



State of Ohio Environmental Protection Agency

STREET ADDRESS:

Lazarus Government Center
122 S. Front Street
Columbus, Ohio 43215

TELE: (614) 644-3020 FAX: (614) 644-3184

MAILING ADDRESS:

P.O. Box 1049
Columbus, OH 43216-1049

CERTIFIED MAIL

November 2, 2004

**Re: Director's Final Findings & Orders
Exemption Pursuant to R.C. 3734.02(G)
Modification of Director's Final Findings
and Orders of March 12, 2004
U.S. Department of Energy
Portsmouth Gaseous Diffusion Plant**

Mr. Gerald G. Boyd
Manager, Oak Ridge Operations Office
Department of Energy
Oak Ridge Operations
200 Administration Road
Oak Ridge, Tennessee 37831

Mr. William E. Murphie
U.S. Department of Energy
Portsmouth/Paducah Project Office
1017 Majestic Drive Suite 200
Lexington, Kentucky 40513

Mr. Michael C. Hughes
Bechtel Jacobs Company LLC
MS 7294
PO Box 4699
Oak Ridge, Tennessee 37831-7294

Dear Sirs:

Here are the Director's Final Findings and Orders (Orders) issued to the United States Department of Energy and Bechtel Jacobs LLC, Portsmouth Gaseous Diffusion Plant on November 2, 2004. These Orders are effective today.

These Orders modify the Director's Final Findings and Orders of March 12, 2004, and provide an exemption from the hazardous waste permitting and transporter requirements for transporting and storing all cylinders of DUF₆ pursuant to Ohio Revised Code § 3734.02(G) to the United States Department of Energy (US DOE) and Bechtel Jacobs

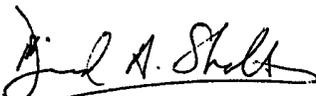
Bob Taft, Governor
Jennette Bradley, Lieutenant Governor
Christopher Jones, Director

Mr. Gerald G. Boyd
Mr. William E. Murphie
Mr. Michael C. Hughes
November 2, 2004
Page 2

Company LLC. They also require US DOE & Bechtel to manage waste at the facility pursuant to an approved DUF₈ Management Plan. Other provisions of the March 12, 2004 Orders remain unchanged.

If you have any questions, do not hesitate to call at Ed Lim at (614) 644-2944.

Sincerely,



for Pamela S. Allen, Manager
Regulatory and Information Services
Division of Hazardous Waste Management

I:\users\dsharpe\fossent\02g.us.doe.portsmouth.gaseous.wpd

Attachments

cc: Ed Lim, Manager, ERAS, DHWM
Fran Kovac, Legal
Dave Chenault, DHWM, SEDO
C. Ray Miskelley, US DOE
Jean Dunkirk, Esq., Bechtel Jacobs Company LLC
Terri Slack, Esq., DOE, Oak Ridge Operations

OHIO E.P.A.

NOV -2 2004

BEFORE THE
OHIO ENVIRONMENTAL PROTECTION AGENCY DIRECTOR'S JOURNAL

In the Matter of:

United States Department of Energy
Portsmouth Gaseous Diffusion Plant
P.O. Box 700
Piketon, Ohio 45661-0700

: **Director's Final**
: **Findings and Orders**
:
:

Bechtel Jacobs Company LLC
Portsmouth Gaseous Diffusion Plant
P.O. Box 900
Piketon, Ohio 45661-0628

Respondents

MODIFICATION OF DIRECTOR'S FINAL FINDINGS AND ORDERS OF MARCH 12, 2004

PREAMBLE

It is agreed by the Parties hereto as follows:

I. JURISDICTION

These Director's Final Findings and Orders (Orders) are issued to the United States Department of Energy (Respondent DOE) and Bechtel Jacobs Company LLC (Respondent Bechtel Jacobs) (together, Respondents) pursuant to the authority vested in the Director of the Ohio Environmental Protection Agency (Ohio EPA) under Ohio Revised Code (ORC) §§ 3734.02(G), 3734.13, 3734.14 and 3745.01.

II. PARTIES BOUND

These Orders shall apply to and be binding upon Respondents and successors in interest liable under Ohio law. No change in ownership or operation of the Facility, with respect to Respondent DOE shall in any way alter Respondent DOE's obligations under these Orders. The obligation of Respondent Bechtel Jacobs under these Orders shall terminate when Respondent Bechtel Jacobs is no longer listed as a co-operator of the Facility on the permit issued on March 15, 2001; provided, however, that nothing in this

I certify this to be a true and accurate copy of the
official document as filed in the records of the Ohio
Environmental Protection Agency.

By 

Date 2 NOV. 04

Section absolves Respondent Bechtel Jacobs from any liability for any violation which occurs prior to the termination of its obligation under these Orders.

III. DEFINITIONS

Unless otherwise stated, all terms used in these Orders shall have the same meaning as defined in ORC Chapter 3734. and the rules promulgated thereunder.

The term "Party" means Respondent DOE, Respondent Bechtel Jacobs or Ohio EPA.

The term "Parties" means Respondent DOE, Respondent Bechtel Jacobs and Ohio EPA.

IV. FINDINGS

All of the findings necessary for the issuance of these Orders pursuant to ORC §§ 3734.13 and 3745.01 have been made and are outlined below. Nothing in the findings shall be considered to be an admission by either Respondent of any matter of law or fact. The Director of Ohio EPA has determined the following findings:

1. On March 12, 2004, the Director issued Final Findings and Orders ("March, 2004 Orders") to, and with the consent of, Respondents, regarding the transportation and management of depleted uranium hexafluoride (DUF_6) at the Portsmouth Gaseous Diffusion Plant, a uranium enrichment facility, located in Pike County, Ohio, (Facility). All findings made in the March, 2004 Orders are hereby restated and incorporated by reference herein.
2. In entering into these modification Orders, the mutual objective of Ohio EPA and Respondents is to revise the March, 2004 Orders to allow and provide for the transportation and management of DUF_6 , pursuant to ORC Chapter 3734, which is stored in cylinders which are non-compliant with United States Department of Transportation (U.S. DOT) requirements, through an exemption from certain requirements as described herein.
3. Following issuance of the March, 2004 Orders, Respondents began shipment of U.S. DOT compliant cylinders of DUF_6 to the Facility. Shipment of all remaining cylinders is expected to be completed by December 31, 2006, including any remaining U.S. DOT compliant cylinders planned for shipment after October 1, 2004, as well as an estimated 3,000 cylinders which in their current condition are not believed to be in compliance with U.S. DOT regulations ("non-compliant cylinders").

4. Respondents have submitted proposed revisions to the DUF₆ Management Plan and the DUF₆ Transportation Plan which address the issues raised by the transportation and management of non-compliant cylinders of DUF₆. Ohio EPA has reviewed these proposed revisions.
5. Methods, such as the use of overpacks or the obtaining of exemptions from U.S. DOT, where appropriate, will be used to address issues raised by the transportation of non-compliant cylinders.
6. On September 21, 2004, Respondent DOE published the final revised "Transportation Plan for the Transport of UF₆ Cylinders, Including ANSI N14.1-Noncompliant Cylinders, from the East Tennessee Technology Park to the Portsmouth Gaseous Diffusion Plant."
7. On August 20, 2004, following comments and revisions made by Ohio EPA, Respondent DOE published the final revised DUF₆ Management Plan which is contained in Attachment A to these Orders, and which addresses management of both compliant and non-compliant cylinders at the Facility.

V. ORDERS

Respondents shall achieve compliance with ORC Chapter 3734. and the regulations promulgated thereunder according to the following compliance schedule:

1. Except as described below, all provisions contained in the March, 2004 Orders remain valid and in effect and are hereby restated and incorporated by reference herein. Only the following modifications are made:
 - A. Order No. 3 shall remain in effect and shall be read to reference the revised DUF₆ Management Plan contained in Attachment A to these Orders, and any future amendments thereto approved by Ohio EPA, in accordance with the terms and conditions contained in the March, 2004 Orders. The DUF₆ Management Plan is incorporated by reference herein.
 - B. Order No. 4 shall remain in effect and shall be read to reference the DUF₆ Management Plan contained in Attachment A to these Orders. Approval by Ohio EPA of the DUF₆ Management Plan pursuant to these Orders shall also constitute the required approval for any amendment to the DUF₆ Management Plan required pursuant to the February 24, 1998, March 31, 1998 Orders, and March, 2004 Orders.

C. Order No. 7 shall be modified as follows:

Exemptions, pursuant to ORC § 3734.02(G), from the requirements in ORC § 3734.02(E) to obtain a valid hazardous waste installation and operation permit for the storage of DUF₆, or modify the existing permit to include the storage of DUF₆ that was generated and stored at the Facility, or that was generated or stored at ORO and transported and stored at the Facility, and the requirements in OAC rule 3745-50-45, and OAC Chapters 3745-54/65 and 3745-55/66 are hereby granted to Respondents. The exemptions provided by Order No. 7 extend only to DUF₆ that was generated and is, as of the effective date of these Orders, stored at the Facility, and DUF₆ transported from off-site in a manner compliant with U.S. DOT transportation regulations, or pursuant to an applicable DOT exemption. The exemptions provided by Order No. 7 shall not be construed to apply to any release to the environment, or any treatment or disposal of DUF₆, except for releases that are remediated pursuant to the approved DUF₆ Management Plan, and shall not extend to any waste other than DUF₆. The exemptions provided by Order No. 7 shall not be construed to apply to empty cylinders which formerly contained DUF₆ and which are not usable for the storage or shipment of DUF₆ conversion products.

D. Order No. 9 shall be modified as follows:

An exemption from the requirements of OAC rules 3745-53-11, 3745-53-20, 3745-53-21, and 3745-53-22, which would otherwise apply to the transportation by Respondents of DUF₆ into Ohio, is hereby granted to Respondents, provided that they implement and comply with the requirements of the approved DUF₆ Management Plan. The exemption provided by Order No. 9 extends only to DUF₆ generated at ORO and shipped to the Facility in accordance with these Orders and in a manner compliant with U.S. DOT transportation regulations, or pursuant to an applicable DOT exemption. The exemptions provided by Order No. 9 shall not be construed to apply to empty cylinders which formerly contained DUF₆ and which are not usable for the storage or shipment of DUF₆.

2. The issuance of these Orders by the Director does not release Respondents from any liability they may have incurred for any violations which may have occurred at the Facility prior to the effective date of these Orders, nor are Respondents released from any liability they may incur in the event of expiration of the exemptions contained in Order Nos. 7 and 9 of the March 2004 Orders, as

modified herein. The issuance of these Orders does not release Respondents from any obligation they have to comply with the State of Ohio's environmental laws, except as otherwise specifically provided herein. These Orders do not exempt Respondents from any other local, state, or federal laws or regulations which are otherwise applicable.

VI. PROJECT MANAGERS

The provisions of Section VI. Project Managers of the March, 2004 Orders remain valid and in effect and shall be applicable to these Orders.

VII. DISPUTE RESOLUTION

The provisions of Section VII. Dispute Resolution of the March, 2004 Orders remain valid and in effect and shall be applicable to any dispute arising under these Orders.

VIII. OTHER CLAIMS

Nothing in these Orders shall constitute or be construed as a release from any claim, cause of action or demand in law or equity against any person, firm, partnership or corporation, not a Party to these Orders, for any liability arising from, or related to, the operation of Respondents' Facility.

IX. OTHER APPLICABLE LAWS

All actions required to be taken pursuant to these Orders shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations. These Orders do not waive or compromise the applicability and enforcement of any other statutes or regulations applicable to Respondents.

X. MODIFICATIONS

These Orders may be modified by agreement of the Parties hereto. Modifications shall be in writing and shall be effective on the date entered in the journal of the Director of Ohio EPA.

XI. NOTICE

All documents required to be submitted by Respondents pursuant to these Orders shall be addressed to:

United States Department of Energy
Bechtel Jacobs Company LLC
Portsmouth Gaseous Diffusion Plant
Page 6 of 9

Ohio Environmental Protection Agency
Southeast District Office
Division of Hazardous Waste Management
2195 Front Street
Logan, Ohio 43138
Attn: DHWM Manager

and Ohio EPA Central Office at the following address:

For mailings, use the post office box number:

Ohio Environmental Protection Agency
Lazarus Government Center
Division of Hazardous Waste Management
122 South Front Street, P.O. Box 1049
Columbus, Ohio 43216-1049
Attn: Manager, Engineering and Risk Assessment Section

For deliveries to the building:

Christopher Jones, Director
Ohio Environmental Protection Agency
Lazarus Government Center
Division of Hazardous Waste Management
122 South Front Street
Columbus, Ohio 43215
Attn: Manager, Engineering and Risk Assessment Section

or to such persons and addresses as may hereafter be otherwise specified in writing by Ohio EPA.

XII. RESERVATION OF RIGHTS

Nothing contained in these Orders, including Section VII, shall be construed to prevent the Director from seeking legal or equitable relief to enforce the terms of these Orders or from taking other administrative, legal or equitable action as deemed appropriate and necessary, including seeking penalties against the Respondents for *noncompliance with these Orders*. Nothing contained herein shall be construed to prevent Ohio EPA from exercising its lawful authority to require the Respondents to perform additional activities at the Facility, including closure or corrective action pursuant to ORC Chapter 3734, or any other applicable law in the future. Nothing

herein shall restrict the Respondents from raising any defenses with respect to such actions.

Nothing in these Orders shall be construed to limit the authority of Ohio EPA to seek penalties for violations of these Orders. Nothing in these Orders shall be construed to limit the authority of Ohio EPA to seek relief for violations not addressed in these Orders. Nothing herein shall restrict the right of the Respondents to raise any administrative, legal or equitable claim or defense with respect to such further actions which Ohio EPA may seek to require of the Respondents. Nothing in these Orders shall be construed as a waiver of Respondent DOE's jurisdiction over source, by-product, or special nuclear materials under the Atomic Energy Act of 1954, as amended, 42 U.S.C. § 2201, *et seq.* Nothing in the preceding sentence alters the Respondents' duty to comply with these Orders.

The Director reserves the right to revoke these Orders, or any portion hereof, upon a determination by Ohio EPA that such revocation is necessary to protect human health or safety or the environment. The Respondents reserve the right to seek administrative or judicial review of any such revocation.

It is the position of Ohio EPA that the federal Anti-Deficiency Act, 31 U.S.C. § 1341, as amended, does not apply to any obligations set forth in these Orders, and obligations hereunder are unaffected by the Respondent DOE's failure to obtain adequate funds or appropriations from Congress. It is Respondent DOE's position that the obligations set forth in these Orders are subject to the provisions of the Anti-Deficiency Act and are subject to the availability of funding. The Parties agree that it is premature to raise and resolve the validity of such positions at this time.

XIII. WAIVER

In order to resolve disputed claims, without admission of fact, violation or liability, Respondents consent to the issuance of these Orders and agree to comply with these Orders. Respondents agree that these Orders are lawful and reasonable and that the times provided for compliance herein are reasonable. Respondents, by acceptance of these Orders, agree to comply with all conditions of these Orders and acknowledge that the Respondents' failure to do so may result in further legal action by Ohio EPA.

Respondents hereby waive the right to appeal the issuance, terms and conditions, and service of these Orders, and Respondents hereby waive any and all rights Respondents may have to seek administrative or judicial review of these Orders either in law or equity.

Notwithstanding the preceding, Ohio EPA and Respondents agree that if these Orders are appealed by any other party to the Environmental Review Appeals

Commission, or any court, Respondents retain the right to intervene and participate in such appeal. In such an event, Respondents shall continue to comply with these Orders notwithstanding such appeal and intervention unless these Orders are stayed, vacated or modified.

XIV. EFFECTIVE DATE

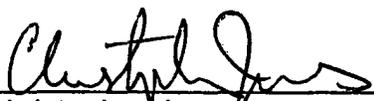
The effective date of these Orders is the date these Orders are entered into the Ohio EPA Director's journal.

XV. SIGNATORY AUTHORITY

Each undersigned representative of a Party to these Orders certifies that he or she is fully authorized to enter into these Orders and to legally bind such Party to these Orders.

IT IS SO ORDERED AND AGREED:

Ohio Environmental Protection Agency



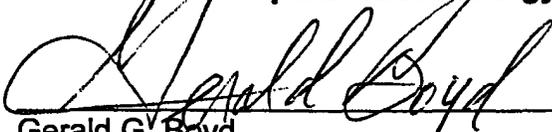
Christopher Jones
Director

November 2, 2004

Date

IT IS SO AGREED:

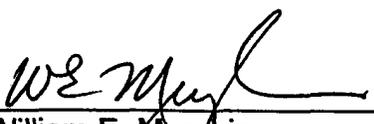
United States Department of Energy



Gerald G. Boyd
Manager, Oak Ridge Operations Office

10/4/04

Date



William E. Murphie
Manager, Portsmouth/Paducah Project Office

10/5/04

Date

Bechtel Jacobs Company LLC



Michael C. Hughes

President and General Manager, Bechtel Jacobs Company, LLC

October 4, 2004

Date

Attachment A to Director's Final Findings and Orders

August 20, 2004

DEPLETED URANIUM HEXAFLUORIDE (DUF₆) MANAGEMENT PLAN

This DUF₆ Management Plan addresses the management of Portsmouth DOE-managed DUF₆ cylinders and both the ANSI-compliant and non-compliant DUF₆ cylinders shipped from ORO.

I. **DUF₆ Cylinder Surveillance Program.** The cylinder surveillance program consists of inspections, ultrasonic thickness testing and radiological surveys.

A. **Inspections.** The inspections shall be documented on a checklist which shall include the size, type, cylinder identification number, location, and physical description of all DUF₆ cylinder defect criteria. All accessible areas of all cylinders shall be visually inspected, using the following criteria:

1. **DUF₆ Cylinder Defect Criteria**

a. **General Cylinder Criteria**

Hole in cylinder

Visible leakage/contamination on cylinder or ground

Bulge - protruding one-half inch or more

Gouge - greater than one-sixteenth inch of metal moved

Dent - greater than one-sixteenth inch deep

Bent stiffening ring - cracked weld or separation of ring from body

Severe corrosion - local or extensive pitting and/or scaling that is evident on one third or more of the bottom shell and scaling

consisting of layered flakes over one-eighth inch thick and over two inches in diameter

b. **Cylinder Body Contact Point**

Dent caused by lifting lug contact - greater than one-sixteenth inch deep

Concrete saddle - cracking, chipping, corrosion or sinking

Wood saddle/resting block - cracking, splitting, rotting, or sinking

c. **Valve End of Cylinder**

Evidence of contamination on valve

Bent valve body

Bent/separated skirt

Scale in skirt
Weep hole in skirt plugged
Packing nut missing/cracked
Port cap missing/cracked
Bent or sheared valve stems
Cracked bent valve protector
Identification (I.D.) plate missing
I.D. plate loose/cracked welds
New nameplate attached to skirt/valve/plug (as applicable)

d. Plug End of Cylinder

Evidence of contamination on plug
Bent or damaged plug
Bent/separated skirt
Scale in skirt
Weep hole in skirt plugged

2. Inspection Frequency (See Table 1)

a. All DUF₆ cylinders in storage shall be visually inspected at least every four (4) years using the DUF₆ cylinder defect criteria in I.A.1.

b. DUF₆ cylinders determined to have at least one of the following conditions shall be visually inspected annually using the DUF₆ cylinder defect criteria in I.A.1:

Severe corrosion of cylinder surfaces
Severe corrosion of skirt areas
Heavy rust scale on cylinder body
Note: heavy means over one eighth inch thick and over 2 inches in diameter

Rust/scale in skirt
Weep hole in skirt is plugged in the valve end of the cylinder
Weep hole is plugged in the plug end of the cylinder

c. Valves with evidence of leakage (i.e., buildup of DUF₆ reaction products, discoloration around valve/plug) shall be inspected monthly for three months in order to verify if this is a leaking valve. Appropriate actions to mitigate a leak will be taken. This inspection consists of the following:

- 1) Ensuring the plastic bag is still in place;
- 2) Checking the bag for clarity or new buildup of DUF₆ reaction products on valve; and
- 3) Taking a radiological swipe sample in accordance with 10 CFR 835 from the valve to determine if uranium contamination levels exist greater than 1000 dpm/100 cm² as

specified in Appendix D of 10 CFR 835 (10 CFR 835.1101 and 1102 to Appendix D limits).

Note: For swipe samples exceeding 1000dpm/100cm², the area will be boundaried and posted and decontamination activities will be completed in accordance with written procedures. The valve or plug will be evaluated for repair or replacement.

- d. Breached DUF₆ cylinders shall be inspected daily until the situation is mitigated. Inspections shall consist of the following:

Note: A breached cylinder means a cylinder whose wall has been compromised so that it no longer performs the design function of containment.

- 1) Ensuring that tarps are in place to prevent precipitation from coming in contact with the cylinder and a catch pan placed beneath the cylinder to prevent material from dropping to the pavement.

- 2) Ensuring that contamination boundaries are in place.

Note: A contamination boundary is an area established using a yellow and magenta rope or tape at the perimeter of an area determined by survey to be where no contamination has spread.

- 3) Determining Hydrogen Fluoride (HF) content in air.

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

- 4) Collecting DUF₆ reaction products for weighing (accountability);

- 5) Determining loose surface radiological contamination levels per 10 CFR 835 of pad areas adjacent to the breach. Levels of loose uranium contamination shall not exceed 1000 dpm/100 cm² as specified in 10 CFR 835 Appendix D (10 CFR 835.1101 and 1102 to Appendix D limits), or the area shall be controlled; and

- 6) Determining radiation levels at the breach.

Note: Determining radiation levels at the breach shall be accomplished by utilizing calibrated radiation instruments to

determine contact readings and general area radiation dose levels in mrem/hr.

- 7) Upon identification of a cylinder breach, interim steps will be taken to minimize impacts to worker/public safety and the environment, pending evaluation and determination of appropriate action to affect repair. These appropriate actions may include epoxy, weld, transfer, etc.

- e. All DUF₆ cylinders shall be visually inspected before movement. The pre-move inspection shall consist of the following:

Note: For ETTP cylinders arriving at PORTS – The cylinder will be relocated to the appropriate storage location in the PORTS cylinder storage yards or indoor storage locations, where it will receive a post-move inspection within five calendar days of relocation. If the cylinder is not moved to the long term storage location within 20 calendar days, another pre-move inspection will be conducted prior to movement and a post-move inspection will be conducted within five calendar days following relocation.

- 1) Lifting lug weld (if lug is to be used for lifting the cylinder) - examining for cracked weld, bent lug, elongated lug lifting hole
 - 2) The cylinder in general - examining for deep cracks, gouges, and cuts in shell (See Section I.A.1.)
 - 3) Areas immediately next to saddle contact points - examining for evidence of DUF₆ reaction products or severe corrosion
 - 4) Areas of previous lifting lug-to-cylinder contact points - examining for evidence of DUF₆ reaction products
- f. All DUF₆ cylinders shall be visually inspected once they are lifted. This visual inspection of the contact points and all previously inaccessible areas shall be conducted to determine and assess whether there is evidence of DUF₆ reaction products, cracks, gouges, cuts, and/or severe corrosion.
- g. All DUF₆ cylinders shall be visually inspected using the DUF₆ cylinder defect criteria (See Section I.A.1) immediately after movement of the cylinder.
- h. If any of the following defect conditions are noted during any inspections required by this DUF₆ Management Plan, recognized national industrial standards and practices shall be used to determine the nature and extent of the defect condition and the method of repair or dispositioning of the DUF₆ cylinder. The National Boiler Inspection Code (NBIC) provides guidelines and interpretations including

methodology, acceptable degradation, repairable defects and acceptable repair techniques to the inspectors to assist in evaluating the "code" status or code-ability of the vessel. These guidelines are referenced in ANSI N14.1. The NBIC commissioned inspectors (generally through state administered programs) to determine the ASME "Code" status of pressure vessels. The commissioned inspectors are responsible for evaluating the vessel's condition to ensure its fitness for service. The NBIC-commissioned inspectors meet the "qualified code" inspector definition. ASME Code inspectors shall be used to evaluate the nature and extent of the defect condition if not previously evaluated (See Section IX for training qualifications). Depending on the condition of the DUF₆ cylinder, the code inspectors and appropriate personnel (See Section VI.B) shall recommend repairing cracks in welds, patching thinned cylinder wall areas or cold transfer of the contents to a new cylinder prior to movement.

- 1) Cracks in welds
- 2) Dents and gouges (See Section I.A)
- 3) Presence of DUF₆ reaction products on the cylinder shell.

Caution: The presence of reaction products represents a potentially unsafe condition and the area must be evacuated immediately and the emergency procedures for a breached cylinder must be followed. (See Section VI)

B. Ultrasonic Thickness Testing

1. The following locations on the 10- and 14- ton DUF₆ storage cylinders shall be evaluated with ultrasonic thickness (UT) probe measurements:
 - a. Two measurements at the 12 o'clock position (top of cylinder)
 - b. Two measurements at the 3 o'clock position (side of cylinder)
 - c. One measurement near the center of the head, valve end
 - d. One measurement directly beneath the valve,
 - e. One measurement near the center of the head, plug end
 - f. One measurement directly beneath the plug
 - g. Five measurements at the area exhibiting the most severe corrosion (typically expected to be at the 6 o'clock position)
 - h. Five measurements as close as possible to skirt/head interface.
2. 150 cylinders shall be inspected (on an annual basis) using UT measurement techniques. Selection of cylinders for measurement will be conducted per Attachment A to this Plan, as agreed upon by Ohio EPA and DOE.

These data will be analyzed and the number of cylinders whose wall thickness is measured by UT shall be adjusted (e.g. increased, decreased, or the selections of candidate cylinders for measurement otherwise changed) based on the results of the analysis.

C. Radiological Surveys. Dose rate surveys of all DUF₆ cylinder storage yards shall be conducted. In addition, all DUF₆ cylinders shall be radiologically surveyed. The scope and frequency of the surveys are noted below:

1. A dose rate survey of the cylinder yards shall be performed annually using a dose-rate instrument per 10 CFR 835 (10 CFR 835.101 (c), and 402) to ensure the established dose rate boundary has not changed from the previous year. Boundaries will be established in accordance with 10 CFR 835 (10 CFR 835.603). The boundaries shall delineate the areas that exceed 5 mR/hr or more conservatively as directed by management.
2. A radiological swipe survey of the valve and plug areas for cylinders shall be done annually to determine levels of removable surface uranium contamination. The levels for loose uranium contamination (1000 dpm/100 cm²) found in 10 CFR 835 Appendix D (10 CFR 835.1101 and 1102 to Appendix D limits) shall be employed in making the determination of whether additional actions or controls are necessary. Decontamination, reposting, boundary control, or whatever other actions are necessary will be taken to ensure compliance with the requirements specified by 10 CFR 835 (10 CFR 835. Subpart F and G) for the applicable area classification.

II. The DUF₆ Cylinder Maintenance Program shall consist of the following:

- A.** Renewing the protective coating of cylinders as necessary to avoid excessive corrosion; skirt cleaning; and replacing valve port cap and packing nuts on an as-needed basis. Any discrepancies discovered during this activity requiring maintenance action and during routine inspection of the yards shall be entered into the Cylinder Information Database (CID) within ten (10) working days.

Note: The CID database is a computerized tracking system for the documentation of cylinder activities at PORTS and other DOE sites. Data is submitted by the respective facility managers resulting from the work performed at their cylinder yards.

- B.** On-going inventory control shall consist of identification tag replacement and accountability of nuclear materials by cylinder and location. Inventory of nuclear materials is managed through an established computerized database. Any discrepancies discovered during the course of this activity and during routine inspection shall be entered in the CID system within ten (10) working days.
- C.** Cylinder maintenance shall be done in the cylinder storage yards. If breached cylinder contents must be transferred, it shall be done in the cylinder storage yards, the X-344 transfer facility, or a process building, depending on the type of transfer required and condition of the cylinder. Using the information collected in Section 1.A.1 above, DUF₆ cylinder defect criteria, cylinders shall be analyzed to determine

method of repair or dispositioning. All transfers shall be done using established procedures for the appropriate method of transfer (autoclave or cold transfer).

III. DUF₆ Cylinder Storage Yard Surveillance and Maintenance Program

- A.** All DUF₆ storage yards shall be monitored for DUF₆ releases using (1) annual radiological surveys of all cylinders and yards, (2) monthly radiological surveys on valves/plugs suspected to be leaking, (3) existing environmental monitoring programs (i.e., soil sampling, surface water monitoring, and sediment sampling), and (4) annual and quadrennial visual inspections. Monthly surface water run-off samples for total uranium analysis shall be collected at the established collection basin for X-745E Yard and a depression on the south side of the X-745C Yard and at appropriate locations in X-745G Yard and for any new or additional storage yards. The analytical methods are in-house procedures for alpha, beta and total uranium. The alpha/beta procedure is the same as SW-846, method 9310 except for the calibration standards. The total uranium is an inductively Coupled Plasma/Mass Spectrometry (ICP/MS) procedure capable of detecting down to 1 ppb Uranium.
- B.** In the event that a breached cylinder is discovered, soil located in the surface water runoff areas of the pad shall be sampled for radiological constituents. USEPA approved analytical methods for radiological analysis will be used. Soil sample results and any corrective actions shall be documented. Rate and extent of any contamination found shall be defined and remediated in a manner that controls, minimizes, or eliminates contamination to the extent necessary to protect human health and the environment. These procedures shall include the following:
1. Soil showing visible contamination shall be excavated immediately.
 2. A statistically valid sampling plan that considers the soil type, properties of the spilled material, area affected, volume of the spill and other factor shall be developed.
 3. This sampling plan shall guide the confirmatory sampling and any additional excavation and remediation.
 4. Background for soils shall be determined by samples taken adjacent to the cylinder yard in locations approved by Ohio EPA and outside the spill area.
 5. Excavation of any soil contamination is required as expeditiously as possible and shall continue until the sampling analyses show results less than the mean plus two sigma of the background.
 6. Any soil excavated as required by this plan shall be containerized and evaluated according to OAC rule 3745-52-11.
 7. Remediation of any ground or surface water contamination resulting from the spill shall be in accordance with the provisions of Section VII of the Ohio Consent Decree and applicable portions of the U.S. EPA Administrative Consent Order.

8. If a DUF₆ cylinder breaches during the pendency of the Order, the provisions of this Section shall apply until all work required by this Section is completed.

C. Routine maintenance activities for the storage yards shall consist of: (1) identifying and controlling vegetation, (2) identifying and repairing water retention areas, (3) identifying and replacing or repairing signage (i.e., radiological postings), (4) identifying and replacing damaged barricades, and (5) identifying and repairing defective lighting. Any discrepancies found shall be entered into the work order system within ten (10) working days.

IV. Design and Construction of New Storage Yards

A. The new storage yards, at a minimum, shall be constructed in accordance with "Facility Safety," DOE Order 420.1A. Concrete saddles shall be utilized for cylinder storage. Prior to utilizing any new yard for storage of DUF₆, U.S.DOE shall provide notice to Ohio EPA, and allow the inspection of the yard by Ohio EPA.

B. DUF₆ cylinders shall be stored by cylinder type (i.e., fourteen and ten ton). Fourteen and ten ton cylinders shall be stored with aisle spacing of about four feet. Cylinder center-to-center shall measure about sixty inches. Full DUF₆ cylinders exceeding 12-inches in diameter shall be stacked no more than two high. See attached drawing.

V. Inside Storage of Small Diameter DUF₆ Cylinders.

The Small Diameter DUF₆ Cylinders surveillance program consists of inspections and radiological surveys.

A. **Storage.** The storage of small-diameter (less than 30-inch) cylinders containing DUF₆ will be stored indoors within the limited area. Cylinder location is available through the Cylinder Information Database (CID).

1. Some of the small diameter cylinders may be placed in various containers such as drums or boxes for the convenience of storage.

2. There are no stacking limits on small diameter DUF₆ cylinders. The cylinders will be stored in a manner that will make them easily accessible for inspection.

3. The storage areas shall be maintained free of standing water.

B. **Surveillance.** The surveillance of small-diameter (less than 30-inch) cylinders containing DUF₆ will be inspected in the following manner.

1. The small-diameter cylinders shall be inspected on the same inspection frequency criteria applicable to the large diameter cylinders (large diameter means 30-inch and 48-inch diameter). See Table 1.

2. The small-diameter cylinders defect codes are applicable and are the same as for the large-diameter cylinders.

3. The small-diameter cylinder inspections shall be documented on the appropriate checklist.
 4. The small-diameter cylinder inspection data is maintained in the Cylinder Information Database (CID).
- C. Radiological Surveys.** The radiological survey of the small-cylinders shall be performed in the following manner.
1. The radiological surveys of these small-diameter cylinders shall be conducted on an annual basis. The surveys will be made on the outermost packaging for overpacked cylinders.
 2. The surveys and limits are based on 10 CFR 835 (10 CFR 835.401, 1101 and 1102 to 835.202 limits and Appendix D limits). The applicable radiological uranium contamination limits are 1000 dpm/100 cm² as specified in Appendix D of 10 CFR 835 (10 CFR 835.1101 and 1102 to Appendix D limits).
 3. The area where the small-diameter cylinders are stored will be surveyed according to 10 CFR 835 (10 CFR 835.401 to 835.202 limits) for dose rates and posted accordingly. The dose rate to post the area is 5 mR/hr or more conservatively as management determines.

VI. Contingency Plan

- A. In the event of an emergency involving DUF₆ storage areas, the Portsmouth Emergency Plan response procedures shall apply and the following actions taken:
 1. Evacuate the area immediately.
 2. Notify supervision and the Plant Shift Superintendent (PSS) immediately.
- B. Appropriate personnel such as code inspectors, health physicists and metallurgists shall be summoned to evaluate the breach after the area is determined by the incident commander to be safe to enter.
- C. Notification shall be made to the Ohio EPA within 24 hours verbally, and in writing within 5 working days (see Section VIII.A, Reporting).
- D. Breaches shall be evaluated on a case-by-case basis and corrective actions taken as appropriate.

VII. Records

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

- B. All DUF₆ cylinder and cylinder storage area surveillance and maintenance activities shall be logged/recorded.
- C. Records for activities (i.e., logs and checklists) required by this exhibit shall be maintained at the facility until cylinder disposition.
- D. Computerized records may be used in lieu of logs and checklists.

VIII. Reporting

- A. All records, (i.e., logs and checklists) required by the DUF₆ management plan and requested by Ohio EPA shall be provided. Within 24 hours of discovery, releases from DUF₆ cylinders shall be reported to Ohio EPA verbally detailing all pertinent information known at the time. Within 5 working days of the incident, a written report shall be submitted to the Ohio EPA 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 location of product released, and nameplate information (e.g. cylinder number, model).
- B. Within 30 days of receiving a written request by Ohio EPA, U.S. DOE and the Operating Contractor shall provide to Ohio EPA a report that documents the surveillance and program improvements activities for the past quarter that were conducted in accordance with the DUF₆ management plan as described in Sections I, V, and X of this plan. Nothing in this paragraph shall limit any statutory or regulatory authority that Ohio EPA may otherwise have to request information from inspection of DUF₆ at PORTS.

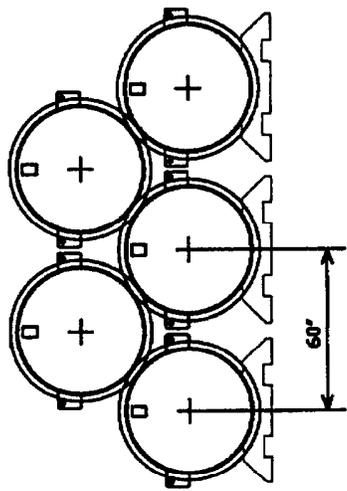
IX. Training

DOE shall train all personnel directly involved in handling and inspection of cylinders, in order to comply with DOE procedures and the DUF₆ Management Plan. Classroom instruction and on-the-job training shall be used. Refresher training shall occur for all involved personnel on an annual basis. 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 shall also 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.

A code inspector shall be trained in the use of precision measuring instruments and various industrial practices/methods and interpretation of data. Code inspectors shall be tested by a certified American Society for Non Destructive Testing (ASNT) examiner. Records of this training shall be retained at the site.

X. Other

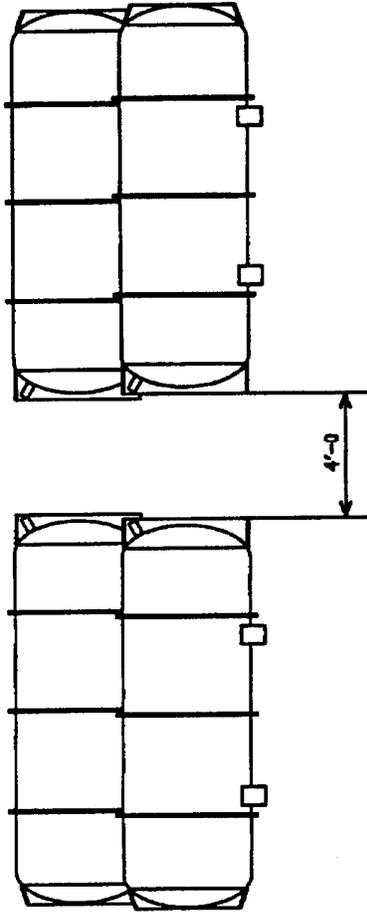
At the request of U.S. DOE, the Operating Contractor, or Ohio EPA, those parties shall meet in January of each year to discuss improvements to U.S. DOE's DUF₆ management program.



END VIEW

NOTES:

1. 14 AND 10 TON CYLINDERS WILL BE STACKED NO MORE THAN TWO HIGH, AND WILL BE SPACED ON CONCRETE SADDLES TO PROVIDE APPROXIMATELY 60 INCHES FROM THE CENTER OF ONE CYLINDER HEAD TO THE CENTER OF THE ADJACENT CYLINDER HEAD.
2. WHEN STACKED IN ROWS, THERE WILL BE APPROXIMATELY 4 FEET OF AISLE SPACE BETWEEN THE ENDS OF CYLINDERS (SKIRTED CYLINDERS SHOWING NON SKIRTED CYLINDERS WILL ALSO HAVE APPROXIMATELY 4 FEET OF AISLE SPACE AS MEASURED BETWEEN THE ELLIPTICAL HEADS).



SIDE VIEW

PORTSMOUTH RESTACKING
CONFIGURATION

Table 1. PORTS DUF₆ Cylinder Inspection Frequency

Criteria	Daily	Monthly	Annually	Quad
Radiological Survey			X	
Ultrasonic Testing / Inspection (150 cylinders)			X	
Nominal DUF ₆ Cylinders				X
DUF ₆ Cylinders with the following defects -severe pitting corrosion -heavy rust/scale on cylinder -rust/scale in skirt of valve end -rust/scale in scale of plug end			X	
DUF ₆ Cylinders with evidence of valve leakage		X		
Breached Cylinder * Daily until mitigated and annually thereafter.	*X		*X	

Attachment A to the DUF₆ Management Plan

Portsmouth Depleted Uranium Hexafluoride (DUF₆) Cylinder Ultrasonic Testing Program

The Depleted Uranium Hexafluoride (DUF₆) Management Plan, Attachment A to the Ohio EPA Director's Final Findings and Orders, requires in Section I.B.2 annual inspection of 150 DUF₆ cylinders using ultrasonic measurement techniques, as defined in Section I.B.1. Ohio EPA and the Department of Energy agree that the sample populations and sampling program for these required inspections will be as follows:

Portsmouth cylinders receiving ongoing annual tests – The following DUF₆ cylinders both generated and stored at Portsmouth having received repeated annual tests in 1999-2003 (41, see Table) will continue to be tested on a biennial basis (i.e., approximately 20 per year), such that the total population will be re-tested at least every two years:

000186	002252	006559	007650	008444	008851	100321	114310
000277	005444	006811	007691	008539	008895	111339	114541
000390	005749	006975	007725	008542	009064	111400	114555
000673	006350	007001	008027	008770	018414	111894	115218
001255	006503	007415	008434	008828	018715	113079	115219
							120555

ETTP ANSI non-compliant cylinders – The population of ETTP ANSI non-compliant DUF₆ cylinders, estimated to be approximately 3000 model "T" and older model "O" and "OM" cylinders, will receive 50 tests on randomly selected full DUF₆ cylinders annually. Of those 50 randomly tested at Portsmouth initially, 25 will be selected to receive repeat testing in succeeding years, with 25 of the balance of the population to continue to receive random sampling annually. In addition to these tests, the following cylinders will be re-tested annually: (a) the six ETTP breached cylinders, (b) the seven ETTP cylinders previously receiving repeat tests, and (c) any cylinders determined to have wall thickness less than 0.0625 thousandths (62.5 mil) along the bottom third of the cylinder.

Breached	006780	007953	101244	114798	111951	116797	
Repeats	006943	006948	009131	012027	018762	100861	101256

Balance of Portsmouth DUF₆ cylinders - The balance of the Portsmouth DUF₆ cylinder population, to include the approximately 16,000 DUF₆ cylinders historically stored at Portsmouth (other than those included in #1, above) plus the ANSI-compliant DUF₆ cylinders shipped from ETTP, will receive 67 tests per year on randomly selected full DUF₆ cylinders. This total may be adjusted as necessary to meet the requirements of Sections 1 and 2 above, within the total of 150 tests required to be performed annually.

This sampling arrangement may be modified periodically as deemed necessary and as agreed upon by Ohio EPA and the Paducah/Portsmouth Project Office, as outlined in Section X of the DUF₆ Management Plan.