Special Exposure Cohort Petition
under the Energy Employees Occupational Illness Compensation Program Act

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Special Exposure Cohort Petition — Form B

OMB Number: 0920-0639 Expires: 01/31/2026

Use of this form is voluntary. Failure to use this form will not result in the denial of any right, benefit, or privilege to which you may be entitled.

General Instructions on Completing this Form *(complete instructions are available in a separate packet)*:

Except for signatures, please **PRINT** all information clearly and neatly on the form.

Please read each of Parts A – G in this form and complete the sections appropriate to you. If there is more than one petitioner, then each petitioner should complete those sections of Parts A – C of the form that apply to them. Additional copies of the first two pages of this form are provided at the end of the form for this purpose. A maximum of three petitioners is allowed.

If you need more space to provide additional information, use the continuation page provided at the end of the form and attach the completed continuation page(s) to Form B.

For Further Information: If you have questions about the use of this form, please call the following NIOSH phone number and request to someone in the Division of Compensation Analysis and Support about an SEC petition: 513-533-6825.

If you are:		
	☐ A Labor Organization,	Start at D
	☐ An Energy Employee (current or former),	Start at C
	☒ A Survivor (of a former Energy Employee),	Start at B
	☐ A Representative (of a current or former Energy Employee);	Start at A

A. Representative Information Complete Part A if you are authorized by an Energy Employee or Survivor(s) to petition on behalf of a class.

A.1 **Are you a contact person for an organization?** ☐ Yes (Go to A.2) ☒ No (Go to A.3)

A.2 **Organization Information:**

Name of Organization

Position of Contact Person

A.3 [redacted]

Mr./Mrs./Ms. First Name Middle Initial Last Name

A.4 [redacted]

P.O. Box

Zip Code

A.5 **Telephone Number of Petition Representative:** ([redacted]

A.6 **Email Address of Petition Representative:** [redacted] ac .com

A.7 ☒ C[redacted] to Indicate you have attache[redacted] thorization to p[redacted] or(s) or energy employee(s) [redacted] **you are representing a Su[redacted]**

If you are representing an Energy Employee, go to Part C.

B. Survivor Information Complete Part B if you are a Survivor or representing a Survivor.

[redacted]

Mr./Mrs./Ms. [redacted]

Street [redacted] Apt # P.O. Box

City [redacted] State [redacted] Zip Code

Telephone Number of Survivor: [redacted]

Relationship to Energy Employee: ☒ Spouse ☐ Son/Daughter ☐ Parent ☐ Grandparent ☐ Grandchild

Go to Part C.

C. Energy Employee Information Complete Part C UNLESS you are a labor

[redacted]

Mr./Mrs./Ms. First Name [redacted] Last Name

[redacted]

E. [redacted]

D. Labor Organization Information Complete Part D ONLY if you are a labor organization.

D.1 **Labor Organization Information:**

_____
Name of Organization

_____
Position of Contact Person

D.2 **Name of Petition Representative:**

_____
Mr./Mrs./Ms. First Name Middle Initial Last Name

D.3 **Address of Petition Representative:**

_____
Street Apt # P.O. Box

_____
City State Zip Code

D.4 **Telephone Number of Petition Representative:** (_____) _____

D.5 **Email Address of Petition Representative:** _____

D.6 **Period during which labor organization represented energy employees covered by this petition** (please attach documentation):

Start _____ End _____

D.7 **Identity of other labor organizations that may represent or have represented this class of energy employees** (if known):

_____

Go to Part E.

E. Proposed Definition of Energy Employee Class Covered by Petition Complete Part E.

E.1 **Name of DOE or AWE Facility:** _____

E.2. **Locations at the Facility relevant to this petition:**

_____

_____

_____

E.3 **List job titles and/or job duties of energy employees included in the class. In addition, you can list by name any individuals other than petitioners identified on this form who you believe should be included in this class:**

_____

_____

_____

E.4 **Employment Dates relevant to this petition:**

Start _____ End _____

Start _____ End _____

Start _____ End _____

E.5 **Is the petition based on one or more unmonitored, unrecorded, or inadequately monitored or recorded exposure incidents?:** ☐ Yes ☐ No

If yes, provide the date(s) of the incident(s) and a complete description (attach additional pages as necessary):

_____

_____

_____

_____

_____

_____

_____

_____

_____

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_____

_____

_____

Go to Part F.

F. Basis for Proposing that Records and Information are Inadequate for Individual Dose Reconstruction Complete Part F.

Complete **at least one** of the following entries in this section by checking the appropriate box and providing the required information related to the selection. You are not required to complete more than one entry.

F.1 ☐ I/We have attached either documents or statements provided by affidavit that indicate that radiation exposures and radiation doses potentially incurred by members of the proposed class, that relate to this petition, were not monitored, either through personal monitoring or through area monitoring.

(Attach documents and/or affidavits to the back of the petition form.)

Describe as completely es possible, to the extent it might be unclear, how the attached documentation and/or affidavit(s) indicate that potential radiation exposures were not monitored.

F.2 ☐ I/ We have attached either documents or statements provided by affidavit that indicate that radiation monitoring records for members of the proposed class have been lost, falsified, or destroyed; or that there is no information regarding monitoring, source, source term, or process from the site where the energy employees worked.

(Attach documents end/or affidavits to the back of the petition form.)

Describe as completely as possible, to the extent it might be unclear, how the attached documentation and/or affidavit(s) indicate that radiation monitoring records for members of the proposed class have been lost, altered illegally, or destroyed.

Part F is continued on the following page.

F.3 ☐ I/We have attached a report from a health physicist or other individual with expertise in radiation dose reconstruction documenting the limitations of existing DOE or AWE records on radiation exposures at the facility, as relevant to the petition. The report specifies the basis for believing these documented limitations might prevent the completion of dose reconstructions for members of the class under 42 CFR Part 82 and related NIOSH technical implementation guidelines.

(Attach report to the back of the petition form.)

F.4 ☐ I/We have attached a scientific or technical report, issued by a government agency of the Executive Branch of Government or the General Accounting Office, the Nuclear Regulatory Commission, or the Defense Nuclear Facilities Safety Board, or published in a peer-reviewed journal, that identifies dosimetry and related information that are unavailable (due to either a lack of monitoring or the destruction or loss of records) for estimating the radiation doses of energy employees covered by the petition.

(Attach report to the back of the petition form.)

Go to Part G.

G. Signature of Person(s) Submitting this Petition Complete Part G.

All Petitioners should sign and date the petition. A maximum of three persons may sign the petition.

[redacted]

Signature Date

Signature Date

Signature Date

Notice: Any person who knowingly makes any false statement, misrepresentation, concealment of fact or any other act of fraud to obtain compensation as provided under EEOICPA or who knowingly accepts compensation to which that person is not entitled is subject to civil or administrative remedies as well as felony criminal prosecution and may, under appropriate criminal provisions, be punished by a fine or imprisonment or both. I affirm that the information provided on this form is accurate and true.

Send this form to:

SEC Petition
Division of Compensation Analysis and Support
NIOSH
1090 Tusculum Ave, MS-C-47
Cincinnati, OH 45226

If there are additional petitioners, they must complete the Appendix Forms for additional petitioners. The Appendix forms are located at the end of this document.

Public Burden Statement

Public reporting burden for this collection of information is estimated to average 5 hours per response, including time for reviewing instructions, gathering the information needed, and completing the form. If you have any comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, send them to CDC Reports Clearance Officer, 1600 Clifton Road, MS-E-11, Atlanta GA, 30333; ATTN: PRA 0920-0639. Do not send the completed petition form to this address. Completed petitions are to be submitted to NIOSH at the address provided in these instructions. Persons are not required to respond to the information collected on this form unless it displays a currently valid OMB number.

Privacy Act Advisement

In accordance with the Privacy Act of 1974, as amended (5 U.S.C. § 552a), you are hereby notified of the following:

The Energy Employees Occupational Illness Compensation Program Act (42 U.S.C. §§ 7384-7385) (EEOICPA) authorizes the President to designate additional classes of employees to be included in the Special Exposure Cohort (SEC). EEOICPA authorizes HHS to implement its responsibilities with the assistance of the National Institute for Occupational Safety (NIOSH), an Institute of the Centers for Disease Control and Prevention. Information obtained by NIOSH in connection with petitions for including additional classes of employees in the SEC will be used to evaluate the petition and report findings to the Advisory Board on Radiation and Worker Health and HHS.

Records containing identifiable information become part of an existing NIOSH system of records under the Privacy Act, 09-20-147 "Occupational Health Epidemiological Studies and EEOICPA Program Records and WTC Health Program Records, HHS/CDC/NIOSH." These records are treated in a confidential manner, unless otherwise compelled by law. Disclosures that NIOSH may need to make for the processing of your petition or other purposes are listed below.

NIOSH may need to disclose personal identifying information to: (a) the Department of Energy, other federal agencies, other government or private entities and to private sector employers to permit these entities to retrieve records required by NIOSH; (b) identified witnesses as designated by NIOSH so that these individuals can provide information to assist with the evaluation of SEC petitions; (c) contractors assisting NIOSH; (d) collaborating researchers, under certain limited circumstances to conduct further investigations; (e) Federal, state and local agencies for law enforcement purposes; and (f) a Member of Congress or a Congressional staff member in response to a verified inquiry.

This notice applies to all forms and informational requests that you may receive from NIOSH in connection with the evaluation of an SEC petition.

Use of the NIOSH petition forms (A and B) is voluntary but your provision of information required by these forms is mandatory for the consideration of a petition, as specified under 42 CFR Part 83. Petitions that fail to provide required information may not be considered by HHS.

Special Exposure Cohort Petition
under the Energy Employees Occupational Illness Compensation Program Act

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Petitioner Authorization Form

OMB Number: 0920-0639 Expires: 10/31/2019

Use of this form is voluntary. Failure to use this form will not result in the denial of any right, benefit, or privilege to which you may be entitled.

Instructions:

If you wish to petition HHS to consider adding a class of energy employees to the Special Exposure Cohort and you are NOT either a member of that class, a survivor of a member of that class, or a labor organization representing or having represented members of that class, then 42 CFR Part 83, Section 83.7(c) requires that you obtain written authorization. You can obtain such authorization from either an energy employee who is a member of the class or a survivor of such an employee. You may use this form to obtain such authorization and submit the completed form to NIOSH with the related petition. **Please print legibly.**

For Further Information: If you have questions about these instructions, please call the following NIOSH toll-free phone number and request to speak to someone in the Division of Compensation Analysis and Support about an SEC petition: 1-877-222-7570.

Authorization for Individual or Entity to Petition HHS on Behalf of a Class of Energy Employees for Addition to the Special Exposure Cohort

I, [redacted]

Street Addres[redacted]

[redacted]

[redacted]

[redacted]

City, State and Zip Code of Petitioner

to petition the Department of Health and Human Services on behalf of a class of energy employees that includes:

Name of Class Member (energy employee, not the employee's survivor)

for the addition of the class to the Special Exposure Cohort, under the Energy Employee's Occupational Illness Compensation Program Act (42 U.S.C. §§ 7384-7385).

[redacted]

Signature of Class Member or Survivor Date

Public Burden Statement

Public reporting burden for this collection of information is estimated to average 3 minutes per response, including time for reviewing instructions, gathering the information needed, and completing the form. If you have any comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, send them to CDC Reports Clearance Officer, 1600 Clifton Road, MS-E-11, Atlanta GA, 30333; ATTN:PRA 0920-0639. Do not send the completed petition form to this address. Completed petitions are to be submitted to NIOSH at the address provided in these instructions. Persons are not required to respond to tha information collected on this form unless it displays a currently valid OMB number.

Privacy Act Advisement

In accordance with the Privacy Act of 1974, as amended (5 U.S.C. § 552a), you are hereby notified of the following:

The Energy Employees Occupational Illness Compensation Program Act (42 U.S.C. §§ 7384-7385) (EEOICPA) authorizes the President to designate additional classes of employees to be included in the Special Exposure Cohort (SEC). EEOICPA authorizes HHS to implement its responsibilities with the assistance of the National Institute for Occupational Safety (NIOSH), an Institute of the Centers for Disease Control and Prevention. Information obtained by NIOSH in connection with petitions for including additional classes of employees in the SEC will be used to evaluate the petition and report findings to the Advisory Board on Radiation and Worker Health and HHS.

Records containing identifiable information become part of an existing NIOSH system of records under the Privacy Act, 09-20-147 "Occupational Health Epidemiological Studies and EEOICPA Program Records and WTC Health Program Records, HHS/CDC/NIOSH." These records are treated in a confidential manner, unless otherwise compelled by law. Disclosures that NIOSH may need to make for the processing of your petition or other purposes are listed below.

NIOSH may need to disclose personal identifying information to: (a) the Department of Energy, other federal agencies, other government or private entities and to private sector employers to permit these entities to retrieve records required by NIOSH; (b) identified witnesses as designated by NIOSH so that these individuals can provide information to assist with the evaluation of SEC petitions; (c) contractors assisting NIOSH; (d) collaborating researchers, under certain limited circumstances to conduct further investigations; (e) Federal, state and local agencies for law enforcement purposes; and (f) a Member of Congress or a Congressional staff member in response to a verified inquiry.

This notice applies to all forms and informational requests that you may receive from NIOSH in connection with the evaluation of an SEC petition.

Use of this form is voluntary. Failure to use this form will not result in the denial of any right, benefit, or privilege to which you may be entitled.

Special Exposure Cohort Petition

Mallinckrodt Chemical Works Chemical Division
/United Nuclear Corporation[1] (hence referred to as Hematite Facility)

Also known as:
Mallinckrodt Chemical Works
Mallinckrodt Chemical Works Chemical Division
Mallinckrodt Nuclear Division
WEC
United Nuclear Corporation
Gulf United Nuclear Fuels Corporation
General Atomic Company
Combustion Engineering Inc.
Asea Brown Boveri
Westinghouse Electric Company
Hematite Facility/Hematite Site/Hematite Property

3300 State Road P
Festus, MO 63028

January 7, 1956[2] - December 1973
Residual Radiation January 1974 - October 2009[3]

[1] Science Applications International Corporation and GEO Consultants, LLC (January 2007) Remedial Investigation Report For the Westinghouse Hematite Site Rev 1, Volume 1. p. 1-3 to 1-4. Document is available through the NRC Archive.
[2] Atomic Energy Commission (January 7, 1956) Mallinckrodt Chemical Works Contract Extended in St. Louis Area.
[3] According to DOE Office of Health, Safety and Security Website and U.S. NRC, Westinghouse Electric Company (Hematite Facility): "Documentation reviewed indicates that residual contamination related to AWE work exists outside of the period in which weapons-related production occurred, which is indistinguishable from non-weapons' related contamination."

PART A: NAME OF PETITIONER REPRESENTATIVE

A.3 Name of Petition Representative: [redacted]

A.4 Address of Petition Representative: [redacted]

A.5 Telephone Number of Petition Representative: [redacted]

A.6 Email of Petition Representative: [redacted]

A.7 I have attached to the document written authorization to petition by the energy employee(s) indicated in Part C of this form.

PART B: ENERGY EMPLOYEE INFORMATION

PETITIONER 1

B.1 Name of Survivor: [redacted]

PART C: ENERGY EMPLOYEE INFORMATION

C.1 Name of Energy Employee: [redacted]

C.2 Former Name of Energy Employee: N/A

C.3 Address of Former Employee: N/A

C.4 Telephone Number of Energy Employee: N/A

C.5 Email Address of Energy Employee: N/A

C.6 Employment Information Related to Petition:

C.6a Energy Employee Number: Case ID: [redacted]

C.6c SITE: United Nuclear Corporation

C.6d Work Site Location: 3300 State Road P
Festus, MO 63028

C.6e Supervisor's Name: [redacted]

PART D: LABOR ORGANIZATION INFORMATION: N/A

PART E: PROPOSED DEFINITION OF ENERGY CLASS

E.1 Name of AWE Facility: Mallinckrodt Chemical Works Chemical Division/United Nuclear Corporation (Hematite Facility)

Also known as:

- Mallinckrodt Chemical Works
- Mallinckrodt Nuclear Division

- United Nuclear Corporation, Chemical Division
- Gulf United Nuclear Fuels Corporation
- General Atomic Company
- Combustion Engineering Inc.
- Asea Brown Boveri
- Westinghouse Electric Company
- Hematite Facility/Hematite Site/Hematite Property

E.2 Locations at the Facility Relevant to this Petition[4]:

Building number or area	Description
Building 101	Tile Barn was used as the emergency operations center. Historically, clean and radiological-contaminated equipment had been stored in this building. During construction of the emergency operations center, residual radiological contamination was detected.
Building 110	Security office and general office space. No work with radioactive material is known to have been performed in this building.
Building 115	This building housed a diesel-powered emergency generator and a diesel-powered firewater pump. No work with radioactive material is known to have been performed in this building.
Building 120	Has a dirt floor and had historically used to store both clean and radiological-contaminated equipment. The dirt floor may contain low levels of radioactive contamination.
Building 230	This building was built around 1992 and was used for loading finished pellets (standard, erbium, and gadolinium) into fuel rods and assemblies in preparation for shipment off-site.
Building 231	This building was used as a warehouse for storage of shipping containers. Some refurbishment of shipping containers was conducted in this building. This building is currently used for shipping/receiving and material storage.
Building 235	West Vault used to store depleted and natural uranium.
Building 240	Contained laboratory and maintenance areas, a recycle recovery area, a waste incineration area, and the Health Physics laboratory. Historically, this building housed operations for the conversion of uranium hexafluoride into compounds, solutions, and metal. Building 240 was further divided into two areas: the "Red Room" used for high-enrichment conversion processes and the "Green Room" used for low enrichment conversion processes and high-enrichment scrap processing. Effluent streams for the wet-

[4] Science Applications International Corporation and GEO Consultants, LLC (January 2007) "Table 1.2. Historical and current use of buildings within the Hematite Facility." Remedial Investigation Report For the Westinghouse Hematite Site Rev 1, Volume 1: Text. p. 1-24.

	conversion processes were piped to the Evaporation Ponds for settling and evaporation. During the plant's operation, spills and leaks occurred in these areas and parts of the slab have been subsequently repoured over the existing contaminated flooring.
Building 252	South Vault was used for storage of oil, chemicals, and source and special nuclear material of various enrichments.
Building 253	This building contained offices, various site utilities, uranium storage areas, processing areas, and decontamination facilities. Within Building 253 is an inner building (Building 250) that was formerly a stand-alone structure that housed a boiler, cooling tower pumps, a recycle hopper, and storage areas. Sub-slab contamination was found during the construction of Building 253 in 1989.
Building 254	This building was constructed in 1989 and housed equipment and operations for producing fuel pellets from granules of UO2 or U3O8.
Building 255	The Erbia Plant was used for the fabrication of uranium compounds into physical shapes. It contained equipment and operations for production of uranium-erbium pellets until 1989 when Building 254 was constructed and pelletizing operations were moved to the new building.
Building 256	This structure was for drying of pellets in electric ovens. The structure was also used as a main warehouse for shipping pellets and powder, and for receiving site supplies.
Building 260	This building, which was built in 1968, housed equipment and operations for the conversion of UF6 into uranium oxide granules. Other chemicals used or generated in this area include: UO2, UO2F2, U3O8, NH3, N2, dissociated ammonia, limestone, and CaF2.
Burial Pit Area	Unlined pits were actively used by previous owners from 1965 to 1970 for disposal of uranium-contaminated materials and other wastes

Evaporation Ponds
Limestone Storage Pile
Deul's Mountain
Site Pond and Site Creek
Spent Limestone Pile and Fill Areas
Sanitary Sewage and Storm Water Systems, including the Former Leach Field
"Red Room" Roof Burial Area
Cistern Burn Pit Area
Northeast Site Creek

E.3 List of Job Titles and or Job Duties of Energy Employees Included in the Class:
The list of job titles available for the Hematite facility are quite general in description. There is no specific information characterizing the processes involved with each job title, nor where each job title was performed given that workers at this facility were often rotated between buildings and areas across the facility[5]:

- Engineers
- Foremen
- Guards
- Laboratory personnel
- Maintenance personnel
- Office personnel
- Operators
- Supervisors
- Technicians

Given the available list of job titles and job duties, the employees included in this class are inclusive of all site employees, all employment/job titles. all employment/job duties, all labor categories and labor category aliases involved in AWE operations during operational and residual contamination eras at Mallinckrodt Chemical Works Chemical Division/United Nuclear Corporation (Hematite Facility).

E.4 Employment Dates Relevant to this Petition: Operational period January 7, 1956 through December 31, 1973, and, the residual period January 1, 1974, through July 31, 2006.[6]

Therefore, the Definition of Class: All employees, inclusive of all site employees, all employment/job titles. all employment/job duties, all labor categories and labor category aliases involved in AWE operations during operational and residual contamination eras at United Nuclear Corporation— Hematite, Missouri: January 7, 1956 through December 31, 1973, and the residual period January 1, 1974, through July 31, 2006.

E.5 Is the petition based on one or more unmonitored, unrecorded, or inadequately monitored or recorded exposure incidents? YES
In the following three Atomic Energy Compliance Inspection Reports, the following non-compliance incidents were reported for the Hematite Facility:

1. Atomic Energy Commission Compliance Inspection Report February 9, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)

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[5] NIOSH, 2007, Radiation exposures covered for Dose Reconstructions under Part B of the Energy Employees Occupational Illness Compensation Program Act Rev. 0, OCAS-IG-003, National Institute for Occupational Safety and Health, Office of Compensation Analysis and Support, Cincinnati, Ohio.
[6] United States Atomic Energy Commission, Press Release (January 7, 1956) *Mallinckrodt Chemical Works Contract Extended in St. Louis Area.*

- Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
- Notification and reports of incidents - Thirty-day report: The licensee did not report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of 10 CFR 20 as effective prior to January 1, 1961.
- Caution signs, labels and signals: Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations. The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.

2. Atomic Energy Commission Compliance Inspection Report March 20-12, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)
   - Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
   - Notification and reports of incidents - Thirty-day report: The licensee did not report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of 10 CFR 20 as effective prior to January 1, 1961.
   - Caution signs, labels and signals: Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations. The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.
3. Atomic Energy Commission Compliance Inspection Report May 4, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)
   - Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
   - Notification and reports of incidents - Thirty-day report: The licensee did not report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of 10 CFR 20 as effective prior to January 1, 1961.
   - Caution signs, labels and signals: Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations. The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.

These non-compliance reports confirm that **unmonitored, unrecorded, or inadequately monitored or recorded exposure incidents occurred at the Hematite Facility.** This fact is further confirmed by NIOSH that stated: "We would normally have some people monitored

during the period, you know, typically the higher-exposed individuals. In this case we had a gap period from 1961 through most of 1962. In that period, no one was monitored."[7]

PART F: BASIS FOR PROPOSING THAT RECORDS AND INFORMATION ARE INADEQUATE FOR INDIVIDUAL DOSE RECONSTRUCTION

F.1. I have attached either documents or statements provided by affidavit that indicate that radiation exposures and radiation doses potentially incurred by members of the proposed class, that relate to this petition, were not monitored, either through personal monitoring or through area monitoring.

1. Failure to Monitor Exposure Incidents

In the following three Compliance Inspection Reports, the following non-compliance incidents were reported for the Hematite Facility:

- Atomic Energy Commission Compliance Inspection Report February 9, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)
    - Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
    - Notification and reports of incidents - Thirty-day report: The licensee did not report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of 10 CFR 20 as effective prior to January 1, 1961.
    - Caution signs, labels and signals: Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations. The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.
- Atomic Energy Commission Compliance Inspection Report March 20-12, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)
    - Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
    - Notification and reports of incidents - Thirty-day report: The licensee did not report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of 10 CFR 20 as effective prior to January 1, 1961.
    - Caution signs, labels and signals: Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations. The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.

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[7] US Department of Health and Human Services, Centers for Disease Control, National Institute for Occupational Safety and Health, Advisory Board on Radiation and Worker Health Work Group on Uranium Refining AWEs (September 7, 2012) page 6.

- Atomic Energy Commission Compliance Inspection Report May 4, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)
    - Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
    - Notification and reports of incidents - Thirty-day report: The licensee did not report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of 10 CFR 20 as effective prior to January 1, 1961.
    - Caution signs, labels and signals: Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations. The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.

These non-compliance reports indicate that **radiation exposures and radiation doses potentially incurred by members of the proposed class, that relate to this petition, were not monitored, either through personal monitoring or through area monitoring.** This fact is further confirmed by NIOSH, whom stated: "We would normally have some people monitored during the period, you know, typically the higher-exposed individuals. In this case we had a gap period from 1961 through most of 1962. In that period, no one was monitored."[8]

2. Lack of Monitoring of Transuranic Elements

It has been acknowledged that transuranic isotopes (TRU) were present at the Hematite facility. In addition to the primary contaminants of concern thorium- 228, thorium-230, thorium-232 (Th-232), uranium-234 (U-234), uranium-235 (U-235), uranium-238 (U-238), the following TRU were present on site: americium-241 (Am-241), neptunium-237 (Np-237), plutonium-239/240 (Pu-239/ 240), and technetium (Tc-99).[9] TRU isotopes encompass various materials found at the Hematite facility including radioactive scrap metal, equipment, and even mops and clothing that have been exposed to TRU. Americium-241 (Am-241), neptunium-237 (Np-237), and plutonium-239/240 (Pu-239/ 240), and technetium (Tc-99) were never individually monitored at the Hematite Facility.

While Mr. LaVon Rutherford has asserted that TRU can be measured through a Uranium-234[10] model, the unique signatures associated with HEU enrichment cannot be generalized using this approach: "Different enrichment processes have been used historically to produce highly enriched uranium (HEU) for weapon purposes. The most relevant ones are the gaseous diffusion process and the gas centrifuge. The two exploit different physical principles to

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[8] US Department of Health and Human Services, Centers for Disease Control, National Institute for Occupational Safety and Health, Advisory Board on Radiation and Worker Health Work Group on Uranium Refining AWEs (September 7, 2012) page 6.

[9] Science Applications International Corporation and GEO Consultants, LLC (January 2007) op. cit. pages 2-36-2-38, 4-19 and 4-22.

[10] OCAS *Site Profiles for Atomic Weapons Employers that Refined Uranium and Thorium - Appendix D United Nuclear Corp.* Document Number: Battelle-TBD-6001 Appendix D Effective Date: 3/14/2008 Revision No. 0

separate isotopes of different molecular weight. It could therefore be expected that HEU might carry an isotopic signature that is unique to the enrichment process used to produce the material."[11] In other words, a "signature" refers to the specific isotopic composition and any potential unique characteristics that could identify it as originating from a particular facility.

For example, uranium enrichment at Paducah, Kentucky consisted of gaseous diffusion that primarily enriched uranium by increasing the concentration of the fissile isotope Uranium-235 (U-235) relative to the more abundant Uranium-238 (U-238). The signature of enriched uranium produced at Oak Ridge, Tennessee during the Manhattan Project, particularly in the Y-12 plant, refers to the electromagnetic isotope separation process used to enrich uranium-235. This process, adapted from Ernest O. Lawrence's calutron technology, created a unique "signature" due to the specific magnetic fields and particle trajectories involved in separating the lighter uranium-235 isotope from the heavier uranium-238.

Therefore, it is necessary to identify the "signature" in order to accurately identify:

- Isotopic composition
- Radiation emissions
- Presence of unique trace elements or impurities
- Characteristics linked to specific enrichment process and operational history of the plant
- Presence of specific fission products.

An assessment of the hazards resulting from the use of highly enriched uranium is only possible if the composition of the material is fully known. The historical records reveal that the Hematite facility received HEU and thus radioisotopes contained within from Portsmouth, Oak Ridge, Paducah, and Idaho therefore there are four signatures that need to be analyzed to ensure accuracy in dose reconstructions.

In addition to the failure to account for the various isotopic signatures, the National Research Council, notes various failures or challenges in accounting for TRU in dose reconstructions:[12]

- Lack of detailed records: Historical records regarding specific transuranic exposures at facilities might be incomplete or difficult to obtain, especially for activities that occurred decades ago.
- Difficulty in estimating historical exposures: Transuranic elements, like plutonium, can pose radiological hazards and internal exposure through inhalation or ingestion. Reconstructing internal exposures from historical data, which may be limited, can be challenging.
- Complex decay chains: Transuranic elements can decay through complex processes, including alpha decay, releasing alpha particles which can be damaging to tissues if inhaled or ingested.

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[11] Alexander Glaser and Houston G. Wood (2008) *Computational Analysis of Signatures of Highly Enriched Uronium.* Institute of Nuclear Material Management.

[12] National Research Council (1995) *Radiation Dose Reconstruction for Epidemiologic Uses.*

- Challenges in distinguishing between different types of radiation: Dose reconstruction can involve multiple radiation types, including alpha, beta, and gamma radiation. Accurately accounting for all types and their effects, especially in cases of internal exposure to transuranic, can be complex.
- Uncertainties in risk estimates: The health risks associated with transuranic elements, particularly for long-term, low-dose exposures, can be difficult to quantify with certainty.
- Isotopic Ratios: Changes in isotopic ratios for transuranic radionuclides can significantly affect dose estimates. Accurate ratios are crucial for reliable dose reconstructions.

According to NIOSH, intakes for TRU contaminants found in highly-enriched and recycled uranium can be estimated by using uranium bioassay data and assuming ratios for the contaminants present. However, as previously discussed, making assumptions for contaminants present in either form of uranium is inaccurate at best, especially given the variation in processes used in enriching uranium. Nor does it account for the various signatures that were present at the facility that enriched it. A discussion regarding the limitation of using only bioassay for the purposes of dose reconstruction follows in Section F.3.

3. Dosimeters Are Not required by License[13]

In the Atomic Energy Commission (January 7, 1956) *Mallinckrodt Chemical Works Contract Extended in St. Louis Area* memo, S. R. Sapirie, Manager of the AEC's Oak Ridge Operations, announced the extension of a feed material contract with Mallinckrodt Chemical Works at the Hematite facility. According to Atomic Energy Commission's *Contract Files* several contracts existed between Mallinckrodt Nuclear Corp./United Nuclear Corp. Hematite and Oak Ridge National Laboratories:[14]

- Contract AT-(40-1)-2699. Oak Ridge, TN. Mallinckrodt Nuclear Corp., 1960-1962. (development of specifications for UO2 to enable the procurement of UO2 of standard characteristics without reference to UO2 origin, processing or storage).
- Contract AT-(40-1)-2602-3161. Oak Ridge, TN. Great Lakes Carbon Corp. to United Nuclear Corp., 1959-1963. **(Graphite to scrap processing not previously discussed in historical accounts for Hematite and should be further explored for its implications)**
- Contract AT-(40-1)-3161 to 3163. Oak Ridge, TN. United Nuclear Corp. to Nuclear Materials and Equipment Corp., 1963. (recovery of uranium from scrap).

According to Richard B. Chitwood, Inspection Specialist (July 29, 1964): "while dosimeters are not required by license, Oak Ridge strongly recommends the licensee procure them for all work areas where Oak Ridge contract operations are performed." In fact, it was recommended that the "Oak Ridge dosimeters at the plant be returned to Oak Ridge, and the licensee should

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[13] Richard B. Chitwood, Inspection Specialist (July 29, 1964) Final Oak Ridge Operations Office Health and Safety Inspection of United Nuclear Corporation Plant at Hematite Missouri; Atomic Energy Commission (January 7, 1956) Mallinckrodt Chemical Works Contract Extended in St. Louis Area.

[14] National Archives, RG 326 - Atomic Energy Commission, Contract Files, https://www.archives.gov/atlanta/finding-aids/rg326-951730

obtain new dosimeters." This memo raises questions not only about the use of dosimeters at the Hematite Facility, where such dosimeters were used and the accuracy of such dosimeters.

4. Identification of Uranium and Technetium at Levels that Posed Unacceptable Risk to Long-Term Individual Exposure.

8,700 documents pertaining the Hematite Facility were reviewed by the Authorized Petition Representative. No evidence of the monitoring of site buildings; facility soils; burial sites nor evaporation ponds was found for the operational period. Therefore, it was not until a remedial investigation conducted in 2007 identified Uranium and Technetium in site buildings and facility soils at levels that posed unacceptable risk from long-term individual exposure.[15]

F.2 I have attached either documents or statements provided by affidavit that indicate that radiation monitoring records for members of the proposed class have been lost, falsified, or destroyed; or that there is no information regarding monitoring, source, source term, or process from the site where the energy employees worked.

1. Failure to Monitor Exposure Incidents

In the following three Compliance Inspection Reports, the following non-compliance incidents were reported for the Hematite Facility:

- Atomic Energy Commission Compliance Inspection Report February 9, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)
    - Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
    - Notification and reports of incidents - Thirty-day report: The licensee did not report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of 10 CFR 20 as effective prior to January 1, 1961.
    - Caution signs, labels and signals: Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations. The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.
- Atomic Energy Commission Compliance Inspection Report March 20-12, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)
    - Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
    - Notification and reports of incidents - Thirty-day report: The licensee did not report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of 10 CFR 20 as effective prior to January 1, 1961.

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[15] Science Applications International Corporation and GEO Consultants, LLC (January 2007) op. cit.; MODNR *Hematite Radioactive Site*. https://dnr.mo.gov/

    - Caution signs, labels and signals: Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations. The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.
- Atomic Energy Commission Compliance Inspection Report May 4, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)
    - Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
    - Notification and reports of incidents - Thirty-day report: The licensee did not report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of 10 CFR 20 as effective prior to January 1, 1961.
    - Caution signs, labels and signals: Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations. The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.

These non-compliance reports indicate that **radiation monitoring records for members of the proposed class have been lost, falsified, or destroyed; or that there is no information regarding monitoring, source, source term, or process from the site where the energy employees worked.** This fact is further confirmed by NIOSH, whom stated: "We would normally have some people monitored during the period, you know, typically the higher-exposed individuals. In this case we had a gap period from 1961 through most of 1962. In that period, no one was monitored."[16]

2. Incomplete Characterization of Production Processes at Mallinckrodt Chemical Works Chemical Division/United Nuclear Corporation (HEMATITE)

Evidence reveals that classified government projects dominated the Hematite Facility operational period. As such, "specific details regarding the exact nature of production processes prior to 1974 are not well known."[17] Failure to incorporate these projects into the Site Profile negatively impacts the comprehensive understanding of radioactive hazards and the ability to monitor those hazards. Documents in the public domain provide at least a partial list of classified government projects that used highly enriched uranium (90% -93% enrichment).

DCAS often makes an assumption that knowledge about these types of projects is not necessary because they are unlikely to be covered by a contract with the Atomic Energy Commission. This is a common mistake made. In most cases, "Memorandum of Understanding," contracts

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[16] US Department of Health and Human Services, Centers for Disease Control, National Institute for Occupational Safety and Health, Advisory Board on Radiation and Worker Health Work Group on Uranium Refining AWEs (September 7, 2012) page 6.

[17] Science Applications International Corporation and GEO Consultants, LLC (January 2007) op. cit. Rev 1, Volume 1: Text. pages 1-24 and p. 4-19

between AEC and DOD, or documentation of ownership of special nuclear material by the AEC exist.[18] Here is the list of classified projects developed and produced by the Hematite Facility during the operational period that meet the criteria of MOU, contract, or ownership of special nuclear material:

- Production of specialized uranium oxides for use in the U.S. Army's Army Package Power Reactor[19]
- Production of highly enriched uranium oxides for a General Atomics gas-cooled reactor[20]
- Production of highly enriched uranium metal for materials test reactors utilized by the U.S. Navy[21]
- Production of uranium-beryllium pellets for use in the SL-1, an experimental U.S. military nuclear power reactor that was part of the Army Nuclear Power Program.[22]
- Production of high-enrichment uranium zirconia pellets for a naval reactor[23]
- Production of highly enriched oxides for use in General Atomics nuclear rocket projects.[24]

Failure to include these processes leads to:

- Inability to fully characterize and integrate the extent of HEU (93%-97% enrichment) used in these various processes.
- Amount of HEU (93%-97% enrichment) actually shipped to the plant.[25]
- The "signatures" of the HEU shipped to the plant.
- Inability to identify the buildings and areas in which this classified work was conducted.
- Inability to determine the basis of employment responsibilities, job titles or full contingent of radiological exposures incurred by former Hematite workers.
- Incomplete monitoring data associated with research, processes and production of the components related to the aforementioned work.
- "A detailed list of radioactive feed materials historically used for production is not available."[26]

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[18] Joint Research and Development Board Directive (August 15, 1946) *Formation of a Committee on Atomic Energy;* Department of Energy Headquarters Records and Files of the Atomic Energy Commission Division of Military Applications in Department of Energy Program Office; and, *Agreement Between the AEC and DOD for Development, Production and Standardization of Atomic Weapons* (March 21, 1953).

[19] *The Atomic Energy Act of 1954* made the Atomic Energy Commission (AEC) responsible for R&D in the nuclear field, so that the ANPP then became a joint interagency 'activity' of the Department of the Army (DA) and the AEC.

[20] General Atomics signed a contract with the Atomic Energy Commission (AEC) for a high-temperature gas-cooled reactor (HTGR) in 1959. *General Atomics History of Energy Research.*

[21] Richard G. Hewlett and Francis Duncan (1974) Nuclear Navy 1946-1962

[22] By 1951, the AEC and the Air Force had established a joint program that was known as the Aircraft Nuclear Propulsion (ANP) program. *Army Nuclear Power Program: Past, Present, Future. A briefing document prepared and presented to the Ad Hoc Study Group of the Army Scientific Advisory Panel*, 10–11 February 1969

[23] Richard G. Hewlett and Francis Duncan (1974) Nuclear Navy 1946-1962

[24] Contract #;AT-(40-1)-3119.

[25] The receipt of HEU (93%-97% enrichment) provided in KGs is available in Hematite documents located in the Nuclear Regulatory Commission archives.

[26] Science Applications International Corporation and GEO Consultants, LLC (January 2007)

- Inability to bound doses from the array of radiological isotopes present at the Hematite facility.

3. Failure to Incorporate Environmental Data

Dose reconstruction aims to provide a comprehensive assessment of radiation exposure, both internal and external. Therefore, it utilizes a combination of individual monitoring data, workplace and environmental monitoring data, process information, and other relevant factors to estimate the most accurate and complete dose assessment possible. However, during the operational period, there is no environmental monitoring data available.

On-site burial was used as a disposal method for contaminated materials and wastes generated by research and fuel fabrication processes at Hematite from 1965 until 1970. Evaporation Ponds were originally designed and built to receive filtrates from the low enrichment processes, but they were also used for the retention of both high- and low enrichment recovery waste liquids. It is not until remedial investigation reports that the extent of contamination is revealed.[27] Data from 2007 cannot be extrapolated to the operational period to produce accurate measures of radioactive doses from environmental contamination.

F.3 I have attached a report from a health physicist or other individual with expertise in radiation dose reconstruction documenting the limitations of existing DOE or AWE records on radiation exposures at the facility, as relevant to the petition. The report specifies the basis for believing these documented limitations might prevent the completion of dose reconstructions for members of the class under 42 CFR Part 82 and related NIOSH technical implementation guidelines.

1. Richard E. Toohey, (2008) *Scientific Issues in Radiation Dose Reconstruction*. Health Physics 95(1):p 26-35.

Dr. Toohey received his PhD in Physics from the University of Cincinnati in 1973. He started his career at Argonne National Laboratory and continued as a Senior Health Physicist until 1993 when he joined Oak Ridge Associated Universities (ORAU). At ORAU he managed programs in internal dosimetry, dose reconstruction, environmental health physics, and radiological emergency response, retiring in 2012.

Dr. Toohey was a Certified Health Physicist, President of the Health Physics Society (2008 to 2009), Treasurer of IRPA (2008 to 2019), and Chair of the Scientific Advisory Committee for the U.S. Transuranium and Uranium Registries (2015 to 2018). He received the 2019 Health Physics Society Distinguished Scientific Achievement Award, had over 140 publications, and was a retired Lt. Colonel, U.S. Army Reserve.

According to Dr. Toohey, numerous issues regarding the scientific basis of radiation dose reconstruction for compensation have been identified. These issues can be grouped into three broad categories:

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[27] Science Applications International Corporation and GEO Consultants, LLC (January 2007) op. cit.

- Data issues: Data issues include demographic data of the worker, changes in site operations over time (both production and exposure control), characterization of episodic vs. chronic exposures, and the use of coworker data.
- Dosimetry issues: Dosimetry issues include methods for assessment of ambient exposures, missed dose, unmonitored dose, and medical x-ray dose incurred as a condition of employment. Specific issues related to external dose include the sensitivity, angular and energy dependence of personal monitors, exposure geometries, and the accompanying uncertainties. Those related to internal dose include sensitivity of bioassay methods, uncertainties in biokinetic models, appropriate dose coefficients, and modeling uncertainties.
- Compensation issues. Compensation issues include uncertainties in the risk models and use of the 99th percentile of the distribution of probability of causation for awarding compensation.

NIOSH recognizes the potential for intakes of transuranic radionuclides, neptunium and plutonium, as well as technicium-99. Intakes of these contaminants can be estimated by using uranium bioassay data and assuming ratios for the contaminants present. However, if one were to apply some of the issues discussed in Dr. Toohey's article, one would surmise that dose reconstruction cannot only be based on bioassay data. While bioassay is a crucial component, particularly for assessing internal radiation exposure, a comprehensive dose reconstruction typically requires a combination of various information sources.

When one limits himself/herself to only bioassay:

- Incomplete picture emerges: Bioassay primarily measures internal contamination and provides information on the intake and retention of radioactive materials within the body. It doesn't directly capture external radiation exposure.
- Indirect measurement: Bioassay results often require interpretation using biokinetic models to estimate the initial intake and subsequent dose, introducing some uncertainty.
- Limited availability: Bioassay data might not be available for all individuals or exposure scenarios, especially for past exposures or when monitoring was not consistently performed.

In addition to bioassay additional information should be considered in the execution of a dose reconstruction:

- External dosimetry data: Dosimeter readings (film badges, TLDs) provide information on external radiation exposure.
- Workplace monitoring data: Area radiation survey measurements and fixed-location dosimeter results help characterize the radiation environment.
- Process and operational records: Information on the handling of radioactive materials, work practices, and facility operations can be used to develop exposure models.
- Coworker data: Monitoring data from workers with similar job functions can be used to estimate exposures for unmonitored or under-monitored individuals.
- Environmental monitoring data: Data on releases of radioactive materials into the

environment can be used to assess potential public exposure.

Dose reconstruction aims to provide a comprehensive assessment of radiation exposure, both internal and external. Therefore, it utilizes a combination of individual monitoring data (including bioassay), workplace and environmental monitoring data, process information, and other relevant factors to estimate the most accurate and complete dose assessment possible.

F.4 I have attached a scientific or technical report, issued by a government agency of the Executive Branch of Government or the General Accounting Office, the Nuclear Regulatory Commission, or the Defense Nuclear Facilities Safety Board, or published in a peer-reviewed journal, that identifies dosimetry and related information that are unavailable (due to either a lack of monitoring or the destruction or loss of records) for estimating the radiation doses of energy employees covered by the petition.

1. Failure to Monitor Exposure Incidents

In the following three reports, incidents were reported for the Hematite Facility:

- Atomic Energy Commission Compliance Inspection Report February 9, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)
    - Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
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- Atomic Energy Commission Compliance Inspection Report March 20-12, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)
    - Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
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- Atomic Energy Commission Compliance Inspection Report May 4, 1961 (License Nos. SNM-33 and C-5308: 10 CFR 20.101)

- Exposure of individuals in restricted areas: Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.
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- Caution signs, labels and signals: Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations. The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.

These non-compliance reports **identify dosimetry and related information that are unavailable (due to either a lack of monitoring or the destruction or loss of records) for estimating the radiation doses of energy employees covered by the petition**. This fact is further confirmed by NIOSH, whom stated: "We would normally have some people monitored during the period, you know, typically the higher-exposed individuals. In this case we had a gap period from 1961 through most of 1962. In that period, no one was monitored."[28]

2. B. J. Youngblood, Materials Inspection and Enforcement Branch Division of Compliance (June 10, 1968) *United Nuclear Corporation - Laundry and Stack Effluents At Hematite (SNM-33) and Wood River Junction (SNM-777).*

This document mentions that special samples used to detect the dispersion of radioactivity were not consistently taken at the Hematite facility:

- Laundry Effluents: A review of the inspection backup notes does not indicate that special samples have been taken of laundry effluent to determine compliance with 10 CFR 20 The last report from Hematite that records exact discharge concentrations for the pond was in the November 1966 report.
- Stack Effluents: The ventilation systems at both facilities are poorly designed, especially, with respect to sampling capabilities:
  - Stack sampling minimal
  - "592" citation for failure to properly evaluate a high restricted area sample

These are two examples in which the failure to accurately monitor radioactive releases negatively impacts the ability to accurately execute dose reconstructions.

F. 8 Summary

This petition has presented evidence that meets the four categories for qualification of a Special Exposure Cohort:

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[28] US Department of Health and Human Services, Centers for Disease Control, National Institute for Occupational Safety and Health, Advisory Board on Radiation and Worker Health Work Group on Uranium Refining AWEs (September 7, 2012) page 6.

- Radiation exposures and radiation doses potentially incurred by members of the proposed class, that relate to this petition, were not monitored, either through personal monitoring or through area monitoring.
- Radiation monitoring records for members of the proposed class have been lost, falsified, or destroyed; or there is no information regarding monitoring, source, source term, or process from the site where the energy employees worked.
- Expertise in radiation dose reconstruction that documented the limitations of existing DOE or AWE records on radiation exposures at the facility, as relevant to the petition, and these documented limitations prevent the completion of dose reconstructions for members of the class under.
- Identifies dosimetry and related information that are unavailable (due to either a lack of monitoring or the destruction or loss of records) for estimating the radiation doses of energy employees covered by the petition.

In sum, the Authorized Petition Representative and Petitioners insist you accept the definition of this class and qualify this petition for consideration: All employees, inclusive of all site employees, all employment/job titles. all employment/job duties, all labor categories and labor category aliases involved in AWE operations during operational and residual contamination eras at United Nuclear Corporation— Hematite, Missouri: January 7, 1956 through December 31, 1973, and the residual period January 1, 1974, through July 31, 2006.

AEC

UNITED STATES
ATOMIC ENERGY COMMISSION
Washington 25, D. C.

No. 754
Tel. ST 3-8000, Ext. 307

FOR RELEASE IN MORNING NEWSPAPERS
SATURDAY, JANUARY 7, 1956

(NOTE TO CORRESPONDENTS: The following announcement is being issued by the Oak Ridge Operations Office, Oak Ridge, Tennessee, and is distributed for your information.)

MALLINCKRODT CHEMICAL WORKS CONTRACT EXTENDED IN ST. LOUIS AREA

Oak Ridge, Tenn., January 6, 1956 -- A contract has been signed with Mallinckrodt Chemical Works, St. Louis, Missouri, for operation of all of the Atomic Energy Commission's Feed Materials Facilities in the St. Louis Area, S. R. Sapirie, Manager of the AEC's Oak Ridge Operations, announced today.

Sapirie said the new contract reflects the increased scope of the work which Mallinckrodt performs for the AEC, and modifies a prior contract to a cost-plus-a-fixed fee type. The contract with Mallinckrodt previously provided for production at a unit price and research, development, and minor construction on a cost-reimbursement basis. Under the new four-year contract the AEC will provide the working capital for the cost of the operation and will pay Mallinckrodt a fixed annual fee.

Mallinckrodt presently operates in St. Louis a government-owned plant which is being expanded. The firm will be the operator of a new AEC plant which is under construction on a portion of the government-owned Weldon Spring ordnance works about 25 miles from St. Louis.

A/677

(more)

The function of the existing plant and the one under construction is the refining of ores and concentrates into highly-purified uranium metal and intermediate compounds.

Mallinckrodt began operations in the atomic energy field in 1942 under contract with the Manhattan Engineer District for production of very pure uranium oxide, and subsequently for production of uranium tetrafluoride and metal. The uranium used in the first atomic reactor at Chicago in 1942 was fabricated at the Mallinckrodt plant.

- 30 -

1656

Computational Analysis of Signatures of Highly Enriched Uranium Produced by Centrifuge and Gaseous Diffusion

Year: 2008

Author(s):

- Alexander Glaser
  Program on Science and Global Security
- Houston G. Wood
  Mechanical & Aerospace Engineering, University of Virginia

Abstract:

Different enrichment processes have been used historically to produce highly enriched uranium (HEU) for weapon purposes. The most relevant ones are the gaseous diffusion process and the gas centrifuge. The two exploit different physical principles to separate isotopes of different molecular weight. It could therefore be expected that HEU might carry an isotopic signature that is unique to the enrichment process used to produce the material. Multi-isotope enrichment cascades are generally modeled using the matched-abundance-ratio approach. In this paper, we will present comparisons of the isotopic signatures predicted in gas centrifuge cascades with those predicted in gaseous diffusion cascades by using a modified version of the matchedabundance- ratio cascade code, MSTAR, which accounts for the physical differences in the stage separation factors in the two processes. Additionally, we will present the methodology used by the modified code and discuss representative results for HEU produced from both natural and reprocessed uranium. We find that essentially complete knowledge of the enrichment technologies employed, of the

cascade design, and of the mode of operation is required in order to make meaningful (quantitative) statements about expected HEU signatures.

Institute of Nuclear Materials Management
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Office Memorandum • UNITED STATES GOVERNMENT

TO : Robert Lowenstein, Director
Division of Licensing and Regulation, Washington

DATE:

FROM : S. R. Sapirie, Manager
Oak Ridge Operations Office

SUBJECT: COMPLIANCE INSPECTION REPORTS - MALLINCKRODT CHEMICAL WORKS, ST. LOUIS, MISSOURI, LICENSE NOS. SNM-33 AND C-5308

MI:WWP

Enclosed are compliance inspection reports on the subject licensee's special nuclear and source material program being conducted in a plant near Hematite, Missouri. The inspection covered radiation safety only and did not include an actual detailed inspection of the criticality safety aspects of the special nuclear material program. The inspection was made at this time as the result of a letter dated December 15, 1960 from the licensee which reported exposures of personnel to airborne radioactivity concentrations in excess of applicable limits of the regulations. The programs were found to be in noncompliance as follows:

License Nos. SNM-33 and C-5308

10 CFR 20.101 Exposure of individuals in restricted areas.
(b) Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.

10 CFR 20.403 Notification and reports of incidents.
(c) Thirty-day report. The licensee did not report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of 10 CFR 20 as effective prior to January 1, 1961.

10 CFR 20.203 Caution signs, labels and signals.
(b) Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations.

(d)(2) The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.

License No. SNM-33

License Condition

The licensee is authorized under the conditions of the license to use an incinerator for contaminated trash.

> The license condition requires that the licensee use procedures as described in his letter of request dated November 8, 1960, which states that the flue gases from the incinerator will be continuously monitored for the first month of operation. The licensee has not monitored the flue and is therefore in noncompliance with the license condition.

The noncompliance with 10 CFR 20.101 (as effective prior to January 1, 1961) airborne radioactivity exposures and the reporting of such exposures under 10 CFR 20.403(c) (as effective prior to January 1, 1961) were discussed with Mr. Frank Zeitlin, Vice President in charge of licensee commercial operations, and Mr. J. W. Miller, Head of the Industrial Hygiene Department. Improvements in equipment have decreased the airborne concentrations and Mr. Miller stated that no problem is expected in maintaining personnel exposures to airborne concentration below the limits of 10 CFR 20 as effective January 1, 1961.

The posting noncompliances with 10 CFR 20.203(b), (d)(2) were discussed with Mr. Miller and he stated that the required posting will be established as soon as possible.

In regard to the noncompliance with SNM-33 license conditions, Mr. Miller stated that appropriate sampling equipment will be procured and the incinerator flue sampled as required.

We recommend that the Division of Licensing and Regulation letter of compliance status inform the licensee of the following:

1. The licensee should be requested to confirm that the posting deficiencies have been corrected.

2. The licensee should be requested to indicate the status of the sampling program for the flue of the incinerator as corrective action for the noncompliance with the license condition.

Licensee records for 1959 and the first three quarters of 1960 show some exposures of personnel to airborne radioactivity in excess of permissible limits but the major part of the excessive exposures recorded for this period were only slightly in excess of the permissible limits. Licensee records for the last quarter of 1960 show about fifteen exposures slightly in excess of the permissible limits of the regulations. However, in no case has the licensee taken into consideration, in the compilation of the records, the benefit received

in the use of masks in his program to lower the actual intake of radioactivity by personnel. When we consider that the majority of all excess concentrations as reported were only slightly greater than the permissible limit and assume a reasonable benefit from the wearing of masks it is probable that the number of overexposures would be much more limited and possible that none of the exposures were in excess of the permissible limits. As for the exposures recorded for the last quarter of 1960 that were only slightly in excess of the permissible limits, we conclude that the use of masks held the actual airborne radioactivity exposures in these cases within permissible limits. In view of this and our other findings during the inspection, we feel that the licensee's radiation safety practices in the program are good.

No follow-up inspection is planned.

for Leo Dubinski
S. R. Sapirie

Enclosures:
Compliance Inspection Reports
for License Nos. SNM-33 and C-5308

cc: L. D. Low, Director, Division of Compliance, Washington, w/encls.

UNITED STATES ATOMIC ENERGY COMMIS.

COMPLIANCE INSPECTION REPORT

Mallinckrodt Chemical Works
Second & Mallinckrodt Streets
St. Louis 7, Missouri

Date of inspection: March 20 - 23, 1961

Type of inspection: Reinspection (1)

10 CFR Part(s) applicable: 20 and 40

Attention: Mr. John G. Moore
Vice President

License No.	Date	Expiration	Scope and Conditions
C-5308	10-20-60	10-31-61	Source material for use in accordance with the procedures described in your application of September 29, 1960. This license extends to your plant at Hematite, Missouri.

The licensee's program involves the processing of source and special nuclear materials under License Nos. SNM-33 and C-5308 in a plant located near Hematite, Missouri. The plant is designed and devoted entirely to this purpose. Licensee personnel engaged in the program have adequate training and experience to satisfactorily protect licensee personnel and the general public from the potential radiological health and nuclear criticality hazards incident to the program. Personnel are monitored with a licensee furnished film badge program and a record is maintained of the film readings. Radiation surveys have been made and a record kept of the survey findings. A program of sampling airborne and liquid effluent concentrations is in effect and records are maintained of the sample results. Plant areas and containers are posted and labeled as required by 10 CFR 20.203(e)(1), (f)(1) and (f)(4). Form AEC-3 is posted as required by 10 CFR 20.206(c). The only items of noncompliance observed or otherwise noted during the course of this inspection are as follows:

10 CFR 20.101 Exposure of individuals in restricted areas.

(b) As effective prior to January 1, 1961, the licensee exposed personnel to concentrations of airborne radioactivity in excess of the amounts stipulated in this section of the regulations. (See paragraphs 24, 27 and 28 of the report details).

(continued on reverse side)

Apr. 14, 1961

9701220247 14pp.

6. Inspection findings (and items of noncompliance) (continued)

10 CFR 20.403 Notification and reports of incidents.

(c) Thirty-day reports. The licensee failed to report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of this section of the regulations as required by 10 CFR 20 as effective prior to January 1, 1961. (See paragraphs 26, 27, and 28 of the report details).

10 CFR 20.203 Caution signs, labels and signals.

(b) Radiation areas - The licensee has not posted areas with "radiation area" signs where required by this section of the regulations. (See paragraph 32 of the report details).

(d)(2) The licensee has not posted all areas, with airborne radioactivity signs that require such posting under this section of the regulations. (See paragraph 32 of the report details).

Office Memorandum • UNITED STATES GOVERNMENT

TO : Robert Lowenstein, Director
Division of Licensing and Regulation, Washington

DATE: Dec 4 1961

FROM : S. E. Sapirie, Manager
Oak Ridge Operations Office

SUBJECT: COMPLIANCE INSPECTION REPORTS - MALLINCKRODT CHEMICAL WORKS, ST. LOUIS, MISSOURI, LICENSE NOS. SMB-33 AND C-5308

70-36 40-3771

EI:WT

Enclosed are compliance inspection reports on the subject licensee's special nuclear and source material program being conducted in a plant near Hematite, Missouri. The inspection covered radiation safety only and did not include an actual detailed inspection of the criticality safety aspects of the special nuclear material program. The inspection was made at this time as the result of a letter dated December 15, 1960 from the licensee which reported exposures of personnel to airborne radioactivity concentrations in excess of applicable limits of the regulations. The programs were found to be in noncompliance as follows:

← SMB-293

License Nos. SMB-33 and C-5308

10 CFR 20.101 Exposure of individuals in restricted areas.
(b) Licensee records show exposures of some personnel to airborne concentrations of radioactivity in excess of the limits specified in this section of 10 CFR 20 as effective prior to January 1, 1961.

10 CFR 20.403 Notification and reports of incidents.
(c) Thirty-day report. The licensee did not report, within thirty days, exposures of individuals to concentrations of radioactive materials in excess of the applicable limits of 10 CFR 20 as effective prior to January 1, 1961.

10 CFR 20.203 Caution signs, labels and signals.
(b) Radiation Areas. The licensee has not posted areas with radiation area signs where required by this section of the regulations.

(d)(2) The licensee has not posted all areas, with airborne radioactivity signs, that require such posting under this section of the regulations.

License No. SMB-33

License Condition
The licensee is authorized under the conditions of the license to use an incinerator for contaminated trash.

9701220379 3pp.

2 pgs

Richard B, Chitwood, Inspection Specialist (Criticality) July 29, 1964
Division of Compliance
Hilbert W. Crocker, Inspection Specialist /S/ Hilbert W. Crocker
(Criticality)
Division of Compliance
FINAL OAK RIDGE OPERATIONS OFFICE HEALTH AND SAFETY INSPECTION OF UNITED NUCLEAR CORPORATION PLANT AT HEMATITE, MISSOURI, JULY 23, 1964

The final OR health and safety review of the licensee's plant at Hematite, Missouri was conducted on July 23-24, 1964. Mr. W. Pryor and Mr. R. Hervin of OR conducted the inspection. Mr. D. Foster of Division of Compliance, Region III, and myself accompanied the OR inspectors. This memorandum is devoted primarily to the nuclear safety portion of the inspection.

Mr. Pryor made the following nuclear safety comments to the licensee management representatives during the inspection:

(1) An attempt should be made to reduct the U-235 inventory which has steadily increased in the past two years.

(2) In process, storage areas should be specifically marked to provide better control of SNM during storage.

(3) Unsafe containers (mop buckets) should not be stored in the Item Plant process areas.

(4) Emergency procedures should be updated to incorporate latest management changes.

N.R. (5) The OR dosimeters at the plant should be returned to OR, and the licensee should obtain new dosimeters.

(6) The Cuno filter calcining equipment should not be reused unless covered by licensee approval.

(7) Each storage bottle should be properly labeled as to the U-235 enrichment. A couple of analytical waste bottles were noted to be deficient in this respect.

In general, I concur with Mr. Pryor's remarks.

(Continued)

COPY

B-232

While dosimeters are not required by license, OR strongly recommends the licensee procure them for all work areas where OR contract operations are performed.

The main plant processing activity was limited to the Item Plant, the Pellet Plant, and some recovery work in the Red Room (highly enriched uranium processing area). The low enrichment uranium processing areas were inactive.

Mr. Swallow, the licensee's health and safety representative, stated that the method of administrative batch control for the Blue Room (low enriched uranium processing area) ammonium diuranate (ADU) precipitation step is being reviewed. This review is the result of discussions with Dr. North during the February 18-19, 1964 Compliance inspection. At that time the practice of using 5-inch diameter gas cylinders containing one safe wet batch of low enriched UF_6 for connection to the ADU precipitation tanks was questioned because of the potential nuclear hazard in that a 5-inch diameter gas cylinder containing fully enriched UF_6 could, through error, be connected to the feed line supplying this unsafe geometry precipitation vessel. Mr. Swallow stated that the low enriched processing line will not be activiated until this problem is resolved.

A new land area has geen graded, covered with gravel, fenced off, and is now being used for SNM storage. Weeds are growing up around storage bottles in the older storage area, and the new section represents a significant inprovement in their outdoor storage facilities.

A large number of their processing stations and glove boxes are not posted to identify the processing station limit and current inventory. This situation was brought to Lou Swallow's attention. He stated that the process engineer was responsible for maintaining the correct SNM inventory at each processing station. However, Mr. Swallow also recognized the desirability of providing specific labeling at each processing area.

A Compliance reinspection of the licensee's plant is scheduled for September, 1964. DML is currently reviewing the licensee's application for license of the Item Plant. It is expected that all operations at Hematite will he under Regulatory review by September, 1964.

bcc: D. A. Nussbaumer, DML

CA:SH

R

JUN 10 1968

Files

UNITED NUCLEAR CORPORATION - LAUNDRY AND STACK EFFLUENTS AT HEMATITE (SNM-33) AND WOOD RIVER JUNCTION (SNM-777)

LAUNDRY EFFLUENTS

A review of the inspection backup notes does not indicate that special samples have been taken of laundry effluent. The laundry effluent is one of several streams that enter the plant lagoon or pond. The effluent from the lagoon or pond is monitored to determine compliance with 10 CFR 20 unrestricted limit of 3×10^{-5} uCi/ml at Wood River Junction and Hematite.

Hematite Laundry Effluent

The last report that records exact discharge concentrations for the pond was in the November 1966 report. Wastes from the sinks, showers, and laundry are sent to a holding pond and discharged to the creek. A proportional (i.e., sample rate changes with flow rate) flow sample is analyzed weekly and a monthly grab sample is taken in the creek above and below the pond discharge. These samples are analyzed by the Mallinckrodt Laboratory in St. Louis, Missouri. The weekly sample results for 1966 ranged from 2.5×10^{-8} to 6.9×10^{-8} uCi/ml with a single sample indicating a 1.5×10^{-5} uCi/ml concentration. Sample results for the creek ranged from $.045 \times 10^{-8}$ to 6.3×10^{-8} uCi/ml. The report did not indicate the total flow but, at an average concentration of 6.3×10^{-8} uCi/ml, each 10,000 gallons would contain .041 grams of uranium at 93% U-235 enrichment.

Wood River Junction Effluent

The March 1966 backup notes indicated that no discharges from the lagoon exceed 2×10^{-7} uCi/ml but no volumes were included. The laundry effluent is sent to the lagoon with other process wastes. The backup notes for the December 1966 inspection indicates that six discharges were made from the lagoon to that date for 1966. The total volume was 12,195 gallons and the concentrations were 1 dpm/ml or less. (1 dpm/ml = 7×10^{-7} uCi/ml). This would indicate a discharge of .04 grams of uranium at 93% U-235 enrichment.

G-24

The data from lagoon or pond effluents does not lead to a direct result of the amount of material placed in the system. Settling of nonsoluble material and pH adjustment with precipitation may cause uranium to be removed from the stream between plant discharge and lagoon or pond discharge.

STACK EFFLUENTS

The ventilation systems at both facilities are pporly designed, especially, with respect to sampling capabilities. This shortcoming has been receiving more attention from DML on new applications during the last two or three years.

Hematite Stack Effluents

Hematite has 107 process stacks. It has been estimated that approximately 80 of these do not involve any appreciable SNM effluent. A few of the remaining stacks are the more significant with respect to effluents. Continuous air samplers at the four corners of the perimeter fence are utilized to determine compliance with 10 CFR 20 limits. Monthly averages of 50 to 100 samples were indicated to be well below 2×10^{-12} uCi/ml during March 1967, December, 1967 and March 1968 inspections. Sampling of stacks has been minimal some months and served only to indicate problem stacks. The March 1967 backup notes indicate that 57 stack samples were taken from November 1966 thru February 1967. Ten of these samples exceed 4×10^{-12} uCi/ml with the highest being 7.9×10^{-10} uCi/ml which was an unfiltered stack that has since had an absolute filter inserted in the system. The December 1967 backup notes indicated stack sampling to be minimal. The air sampling program was discussed with the licensee and a "592" citation was issued for failure to properly evaluate a high restricted area sample. It was indicated during the March 1968 backup notes that 47 stack samples were taken in January and, due to bad weather, only 10 samples were taken in February. It was stated that only one restricted area sample was above 10 CFR 20 limit for the 800 to 900 samples a month taken for the total air sample program (restricted and unrestricted area samples). The flow rate or volume throughput is not given for the stacks. (A 10,000 CFM blower operating 24 hours at the 10 CFR 20 limit of 2×10^{-12} uCi/ml would discharge 0.01 grams of uranium at 93% U-235 enrichment. Due to the amount of low enriched material processed, it appears that the unrestricted limit was reduced from 4×10^{-12} to 2×10^{-12} uCi/ml between the March 1967 and December 1967 inspections).

Wood River Junction Stack Effluents

The 11 months average for January thru November 1967 was reported in the December 1967 backup notes to be 7.8 dpm/m^3. (4×10^{-12} uCi/ml = 8.8 dpm/m^3). The March 1966 backup notes indicate that a conservative plant air capacity is 10^{15} ml/yr. This volume times the 1967 average concentration indicates the discharge of about 106 grams of uranium at 93% U-235 enrichment. There are 16 stacks. Some stacks are sampled daily, some only when used, and others are sampled just to comply with the Health Physics Manual which states that all stacks will be sampled at least once a quarter after it has been established that excessive concentrations are not released.

None of the air stacks at Hematite or Wood River Junction have constant samplers since the large number would be prohibitive. A considerable amount of sampling is done, but positive assurance of the exact discharge would require constant sampling of all stacks during operation. The licensee has been considering methods of connecting the various stacks in order to place a few constant samplers on their air effluent but no progress has resulted as yet.

Original Signed
by B. J. Youngblood

B. J. Youngblood
Materials Inspection and
Enforcement Branch
Division of Compliance

CO

BJYoungblood:ss
6/10/68

October 29, 1985

MEMORANDUM FOR: Jack H. Hind, Director, Division of Radiation Safety and Safeguards

FROM: Charles H. Weil, Investigation and Compliance Specialist

SUBJECT: ALLEGATION RE: IMPROPER BURIAL OF RADIOACTIVE WASTES AT THE COMBUSTION ENGINEERING FACILITY, HEMATITE, MO (70-00036) (AMS NO: RIII-85-A-0173)

On October 17, 1985, Walt Purier of the Missouri Department of Natural Resources (telephone number 314-849-1313) telephoned Region III. Purier advised that he had been contacted by the U. S. Environmental Protection Agency with information that during the 1950s and 1960s contaminated material and equipment, including a contaminated bulldozer, were buried in porous soil on the property of "United Nuclear Facility," now Combustion Engineering, Hematite, Missouri. Purier provided the name of the individual furnishing the information.

On October 18, 1985, that person was contacted and provided the following information:

From 1959 until 1967 [ ] at the Gulf United Nuclear facility, now Combustion Engineering, near Hematite, Missouri, [ ]. During the period [ ] and into the 1970s, the facility manufactured fuel for nuclear submarines. Waste from that fuel was placed in metal barrels and buried in trenches on the Gulf Nuclear property until disposal shifted to Oak Ridge Laboratory in the early 1970s. The burials were made in an area [ ] Ex. 4 1c

[ ] opening trenches, pushing barrels into the trenches, crushing the barrels in the trenches and then covering the trenches. Often the barrels were uncovered when they were pushed into the trenches. On occasion the ground water seeped into the trenches "overnight" and to a depth of one inch. [ ] the barrels contained "nickel, cadmium and silver used in the fuel process."

[ ] bulldozer became contaminated and could not be use for three days while it was being decontaminated. Another time [ ] got contaminated and it had to be washed until it was decontaminated.

[ ] present concern was that the buried material may have contaminated the waters of Jochiam Creek and [ ] wanted an environmental sampling program.

I-1

In discussing this matter with Fuel Facility Inspector G. M. France and Section Chief L. R. Greger, it became apparent that burials at the facility in the 1950s, 1960s and 1970s were permitted by regulations applicable at that time. France further advised that he had already scheduled a routine inspection at the facility for mid November 1985 and would look into the licensee's environmental monitoring program at that time. This matter was discussed with Eugene T. Pawlik, Director, Office of Investigations Region III Field Office, on October 25, 1985, and it was concluded that an investigation by OI:RIII was not warranted as wrongdoing was not specifically alleged. Accordingly, this matter was assigned within the Allegation Management System to the Division of Radiation Safety and Safeguards for resolution.

Original signed by
Charles H. Weil

Charles H. Weil
Investigation and Compliance
Specialist

Enclosure: AMS Form

cc w/enclosure:
OI:RIII
W. O. Shafer
L. R. Greger

RIII
Weil/jr
10/29/85

NRC Form 307
(1-86)
NRCM 0517

U.S. NUCLEAR REGULATORY COMMISSION

ALLEGATION DATA INPUT

A. RECEIVING OFFICE

*1. FACILITY

DOCKET NUMBER	NAME (40 characters)	UNIT NUMBER (1 character)	DOCKET NUMBER	NAME (40 characters)	UNIT NUMBER (1 character)
a. 07000836	COMBUSTION ENGINEERING		b.		
c.			d.		

*2. TYPE OF REGULATED ACTIVITY (Check all applicable boxes)

a. REACTOR | b. VENDOR | c. MATERIALS | d. SAFEGUARDS | [X] e. OTHER (Specify) (30 characters): FUEL FACILITY

3. MATERIAL LICENSE NUMBER(S): a. SNM-33 | b. | c. | d.

*4. FUNCTIONAL AREA(S) (Check all applicable)

a. OPERATIONS | b. CONSTRUCTION | c. SAFEGUARDS
d. TRANSPORTATION | e. EMERGENCY PREPAREDNESS | [X] f. ONSITE HEALTH AND SAFETY
[X] g. OFFSITE HEALTH AND SAFETY | h. OTHER (Specify) (30 characters):

5. NUMBER OF CON-CERNS: [redacted]

*6. DESCRIPTION (400 characters)

RADIOACTIVE MATERIAL BURIED DURING PERIOD 1959-67 MAY NOT HAVE BEEN PROPERLY BURIED AND MAY NOW BE LEACHING.

*7. SOURCE (Check one)

a. CONTRACTOR EMPLOYEE | [X] b. FORMER CONTRACTOR EMPLOYEE | c. ANONYMOUS (50 characters for "F" or "I")
d. LICENSEE EMPLOYEE | e. NEWS MEDIA | f. ORGANIZATION (Specify):
g. FORMER LICENSEE EMPLOYEE | h. PRIVATE CITIZEN | i. OTHER (Specify):

*8. CONFIDENTIALITY REQUESTED: [X] a. YES | b. NO | c. IMPLIED

*9. DATE ALLEGATION RECEIVED: YEAR 85 MONTH 10 DAY 18

*10. EMPLOYEE RECEIVING ALLEGATION (First two initials, last name): C.H.WEIL

*11. OFFICE RECEIVING ALLEGATION: R3

[redacted]

B. ACTION OFFICE

*1. ALLEGATION NUMBER: RIII-85-A-[redacted]

*2. CONTACT (First two initials, last name): [redacted]

*3. CONTACT'S TELEPHONE: AREA CODE [redacted] NUMBER [redacted]

*4. SAFETY SIGNIFICANCE: a. YES | b. NO | [X] c. UNKNOWN

5. BOARD NOTIFICATION RECOMMENDED: a. YES | [X] b. NO

*6. STATUS

[X] a. OPEN — DATE COMPLETION SCHEDULED: YEAR 86 MONTH 01 DAY 17

b. CLOSED [redacted] — YEAR | MONTH | DAY

#7. ALLEGATION WAS SUBSTANTIATED: a. YES | b. NO | c. PARTIALLY

#8. ALLEGER NOTIFIED OF CLOSEOUT: a. YES | b. NO

9. REMARKS (800 characters, use additional page if necessary)

[redacted] | [redacted] | [X] [redacted]

11. OI REPORT NUMBER

[redacted]


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