

# Facility Status Change Form for the Research Technology Laboratory Complex

Prepared for the U.S. Department of Energy  
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy  
under Contract DE-AC06-08RL14788

**CH2MHILL**  
Plateau Remediation Company

**P.O. Box 1600  
Richland, Washington 99352**

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Richland, Washington 99352

**APPROVED**  
*By Janis D. Aardal at 1:55 pm, Jul 27, 2019*

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Release Approval

Date

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## FACILITY STATUS CHANGE FORM

Date Submitted: 3/13/19	Area: 1100	Control Number: D4-RTL-01
Originator: Bob Cathel	Facility ID: NA	Phone: 376-1513

**Action Memorandum/Removal Action Work Plan:**  
DOE/RL-2010-22, *Action Memorandum for General Hanford Site Decommissioning Activities*  
DOE/RL-2010-34, *Removal Action Work Plan for River Corridor General Decommissioning Activities*

This form documents the status of facility decontamination, deactivation, decommissioning, and demolition operations or debris removal in accordance with the applicable regulatory decision documents.

### **Section 1: Facility Status**

All D4 operations required by action memo complete.

### **Description of Completed Activities:**

The Research Technology Laboratory (RTL) Complex removal actions were performed per DOE/RL-2010-22, *Action Memorandum for General Hanford Site Decommissioning Activities*, as amended, and DOE/RL-2010-34, *Removal Action Work Plan for River Corridor General Decommissioning Activities*, as amended. The RTL Complex consists of 10 buildings (510, 520, 524, 530, 540, 550, 560, 570, 580, and 590) located south of the main Pacific Northwest National Laboratory (PNNL) campus on the southeastern corner of property owned by Battelle Memorial Institute in Richland, Washington). In addition to the listed buildings, the RTL Complex consists of a vault (along the northwest wing of RTL 520), underground piping (asbestos pipe, hot/chilled water pipeline chase way, and sewer line), parking lots, and open areas. Various research, development and laboratory operations were conducted within the RTL Complex buildings from 1966 to 2017. The buildings were of various construction, including: reinforced concrete, concrete block, and pre-engineered metal buildings. The buildings ranged in size from 16 m<sup>2</sup> (168 ft<sup>2</sup>) to 5,134 m<sup>2</sup> (55,931 ft<sup>2</sup>). Demolition of the RTL Complex began November 2017 and finished December 2018. Verification sampling began November 13, 2018 and finished December 7, 2018. The following actions were executed for the RTL Complex:

- Hazardous substances were removed from equipment or fixtures within and around the structures. All hazardous substances removed were characterized and disposed per the waste management applicable or relevant and appropriate requirements (ARARs) and Environmental Restoration Disposal Facility (ERDF) waste acceptance criteria
- Some hazardous substances remained in place during demolition (e.g., lamps, dried paints, solder in circuit boards, etc.) in accordance with CHPRC-03481, *Chemical Content in Rubble Generated from Research Technology Laboratory Complex Demolition*
- Two Underground Injection Control (UIC) wells (RTL-01 and RTL-03) were decommissioned in accordance with Washington Administrative Code (WAC) 173-218-120 "Decommissioning a UIC well"
- Utility connections (e.g., electrical) were severed at their service points
- Historic preservation and ecological resource evaluations were performed per the National Environmental Policy Act of 9169 to address site demolition impacts (Cultural Review: HCRC# 2015-PNSO-003, *Cultural Resources Review of the Remediation of Radiological Contamination at the Research Technology Laboratory (RTL) Complex at the Pacific Northwest National Laboratory (PNNL), Benton County, Washington* and Ecological Review: 2015-PNSO-003, *RTL Complex Radiological Contamination Remediation*)
- The RTL Complex contained friable asbestos, which was removed using appropriate containment methods and shipped to the Environmental Restoration Disposal Facility (ERDF) for disposal
- Some Category I and Category II nonfriable asbestos remained in place during demolition with EPA concurrence
- All waste generated during demolition was characterized, shipped, and disposed of in accordance with waste management ARARs and ERDF waste acceptance criteria (ERDF-00011, as amended)

## FACILITY STATUS CHANGE FORM (continued)

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**Description of Completed Activities:**

**Description of Current/As-Left Conditions:**

- The area was partially backfilled and the site stabilization completed January 30, 2019 to ensure that no safety hazards remained

**Total D4 Cost for the Facility:**

FY2018 Cost	\$15,977,100
FY2019 Cost	\$ 1,996,999
<b>Total Project Cost</b>	<b>\$17,974,000</b>

**Section 2: Underlying Soil Status**

- No waste site(s) present. No additional actions anticipated.
- Documented waste site(s) present. Cleanup and closeout to be addressed under a separate CERCLA Response Action.
- Potential waste site discovered during D4 operations. Waste site identification number <to be> assigned. Cleanup and closeout to be addressed under a separate CERCLA Response Action.

**Description of Current/As-Left Conditions:**

- Post demolition activities included evaluation of the soils remaining following completion of the removal action. This evaluation demonstrated that the areas affected by the removal action require no further response action because they meet release limits delineated in S740277-RPT-05, Research Technology Laboratory (RTL) Disposition Program Final Status Survey Report (survey report) (Golovich et al., 2019a) and S740277-PLAN-14, Research Technology Laboratory (RTL) Disposition Program Final Verification Sampling Report for Non-radiological Analytes (sampling report) (Golovich et al., 2019b).
- Additional details of as-left conditions can be found in Attachment 3.

**Identification of Documented Waste Site(s) or Nature of Potential Waste Site Discovery (as applicable):**

Not applicable.

**Section 3: List of Attachments**

- Attachment 1 - Facility Information
- Attachment 2 - Nonfriable asbestos to remain during demolition
- Attachment 2a - Request to leave Category I nonfriable asbestos during demolition
- Attachment 2b - EPA concurrence to leave Category I nonfriable asbestos during demolition
- Attachment 2c - Request and EPA concurrence to leave Category II nonfriable asbestos during demolition
- Attachment 3 - As-left condition of underlying soils
- Attachment 4 - Removal action before, during, and after photographs
- Attachment 5 - References

Ron Gallagher	<u>RON GALLAGHER</u>		<u>3/15/19</u>
DOE-PNSO	Print First and Last Name	Signature	Date
 Mark French	<u>John Neale</u>		<u>3/13/19</u>
DOE-RL	Print First and Last Name	Signature	Date

NOTE: The information on this form also satisfies the related DOE 430.1B Facility Closeout Reporting Requirements.

## FACILITY STATUS CHANGE FORM

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### Attachment 1: Facility Information

#### Introduction

The RTL Complex (Figure 1) was located within the Richland city limits and within the urban expansion area identified by Benton County, Washington. This parcel is currently identified as *Business Research Park* and *General Commercial* by the City of Richland and Benton County, respectively. The RTL Complex was bounded to the south by 3<sup>rd</sup> Street, to the north by 4<sup>th</sup> Street, to the west by Innovation Boulevard, and to the east by George Washington Way.



Figure 1: Layout of the RTL Complex.

#### Facility History

The RTL Complex was 6.2 hectares (15.2 acres) and consisted of 10 buildings (510, 520, 524, 530, 540, 550, 560, 570, 580, and 590) located south of the main PNNL campus on the southeastern corner of property owned by Battelle Memorial Institute (BMI) in Richland, Washington. In addition to the listed buildings, the RTL Complex consisted of a vault (along the northwest wing of RTL520), underground piping (asbestos pipe, hot/chilled water pipeline chase way, and sewer line), parking lots, and open areas.

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Hazardous materials and chemicals (e.g., radionuclides, hazardous chemicals, beryllium, and asbestos) were historically used in portions of the RTL Complex to support DOE-funded and other historical activities. As discussed in the survey report (Golovich et al., 2019a) and sampling report (Golovich et al., 2019b), past land use at the RTL Complex property included agriculture, residential, and industrial activities. Former land use is important to consider when evaluating the types of contamination potentially present in the soil.

The RTL Complex was built in 1966 by the Douglas Aircraft Company as the company's diversification commitment to the Atomic Energy Commission. The RTL Complex was a branch of the research and development section of the Missile and Space Systems Division of Douglas Laboratory. Its operations involved the use of Pu-238, Pu-239, U-233, and U-235 for fabricating prototype reactor fuels. Douglas Laboratories was also involved in the development of Betacel® batteries using Pm-147. The Pm-147 was obtained during isotopic separations associated with Hanford plutonium production during the 1960s, when operations at Hanford and Oak Ridge developed the necessary technologies for large-scale production at Hanford (Golovich et al., 2019a and 2019b).

Douglas Laboratory operated the facility until 1975, when it passed custodianship of the complex to Exxon Nuclear Company (Exxon). Internal Exxon documents indicate significant surface decontamination was performed in Hot Labs 134 and 136, within RTL520, and some residual non-smearable Pm-147 and Pu-238 contamination remained in the ductwork prior to building acquisition in 1975. Exxon used the facility to develop processes and techniques supporting fabrication of Sphere-PAC nuclear fuels developed at Oak Ridge National Laboratory and transitioned to RTL for pilot-scale production (Golovich et al., 2019a and 2019b).

BMI purchased the facility in 1981 and allowed Exxon to operate under a lease agreement until Exxon vacated the facility in 1983. After the facility was vacated RTL520 was occupied by PNNL staff from the Energy and Environment Directorate and Fundamental and Computational Sciences Directorate (Golovich et al., 2019a and 2019b).

### **Buildings Description and Construction**

#### RTL510: Support Building

RTL510 provided for chemical and flammable gas storage. The building was a one-story, flat-roofed, concrete block structure erected on a short, concrete foundation wall containing a concrete above-grade floor. There were two unequally sized rooms; one of which contained a round concrete pipe and a below-grade storage pit.

#### RTL520: Main Building

The main building within the RTL Complex was RTL520, constructed in 1966 by Douglas Aircraft to make nuclear fuel rods. Battelle purchased the complex and land from Exxon Nuclear, a subsequent owner, in 1982. RTL520 housed 95 offices comprising 1235 m<sup>2</sup> (13,290 ft<sup>2</sup>), 33 laboratories comprising 1460 m<sup>2</sup> (15,710 ft<sup>2</sup>), and common space of 2439 m<sup>2</sup> (26,250 ft<sup>2</sup>) for a total area of 5134 m<sup>2</sup> (55,250 ft<sup>2</sup>). The main laboratory/administration building was constructed of reinforced concrete (including the roof), with outside curtain walls of concrete block faced with red brick. The outside windows were heavy, double paned, with aluminum frames. There was also a partial basement of approximately 650 m<sup>2</sup> (7,000 ft<sup>2</sup>) constructed of concrete foundation walls.

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### RTL524: Fire Riser Building

RTL524 was a 3.7 m X 4.6 m (12 ft X 15 ft) pre-engineered metal building on a concrete slab and foundation that was built to protect the fire sprinkler riser installed as part of an RTL Complex fire system upgrade in approximately 2004.

### RTL530: Radioactive Material Storage Building

RTL530 provided space for the temporary storage of experimental radioactive materials and was adjacent to the 520 building. The perimeter was 3.7 m X 4.3 m (12 ft X 14 ft). The building was constructed of reinforced concrete with outside concrete curtain walls and a flat built-up roof (felt, asphalt, and gravel). The floor was concrete and contained a pit with a lead cover for storing highly radioactive materials. The facility was used for radioactive waste storage. The building was modified in 2000 to add a high-efficiency particulate air filter exhaust system.

### RTL540: Paper Shredder Facility

RTL540 was a metal structure with concrete foundation, and previously served as a paper shredding facility. It recently consisted primarily of storage areas.

### RTL550: Technical Services Building

RTL550 was a one-story, prefabricated, insulated metal structure erected on concrete foundations and a concrete slab-on-grade floor. It consisted of three metal buildings that had been tied into one unit. Rooms consisted primarily of offices, maintenance shops, and storage.

### RTL560: Utility Building

RTL560 provided space for mechanical equipment, such as boilers, chillers, and a cooling tower, all of which provided heating and cooling for RTL520. The perimeter is 14.6 m X 24.4 m (48 ft X 80 ft). This was a concrete block building erected on concrete footings with a concrete slab floor. The roof was constructed with a steel girder, wood purlins, and rafters, and covered with plywood decking, rigid insulation, and built-up roofing. Two roll-up doors were installed on the south side of the building. The building contained two 200-hp natural-gas-fired boilers and two 150-ton chillers. A cooling tower, which was used as a circulating water heat dump, was located adjacent to RTL560. A small (37.2 m<sup>2</sup> [400 ft<sup>2</sup>]) insulated steel building was attached to the southwest corner of RTL560 and was used as a storage/stockroom.

### RTL570: Autoclave Center

RTL570 served as an autoclave center. The building was made with prefabricated, insulated steel erected on concrete foundation and had a concrete slab floor and a flat, insulated metal roof.

### RTL580: Craft Shop Building

RTL580 served as the craft shop. The building was a one-story, prefabricated, insulated metal structure erected on concrete foundations and a concrete slab-on-grade floor.

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RTL590: Hazardous Waste Chemical Storage/Warehouse

RTL590 was primarily used for storage, including a chemical waste storage area with an in-service fume hood. The building was a one-story, prefabricated, insulated metal structure erected on concrete foundations and a concrete slab-on-grade floor.

Over RTL's operational history, incidents have occurred involving radioactive materials. PNNL historical records (1982–1995) and information from the DOE Occurrence Reporting and Processing System database (1996–Current) show a combined 11 documented radiological events that have occurred in the RTL between 1982 and 2004, while under BMI ownership. Since 2004, there have been no reported radiological occurrences.

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**Attachment 2: Nonfriable Asbestos Remaining During Demolition**

**U.S. Environmental Protection Agency Concurrence to Leave Cat I and Cat II Asbestos during Demolition**

The U.S. Environmental Protection Agency (EPA) was contacted via email on October 18, 2017 to request concurrence to leave Category I nonfriable asbestos in place during demolition of the RTL Complex. Details of the demolition controls were provided to the EPA via email on November 13, 2017 (Attachment 2a). On November 20, 2017 EPA provided concurrence that the demolition approach is consistent with the asbestos NESHAP regulations; therefore, demolition of the RTL Complex with identified Category I nonfriable asbestos remaining could commence (Attachment 2b).

On December 7, 2017 the EPA was again contacted via email to request concurrence to leave Category II nonfriable cement-asbestos in place during demolition. Details of the demolition controls were provided to the EPA. On January 10, 2018 EPA provided concurrence that the demolition approach is consistent with the asbestos NESHAP regulations; therefore, demolition of the RTL Complex with identified Category I nonfriable asbestos remaining could commence (Attachment 2c).

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## Attachment 2a: Category I Nonfriable Asbestos Request

Cathel, Robert L

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From: Toebe, Wayne E  
Sent: Monday, November 13, 2017 1:08 PM  
To: Cameron, Craig (EPA); 'Pavitt.John@epa.gov'  
Cc: Guercia, Rudolph F (Rudy); Cathel, Robert L; Hopkins, Ted A; Karschnia, Paul T  
Subject: RE: UPCOMING DEMOLITION WORK AT THE RADIOLOGICAL TECHNOLOGY LABORATORY

Hello John and Craig,

This message is written in response to the messages received from Craig this morning.

1. The question was asked whether or not “cement is involved in the demolition.” We presume this is a question regarding whether or not any asbestoscement products will be left in or on the buildings during demolition. The answer is no – all asbestos-cement products associated with the buildings will or have been removed prior to commencement of demolition.
2. Information on the lab and its background was requested with an indication that photos might help. See information below.

The complex was built in 1966 by the Douglas Aircraft Company as the company’s diversification commitment to the Atomic Energy Commission (AEC). The RTL Complex was a branch of the research and development section of the Missile and Space Systems Division of Douglas Laboratory. Its operations involved the use of plutonium and uranium isotopes.

Douglas Laboratory operated the facility until 1975, when it passed custodianship of the complex to Exxon Nuclear Company (Exxon). Exxon used the facility to develop processes and techniques supporting fabrication of nuclear fuels developed at Oak Ridge National Laboratory and transitioned to RTL for pilot-scale production.

BMI purchased the facility in 1981 and allowed Exxon to operate under a lease agreement until Exxon vacated the facility in 1983. Prior to completion of the RTL relocation projects, RTL520 was occupied by PNNL staff from the Energy and Environment Directorate (EED) and Fundamental and Computational Sciences Directorate (FCSD). Prior to transition, RTL Complex buildings had the following missions, as described in the facility use agreements:

- **RTL510** – Support Building
- **RTL524** – Fire Riser Facility
- **RTL540** – Paper Shredder Facility
- **RTL560** – Utility Building
- **RTL580** – Crafts Shop

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- **RTL520** – Research Technology Lab
- **RTL530** – Radioactive Storage
- **RTL550** – Technical Services
- **RTL570** – Autoclave Center
- **RTL590** – Warehouse



Thanks!

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From: Toebe, Wayne E  
Sent: Thursday, November 09, 2017 6:47 AM  
To: Cameron, Craig (EPA) ; 'Pavitt.John@epa.gov'  
Cc: Guercia, Rudolph F (Rudy) ; Cathel, Robert L ; Hopkins, Ted A  
Subject: RE: UPCOMING DEMOLITION WORK AT THE RADIOLOGICAL TECHNOLOGY LABORATORY

Hello John and Craig,

Could you please review the information below regarding upcoming demolition work to determine if the approach is consistent with EPA guidance? We are nearly ready to begin the work.

Thank you!

Wayne Toebe, CHPRC Environmental Protection

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From: Toebe, Wayne E  
Sent: Wednesday, November 01, 2017 10:13 AM  
To: Cameron, Craig (EPA) ; 'Pavitt.John@epa.gov'  
Cc: Guercia, Rudolph F (Rudy) ; Cathel, Robert L  
Subject: RE: UPCOMING DEMOLITION WORK AT THE RADIOLOGICAL TECHNOLOGY LABORATORY

Hello John and Craig,

Please see the information below in response to the questions posed by EPA.

1. Asbestos controls from the work package for this work;
2. Summary information about the approach;
3. Excerpts from EPA guidance supporting the approach.

Thanks,  
Wayne Toebe, CHPRC Environmental Protection

1.  
**ASBESTOS**

Some non-friable Asbestos Containing Material (ACM) (i.e., roofing material, roofing mastic, roofing felt, gaskets, and packing) will be left in place during demolition of the ancillary buildings. The following controls will be implemented during demolition due to the presence of this asbestos:

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- An Asbestos Competent Person will be assigned to oversee the demolition activities.
- An Asbestos Regulated Area will be established around the demolition areas. The regulated area will be posted as “***Danger Asbestos May Cause Cancer Causes Damage To Lungs Authorized Personnel Only***”. This posting is appropriate for the abatement of Class II Asbestos utilizing the below identified engineering and administrative control.
- Filter material will be installed on the air intakes of adjacent buildings if the air intakes are located within the Asbestos Regulated Area.
- All personnel who access the Asbestos Regulated Areas to perform demolition/load-out activities (e.g., Heavy Equipment Operators and D&D Workers) will have as a minimum Class II Asbestos Training. These same individuals will be enrolled in the medical surveillance program as an Asbestos Class I, II, or III Construction Worker. Personnel who access the Asbestos Regulated Areas to provide support functions (e.g., radiological surveys, sampling, etc.) will have as a minimum Asbestos Awareness Training. Personnel who access the Asbestos Regulated Areas to provide support functions are not required to be enrolled in medical surveillance for asbestos.
- Wet methods which includes the application of water, amended water, fixatives, and/or encapsulants will be employed during the entire demolition activity. Demolition debris and waste will be managed in such a way as to prevent the release of fibers. The preferred method is to load ACM/PACM directly into waste containers. Size reduction of building areas containing ACM/PACM should be limited to the amounts needed to fill staged waste containers. Prompt clean-up and disposal of waste and debris contaminated with asbestos will be required. Asbestos debris and/or waste shall be kept wet, fixed, or encapsulated until placed and enclosed within a waste container.
- The excavator will not be allowed to track over material containing asbestos without first laying down a protective barrier to prevent the crushing of the material. A covering of soil/sand, plywood, or other appropriate material will be used to protect the material.
- Industrial Hygiene will conduct air sampling for asbestos during the demolition activity. Air sampling will include area/perimeter sampling and personal sampling for TWA and  
Excursions. Sampling data will be utilized to evaluate the effectiveness of mitigative controls. Negative Exposure Assessments (NEAs) will be developed as necessary to support the downgrade of mitigative controls.

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The demolitions will be performed in a manner that is consistent with EPA guidance (see excerpts below) and is not anticipated to render any of the Category I ACM friable. All friable asbestos will be removed prior to initiation of demolition activities. We do not anticipate the presence of ACWM in the debris after demolition. Therefore, the need for segregation of ACWM from other debris is not anticipated. However, if ACWM is created during the work, it will be managed as summarized below. Cleanup activities, including loading of debris, will not subject the Category I ACM to sanding, grinding, cutting, or abrading. Tracked vehicles will not be used to intentionally run over Category I ACM as a means of size-reduction.

During the demolition of areas where Category 1 nonfriable ACM is located, the following will be applied:

- Wet methods will be used on ACM items during removal.
- Demolition activity will only use methods that minimize breaking, crushing, pulverizing, or reducing to powder suspected ACM during removal with heavy equipment.
- Sanding, grinding, cutting, or abrading of suspected ACM will not be allowed.
- Size reduction of debris will be minimized to the extent needed to load the material safely for transport.
- Suspected asbestos-containing waste material (ACWM) will be segregated from other waste to the extent possible. Comingled ACWM and non-ACM waste materials will be treated as ACWM.
- ACWM will be managed in accordance with the substantive requirements of NESHAP.
- ACWM will be kept adequately wet at all times after demolition and will be kept wet during handling and loading for transport to the disposal site. This ACWM will be transported and disposed of in bulk following applicable site procedures.

3.

From EPA-340/1-92-013:

### SECTION 3

#### DEMOLITION PRACTICES BY TYPE OF ACM

##### INTRODUCTION

For many years now the applicability of the asbestos NESHAP to demolitions involving Category I nonfriable ACMs (packings, gaskets, resilient floor coverings and mastic, and asphaltic roofing materials) has been the topic of much debate. Since significant amounts of airborne asbestos fibers are not believed to be produced from such materials during normal demolition activities, however, the asbestos NESHAP, in most cases, does not require their removal prior to demolition.



Category I materials are considered RACM only when they "will be or have been subjected to sanding, grinding, cutting, or abrading", they are in "poor condition" and "friable", or the structure in which they are located will be demolished by burning. (Definitions for these terms and additional information concerning Category I nonfriable ACM can be found in the preamble to the November 1990 revised asbestos NESHAP (SUPPLEMENTARY INFORMATION, Section IV - Significant Comments..., *Demolition and Renovation*, Nonfriable ACM and Broken ACM).

The following information details specific pre-demolition and demolition practices and their impact on Category I nonfriable ACM. The information has been compiled from telephone surveys of demolition contractors, the viewing of activities at a number of demolition sites, and formal and informal EPA applicability determinations. The effects of various demolition practices on asbestos-cement products are also discussed. Since the applicability of the asbestos NESHAP to Category II nonfriable materials is determined on a case-by-case basis, it is hoped that this additional information will help foster nationwide consistency in the application of the regulation to these materials.

##### **Demolition with Floor Tiles in Place**

Since ordinary demolition activities do not include the sanding, grinding, cutting and abrading of floor tiles, floor tiles and associated mastic that are not in poor condition and not friable are not considered RACM and are allowed to remain in place during demolition.

##### **Demolition with Roofing Materials in Place**

Since demolition activities do not include sanding, grinding, cutting, or abrading, Category I asbestos-containing roofing materials not in poor condition and not friable are not considered RACM and are allowed to remain in place during demolition.

## INTRODUCTION

At the present time it is not demolition operations and ordinary cleanup activities but the post-demolition activities involving waste consolidation and recycling of Category I and II materials which are of greater concern. If such activities subject either Category I or II nonfriable ACM to sanding, grinding, cutting or abrading, the materials become RACM and are then subject to the provisions of the asbestos NESHAP.

 In general, since cleanup activities such as loading waste debris onto trucks for disposal do not subject nonfriable materials to sanding, grinding, cutting or abrading, such materials are not considered asbestos-containing waste materials and are not regulated by the asbestos NESHAP.

However, waste consolidation efforts which involve the use of jack hammers or other mechanical devices such as grinders to break up asbestos-containing concrete or other materials covered or coated with Category I nonfriable ACM, are subject to the regulation.

In addition, operations such as waste recycling which sand, grind, cut, or abrade Category I or II nonfriable ACM are subject to the asbestos NESHAP. When these types of activities are performed, Category I and II nonfriable ACM become RACM.

The following details the post-demolition activities of waste consolidation (segregation and reduction), waste load-out and onsite waste disposal and their effects on nonfriable ACM.

## WASTE CONSOLIDATION

Waste consolidation operations involve segregation and reduction activities that have as their ultimate goal the resale, recycling, and disposal of demolition debris.

### Segregation of Demolition Debris

Since segregation activities may be accomplished using hand methods and heavy equipment, nonfriable ACM may or may not become friable in the process. The following text details various segregation activities and describes their effects on nonfriable materials.

### *Segregation by Hand*

Materials such as wood, brick and steel are generally separated from other demolition debris using equipment such as sledgehammers, prybars, adzes and axes. If any hand equipment is used to cut, sand, grind, or abrade Category I or II materials, RACM is thus created and the provisions of the asbestos NESHAP apply.

### *Material Transport*

Since heavy equipment is often used to move and segregate demolition debris, questions have been raised concerning the effect of such transport particularly on Category I nonfriable ACM.

If Category I nonfriable ACM is transported across a demolition site in the bucket of a top loader, backhoe, hydraulic excavator or other similar vehicle, it is not considered RACM since it is not subjected to sanding, grinding, cutting or abrading during this activity.

Use of bulldozers, on the other hand, is expected to have a greater impact on Category I materials. However, EPA has stated that "...if the bulldozer is moving the debris or picking it up to be put in a vehicle and inadvertently runs over Category I material, then it is not subject to the NESHAP standard" (see Appendix I). Consequently, the moving of debris by bulldozers, whether by carrying it in a bucket or pushing it along the ground does not in itself cause Category I nonfriable ACM to become RACM.

Category II nonfriable ACM subjected to sanding, grinding, cutting or abrading during collection and transport is considered RACM and thus subject to the asbestos NESHAP.

### *Vehicular Traffic Impact*

#### *Rubber-tired Vehicles*

If nonfriable ACM is intentionally run over by rubber-tired vehicles as a means of segregation, it does not automatically become RACM but must be examined for damage. If it has become extensively damaged, i.e., it was sanded, ground, cut or abraded during segregation, it becomes RACM and is subject to the NESHAP regulation.

#### *Tracked Vehicles*

Although tractor treads present greater risks of causing extensive damage to nonfriable ACM, limiting their use at demolition sites is not considered practical. Intentionally running over nonfriable ACM with tractor treads as a means of segregation is considered grinding; material thus treated becomes RACM.

## Reduction of Demolition Debris

Reduction activities are of the greatest concern to EPA, since they are most likely to cause both Category I and Category II nonfriable ACM to become RACM.

### **Category I Reduction**

The use of bulldozers to reduce the volume of Category I materials causes them to become RACM as discussed elsewhere in this manual and in the following EPA correspondence:

*"If, after a demolition, material left in the facility... is intentionally ground up (such as repeatedly running over the debris with a bulldozer to compact the material), then 61.150(a)(3) applies. The material must be adequately wetted and kept adequately wet during collection and transport to a site or facility operated in accordance with 61.154 or 61.155." (See Appendix D).*

Reduction by the use of sledgehammers does not normally cause Category I nonfriable ACM to become RACM. The use of pneumatic hammers, however, whether hand-operated or attached to heavy machinery, does cause these materials to become RACM. The use of cranes with clamshells or other heavy machinery with rakes or buckets to partially reduce Category I nonfriable ACM is permissible if the material is left recognizable in its original form. Extensively damaged Category I ACM (that which has been sanded, ground, cut, or abraded) becomes RACM. Consolidating waste materials containing Category I nonfriable ACM in the hole (basement) of a building and subsequently grinding or crushing it via bulldozer subjects the operation to the asbestos NESHAP.

For wood/tile debris, demolition crews sometimes use tree chippers to grind the material up. Any Category I nonfriable ACM subjected to this treatment becomes RACM.

**Waste Load Out**

As mentioned previously, waste load out activities generally do not cause Category I nonfriable ACM to become RACM. Top loaders are typically used to deposit demolition debris containing Category I nonfriable ACM into trucks for hauling to landfills that accept construction debris.

Recent EPA correspondence discusses the hauling and ultimate disposal of both Category I and Category II ACM as follows:

*It is required under §61.150(a)(3) that asbestos-containing waste material be kept adequately wet. Asbestos-containing waste material as applied to demolitions and renovations includes RACM waste and materials contaminated with asbestos including disposable equipments and clothing. Category I or Category II nonfriable ACM that has been contaminated by RACM, and cannot be decontaminated (e.g., building debris in a pile contaminated with RACM) must be treated as asbestos-containing waste material. Category I or Category II ACM that does not meet the definition of RACM after a demolition or renovation, and is not contaminated with RACM, is not asbestos-containing waste material and is not subject to the wetting requirement of §61.150(a)(3).*

*Category I or II nonfriable ACM that is not subject to §61.150(a)(3) would still have to be disposed of in a landfill that accepts building debris, in a landfill that operates in accordance with §61.154, or at a facility that operates in accordance with §61.155. This waste material would not be allowed to go to any facility that would sand, grind, cut or abrade the non-RACM waste or otherwise turn it into RACM waste (such as a cement recycling facility). In addition, if Category I or II nonfriable ACM is sanded, ground, cut or abraded during disposal at a landfill, before it is buried, it is subject to the NESHAP. (See Appendix I).*

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

Ms. Ann Bieller, Area Manager  
Environmental Management  
Southwestern Bell Telephone  
Procurement Organization  
500 North Broadway, Room 1400  
St. Louis, Missouri 63102

Dear Ms. Bieller:

This letter is in response to your January 28, 1992 letter requesting a clarification of 40 CFR §61.150(a)(3) as it relates to §61.145(c)(1)(i) and (iv), of the Asbestos NESHAP Revision; Final Rule, dated November 20, 1990.

In your letter, you present your understanding that there are no special requirements for adequately wetting Category I or Category II nonfriable asbestos-containing material (ACM) during the course of a demolition or renovation if it does not meet the definition of regulated asbestos-containing material (RACM). You also state that this conclusion is further supported by §61.150(a)(5), until §61.150(a)(3) is taken into consideration. Section 61.150(a)(3) requires, "for facilities demolished where RACM is not removed prior to demolition according to §§61.145(c)(1)(i), (ii), (iii) and (iv) or for facilities demolished according to §61.145(c)(9), adequately wet asbestos-containing waste material at all times after demolition and keep wet during handling and loading for transport to a disposal site." You question the correctness of the §61.150(a)(3) reference to §61.145(c)(1)(i) and (iv).

Section 61.150(a)(3) correctly cites §61.145(c)(1)(i), (ii), (iii) and (iv). It is required under §61.150(a)(3) that asbestos-containing waste material be kept adequately wet. Asbestos-containing waste material as applied to demolitions and renovations includes RACM waste and materials contaminated with asbestos including disposable equipment and

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

From: Cameron,

Craig

[<mailto:Cameron.Craig@epa.gov>]

[aig@epa.gov](mailto:Cameron.Craig@epa.gov)]

Sent: Friday,

October 20, 2017

9:08 AM

To: Toebe, Wayne E <[Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)>

Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>

Subject: FW: UPCOMING DEMOLITION WORK AT THE RADIOLOGICAL TECHNOLOGY LABORATORY

Wayne,

Please see John's message and the string below. We need some details.

---

From: Pavitt, John

Sent: Thursday, October 19, 2017 4:26 PM

To: Wroble, Julie <[Wroble.Julie@epa.gov](mailto:Wroble.Julie@epa.gov)>; Cameron, Craig <[Cameron.Craig@epa.gov](mailto:Cameron.Craig@epa.gov)>

Cc: Buelow, Laura <[Buelow.Laura@epa.gov](mailto:Buelow.Laura@epa.gov)>

Subject: RE: UPCOMING DEMOLITION WORK AT THE RADIOLOGICAL TECHNOLOGY LABORATORY

I'm coordinating a review of this question with EPA HQ. We need additional details about the demolition methods that will be used to evaluate if it's likely - or not - that the activity will make the asbestos materials friable.

Craig, please have the contractor/project manager send me more details on their planned work practices.

Thanks,

John Pavitt

US EPA R10, AOO/A

(907) 271-3688

---

From: Wroble, Julie

Sent: Thursday, October 19, 2017 7:53 AM

To: Cameron, Craig <[Cameron.Craig@epa.gov](mailto:Cameron.Craig@epa.gov)>; Pavitt, John <[Pavitt.John@epa.gov](mailto:Pavitt.John@epa.gov)>

Cc: Buelow, Laura <[Buelow.Laura@epa.gov](mailto:Buelow.Laura@epa.gov)>

Subject: RE: UPCOMING DEMOLITION WORK AT THE RADIOLOGICAL TECHNOLOGY LABORATORY

One comment – I'm concerned about waste segregation mentioned. It may be very difficult to separate ACM from non-ACM wastes, so I'd be curious to know more about the ultimate handling and disposal of these materials.

Thanks!

Julie

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

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From: Cameron, Craig  
Sent: Thursday, October 19, 2017 8:11 AM  
To: Pavitt, John <[Pavitt.John@epa.gov](mailto:Pavitt.John@epa.gov)>  
Cc: Wroble, Julie <[Wroble.Julie@epa.gov](mailto:Wroble.Julie@epa.gov)>; Buelow, Laura <[Buelow.Laura@epa.gov](mailto:Buelow.Laura@epa.gov)>  
Subject: FW: UPCOMING DEMOLITION WORK AT THE RADIOLOGICAL TECHNOLOGY LABORATORY

John,

This is an area near Battelle's national lab (what used to be called the 3000 Area). Please review and let me know if you need more information.

Thanks.

---

From: Toebe, Wayne E  
[\[mailto:Wayne\\_E\\_Toebe@rl.gov\]](mailto:Wayne_E_Toebe@rl.gov) Sent: Wednesday, October 18, 2017 3:39 PM  
To: Cameron, Craig <[Cameron.Craig@epa.gov](mailto:Cameron.Craig@epa.gov)>  
Cc: Hopkins, Ted A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>  
Subject: UPCOMING DEMOLITION WORK AT THE RADIOLOGICAL TECHNOLOGY LABORATORY

Hello Craig,

Please see summary information below regarding upcoming demolition work associated with the radiological technology laboratory (RTL). We have identified Category I nonfriable ACM through inspection that will be left in the buildings during demolition. The ACM consists of roofing materials, mastic and floor tile, sealant and caulk, and gaskets and packings. At this time, we are requesting concurrence from EPA that the Category I nonfriable ACM will not be rendered friable by the planned demolition approach for the facilities identified below.

RTL 510: The building was used as a support building for chemical and flammable storage. Approximately 600 ft<sup>2</sup> of Category I nonfriable ACM that is not in poor condition is present as roofing felt/tar.

RTL 520: The building was used as a research technology laboratory. Category I nonfriable ACM that is not in poor condition is present as follows: (1) approximately 44,375 ft<sup>2</sup> as black mastic and floor tile; (2) approximately 1200 linear feet as sealant/caulk; (3) approximately 400 ft<sup>2</sup> as gaskets and packings; and (4) approximately 200 linear feet as coving mastic.

RTL 524: The building was used as a fire riser facility for water relay. Approximately 40 ft<sup>2</sup> of Category I nonfriable ACM that is not in poor condition is present as gaskets and packings.

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

RTL 550: The building was used as a technical service facility. Approximately 40 ft<sup>2</sup> of Category I nonfriable ACM that is not in poor condition is present as gaskets and packings. Approximately 4,200 ft<sup>2</sup> of Category I nonfriable ACM that is not in poor conditions is present as roofing/felt/mastic.

RTL 560: The building was used as a utility building for boiler and chiller equipment. Approximately 240 linear feet of Category I nonfriable ACM that is not in poor condition is present as roofing felt/mastic. Approximately 40 ft<sup>2</sup> of Category I nonfriable ACM that is not in poor condition is present as gaskets and packings.

RTL 570: The building was used as a laboratory. Approximately 40 ft<sup>2</sup> of Category I nonfriable ACM that is not in poor condition is present as gaskets and packings.

RTL 580: The building was used as a craft shop. Approximately 40 ft<sup>2</sup> of Category I nonfriable ACM that is not in poor condition is present as gaskets and packings.

RTL 590: The building was used as a chemical storage unit. Approximately 40 ft<sup>2</sup> of Category I nonfriable ACM that is not in poor condition is present as gaskets and packings.

The demolition controls for each of the buildings listed above have been developed to ensure that Category I nonfriable ACM will not be rendered friable by the methods applied. The demolition activities and associated waste handling activities such as segregation, consolidation, and reduction will not include any sanding, grinding, cutting, or abrading of ACM. Water with surfactant will be used as appropriate during the demolition and waste handling processes to keep dirt and dust down. Reduction of the building by the excavator will be minimized to the extent needed to load the material safely for transport. Fixatives will be used on asbestos-containing waste materials that remain overnight at the demolition site.

We would be glad to come to your office to discuss the planned building demolitions and the associated Category I nonfriable ACM if you would like.

Thank you,  
Wayne Toebe, CHPRC Environmental Protection  
521-0333

FROM EPA-340-1-92-013, DEMOLITION PRACTICES UNDER THE ASBESTOS NESHAP:

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

Category I material is defined as asbestos-containing resilient floor covering, asphalt roofing products, packings and gaskets. Asbestos-containing mastic is also considered a Category I material (EPA determination - April 9, 1991). Category II material is defined as all remaining types of non-friable ACM not included in Category I that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable asbestos-cement products such as transite are an example of Category II material.

The asbestos NESHAP specifies that Category I materials which are not in poor condition and not friable prior to demolition do not have to be removed, except where demolition will be by intentional burning. However, regulated asbestos-containing materials (RACM) and Category II materials that have a high probability of being crumbled, pulverized, or reduced to powder as part of demolition must be removed before demolition begins.

.....

DEMOLITION PRACTICES BY METHOD

Methods of destruction employed at demolition sites include the use of heavy machines, explosions/implosions, and hand methods. All of these methods cause Category II nonfriable ACM to become RACM; however, Category I nonfriable ACM (packings, gaskets, resilient floor coverings, asphaltic roofing materials, mastic) that is not in poor condition and not friable prior to the demolition operation may be subjected to most of these techniques without becoming RACM. The following describes various demolition techniques and their effects on nonfriable materials. All Category I nonfriable ACM referenced is presumed not to be in poor condition and not friable prior to the demolition operation.

.....

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

**Attachment 2b: Category I Nonfriable Asbestos – EPA Concurrence**

Cathel, Robert L

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From: Toebe, Wayne E  
Sent: Monday, November 20, 2017 2:22 PM  
To: 'Pavitt, John'; Cameron, Craig (EPA)  
Cc: Guercia, Rudolph F (Rudy); Cathel, Robert L; Hopkins, Ted A;  
'ron.gallagher@science.doe.gov'; Buelow, Laura (EPA); Dixon, Brian J  
Subject: RE: RTL Complex Demolition

Thank you John and Craig.

---

From: Pavitt, John [mailto:Pavitt.John@epa.gov] Sent:  
Monday, November 20, 2017 2:22 PM  
To: Toebe, Wayne E <Wayne\_E\_Toebe@rl.gov>; Cameron, Craig (EPA) <cameron.craig@epa.gov>  
Cc: Guercia, Rudolph F (Rudy) <rudolph.guercia@rl.doe.gov>; Cathel, Robert L <Robert\_L\_Cathel@rl.gov>; Hopkins, Ted  
A <Ted\_A\_Hopkins@rl.gov>; 'ron.gallagher@science.doe.gov' <ron.gallagher@science.doe.gov>; Buelow, Laura (EPA)  
<buelow.laura@epa.gov>; Dixon, Brian J <Brian\_J\_Dixon@rl.gov>  
Subject: RE: RTL Complex Demolition

Wayne, thank you for providing additional information about your plans. After reviewing your plan details, we find that it is consistent with the asbestos NESHAP. If you find that conditions change - for example if nonfriable ACM becomes friable from the demolition activity - you'll need to revise your plans as necessary to prevent the release of asbestos and stay in compliance with the NESHAP rule.

Let me know if you have any questions.

Thanks,

John Pavitt  
US EPA R10, AOO/A  
(907) 271-3688

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From: Toebe, Wayne E [[mailto:Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)] Sent:  
Monday, November 20, 2017 12:00 PM  
To: Pavitt, John <[Pavitt.John@epa.gov](mailto:Pavitt.John@epa.gov)>; Cameron, Craig <[Cameron.Craig@epa.gov](mailto:Cameron.Craig@epa.gov)>  
Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Hopkins, Ted  
A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>; 'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Buelow, Laura  
<[Buelow.Laura@epa.gov](mailto:Buelow.Laura@epa.gov)>; Dixon, Brian J <[Brian\\_J\\_Dixon@rl.gov](mailto:Brian_J_Dixon@rl.gov)>  
Subject: RE: RTL Complex Demolition

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

Thank you John. We are hopeful that you can wrap up your review of these demolitions soon. As we indicated last week in our meeting with Craig, we are prepared to begin demolition this Wednesday on one of the structures that contains gaskets and packing.

Wayne

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From: Pavitt, John [<mailto:Pavitt.John@epa.gov>] Sent:  
Monday, November 20, 2017 12:55 PM  
To: Toebe, Wayne E <[Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)>; Cameron, Craig (EPA) <[cameron.craig@epa.gov](mailto:cameron.craig@epa.gov)>  
Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Hopkins, Ted A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>; 'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Buelow, Laura (EPA) <[buelow.laura@epa.gov](mailto:buelow.laura@epa.gov)>  
Subject: RE: RTL Complex Demolition

Thank you Wayne for sending me your answers to our questions.

I'll share this with my POC at HQ and let you know our response.

Sincerely,

John Pavitt  
US EPA R10, AOO/A  
(907) 271-3688

---

From: Toebe, Wayne E [[mailto:Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)] Sent:  
Friday, November 17, 2017 12:17 PM  
To: Cameron, Craig <[Cameron.Craig@epa.gov](mailto:Cameron.Craig@epa.gov)>; Pavitt, John <[Pavitt.John@epa.gov](mailto:Pavitt.John@epa.gov)>  
Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Hopkins, Ted A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>; 'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Buelow, Laura <[Buelow.Laura@epa.gov](mailto:Buelow.Laura@epa.gov)>  
Subject: RE: RTL Complex Demolition

Hello Craig and John,

Please see responses below to your recent questions. Thanks!

Questions:

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

I can't tell from the aerial picture whether these are single or multi-story structures. If multi-story, how many stories?

RESPONSE: These are all single story structures (mostly butler style buildings); one structure, RTL-520, has a partial basement.

The friable asbestos (e.g., thermal pipe wrap insulation) has already been removed according to the regs?

RESPONSE: The friable asbestos has been removed by a remediation contractor. There are six remaining areas within RTL-520 that will have friable asbestos removed prior to demolition once obstructions have been removed.

How will the concrete and other debris be collected and transported from the site?

RESPONSE: There is no cementitious asbestos board within the RTL complex. Generally speaking, demolition debris will be loaded into RO/RO containers for transportation to the Environmental Restoration Disposal Facility at Hanford.

Will the debris be disposed of in an asbestos certified landfill, or a standard C&D debris landfill? RESPONSE:

Yes, all ACM/PACM will be disposed in the ERDF.

Is any of this debris radiation contaminated? If so, will it go to the big landfill on the Hanford site? RESPONSE:

Some will be and it will be disposed in the ERDF.

I may have missed it but I did not notice worker protection specifications in the event that AWCM is encountered or created.

RESPONSE: The project field work supervisor is an asbestos competent person and the workers are asbestos trained. Furthermore, the demolition work package(s) contain controls regarding asbestos.

Also, who owns the buildings now?

RESPONSE: The RTL facilities are owned by the Battelle Memorial Institute (BMI), the management and operating contractor for the U.S. Department of Energy's (DOE) Pacific Northwest National Laboratory. BMI has operated the RTL facilities exclusively for the DOE under contract # DE-AC05-76RL01830.

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From: Cameron, Craig [<mailto:Cameron.Craig@epa.gov>] Sent:

Wednesday, November 15, 2017 1:05 PM

To: Pavitt, John <[Pavitt.John@epa.gov](mailto:Pavitt.John@epa.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Buelow, Laura (EPA) <[buelow.laura@epa.gov](mailto:buelow.laura@epa.gov)>; Toebe, Wayne E <[Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)>; 'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Hopkins, Ted A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>

Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>

Subject: RE: RTL Complex Demolition

We had a good meeting. They are going to respond to your questions, John, to aid in completion of HQ review.

---

From: Pavitt, John

Sent: Wednesday, November 15, 2017 11:08 AM

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

To: Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Cameron, Craig <[Cameron.Craig@epa.gov](mailto:Cameron.Craig@epa.gov)>; Buelow, Laura <[Buelow.Laura@epa.gov](mailto:Buelow.Laura@epa.gov)>; Toebe, Wayne E <[Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)>; 'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Hopkins, Ted A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>  
Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>  
Subject: RE: RTL Complex Demolition

I will try to join the call on short notice, but might only have 15 minutes between other meetings to participate.

Update: I'm still discussing the asbestos NESHAP program requirements for this project with EPA HQ. I want to share with you the following questions that are coming to me, after sharing the information I had received already from Wayne and others. I would appreciate your help in getting answers so we can wrap up our review. Thank you.

Questions:

I can't tell from the aerial picture whether these are single or multi-story structures. If multi-story, how many stories?

The friable asbestos (e.g., thermal pipe wrap insulation) has already been removed according to the regs?

How will the concrete and other debris be collected and transported from the site?

Will the debris be disposed of in an asbestos certified landfill, or a standard C&D debris landfill?

Is any of this debris radiation contaminated? If so, will it go to the big landfill on the Hanford site?

I may have missed it but I did not notice worker protection specifications in the event that AWCM is encountered or created.

Also, who owns the buildings now?

John Pavitt  
US EPA R10, AOO/A  
(907) 271-3688

-----Original Appointment-----

From: Cameron, Craig On Behalf Of Cathel, Robert L

Sent: Wednesday, November 15, 2017 9:46 AM

To: Pavitt, John; Cameron, Craig; Buelow, Laura; Toebe, Wayne E; 'ron.gallagher@science.doe.gov'; Hopkins, Ted A Cc: Guercia, Rudolph F (Rudy)

Subject: FW: RTL Complex Demolition

When: Wednesday, November 15, 2017 12:30 PM-1:30 PM (UTC-08:00) Pacific Time (US & Canada). Where: EPA Office 825 Jadwin

John,

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

You are welcome to participate in this if you wish. You can call into our conference room number at 509 376-7182. However, I can tell them that what they have shared is very helpful and that you are simply checking the box with HQ. I mainly want them to describe how they are demolishing with regard to what is left behind radiologically and I will have our R10 Rad guy (Jim McAuley) in the room to assist.

-----Original Appointment-----

From: Cathel, Robert L [[mailto:Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)] Sent:

Wednesday, November 15, 2017 9:11 AM

To: Cathel, Robert L; Cameron, Craig; Buelow, Laura; Toebe, Wayne E; 'ron.gallagher@science.doe.gov'; Hopkins, Ted A

Cc: Guercia, Rudolph F (Rudy)

Subject: RTL Complex Demolition

When: Wednesday, November 15, 2017 12:30 PM-1:30 PM (UTC-08:00) Pacific Time (US & Canada). Where:

EPA Office 825 Jadwin

We will be in the large conference room of the EPA office on 2<sup>nd</sup> floor at the Federal Building. This meeting is to discuss non-friable asbestos that will remain in place during demolition and address radiological questions.

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

**Attachment 2c: Category II Nonfriable Asbestos Request & EPA Concurrence**

Cathel, Robert L

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From: Pavitt, John <Pavitt.John@epa.gov>  
Sent: Wednesday, January 10, 2018 4:30 PM  
To: Toebe, Wayne E; Cameron, Craig (EPA)  
Cc: Guercia, Rudolph F (Rudy); Cathel, Robert L; 'ron.gallagher@science.doe.gov'; Buelow, Laura (EPA); Dixon, Brian J; Karschnia, Paul T; Carleo, Frank J  
Subject: RE: RTL Complex Demolition

Wayne, thanks for providing the additional details. With this information, I feel comfortable that the approach is consistent with EPA's asbestos NESHAP regulations and with guidance on demolition methods.

Let me know if you have any questions.

Thanks,

John Pavitt  
US EPA R10, AOO/A  
(907) 271-3688

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From: Toebe, Wayne E [mailto:Wayne\_E\_Toebe@rl.gov]  
Sent: Wednesday, January 10, 2018 3:16 PM  
To: Pavitt, John ; Cameron, Craig  
Cc: Guercia, Rudolph F (Rudy) ; Cathel, Robert L ; 'ron.gallagher@science.doe.gov' ; Buelow, Laura ; Dixon, Brian J ; Karschnia, Paul T ; Carleo, Frank J  
Subject: RE: RTL Complex Demolition

Hello Craig and John,

Please see responses to questions below.

Thank you,  
Wayne Toebe, CHPRC Environmental Protection

---

From: Pavitt, John [mailto:Pavitt.John@epa.gov] Sent:  
Tuesday, December 12, 2017 9:50 AM  
To: Toebe, Wayne E <Wayne\_E\_Toebe@rl.gov>; Cameron, Craig (EPA) <cameron.craig@epa.gov>  
Cc: Guercia, Rudolph F (Rudy) <rudolph.guercia@rl.doe.gov>; Cathel, Robert L <Robert\_L\_Cathel@rl.gov>;  
'ron.gallagher@science.doe.gov' <ron.gallagher@science.doe.gov>; Buelow, Laura (EPA) <buelow.laura@epa.gov>;  
Dixon, Brian J <Brian\_J\_Dixon@rl.gov>; Karschnia, Paul T <Paul\_T\_Karschnia@rl.gov>; Carleo, Frank J  
<Frank\_J\_Carleo@rl.gov>

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

Subject: RE: RTL Complex Demolition

Wayne, I need additional details to comment on your approach to handling the excavation and removal of asbestos cement pipe. When Category II nonfriable ACM is cut, it becomes friable at that location and is Regulated Asbestos Containing Material.

You stated the plan is to minimize breakage and crushing of the pipe. Can you elaborate on that? For example, will the pipe sections be cut with a circular saw snapped with a chain breaker device? EPA expects that at each spot where a pipe is cut or snapped, that portion of the pipe will become crumbled, pulverized or reduced to powder. So, for example, with a total length of pipe of 1,000 linear feet, and if you cut the pipes into 10 ft-long sections, you would be making 100 cuts on the pipe, etc. Smaller sections will result in more cuts.

Q: What dust control measures will you be using for the cutting activity? We do not plan to cut the piping. We plan to mechanically lift the piping carefully to avoid crushing it and snap it into large sections for direct loading into lined ERDF containers. We will try to minimize the number of break points as best as we can and we will use amended (surfactant added) water to keep the locations of the breaks wet during the work.

Q: Will wet methods be used? Yes. See discussion above.

Q: Will lock-down or surfactant be sprayed onto each cut end, and/or will they be wrapped in plastic? Amended water will be sprayed on each cut end prior to loading into the lined ERDF container. Additionally, soil below the break location will be wetted with amended water and removed for disposal with the piping.

Q: Will HEPA vacuums be utilized with the cutting tools? We do not plan to use cutting tools or HEPA vacuums. Q: Will you stop work if wind increases? Yes. For example, work will be stopped if wind increases to the point where water suppression is uncontrollable, which is usually about 20 mph.

Q: Will a trained supervisor be on site during all pipe cutting and removal work? A trained supervisor will be on site during all asbestos abatement and removal work.

Sincerely,

John Pavitt  
US EPA R10, AOO/A  
(907) 271-3688

---

From: Toebe, Wayne E [[mailto:Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)] Sent:  
Tuesday, December 12, 2017 7:00 AM  
To: Pavitt, John <[Pavitt.John@epa.gov](mailto:Pavitt.John@epa.gov)>; Cameron, Craig <[Cameron.Craig@epa.gov](mailto:Cameron.Craig@epa.gov)>  
Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>;  
'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Buelow, Laura <[Buelow.Laura@epa.gov](mailto:Buelow.Laura@epa.gov)>; Dixon,  
Brian J <[Brian\\_J\\_Dixon@rl.gov](mailto:Brian_J_Dixon@rl.gov)>; Karschnia, Paul T <[Paul\\_T\\_Karschnia@rl.gov](mailto:Paul_T_Karschnia@rl.gov)>; Carleo, Frank J <[Frank\\_J\\_Carleo@rl.gov](mailto:Frank_J_Carleo@rl.gov)>  
Subject: RE: RTL Complex Demolition

Hello Craig and John,

Have you had a chance to review the message below?

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

Thanks!

---

From: Toebe, Wayne E

Sent: Thursday, December 07, 2017 12:50 PM

To: 'Pavitt, John' <[Pavitt.John@epa.gov](mailto:Pavitt.John@epa.gov)>; Cameron, Craig (EPA) <[cameron.craig@epa.gov](mailto:cameron.craig@epa.gov)>

Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>;

'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Buelow, Laura (EPA) <[buelow.laura@epa.gov](mailto:buelow.laura@epa.gov)>;

Dixon, Brian J <[Brian\\_J\\_Dixon@rl.gov](mailto:Brian_J_Dixon@rl.gov)>; Karschnia, Paul T <[Paul\\_T\\_Karschnia@rl.gov](mailto:Paul_T_Karschnia@rl.gov)>; Carleo, Frank J

<[Frank\\_J\\_Carleo@rl.gov](mailto:Frank_J_Carleo@rl.gov)>

Subject: RE: RTL Complex Demolition

Hello Craig and John,

In reviewing our plans for this work, it has been brought to my attention that the project had identified for removal approximately 200 feet of 4 inch piping and approximately 800 feet of 8 inch piping below-ground that is connected to some of the structures. This piping is cement-asbestos piping, which is a Category II material. We plan to access and remove the piping during demolition in a manner that minimizes breakage and avoids crushing of the pipe. This will be accomplished by removing the pipes in intact sections for loading and transport to ERDF without rendering them crumbled, pulverized or reduced to powder. If any piping is crushed during the work, it will be managed as RACM during removal and disposal.

We are asking for concurrence that this approach is consistent with EPA guidance. Please see excerpts from EPA 340-192-013 below.

Thank you,

Wayne Toebe, CHPRC Environmental Protection

### **Asbestos-Cement Pipe**

EPA considers asbestos-cement pipe to be a "facility component" (as defined in 40 CFR §61.141) of the facility which owns or utilizes the pipe. In addition, EPA considers asbestos-cement pipe to be Category II nonfriable asbestos containing material. This material becomes "regulated asbestos containing material" (RACM), as defined in 40 CFR §61.141, when it becomes "friable asbestos material" or when it "has a high probability of becoming or has become crumbled, pulverized or reduced to powder by the forces expected to act on the material during the course of demolition or renovation operations regulated by [40 CFR Part 61 Subpart M]." Consequently, the crushing of asbestos-cement pipe with mechanical equipment will cause this material to become RACM. The demolition and renovation provisions in 40 CFR §61.145 and the waste disposal provisions in 40 CFR §61.150 apply to asbestos-cement pipe where the pipe is considered RACM, and the amount of pipe being removed and crushed is at least 260 linear feet for a single renovation project or during a calendar year for individual nonscheduled operations.

### **Concrete**

At certain demolition sites demolition contractors may rent and operate large concrete-pulverizing machines called PC-400s. Since the asbestos content of concrete is rarely known, use of such machines is a matter of concern to EPA. Under no circumstances should asbestos-containing concrete, or concrete to which asbestos-containing resilient flooring is attached, be subjected to such treatment.

### **Onsite Waste Disposal**

As mentioned in other sections of this manual, using heavy machinery to crush demolition debris containing Category I or II nonfriable ACM in place prior to or during burial, can cause the ACM to become RACM subject to the provisions of sections §61.150 (waste disposal) and §61.151 (inactive waste disposal sites) or §61.154 (active waste disposal sites). If Category I or II materials are not rendered friable, they are not subject to the asbestos NESHAP.

EPA has recently responded to a question regarding the onsite disposal of crushed asbestos-cement pipe, a Category II material. The response is applicable as well to the burying of Category I material which has been sanded, ground, cut or abraded. In its correspondence EPA stated that the practice of backfilling and burying crushed asbestos-cement pipe in place causes these locations to become active waste disposal sites subject to the requirements of §61.154. Furthermore, if no additional asbestos-containing waste material is buried at that location for a year, the site becomes an inactive waste disposal site subject to the requirements of §61.151(e) and §61.154(h).

Consequently, the owner of the land would be required to comply with the requirements for active and inactive waste disposal sites.

In order to avoid the creation of a waste disposal site which is subject to the Asbestos NESHAP, it was suggested that the owners or operators of the pipe consider other options for dealing with it. If the pipe is left in-place or removed in such a way that it is not crumbled, pulverized or reduced to powder, it would not be subject to the NESHAP. If the pipe must be crushed, the creation of an active waste disposal site can be avoided by removing the pipe from the site and transporting it to a landfill which accepts asbestos waste material.

An alternative method suggested involved the pumping of grout into the buried lines which are no longer in service.

#### Waste Load Out

As mentioned previously, waste load out activities generally do not cause Category I nonfriable ACM to become RACM. Top loaders are typically used to deposit demolition debris containing Category I nonfriable ACM into trucks for hauling to landfills that accept construction debris.

Recent EPA correspondence discusses the hauling and ultimate disposal of both Category I and Category II ACM as follows:

*It is required under §61.150(a)(3) that asbestos-containing waste material be kept adequately wet. Asbestos-containing waste material as applied to demolitions and renovations includes RACM waste and materials contaminated with asbestos including disposable equipment and clothing. Category I or Category II nonfriable ACM that has been contaminated by RACM, and cannot be decontaminated (e.g., building debris in a pile contaminated with RACM) must be treated as asbestos-containing waste material. Category I or Category II ACM that does not meet the definition of RACM after a demolition or renovation, and is not contaminated with RACM, is not asbestos-containing waste material and is not subject to the wetting requirement of §61.150(a)(3).*

*Category I or II nonfriable ACM that is not subject to §61.150(a)(3) would still have to be disposed of in a landfill that accepts building debris, in a landfill that operates in accordance with §61.154, or at a facility that operates in accordance with §61.155. This waste material would not be allowed to go to any facility that would sand, grind, cut or abrade the non-RACM waste or otherwise turn it into RACM waste (such as a cement recycling facility). In addition, if Category I or II nonfriable ACM is sanded, ground, cut or abraded during disposal at a landfill, before it is buried, it is subject to the NESHAP. (See Appendix I).*

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

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From: Pavitt, John [<mailto:Pavitt.John@epa.gov>] Sent:

Monday, November 20, 2017 2:22 PM

To: Toebe, Wayne E <[Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)>; Cameron, Craig (EPA) <[cameron.craig@epa.gov](mailto:cameron.craig@epa.gov)>

Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Hopkins, Ted A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>; 'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Buelow, Laura (EPA) <[buelow.laura@epa.gov](mailto:buelow.laura@epa.gov)>; Dixon, Brian J <[Brian\\_J\\_Dixon@rl.gov](mailto:Brian_J_Dixon@rl.gov)>

Subject: RE: RTL Complex Demolition

Wayne, thank you for providing additional information about your plans. After reviewing your plan details, we find that it is consistent with the asbestos NESHAP. If you find that conditions change - for example if nonfriable ACM becomes friable from the demolition activity - you'll need to revise your plans as necessary to prevent the release of asbestos and stay in compliance with the NESHAP rule.

Let me know if you have any questions.

Thanks,

John Pavitt

US EPA R10, AOO/A

(907) 271-3688

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From: Toebe, Wayne E [[mailto:Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)] Sent:

Monday, November 20, 2017 12:00 PM

To: Pavitt, John <[Pavitt.John@epa.gov](mailto:Pavitt.John@epa.gov)>; Cameron, Craig <[Cameron.Craig@epa.gov](mailto:Cameron.Craig@epa.gov)>

Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Hopkins, Ted A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>; 'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Buelow, Laura <[Buelow.Laura@epa.gov](mailto:Buelow.Laura@epa.gov)>; Dixon, Brian J <[Brian\\_J\\_Dixon@rl.gov](mailto:Brian_J_Dixon@rl.gov)>

Subject: RE: RTL Complex Demolition

Thank you John. We are hopeful that you can wrap up your review of these demolitions soon. As we indicated last week in our meeting with Craig, we are prepared to begin demolition this Wednesday on one of the structures that contains gaskets and packing.

Wayne

---

From: Pavitt, John [<mailto:Pavitt.John@epa.gov>] Sent:

Monday, November 20, 2017 12:55 PM

To: Toebe, Wayne E <[Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)>; Cameron, Craig (EPA) <[cameron.craig@epa.gov](mailto:cameron.craig@epa.gov)>

Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Hopkins, Ted A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>; 'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Buelow, Laura (EPA) <[buelow.laura@epa.gov](mailto:buelow.laura@epa.gov)>

Subject: RE: RTL Complex Demolition

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FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

Thank you Wayne for sending me your answers to our questions.

I'll share this with my POC at HQ and let you know our response.

Sincerely,

John Pavitt  
US EPA R10, AOO/A  
(907) 271-3688

---

From: Toebe, Wayne E [[mailto:Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)] Sent:  
Friday, November 17, 2017 12:17 PM  
To: Cameron, Craig <[Cameron.Craig@epa.gov](mailto:Cameron.Craig@epa.gov)>; Pavitt, John <[Pavitt.John@epa.gov](mailto:Pavitt.John@epa.gov)>  
Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Hopkins, Ted  
A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>; 'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Buelow, Laura  
<[Buelow.Laura@epa.gov](mailto:Buelow.Laura@epa.gov)>  
Subject: RE: RTL Complex Demolition

Hello Craig and John,

Please see responses below to your recent questions. Thanks!

Questions:

I can't tell from the aerial picture whether these are single or multi-story structures. If multi-story, how many stories?

RESPONSE: These are all single story structures (mostly butler style buildings); one structure, RTL-520, has a partial basement.

The friable asbestos (e.g., thermal pipe wrap insulation) has already been removed according to the regs?

RESPONSE: The friable asbestos has been removed by a remediation contractor. There are six remaining areas within RTL-520 that will have friable asbestos removed prior to demolition once obstructions have been removed.

How will the concrete and other debris be collected and transported from the site?

RESPONSE: There is no cementitious asbestos board within the RTL complex. Generally speaking, demolition debris will be loaded into RO/RO containers for transportation to the Environmental Restoration Disposal Facility at Hanford.

Will the debris be disposed of in an asbestos certified landfill, or a standard C&D debris landfill? RESPONSE:

Yes, all ACM/PACM will be disposed in the ERDF.

Is any of this debris radiation contaminated? If so, will it go to the big landfill on the Hanford site? RESPONSE:

Some will be and it will be disposed in the ERDF.

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

I may have missed it but I did not notice worker protection specifications in the event that AWCM is encountered or created.

RESPONSE: The project field work supervisor is an asbestos competent person and the workers are asbestos trained. Furthermore, the demolition work package(s) contain controls regarding asbestos.

Also, who owns the buildings now?

RESPONSE: The RTL facilities are owned by the Battelle Memorial Institute (BMI), the management and operating contractor for the U.S. Department of Energy's (DOE) Pacific Northwest National Laboratory. BMI has operated the RTL facilities exclusively for the DOE under contract # DE-AC05-76RL01830.

---

From: Cameron, Craig [<mailto:Cameron.Craig@epa.gov>] Sent:  
Wednesday, November 15, 2017 1:05 PM  
To: Pavitt, John <[Pavitt.John@epa.gov](mailto:Pavitt.John@epa.gov)>; Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Buelow, Laura (EPA) <[buelow.laura@epa.gov](mailto:buelow.laura@epa.gov)>; Toebe, Wayne E <[Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)>; 'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Hopkins, Ted A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>  
Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>  
Subject: RE: RTL Complex Demolition

We had a good meeting. They are going to respond to your questions, John, to aid in completion of HQ review.

---

From: Pavitt, John  
Sent: Wednesday, November 15, 2017 11:08 AM  
To: Cathel, Robert L <[Robert\\_L\\_Cathel@rl.gov](mailto:Robert_L_Cathel@rl.gov)>; Cameron, Craig <[Cameron.Craig@epa.gov](mailto:Cameron.Craig@epa.gov)>; Buelow, Laura <[Buelow.Laura@epa.gov](mailto:Buelow.Laura@epa.gov)>; Toebe, Wayne E <[Wayne\\_E\\_Toebe@rl.gov](mailto:Wayne_E_Toebe@rl.gov)>; 'ron.gallagher@science.doe.gov' <[ron.gallagher@science.doe.gov](mailto:ron.gallagher@science.doe.gov)>; Hopkins, Ted A <[Ted\\_A\\_Hopkins@rl.gov](mailto:Ted_A_Hopkins@rl.gov)>  
Cc: Guercia, Rudolph F (Rudy) <[rudolph.guercia@rl.doe.gov](mailto:rudolph.guercia@rl.doe.gov)>  
Subject: RE: RTL Complex Demolition

I will try to join the call on short notice, but might only have 15 minutes between other meetings to participate.

Update: I'm still discussing the asbestos NESHAP program requirements for this project with EPA HQ. I want to share with you the following questions that are coming to me, after sharing the information I had received already from Wayne and others. I would appreciate your help in getting answers so we can wrap up our review. Thank you.

Questions:

I can't tell from the aerial picture whether these are single or multi-story structures. If multi-story, how many stories?

The friable asbestos (e.g., thermal pipe wrap insulation) has already been removed according to the regs?

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

How will the concrete and other debris be collected and transported from the site?

Will the debris be disposed of in an asbestos certified landfill, or a standard C&D debris landfill?

Is any of this debris radiation contaminated? If so, will it go to the big landfill on the Hanford site?

I may have missed it but I did not notice worker protection specifications in the event that AWCM is encountered or created.

Also, who owns the buildings now?

John Pavitt  
US EPA R10, AOO/A  
(907) 271-3688

-----Original Appointment-----

From: Cameron, Craig On Behalf Of Cathel, Robert L

Sent: Wednesday, November 15, 2017 9:46 AM

To: Pavitt, John; Cameron, Craig; Buelow, Laura; Toebe, Wayne E; 'ron.gallagher@science.doe.gov'; Hopkins, Ted A Cc: Guercia, Rudolph F (Rudy)

Subject: FW: RTL Complex Demolition

When: Wednesday, November 15, 2017 12:30 PM-1:30 PM (UTC-08:00) Pacific Time (US & Canada). Where: EPA Office 825 Jadwin

John,

You are welcome to participate in this if you wish. You can call into our conference room number at 509 376-7182. However, I can tell them that what they have shared is very helpful and that you are simply checking the box with HQ. I mainly want them to describe how they are demolishing with regard to what is left behind radiologically and I will have our R10 Rad guy (Jim McAuley) in the room to assist.

-----Original Appointment-----

From: Cathel, Robert L [<mailto:Robert.L.Cathel@rl.gov>] Sent:

Wednesday, November 15, 2017 9:11 AM

To: Cathel, Robert L; Cameron, Craig; Buelow, Laura; Toebe, Wayne E; 'ron.gallagher@science.doe.gov'; Hopkins, Ted A Cc: Guercia, Rudolph F (Rudy)

Subject: RTL Complex Demolition

When: Wednesday, November 15, 2017 12:30 PM-1:30 PM (UTC-08:00) Pacific Time (US & Canada). Where: EPA Office 825 Jadwin

We will be in the large conference room of the EPA office on 2<sup>nd</sup> floor at the Federal Building. This meeting is to discuss non-friable asbestos that will remain in place during demolition and address radiological questions.

**Attachment 3: Underlying Soil****Verification Sampling**

Post demolition activities included evaluation of the soils remaining following completion of the removal action. This evaluation demonstrated that the areas affected by the removal action require no further response action because they meet release limits the survey report (Golovich et al., 2019a) and sampling report (Golovich et al., 2019b). The Contaminants of Potential Concern (COPCs) are included in Table 1.

**Table 1. Contaminants of Potential Concern**

Radionuclides	PCBs	TPH	Pesticides	VOCs	Metals
Plutonium-238	Aroclor 1016	Diesel Range Organics (DRO)	4,4'-DDD	Methylene Chloride	Arsenic
Plutonium - 239/240	Aroclor 1254	Gasoline Range Organics (GRO)	4,4'-DDE		Beryllium
Plutonium-241	Aroclor 1260		4,4'-DDT		Cadmium
Uranium-234			Dieldrin		Chromium
Uranium-235					Lead
Uranium-238					Mercury
Cobalt-60					Zinc

Following the removal activities, verification sampling was conducted to confirm that concentrations of COPCs in the remaining soil are less than the release limits set in the SAP and Survey Plan. This information was used to demonstrate that the release objectives were met, and the property is ready for unrestricted use in accordance with the State of Washington Model Toxics Control Act (MTCA) (Washington Administrative Code [WAC] 173-340) and U.S. Department of Energy (DOE) Order 458.1 (DOE O 458.1 Chg 3).

The action levels and release limits for radiological COPCs and non-radiological COPCs are defined below.

- Action level – The term “action level” is a concentration in the soil of a COPC that requires further investigation before the land can be released for unrestricted use.
  - A chemical contaminant concentration that is 90% of the release limit established to meet unrestricted use as defined in the State of Washington MTCA limits (WAC 173-340) and sampling report (Golovich et al., 2019b).
  - A radiological contaminant concentration that is 75% of the authorized limit established to meet unrestricted use and as defined in DOE Order 458.1 (DOE O 458.1 Chg 3) and survey report (Golovich et al., 2019a).
- Release limit – The term “release limit” refers to the concentration in the soil of a COPC, below which the area can be released.

## FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

- A chemical contaminant concentration that does not exceed the unrestricted use levels established to meet MTCA (WAC 173-340).
- A radiological contaminant concentration does not exceed the authorized limit established to meet DOE Order 458.1 (DOE O 458.1 Chg 3).

The sampling process design includes where, when, and how samples are taken. The primary objective of the sampling design process is to obtain data that represent the environment being investigated and to meet the release objectives of the project. The SAP and Survey Plan provide a mechanism for planning, implementing, and approving field activities, and the measurement results required to meet DQOs.

The RTL Complex was segregated into six survey units (Bunn et al., 2018a and 2018b) based on MARSSIM recommendations for site classification. The six survey units within the RTL Complex can be classified as either excavated areas or unexcavated areas. Excavated areas include the following:

- RTL 520 Building footprint
- RTL Tank Vault and RTL 530 Building footprints
- RTL 510, 524, 540, 550, 560, 570, 580, and 590 Buildings footprints
- Pipelines

Unexcavated areas include the following:

- Paved areas
- Open areas

Two soil stockpiles were created from soil removed from the RTL 520 survey unit (herein referred to as layback). Layback is defined as “clean” material resulting from excavation. Layback soil was removed from the excavation of RTL 520 to create a slope upon which the soil will not fall back or collapse into the excavation pit. Criteria for the layback material is as follows:

- Included soil removed from the layback area around the RTL 520 basement and that portion of the main sewer line that lies west of a point no less than 6.1 m (20 ft) from the west side of the RTL 520 Tank Vault,
- Verified as not radioactively contaminated above the detection limits of handheld instrumentation used during routine in-process radiological surveys,
- Free of staining and other visual indicators of possible contamination, and
- Did not include soil from around the layback area of the RTL 520 Tank Vault.

These layback stockpiles essentially created a seventh “survey unit”. The layback soil was sampled as delineated in the survey report (Golovich et al., 2019a) and sampling report (Golovich et al., 2019b).

The sampling design includes three types of locations for collecting samples: random sample, specific judgmental sample, and field judgmental sample.

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The selection of random samples, per survey unit, is in accordance with Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) (NUREG-1575) for Class 3 surface areas. Judgmental samples will be collected within a survey unit in addition to the random samples, and these locations are based on past information and professional judgement. There will be two types of judgmental samples: specific judgmental samples (based on past information) and field judgmental samples (based on field observations during demolition and excavation).

At each sample location within a survey unit, one soil sample will be collected; then the soil will be divided to provide the analytical laboratories with aliquots from that soil sample for all analyses. The goal is to make sure the soil collected is divided in a manner such that it represents the same material for all analyses. This may require homogenization of the soil in a manner that is appropriate for the analytical methods and to maintain representativeness of the sample.

The RTL Complex with legal property line is provided in Figure 1. The relative sample locations (Random and Specific Judgmental) are provided in Figure 2.

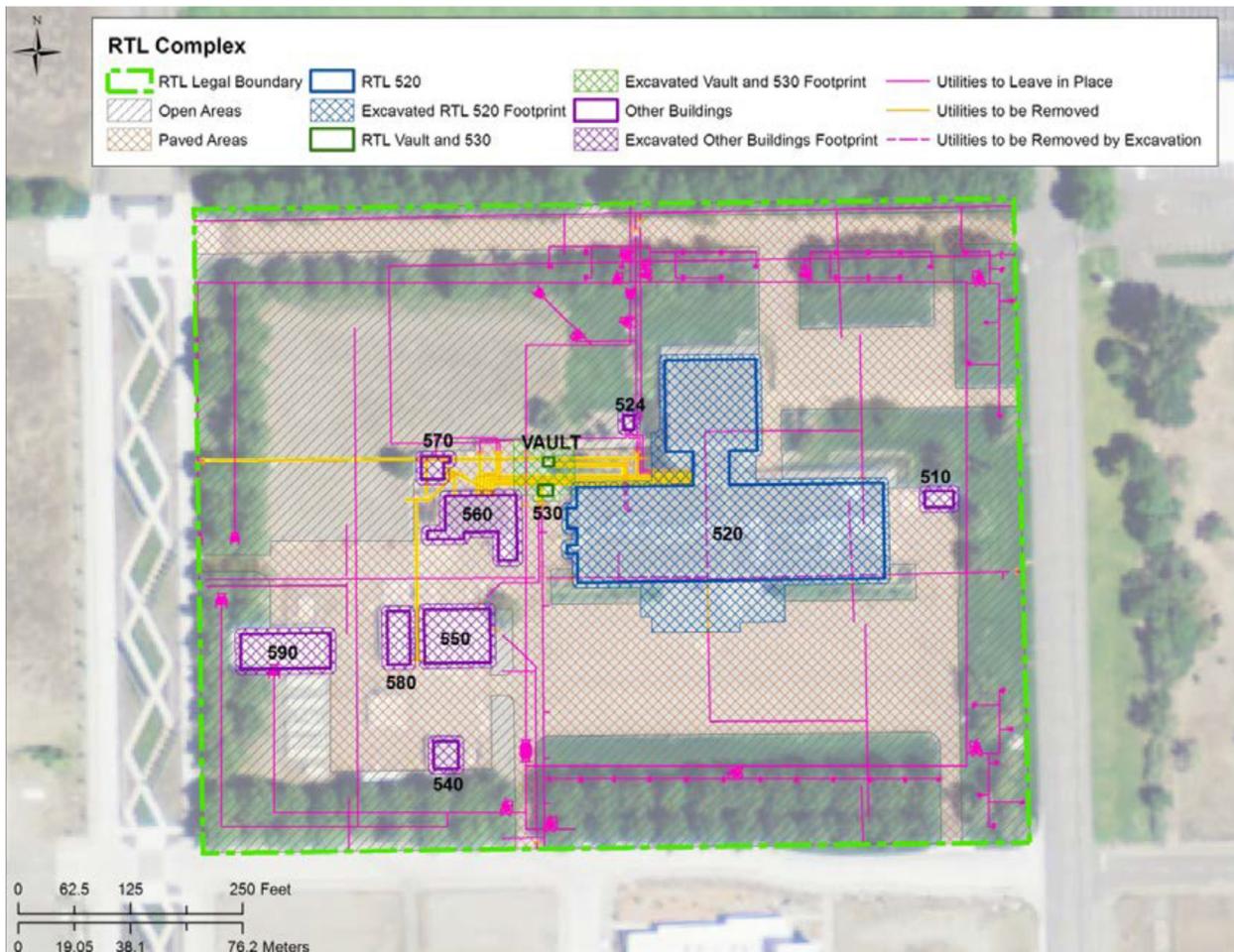
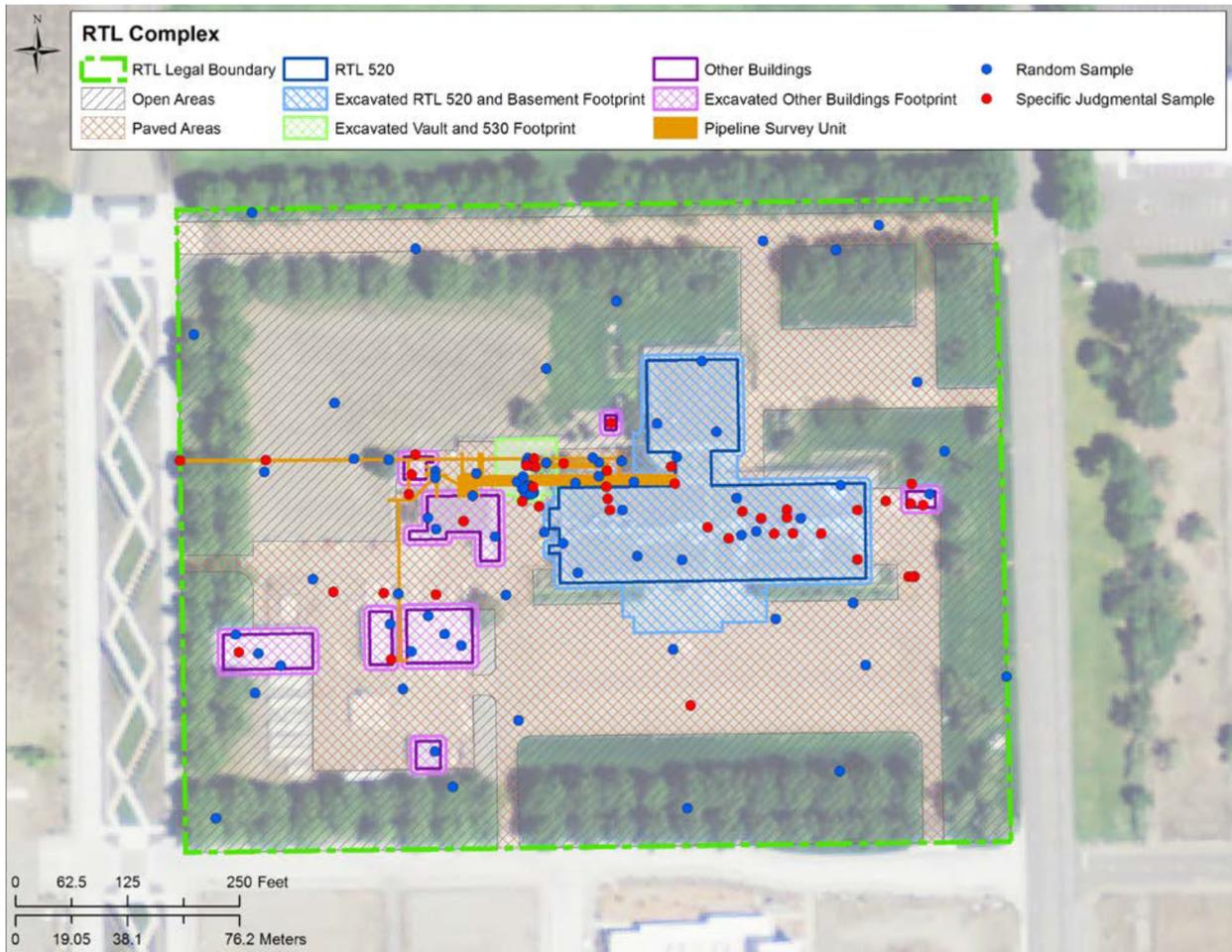


Figure 1. RTL Complex with Legal Property Line

# FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01



**Figure 2. Summary of All Random and Specific Judgmental Samples for the RTL Complex**

## Comparison of Sample Results to Release Limits

Table 2 provides a direct comparison of verification sample analytical results for each radiological COPC against the established action levels and release limits for the RTL Complex. Table 3 provides a direct comparison of verification sample analytical results for each nonradiological COPC against the established action levels and release limits for the RTL Complex.

FACILITY STATUS CHANGE FORM

Control Number: D4-RTL-01

**Table 2. Comparison of Verification Sample Results against Action Levels and Release Limits for Radiological COPCs**

Radionuclide	Action Level (pCi/g)	Release Limit (pCi/g)	Maximum Concentration in Soil (pCi/g)	Does the Maximum Exceed the Action Level or Release Limits?
Plutonium-238	600	800	0.238	No
Plutonium-239/240	555	740	0.032	No
Plutonium-241	22,500	30,000	5.46	No
Uranium-234	525	700	0.451	No
Uranium-235	45	60	0.0522	No
Uranium-238	210	280	0.337	No
Cobalt-60	2.8	3.7	0.109	No

**Table 3. Comparison of Verification Sample Results against Action Levels and Release Limits for Nonradiological COPCs**

Contaminant of Potential Concern	Action Level (mg/kg)	Release Limit (mg/kg)	Maximum Concentration in Soil (mg/kg)	Does the Maximum Exceed the Action Level or Release Limits?
Aroclor 1016	1.8	2.0	0.012	No
Aroclor 1254	1.8	2.0	0.016	No
Aroclor 1260	1.8	2.0	0.016	No
Diesel Range Organics	414	460	16.3	No
Gasoline Range Organics	90	100	0.0324	No
4,4'-DDD	0.9	1	0.0024	No
4,4'-DDE	0.9	1	0.047	No
4,4'-DDT	0.9	1	0.024	No
Dieldrin	0.0563	1	0.012	No
Methylene Chloride	0.018	0.02	0.00361	No
Arsenic, inorganic	18	20	7.8	No
Beryllium	22.5	25	0.67	No
Cadmium	1.8	2	0.48	No
<b>Chromium (total)</b>	<b>37.8</b>	<b>42</b>	<b>52.6</b>	<b>Yes</b>
Lead	198	220	26.4	No
Mercury	1.8	2	0.43	No
Zinc	243	270	143	No

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Contaminant of Potential Concern	Action Level (mg/kg)	Release Limit (mg/kg)	Maximum Concentration in Soil (mg/kg)	Does the Maximum Exceed the Action Level or Release Limits?
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Notes: A single chromium result from the J-4 location within the RTL 520 building survey unit exceeded the release limit (42 mg/kg) with a reported value of 52.6 mg/kg. A review of adjacent sample location results (maximum 13.2 mg/kg) and historical records found no evidence to explain the anomalous result. Therefore, a request was made for the performing laboratory to conduct a confirmatory analysis utilizing the remaining soil from sample J-4 using the same method of the initial analysis (SW-846 Method 6020B) and an alternate method (SW-846 Method 6010D). Analysis from the two methods reported values of 7.3 mg/kg and 6.9 mg/kg chromium respectively. The values reported from the rerun fall into the range of values observed throughout the four survey units.

The release limit of 42 mg/kg chromium is found in tables 749-2 and 749-3 of the Washington Administrative Code (WAC) 173-340-900 related to Priority Contaminants of Ecological Concern for Sites that Qualify for the Simplified Terrestrial Ecological Evaluation Procedure and Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals. A footnote associated with the release value states that the benchmark value was replaced by the Washington State natural background concentration. Ecology Publication 94-115 described the study in which Ecology calculated natural background concentrations for 12 elements in Washington State using statewide 90<sup>th</sup> percentile values. Using the statewide background data set, the 90<sup>th</sup> percentile value for chromium was calculated to be 42 mg/kg. This means that 10% of the data set had values that exceed the 42 mg/kg with a maximum observed value of 100.3 mg/kg from the eastern region used in the study. Ecology Publication 94-115 also provides information on use and application of the background values within the report stating that no single sample concentration shall be greater than two times the 90<sup>th</sup> percentile value, if background values are used as cleanup levels. Given this statement, the anomalous chromium result of 52.6 mg/kg measured at location J-4 of the RTL 520 building survey unit was less than two times background (42 mg/kg) and should not be an adverse indicator for the overall data evaluation of COPC results toward the end state and does not pose a risk to release decision-making at the RTL complex. (Golovich et al., 2019a) and (Golovich et al., 2019b).

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**Attachment 4: Removal Action – Before, During, & After Photographs**

Figure 1 pictures the RTL Complex prior to demolition activities. Figure 2 shows fixed radiological decontamination using a concrete scabber. Figures 3 and 4 are photographs during demolition. Lastly, Figures 5 and 6 are post demolition/excavation and site stabilization photographs.



**Figure 1: RTL Complex prior to Demolition.**



Figure 2: Fixed radiological decontamination with concrete scabblers.

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**Figure 3. RTL Complex during Demolition.**



**Figure 4. RTL Complex during Demolition (2)**

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**Figure 5. RTL Complex after Demolition and Excavation.**



**Figure 6. RTL Complex after partial backfill and site stabilization.**

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**Attachment 5: References**

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