

## Attachment C

# AGREEMENT FOR LEASE OF BY-PRODUCT RADIOACTIVE MATERIAL BETWEEN THE UNITED STATES OF AMERICA AND

\_\_\_\_\_

This agreement is entered into this day of \_\_\_\_\_, 200X by and between the United States of America ("Government") as represented by the U.S. Department of Energy (DOE) and

\_\_\_\_\_, (LESSEE). The material described in Section A hereof is requested to be leased by the Lessee from DOE. This lease is made by DOE pursuant to the authority of 42 U.S.C. Section 2201(m); the Secretary of Energy having determined that Lessee is appropriately licensed to conduct the activity contemplated by this Agreement and that the leasing of the material described in Section A is desirable to utilize private sector capabilities and innovations to facilitate the availability of a domestically produced supply of Actinium-225 ( $^{225}\text{Ac}$ ) for the purpose of supplying Bismuth-213 ( $^{213}\text{Bi}$ ) to current and future users. This lease is subject to the terms and conditions set forth in Section B hereof and to the terms and conditions set forth in the ISOTOPE AND TECHNICAL SERVICES ORDER FORM DOE Form CA-10-90.COM REV. 2 (4/96), which accompanies this agreement.

### A. DESCRIPTION

#### 1. Material to be Leased

The material to be leased consists of two separate sources of material which are: (a) existing DOE purified Thorium-229 ( $^{229}\text{Th}$ ) material having the specifications set forth in the Certificate of Analysis and provided with the shipment of the xxx millicuries (TBD at the time of lease signing) of  $^{229}\text{Th}$  and (b) Lessee obtained purified  $^{229}\text{Th}$  in the estimated amount of 8 - 10 curies obtained by future extraction from the Uranium-233 ( $^{233}\text{U}$ ) stored at Building 3019A at the Oak Ridge National Laboratory. (Currently the DOE has approximately 100 millicuries of  $^{229}\text{Th}$  available for lease under this agreement).

#### 2. Quantity to be Leased

This Agreement includes (a) the lease of xxx millicuries curies of existing DOE purified  $^{229}\text{Th}$  and (b) the lease of an estimated amount of 8 - 10 curies obtained by extracting  $^{229}\text{Th}$  from the  $^{233}\text{U}$ .

#### 3. Period of Lease

The period of this lease shall begin on the date on which the first shipment of  $^{225}\text{Ac}$  leaves the Lessee's facility, and shall continue until 5 years from that date. That shipment shall occur within two (2) years from the date of this agreement or the DOE, at its option, may cancel this agreement. At the completion of this lease term, the Lessee shall return the material to DOE in accordance with the provisions of this lease; or may, extend the lease for an additional 5 year period.

#### 4. Summary of Purpose of Lease

The purpose of this lease is to provide  $^{229}\text{Th}$  for the use in the production of  $^{225}\text{Ac}$ , to ensure and preserve the quality of  $^{225}\text{Ac}$  supply, continue to supply the current customers utilizing  $^{225}\text{Ac}$ , and supply new customers with  $^{225}\text{Ac}$ .

#### 5. Location at Which the Leased Material Will Be Used

The material leased will be used and maintained only in properly licensed facilities located within the United State or in territories or possessions of the United States unless specifically approved in writing by the DOE Representative.

The facility address where the leased material will be used and maintained is:

Address: \_\_\_\_\_

#### B. TERMS AND CONDITIONS

1. Except as specifically set forth in this Agreement, the TERMS AND CONDITIONS of this Agreement are in addition to and are not in replacement of the TERMS AND CONDITIONS set forth in the ISOTOPE AND TECHNICAL SERVICES ORDER FORM, DOE Form CA-10-90.COM Rev. 2 (04/96), (the "Form") which is hereby incorporated by reference into this Agreement (see Attachment 1). The definitions given in Paragraph 1 on the Form apply to this Agreement. (Note that the "Buyer" referred to in the Form includes a Lessee, as contemplated under this Agreement.)
2. The Lessee agrees to exercise due and proper control of the  $^{229}\text{Th}$  provided by DOE under this Agreement during the period in which the said material is in the Lessee's care and custody. Further, the Lessee agrees to:
  - a) Use the leased  $^{229}\text{Th}$  only for the purpose(s) described in Section A of this Agreement except when other use has been specifically approved in writing by the DOE Representative.
  - b) Use the leased  $^{229}\text{Th}$  only in the location specified in Section A of this Agreement unless transfer to another location has been specifically approved in writing by the DOE Representative, such approval shall not be arbitrarily withheld.
  - c) Demonstrate the capability to extract  $^{229}\text{Th}$  from the  $^{233}\text{U}$  and satisfactorily process and distribute the  $^{225}\text{Ac}$  prior to taking possession of the existing DOE purified  $^{229}\text{Th}$ .
  - d) Report promptly to DOE any known or suspected damage, deterioration, or leakage of any  $^{229}\text{Th}$  or its containment. Such report shall not relieve the Lessee of any other reporting requirements.
  - e) In accordance with Section B.4.a) of this Agreement, return the leased  $^{229}\text{Th}$  to DOE in original form and content (corrected for reasonable losses due to process inefficiency) at the expiration of the lease period.
  - f) Be financially responsible for all leased material and insure, or provide equivalent coverage for losses to, or damage resulting from the leased material during the term of this agreement.

- g) Provide to the DOE on a quarterly basis a report, based on an auditable accounting process, of the amount of  $^{229}\text{Th}$  obtained by processing the  $^{233}\text{U}$ .

3. The Lessee agrees:

- a) To dispose of all incidental wastes resulting from the use of the  $^{229}\text{Th}$ . Incidental low-level radioactive wastes shall be disposed of at a commercially operated and Nuclear Regulatory Commission (NRC) licensed (10 CFR 61), Agreement State licensed or equivalent, radioactive disposal facility. Low-level mixed waste shall be treated and disposed of at an NRC, Agreement State or equivalent, radioactive disposal facility with appropriate Resource Conservation and Recovery Act (RCRA) permits to accept mixed waste for treatment and disposal.
- b) The  $^{229}\text{Th}$  is classified as a by-product material in accordance with the definition found at 42 USC section 2014(e)(1). The  $^{229}\text{Th}$  was extracted from the production of Special Nuclear Material. At the conclusion of the lease, the Lessee shall return to DOE the  $^{229}\text{Th}$  as a by-product material for DOE disposition as it chooses. The Lessee shall be responsible for the costs of packaging and transportation involved in returning the  $^{229}\text{Th}$ .
- c) The sales price for  $^{225}\text{Ac}$  extracted from the  $^{229}\text{Th}$  covered by this lease for current DOE customers (see paragraph B.12.c) shall be based on the DOE sales price and shall be limited to increases of 10 percent per year for the first two years, beginning on the date which the first shipment of  $^{225}\text{Ac}$  leaves the Lessee's facility in accordance with paragraph B.12.a. Prices beyond the second year shall be determined by the Lessee. Current  $^{225}\text{Ac}$  sales prices are as follows and are expected to increase nominally until the time of transfer:

**FY 2001  $^{225}\text{Ac}$  Sales Price (solution form)**

Quantity	Price per mCi	
First 1-10 mCi	\$580/mCi	
Additional mCi (11-20mCi)	\$520/mCi	
Additional mCi (21-30mCi)	\$465/mCi	
Additional mCi (31+ )	\$405/mCi	

4. Regarding the Lessee's return of the leased  $^{229}\text{Th}$  provided by DOE:

- a) The DOE and the Lessee agree that the method to determine, measure and verify receipt of xxx curies is as described in Attachment 2 of this Agreement. Upon return of the  $^{229}\text{Th}$  set forth in this Agreement, the  $^{229}\text{Th}$  shall be, at the time of such return, in its original form and amount as specified in Attachment 3. Further, at the time of such return the  $^{229}\text{Th}$  shall be in proper condition for storage and transport according to the then applicable regulations. The Lessee warrants that it will not add any other substances/wastes to the leased material and that the leased material will be consistent with that described in the original DOE certificate of analysis (radiochemical and chemical analysis) as referenced in Section A.1. The Lessee shall prepare and provide to DOE a radiochemical and chemical analysis for this returned product. The parties agree and acknowledge that the  $^{229}\text{Th}$  that is returned shall be deemed a usable product and not a waste material. The Lessee will, at its own expense, monitor the  $^{229}\text{Th}$  for rate of loss from normal process inefficiencies utilizing the procedure prescribed in Attachment 2 to this Agreement. If Lessee returns an amount equal to or greater than the amount specified in Attachment 3, Lessee shall be deemed to have fulfilled its obligations under this Section B.4 of this Agreement. If Lessee returns an amount less than the amount specified in Attachment 3, Lessee shall reimburse DOE at the rate of \$20,000 for each millicurie that is not returned to DOE. For quantities less than one millicurie, the reimbursement shall be a prorated portion of the specified price per millicurie rate.

- b) The Lessee shall post a performance bond for the entire amount of  $^{229}\text{Th}$  to provide for the loss of the entire quantity of  $^{229}\text{Th}$ . The bond amount may be reduced annually on the first day of the calendar year to the quantity adjusted for one year of inefficiency losses.
- c) The DOE and the Lessee mutually agree that return to DOE's control of the leased  $^{229}\text{Th}$  shall be scheduled as expeditiously as possible following the date on which the lease period has ended. Both parties recognize that the operational status of the Lessee's facility and/or the DOE facility, as well as other circumstances, may influence the schedule, and each party agrees to cooperate fully with the other party in arrangements for the return of the leased  $^{229}\text{Th}$ .
5. Subject to Section 8 below, the Lessee shall transport, handle, store, and utilize the leased material in compliance with the terms of this lease and the standards of care ordinarily exercised in the industry, including those of the licensing authorities having jurisdiction over the work performed with the leased material, in order to minimize, to the maximum degree possible, unscheduled exposure of persons and/or property to the leased material. To that end, the Lessee shall comply with all provisions, regulations, laws and/or guidance applicable to its handling, storage, transportation and utilization of the leased material. The Lessee shall provide to DOE's Representative, copies of all reports furnished to the State Licensing authority which deal with the health and safety aspects of the Lessee's operations performed with the leased material, as well as with copies of all notifications (if any) made to the State licensing authority dealing with excess exposure to employees and/or other personnel associated with operations performed with the leased material.
6. DOE will audit the operations of the Lessee with respect to the use of the  $^{229}\text{Th}$  to insure that the Lessee is operating in a manner that ensures continued supply of  $^{225}\text{Ac}$  and such that there is no possibility that a cleanup or other liability for the DOE is being generated from the use of the  $^{229}\text{Th}$  prior to DOE delivering the existing DOE purified  $^{229}\text{Th}$ . Furthermore, DOE reserves the right to conduct such future audits. These audits will include review of operating procedures, inspection of facilities, verification of insurance coverage or other financial surety instruments for catastrophic accidents, slow releases, and facility Decontamination & Decommissioning (D&D)/closure. The Lessee shall submit a management plan for the leased  $^{229}\text{Th}$  to DOE's Representative describing how it will prevent such a liability before the transfer of the first curie of  $^{229}\text{Th}$ , annually, and whenever changes in operations affect provisions of the management plan. At a minimum, the management plan should address the topics stated above and in Section B.5 and include the following:
- Monitoring and measurement of  $^{229}\text{Th}$ 
    - Radioanalytical procedures
    - Frequency of measurements
    - Recording of results
  - Procedures for handling spills or other releases
    - Notification points of contact with state and local officials, NRC, and DOE
    - Internal response and containment of  $^{229}\text{Th}$
    - ES&H and medical procedures to assess exposure and effects on personnel health and the environment
    - Insurance coverage or other financial surety instruments for compensation of damages to workers, the public and the environment
  - Waste management and disposal plans and procedures
  - Facility D&D and closure plans

The DOE reserves the right to, upon reasonable written notice and after conferring with the Lessee regarding an acceptable schedule, make visits to the Lessee's facilities to verify information contained in the Lessee's submittals.

7. The DOE will transfer its existing supply of purified  $^{229}\text{Th}$  to the Lessee upon the Lessee satisfactorily demonstrating the capability to extract  $^{229}\text{Th}$  from the  $^{233}\text{U}$  as evidenced by extracting 100 mCi of  $^{229}\text{Th}$  suitable for  $^{225}\text{Ac}$  extraction, and pending successful completion of the audit identified in paragraph B.6 above. The transfer of the existing purified material will be made in two approximately equal shipments as described in Paragraph B.12.a) below.
8. DOE shall make all arrangements for, and Lessee will cover the costs for, transport of the shipment(s) of  $^{229}\text{Th}$  from DOE's facility to Lessee, FOB DOE's facility and for the return of the  $^{229}\text{Th}$  to DOE's facility. The Lessee shall insure the shipment of  $^{229}\text{Th}$  from and back to DOE's facility.
9. The Lessee agrees that, upon reasonable written notice and on a mutually acceptable schedule, DOE or persons acting on behalf of DOE may enter any location at which the  $^{229}\text{Th}$  is in use or in storage, such entry being for the purpose of observation and verification of the application of the terms and conditions of this Agreement.
10. The Lessee agrees to pay the DOE for the  $^{229}\text{Th}$  material leased under this agreement forty thousand dollars (\$40,000) within fourteen (14) days of the receipt of shipments of existing purified DOE material by the Lessee.

In addition, the Lessee shall pay DOE a lease [TBD] percent (TBD %) of Product Sales up to TBD dollars (\$TBD). For each "Lease Year" that Product Sales exceed [TBD] (\$TBD), the lease fee shall be TBD percent (TBD%) of Product Sales over [TBD] dollars (\$TBD). A "Lease Year" means (a) each full 12 month period during the term of this Agreement starting January 1 and ending the following December 31, (b) the period between the start date of this lease and December 31 of the same calendar year, and (c) the period between the last January 1 to occur during the term of this lease and the date this lease terminates.

#### **Calendar Year**

Year 1 – 5            [TBD]% of Annual Product Sales ≤ \$TBD  
                             [TBD]% of Annual Product Sales > \$TBD

For the purpose of this provision Product sales shall mean:

“Product sales shall mean the net amount invoiced by Lessee for the sale or other distribution of any product or service that directly or indirectly uses  $^{225}\text{Ac}$  produced by Lessee from the  $^{229}\text{Th}$  leased hereunder, after deduction of amounts attributed to returns, commercially reasonable allowances and discounts and excluding any tax exacted as a consequence of the sale of said product and any standard freight or handling charges (net selling price) billed as a separate line item. For sales or other distribution of products and services that directly or indirectly uses  $^{225}\text{Ac}$  produced by Lessee from the  $^{229}\text{Th}$  leased hereunder which are made in currency other than the United States currency, product sales shall first be determined in the currency in which the sale or other distribution was made and then converted into its equivalent in United States currency as part of the consolidated financial statements of Lessee prepared in accordance with Generally Accepted Accounting Principles (GAAP). It is understood that all products and services that directly or indirectly use  $^{225}\text{Ac}$  produced by Lessee from the  $^{229}\text{Th}$  leased hereunder will be sold at fair market value and will not be traded or bartered for other products or services. The fair market value of all consideration received by Lessee, in whatever form or in whatever manner conveyed to Lessee for the sale or distribution of products or services hereunder, shall be included within this definition. In the event any product or service that directly or indirectly uses  $^{225}\text{Ac}$  produced by Lessee from the  $^{229}\text{Th}$  leased hereunder is sold or

distributed for the purposes of resale to (i) a corporation, firm, or association which, or individual who, owns a financial interest in Lessee of greater than ten percent (10%) by stock ownership or otherwise, or (ii) a corporation, firm, or association in which Lessee owns a financial interest of greater than ten percent (10%) by stock ownership or otherwise, the lease payments to be paid on product sales shall be computed upon the fair market value of all consideration received by Lessee or another entity defined in (i) or (ii) above, which shall at a minimum, include the net selling price at which the purchaser for resale sells such products and services.

Payments shall be made in arrears on a calendar quarterly basis within 30 days after the end of the quarter. Financial data supporting the lease payment shall be provided with payment. This data shall include, at a minimum, product sales by month, adjustments (if necessary), calculations to support the lease payment, and a signature (certification) by the applicable Lessee personnel asserting to the accuracy of the financial data. The Comptroller General, DOE or DOE's designee may audit or review the Lessee's financial records on an annual basis.

Payments and certified supporting data should be sent to:

**U.S. Department of Energy**  
 Capital Accounting Center  
 Accounting Division  
 P.O. Box 500  
 Germantown, Maryland 20874

Notification of payment and copies of supporting data should be sent to:

Contracting Officer  
 U.S. Department of Energy  
 Oak Ridge Operations Office  
 Oak Ridge, TN

11. The Lessee and DOE shall complete the transition of <sup>225</sup>Ac production information to the Lessee's as follows:

- a) DOE shall turn over to the Lessee, information pertaining to the production and separation of <sup>225</sup>Ac, all manufacturing procedures related to the production and separation of <sup>225</sup>Ac, and all other written information useful in managing the production, separation and sales of <sup>225</sup>Ac (e.g., historical records on the life/maintenance cycles of various <sup>225</sup>Ac generators).
- b) These transition activities shall be completed within the period of time indicated as follows:

<i>Task</i>	<i>Time of Completion</i>
1) Transfer Standard Operating Procedure for <sup>225</sup> Ac production from DOE to Lessee	Not later than 30 days after date lease is signed
2) Transfer information on <sup>225</sup> Ac	Not later than 60-90 days after date

<i>Task</i>	<i>Time of Completion</i>
production history, generator performance, and prior problems and corrective actions from DOE to Lessee	lease is signed

12. The Lessee and DOE shall complete the transition of  $^{225}\text{Ac}$  production activities to the Lessee's facilities within 6 months following completion of the activities identified in paragraph B.7 above. A maximum variance of 30 days beyond the 6-month transition period will be permitted under conditions that could otherwise make continuity of supply of  $^{225}\text{Ac}$  to DOE's customers impossible. During the transition period, both the DOE and the Lessee shall act in good faith to complete each of the major elements of work outlined in this lease. Additionally, the following activities shall be completed:
- a) Following the Lessee extracting 100 mCi of  $^{229}\text{Th}$  from the  $^{233}\text{U}$ , DOE will furnish customers orders for the Lessee to fill for a three (3) month period. Pursuant to paragraph A.3. Period of Lease, this will occur within two (2) years from the date of this agreement. Following satisfactory completion of this three (3) month effort, DOE will transfer 50% of the DOE purified  $^{229}\text{Th}$  and transfer the remainder of the purified  $^{229}\text{Th}$  at the end of the next three (3) month period which will complete the transition.
  - b) In the case of order conflicts, current DOE customers (see paragraph B.12.c) below) will receive priority over new customers for shipments of  $^{225}\text{Ac}$  for quantities consistent with orders placed within the previous year. Only those quantities consistent with the orders placed within the previous year shall be subject to the price controls contained Paragraph B.3.c.
  - c) With the first shipment of DOE purified  $^{229}\text{Th}$ , DOE shall turn over to the Lessee a written list of all current customers for the purchase of  $^{225}\text{Ac}$ . As to each customer on said list, there shall be specified the full name and address of the customer, the name and title of the contact person at each customer, and the telephone and fax number for said contact person.
  - d) DOE shall turn over to the Lessee a written sales history of each customer on said list for all sales of  $^{225}\text{Ac}$  to said customer for the period from January 1999 up until the time of transfer, said list reflecting each date of sale, quantity of  $^{225}\text{Ac}$  sold and amount charged for each sale to each customer.
  - e) DOE shall turn over to the Lessee a copy of all agreements in which DOE is a party and which constitute an agreement to sell any amount of  $^{225}\text{Ac}$  to any third party or parties.
  - f) Following the transfer of the DOE purified  $^{229}\text{Th}$  to the Lessee, DOE shall not produce  $^{225}\text{Ac}$  for any purpose other than to meet the non-commercial needs of the U.S. Government that may include research relating to, but not limited to, more efficient  $^{225}\text{Ac}$  extraction methodologies and research and medical applications of  $^{225}\text{Ac}$ .
13. In addition to any cancellation rights DOE has pursuant to Item 13, Cancellation in the Terms and Conditions of the ISOTOPE AND TECHNICAL SERVICES ORDER FORM, DOE shall have the right to cancel this agreement if the Lessee fails to comply with any provision of this lease. In the event of a lease cancellation, the amount of  $^{229}\text{Th}$  returned to DOE without penalty under B.4.a) shall be calculated by radioactive decay formula to the nearest full day. Inefficiency losses permitted by B.4.a) shall be calculated by linear proration to the nearest full day of the value listed in Attachment 3.
14. In addition to any cancellation rights DOE has pursuant to Item 13, Cancellation in the Terms and Conditions of the Isotope and Technical Services Order Form, DOE shall have, at no cost to itself, the right to recall the  $^{229}\text{Th}$  if DOE reasonably determines that continued operation poses a threat to the safety of the facility and/or its surrounding environment, such threat may include, but not be limited to, loss of operating license.

15. DOE will not make Price-Anderson indemnification available under this agreement for activities conducted in non-DOE owned facilities.
16. Assignment-Lessee shall not assign this lease agreement without the express written approval of DOE's Representative; such approval will not be unreasonably withheld. DOE may assign its rights and obligations under this Agreement to any party of its choosing, and Lessee agrees that such assignment shall not affect its obligations.
17. Representative-DOE's Representative for the receipt of any correspondence and notice other than payment under this agreement shall be:

Contracting Officer  
U.S. Department of Energy  
Oak Ridge Operations Office  
Oak Ridge, TN

FOR THE DEPARTMENT OF ENERGY

FOR THE LESSEE

BY: \_\_\_\_\_

BY: \_\_\_\_\_

\_\_\_\_\_  
Contracting Officer

Date: \_\_\_\_\_

Date: \_\_\_\_\_



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Signature \_\_\_\_\_

Title \_\_\_\_\_ Date \_\_\_\_\_

Title \_\_\_\_\_ Date \_\_\_\_\_

**Lease Rev H.**

**U. S. DEPARTMENT OF ENERGY  
 ISOTOPE AND TECHNICAL SERVICE ORDER FORM**

Continuation Sheet

<b>CATALOG          ITEM NO.          (If any)</b>	<b>SOURCE, SPEICAL NUCLEAR, BY-PRODUCT, OR CYCLOTRON PRODUCED          RADIOISOTOPES: State isotope, chemical form, desired total activity, and desired specific activity.          TECHNICAL SERVICE: State desired service and specification of final product.          STABLE ISOTOPE: State isotope, chemical form, quantity, isotopic concentration, (specifying desired enrichments, minimum enrichments), and chemical purity (if applicable).</b>	<b>PURCHASE          PRICE</b>	<b>RENTAL          FEE</b>
<b>Shipping Schedule and Completion Date:</b>  	<b>Technical Service Charge (if applicable)</b>  <b>Handling Charge (if applicable)</b>  <b>Total</b>		

## ISOTOPE AND TECHNICAL SERVICES ORDER FORM TERMS AND CONDITIONS

**1. Definitions.** "Buyer" means the person or entity placing this Order. "Government" means the United States of America. "Department" means the U.S. Department of Energy. "Contractors" means Department of Energy facilities' contractors and their employees who fill or participate in the filling of this Order, however, these Contractors are not agents of the Department. "DOE facility" means a laboratory, plant, or office operated by or on behalf of the Department.

**2. Price of Material and Services.** For material and services which are sold, the price or fee shall be fixed by the Department and in effect on the date of acceptance of this Order by the Department, said date shall be reflected in item 9 on page 1 of this Order.

For material which is leased, the Buyer understands and agrees that he/she/it must pay all charges, costs, and value of material losses as provided in the Agreement for Lease of Stable Isotope Material.

In the event of unusual circumstances which would cause the costs of materials or services to significantly exceed the purchase price of this Order, the Department shall not be obligated to continue or complete the Order by incurring costs in excess of this Order, and shall have the right to cancel this Order as specified in paragraph 13, unless the purchase price has been increased by written amendment to this Order.

**3. Payment Terms and Interest.** Payment shall be made within 30 days from the date of the Department's or the Contractor's invoice, unless advance payment and/or a shorter period is specified in this Order.

All amounts payable under this Order (net of any applicable tax credit under the Internal Revenue Code, 26 U.S. C. 1481), shall bear simple interest from the date of delinquency until paid, unless paid within 30 days of becoming due. The date of delinquency is the date the Department or the Contractor mailed or hand-delivered the billing notice or invoice. The interest rate will be set at the same rate as the Treasury's Current Value of Funds Rate (prescribed and published by the Secretary of the Treasury in the Treasury Financial Manual Bulletin) for the period in which the debt became delinquent.

An administrative charge shall be imposed per delinquent invoice per 30 day period from the date of delinquency to cover the costs associated with collecting the debt, unless paid within 30 days of becoming due.

A penalty charge, accruing from the date of delinquency, shall be assessed at 6% per year on any portion of a debt that is outstanding for more than 90 days, including any interest and administrative costs.

Payments shall be applied first to accrued penalty charges, then to accrued administrative charges, then to accrued interest, and finally to the principal, pursuant to 4 CFR 102.13(f).

Interest, administrative charges, and penalty charges do not apply to a) other Federal agencies, b) other management and operating contractors of the Department, and c) State and local governments.

**4. Government-owned Containers.** When shipment of material pursuant to this Order requires the use of returnable government-owned containers, title to such containers shall remain in the Government. The Buyer shall keep the containers in good condition, will not use them for any materials other than the materials shipped therein, and will deliver them to a carrier designated by the Department for return to the point of shipment, transportation prepaid, within 30 days from the date of receipt by the Buyer of the shipment. The Buyer agrees to pay to the Department a demurrage charge on each returnable Government-owned container for the period of retention which is in excess of the said 30 day period.

**5. Delivery/Risk of Loss of Material Sold.**

a) Delivery shall be F.O.B. the Department facility from which the Order is filled. The Department shall arrange for transporting the material from the Department facility. The Buyer shall pay all costs related to transporting the material. The Department shall put the material in the possession of the Buyer's carrier at the Department facility from which the Order is filled;

b) Legal and equitable title and risk of loss or damage shall pass to the Buyer when the material is delivered to the Buyer's carrier.

**6. Delivery/Risk of Loss of Material Leased.**

a) Delivery shall be F.O.B. the Department facility from which the Order is filled. The Department shall arrange for transporting the material from the Department facility. The Buyer shall pay all costs related to transporting the material. The Department shall put the material in the possession of the Buyer's carrier at the Department facility from which the Order is filled;

b) Legal and equitable title shall remain in the Department, except that in the event the material is determined to be unacceptable for return to Department's inventory under the provisions of the Agreement for Lease of Stable Isotope, title to such material shall pass to the Buyer as of the date the Buyer is billed for the material by the Department;

c) Risk of loss or damage shall pass to the Buyer when the material is delivered to the Buyer's carrier;

d) Buyer shall return such material to the designated Department facility when required in Agreement for Lease of Isotope Material. Delivery shall be F.O.B. the Department facility with freight prepaid by the Buyer and not charged to the Department. The Buyer shall arrange for transporting the materials utilizing a carrier designated by the Department. Risk of loss or damage shall pass to the Department upon acceptance by the Department of the material.

**7. Labeling, Shipping and Receiving.** Package labeling, shipping and receiving activities shall be performed in accordance with applicable Department, Department of Transportation, Department of Commerce, and Nuclear Regulatory Commission regulations.

**8. Specifications.** The Buyer shall promptly notify the Department in writing if any of the material does not conform to the specifications set forth in item 7 on page 1 of this Order. The responsibility and liability of the Government, the Department, and the Contractors upon verification of such non-conformances, shall be limited solely to making reasonable efforts to a) correct such non-conformances, b) replace with material which conforms to said specifications or c) make appropriate adjustments to the purchase price. The Department will reimburse the Buyer for reasonable costs of packaging and transportation incurred by the Buyer in returning to the Department any material which does not conform to such specifications.

**9. No Warranty.** All implied warranties are hereby disclaimed. Neither the Government, the Department, nor the contractors make any warranty, express or implied a) that material will be delivered or services performed at a specified time, b) that material accepted for technical or analytical services will not be destroyed, damaged, lost, or otherwise altered in physical or chemical properties in the process of performing the requested technical or analytical service, c) with respect to the accuracy, completeness or usefulness of any information furnished hereunder, d) that the use of any such information may not infringe privately owned rights, e) that the services, material, or information furnished hereunder will not result in injury or damage when used for any purpose or are safe for any purpose including the intended purpose, and f) that the services, material or information furnished hereunder will accomplish the intended results.

**10. Liability.** Neither the Government, the Department, nor the Contractors will be responsible for any injury to or death of persons or other living things, or damage to or destruction or loss of property, specifically including material supplied by the Buyer, or for any other loss, damage or injury of any kind whatsoever resulting from the performance of services or furnishing of material or information hereunder, by the Government, the Department, or the Contractors, to the extent such injury, death, damage, destruction, or loss is not caused by the negligence or willful misconduct of the Government, the Department, or the Contractors.

**11. Indemnification.** The Buyer agrees to indemnify and hold harmless the Government, the Department, and the Contractors from and against any and all liabilities, penalties, fines, forfeitures, claims, causes of action, and costs and expenses (including the costs of defense and/or settlement, including, but not limited to, attorney's fees), caused by, resulting from or arising out of, in whole or in part a) the breach of any term or provision of this Agreement, or negligent or willful act or omission, by Buyer, its employees, agents, officers, directors, or contractors, b) the failure of Buyer, its employees, agents, officers, directors, or contractors to fully comply with applicable statutory and regulatory requirements, c) performance by the Government, the Department, or the Contractors of acts, services, analyses, or tests, including furnishing material, required, specified, or directed by the Buyer to be performed or furnished under this Order to the extent the liability is not caused by the negligence or willful misconduct of the Government, the Department, or the Contractors.

**12. Publication.** The data produced under this Order will be provided to the Buyer who will be solely responsible for marking the data and removing the data from the facility by or before termination of this Order. The Department shall have the right to publish and use any data provided to or generated by the Department or the Contractors, and to permit others to do so unless such data is marked as "proprietary data" by the Buyer. The Department and the Government shall have unlimited rights in technical data (including proprietary data) which are not removed from the facility by or before termination of this Order. In addition, the Department and the Government shall have the unlimited right to perform similar or identical services for other buyers as long as the Buyer's proprietary data are not utilized. The Buyer agrees to deliver to the Department or the Contractors a non-proprietary description of the work to be performed under this Order.

**13. Cancellation.** The Department reserves the right to cancel this Order without further liability or cost a) in the event the license referenced to in item 8 on page 1 of this Order, which may be either the Buyer's or its authorized representative's license, is suspended, expired, canceled, or revoked, or does not authorize possession of the material, or b) when cancellation of this Order is determined to be necessary to the national defense, security, or environmental safety of the United States or due to lack of appropriated funds or facility capabilities or c) when the Buyer is delinquent on any payments due under this Order or any other Orders for isotopes or technical services related to isotopes from the Department.

The Buyer may cancel this order at any time by providing 180 day advance written notice to the Department. Buyer shall pay the Department, in addition to any costs owing under paragraph 3 above, any costs incurred by the Department in stopping the work and removing the Buyer's material as well as any other costs resulting from the cancellation.

**14. Material Supplied by the Buyer.** Material supplied by the Buyer may be held or stored by the Department in accordance with instructions of the Buyer, or in order to protect health, or to minimize other hazards to life or property. Buyer shall pay the Department all

costs of such storage. Unless this Order specifies that the material is to be returned to the Buyer, the Department may dispose of material supplied by the Buyer for technical or analytical services and the Buyer shall have no claim for the value or replacement of material disposed by the Department. The Buyer shall arrange for and bear all costs of transportation of material to and from (if applicable) the designated Department facility.

**15. Severability.** Should any provision of this Order be unlawful, void, or for any reason unenforceable, that provision shall be severable and not affect the validity and enforceability of the remaining provisions of this Order.

**16. Export Law Assurances.** The Buyer agrees that it is responsible for and will comply with the United States export laws and the regulations thereunder relative to any export or re-export of material and/or information procured/obtained by the Buyer under this Order and any direct product thereof. The Buyer further agrees that neither such material and/or information nor any direct product thereof will be shipped, transferred or re-exported into any country prohibited by the United States export laws and the regulations thereunder or will be used for any purpose prohibited by such laws.

**17. Facility Utilized.** The Department, at its discretion, may fulfill its obligations under this Order through any of the DOE facilities.

**18. Dispute Resolution.** The parties agree to make good faith efforts to resolve any disputes using alternative means of dispute resolution. Substantive issues shall be determined in accordance with federal law. Should litigation be necessary all actions shall be brought in Federal District Court.

## ATTACHMENT 2

### Procedure for Quantitation of $^{229}\text{Th}$ and Loss of $^{229}\text{Th}$ Due to Normal Process Inefficiencies

The analytical procedure to be used for quantitating the amount of  $^{229}\text{Th}$  (in curies) provided to the Lessee by DOE under the terms of this agreement is described below. The procedure described below will also be used to quantitate the amount (in curies) of  $^{229}\text{Th}$  returned by the Lessee to DOE at the end of the lease agreement.

Lessee shall provide an agreed upon mechanism for the quantification of the  $^{229}\text{Th}$  inventory returned to DOE at the end of this lease agreement. The procedure used for the quantification of the  $^{229}\text{Th}$  inventory shall provide an accuracy of at least +/-1%.

The use of either isotope dilution mass spectrometry (IDMS) or gravimetric analysis of  $\text{ThO}_2$  is recommended, however, the Lessee may propose other methods. The Lessee shall identify the form in which the  $^{229}\text{Th}$  will be kept, and identify the method to be used for collecting a sample for analysis. The Lessee shall ensure that the quantity and chemical form of the sample is compatible with the needs of the facility performing the analysis.

### ATTACHMENT 3

#### Amount of Thorium-229 to be Returned After Five (5) Years

Material Leased	Amount Leased (curies)	Amount lost due to Radioactive Decay over five (5) years <sup>1</sup> (curies)	Maximum Amount Lost due to Process Inefficiency over five (5) years <sup>2</sup> (curies)	Minimum Amount to be returned after five (5) years (curies)
Existing <sup>229</sup> Th	TBD	0 Ci	5 %	95%
New <sup>229</sup> Th	TBD <sup>3</sup>	0 Ci	5%	95%

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<sup>1</sup> The amount of Th-229 decay over a five year period is not an issue based on the 7,300 year half-life

<sup>2</sup> The maximum acceptable loss due to process inefficiencies has been set at a level of 5% of the initial amount of Th-229 based on prior operational experience with Th-229 during periodic production campaigns over extended periods of time.

<sup>3</sup> Analysis of current U-233 inventory indicates approximately 10 Curies (Ci)

