transportation of the ETTP cylinders to the Portsmouth conversion facility and the Contractor's proposed handling of non-DOE DUF_6.

(v) **Suspension of Operations Plan**

The Contractor shall prepare a Suspension of Operations Plan for the Conversion Facility. The plan shall explain the approach to suspending conversion process(es) and meet the following goals: 1) minimize radiological hazards to the workers, public and environment; 2) place the facility in a safe condition that minimizes risks from physical or chemical hazards; and 3) allows for ease of facility restart.

As a minimum, the Suspension Plan shall consider:

(A) How long operations may be interrupted before implementing the Suspension Plan;

(B) Removal of all readily accessible and removable surface radiological contamination such that the facility is accessible without protective clothing. This excludes piping and other systems where there is no reasonable expectation of personnel entry;
(C) Sealing systems to prevent foreign debris entry and to serve as a containment boundary;
(D) Placing systems at or near atmospheric pressure and disabled, as applicable, to meet the risk reduction goals;
(E) Physically disconnected DUF_6 feed cylinders, purging process lines, and all resultant product material cleared from the process stream and packaged into closed containers;
(F) Isolating all processing chemical substances from the process line. Disposal of the chemicals should be considered dependent upon the length of suspension.

Deliverable:

The Contractor shall submit to DOE for information only, a **Suspension of Operations Plan [CLIN 0032b]** prior to completion of final design.

(vi) **Fluorine Related Products**

The Contractor assumes ownership and assumes responsibility for all fluorine products and fluorine contaminated wastes resulting from the uranium conversion process. The DOE believes the fluorine products represent a saleable product. The Contractor is expected to develop a customer base for the fluorine products. The fluorine product shall be the full responsibility of the contractor for collection, handling, packaging and shipment of the fluorine product to customer(s). Contractor shall utilize best available fluorine technologies and industry safety practices for safe handling, packaging, and transportation of fluorine compounds. Fluorine product storage on-site is limited to no more than 6 months of generated fluorine at any given time. Revenues generated from the sale of the fluorine may be retained by the contractor. The unit price for conversion [CLIN 0006b] shall reflect anticipated revenues.

The responsibilities for waste disposal are addressed in Section C.2(b)(10).

(vii) **Uranium Products**

The contractor will convert the DUF_6 into uranium oxide or uranium metal that meets or exceeds the following requirements:

(A) UO2 - ASTM C753-94, Standard Specification for Nuclear Grade, Sinterable UO2 Powder.
(B) UO3 or U3O8 - ASTM C1334, Standard Specification Uranium Oxide with U-235 less than 5%.
(C) Metal - MILSPEC-B-70838(1), Billet, Depleted Uranium.

Note: For the draft RFP, the proposer is encouraged to respond with other recommendations as to specifics of the product.

(D) Product Packaging - The uranium oxide or metal product shall be placed in packaging that at a minimum conforms with DOT 49 CFR 173 for LSA-I material and containing a minimum of __ (volume or weight depending on product.) The contractor shall evaluate the intermediate storage of the product, particularly oxides, in non 49CFR173 compliant containers if corrosive fume evolution from the product would rapidly degrade the 49CFR173 compliant container to the point of non-

compliance. The intent is to have the DU product placed into a container that is suitable for storage and/or transportation without significant future handling.

(E) Product Handling - The contractor shall place the product into a storage facility. If warranted, the construction of new storage facilities is within the scope of this contract. [See Section C.2(b)(3).]

(viii) **Cylinder Disposition**

The contractor shall assume ownership and responsibility for the DUF_6 feed cylinders immediately upon physical connection for feeding the contents to the conversion process.

Empty cylinders awaiting disposition shall not be staged longer than six months. During this time, the contractor shall take steps to dispose of cylinders. Disposition methods may include, but are not limited to:

(A) Reuse of intact cylinders.

(B) Scrap value, either clean or contaminated.

(C) Disposal of cylinders as waste, either clean or contaminated.

Revenues generated from the sale of the cylinders may be retained by the contractor.

Any waste generated from cleaning of cylinders shall be treated in such a manner that waste acceptance criteria (WAC) at disposal sites are met. [See Section C.2(b)(10).] The contractor shall negotiate their own waste disposal contracts. Disposal of all wastes shall be the responsibility of the contractor.

(3) **Conversion Product Storage**

The Conversion Product Storage base scope of work includes construction of storage facilities (if required by the contractor's design) and storage of the converted depleted uranium product also on-site. This consists of two elements; (1) construction of storage facilities (if required) to accommodate the anticipated depleted uranium conversion products generated by seven years of conversion operations, and (2) container handling and stacking, container inspections/surveillance, management of substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage.

(i) **Design [CLIN 0007b(1)] and Construction [CLIN 0007b(2)]**

If required, the Contractor shall provide design, and construction of Conversion Product Storage. The Contractor services shall consist of:

- obtaining all necessary licenses and permits for design and construction of Conversion Product Storage;
- designing the conversion product storage facility to store seven years worth of material (approximately x metric tons) in accordance with storage standard (See Section J, Attachment TBD);
- supporting the NEPA analysis; [See Section C.2(b)(9).]
- obtain all permits and sign as owner and operator of the conversion product storage facility;
- provide a Safety Analysis Report;
- mobilizing and demobilizing for construction;

- constructing the conversion storage product facility or reuse of existing facilities;
- designing and constructing all utilities including coordination with all utility sources to obtain needed services;
- designing, constructing, and maintaining all necessary roadway(s);
- establish and maintain conversion storage product facility site security [See Section C.2(b)(7)];
- meeting all applicable local, state, and federal codes and standards;
- performing pre-operational system testing; and
- conducting an operational readiness review.

DOE is responsible for:

- completing the site specific NEPA requirements for conversion product storage facility;
- reviewing and approving documents required in Section C.2(d), Deliverables;
- assisting with interface between the contractor, the management and integrating (M&I) contractor, and/or others during design, construction, and pre-operational readiness review;
- providing all necessary easements for utilities;
- authorizing start of construction of conversion product storage facility;
- conducting operational readiness review; and
- performing environment health and safety reviews during construction and pre-operation as determined in the ISMS.

(ii) **Conversion Product Storage [CLIN 0008b]**

The conversion product storage shall consist of:

- provide personnel, equipment and materials to move storage containers;
- pretreatment characterization of waste necessary for storage and/or treatment;
- develop and maintain data necessary to obtain final waste form certification from appropriate disposal site for end product disposition;
- disposing of all secondary waste generated during conversion product storage;
- provide personnel, equipment, and material for thorough visual inspection of the conversion product storage containers to verify compliance with storage standards;
- provide operational and maintenance activities necessary to maintain conversion product storage containers, equipment, and conversion product storage yards;
- develop and maintain uranium product tracking database;
- prepare plans, procedures, and techniques for managing substandard conversion product storage containers, including personnel, equipment, and materials needed to respond to breached or severely degraded containers to stabilize them; and
- provide development and technical operations needed to clarify the technical basis, optimize the configuration, and resolve deficiencies identified internally or externally through audits, assessments, or reviews

DOE is responsible for:

- developing and providing storage standard (TBD);
- reviewing and approving documents required in Section C.2(d), Deliverables;

- assisting interface between the contractor, the management and integrating (M&I) contractor, and/or others during conversion product storage activities; and
- performing environment health and safety reviews during conversion product storage operation.

(4) **Project Management and Administration**

The Contractor shall perform all project management and administration activities. This includes, but is not limited to: project baseline development; performance measurement; change control/management; risk assessment; support for project budget requests; configuration management; integration of project technical requirements; integration of transportation requirements related to cylinder movement and product disposition; development and maintenance of an outreach program; contract administration; procurement, except as specified elsewhere in the contract, of goods and services to support the project; and other support activities.

(i) **Project Planning, Control, and Reporting**

(A) **Development of a Project Management Plan**

The Contractor shall develop, implement and update as required a Project Management Plan (PMP) which sets forth the plans, organization and systems to be utilized by the Contractor to manage the project. The PMP requires DOE approval. The PMP shall include, but is not limited to: a detailed description of the methodology for ensuring the successful integration of all management and technical requirements of the project across all participating organizations; a clear identification of the limits of management authority (e.g., work authorization, funds management, control of indirect costs) for all project activities; a project organizational chart; a procedure for the replacement of key members; and a summary description of the Contractor's plan for addressing labor relations issues for the project. The PMP shall also include the following:

(1) A Project Execution Risk Assessment (PERA) which grades areas of identified risk as low, medium, or high, relative to their potential impact on the project. The PERA shall include a schedule benefit analysis strategy for the identified areas of risk. The PERA shall be updated annually.

(2) A detailed description of the Contractor's Project Management and Control System (PMCS). The PMCS shall serve as the basis for planning, development and management of technical and schedule baselines for all project activities. The PMCS shall contain a detailed description of the configuration management program including when each major element of design is to be placed under configuration control. The PMCS shall also be used for budget development, performance measurement, project reporting and analysis and funds management.

(3) A Project Baseline Plan (PBP) which describes the technical and schedule baselines for the DUF_6 cylinder project in accordance with the PMCS. The Contractor shall expand the detail of the Project Baseline Plan submitted in response to the RFP to the work package level as appropriate. Technical and schedule

baseline information for unexercised contract options shall be summarized.

Deliverable:

The Contractor shall submit a **Project Management Plan** with proposal and the Project Management Plan shall be regarded as approved by DOE 45 days after contract award unless approved or rejected, in writing, by DOE at an earlier date.

(B) **Project Review Meetings**

The Contractor shall participate in quarterly project reviews with the DOE project and program management staff. The reviews shall include project status on all elements of the project (design, construction, conversion operations, cylinder management, and product storage), and performance to date and outstanding issues. Status on progress, planned operational outages, throughput variances, etc. must also be addressed. Quarterly review meetings will be scheduled by mutual agreement of the Contractor and DOE. The Contractor shall be responsible for preparing and distributing to DOE meeting minutes.

(ii) **Outreach Programs**

In cooperation with DOE, the Contractor shall develop and implement an Outreach Program to support DOE's commitment to openness and appropriate public participation in decision-making. Key attributes of the Outreach Program are as follows:

(A) Development of a program and program materials describing the DUF_6 Conversion Project for use with local, state, and national interest groups.

(B) Development of a protocol for coordinating outreach activities with DOE and DOE Host Site contractors for responding to the news media and information requests from the public.

©) Contractor shall hold periodic meeting with interest groups.

(5) **Integrated Safety Management Plan**

Under the Atomic Energy Act, DOE is the responsible agency with regulatory authority for radioactive/nuclear materials and for on-site worker safety and health. Current DOE policy regarding ISM is contained in DOE P 450.4, Safety Management Policy, and DOE P 411.1, Safety Management Functions, Responsibilities, and Authorities and their associated guides and manuals. The DOE exercises this responsibility for environment, health and safety through the review and approval of the contractor's Integrated Safety Management System (ISMS). The contractor, through the ISMS, shall maintain compliant and safe operations; integrate safety and health into all activities; identify hazards; manage risks; and perform self-evaluations of its ISMS.

The ISMS authorization process objectives are: (1) to allow the private contractor to accomplish work for DOE in a fair, logical, cost-effective, and compliant manner; and (2) to allow the DOE to satisfy its safety and health responsibilities under the Atomic Energy Act.

The principal steps in the ISMS authorization process are as follows:

(i) **Contractor's Development of the Integrated Safety Management System (ISMS)**

The contractor shall develop an ISMS plan that identifies the environment, safety and health requirements and describes how they will be met by the contractor during all phases of the project. The Plan shall be developed by evaluating the requirements listed in Section J, Attachment E and describing in detail how they will meet these applicable requirements. The contractor shall identify those Order requirements that are not applicable or describe an equivalent measure that meets or exceeds the intent of the Order requirement. The outline for developing the ISMS is shown in Section J, Attachment E. Environmental, safety and health information contained in other formal permits (such as state or federal permits, e.g., RCRA or air permits) and/or licenses (if applicable) need not be duplicated in the ISMS.

(ii) **DOE Review and Approval of the Contractor's ISMS**

DOE will review the draft ISMS Plan and provide comments. Once the ISMS plan is found to be complete by DOE, both the contractor and DOE will sign the plan, thus formally approving use of the plan and delegating the responsibility for its implementation/execution to the contractor. The ISMS plan shall be incorporated into the contract. The signed ISMS plan will represent the formal authorization to conduct operations and handle DOE radioactive materials.

(iii) **DOE Oversight of the Contractor's ISMS Activities**

DOE will perform oversight of operations by periodic reviews of the contractor's operations. DOE may assess all aspects of the Contractor's and sub-contractor operations including procedures, policies, processes, organization, personnel, facilities and equipment as committed to in the ISMS Plan. The DOE may also accompany state or federal officials during permit inspections of the contractor's operations.

Direct interface with the Defense Nuclear Facilities Safety Board (DNFSB) will be the responsibility of DOE. The contractor shall cooperate with DOE to allow inspection of the facility by DNFSB. If DNFSB should have findings related to the safety of the facility or operation, DOE will determine whether the findings identify noncompliance with the ISMS Plan. Findings that demonstrate noncompliance with the signed ISMS plan shall be immediately corrected by the contractor at his own expense. Findings agreed upon by the DOE and not covered by the signed ISMS plan or other contract requirements will be implemented via a change order to the contract.

Deliverable:

The contractor shall submit the **ISMS Plan** with proposal. The Plan shall identify DOE Order requirement applicability. The ISMS Plan submission shall be regarded as approved by DOE 90 days after award unless approved or rejected, in writing, by DOE at an earlier date, and shall include any modification made or directed by DOE. In the event DOE does not sign the ISMS plan within the review period stated below [See Section C.2(d), Deliverables.], the contractor shall annotate the ISMS plan as approved by default.

(6) **Quality Assurance Program**

The Contractor shall develop a Quality Assurance Program Plan (QAPP) in accordance with 10 CFR 830.120 for the scope of this contract. The contractor shall submit a QAPP not later than 180 days from the date of contract award. 10 CFR 830.120's reference to an implementation plan is not applicable since this is a new contract. The portion of the

QAPP for cylinder management shall be submitted to the DOE Contracting Officer's Representative (COR) for approval at least 90 days prior to assuming cylinder management responsibilities.

Deliverable:

The contractor shall submit a **Quality Assurance Program Plan (QAPP)** **[CLIN 0032b]** for Cylinder Management 3 months after contract award to the respective site Contracting Officer's Representative (COR) for approval; 180 days after contract award for the balance of the scope of work.

(7) **Security and Material Safeguards Plan**

The Contractor shall ensure that a Security and Material Safeguards Plan is prepared incorporating the DOE requirements listed below. This document shall be a compendium of plans for the Security and Material Safeguards requirements. The plan shall include the Contractor's methodology for physical protection of the conversion facilities, material control and accountability for uranium feed and conversion products, information security and personnel security (if required). This plan shall be prepared in accordance with the DOE O 470 series order requirements. The Nuclear Materials Control and Accountability portion shall be prepared in accordance with DOE Order 5633.3B. The plan shall include protection of information from disclosure pursuant to Export Controlled Information (ECI) in accordance with 15 CFR 774 and Unclassified Controlled Nuclear Information (UCNI) requirements in 10 CFR 1017. The Security and Material Safeguards Plan shall be coordinated with other on-site activities to ensure adequate protection of the conversion facilities and uranium bearing materials.

Deliverable:

The Contractor shall submit the **Security and Material Safeguards Plan** for DOE approval. The Security and Material Safeguards Plan includes the individual plans listed below:

- Security Plan,
- Nuclear Materials Control and Accountability Plan,
- Information Security Plan,
- Personnel Security Plan, and
- Technology Control Plan.

These plans will be compiled and will constitute the **Security and Material Safeguards Plan [CLIN 0032b]**. The Security and Material Safeguards Plan shall be submitted to the Contracting Officer 3 months after contract award.

(8) **Regulatory Management Plan**

The Contractor shall ensure that a Regulatory Management Plan is developed which describes the strategy for ensuring the facilities are constructed and operated in accordance with all applicable Federal, State, and local laws and regulations taking into account appropriate DOT, OSHA, EPA, and DOE ES&H requirements and standards while interacting with state regulators. The Regulatory Management Plan shall also address issues such as facility safety and integrated safety management. The Regulatory Management Plan shall identify proposed safety standards, describe why those safety standards were chosen, describe the implementation process for the proposed safety standards, demonstrate the administrative and management processes and infrastructure that support implementation of the proposed safety standards, and the approach to management of the regulatory process.

The Contractor shall consider all applicable and appropriate design and construction standards. The Contractor shall include in the plan a schedule of regulatory actions. The schedule shall identify major milestones and all critical actions which are necessary to assure that all licenses and permits have been obtained. Copies of all license and permit application documents shall be furnished to DOE for information purposes simultaneously with submittal to regulatory agencies.

Deliverable:

(i) The Contractor shall submit for DOE approval a **Regulatory Management Plan [CLIN 0032b]** no later than six months after contract award and updated annually thereafter.

(ii) The Contractor shall submit copies of all **Regulatory Documentation [CLIN 0032b]**, (copies of all license and permit application documents) to the DOE for information only, simultaneously with submittal to regulatory agencies.

(9) **NEPA**

The Contractor shall utilize DOE/EIS-0269, *Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride* as a basis for supplying information needed to develop site specific NEPA documentation. All offerors shall supply initial information to support the environmental analysis as required by Section L (Environmental Data Work Sheet). This information is necessary for DOE to develop reasonable alternatives and in preparation of the environmental critique and synopsis.

DOE will prepare an environmental impact statement (EIS) per NEPA regulations [10 CFR 1021 Subpart C and 40 CFR 1500 et seq.] and DOE policy ["Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements", (March 1993)]. DOE has the responsibility of conducting the NEPA review, however, the contractor shall provide environmental information and analyses to support this review. This information shall be provided by the contractor in the form of a draft report entitled “Required Information for the National Environmental Policy Act” to be submitted to the Contracting Officer Representative (COR) with the proposal. In addition to NEPA information, the contractor shall attend and, as needed, participate in stakeholder meetings in the Paducah, Portsmouth and Oak Ridge areas throughout the NEPA review period. DOE must complete its appropriate NEPA analysis and issue a Record of Decision before a contractor may proceed with detailed design under this contract.

Pursuant to Section 216 of the DOE NEPA regulations (10 CFR 1021.216), the information to be provided by the contractor to enable DOE to prepare the appropriate NEPA documentation for the conversion facility shall include: a description of the project including project objectives, a project schedule, a summary of test plans, map location(s); a description of existing facilities to be used, and a description of facilities to be constructed for the project; conversion process flow diagrams and plan elevation views; sizes and capacities for major equipment; a discussion on the quantities and types of materials to be used in the project including feedstocks, utilities, fuels, reactants, products, effluents, unrecovered materials, and solid waste; a discussion regarding current environmental characteristics of the site(s) and any potential environmental impacts from the project; and include a discussion regarding compliance with Federal, State, and local environmental regulations.

Information on environmental impacts should provide data in terms of minimum, maximum, and average values rather than qualitative statements, such as, “insignificant” or “minimal”, which are subject to interpretation.” The following is a list of potential environmental impacts to be included in the discussion:

Air Quality - Describe potential environmental impact from the seven criteria pollutants in the Clean Air Act (i.e., sulfur oxides, nitrogen oxides, carbon monoxide, volatile

organic carbon, total suspended particles, sulfuric acid mist, and fluorides) and the Hazardous Air Pollutants (i.e., Air Toxics) list in the 1990 Title III amendment to the Clean Air Act. Include discussion regarding other potential air pollutants including carbon dioxide and radioactive isotopes.

Water Resources - Describe potential environmental impact to surface and ground water. The uses of the surface and ground waters should be included in the discussion. The discussion should include sources of water supply (e.g., public water supply or dedicated well) and any National Pollutant Discharge Elimination System (NPDES) permit(s) and Kentucky Pollutant Discharge Elimination System (KPDES) permit(s).

Land Use - Describe the amount of land at the existing site and the amount that will be used for construction of the project. Include the current use of the land, zoning requirements, current access to the land, and also discuss the uses and zoning of surrounding property, any modifications needed for access to the land as a result of the project, and impacts to visual and aesthetic values.

Waste Management - Describe solid and liquid waste management approval including waste characteristics, quantities, pre-treatment, storage, transportation and disposal practices. Identify any potentially hazardous waste materials.

Ecological Impacts - Describe any potential environmental impacts to vegetation, terrestrial wildlife, aquatic wildlife, threatened and endangered species, flood plains and wetlands.

Socioeconomic Impacts - Describe any availability of labor for the project, availability of transportation, and any potential impact on public services. Also consider the implications of environmental justice in this evaluation.

Archaeological, Cultural, and Historical Resources - Describe contacts with state agencies to assess project impact on archaeological, cultural, and historically-significant resources.

Noise - Discuss possible environmental impacts from noise generated by the project. Describe current noise levels and any possible increases in noise levels from the project. In general, the noise level is measured at the nearest point of public access. Include a discussion regarding proximity and any possible impact to noise-sensitive sites such as schools, hospitals, and nursing homes.

Occupational Safety and Health - Describe approach to protect worker safety and health on the project (e.g., clothing, hearing protection, operating practices). If the project presents a potential safety hazard beyond the project boundaries, emergency response plans should be included in the discussion. Include information on worker safety and health protection programs and procedures, compliance with OSHA regulations, and facility design features related to mitigation of occupational impacts. Discuss hazards and mitigation measure related to construction activities and exposure to hazardous substances, heat, noise, and odors.

Summary of Environmental Impact - Include a summary of potential environmental impacts.

Deliverables:

Provide a paper report entitled "**Required Information for the National Environmental Policy Act**." This report shall be submitted to the Contracting Officer Representative (COR) as soon as possible but no later than nine months after contract award.

A **table** should be prepared that identifies all Federal, state, and local permits required for the project. The table should provide information on the permitting schedule and current status of each permit. A discussion should be included on the allowable release of solid, liquid, and air pollutants under the permit(s).

Additionally, **a listing** shall be provided which includes complete addresses and phone numbers for agencies and persons contacted to collect information on the environment, safety, and health aspects of the project.

(10) **Waste Management**

Consistent with applicable laws, regulations, Executive Orders, and Department policy, pollution prevention and waste minimization, the contractor shall be responsible for all waste disposal. The contractor shall prepare a Waste Management Plan (WMP) in accordance with DOE Order 5400.1. The WMP, subject to approval of DOE, shall identify all waste streams that will be generated from the contractor's operations and identify the treatment or disposal option for each waste stream. The DOE facilities generate wastes in the following categories: waste water, nonhazardous, non-radioactive hazardous, low level, and low level mixed. The offeror may negotiate costs and waste acceptance criteria with each of these sites to determine the amounts of wastes the sites will accept and the associated costs of utilizing their waste disposal capabilities, or they may establish their own contracts to dispose of the waste, whichever is most beneficial to the pricing structure offered the government.

Deliverable:

The contractor shall provide a **Waste Management Plan** (WMP) **[CLIN 0032b]** in accordance with DOE Order 5400.1. DOE must approve the plan prior to disposal of any waste.

If required, the Contractor shall provide design, and construction of Conversion Product Storage. The Contractor services shall consist of:

- obtaining all necessary licenses and permits;
- signing all permits as owner and operator;
- designing the conversion product storage facility to store seven years worth of material (approximately x metric tons) in accordance with storage standard (See Section J, Attachment TBD);
- support NEPA analysis; [See Section C.2(b)(9).];
- providing a Safety Analysis Report;
- mobilizing and demobilizing for construction;
- constructing the conversion product storage facility including utilization of existing facilities;
- installing all utilities;
- establish and maintain storage area and corridor security;
- meeting all applicable local, state, and federal codes and standards; and;
- performing pre-operational system testing.

(c) **Options**

(1) **Option 1 (October 1, 2005 - September 30, 2010)**

Continuation of cylinder management, conversion services, and conversion product storage described in the base scope for an additional five year period (October 1, 2005 - September 30, 2010). The conversion facility construction will have been completed, and is therefore not needed in this option. Construction of additional conversion

products storage facilities may still be necessary depending on the storage space constructed in the base scope and any potential reuse activities associated with the conversion product. This option will be divided into nine suboptions; option 1a is Routine Cylinder Management of Portsmouth cylinders **[CLIN 0009b(1)]**, option 1b is Routine Cylinder Management of ETTP cylinders **[CLIN 0009b(2)**, option 1c is Portsmouth Cylinder Painting **[CLIN 0010b(1)]**, option 1d is ETTP Cylinder Painting **[CLIN 0010b(2)]**, option 1e is packing and shipment of ETTP cylinders to Portsmouth **[CLIN 0011b]**, option 1f is conversion operations **[CLIN 0012b]**, and option 1c is conversion product storage **[CLIN 0013b]**.

(1) The UF_6 Routine Cylinder Management scope of work includes cylinder handling and stacking, cylinder inspections, management of substandard cylinders, cylinder recoating, general cylinder maintenance, general cylinder yard maintenance, handling equipment maintenance, purchase of new cylinder handling equipment as needed, system engineering, system administration, configuration management, and data tracking. **[CLIN 0009b(1)]** for Portsmouth and **[CLIN 0009b(2)]** for ETTP.

(ii) Cylinder Painting scope of work includes providing personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections verify non-compliant conditions. All cylinders shall be inspected by a National Association of Corrosion Engineers (NACE) certified inspection following painting. **[CLIN 0010b(1)]** for Portsmouth and **[CLIN 0010b(2)]** for ETTP.

(iii) Package and transport TBD cylinders **[CLIN 0011b]** currently located at ETTP (those not relocated during the base period) including:

(A) Prepare ETTP cylinders for shipment to Portsmouth, OH. Overpacks for shipment of ETTP cylinders will be Government Furnished Equipment. (See Section J, Attachment J.)

(B) Ensure cylinders shipments meet DOT regulations, including obtaining applicable State and local permits.

(C) Ship TBD ETTP cylinders to Portsmouth, OH, for storage and/or conversion no later than the end of this option period, December 31, 2009.

(iv) The Conversion Services scope of work includes maintaining appropriate Federal, State, and local permits and licenses; protecting the workers and the public from hazards associated with the facilities; protecting and accounting for the uranium feed material and products; packaging and staging the converted uranium products; sale of the fluorine compounds with minimum storage on-site; disposition of the empty DUF_6 cylinders (including cylinder washing capability); and disposition of process waste. The containers used for storage of converted uranium products must meet DOT requirements for shipment if the conversion products are shipped off-site for reuse and must meet waste acceptance criteria of an existing licensed disposal facility. **[CLIN 0012b]**

(v) The Conversion Product Storage scope of work includes construction of storage facilities (if required), continued storage of the converted uranium product on-site, container handling and stacking, container inspections, management of substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage. **[CLIN 0013b]**

(2) **Option 2 (October 1, 2010 - September 30, 2015)**

Continuation of cylinder management, conversion services, and conversion product storage in the base scope for an additional five year period (October 1, 2010 - September 30, 2015). This option consists of four suboptions; option 2a is Routine Cylinder Management **[CLIN 00014b]**, option 2b is Cylinder Painting **[CLIN 0015b]**, option 2c is Conversion Operations **[CLIN 0016b]**, and option 2d is Conversion Product Storage **[CLIN 0017b]**.

(i) The UF_6 Routine Cylinder Management scope of work includes cylinder handling and stacking, cylinder inspections, management of substandard cylinders, cylinder recoating, general cylinder maintenance, general cylinder yard maintenance, handling equipment maintenance, purchase of new cylinder handling equipment as needed, system engineering, system administration, configuration management, and data tracking. **[CLIN 0014b]**

(ii) Cylinder Painting scope of work includes providing personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections verify non-compliant conditions. All cylinders shall be inspected by a National Association of Corrosion Engineers (NACE) certified inspection following painting. **[CLIN 0015b]**

(iii) The Conversion Services scope of work includes maintaining appropriate Federal, State, and local permits and licenses; protecting the workers and the public from hazards associated with the facilities; protecting and accounting for the uranium feed material and products; packaging and staging the converted uranium products; sale of the fluorine compounds with minimum storage on-site; disposition of the empty DUF_6 cylinders (including cylinder washing capability); and disposition of process waste. The containers used for storage of converted uranium products must meet DOT requirements for shipment if the conversion products are shipped off-site for reuse and must meet waste acceptance criteria of an existing licensed disposal facility. **[CLIN 0016b]**

(iv) The Conversion Product Storage scope of work includes construction of storage facilities (if required), continued storage of the converted uranium product on-site, container handling and stacking, container inspections, management of substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage. **[CLIN 0017b]**

(3) **Option 3 (October 1, 2015 - September 30, 2020)**

This option is a continuation of cylinder management, conversion services, and conversion product storage in the base scope for an additional five year period (October 1, 2015 - September 30, 2020). This option consists of four suboptions; option 3a is Routine Cylinder Management **[CLIN 0018b]**, option 3b is Cylinder Painting **[CLIN 0019b]**, option 3c is Conversion Operations **[CLIN 0020b]**, and option 3d is Conversion Product Storage **[CLIN 0021b]**.

(i) The UF_6 Routine Cylinder Management scope of work includes cylinder handling and stacking, cylinder inspections, management of substandard cylinders, cylinder recoating, general cylinder maintenance, general cylinder yard maintenance, handling equipment maintenance, purchase of new cylinder handling equipment as needed, system engineering, system administration, configuration management, and data tracking. **[CLIN 0018b]**

(ii) Cylinder Painting scope of work includes providing personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections verify non-compliant conditions. All cylinders shall be inspected by a National Association of Corrosion Engineers (NACE) certified inspection following painting. **[CLIN 0019b]**

(iii) The Conversion Services scope of work includes maintaining appropriate Federal, State, and local permits and licenses; protecting the workers and the public from hazards associated with the facilities; protecting and accounting for the uranium feed material and products; packaging and staging the converted uranium products; sale of the fluorine compounds with minimum storage on-site; disposition of the empty DUF_6 cylinders (including cylinder washing capability); and disposition of process waste. The containers used for storage of converted uranium products must meet DOT requirements for shipment if the conversion products are shipped off-site for reuse and must meet waste acceptance criteria of an existing licensed disposal facility. **[CLIN 0020b]**

(iv) The Conversion Product Storage scope of work includes construction of storage facilities (if required), continued storage of the converted uranium product on-site, container handling and stacking, container inspections, management of substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage. **[CLIN 0021b]**

(4) **Option 4 (October 1, 2020 - September 30, 2025)**

This option is a continuation of cylinder management, conversion services, and conversion product storage in the base scope for an additional five year period (October 1, 2020 - September 30, 2025). This option consists of four suboptions; option 4a is Routine Cylinder Management **[CLIN 0022b]**, option 4b is Cylinder Painting **[CLIN 0023b]**, option 4c is Conversion Operations **[CLIN 0024b]**, and option 4d is Conversion Product Storage **[CLIN 0025b]**.

(i) The UF_6 Routine Cylinder Management scope of work includes cylinder handling and stacking, cylinder inspections, management of substandard cylinders, cylinder recoating, general cylinder maintenance, general cylinder yard maintenance, handling equipment maintenance, purchase of new cylinder handling equipment as needed, system engineering, system administration, configuration management, and data tracking. **[CLIN 0022b]**

(ii) Cylinder Painting scope of work includes providing personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections verify non-compliant conditions. All cylinders shall be inspected by a National Association of Corrosion Engineers (NACE) certified inspection following painting. **[CLIN 0023b]**

(iii) The Conversion Services scope of work includes maintaining appropriate Federal, State, and local permits and licenses; protecting the workers and the public from hazards associated with the facilities; protecting and accounting for the uranium feed material and products; packaging and staging the converted uranium products; sale of the fluorine compounds with minimum storage on-site; disposition of the empty DUF_6 cylinders (including cylinder washing capability); and disposition of process waste. The containers used for storage of converted uranium products must meet DOT requirements for shipment if the conversion products are shipped off-site for reuse and must meet waste acceptance criteria of an existing licensed disposal facility. **[CLIN 0024b]**

(iv) The Conversion Product Storage scope of work includes construction of storage facilities (if required), continued storage of the converted uranium product on-site, container handling and stacking, container inspections, management of substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage. **[CLIN 0025b]**

(5) **Option 5 (October 1, 2025 - December 31, 2029)**

This option is a continuation of cylinder management, conversion services, and conversion product storage in the base scope for an additional five year period (October 1, 2025 - December 31, 2029). This option consists of four suboptions; option 5a is Routine Cylinder Management **[CLIN 0026b]**, option 5b is Cylinder Painting **[CLIN 0027b]**, option 5c is Conversion Operations **[CLIN 0028b]**, and option 5d is Conversion Product Storage **[CLIN 0029b]**.

(i) The UF_6 Routine Cylinder Management scope of work includes cylinder handling and stacking, cylinder inspections, management of substandard cylinders, cylinder recoating, general cylinder maintenance, general cylinder yard maintenance, handling equipment maintenance, purchase of new cylinder handling equipment as needed, system engineering, system administration, configuration management, and data tracking. **[CLIN 0026b]**

(ii) Cylinder Painting scope of work includes providing personnel, equipment, and materials needed to recoat (paint) the full bodies of cylinders and cylinder skirted regions when inspections verify non-compliant conditions. All cylinders shall be inspected by a National Association of Corrosion Engineers (NACE) certified inspection following painting. **[CLIN 0027b]**

(iii) The Conversion Services scope of work includes maintaining appropriate Federal, State, and local permits and licenses; protecting the workers and the public from hazards associated with the facilities; protecting and accounting for the uranium feed material and products; packaging and staging the converted uranium products; sale of the fluorine compounds with minimum storage on-site; disposition of the empty DUF_6 cylinders (including cylinder washing capability); and disposition of process waste. The containers used for storage of converted uranium products must meet DOT requirements for shipment if the conversion products are shipped off-site for reuse and must meet waste acceptance criteria of an existing licensed disposal facility. **[CLIN 0028b]**

(iv) The Conversion Product Storage scope of work includes construction of storage facilities (if required), continued storage of the converted uranium product on-site, container handling and stacking, container inspections, management of substandard containers, general container maintenance, general container storage facility maintenance, container handling equipment maintenance, and container transportation for on-site storage. **[CLIN 0029b]**

(6) **Option 6 - End of Life Decontamination and Decommissioning [CLIN 0030b]**

The contractor shall negotiate with the Government in good faith to return the site to "pre-existing site conditions." All facilities, equipment, materials, etc. will be decontaminated and decommissioned and disposed of accordingly. The contractor D&D activities shall include, but is not limited to the following: closure per RCRA permit of all the contractor's equipment and material or DOE equipment and material contaminated by the contractor during the conduct of this contract; dispose of all secondary waste generated; removal of all waste and other contaminated materials including any media impacted from spills; and, removal from the site all equipment, including structures

erected by the contractor and all other materials and equipment associated with this project.

(7) **Option 7 - Cleaning and Disposition of Heels/Cylinders [CLIN 0031b(1) Portsmouth and CLIN 0031b(2) ETTP]**

The contractor shall clean and dispose of empty and heel cylinders in the current DOE cylinder inventory located at Portsmouth and ETTP Sites. These cylinders ***do not*** require conversion of the contents and may contain a range of material assays ranging from depleted to enriched. The cylinders in this option range from 1S size (nominal 1.5 inch diameter) up to and including 48Y size (nominal 48 inch diameter). (See Section J, Attachment A.)

The Contractor shall assume ownership and responsibility for the cylinders in this option immediately upon physical connection to the cleaning process. The Contractor shall take steps to dispose of cylinders by such methods including but not limited to:

(i) Reuse of intact cylinder(s).

(ii) Scrapping cylinder(s), either clean or contaminated.

(iii) Disposal of the cylinder as waste, either clean or contaminated.

Options that result in the sale of the cylinders are preferred as long as the cost involved in preparing the cylinder for sale do not exceed the cost for disposal as waste. Revenues generated from the sale of the cylinders are the contractors.

Any waste generated from cleaning of cylinders shall be treated in such a manner that the waste acceptance criteria (WAC) at disposal sites are met. The contractor shall negotiate their own waste disposal contracts. ETTP empty cylinders may be cleaned on site and disposed of in an appropriate manner instead of moving them to either Portsmouth.

(d) **Deliverables [CLIN 0032b]** (Plans designated with an asterisk shall be submitted with proposal shall not be priced under CLIN 0032b.)

Submit one copy of each to the Contracting Officer listed under Clause G.4 and four copies of each to the Contracting Officer Representative designated under Clause G.4.

Plan	Submittal Schedule	DOE Action/Acceptance
Cylinder Management Plan, Section C.2(b)(1)(iii)	4 month after contract award.	DOE - 45 days review Contractor - 30 days to incorporate
Final Design Packages, Section C.2(b)(2)(i)	Upon issuing Certified For Construction Drawings	For Information
As-Built Drawings, Section C.2(b)(2)(i)	Prior to start of operations	For Information
Conversion Sequence Plan, Section C.2(b)(2)(iv)	12 months after contract award	DOE - 45 days review Contractor - 30 days to incorporate
Suspension of Operations Plan, Section C.2(b)(2)(v)	By completion of Final Design	For Information
* Project Management Plan, Section C.2(b)(4)(i) and Clause M.4	with proposal and with any material change	DOE - 45 days review after contract award; Contractor - 30 days to incorporate
* Integrated Safety Management Plan; Section C.2(b)(5), Clause M.4, and Clause L.27	with proposal and with any material change	DOE - 90 days review after contract award; Contractor - 30 days to incorporate
Quality Assurance Plan, Section C.2(b)(6)	For CM, 3 months after contract award. For remainder of QA Plan, 6 months after contract award.	DOE - 90 days review for each segment.
Security and Material Safeguards Plan. Section C.2(b)(7)	3 months after contract award and prior to assuming responsibilities for Cylinder Management	DOE - 45 days review Contractor - 30 days to incorporate.
Regulatory Management Plan and Regulatory Documents, Section C.2(b)(8)	6 months after contract award	DOE - 45 days review Contractor - 30 days to incorporate
* NEPA data, Section C.2(b)(9) NEPA report, Section C.2(b)(9)	NEPA data - with proposal NEPA report - 9 months after contract award	For Information
Waste Management Plan (Section C.2(b)(10)	Prior to disposal of any waste	DOE - 45 days review Contractor - 30 days to incorporate

Plan	Submittal Schedule	DOE Action/Acceptance
* Labor Relations Plan; Clause M.4, H.34, and L.27	with proposal	For Information
Diversity Plan, Clause H.12	90 days after award	DOE - 45 days review Contractor - 30 days to incorporate

(e) **Acronyms**

ALARA	As Low As Is Reasonably Achievable
CAA	Clean Air Act
CFR	*Code of Federal Regulations*
CLIN	Contract Line Item Number
COR	Contracting Officer Representative
CM	Cylinder Management
CWBS	Contract Work Breakdown Structure
D&D	decontamination and decommissioning
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
DOT	Department of Transportation
DU	Depleted Uranium
DUF_6	Depleted Uranium Hexafluoride
ECI	Export Controlled Information
EPA	U.S. Environmental Protection Agency
ES&H	Environment, Safety and Health
ETTP	East Tennessee Technology Park
HF	hydrogen fluoride
HQ	Department of Energy Headquarters
ISMS	Integrated Safety Management System
M&I	Management and Integrating
mR	millirem
NACE	National Association of Corrosion Engineers
NPDES	National Pollution Discharge Elimination System
NEPA	National Environmental Policy Act of 1969
ORO	Oak Ridge Operations Office
OSHA	Occupational Safety and Health Administration
PBP	Performance Baseline Plan
PEIS	Programmatic Environmental Impact Statement
PERA	Project Execution Risk Assessment
PMCS	Project Management and Control System
PMP	Project Management Plan
QA	Quality Assurance
QAPP	Quality Assurance Program Plan
RCRA	Resource Conservation and Recovery Act of 1976
SAR	Safety Analysis Report
SO	System Operational Testing Plan
SOW	Statement of Work
UCNI	Unclassified Controlled Nuclear Information
UF_6	Uranium Hexafluoride
USEC	United States Enrichment Corporation
WAC	waste acceptance criteria
WMP	Waste Management Plan

(f) **Definitions**

Characterization: All measurements that must be made on a waste material, waste treatment product, or process treatment intermediate to ensure that it meets transportation, treatment, and final waste certification. Examples of tests include, but are not limited to, under characterization are radioactive materials assay, chemical characterization for elemental composition, oxidative or reductive potential, reactivity, leachability, and physical characterization such as hardness, bulk density, and particle size.

Decommissioning: The actions taken as required by permits, licenses, and regulations to reduce the potential health and safety impacts of contaminated facilities. Includes activities to remove radioactive materials or to demolish the facilities.

Decontamination: The removal of radioactive contamination from all facilities and equipment by washing, heating, chemical or electrochemical action, mechanical cleaning, or other techniques as required to meet license, permit, or regulatory release criteria.

Hazardous Waste: Those wastes that meet the definition of hazardous waste as defined by regulations promulgated under the Resource Conservation and Recovery Act of 1976.

Low-Level Waste (LLW): Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, or spent fuel or 11e(2) byproduct material.

Package: The packaging, with its radioactive contents, as presented for transport (As defined in 10 CFR 71.4 and 49 CFR 173.403).

Packaging: The assembly of components necessary to ensure compliance with packaging requirements of 49 CFR Subtitle B. It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, and devices for cooling or absorbing mechanical shock. The conveyance, tie-down system, and auxiliary equipment may sometimes be designated as part of the packaging (As defined in 10 CFR 71.4 and 49 CFR 173.403).

Process Waste:

Safety Analysis Report: Written document that details the safety review performed on the treatment system and the results of the review.

Secondary Waste: Waste that is generated as a result of waste removal or treatment, maintenance operations, or equipment change-out, and that may be contaminated but does not contain bulk quantities of the treated waste product. This includes additional aqueous liquid that may be generated during the removal or treatment process.

Waste Acceptance Criteria:

Waste Container: Any receptacle (i.e., drums, boxes, bins, canisters) used to contain radioactive waste.