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Office of Administrative Hearings

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND
ENVIRONMENTAL PROTECTION CABINET

DWM-32434-030

NATURAL RESOURCES AND
ENVIRONMENTAL PROTECTION CABINET — PETITIONER

VS. **AGREED ORDER**

UNITED STATES DEPARTMENT OF ENERGY — RESPONDENT

* * * * * * * * * * * *

I. STATEMENTS OF FACT

1. The Natural Resources and Environmental Protection Cabinet (hereinafter the "Cabinet") is charged with the statutory duty of enforcing the statutes and administrative regulations of the Commonwealth of Kentucky relating to waste management as provided for under Kentucky Revised Statutes (KRS) Chapter 224 and the regulations promulgated thereunder.

2. The United States Department of Energy (hereinafter "DOE") owns the Paducah Gaseous Diffusion Plant ("PGDP"), a uranium enrichment facility, located near Paducah, Kentucky in McCracken county. PGDP is a "facility" as that term is defined in 401 KAR 30:010, Section 1, (73).

3. The United States Enrichment Corporation ("USEC"), has since July 1, 1993, leased and operated portions of the PGDP, subject to the lease provisions between DOE and USEC.

4. DOE is a "person" as that term is defined by KRS 224.01-010(17) and 401 KAR 30:010, Section 1, (153).

5. At PGDP, DOE has generated and now operates storage facilities for depleted uranium hexafluoride (hereinafter "DUF_6"). DOE owns and is currently storing approximately 34,000 cylinders containing DUF_6 in storage yards not leased to USEC at the PGDP.

6. Since July 1, 1993, USEC has generated and continues to generate DUF_6. Pursuant to the USEC Privatization Act, DOE obtained responsibility for DUF_6 cylinders generated by USEC from July 1, 1993 to the date of USEC privatization. Additionally, USEC paid DOE to take responsibility for an additional two thousand twenty six (2,026) cylinders generated by USEC after privatization. DUF_6 cylinders for which USEC has responsibility are not within the scope of this Agreed Order.

7. The Cabinet alleges that the DUF_6 generated by DOE and USEC is a "Waste" as defined by KRS 224.010(31) and is subject to the waste determination requirement in KRS 224.46-510. The Cabinet also believes that other violations and potential violations of federal hazardous waste laws and regulations (to the extent enforceable by Kentucky) and Kentucky hazardous waste laws, regulations, and permits may have occurred with respect to this matter. DOE disagrees, and takes the position that DUF_6 is not a "Waste," but is source material within the meaning of the Atomic Energy Act of 1954, as amended, and is, therefore, exempt from state and federal hazardous waste laws. DOE reserves these positions, notwithstanding DOE's entry into this Agreed Order.

8. On November 10, 1994, DOE published an announcement at 59 Fed. Reg. 56324 of its intent to prepare an environmental impact statement concerning DUF_6 including an evaluation of potential use or reuse of DUF_6.

9. In 1995 the Defense Nuclear Facilities Safety Board issued Recommendation 95-1, "Safety of Cylinders Containing Depleted Uranium," designed to improve the storage and

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maintenance of the DUF_6 cylinders. DOE implemented actions in response to the recommendation. In December of 1999, the Defense Nuclear Facilities Safety Board documented the satisfactory closure of Recommendation 95-1.

10. In July of 1998, Public Law 105-204 was enacted directing DOE to prepare and submit to Congress a plan to ensure that all funds accrued on the books of USEC for the disposition of DUF_6 were used for that purpose consistent with the National Environmental Policy Act (hereinafter "NEPA").

11. On April 16, 1999, DOE published the Final Programmatic Environmental Impact Statement for Alternative Strategies for the Long-Term Management and Use of Depleted Uranium Hexafluoride (hereinafter "Final PEIS").

12. In July 1999, DOE issued a document entitled "Final Plan for the Conversion of Depleted Uranium Hexafluoride As Required by Public Law 105-204." The Conversion Plan describes the steps that would allow DOE to convert the DUF6 inventory to a more stable chemical form.

13. On August 2, 1999, DOE issued a Record of Decision (hereinafter "ROD") based on the final PEIS. In the ROD, DOE decided to promptly convert the DUF6 inventory to a more stable uranium oxide form. DOE also stated that it would use the oxide as much as possible and store the remaining oxide for potential future uses or disposal, as necessary.

14. Public Law 107-206, passed July 31, 2002, required DOE to, within thirty (30) days, award a contract for DUF6 activities, including the construction and operation of DUF6 conversion facilities at the PGDP and at DOE's Portsmouth, Ohio site, and the storage of DUF6 pending

conversion. In response to Public Law 107-206, on August 29, 2002, Uranium Disposition Services (UDS) was awarded the contract.

NOW THEREFORE, in the interest of settling all civil claims and controversies with respect to the above referenced violations and potential violations, the parties hereby consent to the entry of this Agreed Order and agree as follows:

COMPLIANCE REQUIREMENTS

15. Within thirty (30) days of the entry of this Agreed Order by the Secretary, Respondent shall submit an electronic file containing an inventory of all DUF_6 cylinders at PGDP to which the Cylinder Management Plan applies. The inventory shall contain information on where each cylinder is stored, the date each cylinder was last inspected, and a maintenance history for the last five years for each cylinder.

16. Respondent shall implement and comply with the Cylinder Management Plan, attached as Attachment 1, and any future amendments thereto.

17. The Cylinder Management Plan may be amended by the mutual agreement of the Director of the Division of Waste Management and DOE's Manager of the Portsmouth/Paducah Project Office. If these officials disagree on a proposed amendment, either party may invoke the consultation process set forth in paragraphs 18-26 of the Agreed Order.

III. CONSULTATION PROCESS

18. Except as otherwise specifically provided for in this Agreed Order, DOE may utilize the procedures outlined below for any dispute which arises concerning this Agreed Order, including the attachment thereto.

19. DOE and the Cabinet shall first attempt to resolve expeditiously and informally all disputes at the project manager level. This informal consultation shall be limited to a period of ten (10) days from the occurrence of the event giving rise to the dispute.

20. In the event that any dispute is not resolved through informal means, within thirty (30) days after the end of the informal consultation period, DOE shall give written notice to the Cabinet of its intent to invoke the formal consultation process.

21. DOE's written notice of its intent to invoke the formal consultation process shall include a written statement of the issue in dispute, the relevant facts upon which the dispute is based, the factual data, analysis or opinion supporting its position, and supporting documentation on which DOE relies along with an explanation of what work is or will be affected by the dispute, including any impacts on compliance dates. The DOE project manager shall develop DOE's written notice of intent to invoke the formal consultation process in concert with the Cabinet's project manager and shall include with DOE's written notice any written positions and supporting documentation provided to DOE by the Cabinet's project manager within the thirty (30) day period. The Cabinet shall submit a written response to DOE within fifteen (15) days of receipt of DOE's notification. Within fifteen (15) days of DOE's receipt of the Cabinet's response to DOE, DOE's Manager of the Portsmouth/Paducah Project Office and the Cabinet's Director of the Division of Waste Management (Director) shall engage in meetings or conference calls.

22. If, within ten (10) days of the meetings/conference calls referenced in paragraph 21, the Director of the Division of Waste Management and DOE's Manager of the Portsmouth/Paducah Project Office have not mutually agreed to a resolution of the dispute, the disputed matter shall be elevated to the Commissioner of the Department of Environmental Protection. If the dispute is elevated to the Commissioner, then a meeting/conference call shall take place within fifteen (15) days between the Commissioner and the DOE's Manager of the Portsmouth/Paducah Project Office. Within ten (10) days of the meeting/conference call, if the parties have not mutually agreed to a resolution of the dispute, the Commissioner will notify DOE in writing of the Cabinet's final resolution of the dispute. The Cabinet's final resolution shall be subject to (a) the provisions of paragraph 23, as applicable, and/or (b) judicial or administrative review in accordance with applicable law. It is the Cabinet's position that DOE must exhaust its administrative remedies before the Cabinet prior to seeking judicial review of any final determinations by the Cabinet.

23. Within thirty (30) days of receiving a notice of a resolution of dispute from the Commissioner regarding a proposed modification to the Cylinder Management Plan, DOE shall notify the Commissioner, in writing, of DOE's acceptance or non-acceptance of the Commissioner's decision. If DOE accepts the Commissioner's decision, such decision shall be binding on DOE and the Cabinet. If DOE notifies the Commissioner of its non-acceptance of the Commissioner's decision, DOE's position in the dispute shall be binding, and DOE shall amend the Cylinder Management Plan accordingly. In such case, however, the Cabinet reserves its rightsto bring an action against DOE, its contractors or subcontractors, relating to the violations and potential violations addressed in this Agreed Order

24. The pendency of any dispute under these procedures shall not affect DOE's responsibility for timely performance of the work required by this Agreed Order, except that the time period for completion of work affected by such dispute shall be extended for a period of time at least equaling, the actual time taken to resolve any dispute in accordance with the procedures specified herein. All elements of the work required by this Agreed Order that are not affected by the dispute shall continue and be completed in accordance with the applicable schedule.

25. In any proceeding under this Section, the parties may by written agreement modify the procedures of paragraphs18-24 above, including but not limited to an extension or shortening of the times therein or the waiver of any provision set forth in such paragraphs.

26. Except as provided in paragraph 23, the Parties shall exhaust the Consultation Process (through the Cabinet's issuance of its final determination to DOE) prior to initiating administrative or judicial action with respect to any dispute which arises concerning this Agreed Order.

IV. BUDGET REQUIREMENTS

27. It is the Cabinet's position that it is DOE's obligation to obtain the funding necessary to comply with all the requirements in this Agreed Order.

28. It is DOE's position that any requirement for the payment or obligation of funds by DOE established by the terms of the Agreed Order is subject to the availability of appropriated funds, and that the Agreed Order shall not be interpreted to require the obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. Section 1341.

29. If appropriated funds are not available to fulfill DOE's obligations under the Agreed Order, DOE shall nevertheless make a good faith effort to comply with the requirements

of this Agreed Order. If DOE's good faith efforts fail, DOE shall meet promptly with the Cabinet to discuss whether the parties can reach an accommodation on adjustments to deadlines that require the payment or obligation of such funds. If no agreement can be reached, then the Cabinet and DOE agree that the Cabinet may initiate an action to enforce any provision of the Agreed Order, and DOE may raise as a defense that its delay was caused by the unavailability of appropriated funds. The Cabinet disagrees that the lack of appropriations or funding is a valid defense. It is the Cabinet's position that the federal Anti-Deficiency Act, 31 U.S.C. Section 1341, does not apply to any obligation set forth under this Agreed Order. However, the Cabinet and DOE agree and stipulate that it is premature at this time to raise and adjudicate the existence of such a defense.

V. FORCE MAJEURE

30. A force majeure event is defined as an event arising from causes not reasonably foreseeable and beyond the control of DOE or their consultants or engineers or contractors, which could not be overcome by DOE's due diligence and which delays or prevents performance as required by this Agreed Order, or as any event which the parties mutually agree to be a force majeure event.

31. Force majeure events do not include unanticipated or increased costs of performance, changed economic or financial circumstances, normal precipitation events, or failure of a contractor to perform or failure of a supplier to deliver unless such failure is, itself, the result of force majeure.

32. DOE shall notify the Manager of the Enforcement Branch, Division of Waste Management by telephone (502-564-6716) within seventy-two (72) hours and in writing within ten

(10) days business days after it becomes aware of events which it knows may constitute a force majeure. DOE's written notice shall provide an estimate of the anticipated length of delay, including any necessary period of time for demobilization and remobilization of contractors or equipment; a description of the cause of delay; a description of measures taken or to be taken by DOE to minimize delay, including a timetable for implementing these measures. Failure to comply with the notice provisions shall be grounds for the Cabinet to deny granting an extension of time to DOE. However, the Cabinet may in its sole discretion grant a request for extension for force majeure where DOE has failed to comply with the notice provisions.

33. If DOE successfully demonstrates to the Cabinet that the delay has been or will be caused by a force majeure event, the Cabinet will grant an extension of the time. In such cases, DOE will be granted a period of time at least equal to the length of delay.

34. All force majeure extensions shall be accomplished through a written amendment of this Agreed Order, unless the parties agree otherwise.

35. Any dispute arising over the application of the force majeure provisions of Paragraph XXX or the occurrence or impact of a force majeure event shall be subject to the consultation process described in paragraphs 30-34.

VI. MISCELLANEOUS PROVISIONS

36. All submittals required of DOE by this Agreed Order shall be to the Manager, Enforcement Branch, Division of Waste Management, Department of Environmental Protection, 14 Reilly Road, Frankfort, Kentucky 40601. The Cabinet shall submit comments/notifications required by this Agreed Order to the DOE Paducah Site Manager, P.O. Box 1410, Paducah, Kentucky 42001-1410. Unless otherwise specified, any submittal or notice provided pursuant to this Agreed Order

shall be sent by certified mail, return receipt requested, or similar method (including electronic transmission) which provides a written record of the sending and receiving date. Unless otherwise specified or requested, all routine correspondence other than a document or submittal may be sent as described above, or may be sent via regular mail or electronically transmitted to the above persons. Any party may change the individual designated to receive submittals and notifications required under this Agreed Order by providing written notice to the other party.

37. This Agreed Order addresses only those matters specifically set out or referred to above. The Cabinet enters into this Agreed Order, in part, based upon information supplied by DOE. , Except as provided in this Agreed Order, nothing contained herein shall be construed to waive or limit any remedy or cause of action by the Cabinet based on statutes or regulations under its jurisdiction and DOE reserves its rights and defenses thereto. For matters not addressed in this Agreed Order, the Cabinet reserves its right at any time to issue administrative orders or to take any other action it deems necessary, including the right to order all necessary remedial measures, assess penalties for violations or recover any response costs that may be incurred, and DOE reserves its rights and defenses thereto.

38. Except as provided herein, this Agreed Order shall not prevent the Cabinet from issuing, reissuing, renewing, modifying, revoking, suspending, denying, terminating, or reopening any permit to DOE, and DOE shall not use this Agreed Order as a defense to those permit actions.

39. The Cabinet agrees to allow the performance of the Cylinder Management Plan to satisfy the obligations of DOE, its officers, directors, officials, employees, agents, contractors, or subcontrators to the Cabinet, with respect to the violations and potential violations addressed in this Agreed Order. This Agreed Order shall stand in lieu of any administrative, legal, or other equitable

actions that the Cabinet may bring against DOE, its officers, directors, officials, or employees, agents, contractors, or subcontractors, based on the allegation (in whole or in part) that the past, present, or future inventory of DUF6 at the PGDP is a solid or hazardous waste. Nothing contained in this Agreed Order, shall be construed to prevent the Cabinet from seeking administrative, legal or equitable relief to enforce the terms of this Agreed Order or from taking other administrative, legal or equitable action including seeking penalties against DOE, for noncompliance with this Agreed Order; provided, however, that the Cabinet shall exhaust the consultation process of this Agreed Order in paragraphs 18-26 prior to taking enforcement action for non-compliance with this Agreed Order. With respect to matters not addressed by this Agreed Order, nothing contained herein shall be construed to prevent the Cabinet from exercising its lawful authority to require DOE to perform additional activities at the facility, pursuant to KRS 224 and the regulations promulgated thereto, or other applicable law in the future and DOE reserves its defenses to such actions.

40. In the event of DOE's nonacceptance of the Commissioner's decision rendered through the Consultation Process in paragraphs 18-26 of this Agreed Order, the Cabinet specifically reserves its rights to pursue administrative and/or judicial enforcement actions, including the right to order all necessary remedial measures, assess civil penalties for violations pursuant to KRS 224.99-010 and recover all incurred response costs against DOE, ,its officers, directors, officials, employees, agents, contractors and subcontractors for any violations relating to DUF6 cylinders. The Cabinet specifically reserves its rights to pursue administrative and/or judicial enforcement actions, including the right to order all necessary remedial measures, assess civil penalties for violations pursuant to KRS 224.99-010 and recover all incurred response costs as defined pursuant to KRS 224.01-400 against USEC, Inc. and its contractors Martin Marietta Utility Services and Lockheed

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Martin Utility Services for any violations relating to their activities at the PGDP for USEC owned cylinders, including the alleged violations outlined in this Agreed Order. This Agreed Order is not intended, and nothing in this Agreed Order shall be construed, to release or limit the liability of any other person other than DOE, its officers, directors, officials, or employees, agents, contractors, and subcontractors for any violations of state or federal law, including the violations outlined in this Agreed Order.

41. DOE waives its rights to any hearing on the matters addressed herein, except where expressly provided for in this Agreed Order. DOE expressly reserves its right to administrative and judicial review of final determinations of the Cabinet relating to this Agreed Order. It is the Cabinet's position that DOE must exhaust its administrative remedies before the Cabinet prior to seeking judicial review of any final determinations by the Cabinet. Failure by DOE to comply with the terms of this Agreed Order shall be grounds for the Cabinet to seek enforcement of this Agreed Order in accordance with applicable law and to pursue any other administrative or judicial action under KRS Chapter 224 that it deems appropriate and DOE reserves its rights and defenses thereto.

42. Each separate provision, condition or duty contained in this Agreed Order may be the basis for an enforcement action for a separate violation and penalty pursuant to KRS Chapter 224, upon the failure to comply with such provision, condition, or duty of this Agreed Order.

43. Except as otherwise provided herein, this Agreed Order or any of its provisions, conditions or dates contained herein may be amended, modified or deleted only upon a written request stating the reasons therefore, and by the approval and written Order of the Secretary or his designee. Any such amendment, modification, deletion, or extension shall not affect any other

provision, condition or date within the Agreed Order unless specifically and expressly so provided by the written Order.

44. Upon receipt of a written request, the Cabinet will grant DOE an extension of time reasonably needed for DOE to complete its performance under the terms of this Agreed Order when good cause exists for the requested extension. Good cause exists in the following circumstances: (a) in the event of force majeure; (b) if a delay is caused by the Cabinet's failure to meet a requirement of this Agreed Order; (c) if a delay is caused by a good faith use of the Consultation Process of paragraphs 18-26; (d) a delay caused by the good faith initiation of administrative or judicial action; (e) a delay caused, or which is likely to be caused, by the grant of an extension in regard to another schedule; or (f) any other event or series of events mutually agreed to by DOE and the Cabinet as constituting good cause. Good cause does not exist if a delay is caused by DOE's failure to coordinate its activities with USEC. Such extension request must be made in writing (or made orally, followed within ten (10) days by a written request) and must be tendered prior to the time performance is due and include the length of extension sought, the good cause for the extension, and any related deadline that would be affected if the extension was granted.

45. For extension requests, the following procedures shall apply: (a) Within twenty-one (21) days of receipt of a written request for an extension of a schedule, the Cabinet shall advise DOE in writing of the Cabinet's position on the request. If the Cabinet fails to respond to DOE's request within the twenty (21) day period, then, beginning on the 22nd day, DOE shall have a day for day extension until such time as the Cabinet either concurs with the extension request or issues a statement of nonconcurrence. If the Cabinet does not concur with the requested extension, it shall provide a written statement of nonconcurrence setting forth the basis for its position. (b) If the

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Cabinet concurs in the extension request, then the Cabinet shall extend the schedule accordingly. (c) If the Cabinet does not concur in the extension request, the schedule shall not be extended, except as otherwise provided in the consultation process set forth in Section III of this Agreed Order. (d) Within thirty (30) days of receipt of a statement of the Cabinet's nonconcurrence with the requested extension, DOE may invoke the consultation process set forth in Section III. (f) Following the grant of an extension, an application for enforcement may be sought only to compel compliance with the schedule as most recently extended.

46. The Cabinet does not, by its consent to the entry of this Agreed Order, warrant or aver in any manner that DOE's complete compliance with this Agreed Order will necessarily result in compliance with the provision of KRS Chapter 224 and the regulations promulgated pursuant thereto.

47. The provisions of this Agreed Order shall apply to and be binding upon DOE. The acts or omissions of its agents and employees shall not excuse DOE's performance of any provision of this Agreed Order. DOE shall give notice of this Agreed Order to any successors in interest prior to the transfer of ownership and/or operation of any part of the now existing facility and shall follow all statutory and regulatory requirements for such a transfer. After such a transfer, DOE shall notify the Cabinet that the required notice was given to any successor in interest prior to the transfer of ownership and/or operation. Regardless of whether or not any transfer takes place, DOE shall remain fully responsible for the performance of the Cylinder Management Plan to the extent consistent with applicable law.

48. The Cabinet and the DOE acknowledge and agree that the terms and conditions of this Agreed Order are facility-specific and are designed specifically for the unique characteristics of

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this facility and the factual circumstances of this enforcement case. This Agreed Order is therefore expressly inapplicable to any other site or facility in the Commonwealth of Kentucky.

49. DOE enters into this Agreed Order, without admission of any alleged violation or issue of fact or law, in order to expeditiously resolve disputed matters and to avoid delays and costs associated with litigation. DOE reserves all rights and defenses to administrative and judicial review of actions of the Cabinet taken pursuant to this Agreed Order.

50. This Agreed Order shall be of no force and effect unless and until it is entered by the Secretary of the Cabinet or his designee as evidenced by his signature thereon.

51. The Cabinet has determined that, with respect to violations and potential violations addressed herein, DOE, by entering into this Agreed Order, has either corrected or is in the process of correcting all alleged violations of laws, rules, or regulations pertaining to environmental protection to the satisfaction of the Commonwealth of Kentucky within the meaning of KRS 224.40-330(3).

52. In the event the Commonwealth brings any action against DOE, its officers, directors, officials, employees, agents, contractors or subcontractors, for any violations relating to DUF6 cylinders then the requirements of the Cylinder Management Plan shall terminate upon written notice to the Cabinet from DOE, and, in such case, DOE , its officers, directors, officials, employees, agents, contractors or subcontractors, shall be free of any obligations arising under this Agreed Order with respect to the DUF6 cylinders.

53. Nothing in this Order shall be construed as a waiver of DOE's jurisdiction over source, by-product or special nuclear materials under the Atomic Energy Act, 42 U.S.C. Section

2201, et seq. Nothing in the preceding sentence alters Respondents duty to comply with this Agreed Order.

54. Any submittal or written statement of dispute that, under the terms of this Agreed Order, would be due on a Saturday, Sunday, or holiday shall be due on the following business day.

55. DOE and the Cabinet shall each designate a project manager to coordinate implementation of this Agreed Order and shall notify each other in writing of the designation. Either party may change its designated project manager by notifying the other party in writing.

56. Any submittal or written statement of dispute that, under the terms of this Agreed Order, would be due on a Saturday, Sunday, or holiday shall be due on the following business day.

AGREED TO BY:

Jonathan Robinson

United States Department of Energy

9/30/03
Date

ORDER

Upon agreement of the parties and being otherwise sufficiently informed, the foregoing AGREED ORDER is hereby executed as a final Order of the Natural Resources and Environmental Protection Cabinet this the 29th day of September 2003,

NATURAL RESOURCES AND
ENVIRONMENTAL PROTECTION CABINET

HENRY C. LIST, SECRETARY

AND THIS AGREED ORDER, HAVING BEEN SIGNED BY BOTH PARTIES, IS ENTERED AS A FINAL ORDER ON THIS THE 2nd DAY OF October 2003.

NATURAL RESOURCES AND
ENVIRONMENTAL PROTECTION CABINET

HENRY C. LIST, SECRETARY

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CERTIFICATE OF SERVICE

I hereby certify that on the 6th day of October, 2003, a true and accurate copy of the foregoing AGREED ORDER was mailed, postage pre-paid, to the following:

C. Ray Miskelley, Esq.
GC-51/Forrestal Building
1000 Independence Ave., S.W.
Washington, D.C. 20585

Rachel Blumenfeld. Esq.
Office of Chief Counsel
Department of Energy
P. O. Box 2001
Oak Ridge, TN 37831

And hand-delivered to:

Hon. Randall G. McDowell
Office of Legal Services
Fifth Floor, Capital Plaza Tower
Frankfort, Kentucky 40601

And by messenger mail to:

DWM Enforcement Branch

Sue Stivers
DOCKET COORDINATOR

Dist.: HO
DOW
DAQ
ORDER
LTS
GDM

ATTACHMENT 1

CYLINDER MANAGEMENT PLAN FOR DEPLETED URANIUM HEXAFLUORIDE (DUF_6)

I. **DUF_6 Cylinder Surveillance Program.** The cylinder surveillance program consists of inspections, ultrasonic thickness testing, and radiological surveys. This DUF_6 Management Plan applies to the present and future inventory of Department of Energy (DOE)-owned DUF_6 cylinders at the Paducah Gaseous Diffusion Plant (PGDP) for which DOE accepts and exercises regulatory authority and responsibility for cylinder management under the Atomic Energy Act. This Plan does not apply to (a) DOE-owned DUF_6 cylinders for which the United States Enrichment Corporation (USEC) exercises cylinder management responsibility or (b) DUF_6 cylinders not owned by DOE. The inventory of cylinders to which this Plan applies may increase or decrease in the future, as DOE converts its inventory of DUF_6 cylinders, accepts ownership and responsibility for additional cylinders (from USEC or off-site sources), or ships DUF_6 cylinders off-site.

A. Inspections

The inspections shall be documented on a checklist that has been developed by DOE that includes an entry for the size, type, number, and location of the cylinder, and that describes the criteria for identifying DUF_6 cylinder defects. All accessible areas of all cylinders shall be visually inspected to determine their containment integrity according to the criteria contained in the checklist. If any defect conditions are noted during any inspection required by this DUF_6 Management Plan, DOE will take action it deems appropriate, consistent with recognized industrial applications and practices, to determine the nature and extent of the defect condition and the method of repair or dispositioning of the DUF_6 cylinder or other appropriate action. Key inspection criteria (which are more explicitly described on the DOE checklist) include, but are not limited to, those listed below:

1. DUF_6 Cylinder Inspection Criteria

Note: Empty (i.e., net weight zero as indicated in the Nuclear Material Control and Accountability database) cylinders are exempt from cylinder defect criteria inspections.

a. Mechanical Integrity

- Visible hole in cylinder
- Evidence of visible leakage/contamination/reaction products (on cylinder or ground)
- Bulge – protruding one-half inch or more
- Gouge or cut – greater than one-sixteenth inch deep
- Dent – greater than one-sixteenth inch deep
- Stiffening ring condition – cracked weld or separation of ring from body
- Severe pitting/corrosion - heavy rust scale on cylinder over one-eighth inch thick and over two inches in diameter
- Lug misaligned/defective

- Visible crack in Cylinder Wall

b. **Cylinder Body Contact Point**

- Body to ground contact
- Stiffening ring ground contact
- Evidence of water/cylinder contact or cylinder in standing water
- Lifting lug contact--Evidence of lifting lug contact
- Wood saddle/resting block--cracking, splitting, rotting, or sinking
- Concrete saddle—missing, cracking, chipping, corrosion or sinking
- Debris between saddle and cylinder
- Coating system failure

c. **Valve End of Cylinder**

- Evidence of contamination on valve
- Bent valve body
- Bent/separated skirt
- Scale in skirt
- Skirt in ground contact
- Weep hole in skirt plugged
- Valve end not accessible
- Packing nut missing/cracked
- Port cap missing/cracked
- Valve stem condition
- Valve protector condition
- Identification (I.D.) plate missing
- I.D. plate loose/cracked welds
- Non-standard valve
- Cracked valve body

d. **Plug End of Cylinder**

- Evidence of contamination on plug
- Bent, missing, or damaged plug
- Bent/separated skirt
- Scale in skirt
- Skirt in ground contact
- Weep hole in skirt plugged
- Plug end not accessible
- Rusted plug
- Plug sealed or welded

2. **Inspection Frequency**

a. All DUF_6 cylinders in storage shall be visually inspected at least every four years using the DUF_6 cylinder inspection criteria of I.A.1.

b. DUF_6 cylinders identified by DOE as having severe corrosion of cylinder surfaces or skirt areas shall be visually inspected annually using the DUF_6 cylinder inspection criteria of I.A.1.

c. If any of the following defect conditions are noted during any inspections required by the DUF6 Management Plan, recognized industrial applications and practices shall be used to determine the nature and extent of the defect condition and the method of repair or disposition of the DUF6 cylinder:

1) Cracks in cylinder wall
2) Presence of DUF6 reaction products other than on valves/plugs (i.e., cylinder breach)

Subject matter experts, such as individuals cognizant with ASME, ANSI, ANS, or other applicable codes, will be selected to evaluate the nature and extent of the defect condition. This team will provide recommendations for repair to the cylinder.

Note: The presence of reaction products at a location other than the valve or plug represents a potentially unsafe condition. The area must be evacuated immediately, and the Plant Shift Superintendent is contacted for emergency response.

3. **Valve Inspections.** Valves identified by DOE as having buildup of DUF_6 reaction products or discoloration around valve/plug shall be inspected monthly to:

a. Ensure the protective cover is still in place

b. Check the protective cover integrity

c. Perform radiological survey for contamination to confirm if valve is leaking

- Taking a swipe sample from the valve to determine if removable, radioactive contamination (i.e. alpha, beta, and gamma) levels exceeding 10 CFR 835, Appendix D exist.

Note: A swipe sample is taken using a cloth or wipe smeared over an area, nominally 100 cm^2 in surface area, to pick up removable surface contamination from the surface of the cylinder. The wipe is then read by the appropriate instrument for contamination level, normally reported in dpm/100 cm^2 (dpm = disintegrations per minute).

- If the valve is determined to be leaking, the valve will be surveyed for removable contamination monthly and the protective cover integrity will be verified.

- Once the valve has been demonstrated not to be leaking, it will be removed from the monthly valve inspection list. All cylinder valves are

radiologically surveyed on a three-year rotation as described in Section I.C.

4. **Breached Cylinder Inspections.** DUF_6 cylinders that DOE has determined to be breached shall be inspected daily until the situation is mitigated. Inspections shall consist of the following:

   a. Ensuring that tarps, if utilized, are in place to prevent precipitation from coming in contact with the cylinder and that a catch pan has been placed beneath the cylinder to prevent material from dropping to the ground

   b. Ensuring that contamination boundaries are in place

      Note: A contamination boundary is an area established using a yellow and magenta rope or tape as determined by radiological survey.

   c. Determining hydrogen fluoride (HF) content in air

      Note: HF content in the air is determined by hand-held HF detectors (such as Draeger Model 21/31 or equivalent) which are calibrated instruments used to read out in concentration of HF.

   d. Collecting DUF_6 reaction products for weighing for nuclear material accountability

   e. Determining removable, surface radiological contamination levels in contamination boundary.

      Note: Determining radiation levels in contamination boundary shall be accomplished by utilizing calibrated radiation instruments to determine contact readings and general area radiation dose levels in mrem/hr or equivalent.

   f. Determining radiation levels in contamination boundary

      Note: General area radiation dose levels are typically determined using approved dose rate instruments taking measurements in millirem per hour (mrem/hr), or equivalent, approximately 1 meter off the ground. Dose rate surveys of cylinders are typically performed at contact and at 30 centimeters (cm). Radiation areas are posted in the cylinder yard for any cylinder or group of cylinders that exhibit a dose rate exceeding 5 mrem/hr at 30 cm.

5. **Movement Inspections.**

   a. All DUF_6 cylinders shall be visually inspected in accordance with the criteria in I.A.1 before movement (pre-relocation inspection) in accordance with applicable safety authorization basis documents.

      Note: The pre-relocation inspection is conducted in two steps. The cylinder is inspected while on the ground. The inspection is

completed after the cylinder is lifted which allows greater access by the inspector to the bottom of the cylinder.

b. All DUF_6 cylinders shall be visually inspected in accordance with the criteria in I.A.1 after movement (post-relocation inspection).

B. Ultrasonic Thickness Testing

1. Ultrasonic thickness testing of 100 cylinders shall be conducted (on an annual basis) using UT measurement techniques.

2. Selection of cylinders to be tested is based on two criteria: 1) cylinders with identified areas of reduced wall thickness may be reinspected, and 2) remaining cylinders are selected randomly.

3. A qualified UT inspector identifies locations on the cylinder (except on cylinder heads) to take random measurements to determine the original wall thickness. These locations are taken where the least amount of corrosion exists. Measurements are taken at locations where corrosion is anticipated to be the most severe to estimate minimum wall thickness values.

C. Radiological Surveys

1. A dose rate survey of the cylinder yards shall be performed at least annually using an approved, calibrated dose rate instrument to establish radiation levels within the cylinder yards and at the established cylinder yard boundaries. Any areas in the cylinder yards exceeding 5 mrem/hr are posted and controlled as radiation areas.

Note: General area radiation dose levels are typically determined using approved dose rate instruments taking measurements in millirem per hour (mrem/hr) or equivalent approximately 1 meter off the ground. Dose rate surveys of cylinders are typically performed at contact and at 30 centimeters (cm). Radiation areas are posted in the cylinder yard for any cylinder or group of cylinders that exhibit a dose rate exceeding 5 mrem/hr at 30 cm.

2. Cylinder valves will undergo a radiological swipe survey for removable radiological contamination (i.e. alpha, beta, and gamma) at least once every three years.

Note: A swipe sample is taken using a cloth or wipe smeared over an area, nominally 100 cm^2 in surface area, to pick up removable surface contamination from the surface of the cylinder. The wipe is then read by the appropriate instrument for contamination level, normally reported in dpm/100 cm^2 (dpm = disintegrations per minute).

Note: Cylinder valves that are found to be leaking are placed on a monthly inspection schedule as described in 1.A.3.

3. In the event DOE identifies a cylinder breach, radiological surveys will be performed to delineate the size of the radiologically impacted area and to establish the buffer area per applicable regulations.

4. A radiological survey of any breached cylinder and adjacent contamination zone shall be done daily until the breach is mitigated to address the potential for changing radiological conditions.

   Note: Radiological surveys performed for breached cylinders will include, but are not limited to, dose rate surveys and swipe surveys. Dose rate surveys will be performed with approved, calibrated instruments. Swipe surveys will be performed as outlined in the above note.

5. A radiological swipe survey of valves/plugs suspected of leaking shall be done monthly to determine levels of removable surface contamination (i.e., alpha, beta, and gamma).

II. **DUF_6 Cylinder Maintenance Program** shall consist of the following:

A. Defects identified by DOE during inspections as posing a threat to public health, safety, or environment during storage of the cylinders will be mitigated as determined by DOE in accordance with applicable requirements. The following defects will be corrected following identification:

- Leakage from the valve or plug
- Breach (loss of integrity) or leakage from the body of the cylinder

B. Cylinder maintenance activities could include, but are not necessarily limited to:

- Damage control patch applied
- Permanent welded patch applied
- Contaminated valve bagged
- Contaminated plug covered
- Valve end skirt cleaned
- Plug end skirt cleaned
- Valve replaced
- Identification plate replaced
- Identification plate reattached
- Valve end weep hole unplugged
- Plug end week hole unplugged

III. **DUF_6 Cylinder Storage Yard Surveillance and Maintenance Program**

A. Routine maintenance activities for the storage yards shall consist of:

- Identifying and controlling vegetation
- Identifying and replacing or repairing radiological postings
- Identifying and replacing ineffective barricades

- Identifying and repairing non-working lighting
- Concrete yard repair
- Gravel yard repair
- General housekeeping

B. Paducah currently has no ongoing cylinder recoating program or cylinder yard construction program.

IV. Contingency Plan

A. In the event the Paducah Emergency Plan is invoked in response to an emergency involving the DUF_6 cylinder yards:

1. Evacuate the area immediately.

2. Notify supervision and the Plant Shift Superintendent (PSS) immediately.

B. Appropriate technical personnel shall be summoned to evaluate the situation after the area is determined to be safe to enter by the incident commander.

C. Notification shall be made to the Commonwealth of Kentucky as required by the contingency plan.

D. Any breaches identified by DOE shall be evaluated on a case-by-case basis and corrective actions will be taken as DOE deems appropriate in accordance with applicable requirements to ensure protection to the environment (e.g., sampling of soil and/or surface water run-off areas as appropriate).

V. Records

A. Procedures and/or checklists shall be used to implement the surveillance and maintenance requirements.

B. All DUF_6 cylinder and cylinder yard surveillance and maintenance activities shall be logged/recorded and maintained as described in Section VI.

C. Computerized records may be used in lieu of logs and checklists.

D. Computerized inventory tracking system may be used.

VI. Records/Reporting

All records required by this Plan (e.g., logs and checklists) shall be maintained at the facility as required by DOE guidance, Orders, and facility procedures. until cylinder disposition. Notifications and reports regarding DUF6 storage shall be issued to the Commonwealth of Kentucky and other regulatory entities as required by DOE Orders and DOE program procedures.

Within 30 days of receiving a written request by the Commonwealth of Kentucky for records required by this Plan, DOE and the Operating Contractor shall provide the records to the Commonwealth of Kentucky as outlined in the written request. If classification or sensitivity issues impact any of the information requested, DOE and the Operating Contractor will contact the Commonwealth of Kentucky and work out other arrangements for providing the information as allowed under applicable law, regulations, and DOE Orders. If DOE cannot respond to the request for information within 30 days, DOE shall notify the Commonwealth of Kentucky and provide a date by which it expects to be able to respond to the request.

Within five (5) working days of the discovery of a breach, a written report shall be submitted to the Commonwealth of Kentucky documenting the details of the release, environmental monitoring that has been completed, corrective actions completed to date, and any further actions to be taken. Recorded information shall include cylinder yard, section, row, position, breach size, possible causes, amount and locations of product released, and nameplate information (e.g., cylinder number, model).

VII. Training

DOE shall train all personnel directly involved in handling and inspecting cylinders, in order to comply with DOE procedures. Training shall be specific to the job performed, and shall include, if applicable, safe operation of cylinder-handling equipment, lifting and moving of cylinders, and emergency response procedures. Inspectors also shall be trained on proper inspection procedures, including identification, description, measurement, and recording of all inspection criteria. DOE shall maintain records of training at the facility.